

**AN ANALYSIS OF THE RENEWABLE ENERGY REGIME IN NIGERIA
THROUGH THE LENS OF ENERGY JUSTICE: LESSONS FROM THE UK**

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ABSTRACT

Nigeria has an abundance of energy resources including coal, oil and gas, and renewables. However, these resources have not been effectively deployed to promote energy security, energy equity and environmental sustainability (energy trilemma). Moreover, renewable energy sources (RES) have been identified in law and policy instruments as being key to accelerating energy security, energy access, and emission reduction in Nigeria.

This thesis observes that the extant legal framework is inadequate to facilitate RES development in Nigeria. The thesis therefore argues that the development of a comprehensive RES planning and consenting regime comprising strategic plans, policies, robust institutions, support schemes, and fiscal measures underpinned by renewable energy legislation, is germane to facilitate widespread deployment of RES infrastructure. It is further argued that the deployment of grid, off-grid and mini-grid RES technology will address issues of energy security, energy access and tackle energy poverty. Given that RES technology is not environmentally benign, a comprehensive RES planning and consenting regime will engender the conduct of relevant environmental, socio-cultural, and economic impact assessments of RES developments. Furthermore, the thesis acknowledges that oil and gas are the mainstays of the Nigerian economy, accounting for over 70% of the country's national revenue as well as supporting jobs, host communities, and indigenous peoples. Thus, the transition from fossil fuels to RES should be carried out within the confines of energy justice to foster a just energy transition which mitigates the adverse impacts of the transition on these affected groups.

Having effectively implemented legislation, policy and programmes, institutions, support schemes, and fiscal measures to maximise its RES potential, the UK RES planning and consenting regime provides a workable exemplar for Nigeria to learn from. Similarly, the incorporation of just transition principles in the Scottish regime and a practical example of a people-centred energy transition programme offers a useful guide for Nigeria. The thesis contends that the implementation of a just energy transition tailored to domestic circumstances is fundamental to promoting energy justice.

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LIST OF ABBREVIATION

AfCFTA	African Continental Free Trade Area
APERC	Asia Pacific Energy Research Centre
BEIS	Department for Business, Energy and Industrial Strategy
CAC	Corporate Affairs Commission
CBDR&RC	Common but Differentiated Responsibility and Respective Capabilities
CBA	Cost Benefit Analysis
CCC	Committee on Climate Change
CCF	Climate Change Fund
CCGT	Combined Cycle Gas Turbines
CCS	Carbon Capture and Storage
CfD	Contracts for Difference
CM	Capacity Market
CMA	Competition and Markets Authority
CPF	Carbon Price Floor
CSR	Corporate Social Responsibility
DECC	Department of Energy and Climate Change
ECN	Energy Commission of Nigeria
ECOWAS	Economic Community of West African States
EFCC	Economic and Financial Crimes Commission
EIA	Environmental Impact Assessment
EMR	Electricity Market Reform
ESG	Environmental, Social and Governance

ETA	Energy Transition Act
ETF	Energy Transition Fund
ETP	Energy Transition Plan
ETS	Emission Trading Scheme
FIT	Feed-in Tariff
GBF	Global Biodiversity Framework
GDP	Gross Domestic Product
GDR	Generation Disclosure Requirement
GEMA	Gas and Electricity Market Authority
GHG	Greenhouse Gas
HRA	Habitat Regulations Assessment
IEA	International Energy Agency
ILO	International Labour Organisation
IOC	International Oil Company
IPCC	Intergovernmental Panel on Climate Change
IPP	Independent Power Producer
IRENA	International Renewable Energy Agency
LCCC	Low Carbon Contract Company
LNG	Liquified Natural Gas
LPA	Local Planning Authority
MDGs	Millennium Development Goals
MOU	Memorandum of Understanding
MYTO	Multi-Year Tariff Order
NAPTIN	National Power Training Institute of Nigeria

NBET	Nigerian Bulk Electricity Trading Plc
NBPI	Nigerian Biofuel Policy and Incentives
NCC	Nigerian Communications Commission
NDCs	Nationally Determined Contribution
NEMSA	Nigerian Electricity Management Services Agency
NESREA	National Environmental Standards Regulatory and Enforcement Agency
NEP	National Energy Policy
NEPA	National Electric Power Authority
NERC	Nigerian Electricity Regulatory Commission
NIMBY	Not in My Backyard
NITEL	Nigeria Telecommunications Ltd
NNPC	Nigerian National Petroleum Corporation
NOTAP	National Office for Technology Acquisition and Promotion
NREAP	National Renewable Energy Action Plan
NREEEP	National Renewable Energy and Energy Efficiency Policy
Ofgem	Office of Gas and Electricity Market
OPEC	Organisation of Petroleum Exporting Countries
PCOA	Put-Call Option Agreement
PHCN	Power Holding Company of Nigeria
PPA	Power Purchase Agreement
REAP	Renewable Electricity Action Programme
REMP	Renewable Energy Master Plan
REPG	Renewable Electricity Policy Guidelines

RES	Renewable Energy Sources
REA	Rural Electrification Agency
REF	Rural Electrification Fund
RO	Renewables Obligation
ROC	Renewables Obligation Certificates
RPS	Renewable Energy Portfolio Standards
SDGs	Sustainable Development Goals
SEA	Strategic Environmental Assessment
SEPA	Scottish Environmental Protection Agency
SERC	Sokoto Energy Research Centre
SNH	Scottish Natural Heritage
SON	Standards Organization of Nigeria
TCN	Transmission Company of Nigeria
UNDRIP	United Nations Declaration on the Rights of Indigenous Peoples
UNFCCC	United Nations Framework Convention on Climate Change
WAPP	West African Power Pool
WEC	World Energy Council
WETI	World Energy Trilemma Index

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DEDICATION

This thesis is dedicated to God Almighty who has helped me and bestowed me with strength on this journey.

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CHAPTER 1 – INTRODUCTION

1.1 Introduction

This thesis sets out to analyse the legal framework supporting the development of renewable energy sources (RES) for electricity generation and domestic fuel in Nigeria and the United Kingdom. This analysis will be carried out by evaluating how effective the RES regimes of Nigeria and the UK have been in balancing their energy trilemma and promoting energy justice and a just transition.

It will be argued in this thesis that a RES planning and consenting regime¹ is necessary to facilitate the effective deployment of RES infrastructure to promote energy security, energy equity and environmental sustainability whilst also guaranteeing energy justice. This thesis will assess key themes such as domestic legislation, policy, institutions, and support schemes in both jurisdictions. These themes will be analysed in the context of the UK regime and the Scottish regime (particularly the Scottish RES planning and consenting regime, energy justice and just transition in Scotland), and the Nigerian regime (with some analyses of powers of state/ regional governments to regulate energy development). International instruments such as the United Nations Framework Convention on Climate Change (UNFCCC), the Paris Agreement, the Convention on Biological Diversity and its Global Biodiversity Framework will briefly be considered as they affect domestic laws and circumstances.

Whilst the primary focus of this thesis is on renewable energy for electricity and domestic fuel, other energy sources such as fossil fuels (coal, oil and gas) and nuclear energy will be discussed briefly to provide context.

1.2 Contextual Background

One of the greatest threats facing this generation is climate change.² As a result, the link between energy use and the emission of carbon dioxide and other greenhouse gases has increased the need to ensure energy efficiency and the development of technologies that encourage low carbon emissions.³

¹ Planning and consenting regime in the context of this thesis is defined in section 1.3.3 of this chapter.

² Barrack Obama, 'Remarks by the President in State of the Union Address' (January 20, 2015) available at <https://obamawhitehouse.archives.gov/the-press-office/2015/01/20/remarks-president-state-union-address-january-20-2015> assessed 14 March 2019

³ Matthew Leach and Sandip Deshmukh, 'Sustainable Energy Law and Policy' in Karen E Makuch and Ricardo Pereira (eds), *Environmental and Energy Law* (Blackwell Publishing Ltd 2012) 120.

The quest for alternative sources of energy has elevated the status of renewable energy, hence at the United Nations Conference on Sustainable Development 2012 held in Rio de Janeiro, clean energy was named as one of the Sustainable Development Goals (SDGs) – Goal 7.⁴ Though energy is not named as one of the basic human needs by the World Bank, however, to enjoy food and water, shelter, health, education and employment, there is a need for energy. This makes energy a ‘derived demand’.⁵

Fossil fuels such as coal, oil and gas, alongside nuclear energy have been developed to meet this need for energy.⁶ However, fossil fuels are harmful to the environment; and nuclear energy can result in the release of radiation pollution with adverse impacts on the environment.⁷ These activities have resulted in adverse impacts on the environment including climate change, rising sea levels, increased heat levels, natural disasters, droughts, and desertification among others.⁸ It is important to observe that although the burning of fossil fuel in energy generation is the major cause of emissions, there are high volumes of emissions resulting from non-fossil fuel-related activities in construction, manufacturing, agriculture, transportation, heating in buildings and industrial sectors.⁹ These emission-intensive activities have been carried out mostly in developed countries.¹⁰

Historically, the UK and other developed countries have benefitted the most from fossil fuel consumption to promote economic development in their respective countries, thereby contributing about two-thirds of the carbon emission resulting in climate change.¹¹ Given the devastating effects of climate change, the decarbonisation of the energy sector has become exigent and developed countries are better positioned to address climate change mitigation and adaptation including through the development of alternative and sustainable energy sources. Conversely, although Nigeria and the entire Sub-Saharan Africa account for only a paltry 3%

⁴ United Nations Development Programme, ‘Sustainable Development Goals’ available at <https://www.undp.org/content/undp/en/home/sustainable-development-goals.html> accessed 19 March 2019

⁵ *ibid*

⁶ Nicholas Stern, ‘The Economics of Climate Change: The Stern Review’ (2006), p. 12 available at http://mudancasclimaticas.cptec.inpe.br/~rmclima/pdfs/destaques/sternreview_report_complete.pdf accessed 15 March 2019

⁷ *ibid*. The Chernobyl disaster of 1986 and the Fukushima Daiichi nuclear disaster of 2011 are two examples of the environmental impacts of nuclear energy.

⁸ Uma Outka, ‘Environmental Justice Issues in Sustainable Development: Environmental Justice in the Renewable Energy Transition’ (2012) 19 *Journal of Environmental and Sustainability Law* 67.

⁹ United States Environmental Protection Agency, ‘Greenhouse Gas Emissions’ available at <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions> accessed 08 April 2019

¹⁰ World Bank, ‘Data: CO2 Emissions (Metric Tons Per Capita)’ available at: <https://data.worldbank.org/indicator/EN.ATM.CO2E.PC?view=chart> accessed 9 January 2024

¹¹ Benjamin Sovacool et al, ‘Energy Decisions Reframed as Justice and Ethical Concerns’ (2016) 1 *Nature Energy* 1, 4.

of emissions globally,¹² they are more vulnerable to the adverse impacts of climate change. Hence the need for law to address these issues.

The turn of the century has witnessed an upsurge in various discourses on environmental law resulting in various international instruments aimed at protecting the environment.¹³ Consequently, the comity of nations at various fora has undertaken to be bound by different forms of commitments to minimise environmental pollution emanating from their respective countries.¹⁴ In furtherance of their national commitments, many countries have enacted laws and established systems to monitor their compliance with these commitments.¹⁵ Emission reduction targets including carbon neutrality commonly called ‘net-zero emission’ have been set by countries and even incorporated in statutes.¹⁶ However, it is pertinent to note that the efforts of national governments to reduce emissions from electricity have not been replicated in other sectors.¹⁷ Nevertheless, there has been an increasing drive to develop low/zero carbon energy alternatives to drive development.

It is important to define what law means in the context of this thesis as this understanding is essential to distinguish law from policy. This thesis will adopt the definition of law stated in *Ogunniyi v Hon. Minister of FCT*,¹⁸ where law was defined as, ‘...any law enacted or having effect as if enacted by the legislature of a state and includes any instrument having the force of law which is made under a law,’ Law was further defined as, ‘... a body of rules of action or conduct prescribed by controlling authority, and having binding legal force....’¹⁹ The phrases ‘force of law’ and ‘binding legal force’ entails that the provisions of the law are both mandatory and enforceable by state institutions for example regulators in the case of individuals and corporate entities or the courts in the case of public officials and institutions.²⁰ In *Ogundipe v*

¹² *ibid*

¹³ Conventions such as the United Nations Conference on the Human Environment (1972), Vienna Convention for the Protection of the Ozone Layer (1985), United Nations Framework Convention on Climate Change (1992), United Nations Conference on Sustainable Development (2012)

¹⁴ See Kyoto Protocol to the United Nations Framework Convention on Climate Change (adopted 11 December 1997, entered into force 16 February 2005) 2303 UNTS 162 (Kyoto Protocol) and Conference of the Parties to the United Nations Framework Convention on Climate Change, Paris Agreement (adopted 13 December 2015) FCCC/CP/2015/10/Add.1 (Paris Agreement 2015)

¹⁵ See Climate Change Act 2008 (UK) and Climate Change Act 2021 (Nigeria)

¹⁶ The UK’s emission reduction targets are contained in the Climate Change Act 2008, s 1.

¹⁷ Committee on Climate Change, Reducing UK Emissions: 2019 Progress Report to Parliament, (CCC July 2019) 27

¹⁸ (2014) Law Pavilion Electronic Law Report 23164 (CA)

¹⁹ *ibid*

²⁰ Garrett Barden & Tim Murphy, ‘The Force of Law’, in Garrett Barden & Tim Murphy (eds.), *Law and Justice in Community*, (OUP, 2010) 219-230

The Minister of FCT,²¹ policy was defined as, ‘...a set of ideas or a plan of what to do in particular situations that has been agreed officially by a...government or political party.... It is the general principles by which a government is guided in its management of public affairs.’ Unlike law, policy does not have the force of law and is not legally binding unless the policy is made under a law.²²

Renewable energy is viewed as a sustainable alternative to conventional energy sources. It is particularly appealing because every country has various forms of renewable energy resources thereby having the potential of attaining energy sufficiency; and it is non-depletable.²³ The exploitation of wind, solar, hydro, and biomass have been identified as a sustainable means of meeting the energy demands of countries, and in most cases, with minimal adverse impacts on the planet.²⁴ However, the development of these renewable energy sources (RES) requires the establishment of a robust planning and consenting framework comprising policies, legislation, institutions, fiscal measures, and support schemes.

In the UK, the RES planning and consenting regime is well developed and is founded on laws such as the Energy Act 2013, Climate Change Act 2008, and the Electricity Act 1989. These instruments create institutions, a system of support schemes to encourage RES development as well as fiscal measures to discourage carbon emissions.²⁵ Effective implementation of these measures has resulted in an increase in the UK’s energy production from renewable resources to guarantee security of supply, promoted energy access and reduce carbon emissions.²⁶

The picture is different in Nigeria. Although the country has abundant supplies of renewable energy resources, the country has been unable to optimise these resources to tackle energy insecurity because of inadequate legal framework to support RES deployment. Moreover, over 56% of the population does not have access to energy services and carbon emissions from

²¹ (2014) Law Pavilion Electronic Law Report- 22771 (CA)

²² See *Ogunniyi v Hon Minister of FCT* (n 18)

²³ Intergovernmental Panel on Climate Change, *Report on Renewable Energy Sources and Climate Change Mitigation* (IPCC Special Report, 2012) 165

²⁴ The adverse impacts of renewable energy sources are discussed in section 1.12 of this chapter.

²⁵ Emission trading is a scheme which aims to penalise carbon emission and incentivise emission reduction. See Introductory Text, Greenhouse Gas Emissions Trading Scheme Order 2020, SI 2020/1265; see also BEIS, ‘Participating in the UK ETS’ available at: <https://www.gov.uk/government/publications/participating-in-the-uk-ets/participating-in-the-uk-ets> accessed 16 March 2022

²⁶ Department for Energy & Net Zero, ‘Digest of UK Energy Statistics Annual data for UK, 2022’ available at: https://assets.publishing.service.gov.uk/media/64f1fcba9ee0f2000db7bdd8/DUKES_2023_Chapters_1-7.pdf accessed 5 February 2024

petroleum production remain a challenge.²⁷ Nigeria's inability to promote widespread RES development is due to the lack of a comprehensive planning and consenting framework to support RES development. This is further exacerbated by the lack of funds and technical capabilities for RES development. Moreover, until the enactment of the Electricity Act 2023 (EA 2023), Nigeria's RES objectives were underpinned by non-binding policies and programmes such as the National Renewable Energy and Energy Efficiency Policy (NREEEP) and Renewable Energy Master Plan (REMP).²⁸ This was further compounded by the lack of any substantive provision for RES development in the now repealed Electric Power Sector Reform Act (EPSRA) 2005, which was the primary electricity law. This has now been remedied by EA 2023.²⁹ The culmination of these factors hindered Nigeria's ability to attain energy security, access to affordable energy and environmental sustainability – which is known as the 'energy trilemma'.

The definition of sustainable energy by the World Energy Council (WEC) is founded upon the three fundamental pillars of energy security, energy equity and environmental sustainability.³⁰ Navigating through the intricacies of these three principles to achieve stability poses a trilemma in the energy debate.³¹ Beyond balancing the energy trilemma, concerns about justice in the energy transition have given rise to a new movement for energy justice.

While some scholars have argued that energy justice can be subsumed under energy equity, others are of the view that the complexities of energy justice can best be addressed by emphasising its role in an expanded energy quadrilemma.³² For the purposes of this thesis, energy justice is viewed independently as a golden thread that runs through all aspects of the energy trilemma.³³

²⁷ Although Nigeria is the 14th largest producer of crude oil (formerly 7th), its petroleum resources have not improved energy availability or access in the country due to corruption and mismanagement. Nigeria's energy situation is discussed in section 4.2.

²⁸ Renewable energy policies are discussed in section 4.5, chapter 4 of this thesis.

²⁹ Electricity Act 2023, pt XVII

³⁰ Oliver Wyman, 'World Energy Trilemma,' available at <https://www.worldenergy.org/work-programme/strategic-insight/assessment-of-energy-climate-change-policy/> accessed 15 March 2019; see also Meijing Song et al, 'Examining the Energy Trilemma Index and the Prospects for Clean Energy Development' (2023) 122 *Gondwana Research* 11

³¹ *ibid*

³² See Tedd Moya Mose, 'Energy and Climate: The Dilemma, Trilemma, and Quadrilemma' available at: <https://icpac.medium.com/energy-and-climate-the-dilemma-trilemma-and-quadrilemma-839a8d657369> accessed 06 January 2023; see also Raphael J. Heffron, Darren McCauley & Benjamin Sovacool, 'Resolving Society's Energy Trilemma through the Energy Justice Metric' (2015) 87 *Energy Policy* 168

³³ Heffron, McCauley & Sovacool (n 32)

Energy justice seeks to incorporate principles of justice in the development of energy resources, and within this, the benefits and costs of the development are evenly distributed in society such that no section of society is disproportionately affected. It further highlights the need for a just energy transition that addresses the impacts of moving from fossil fuels to renewable sources on households, communities, indigenous groups, and workers. This thesis argues that the development of a RES planning and consenting regime should inculcate principles of energy justice and just transition.³⁴ As exemplified by the Scottish regime,³⁵ embedding principles of just transition through the project lifecycle will foster local support and minimise not in my backyard (NIMBY) situations in RES development.

This is particularly instructive in Nigeria where public resistance to petroleum production has been rife. The lack of community engagement before project commencement, destruction of communities and livelihoods, desecration of cultural heritage sites and lack of adequate compensation and empowerment for host communities have resulted in the destruction of petroleum infrastructure, economic sabotage, militancy, insecurity and mutual mistrust between international oil corporations and host communities.³⁶ Energy justice is more important now than before in the Nigerian context because the RES industry is still in its infancy, hence laws can be enacted to make prior informed consent (social licence) and public consultation a licensing condition, for example. It could also set parameters for the conduct of various impact assessments before the commencement of RES projects. Moreover, given the financial strength of international oil corporations such as Shell BP and their antecedents of diversifying to RES investments in other countries,³⁷ it is pertinent that a RES planning and consenting regime is established from the outset to address energy justice concerns to avoid a business-as-usual approach to RES development especially as it affects workers, host communities, and indigenous peoples as well as entrenching environmental, social and governance (ESG) principle.³⁸

³⁴ *ibid*

³⁵ Just transition is provided in the Climate Change (Scotland) Act 2009, s 35C.

³⁶ Macleans A. Geo-JaJa and Steve Azaiki, 'Poverty and Inequality in the Niger Delta: Is National Economic Empowerment and Development Strategy the Answer?' (2007) 36 Canadian and International Education 75; see also B I Ugwuanyi, I Obaje, C S Ohaeri, C E Ugwu and C A Ohagwu, 'Militancy in the Niger Delta Region of Nigeria: A Reflective Discourse on the Cause, Amnesty and Imperatives' (2014) 3 Review of Public Administration and Management 76

³⁷ See Shell, 'Renewables and Energy Solutions (Formerly New Energies)' available at: <https://www.shell.com/energy-and-innovation/new-energies.html> accessed 26 May 2021.

³⁸ Ting-Ting Li, Kai Wang, Toshiyuki Sueyoshi, and Derek D. Wang, 'ESG: Research Progress and Future Prospects' (2021) 13 Sustainability 1

1.3 Definition of Key Concepts

1.3.1 What is Renewable Energy?

Defining the concept of renewable energy is an elusive task. While it may have gained traction in the last few years, policy documents and statutory instruments have adopted different approaches in the definition of renewable energy.³⁹ Some of the approaches that have been adopted in defining renewable energy include denotative definition (by listing what energy sources are considered renewable);⁴⁰ and exclusionary definition (defining renewable energy by excluding energy sources that are not renewable).⁴¹ Other definitions of renewable energy have been based on their depletion and replacement⁴² and their environmental sustainability.⁴³ EA 2023 defines renewable energy resources as ‘...natural resources such as sunlight, wind, rain, tides and geothermal heat which are renewable and naturally replenished.’⁴⁴ Although renewable energy is not defined in any UK legislation, under UK energy law, low-carbon electricity generation means electricity generation which contributes to a reduction in the emission of greenhouse gases.⁴⁵ This definition encompasses RES and nuclear energy. This definition of low-carbon electricity generation is used to create eligibility criteria for technologies that can take advantage of low-carbon energy support schemes in the UK. The definition of low-carbon energy in the UK does not consider the long term and adverse impact of nuclear as an energy source. Taking into account the different approaches to defining RES outlined earlier, this thesis describes renewable energy as energy produced from non-fossil fuels and non-nuclear energy sources, which is sustainable and is naturally replenished faster than its utilisation from sources including solar, wind, hydro, geothermal and biomass.⁴⁶

Various monikers are used to describe renewable energy namely: green energy, sustainable energy, clean fuel, or low/ zero carbon energy. However, it is important to note from the outset

³⁹ Penelope Crossley, ‘What is ‘Renewable Energy’? – Conceptualizing the Legislative Definitions of Renewable Energy’ (2022) 10 Renewable Energy Law and Policy Review 39

⁴⁰ Chinese Renewable Energy Law 2005, Article 2 provides thus, “‘renewable energy’ refers to non-fossil energies, such as wind energy, solar energy, hydroenergy, bioenergy, geothermal energy and ocean energy, etc.’

⁴¹ The Hungarian Electric Energy Law 2007, s 3 (45) defines renewable energy as, ‘...renewable non-fossil and non-nuclear energy sources (solar, wind, geothermal, wave, tidal, hydropower, biomass, and energy sources produced directly or indirectly from biomass, as well as landfill gas, sewage treatment plant gas and biogases)’

⁴² Philippine Renewable Energy Act 2008, Art 4 define renewable energy as, ‘...energy resources that do not have an upper limit on the total quantity to be used. Such resources are renewable on a regular basis, and whose renewal rate is relatively rapid to consider availability over an indefinite period of time...’

⁴³ Statute of the International Renewable Energy Agency 2009, Art 3 defines renewable energy thus, ‘all forms of energy produced from renewable sources in a sustainable manner’.

⁴⁴ Electricity Act 2023, S 232

⁴⁵ Energy Act 2013, S 6(1A) (3)

⁴⁶ Crossley (n 39)

that while some energy sources such as nuclear may be low on carbon emissions, it is not considered renewable as their fuels (uranium and plutonium) are finite.⁴⁷ Also, it is argued in this thesis that natural gas is a transitional fuel. This view was recently adopted by the European Commission without any opposition from the European Parliament which voted to include natural gas as a sustainable energy source as it plays a key role in the green energy transition.⁴⁸ In the context of developing countries, the continuous use of natural gas for energy production is essential to accelerate energy access, promote energy justice as well as to support national economies through the transition process. This has been reiterated by the Nigerian President and in the Nigerian Energy Transition Plan.⁴⁹ The greening of natural gas by the European Commission does not preclude its emission potentials. When compared with fossil fuels, RES is significantly safer for the environment; but it should be noted that renewable energy sources are not completely environmentally benign.

1.3.2 Planning and Consenting Regime: A Contextual Definition

A planning and consenting regime for renewable energy development is defined in this research to include strategic planning (including national and regional RES plans),⁵⁰ zoning,⁵¹ the design and scoping of RES projects in accordance with statutorily defined minimum standards; planning processes (including seeking and obtaining prior informed consents from relevant regulatory agencies and host communities); necessary environmental, socio-cultural, and economic impact assessments; relevant notices; public consultations; dispute resolution mechanisms; local content requirements; land acquisition; support schemes; tax rates and rebates; proof of means and technical capacity to execute and maintain a project; environmental

⁴⁷ Joshua M Pearce, 'Limitations of Nuclear Power as a Sustainable Energy Source' (2012) 4 Sustainability 1173

⁴⁸ European Parliament, 'Taxonomy: MEPs do not Object to Inclusion of Gas and Nuclear Activities' available at: <https://www.europarl.europa.eu/news/en/press-room/20220701IPR34365/taxonomy-meps-do-not-object-to-inclusion-of-gas-and-nuclear-activities> accessed 12 December 2022

⁴⁹ Guardian Newspaper, 'Osinbajo Launches FG's Energy Transition Plan as Nigeria Seeks \$10b Initial Package' available at: <https://guardian.ng/news/osinbajo-launches-fgs-energy-transition-plan-as-nigeria-seeks-10b-initial-package/> accessed 30 December 2022; see also Nigerian Energy Transition Plan, 'About' available at: <https://www.energytransition.gov.ng/> accessed 30 December 2022

⁵⁰ See Louise Krog and Karl Sperling, 'A Comprehensive Framework for Strategic Energy Planning Based on Danish and International Insights' (2019) 24 Energy Strategy Reviews 83, 85; Mir Sayed Shah Danish, Mohammed Elsayed Lotfy Elsayed, Mikael Ahmadi, Tomonobu Senjyu, Hedayatullah Karimy and Hameedullah Zaheb 'A Strategic-Integrated Approach for Sustainable Energy Deployment' (2020) 6 Energy Reports 40; John M. Bryson, Lauren Hamilton Edwards & David M. Van Slyke, 'Getting Strategic About Strategic Planning Research' (2018) 20 Public Management Review 317

⁵¹ See Association of Decentralised Energy, 'Heat and Energy Efficiency Zoning: A Framework for Net Zero for New and Existing Buildings' available at https://www.theade.co.uk/assets/docs/resources/Heat_and_Energy_Efficiency_Zoning_A_framework_for_netzero_for_new_and_existing_buildings-min.pdf accessed 04 November 2021

remediation plans, and project decommissioning plans, all underpinned by legislation. It also entails the existence of a well-equipped regulatory body to oversee the entire processes highlighted above. This is not an exhaustive description as different jurisdictions may design a regime tailored to their domestic circumstances. However, the foci of this thesis are summarised in **Table 1** below.

Table 1 Thesis Planning and Consenting Focus

Focus	Description
Legislation	This refers to statutes enacted to promote energy security, energy equity and environmental sustainability. It also includes legislation and subsidiary legislation to regulate the electricity sector as well as to promote RES deployment such as the Nigerian Electricity Act 2023, Nigerian Climate Change Act 2021, the UK Electricity Act 1989, Energy Act 2013, Climate Change Act 2008, Climate Change (Scotland) Act 2009, Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017.
Strategic Planning	This includes national and regional policies and plans to promote RES deployment such as the Nigerian Renewable Energy and Energy Efficiency Policy (NREEEP), and the UK Electricity Market Reform (EMR) among others.
Planning Processes	This entails the processes involved in obtaining planning permission for RES development in Nigeria and the UK as prescribed by relevant laws and statutory instruments. This also encompasses the necessary statutory notices, public engagement, and environmental impact assessments.
Institutional Bodies	This includes the primary regulatory agencies for electricity generation and RES development such as the Nigerian Electricity Regulatory Commission (NERC), Nigerian Ministry of Power, Office for Gas and Electricity Market (Ofgem), Department for Business, Energy, and Industrial Strategy (BEIS), the Scottish Energy Consents Unit, and local planning authorities (LPAs).

Support Schemes	This includes financial support schemes and policies introduced to facilitate RES development such as renewable portfolio standards, Feed-in tariff schemes, and tax rebates among others.
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1.3.3 Defining Energy Trilemma and Energy Justice

The World Energy Council (WEC) considers sustainable energy to be built on three fundamental pillars of energy security, energy equity and environmental sustainability.⁵² Balancing the competing interests of all three components poses a trilemma for governments. Whilst searching for the best means of resolving this trilemma, it is expedient to begin by understanding what the various elements of the energy trilemma entail.

The Asia Pacific Energy Research Centre (APERC) defines energy security as ‘the ability of an economy to guarantee the availability of energy resource supply in a sustainable and timely manner with the energy price being at a level that will not adversely affect the economic performance of the economy.’⁵³ Proedrou refers to energy security simply as, ‘that situation whereby states face no energy shortages and meet their energy needs at no excessive cost and without further deteriorating the state of the environment.’⁵⁴

According to Pasqualetti and Sovacool, though the sensitivity of countries differs on energy security, it is agreed across the board that sustainability, reliability, and affordability are integral parts of energy security.⁵⁵ Energy security can therefore be considered as the availability of energy services for domestic and commercial uses. Energy security has been considered in political terms as a public good and in economic terms as a market commodity.⁵⁶ This thinking pattern influences the development of energy policies nationally and globally.⁵⁷

According to Cherp and Jewell, a proper understanding of the four A’s of energy security – accessibility, affordability, acceptability and availability, influences energy policies.⁵⁸ Along

⁵² Wyman (n 30)

⁵³ Asia Pacific Energy Research Centre, *A Quest for Energy Security in the 21st Century: Resources and Constraints* (APERC, 2007) 6

⁵⁴ Filippou Proedrou, *EU Energy Security in the Gas Sector: Evolving Dynamics, Policy Dilemmas and Prospects* (Ashgate Publishers, 2012) 3

⁵⁵ *ibid* 175

⁵⁶ Aleh Cherp and Jessica Jewell, ‘The Three Perspectives on Energy Security: Intellectual History, Disciplinary Roots and Potential for Integration’ (2011) 3 *Current Opinion in Environmental Sustainability* 1, 4

⁵⁷ *ibid*

⁵⁸ Aleh Cherp and Jessica Jewell, ‘The concept of Energy Security: Beyond the Four As’ (2014) 75 *Energy Policy* 415, 420

the lines of the energy trilemma, availability falls under energy security while accessibility and affordability are equity issues. Environmental sustainability encompasses acceptability.⁵⁹

As the energy debate around security of supply gains momentum, an important aspect of the debate borders on eliminating energy poverty hence the need for equity.⁶⁰ Energy equity has been defined by Hall, Hards and Bulkeley as, ‘access to affordable, safe and reliable energy’.⁶¹ On their part, Xu and Wang define energy equity as, ‘the fair distribution of the burdens and benefits of energy production and consumption.’⁶²

The third limb of the energy trilemma is environmental sustainability. Environmental sustainability shares a common link with sustainable development as coined by the Brundtland Report.⁶³ The crux of environmental sustainability is that the development of energy should be undertaken in a sustainable manner taking the volatile nature of the planet into account.⁶⁴ The underlying principle of the SDGs is founded on environmental sustainability.⁶⁵ It is premised on the rationale that a sustainable environment is required for development to thrive, poverty eradication, and human health among other values intrinsic to the environment.⁶⁶ Proedrou defines sustainability as ‘a normative concept that refers to a state of affairs whereby the needs of today are not fulfilled at the cost of the needs of tomorrow.’⁶⁷ In this thesis, environmental sustainability is considered to involve developing low/ zero carbon energy including RES infrastructure, promoting energy efficiency and energy conservation. It is important to ensure that energy justice concerns are addressed in the development of renewable energy.

⁵⁹ See also Abdelrahman Azzuni and Christian Breyer, ‘Definitions and Dimensions of Energy Security: A Literature Review’ (2017) 7 Wiley Interdisciplinary Reviews: Energy and Environment 1

⁶⁰ Sarah Marie Hall, Sarah Hards and Harriet Bulkeley, ‘New Approaches to Energy: Equity, Justice and Vulnerability’ (2013) 18 Local Environment 413

⁶¹ *ibid* 415

⁶² Shengqing Xu and Tao Wang, ‘On Energy Equity and China’s Policy Choices’ (2017) 28 Energy & Environment 288, 289

⁶³ See Gro Harlem Brundtland, *Report of the World Commission on Environment and Development: Our Common Future* (United Nations General Assembly Document A/42/427, 1987) 11

⁶⁴ Siva Raman Sharvini, Zainura Noor, Chun Chong, Lindsay Stringer, Rafiu Yusuf, ‘Energy Consumption Trends and their Linkages with Renewable Energy Policies in east and Southeast Asian Countries: Challenges and opportunities’ (2018) 28 Sust. Env. Res. 257, 262

⁶⁵ UNEP, Embedding the Environment in Sustainable Development Goals, UNEP Post-2015 Discussion Paper 1, (UNEP, Version 2, 19 July 2013) 15

⁶⁶ *ibid*

⁶⁷ Filippou Proedrou, ‘Energy Security in a Steady-State World’ In: *Energy Policy and Security under Climate Change* (Palgrave Macmillan, 2018) 113

The argument on energy justice has been canvassed by McCauley et al under three theories – distributional justice, procedural justice and recognition justice.⁶⁸ According to them, distributional justice entails an even distribution of the gains and ills of energy to individuals irrespective of physical, social or economic differences.⁶⁹ The procedural aspect requires inclusiveness and public participation in energy policy decision-making while recognition justice goes beyond mere participation and involves fair representation and equality devoid of threats of all forms.⁷⁰ Heffron and McCauley subsequently added restorative justice which involves remedying previous injustices.⁷¹ This thesis will analyse energy justice under four principles namely – distributive justice, procedural justice, recognition justice and restorative justice.

The literature on energy justice has matured into a school of thought thereby extending the trilemma into a quadrilemma. Though its origin can be linked to energy equity, energy justice is gaining independence and momentum in the energy debate.⁷² The proponents and indeed literature on this school seems to be growing.⁷³ Energy justice seeks to introduce principles of justice in energy policies considering the interests of those affected or likely to be affected by these policies.⁷⁴ It therefore calls for a just energy transition that caters for the interest of workers, households, communities and indigenous peoples.

1.4 Research Hypothesis

The establishment of a comprehensive and optimal planning and consenting framework for the governance of renewable energy development is key to balancing the energy trilemma⁷⁵ to cure the perennial energy shortage in Nigeria. A RES planning and consenting regime entails the

⁶⁸ Darren McCauley et al, 'Advancing Energy Justice: The Triumvirate of Tenets' (2013) 32 Int Energy Law Rev 107, 108

⁶⁹ *ibid*

⁷⁰ *ibid* 109

⁷¹ Raphael J. Heffron and Darren McCauley, 'The Concept of Energy Justice Across the Disciplines' (2017) 105 Energy Policy 658, 660; see also Giuseppina Siciliano, Daniela Del Bene, Arnim Scheidel, Juan Liu and Frauke Urban, 'Environmental Justice and Chinese Dam-Building in the Global South' (2019) 37 Environmental Sustainability 20, 22

⁷² Darren McCauley et al, 'Energy Justice in the Transition to Low Carbon Energy Systems: Exploring key Themes in Interdisciplinary Research' (2019) 233-234 Applied Energy 916

⁷³ See Raphael J Heffron and Darren McCauley, 'What is the "Just Transition"?' (2018) 88 Geoforum 74; Kirsten Jenkins et al., 'Energy Justice: A conceptual Review' (2016) 11 Energy Research & Social Science 174; Raphael J. Heffron, Darren McCauley & Benjamin Sovacool, 'Resolving Society's Energy Trilemma through the Energy Justice Metric' (2015) 87 Energy Policy 168; Geoff Evans, Liam Phelan, 'Transition to a Post-Carbon Society: Linking Environmental Justice and Just Transition Discourses' (2016) 99 Energy Policy 329

⁷⁴ McCauley et al, 'Advancing Energy Justice: The Triumvirate of Tenets' (n 68)

⁷⁵ Simon Marsden, "the 'Triangle' of Australian Energy Law and Policy: Omissions, Connections and Evaluating Environmental Effects" (2017) 29 Journal of Environmental Law 475, 477

enactment of law and policy, the creation of regulatory institutions and the introduction of fiscal and support schemes to accelerate RES development. The UK renewable energy regime provides a good exemplar for Nigeria to learn from. Moreover, in developing a RES regime to facilitate the energy transition, principles of energy justice and just transition should be embedded in the planning and consenting process to ensure that the interest of vulnerable groups such as host communities, indigenous peoples and workers are protected.

1.5 Aims and Objectives of the Research

This thesis examines the prospects of renewable energy as a sustainable energy resource which can promote energy security, accelerate access to affordable energy and reduce carbon emissions.⁷⁶ Given that Nigeria has an abundance of renewable energy resources but still suffers from energy insecurity and lack of access to energy services for over 56% of the population,⁷⁷ the thesis explores measures that can be taken to maximise Nigeria's RES potentials to balance its energy trilemma. The thesis therefore first seeks to critically evaluate the existing legal and institutional framework for RES development in Nigeria. It identifies the inherent flaws in the extant regime and thus justifies the need for a more viable legal paradigm which encourages RES development in small, medium, and large scales and offers incentives to attract investment into the sector thereby boosting the economy.

Secondly, this thesis argues that the establishment of a comprehensive RES planning and consenting regime which entails the enactment of robust legislation, policies, standards setting, the establishment of strong regulatory institutions and introduction of several support schemes is key to balancing the energy trilemma in Nigeria. The thesis further provides a contextual understanding of the implications of a RES planning and consenting regime and how that affects Nigeria's ability to adequately harness its RES potentials to promote energy security, energy equity and environmental sustainability.

Thirdly, the thesis appraises the RES planning and consenting regime in the UK within the ambit of the energy trilemma. It seeks to examine how policy targets, statutory provisions, support schemes and fiscal measures have been employed by the UK to increase the contribution of RES in the energy mix and reduce carbon emissions.⁷⁸ It further evaluates the

⁷⁶ Dolf Gielen et al, 'The Role of Renewable Energy in the Global Energy Transformation' (2019) 24 Energy Strategy Reviews 38

⁷⁷ María Yetano Roche et al, 'Achieving Sustainable Development Goals in Nigeria's Power Sector: Assessment of Transition Pathways' (2019) Climate Policy, DOI: 10.1080/14693062.2019.1661818, 1

⁷⁸ David Elliott, Renewable Energy in the UK Past, Present and Future (Palgrave Macmillan 2019) 27

decentralised regulation of RES infrastructure and how institutional cooperation has promoted RES integration in the UK. The UK regime provides lessons for Nigeria in developing a decentralised RES planning and consenting framework.

Fourthly, this thesis acknowledges that the stage of development in the UK and Nigeria is a major influence on energy priorities. While the priority of the UK is more tilted towards energy sustainability and efficiency, Nigeria's priority is on energy security and energy equity. These ideologies affect the policy directions of the governments of both countries. Hence the lessons learned should be tailored to the Nigerian situation to ensure energy justice in the energy transition.

Finally, regardless of the many benefits of the transition to a sustainable energy regime, a large spectrum of society will be impacted. The transition will result in the loss of jobs and earnings for both direct and indirect workers in the fossil fuels industries, host communities, and indigenous peoples among others. Although the transition will create new jobs and sources of income for these groups, it is imperative that the principles of energy justice and just transition are followed to avoid inequity. This thesis will therefore seek to explore ways to achieve a just energy transition that is inclusive and creates the least impact on these groups. This thesis argues that the integration of energy justice principles in the RES planning and consenting regime is necessary to avoid the injustices meted out to host communities, indigenous peoples, and workers by international oil corporations (IOCs) in Nigeria. Furthermore, given that the current literature on energy transition is mostly based on developed countries' context, this thesis provides a developing country perspective to the discourse. This perspective is necessary as developing countries do not have the economic resilience to keep up with the present energy transition trajectory of achieving net zero by 2050 as well as commitments under the Global Biodiversity Framework (GBF) 2022.⁷⁹

1.6 Scope and Delimitation of the Research

Although the focus of this research is on RES legal framework and environmental governance in Nigeria, the boundaries of this research only seek to study the existing energy and environmental regime with the aim of promoting RES technology to foster increased energy security and access whilst reducing carbon emissions. This thesis will only discuss remediation of environmental degradation caused by oil and gas pollution in Nigeria in the context of

⁷⁹ Conference of the Parties to the Convention on Biological Diversity, Kunming-Montreal Global Biodiversity Framework (adopted 19 December 2022) CBD/COP/DEC/15/4 (GBF)

restorative justice. In adopting a precautionary approach, this research analyses the transition from a high carbon economy to a low/ zero carbon economy through a viable RES planning and consenting regime. It seeks to encourage the establishment of proactive regulatory measures for the development of environmentally sound energy alternatives which will adequately manage climate change and enable Nigeria to meet its Nationally Determined Contribution (NDCs) under the Paris Agreement and commitments under the Global Biodiversity Framework 2022.

The primary focus of this research is RES for electricity generation. However, given that this research looks at RES in the context of the energy trilemma in a developing country, it is expedient to consider sustainable cooking fuels, albeit as an adjunct. This is because in the absence of sustainable cooking fuels, energy security cannot truly be attained.⁸⁰ Furthermore, energy poverty in developing countries is expressed through the lack of basic energy services including domestic fuels.⁸¹ Moreover, the unsustainable use of biomass as a domestic fuel contributes to emissions. Thus, this thesis will not consider RES deployment in transportation.

This thesis will not go into a detailed analysis of offshore wind energy development as it is a broader area of RES development in the UK context. Although Nigeria has offshore wind energy potentials, issues of mineral rights over offshore petroleum have been a thorny issue between the Federal Government and State Governments.⁸² Thus, for such a new developing sector like the RES sector, such controversies should be avoided so as not to scare developers. Moreover, the legal regime for offshore wind energy is a broad topic that could be a PhD thesis on its own.⁸³

Being a PhD thesis in law, this research is majorly concerned with the legal aspects of renewable energy development. Also, as this is comparative research, it will seek to compare the legislative and institutional frameworks, support schemes, and fiscal regimes for renewable energy integration in Nigeria and the UK. The thesis will further examine the integration of

⁸⁰ Inigo del Guaya, 'Energy Poverty and Energy Access: A Legal Analysis' in Inigo del Guaya et al (eds.), *Energy Justice and Energy Law* (OUP 2020) 35

⁸¹ Shonali Pachauri and others, "Energy Access for Development," *Global Energy Assessment: Toward a Sustainable Future* (Cambridge University Press 2012) 1407

⁸² Edwin Obimma Ezike, 'The Chequered History of Onshore/Offshore Dichotomy in Nigeria and its Legal Consequences' (2012) 3 *Journal of Private and Property Law* 1; see also; *A.G., Fed. v. A.G., Abia & 35 Others* (No. 2) [2002] 6 NWLR (Pt. 764) 542

⁸³ See Emma Gibson & Peter Howsam, 'The Legal Framework for Offshore Windfarms: A Critical Analysis of the Consents Process' (2010) 38 *Energy Policy* 4692; C Nieuwenhout, 'Developing Offshore Wind Farms: A Comparison and Analysis of the Legal and Governance Frameworks of the North Sea Coastal States' (2023) 10 *European Journal of Comparative Law and Governance* 518

RES in the UK to highlight lessons that can be learned to improve the energy situation in Nigeria. To appreciate the policy implications of RES development, the thesis will look at the technical areas and intricacies of renewable energy technology briefly. This is because understanding the workings of different RES technologies can influence the development of bespoke laws and policies for effective regulation in the context of Nigeria. Hence the materials used for this research will involve both legal and non-legal sources.

Whilst this thesis argues for the establishment of a comprehensive RES planning and consenting regime that encourages investment in RES infrastructure, the thesis will consider trade barriers to RES development such as subsidies on fossil fuels and lack of subsidies on RES technologies. The study will further consider how the development of a RES planning and consenting regime can stimulate local investment in RES technology. The thesis will not delve into foreign direct investment (FDI) for RES development nor other international financing options for RES development as these areas are too broad to incorporate in this thesis.⁸⁴

Nigeria's priority in the energy debate is more fixed on energy security and energy equity with little attention paid to environmental sustainability, hence this priority influences energy policies in the country. However, in carrying out a critical analysis of the legal framework for RES in Nigeria and the UK, this thesis will focus on all three aspects of the energy trilemma. Whilst most scholars have conceptualised energy justice as a fourth arm added to the energy trilemma, others argue against distinguishing energy justice from the trilemma; instead considering it to be a golden thread that runs through the three arms of the energy trilemma.⁸⁵ This research will adopt the latter approach.

The debate around energy transition has been largely considered from a developed country perspective. This thesis will analyse energy transition through the lenses of developing countries. A nuanced approach to energy transition is imperative given that although developing countries suffer more from climate change, they possess limited adaptation capabilities. Thus, the implications of energy transition are more far-reaching than in developed countries.

⁸⁴ Toyo Amegnonna Marcel Dossou et al, 'Foreign Direct Investment and Renewable Energy Development in Sub-Saharan Africa: Does Governance Quality Matter?' (2023) 219 *Renewable Energy* 119403

⁸⁵ Raphael J Heffron, Darren McCauley, Gerardo Zarazua de Rubens, 'Balancing the Energy Trilemma through the Energy Justice Metric' (2018) 229 *Applied Energy* 1191, 1193

1.7 Research Limitations

The research was conducted during the covid-19 pandemic, so access to documents and data from Nigerian public offices such as the Federal Ministry of Power, Federal Ministry of Environment, and the Nigerian Electricity Regulatory Commission (NERC) was challenging as some officials delayed releasing information due to physical distancing restrictions, while some expected some form of financial incentive. While most documents and data are available on the respective websites of these institutions,⁸⁶ these documents and data are not periodically updated and may require visiting the offices to get updated versions. For instance, the Regulations on Feed-in Tariff for Renewable Energy Sourced Electricity in Nigeria 2015 is no longer available on the NERC's website as the link on the website is broken.⁸⁷ Several emails to the agency have not been replied. Also, the regulations have not been withdrawn either. There are official copies online. In addition, the travel restrictions imposed because of the pandemic made it impossible to personally travel to Nigeria to obtain these documents and data; thus, relying on legal colleagues residing in Nigeria.

Similarly, most data on Nigeria are usually not up to date. For instance, the population estimate of the country, to determine electricity access, provided by the National Bureau of Statistics is from 2016.⁸⁸ This means that information on electricity access is obtained from other databases such as the World Bank.⁸⁹ The implications of this is that the energy situation may have either improved or gotten worse at the time of the current research.

Research for this thesis ended in March 2023. However, given the evolving regulatory landscape of RES regulations in Nigeria and the UK, new laws have been passed which address some of the issues raised in the thesis. For instance, the Nigerian Electricity Act 2023 received presidential assent in June 2023 and the UK Energy Act 2023 received royal assent in October 2023. The thesis has been amended to reflect the changes in law as much as possible. However, critical analyses of these laws are limited because of their novelty as there are no journal articles and no case law on them yet.

⁸⁶ See NERC, 'Orders' available at: <https://nerc.gov.ng/resource-category/orders/> accessed 6 March 2024

⁸⁷ See NERC, 'Regulations' available at: <https://nerc.gov.ng/library/documents/Regulations/Feed-in-Tariff-for-Renewable-Energy-Sourced-Electricity-in-Nigeria.pdf/> accessed 6 March 2024

⁸⁸ NBS, 'Population 2006-2016' available at: <https://nigerianstat.gov.ng/elibrary/read/474> accessed 6 March 2024

⁸⁹ World Bank, 'DataBank: World Development Indicators' available at: <https://databank.worldbank.org/reports.aspx?source=world-development-indicators> accessed 6 March 2024

1.8 Research Question

The thesis will answer the central research question:

- To what extent can a renewable energy planning and consenting regime balance the energy trilemma and achieve energy justice in Nigeria?

Subsidiary Research Questions are:

1. What are the principles of energy trilemma and energy justice? (Discussed in chapters 1 and 3)
2. Why is the integration of renewable energy in the electricity sector essential in Nigeria? (Discussed in Chapter 4)
3. What are the extant legal and institutional frameworks for renewable energy integration in Nigeria? (Discussed in Chapter 4)
4. What are the current planning and consenting laws for renewable energy projects in Nigeria and the UK? (Discussed in chapters 5 and 6)
5. How can a renewable energy planning and consenting legal regime be used to balance the energy trilemma and promote energy justice in Nigeria? (Discussed in chapter 5)
6. What factors are responsible for the promotion of energy justice in renewable energy integration in the UK and what lessons can Nigeria learn? (Chapters 6 and 7)
7. How should a legal and institutional framework for renewable energy planning and consenting that balances the energy trilemma and addresses energy justice and just transition concerns be designed in the Nigerian context? (Chapter 8)

1.9 Significance of Research

The importance of this research is premised on many factors. Firstly, this study identifies the increasing need for energy for both domestic and industrial consumption in Nigeria. To meet these energy needs, this thesis identifies RES as a viable and sustainable addition to the energy mix and a long-term alternative to conventional energy sources with the potential to promote security of supply, access to affordable energy services and reduce environmental degradation.⁹⁰

⁹⁰ Damilola Olawuyi, 'Advancing Electricity Generation from Renewable Energy Sources in Nigeria: Trends, Limitations and Ways Forward' in Lawrence Atsegbua, SAN & Sunday Daudu, *Beyond Fossil Fuels: Renewable Energy Law and Policy* (University of Benin Press, 2019) 230.

Secondly, due to the increasing effects of climate change, this thesis is both timely and expedient to enable policymakers in Nigeria to take precautionary measures to help cushion the effects of climate change and loss of biodiversity.⁹¹ Additionally, given Nigeria's aspiration of attaining net zero by 2060,⁹² RES development remains a key means of realising and enhancing this ambition. Hence, the research will highlight the imperatives of RES integration to promote the Sustainable Development Goals (SDGs) and Nigeria's intended NDC to climate change mitigation and adaptation under the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement 2015, as well as address the GBF objectives of preventing biodiversity loss, ecosystem restoration and protect indigenous rights. Although the SDGs are not legally binding on Nigeria and the UK, relevant laws such as the Nigerian Electricity Act 2023, UK Energy Acts (2004, 2011, and 2013), Electricity Act 1989 have been enacted to promote the objectives of Goal 7 – affordable and clean energy, whilst the Nigerian Climate Change Act 2021, the UK Climate Change Act 2008, and Climate Change (Scotland) Act 2009 have all been enacted to operationalise the objectives of Goal 13 – climate action.⁹³ Consequently, reference to the SDGs in this thesis are based on the above premises.

Thirdly, Nigeria is a mono-economy depending majorly on the export of oil and gas. Thus, in the face of fluctuating crude oil prices, the group of 20 industrialised nations (G20) divestment from fossil fuels,⁹⁴ and the increase in the quest for alternative energy sources by most buyers of Nigeria's crude oil – US and EU, there is an urgent need for Nigeria to begin to harness its vast RES potential to become a major RES producer in the African region.⁹⁵ This thesis is not advocating for a total and instant elimination of crude oil which will remain essential for transportation and petrochemicals for some time; and natural gas which is considered a

⁹¹ Gbadebo Collins Adeyanju et al, 'Exploring the Potentials, Barriers and Option for Support in the Nigeria Renewable Energy Industry' (2020) 1 Discover Sustainability 1 | <https://doi.org/10.1007/s43621-020-00008-5>; Some of the recommendations from this thesis will be sent to the respective Energy/ Power Sector Committees and Climate Change Committees of the Nigerian Senate and the House of Representatives with a view to amending the Climate Change Act 2021 and the Electricity Act 2023.

⁹² Ruth Olurounbi, 'Nigeria Pledges to Reach Net-Zero Emissions by 2060, Buhari Says' available at: <https://www.bloomberg.com/news/articles/2021-11-02/nigeria-targets-to-reach-net-zero-emissions-by-2060-buhari-says> accessed 04 November 2021

⁹³ United Nations, 'Sustainable Development Goals' available at: <https://sdgs.un.org/> accessed 6 May 2024

⁹⁴ Kate Abnett and Simon Jessop, 'U.S., Canada among 20 Countries to Commit to Stop Financing Fossil Fuels Abroad' available at: <https://www.reuters.com/business/cop/19-countries-plan-cop26-deal-end-financing-fossil-fuels-abroad-sources-2021-11-03/> accessed 06 January 2023

⁹⁵ M Sanni et al, 'Clean Technologies as Mitigating Strategies Against the Potential Impacts of Climate Change in 21st Century Nigeria' In: Allam, A and Nwankwo, S (eds.). Achieving Sustainable Development in Africa: Science, Technology and Innovation Trajectory (World Association for Sustainable Development 2010) 3

transitional fuel by the Nigerian President⁹⁶ and has been voted as a clean fuel by the European Commission.⁹⁷ However, this thesis seeks to prepare Nigeria for a smooth RES transition implemented within the confines of energy justice.

Fourthly, given that RES technologies are not environmentally benign as their development requires land, the mining of rare minerals, and fossil fuels generated materials are needed for infrastructure and transmission, this thesis will guide policymakers in developing environmental, socio-cultural, and economic impact assessment requirements as part of the planning and consenting process for some RES projects. It will further foster energy justice by ensuring that in granting planning consents for small, medium, and large-scale RES projects prior informed consent is sought and obtained. Additionally, it will support policymakers in ensuring that public consultation is incorporated into the planning and consenting process so that vulnerable groups are not disproportionately affected by RES developments.

Fifthly, this thesis will highlight the importance of establishing a robust RES framework that incentivises RES integration and prevents devastating socio-economic and environmental costs when compared with the Nigerian oil and gas industry.

1.10 Originality and Contribution to Knowledge

Many scholars have written about renewable energy and environmental governance.⁹⁸ However, this study is unique as it gives an in-depth analysis of RES regulation in Nigeria and how the lack of a comprehensive planning and consenting legal regime inhibits Nigeria's ability to balance its energy trilemma. In addition, it provides up-to-date data in the context of energy law in Nigeria and the UK.

The existing literatures do not adequately address private funding of small-scale renewable energy projects through crowd funding schemes such as *Esusu* and *Adashe* schemes within

⁹⁶ Muhammadu Buhari, President Federal Republic of Nigeria, 'Keynote Address' (Speech at the Clean Energy Transition Event Organized by SEforALL on the Sidelines of COP27, Sharm El-Sheik, 7 November 2022) available at: <https://statehouse.gov.ng/news/keynote-address-by-president-muhammadu-buhari-at-the-clean-energy-transition-event-organized-by-seforall-on-the-sidelines-of-cop27/> accessed 15 February 2023

⁹⁷ European Parliament (n 48)

⁹⁸ See Damilola Olawuyi, 'Power Generation through Renewable Energy Sources: An Analysis of the Legal Barriers and Potentials in Nigeria' (2013) 10 Journal of Res. Energy & Dev. 106, Peter Oniemola, 'Powering Nigeria through Renewable Electricity Investments: Legal Framework for Progressive Realization' (2015) 6 Journal of Sus. Dev. Law & Policy 84, Chitzi Ogbumbada, 'Developing an Effective Legal Framework for Renewable Energy Utilization in Nigeria' (2018) 8 RELP 45, P Moriarty & D Honnery, 'What is the Global Potential for Renewable Energy' (2012) 16 Renewable and Sustainable Energy Reviews 244

local circumstances in Nigeria.⁹⁹ Moreover, this research identifies the inclusion of RES infrastructure in the government subsidy scheme as a viable means of domestic finance for RES projects.

Also, this thesis gives an insight into the constitutional foundation for RES regulation by state governments. It highlights the prospects and challenges of state governments' power to make enactments that promote RES developments in their respective states without having to wait for a federal legislation and the inherent constitutional challenges.

This research has identified the prevalence of developed country perspectives in the energy transition scholarship.¹⁰⁰ This thesis contributes to the global debate on the necessity for energy transition but highlights the implication of the transition on developing countries. It further provides a template for a just energy transition in a developing country context, anchored on law. In providing a developing country perspective to the energy transition debate, the thesis advocates for the implementation of a just energy transition embedded in energy justice.

This thesis will advance energy law and policy by advocating that energy justice should run as a 'golden thread' within each of the components of the energy trilemma. It also espouses that energy justice in the energy transition should be underpinned by law to promote enforceability and avoid political backsliding.

In addressing the energy trilemma in the Nigerian context, this research examines the environmental, health, socio-cultural and economic impact of renewable energy development at the local level and therefore advocates for the development of relevant impact assessment laws. An understanding of these impacts will enable policymakers design relevant impact assessments legislation to cater for these concerns before licences are granted.

1.11 Analysing the Concept of the Energy Trilemma

The definition of sustainable energy by the WEC is founded upon three fundamental pillars of energy security, energy equity and environmental sustainability.¹⁰¹ Navigating through the intricacies of these three principles to achieve stability poses a trilemma in the energy debate.¹⁰²

⁹⁹ William R Bascom, 'The Esusu: A Credit Institution of the Yoruba' (1952) 82 Journal of the Royal Anthropological Institute of Great Britain and Ireland pp 63-69

¹⁰⁰ Iana Dreyer and Gerald Stang, *What Energy Security for the EU* (European Union Institute for Security Studies, 2013) 2; see also Fiona Harvey and Patrick Greenfield, 'Twenty Countries Pledge End to Finance For Overseas Fossil Fuel Projects' available at: <https://www.theguardian.com/environment/2021/nov/03/twenty-countries-pledge-end-to-finance-for-overseas-fossil-fuel-projects> accessed 30 September 2022

¹⁰¹ *ibid*

¹⁰² *ibid*

As will be argued, these three fundamental pillars must be enshrined in law if they are to bind decision-makers and achieve their objectives. Statutes such as the Energy Act 2013 and the Electricity Act 2023, are designed to promote security of supply and energy equity while the UK Climate Change Act 2008 and the Nigerian Climate Change Act 2021 set out to mainstream environmental sustainability in energy development.

Balancing the competing demands of the trilemma requires trade-offs and bespoke governance frameworks.¹⁰³ Great care must be taken not to overly universalise the trilemma as each country's context will differ based on domestic circumstances; thus, a differential approach must be adopted to capture these country variants of the balance.¹⁰⁴ Countries' efforts to balance the trilemma may be hindered by various factors including economic means, natural resources, living standards and technological know-how.¹⁰⁵ Pursuing all three dimensions of the trilemma simultaneously, poses a huge challenge for most countries, especially developing countries.

Attempting to resolve the trilemma will leave policymakers in a dead end. Considering that they will be faced with the tough decision of choosing either energy security and equity or energy equity and environmental sustainability. Therefore, it is apt to aim to balance rather than resolve the trilemma. Balancing the competing interests raised in the trilemma is the overarching theme of sustainable development.¹⁰⁶ For instance, Goal 7 of the Sustainable Development Goals which aims for affordable, reliable and sustainable energy for all, does not target absolute reliance on renewables but rather calls for increased reliance on renewables along with cleaner fuels to meet its goal.¹⁰⁷ Thus, achieving sustainable energy for all requires balancing the trilemma; this ties in with the energy equity limb of the trilemma.¹⁰⁸ This calls for essential trade-offs – a situation where countries actively promote one or two aspects of the trilemma at the expense of the other(s), depending on domestic needs and means.¹⁰⁹

¹⁰³ Neil Gunningham, 'Managing the Energy Trilemma: The Case of Indonesia' (2013) 54 *Energy Policy* 184; see also Song et al (n 30)

¹⁰⁴ Ibid 185

¹⁰⁵ Oliver Wyman, *Policies for the Future: 2011 Assessment of Country Energy and Climate Policies* (World Energy Council 2011) 21

¹⁰⁶ Julia Tomei and Danielle Gent (eds), *Equity and the Energy Trilemma: Delivering Sustainable Energy Access in Low-Income Communities* (International Institute for Environment and Development 2015) 8

¹⁰⁷ See United Nations, 'Sustainable Development Goals – Goal 7 Ensure Access to Affordable, Reliable, Sustainable and Modern Energy for all' available at <https://sdgs.un.org/goals/goal7> accessed 11 August 2020

¹⁰⁸ Tomei and Gent (n 106) 7

¹⁰⁹ Ibid 8

All three limbs of the trilemma have both universal and domestic characteristics. Environmental sustainability is more global in outlook as it affects the ecosystem and the planet in general – although most countries, for example small island states, may suffer more from the impacts of climate change than others. Energy security and energy equity, on the other hand, are more domestic as they seek to address immediate issues of availability, access, and affordability in the individual country.¹¹⁰ Although the recent energy crisis caused by the Russian war in Ukraine has highlighted the domestic implications of sourcing energy from abroad, given the global energy linkages. Nevertheless, to meet domestic energy needs, state intervention schemes such as subsidies have been introduced by governments all over the world to accelerate energy access and affordability. However, in practice, subsidies have been counter-productive in some countries and have deepened energy inequities and encouraged the degradation of the ecosystem. This is exemplified by the cases of Indonesia and Nigeria, where subsidies have resulted in promoting energy insecurity whilst simultaneously lining the pockets of energy corporations and fleecing the economy.¹¹¹ Moreover, subsidies encourage the dominance and reliance on fossil fuels at the expense of environmental sustainability.¹¹² It is argued in this thesis that in the likely event of a reluctance to remove subsidies on fossil fuels, introducing subsidies for renewables can be a means of ensuring a balance.

The actualization of these three dimensions poses a trilemma for governments, corporations, and regulatory agencies. The performance of different countries on each aspect of the energy trilemma is graded from A to D signifying their strengths or weaknesses in each aspect and same is reported annually by the WEC in its WETI.¹¹³ In subsequent chapters, the performance of Nigeria and the United Kingdom will be considered along the lines of the three dimensions of the energy trilemma.

The WETI is weak in its analysis as it does not consider the fact that the performance of each country based on the three indicators may be down to government's prioritisation of one aspect against the others.¹¹⁴ Moreover, the developmental stage of a country plays a pivotal role in determining which of the three arms of the trilemma suits a country's immediate needs. For

¹¹⁰ Gunningham (n 103) 187

¹¹¹ Ibid 188

¹¹² Ibid

¹¹³ World Energy Council, *World Energy Trilemma 2017: Changing Dynamics – Using Distributed Energy Resources to Meet the Trilemma Challenge* (WEC 2017) 27

¹¹⁴ Lianlian Songa, Yelin Fu, Peng Zhou and Kin Keung Lai, 'Measuring national energy performance via Energy Trilemma Index: A Stochastic Multicriteria Acceptability Analysis' (2017) 66 *Energy Economics* 313, 314

instance, environmental sustainability is heavily emphasised by developed countries including the UK whereas developing countries in Sub-Saharan Africa and Asia are more focused on energy security and affordability.¹¹⁵

Countries in the European continent are mostly developed states with a longer history of development, economic and industrial advancement. As a result, energy security and energy equity have been addressed over time, leaving room for them to concentrate on environmental sustainability. For example, UK, Germany, and France all have 100% electricity and access to clean cooking fuels,¹¹⁶ whereas, Nigeria has below 50% access to electricity and 10% access to clean cooking fuels.¹¹⁷ Besides addressing energy security and equity, developed states have the financial wherewithal and technological know-how to tackle environmental sustainability. The European Investment Bank provides funding opportunities for energy investments in the region; this is in addition to other funding options open to members of the bloc for energy development.¹¹⁸

Energy systems in the EU thrive on energy diversification and regional cooperation throughout the energy lifecycle.¹¹⁹ There is increased reliance on RES and nuclear; meanwhile, domestic energy deficits arising from resource shortages or disputes within exporting states (as in the case of the Gas wars)¹²⁰ may be filled by regional support or from international partners of the bloc.¹²¹ Consequently, the dominance of Russia as its sole energy resource supplier has waned with the imposition of sanctions on Russia for its war in Ukraine as well as the introduction of new exporters such as the USA, Norway, Algeria, Nigeria, Saudi Arabia, Colombia and Qatar now part of EU's energy suppliers.¹²² The energy security and equity status of the EU member

¹¹⁵ Kapil Narula, 'Energy Security and Sustainability' In: *The Maritime Dimension of Sustainable Energy Security* (Lecture Notes in Energy, vol 68, Springer, 2019) 9

¹¹⁶ Stamatios Ntanos et al, 'Renewable Energy and Economic Growth: Evidence from European Countries' (2018) 10 Sustainability 1

¹¹⁷ Tracking SDG 7, 'The Energy Progress Report 2018' available at <https://trackingsdg7.esmap.org/> accessed 11 August 2020

¹¹⁸ See European Commission, 'EU Funding Possibilities in the Energy Sector' available at https://ec.europa.eu/energy/funding-and-contracts/eu-funding-possibilities-in-the-energy-sector_en#horizon-2020-and-horizon-europe accessed 11 August 2020

¹¹⁹ Dreyer and Stang (n 100) 2; see also Luisa Marti & Rosa Puertas, 'Sustainable Energy Development Analysis: Energy Trilemma' (2022) 1 Sustainable Technology and Entrepreneurship 100007

¹²⁰ Kirsten Robertson, "Millions 'Facing Power Cuts and Electricity Rations this Winter'" available at: <https://metro.co.uk/2022/05/30/millions-of-homes-could-face-power-cuts-and-rationed-electricity-16733697/> accessed 15 December 2022; see also Wolfram Lacher and Dennis Kumetat, 'The Security of Energy Infrastructure and Supply in North Africa: Hydrocarbons and Renewable Energies in Comparative Perspective' (2011) 39 Energy Policy 4466, 4470

¹²¹ Dreyer and Stang (n 100)

¹²² Ahmed Elbassoussy, 'European Energy Security Dilemma: Major Challenges and Confrontation Strategies' (2019) 4 Review of Economics and Political Science 321, 332

states is not surprising given the array of suppliers at their disposal coupled with technological advancements within the bloc.

It is against this backdrop that the EU is better positioned to pursue environmental sustainability. Additionally, the EU Energy Union – a strategic blueprint for energy cooperation to boost energy security, decarbonisation, and energy conservation (sustainability) in the region, is a testament to the availability of options within the bloc providing the necessary support to vigorously pursue all three limbs of the trilemma with no significant impact on the economy.¹²³ It is important to note that although the UK has left the EU, the environmental sustainability directives and laws of the EU have been domesticated as UK laws and guidelines.¹²⁴

Developing states on the other hand, are faced with basic energy challenges such as availability, accessibility, and affordability. Moreover, these countries also lack adequate legal frameworks to address these challenges. Consequently, governments in these states have more difficult choices to make between ensuring security of supply and affordability, and protecting the environment.¹²⁵ For instance, Nigeria's economy thrives largely on the sale of oil and gas, which means economic advancement is given priority over sustainability as oil and gas exports are needed to finance infrastructural development in the country.¹²⁶

The three limbs of the trilemma are interconnected to the extent that the actualisation of one component may influence the other. Increase in energy security prompted by a comprehensive RES planning and consenting framework can create a competitive energy market attractive to new investors; the benefit would include availability of supply and reduction in energy prices for consumers.¹²⁷ Energy efficiency can reduce consumption and ensure accessibility.¹²⁸ The achievement of energy security through RES can be beneficial to environmental

¹²³ Marco Siddi, 'The EU's Energy Union: A Sustainable Path to Energy Security?' available at <https://www.iene.eu/the-eus-energy-union-a-sustainable-path-to-energy-security-p2776.html> accessed 11 August 2020

¹²⁴ For instance, the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 replaced Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy (2000) OJ L327/1

¹²⁵ Oliver Wyman, *World Energy Trilemma Index 2019* (World Energy Council 2019) 20

¹²⁶ Nigeria Extractive Industry Transparency Initiative, 'Overview' available at https://eiti.org/es/implementing_country/32#:~:text=Revenue%20collection,USD%2017.055billion%20in%202016. Accessed 29 May 2020

¹²⁷ OECD, *Green Growth Studies: Energy* (OECD 2011) 7

¹²⁸ Energy efficiency and energy conservation are discussed in section 3.4.4.1 of this thesis.

sustainability.¹²⁹ For example, the increase in the deployment of renewable technologies in the European Union has consolidated energy security in the region whilst simultaneously reducing carbon emissions.¹³⁰ Similarly, the falling prices of wind and solar technology in China have not only contributed to increased investment in RES but also widespread accessibility to sustainable energy.¹³¹

1.12 An Analysis of the Environmental, Socio-Cultural and Economic Impacts of Renewable Energy

Despite the huge contributions of RES to the global energy demand, its deployment has far-reaching effects cutting across a wide spectrum of society.¹³² As earlier noted in Chapter One, renewable energy does not always translate to sustainable energy and low emissions do not denote low impacts.¹³³ This section therefore seeks to identify the various ways by which RES development impacts humanity as well as the fauna and flora, and their ecosystems. A proper understanding of the impacts of RES development will influence the formulation of laws and policies that acknowledge and address these impacts. Such laws can further impose mandatory requirements for RES developers to conduct comprehensive environmental, socio-cultural, and economic impact assessments before commencing RES projects and put measures in place to mitigate these impacts. The prospects and implications of such a comprehensive and bespoke law on balancing the energy trilemma will be addressed in Chapters Four and Six of this thesis.

1.12.1 Environmental Impacts

The discussion surrounding the environmental impact of RES is one viewed with mixed reactions. RES technologies have various effects on the environment – human life, plants, animals, habitats, and the atmosphere. The environmental impacts of renewables come in different shapes and forms. They consist of pros and cons. However, when compared to fossil fuels, RES differs markedly to the extent that it has lower potency for carbon dioxide (CO₂)

¹²⁹ Athanasios Pliousis Kostas Andriosopoulos, Michalis Doumpos, and Emiliios Galaritis, 'A Multicriteria Assessment Approach to the Energy Trilemma' (2019) 40 The Energy Journal 143, 145

¹³⁰ European Environment Agency, 'Renewables Successfully Driving Down Carbon Emissions in Europe' available at <https://www.eea.europa.eu/highlights/renewables-successfully-driving-down-carbon> accessed 12 August 2020

¹³¹ Silvio Marcacci, 'Plummeting Renewable Energy, Battery Prices Mean China Could Hit 62% Clean Power And Cut Costs 11% By 2030' available at <https://www.forbes.com/sites/energyinnovation/2020/08/10/plummeting-renewable-energy-battery-prices-mean-china-could-hit-62-clean-power-and-cut-costs-11-by-2030/> accessed 12 August 2020

¹³² A. K. Akella, R.P. Saini and M.P. Sharma, 'Social, Economic and Environmental Impacts of Renewable Energy Systems' (2009) 34 Renewable Energy 390

¹³³ See also Future Energy Leaders, *The Shades of Green: Energy Environmental Sustainability Criteria and Indicators* (WEC 2019) 1

and other greenhouse gases (GHG) emissions.¹³⁴ This does not however suggest that RES technologies emissions are always accurately recorded because emissions from some RES like biomass are difficult to ascertain given their variability and sources.¹³⁵ For instance, emissions from industrialized biomass electricity production may be different from biomass from wood fuel by individuals.¹³⁶ Also, while CO₂ is absorbed from the atmosphere and stored by plants during growth, about the same quantity is released back into the atmosphere when biomass is burnt to produce energy.¹³⁷

The cultivation of biofuel crops such as sugarcane to produce biofuel requires significant volumes of water.¹³⁸ This significant water requirement can result in shortage of water supply for other users especially domestic users and livestock. In the US for example, the production of less than 4 litres of bioethanol consumes between 13 – 28 litres of water while an estimated 800 tonnes of water are required to grow a tonne of sugarcane.¹³⁹ Emphasis on the production of biofuel crops will threaten food security and access to water. In China, overexploitation of groundwater for production of biofuel crops has resulted in poor growth in grains which may cause scarcity and price hikes for local farmers and consumers.¹⁴⁰

Although it may be considerably low on GHG potential, RES does not eliminate environmental pollution.¹⁴¹ The production and transportation of RES technology equipment contribute to emissions.¹⁴² The production of photovoltaic (PV) cells for solar panels generates harmful pollutants affecting water and air quality.¹⁴³ Some countries may incur the adverse effects of the production of RES technology while another country benefits from its utilization. This is underscored by the production of RES facilities for developed countries by companies in developing countries in Asia.¹⁴⁴ For instance, while wind energy may be beneficial for

¹³⁴ National Academy of Engineering and Chinese Academy of Sciences, *The Power of Renewables: Opportunities and Challenges for China and the United States*, (National Academies Press, Washington, 2010) 93

¹³⁵ Ibid

¹³⁶ Ibid

¹³⁷ Akella et al (n 132) 394

¹³⁸ APERC (n 53) 31

¹³⁹ Ibid, 32

¹⁴⁰ Ibid

¹⁴¹ National Academy of Engineering and Chinese Academy of Sciences (n 134) 89

¹⁴² Ibid

¹⁴³ Ibid

¹⁴⁴ Benjamin K. Sovacool, Matthew Burkec, Lucy Baker, Chaitany Kumar Kotikalapudi, Holle Wlokas, 'New Frontiers and Conceptual Frameworks for Energy Justice' (2017) 105 Energy Policy 677, 684

electricity production in countries the UK, the production of wind turbines has occasioned the outsourcing of significant amounts of emissions to China and South Korea.¹⁴⁵

The transition to RES globally will result in a rapid increase in demand for various metals such as nickel, copper, cobalt, lithium, bauxite ore and rare earth metals.¹⁴⁶ Some of these metals are found in remote areas of the planet rich in biodiversity. Having previously been mined in smaller amounts, the increase in demand for these metals for RES production will result in over mining and undoubtedly jeopardise biodiversity conservation, except done sustainably. For instance, the mining of bauxite in Guinea threatens endangered chimpanzee population.¹⁴⁷ Also, in Indonesia, the mining of nickel has caused environmental pollution and poses a threat to biodiversity.¹⁴⁸

More so, during installation of renewables, wildlife habitat is significantly dislodged to make room for large wind and solar farms.¹⁴⁹ Similarly, hydro plants make use of large volumes of water which can potentially alter aquatic habitats and pose a threat to their existence.¹⁵⁰ It has been contended that overflowing of reservoirs in hydro plants can result in emissions of methane and CO₂.¹⁵¹

A greater understanding of the environmental impact of renewables is necessary to inform the development of bespoke laws and policies.¹⁵² Comparing the impacts of renewables viz-a-viz fossil fuel, will influence methods, designs, production, project location and mitigation strategies.¹⁵³ This understanding will inform the development of impact assessment legislation. The assessment of the environmental impact of RES as with conventional energy sources may be carried out on two levels.¹⁵⁴ The first level is the national or regional scale which seeks to identify the facility's average impact to enhance future improvements.¹⁵⁵ It comprises the life

¹⁴⁵ National Academy of Engineering and Chinese Academy of Sciences (n 134)

¹⁴⁶ Ashley Stumvoll, 'Shift to Renewable Energy Could Have Biodiversity Cost, Researchers Caution' available at <https://news.mongabay.com/2019/06/shift-to-renewable-energy-could-have-biodiversity-cost-researchers-caution/> accessed 07 July 2020

¹⁴⁷ Ibid

¹⁴⁸ Ibid

¹⁴⁹ National Academy of Engineering and Chinese Academy of Sciences (n 134)

¹⁵⁰ Ibid

¹⁵¹ L Gagnon and JF Van de Vate, 'Greenhouse Gas Emissions from Hydropower: The State of Research in 1996' (1997) Energy Policy vol 25 issue 1, 7-13; see also National Academy of Engineering and Chinese Academy of Sciences (n 134) 93

¹⁵² Ibid 90

¹⁵³ Ibid

¹⁵⁴ Ibid

¹⁵⁵ Ibid

cycle assessment of all the stages of the RES project from installation to decommissioning.¹⁵⁶ The second level deals with the immediate impact of the project on the local communities, and wildlife among others.¹⁵⁷

Another aspect of renewable energy that can pollute the environment is geothermal. When gas is released into the atmosphere from gas reservoirs during the production of electricity, emission of GHGs can occur depending on the gas composition.¹⁵⁸ This occurs mainly with the use of flash technology.¹⁵⁹ This can be managed by adequate facilities upgrade such as installing carbon capture and storage technologies, for prompt abatement.¹⁶⁰ The use of water in geothermal power plants places humans, plants, and animals in competition with the geothermal power plants for available water and this can adversely affect the social fabric of communities.¹⁶¹

1.12.2 Socio-Cultural Impacts

According to Akella et al, several factors influence social perceptions of the impacts of RES including income disparity, disproportion in available renewable sources, demography, climatic conditions, occupational differences between rural communities better known for agriculture, and industrialized urban areas.¹⁶² These factors determine what impacts are felt by certain societies as against other societies.¹⁶³

The siting of large hydroelectricity projects in most rural indigenous communities with predominantly agrarian and fishing population, have dire consequences for their livelihoods.¹⁶⁴ Apart from the risk of overflowing dams flooding their farmlands and homes, there is also the mass migration of fishes and loss of aquatic biodiversity.¹⁶⁵ This was the situation in the United States when the reservoir of Dalles Dam on the River Columbia flooded the neighbouring Celilo village, a predominantly fishing settlement and cultural village, forcing residents to flee

¹⁵⁶ Ibid

¹⁵⁷ Ibid

¹⁵⁸ National Academy of Engineering and Chinese Academy of Sciences (n 134) 94

¹⁵⁹ This is a process used in modern geothermal power plants to heat up sub-surface water for power generation. See also IRENA, Geothermal Power: Technology Brief, (IRENA, September 2017), 8

¹⁶⁰ National Academy of Engineering and Chinese Academy of Sciences (n 134) 95

¹⁶¹ Alexandros Gasparatos, Christopher NH Doll, Miguel Esteban, Abubakari Ahmed, and Tabitha A Olang, 'Renewable Energy and Biodiversity: Implications for Transitioning to a Green Economy' (2017) 70 Renewable and Sustainable Energy Reviews 161, 170

¹⁶² Akella et al (n 132)

¹⁶³ Ibid

¹⁶⁴ National Academy of Engineering and Chinese Academy of Sciences (n 134) 102

¹⁶⁵ See William L Lang, 'The Meaning of Falling water: Celilo Falls and the Dalles in Historical Literature' (2007) 108 Oregon Historical Quarterly 577

their ancestral homes and livelihood.¹⁶⁶ It is suggested that while hydroelectricity comes with many benefits for the wider society and indeed the country, the cost to the indigenous community is unquantifiable.¹⁶⁷ Entire communities may be displaced and ancient histories, cultures and traditions permanently distorted.¹⁶⁸ Local populations are not consulted before or during construction and operation of dams; and are forcefully displaced without adequate resettlement plans.¹⁶⁹ It is estimated that between 40-80 million people have been displaced by the construction of large dam projects, without regard to due process and compensation.¹⁷⁰ To address these anomalies, it is essential for a planning and consenting regime for RES development that makes public consultation and prior informed consent (social licence) an integral part of the application process for RES development.

The acquisition of communal lands by state apparatus for RES development can also interfere with indigenous religions and religious practices.¹⁷¹ The Electricity Act 2023 provides for the acquisition of land for electricity service production under a licence.¹⁷² The section empowers the Nigerian Electricity Regulatory Commission (NERC) to declare that land is required for the generation, transmission, or distribution of electricity.¹⁷³ Upon such a declaration, the right of occupancy of the landowner will be revoked in accordance with section 28 (4) of the Land Use Act 1978 as the land is deemed for ‘public purpose.’ In *AG of Lagos State v Harboni Ltd*,¹⁷⁴ the court held thus,

It is trite that government or appropriate authorities could acquire or revoke citizens' proprietary rights on their land, such authorities are bound in law to comply with all the requirements of the appropriate law, in this case the Land Use Act and Public Lands Acquisition Statute, as to the giving notice of the intended acquisition and payment of compensation therefore, to the erstwhile owners of such landed property. See Sections 5(2) and 28 of the Land Use Act 1978.

¹⁶⁶ Ibid

¹⁶⁷ Ibid

¹⁶⁸ Ibid

¹⁶⁹ Sovacool et al, ‘New Frontiers and Conceptual Frameworks for Energy Justice’ (n 144), 686

¹⁷⁰ World Commission on Dams, *Dams and Development a New Framework* (The Report of the World Commission on Dams, 2000) 16

¹⁷¹ National Academy of Engineering and Chinese Academy of Sciences (n 134) 104

¹⁷² Electricity Act 2023, S 118

¹⁷³ *ibid*

¹⁷⁴ (2021) LPELP – 55856 (CA)

In *Dumez Nigeria Plc v. Ademoye*,¹⁷⁵ the court stated that compulsory acquisition of land for public purpose included acquisition for the provision of electricity. Although compensation must be paid pursuant to such revocation, monetary compensation may not be sufficient in most cases involving ancestral lands as most communities have strong ancestral ties to their land as it doubles as a means of worship and cultural heritage. Hence, clearing a large tract of land to make room for RES projects may also desecrate ancestral places of worship and may be seen as a disrespect to their deities.¹⁷⁶ This thesis therefore argues that this situation raises a constitutional dilemma between the need to provide basic amenities for public purposes¹⁷⁷ (in this case electricity) and the right to worship for indigenous groups.¹⁷⁸ For instance, the freedom of religion guaranteed by the Nigerian Constitution allows any person to propagate their religion or worship either alone or in community with others.¹⁷⁹ This provision protects the right to worship for indigenous communities. To ensure energy justice, there is a need for law to settle this dilemma by setting acceptable standards for RES development without denying indigenous people the right to their cultural heritage and religious freedoms.

The United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) provides a useful model of provisions which cater for indigenous peoples' rights and can be adapted by states to suit domestic circumstances.¹⁸⁰ For instance, Article 8 mandates states to prevent actions that erode indigenous cultures and practices or that disposed them of their land and resources or forced migration and/or assimilation or institutional discrimination and segregation; it also urges states to provide means of seeking redress in the event of any such occurrence.¹⁸¹ Prior informed consent (social licence) and a just and fair compensation must be provided before relocating indigenous peoples.¹⁸² The right to the preservation of customs, heritage, and traditional and religious practices is guaranteed under Articles 11 and 12.¹⁸³ The right to be heard and to participate in decisions affecting them is essential.¹⁸⁴ These provisions promote distributive, procedural, recognition, and restorative justice as argued in this thesis.¹⁸⁵

¹⁷⁵ (2014) LPELR-23518 (CA)

¹⁷⁶ See UNDRIP, Art. 25

¹⁷⁷ See Land Use Act 1978, S 28

¹⁷⁸ Constitution of the Federal Republic of Nigerian 1999 (as amended), S 38

¹⁷⁹ *ibid*

¹⁸⁰ United Nations Declaration on the Rights of Indigenous Peoples (adopted by the UNGA 13 September 2007) A/RES/61/295

¹⁸¹ *Ibid* UNDRIP, Art. 8

¹⁸² See UNDRIP, Art 10

¹⁸³ *Ibid* UNDRIP, Art. 11 and 12

¹⁸⁴ See UNDRIP, Art. 18 and 19

¹⁸⁵ See chapter three of this thesis for the discussion on energy justice.

Although the UNDRIP provides exhaustive rights, its implementation is still left in the hands of the sovereign states with minimal observation of compliance.¹⁸⁶ In one breadth, it purports to give indigenous peoples the right to seek autonomy and self-determination;¹⁸⁷ whereas in another breadth, it provides, ‘Nothing in this Declaration may be ... construed as authorizing or encouraging any action which would dismember or impair, totally or in part, the territorial integrity or political unity of sovereign and independent States.’.¹⁸⁸ Despite its adoption by an overwhelming 144 states, including Nigeria and the UK, the UNDRIP has failed to address the marginalisation of most indigenous peoples for instance, the Uyghur Muslims in China.¹⁸⁹

It is argued that to effectively develop RES infrastructure with minimal impact on host communities and indigenous peoples, a cost-benefit analysis (CBA) should be incorporated into the planning and consenting regime. Integrating CBA in the planning and consenting process will ensure that relevant impact assessments are not only conducted to determine the impacts of the development but also weigh the social costs (such as alteration of physical features of the area) of the development against its benefits (such as job creation and provision of electricity access).¹⁹⁰ Given that impact assessments enable licensing authorities to make licensing decisions that serve the public interest, integrating CBA in a comprehensive environmental, socio-cultural, and economic impact assessment will provide licensing authorities with the vital information to premise licensing decisions.¹⁹¹ Upon conducting relevant comprehensive impact assessments, developers can rely on this information to win local support for RES projects such as wind turbines.

Disruption of scenic views of hills and wildland are some of the adverse impacts of wind energy that have led to public opposition to wind turbines.¹⁹² In *Wildland Ltd and The Welbeck Estates v Scottish Ministers*,¹⁹³ the petitioners challenged the issuance of planning permission for a 50 megawatt, 22-turbine onshore windfarm project on the grounds that NatureScot, a statutory consultee, was opposed to the wind farm as it obstructed scenic views and wildland. However,

¹⁸⁶ See UNDRIP, Art. 46

¹⁸⁷ UNDRIP, Art. 3 and 4

¹⁸⁸ UNDRIP, Art. 46(1)

¹⁸⁹ Roland Hughes, “China Uighurs: All you need to know on Muslim ‘Crackdown’” available at <https://www.bbc.co.uk/news/world-asia-china-45474279> accessed 14 August 2020

¹⁹⁰ Tadhg O’Mahony, ‘Cost-Benefit Analysis and the Environment: The Time Horizon is of the Essence’ (2021) 89 Environmental Impact Assessment Review 1, 2

¹⁹¹ See OECD, *Cost-Benefit Analysis and the Environment: Further Developments and Policy Use* (OECD Publishing, 2018); see also Tor Hundloe, Geoffrey McDonald, John Ware and Leanne Wilks, ‘Cost-Benefit Analysis and Environmental Impact Assessment’ (1990) 10 Environmental Impact Assessment Review 55,

¹⁹² See *Wildland Ltd and The Welbeck Estates v Scottish Ministers* [2017] CSOH 113

¹⁹³ *ibid*

the LPA, the Highland Council, had concluded that the adverse impacts would be minimal. The court held that the Respondent was not obliged to agree with the recommendation of statutory consultees, but only had to explain the reason for their decision and to respond to the points raised by the statutory consultee. Additionally, the impacts of wind energy have also been felt by wildlife.¹⁹⁴ It has been suggested that wind energy can pose harm to wildlife particularly birds and bats in various ways either by habitat loss, collision, or disturbance.¹⁹⁵ It can affect the migration patterns of birds including endangered species. Although wind farms can also be beneficial to some biodiversity.

Research has also suggested that offshore wind farms can be catalyst for increasing fish breeding by acting as artificial reefs.¹⁹⁶ The wind turbine substructure provides aquatic lives with a solid layer for organisms to congregate. This congregation then enhances breeding and results in an increase in their population.¹⁹⁷ The wildlife impacts of wind farms can be mitigated by choosing locations with little bird and bat populations to site wind farms.¹⁹⁸ Moreover, the development of RES infrastructure may help balance social inequities, especially in rural communities.

The adverse effects of the lack of affordable and reliable energy sources are mostly felt by women and girls, especially in the developing countries.¹⁹⁹ They are mostly saddled with domestic responsibilities based on socio-cultural roles (requiring energy for heating and cooking); therefore, the absence of energy means they must walk miles in rough terrains and forests in search of fuel wood.²⁰⁰ This raises issues of inequality against women. Although Nigeria has no statute on equality, it is signatory to the Convention on the Elimination of All Forms of Discrimination Against Women²⁰¹ and the adverse impacts of the lack of energy services disproportionately discriminates against women in contravention of the provisions of

¹⁹⁴ National Academy of Engineering and Chinese Academy of Sciences (n 134) 104

¹⁹⁵ RSPB, 'Wind Farms: How do wind Farms Affect Birds' available at www.rspb.org.uk/our-work/our-positions-and-casework/our-positions/climate-change/action-to-tackle-climate-change/uk-energy-policy/wind-farms/ accessed 17 September 2019

¹⁹⁶ Union of Concerned Scientists, 'Environmental Impacts of Wind Power' available at www.ucsusa.org/clean-energy/renewable-energy/environmental-impacts-wind-power/ accessed 17 September 2019

¹⁹⁷ Olivia Langhamer, 'Artificial Reef Effect in relation to Offshore Renewable Energy Conversion: State of the Art' (2012) 2012 The scientific world journal 1

¹⁹⁸ Union of Concerned Scientists (n 196) 546

¹⁹⁹ Julia Terrapon-Pfaff, Marie-Christine Gröne, Carmen Dienst, Willington Ortiz, 'Impact Pathways of Small-Scale Energy Projects in the Global South: Findings from a systematic evaluation' (2018) Renewable and Sustainable Energy Reviews 95, 91

²⁰⁰ Ibid; See also Tomei and Gent (n 106)

²⁰¹ Convention on the Elimination of All Forms of Discrimination against Women (adopted on 18 December 1979 and entered into force 3 September 1981) 1449 UNTS 13, Art 13 and 14

the convention.²⁰² The development of RES has been suggested to bring substantial benefits for women, including a reduction in the time spent fetching fuel wood for cooking, heating and lighting at home; a reduction in lung infections caused by air pollution from home, minimal danger of household fires and burns resulting from use of unsafe traditional cooking methods; increased health and nutritional benefits as a result of availability of cooked food, hot water and sustainable heating; and improved security due to availability of solar-powered street lighting at night, which also encourages attendance at night school and community participation.²⁰³ It could also support local businesses if the adverse impacts are assessed and addressed.

1.12.3 Economic Impacts

Transitioning a country's energy systems to RES comes at significant cost. Most developing countries in Africa and South America have rich deposits of oil and gas. The main source of national revenue in these countries comes from the sale and refining of oil and gas as well as the manufacturing of petrochemicals and other by-products of petroleum refining.²⁰⁴ The oil and gas sector not only contributes to the national income but also employs the larger population; both direct employment in the upstream and downstream sectors and indirect employment to distributors, contractors, marketers, suppliers, transporters, storage facilities, hospitality and tourism.²⁰⁵ Power stations in developing and developed countries are heavily reliant on fuels from oil and gas to provide electricity to the national grid. Similarly, most energy plants in Asia and America are powered by coal. Consequently, transitioning to RES will require the decommissioning of these power plants and the construction of new RES technologies.

With a large percentage of workers supported by fossil fuels, transitioning to renewables will create a demand for new skills and upskilling. It is argued in this thesis that to mitigate the impacts of transitioning to renewables on workers and the economy, there is a need to establish a transition programme to cater for the retraining of workers and transfer of skills from the

²⁰² *ibid*

²⁰³ United Nations Development Programme Asia-Pacific (UNDP), Towards an "Energy Plus" Approach for the Poor. A Review of Good Practices and Lessons Learned from Asia and the Pacific, (Bangkok, UNDP 2011) 31.

²⁰⁴ Nigeria Extractive Industry Transparency Initiative, 'Overview' available at https://eiti.org/es/implementing_country/32#:~:text=Revenue%20collection,USD%2017.055billion%20in%202016. Accessed 29 May 2020

²⁰⁵ OGJ Editors, 'Study: US Oil, Gas Industry Supported 10.3 Million Jobs in 2015' available at <https://www.ogj.com/general-interest/article/17288322/study-us-oil-gas-industry-supported-103-million-jobs-in-2015> accessed 29 May 2020

fossil fuel industry to renewables. International support is also essential to facilitate the transition and to finance RES infrastructural development to balance the demands of development.²⁰⁶ External support is needed as the huge sums required for other development priorities will be affected by large-scale RES deployment.

As noted earlier, the large-scale deployment of hydroelectricity can result in dislodging aquatic habitats and human communities (through involuntary resettlement).²⁰⁷ This can tremendously affect the economies of riverine communities whose residents depend on fishing as their livelihood. The disruption in fishing will not only affect the fishermen and their households but also the operators of seafood shops, restaurants as well as seafood transporters will be significantly affected. This may force coastal residents to migrate to urban cities to seek employment.

The development of RES results in an increase in employment.²⁰⁸ Employment opportunities arising from RES occurs at microeconomic and macroeconomic levels. According to the International Renewable Energy Agency (IRENA), over 500,000 new jobs were created by the renewable energy sector globally in 2018 and both direct and indirect employments for the sector amounted to 11 million.²⁰⁹ These figures increased to 12.7 million in 2021 as development in the sector increased.²¹⁰ The bulk of these jobs were in the manufacturing sector with solar, bioenergy, hydro and wind accounting for a large percentage of jobs created.²¹¹ Furthermore, job creation in the RES sector is seen in both developed and developing countries with China accounting for 40.9% of new renewable jobs.²¹² In the UK, the RES and the low carbon sector generated almost £54.4 billion in 2021.²¹³ The sector also employed approximately 247,400 people in the same year.²¹⁴ The lack of development in RES technology in Africa means the continent is yet to benefit from the huge job opportunities afforded by the sector.²¹⁵

²⁰⁶ Sustainable Energy for All, 'Nigeria's Vice President Launches Energy Transition Plan as Country Seeks USD 10 Billion Initial Support Package' available at: <https://www.seforall.org/news/nigerias-vice-president-launches-energy-transition-plan-as-country-seeks-usd-10-billion> accessed 16 December 2022

²⁰⁷ Sovacool et al 'Energy Decisions Reframed as Justice and Ethical Concerns' (n 11)

²⁰⁸ Akella et al (n 132) 391

²⁰⁹ IRENA, Renewable Energy and Jobs – Annual Review 2018, (IRENA, June 2019) 4

²¹⁰ IRENA, Renewable Energy and Jobs – Annual Review 2022, (IRENA, September 2022) 8

²¹¹ Ibid

²¹² Ibid 17

²¹³ Office for National Statistics, 'Low Carbon and Renewable Energy Economy UK; 2021' (Statistical Bulletin, 16 February 2023)

²¹⁴ Ibid

²¹⁵ Ibid

The economic benefits of RES go beyond direct RES jobs; it has multiplier effects as income earned from renewable jobs is spent on the local economy.²¹⁶ The economic activity generated by the increased spending results in increased revenues and jobs and improved livelihoods.²¹⁷ RES can potentially support the growth and development of small and medium enterprises by cutting down the cost of running a business including maintenance costs for electricity generating sets.²¹⁸

Under the UK planning and consenting regime for RES development, where a RES project is, ‘likely to have significant effects on the environment by virtue of factors such as its nature, size or location’, such a development must undergo environmental impact assessment (EIA).²¹⁹ Factors that must be identified and assessed include population and human health; biodiversity, especially protected species; land, soil, water, air and climate; material assets, cultural heritage and the landscape and the interaction of these factors.²²⁰ The impact assessment regime is extensive as it covers both the environmental and socio-cultural impacts. It can be inferred that assessing the impacts of the development on the population also envisages the impacts on the local economy and workforce. Additionally, to foster public participation in the planning and consenting process, the UK regime makes the publication of notice of the proposed development ‘in a local newspaper circulating in the locality in which the land is situated’ a mandatory condition.²²¹ Moreover, members of the public affected by the development can make a representation to the relevant planning authority.²²² However, the Regulation is silent on how opposition to the development should be considered in the decision-making process. Thus, aggrieved parties affected by the development may only be able to seek redress in court as a last option. However, court decisions have shown that where planning authorities comply with the provisions of the EIA regulations, such decisions cannot be overturned by the courts.²²³ In *R. (on the application of Finch) v Surrey CC*, the court held that a developer’s obligation to

²¹⁶ Akella et al (n 132) 391

²¹⁷ Ibid

²¹⁸ Julia Terrapon-Pfaff, Marie-Christine Gröne, Carmen Dienst, Willington Ortiz, ‘Impact Pathways of Small-Scale Energy Projects in the Global South: Findings from a systematic evaluation’ (2018) *Renewable and Sustainable Energy Reviews* 95, 90

²¹⁹ The Town and Country Planning (Environmental Impact Assessment) Regulations 2017, SI 2017/571, Regulations 1, 2 and 3, and Schedule 2 (3)

²²⁰ Ibid, Regulation 4 (2)

²²¹ Ibid Regulation 20

²²² Ibid

²²³ See *R. (on the application of Substation Action Save East Suffolk Ltd) v Secretary of State for Business, Energy and Industrial Strategy* [2022] EWHC 3177, *Abbotskerswell Parish Council v Secretary of State for Housing, Communities and Local Government* [2021] EWHC 555, *Swire v Ashford BC* [2021] EWHC 702, *R. (on the application of Finch) v Surrey CC* [2022] EWCA Civ 187

assess the environmental impact of oil mining does not extend to the impacts of the greenhouse gas from the mined oil.²²⁴

Unlike the UK regime, the Nigerian Environmental Impact Assessment Act 1992²²⁵ only requires the identification and studying of the impact of development on the environment.²²⁶ Such a limited approach to impact assessment shows a lack of understanding of the impacts of infrastructural development on the population, livelihoods, cultures, items of cultural significance, scenic views, as well as biodiversity. Ambiguous classification of these factors under ‘environment’ festers (mis)recognition injustice. Similarly, the Act provides a vague description of developments that require EIA, thereby implying that any development funded by the government at all levels, or for which a permit, or license was issued by any government department, requires EIA.²²⁷ While the Act provides for excluded projects which the president or council considers to be of minimal impact, the list of these projects is not accessible; if they are available.²²⁸ In *Helios Towers Nig. Ltd v. NESREA*,²²⁹ the court held that the EIA Act empowers the federal government and state governments to set make laws affecting the conduct of EIA. Thus, in *Baytide Nigeria Ltd v. Aderinokun*,²³⁰ a petrol station whose planning application was made under state EIA laws was exempt from the requirement of EIA under the Act.

While an application made under the Act is required to be published to give the public notice,²³¹ there is no requirement for the publication to be in a local newspaper circulating locally. Hence, a notice for a development in a rural area may be published in newspapers circulating in urban areas without the knowledge of residents of the community where the development is to be situated. Effective public engagement entails that notices should be published where local residents can best be reached such as in community centres, places of worship, and palaces of traditional rulers among others. It is also expedient that the notices are published in both English and local dialects to aid understanding.

²²⁴ *ibid*

²²⁵ Environmental Impact Assessment Act, CAP E12 Laws of the Federation of Nigeria 2004 (EIA Act)

²²⁶ *Ibid*, S. 3

²²⁷ *Ibid*, S 13

²²⁸ *Ibid*, S 14

²²⁹ (2014) LPELR-24624 (CA)

²³⁰ (2013) LPELR-19956(CA)

²³¹ EIA Act, S 24

1.13 Thesis Structure

This thesis is divided into eight chapters. Chapter one provides a background to the research. It sets out the hypothesis and research questions. The chapter further provides justifications and significance of the thesis as well as its original contribution. The chapter also defines key concepts including renewable energy, energy trilemma and energy justice.

Chapter two discusses the methodologies employed in the thesis. Given that this thesis is interdisciplinary it utilises several methodologies to analyse RES integration in Nigeria and the UK. The comparative methodology is used to comparatively analyse relevant laws, institutions and support schemes for RES deployment in Nigeria and the UK. The socio-legal method is also used to examine how the implementation of RES laws has promoted widespread deployment of RES in the UK. Given the implications of statutory provisions and case law in driving RES integration, the doctrinal method is engaged to facilitate legal analysis. The chapter also highlights the justifications for the choice of the UK as a comparator.

Chapter three unpacks energy justice. It analyses energy justice as a common thread that runs through the energy trilemma. The chapter further explores the theories of justice before delving into the principles of energy justice and their implication for RES development. The chapter highlights the importance of integrating energy justice principles in a RES planning and consenting regime. The chapter thereafter critiques the current energy justice and energy transition scholarship as being based on developed countries' perspective. The perspectives of developing countries are offered in this chapter. The chapter further discusses just energy transition and what it entails in the Nigerian context.

Chapter four discusses the current energy situation in Nigeria as well as the prospects and challenges of RES development. It provides a background to previous attempts at creating a renewable energy framework. The chapter evaluates the extant regulatory regime for electricity development and highlights the inadequacy of the Electric Power Sector Reform Act 2005 to address RES development. The institutional structures are also analysed in this chapter and how institutional weaknesses have hindered RES development. The chapter makes a case for support schemes to encourage RES development and discusses the implications of RES development on Nigeria's energy trilemma.

Chapter five appraises the legal framework supporting RES planning and consenting in Nigeria before highlighting the adverse impacts of the lack of an effective planning and consenting

regime. Given this lack of an effective RES planning and consenting regime in Nigeria, the chapter discusses the necessity and role of a RES planning and consenting regime in Nigeria. The chapter explores options for tackling energy access through private sector partnership and imperatives of energy democracy. The chapter concludes by assessing the implications on the energy trilemma.

The legal framework for RES development in the UK is discussed in chapter six. The chapter analyses the legislative and institutional regimes as well as the different support schemes available to encourage RES development in the UK. The chapter zeros in on the Scottish RES planning and consenting regime and the legal footing for energy justice and just transition guaranteed under the Scottish regime. Regardless of the impressive performance of the UK in balancing its energy trilemma, the chapter also identifies lapses inherent in the UK and draws lessons for Nigeria.

Chapter seven provides a comparative analysis of the RES regime in Nigeria and the UK and how both regimes promote energy justice and the just transition. It examines lessons that may be learned by Nigeria from the UK RES planning and consenting regime and explores the challenges and prospects of their implementation in the Nigerian context.

Chapter eight answers the central and subsidiary research questions and proffers recommendations both to advance energy law scholarship and for policymakers.

CHAPTER 2 – METHODOLOGY

2.1 Introduction

The multifaceted nature of renewable energy, energy justice and energy transition legal research require the adoption of an approach that unifies the various disciplines and themes into interdisciplinary legal research. Interdisciplinary legal research is a mode of research that integrates concepts, techniques, tools, perspectives, information, data, and theories from two or more disciplines to advance fundamental understanding and to solve legal problems, which cannot otherwise be achieved through legal research alone.²³² Interdisciplinary legal research draws on the specialised knowledge of different disciplines to address legal questions. It enables the legal researcher to first view the problem through the lenses of the experts in the field and thereafter translate the problem into the legal context, deducing the legal ramifications.²³³ For instance, the science of renewable energy and the socio-economic implications of the energy transition are beyond the scope of black letter legal research especially given their relative novelty.²³⁴ Hence, to regulate RES development and to facilitate a just energy transition, it is necessary to understand how renewables work and how best to promote their development through law.²³⁵ Similarly, unless the implications of the energy transition are understood in their social and economic context, it will be difficult to develop a transition programme that supports workers, communities, and indigenous peoples, and fosters a just energy transition anchored on law.²³⁶ However, communicating ideas from one discipline to another is a challenging aspect of interdisciplinary research as the use of terms, methods and systems could differ among disciplines.²³⁷

The interdisciplinary approach adopted in this thesis is expressed through the comparative methodology. This is because comparative research is assumed to be interdisciplinary as it engages different disciplines in the process of comparison.²³⁸ Hence, comparative methodology will be the primary research methodology used in this thesis. Nonetheless, the doctrinal

²³² Caroline L. Noblet and Dave Owen, 'Interdisciplinary Research and Environmental Law' (2014) 41 *Ecology Law Quarterly* 888, 892

²³³ *ibid*

²³⁴ Paul Chynoweth, 'Legal Research' in Andrew Knight & Les Ruddock (eds.), *Advanced Research Methods in the Built Environment* (Wiley-Blackwell, 2008) 30

²³⁵ Noblet & Owen (n 232) 893

²³⁶ *ibid*

²³⁷ Joshua Newman, 'Incentivising Interdisciplinary Research Collaboration: Evidence from Australia' (2023) *Journal of Higher Education Policy and Management* DOI: 10.1080/1360080X.2023.2267719

²³⁸ Jaakko Husa, *Interdisciplinary Comparative Law: Rubbing Shoulders with the Neighbours or Standing Alone in a Crowd* (Edward Edgar Publishing 2022) 9

methodology will be needed to analyse statutory provisions and case law.²³⁹ In addition, as the thesis seeks to evaluate the role of law in promoting RES development and fostering energy justice, the thesis employs socio-legal research method to understand law in action and how its implementation has increased RES development in the UK.

2.2 Research Methodology and Mode of Data Collection

2.2.1 Comparative Methodology

Primarily, this research adopts a comparative legal methodology. The comparative legal methodology involves a scholarly evaluation of the similarities and dissimilarities that exist between the legal systems of different jurisdictions.²⁴⁰ It entails joining different aspects of law from different jurisdiction while preserving their distinctive uniqueness.²⁴¹ It seeks to create inroads into the differences and commonalities that exist in different legal systems.²⁴² In carrying out a comparative analysis, the researcher acts like an independent observer.²⁴³ Carrying out a comparative analysis involving a familiar jurisdiction is very delicate. The tendency for bias is very high.²⁴⁴ Hence the need to get rid of preconceptions based on the knowledge of one's native legal system.²⁴⁵ Therefore, this thesis seeks to transcend the knowledge of the Nigerian legal system to produce a thorough research that is devoid of bias and open to new ideas for the improvement of the jurisprudence of RES law in Nigeria.

This thesis employs the functional method of comparison to identify the problems inherent in the RES regime in Nigeria and proffering practical solutions from examples in the UK RES framework. It is imperative to note from the outset that the energy priorities of both countries differ. These factors come into play when comparing both jurisdictions. The success or failure of a sector in a jurisdiction is traceable to its structural foundations including legislative support, political culture, economic means, and social structures.²⁴⁶ This study therefore seeks to evaluate the legal foundations upon which RES development rests in the UK, as this will

²³⁹ Terry Hutchinson & Nigel Duncan, 'Defining and Describing What We Do: Doctrinal Legal Research' (2012) 17 Deakin Law Review 83

²⁴⁰ Bryan A. Garner, *Black's Law Dictionary* (10th edn, Thomson Reuters 2014) 341

²⁴¹ Catherine Valcke, 'Reflections on Comparative Law Methodology – Getting Inside Contract Law' in M Adams and J Bomhoff (eds), *Practice and Theory in Comparative Law* (Cambridge University Press 2012) 22

²⁴² Michael Mehling, 'The Comparative Law of Climate Change: A Research Agenda' (2015) 24 Review of European Community & International Environmental Law 341

²⁴³ *ibid* 28

²⁴⁴ Mark Van Hoecke, 'Methodology of Comparative Legal Research' (2015) 12 Law and Method 1, 10.5553/REM/.000010, p. 27

²⁴⁵ *ibid*

²⁴⁶ Van Hoecke (n 244) 12

provide policymakers in Nigeria with an idea of how best to establish fit-for-purpose policies, legislation, institutions, and support mechanisms that can adequately regulate RES in Nigeria.

Comparative law is important in this research because apart from enhancing the understanding of law in the UK, it also encourages legal reforms in Nigeria.²⁴⁷ This research also utilizes the comparative methodology in understanding the interplay that exists in analysing the interrelationship between international, regional, national, and local laws on environmental governance.²⁴⁸

Considering that this research is interdisciplinary in nature and cutting across disciplines in law, politics, energy, environment, and economics among others, the comparative methodology helps in harmonizing these disciplines into a legal thesis.²⁴⁹ This is achieved by first gaining a theoretical understanding of political, energy, environmental and economic issues from the perspective of these disciplines and interpreting them into legal contexts to foster the development of laws and jurisprudence. It improves the appeal of the research to a wide variety of audiences including lawyers, legislators, scholars, policymakers, planners, diplomats, engineers, and academics.

In carrying out a comparative analysis, it is important to take into cognizance the historical as well as the socio-economic context of the law in the different jurisdictions.²⁵⁰ This is because the history and socio-economic aspects of the society influence the law. For instance, whilst provisions promoting a reduction in carbon emission may experience minimal opposition in the UK Parliament, a similar legislation (Climate Change Act 2021) spent over a decade in the Nigerian National Assembly partly because of the implications of such legislation on the oil and gas industry.

Legal transplantation may be implemented following a comparative research.²⁵¹ Legal transplant could be contemplated where the law in one jurisdiction is considered to be of a higher quality than in another jurisdiction.²⁵² For instance, the UK RES legal regime is more advanced than the Nigerian RES regime. However, transplanting legal reforms from one

²⁴⁷ Elisa Morgera, 'Global Environmental Law and Comparative Legal Methods' (2015) 24 *Review of European Community & International Environmental Law* 254, 259

²⁴⁸ *ibid* 261

²⁴⁹ *ibid* 262

²⁵⁰ *ibid* 6

²⁵¹ Rodolfo Sacco, 'Legal formants: A Dynamic Approach to Comparative Law' (1991) 39 *American Journal of Comparative Law* 1

²⁵² Irma Johanna Mosquera Valderrama, 'Legal Transplants and Comparative Law' (2004) *International Law Journal* 261

jurisdiction to the other is usually faced with various challenges including economic, political, cultural, language and historical differences.²⁵³ The development of law is a reflection of the political, historical, and cultural identity of the jurisdiction.²⁵⁴ For example, the evolution of law to promote RES development in the UK is borne out of the collective national need to reduce carbon emissions and diversify the energy mix.²⁵⁵ Thus, it will be difficult to transplant the UK RES regime to Nigeria given that oil and gas development sustains the Nigerian economy.²⁵⁶ Consequently, this thesis will employ the comparative methodology to identify the differences between the two regimes, and lessons that can be learned to improve the Nigerian regime as opposed to transplanting the UK RES regime in Nigeria.

Given that economic, political, language and historical differences are key factors that influence the enactment of legislation, the establishment of institutions, the creation of policies and the formulation of case law,²⁵⁷ a good comparative analysis requires comparing the law-in-context and not merely the law as written in statute.²⁵⁸ Comparing the laws and legal systems in different jurisdictions without more, is inadequate. Traditional comparative methodology does not prioritise the understanding of internal non-legal factors that affect the development and evolution of law such as economic status of the country, population, social structures, and political culture, among others. These factors determine why a piece of legislation, or a legal principle will be successful in one jurisdiction but struggle in another. The climate change and environmental litigation jurisprudence is an example. In the UK, non-governmental organisations (NGOs) can institute environmental claims to prevent environmental pollution without having to show personal damage. In *ClientEarth v. Secretary of State*,²⁵⁹ an NGO challenged the approval of a natural gas plant due to climate concerns, but the court held that the public interest benefit outweighs the climate concern. Meanwhile in Nigeria, litigants must show that they have suffered personal harm from the issue concerned to be able to bring an

²⁵³ Sean Whittaker, 'The Right of Access to Environmental Information and Legal Transplant Theory: Lessons from London and Beijing' (2017) 6 *Transnational Environmental Law* 509, 513,

²⁵⁴ Pierre Legrand, 'The Impossibility of 'Legal Transplants' (1997) 4 *Maastricht Journal of European and Comparative Law* 111

²⁵⁵ Elliott (n 78)

²⁵⁶ Elijah I Ohimain, 'Can the Nigerian Biofuel Policy and Incentives (2007) Transform Nigeria into a Biofuel Economy?' (2013) 54 *Energy Policy* 352, 353

²⁵⁷ Anatole Boute, 'Energy Justice Along 'the New Silk Road'' in Inigo del Guayo et al (eds), *Energy Justice and Energy Law* (OUP 2020) 125

²⁵⁸ Van Hoecke (n 244) 7

²⁵⁹ See [2021] EWCA Civ 43; see also *Plan B Earth and Others v. The Secretary of State for Business, Energy, and Industrial Strategy* [2018] EWHC 1892 (Admin)

action.²⁶⁰ In *Oronto Douglas v Shell Petroleum Development Company Nigeria Limited and Ors*,²⁶¹ an NGO instituted an action against the defendants for non-compliance with EIA Act. The case was struck out for lack of *locus standi* as the plaintiff could not show how he was personally affected. The case did not proceed to hearing. The strict attitude of the court is based on the importance of the oil and gas revenue and the need to prevent a floodgate of litigation which could affect the prospects of investment.²⁶² This is a factor that has affected the development of climate and environmental litigation in Nigeria.

The effectiveness of a law is judged largely on how it has been implemented to effect social change. This research seeks to analyse the law in action as it relates to how a RES planning and consenting regime has enhanced energy security and energy access for the population in the UK, and the adverse effects of the absence of a RES planning and consenting regime in Nigeria. It is an attempt to see how the law, as enacted is enforced in practice within the different jurisdictions to facilitate RES development.²⁶³ Consequently, this research will also employ the socio-legal method.

2.2.2 Socio-Legal Method

The socio-legal method situates legal analysis and legislation within the context of society. In socio-legal research, law is viewed as a part of society.²⁶⁴ Hence, social factors such as economy, politics, education, culture, and population influence the development and evolution of law. For instance, the slow progress in developing RES in Nigeria has been blamed partly on the Nigerian economy's reliance on oil and gas, as this could affect new investments in the oil and gas sector.²⁶⁵ It further assesses the operation of law to determine if the objectives of the law are met in the society.²⁶⁶ Although the socio-legal method does not always require empirical research, it may rely on existing empirical studies to inform desk-based analysis of law, society, and culture.²⁶⁷ The interdisciplinarity of the socio-legal method ensures that legal analysis goes beyond the black letter law to examine how the law works in practice.²⁶⁸ It allows

²⁶⁰ Uzuazo Etemire, 'The Future of Climate Change Litigation in Nigeria: COPW v NNPC in the Spotlight' (2021) 15 Carbon & Climate Review 158

²⁶¹ Unreported Suit No: FHC/L/CS/573/96, 17 February 1997

²⁶² Etemire (n 260)

²⁶³ *ibid*

²⁶⁴ Reza Banakar & Max Travers (eds.), *Theory and Method in Socio-Legal Research* (Hart Publishing, 2005) ix

²⁶⁵ Adeyanju et al (n 91)

²⁶⁶ Caroline Morris & Cian Murphy, *Getting a PhD in Law* (Hart Publishing 2011)

²⁶⁷ Nicole Graham, Margaret Davies and Lee Godden, 'Broadening Law's Context: Materiality in Socio-Legal Research' (2017) 26 Griffith Law Review 480, 483

²⁶⁸ Sally Wheeler and Phil Thomas, 'Socio-legal studies' in D. Hayton (ed), *Law's Futures*, (Hart Publishing 2000), 271

legal analysis to extend to other disciplines such as policy, environment, energy and society, and how the law influences their development.²⁶⁹ For instance, the socio-legal method can be utilised to examine how the legal framework for RES has been implemented to promote the security of supply, energy access and environmental sustainability in the UK and why energy laws have not had the same effect in Nigeria.²⁷⁰

The socio-legal method also examines law-in-action.²⁷¹ Beyond the text of the law, socio-legal method involves observing how the provisions of law are implemented in society. It observes how institutions of the state enforce rules and standards set out in statute. For instance, through the socio-legal method, the Contracts for Difference support scheme established in the Energy Act 2013 can be examined to determine how it has been implemented by Ofgem to promote RES deployment in the UK.²⁷² Socio-legal method looks beyond the normative character of law and questions its effectiveness in solving the societal problem for which it was created.²⁷³ It also observes how legal principles and statutory provisions are applied in courts.²⁷⁴ Socio-legal method looks at the application of legal principles in courts and their implication on society. For example, the socio-legal method aids in evaluating how court decisions on the environmental impacts of energy infrastructure have engendered a robust EIA regime in the UK.²⁷⁵

In utilising the socio-legal method, there is a need to be careful not to focus more on the ‘socio’ at the expense of the ‘legal’.²⁷⁶ Over reliance on the social aspect may detract from legal analysis, thereby weakening the strength of the legal arguments canvassed. There is also the danger of looking outside of law and legal institutions for a utopian solution to the problem.²⁷⁷ Therefore, in applying socio-legal method, it is apt to first embark on doctrinal analysis to gain an understanding of the law.

²⁶⁹ Graham, Davies & Godden (n 267) 500

²⁷⁰ Ibid, 482

²⁷¹ Dermot Feenan, *Exploring the 'Socio' of Socio-Legal Studies* (Palgrave Macmillan, 2013) 6

²⁷² See Energy Act 2013, Chapter 2

²⁷³ Darren O'Donovan, ‘Socio-Legal Methodology: Conceptual Underpinnings, Justifications and Practical Pitfalls’ in Laura Cahillane & Jennifer Schweppe (eds.), *Legal Research Methods: Principles and Practicalities* (Clarus Press, 2016) 135

²⁷⁴ Jean-Louis Halperin, ‘Law in Books and Law in Action: The Problem of Legal Change’ (2011) 64 *Maine Law Review* 46, 63

²⁷⁵ *ibid*

²⁷⁶ O'Donovan (n 273)

²⁷⁷ *ibid*

2.2.3 Doctrinal Method

The doctrinal method involves identifying and analysing the extant law in legislation, case law and statutory instruments on a subject area such as RES.²⁷⁸ Hence, the doctrinal method will be utilized in the comparative evaluation of primary legal sources such as case law and legislation which support RES development including the Nigerian Electricity Act 2023,²⁷⁹ Nigerian Electricity Management Services Agency Act 2015,²⁸⁰ Environmental Impact Assessment Act 1992,²⁸¹ the Nigerian Climate Change Act 2021, the Energy Act 2013,²⁸² and Climate Change Act 2008.²⁸³ Other subsidiary legislation, policies and regulations will also be considered in this thesis. The doctrinal method will facilitate the critical analysis of relevant legislation and case law relevant to RES, energy trilemma and energy justice.²⁸⁴ It will further enable the thesis to critically analyse relevant statutes to identify gaps and proffer recommendations.²⁸⁵

The doctrinal method focuses on the normative function of law.²⁸⁶ Its primacy of law over other standards and practices limits its effectiveness. Although this thesis advocates for the enactment of RES enabling laws to facilitate RES deployment, the role of policy is equally important. Policies are essential to outline government direction on RES development, however, based on Nigeria's legal jurisprudence, policies in themselves are usually unenforceable.²⁸⁷ For instance in *Ebhota vs. P. I. & P. D. Co. Ltd*,²⁸⁸ the Supreme Court held that the non-implementation of governmental policies does not give any person the right to enforce the policies against the government. Consequently, though policies have clearly defined targets and ambitions, unless these targets are anchored on statutory provisions, their implementation will be difficult. For instance, the Energy Act 2013 implemented the recommendations of the Electricity Market Reform.²⁸⁹ Where a policy is anchored on statute,

²⁷⁸ Terry Hutchinson & Nigel Duncan 'Defining and Describing What We Do: Doctrinal Legal Research' (2012) 17 Deakin Law Review 83, 110

²⁷⁹ Electricity Act 2023

²⁸⁰ Nigerian Electricity Management Services Agency Act 2015

²⁸¹ Environmental Impact Assessment Act, Cap. E12 Laws of the Federation of Nigeria, 2004

²⁸² Energy Act 2013, United Kingdom

²⁸³ Climate Change Act 2008, United Kingdom.

²⁸⁴ Terry Hutchinson, 'The Doctrinal Method: Incorporating Interdisciplinary Methods in Reforming the Law' (2015) 8 Erasmus Law Review 130, 131

²⁸⁵ P. Ishwara Bhat, 'Doctrinal Legal Research as a Means of Synthesizing Facts, Thoughts, and Legal Principles' in P. Ishwara Bhat (ed) *Idea and Methods of Legal Research* (OUP 2019) 155

²⁸⁶ O'Donovan (n 273)

²⁸⁷ *Ebhota vs. P. I. & P. D. Co. Ltd* (2005) 15 NWLR (Pt. 948) 266 at 289 paras D-E

²⁸⁸ *ibid*

²⁸⁹ Energy Act 2013, Pt 2

the means of implementation and the authority responsible for its implementation will be stated in the law. Thus, where the relevant authority fails to implement the provisions of the law, legal proceedings can be instituted against the relevant authority to enforce compliance.

Nevertheless, the doctrinal method's focus on analysing the texts of statutory provisions and the legal principles enunciated in case law is its key limitation.²⁹⁰ Its failure to evaluate the impact of the law in solving societal problems necessitates the use of other methods. Hence, the doctrinal method will be used simultaneously with the other methodologies discussed previously. Secondary sources such as journal articles, and statistics from International Renewable Energy Agency (IRENA), International Energy Agency (IEA), WEC and the World Bank (WB) will be used in this research. Considering the interdisciplinary nature of this research, other non-legal sources will be accessed during this research. Given that renewable energy, climate change and emission reduction are live issues, a wide range of newspaper reports and internet resources will be of aid in this research including LexisNexis, Google, WestLaw among others.

2.3 Justification of the UK as a Comparator Country

The choice of the UK as a comparator in this research is premised on several factors. Firstly, due to Nigeria's colonial history, its legal system is modelled after the English common law.²⁹¹ Just like in the UK, judicial precedent is relied on in Nigeria. Thus, in the absence of express statutory provisions on an issue, the courts have often stepped in to close the gap and such decisions become case law. For example, the determination of claims bordering on environmental pollution, climate change and environmental rights are not enforceable under the Nigerian Constitution; nevertheless, courts have stepped in to deliver threshold decisions that have shaped the development of environmental law in Nigeria.²⁹² The similarities in both legal systems have enabled Nigerian litigants to seek redress against UK owned companies for their activities in Nigeria. For instance, in *Okpabi v Royal Dutch Shell Plc*,²⁹³ the UK Supreme Court held that farmers affected by environmental pollution from the activities of a subsidiary

²⁹⁰ M Pradeep, 'Legal Research- Descriptive Analysis on Doctrinal Methodology' (2019) 4 International Journal of Management, Technology, and Social Sciences 95

²⁹¹ E.S. Nwauche, 'The Constitutional Challenge of the Integration and Interaction of Customary and the Received English Common Law in Nigeria and Ghana' (2010) 25 Tulane European & Civil Law Forum 37

²⁹² See *Shell Petroleum Development Company of Nigeria Limited v Banigo* (2011) LCN/4968 (CA); *S.P.D.C. (Nig) Ltd v Tiegbo VII* (2005) 9NWLR (Pt 931) 439 (SC); *Amos v Shell B.P. Petroleum Development* [1977] 6SC 70; *Chinda v Shell BP* (1974) 2 Rivers State Law Report 1, *Gbemre v SPDC* (2005) FHC/B/CS/53/05; *Centre of Oil Pollution Watch v NNPC* (2018) LPELR-50830(SC)

²⁹³ [2021] UKSC 3

company in Nigeria can sue the parent company in the UK. Additionally, the similarity in the laws and legal institutions makes it much easier to emulate as a significant percentage of Nigerian statutes are received English law or statutes of general application.²⁹⁴

Secondly, the decentralised regulatory regime for RES planning and consenting in the UK, which allows national institutions and LPAs to exercise regulatory powers over different types and generation capacities of RES technology, provides a workable exemplar for Nigeria given that its effectiveness has been key in enabling the UK to balance its energy trilemma with a score of AAA in all aspects of the trilemma and ranked fourth globally.²⁹⁵ It has also enabled the UK to significantly increase RES contribution in the energy mix. For example, in December 2022, 50% of electricity consumption in the UK was from renewable energy sources compared to 2% in December 1991.²⁹⁶ Although the UK regime is not flawless, Nigeria can learn from the positive aspects of the UK regime, whilst avoiding its shortcomings such as the failure to develop a RES regime which promotes domestic production of RES equipment to mitigate outsourced emissions.²⁹⁷

Thirdly, beyond inculcating the principles of energy justice and just transition in the development of energy and environmental law and policy, the Scottish planning and consenting regime specifically provides statutory support for energy justice and just transition in the Climate Change (Scotland) Act 2009.²⁹⁸ This further strengthens and justifies the arguments advanced in this research by providing a legislative example for operationalising energy justice and just transition in RES development.

Fourthly, the language similarity shared by the UK and Nigeria (English) affords ease of understanding of the statutes, policies, and literature. It further avoids the risks involved in translations where the meaning and intendment of statutory provisions may be lost in translation.²⁹⁹ Most words and expressions may have different meanings when translated from the original text. For instance, the following English phrasal verbs - *take action*, *make decision*,

²⁹⁴ Khairat Oluwakemi Akanbi, 'Views on the Echoing Influence of the Common Law on the Nigerian Legal System' (2022) 3 International Journal of Law and Clinical Legal Education 25

²⁹⁵ World Energy Council, World Energy Trilemma Index 2022 (WEC 2022)

²⁹⁶ National Grid, 'How Much of the UK's Energy is Renewable?' available at: <https://www.nationalgrid.com/stories/energy-explained/how-much-uks-energy-renewable> accessed 28 February 2023

²⁹⁷ Committee on Climate Change, 'Reducing the UK's Carbon Footprint' (CCC, April 2013), 9

²⁹⁸ Climate Change (Scotland) Act 2009, S 35C stipulates the just transition principles in the development of emission reduction actions.

²⁹⁹ Bradley J Condon, 'Lost in Translation: Plurilingual Interpretation of WTO Law' (2010) 1 Journal of International Dispute Settlement 191; Fernando Prieto Ramos, 'International and Supranational Law in Translation: From Multilingual Lawmaking to Adjudication' (2014) 20 The Translator 313, 320

and *pass ruling* when translated to German, become *undertake actions* (Handlungen vornehmen), *meet decision* (Entscheidung treffen), and *cut down ruling* (Urteil fällen).³⁰⁰ Thus, even when English translations are available, the meaning may be different from the intendment of the original texts. Moreover, it is more expensive to enlist the services of a professional legal translator from another language to English which further justifies the choice of UK as a single case study for this thesis.

Although multiple case studies may provide more evidence base for an extensive comparative analysis, this may be time consuming and expensive.³⁰¹ Meanwhile, where most of the key elements of the research are best addressed by a single case study, such as energy justice, just transition framework and a decentralised RES regulation in the UK, a single case study becomes more relevant to the research.³⁰² Admittedly, because of higher deployment of RES in electricity generation,³⁰³ other jurisdictions such as Germany and Finland may also offer good comparators, however, for the reasons provided above, the UK is a more suitable comparator for this thesis.

³⁰⁰ Ljubica Kordić, 'Specific Issues and Challenges in Translating EU Law Texts' (2020) 7 Athens Journal of Humanities & Arts 235, 242

³⁰¹ Robert Yin, *Case Study Research and Applications: Design and Methods* (6th edn, SAGE Publications, 2018) 58

³⁰² Ibid 84

³⁰³ IRENA, 'Country Rankings' available at: <https://www.irena.org/Data/View-data-by-topic/Capacity-and-Generation/Country-Rankings> accessed 15 February 2023

CHAPTER 3 – ENERGY JUSTICE AND THE JUST TRANSITION

3.1 Introduction

The drive to transition to low/ zero carbon energy is gaining global momentum. This is accelerated by increasing climate awareness, widespread national policies on renewables together with binding and non-binding obligations under regional and international legal instruments such as the Paris Agreement and EU Renewable energy directive.³⁰⁴ As good as it sounds, the transition to low/zero carbon energy comes at considerable social and economic cost including loss of revenue, job losses, loss of livelihood, rising living cost, increase in urban migration and food shortages.³⁰⁵ The economy of most countries is heavily dependent on fossil fuels, for example, Nigeria, such that transition to low/ zero carbon especially renewable energy sources (RES) will result in a significant loss of revenue and severely affect development in these countries and most sectors of the economy will be impacted.³⁰⁶

A rapid transition from fossil fuels to RES technology will lead to huge job losses in the fossil fuel sector as opportunities for employees in the fossil fuel extraction, for example, to be trained in the new RES technology sector or absorbed into the scheme of things, will be limited.³⁰⁷ Furthermore, the category of workers that will be affected goes beyond just primary workers in the upstream and downstream sectors of the fossil fuel industries; contractors, suppliers, office staff, casual and unskilled workers, hotels, and hospitality businesses serving the fossil fuel workers, property owners, transport operators and workers in fuel stations are also at risk of losing their jobs. Communities (including host communities and indigenous peoples) whose livelihoods depend on the fossil fuel sector will be adversely affected.³⁰⁸ Host communities will lose certain benefits that accrue to them from the fossil fuel-producing enterprises such as social amenities including pipe-borne water, primary health care buildings, electricity, school

³⁰⁴ Conference of the Parties to the United Nations Framework Convention on Climate Change, Paris Agreement (adopted 13 December 2015) FCCC/CP/2015/10/Add.1, Council Directive (EU) 2018/2001 on the promotion of the use of energy from renewable sources (2018) OJ L328/82; see also Ajay Gambhir, Fergus Green and Peter J G Pearson, 'Towards a Just and Equitable Low-Carbon Energy Transition' (Briefing Paper No 26, Grantham Institute, Imperial College London, August 2018) 1

³⁰⁵ Ahmed I. Osman et al, 'Cost, Environmental Impact, and Resilience of Renewable Energy under a Changing Climate: A Review' (2023) 21 Environmental Chemistry Letters 741

³⁰⁶ Alberto Americo, Jesse Johal and Christian Upper, 'The Energy Transition and its Macroeconomic Effects' (Bank for International Settlement Papers No 135, May 2023) 13

³⁰⁷ *ibid*

³⁰⁸ Gambhir, Green & Pearson (n 304)

buildings, sports and recreational facilities; scholarships and grants to indigenous people; royalty grants to traditional institutions; and skill acquisition programmes.³⁰⁹

Fossil fuels are heavily subsidised by governments to make them affordable for the population especially rural dwellers and poorer households.³¹⁰ If the transition to RES technology is not done justly, it can potentially increase the costs of energy and the trickle effect of such an increase in energy bills will result in higher cost of goods and services to the detriment of poorer households. In the UK, the implementation of renewable obligations increased household energy bills by £30.³¹¹ The acquisition and expansion of land for RES infrastructure would be detrimental to jobs in other sectors including agriculture thereby threatening food security as farmlands may be converted to build infrastructures such as wind and solar farms. Moreover, arable land may be used to produce biofuel plants rather than food crops which may affect food prices. For instance, between 2002 and 2008, biofuel production in the United States and Europe caused an increase in food prices.³¹² The loss of livelihoods by rural dwellers may cause them to migrate to cities to look for jobs thereby compounding the many challenges in the urban areas.

Additionally, most RES infrastructure such as wind turbines are more suitable to be cited in rural areas due to the availability of land at lesser expense than in urban areas. Consequently, the development of RES infrastructure in rural areas may raise issues of distributional, procedural and recognition justice as the socio-cultural lifestyles of rural dwellers and indigenous peoples may be disproportionately affected relative to the benefits that they receive themselves. Similarly, given that most fossil fuel companies may diversify their investments to renewables to meet legislative targets, it is imperative that social and environmental harms caused prior to the transition are not swept under the carpet, hence the need to incorporate environmental, social and governance (ESG) principle in such transitions.³¹³ Before converting stations housing crude oil wells and petroleum production plants to solar farms, for example,

³⁰⁹ See Shell, 'Shell Nigeria Students Scholarship Schemes' available at: <https://www.shell.com.ng/sustainability/communities/education-programmes/scholarships.html> accessed 10 February 2024

³¹⁰ Yingzhu Li, Xunpeng Shi, & Bin Su, 'Economic, Social and Environmental Impacts of Fuel Subsidies: A Revisit of Malaysia' (2017) 110 *Energy Policy* 51

³¹¹ Department of Energy and Climate Change, *Estimated Impacts of Energy and Climate Change Policies on Energy Prices and Bills* (DECC, 2013) 78

³¹² Jean-Marie Chevalier & Nadia S. Ouédraogo, 'Energy Poverty and Economic Development' In: Chevalier JM., Geoffron P. (eds) *The New Energy Crisis*, (Palgrave Macmillan 2013) 116

³¹³ Ting-Ting Li, Kai Wang, Toshiyuki Sueyoshi, and Derek D. Wang, 'ESG: Research Progress and Future Prospects' (2021) 13 *Sustainability* 1

remediation will be needed with the active participation of stakeholders including host communities, indigenous peoples, and workers. This will facilitate social licence for the proposed RES project.

In light of the foregoing, it is essential to incorporate principles of justice in developing climate, environmental and energy policies, and standards to fast-track the transition to low/ zero carbons. Importantly, the interests of vulnerable groups such as workers, host communities, indigenous peoples and rural dwellers ought to be considered from the outset and factored into such policies. In the absence of energy justice, the transition to low/ zero carbon energy will be faced with stiff resistance and eventual jeopardy which has characterised the petroleum sector in Nigeria.³¹⁴

This chapter will explore the theoretical basis for energy justice before unpacking the four principles of energy justice examined in this thesis – distributional justice, procedural justice, recognition justice and restorative justice. The chapter will further assess energy justice as a golden thread that runs through the energy trilemma, as opposed to a fourth limb of the energy trilemma. The imperatives of just transition will be discussed in this chapter. Furthermore, the chapter will explore the origins and developments in the just transition debate and current literature before critiquing the current scholarship on energy transition, predominantly based on developed countries’ perspectives. Consequently, a just energy transition through the lenses of developing countries will be advanced.

The underlying argument of this thesis is that the introduction of a RES planning and consenting regime should be done through the lens of energy justice as it is essential to balance the energy trilemma. To achieve this, the establishment of RES law and policy should seek to uphold the principles of energy justice. Where RES law and policy have energy justice at their core, this will ensure that the transition to low/ zero carbon energy will be just and fair to all sections of the society especially workers, host communities, and indigenous groups. This will entrench a just energy transition. Before getting to that point, it is essential to understand the theoretical basis for energy justice.

³¹⁴ Trade Union Congress, A Green and Fair Future for a Just Transition to a Low Carbon Economy (TUC, 2008) 1

3.2 Theoretical Underpinnings of Energy Justice

The foundations of energy justice are considered to have been influenced by John Rawls and his theorisation of justice as fairness or social justice.³¹⁵ In his theorisation of justice as fairness, Rawls postulates that the conception of justice results from a collective desire by all members of society to be treated with fairness, hence the social contract.³¹⁶ This entails the fair and equitable distribution of benefits, rights and ills among all members of the society regardless of status.³¹⁷ Understanding justice from the Rawlsian approach of justice as fairness dictates that the development of energy infrastructure should aim to evenly distribute the costs and benefits of energy services. For instance, the siting of RES infrastructure should not disproportionately affect rural dwellers. As Rawls argues, an individual's liberty should not be sacrificed for the benefit of the larger society.³¹⁸ However, social institutions exist to balance the competing interests of the individual and the collective.³¹⁹

Admittedly, while the exigencies of development may require some suffering by some groups over others, justice ensures that necessary trade-offs are made, and no single group is made to perpetually bear the burdens of society. Moreover, facilitating access to energy for rural communities aligns with justice as fairness as it not only ensures access to energy services but also makes room for institutional interventions (such as subsidies and other support schemes) to assist poorer households. Furthermore, being part of the social contract implies that members of the society should be involved in energy decision-making such as public engagement in the planning and consenting process for RES infrastructure. The principles of justice as fairness applied to energy justice can be implemented in the development of law and policy to promote energy security, energy equity and environmental sustainability.

3.3 Energy Justice as a Golden Thread that Runs through the Trilemma

Energy justice seeks to promote the welfare of vulnerable groups in the formulation of energy laws and policy to minimise the tendency for injustice due to 'policy capture' by a privileged few.³²⁰ Heffron et al argue that energy justice can be a tool to balance the three arms of the

³¹⁵ Jon Mandle, Rawls's 'A Theory of Justice': An Introduction (Cambridge Introductions to Key Philosophical Texts, Cambridge University Press, 2009) 35; Darren McCauley, *Energy Justice: Rebalancing the Trilemma of Security, Poverty and Climate Change* (Palgrave Macmillan, 2018) 11

³¹⁶ John Rawls, *A Theory of Justice* (OUP, Revised Edition, 1999) 11

³¹⁷ Ibid 13

³¹⁸ Mandle (n 315) 12

³¹⁹ Ibid

³²⁰ Heffron et al (n 85) 1193

energy trilemma.³²¹ In their view, in the formulation of energy law and policy under current energy paradigms, there has been a lack of equity and fairness as the interest of individuals are not always considered.³²² Heffron et al further submit that energy policy failure and energy subsidies have strengthened the economic commodification of energy based on cost thereby encouraging the promotion of low-cost fossil fuel at the expense of renewables. This lack of distributional, procedural, recognition, and restorative justice exacerbates inequality as energy companies, marketers and industrialists benefit from the policy failure and subsidies.³²³

Energy justice is thus considered as a concrete plan which establishes new paradigms and standards of operation in the energy sector.³²⁴ It seeks to respond to energy injustices through proactive law and policy.³²⁵ While developing law and policy to promote energy security, energy justice ensures that the energy services are available and evenly distributed among all groups in the society. It further ensures that these services are both accessible and affordable to the vulnerable groups. More importantly, energy justice ensures that law and policy encourage sustainable development and utilisation of energy resources with minimal impact to the environment, biodiversity, and people. According to McCauley, energy justice provides a framework to analyse the energy trilemma by looking at their implication on society and its stakeholders. Energy justice represents an agenda for scholars and lawyers to analyse the effects of energy law and policy.³²⁶ It places a responsibility on the state to establish equitable decision-making institutions and impartial adjudicatory structures to redress energy injustices.³²⁷ At each stage, to protect human rights such as proprietary rights guaranteed under the constitution,³²⁸ energy justice aims to apply justice principles throughout the energy life-cycle.³²⁹ This includes from project inception (including choice, location and acquisition of land for RES development) to the planning and consenting process (including engagement with stakeholders and addressing objections), and from the operation of the project (including connectivity and transmission to consumers) to decommissioning. It addresses three key issues

³²¹ Ibid 1194

³²² Ibid 1193

³²³ Ibid

³²⁴ Vanesa Castán Broto, Idalina Baptista, Joshua Kirshner, Shaun Smith and Susana Neves Alves, 'Energy justice and sustainability transitions in Mozambique' (2018) 228 *Applied Energy* 645, 646

³²⁵ Heffron et al (n 85); see also Raphael J. Heffron, 'Applying Energy Justice into the Energy Transition' (2022) 156 *Renewable and Sustainable Energy Reviews* 111936

³²⁶ Ibid

³²⁷ Broto et al (n 324) 647

³²⁸ See Constitution of the Federal Republic of Nigeria 1999 (as amended), S43 on the right to acquire and own property and S 44 on the right to compensation where land is compulsorily acquired for public purpose under the law; see also Land Use Act 1978, Ss 28 & 29

³²⁹ Ibid

namely, the origins of energy injustices, societal victims of energy injustice, and remediation mechanisms to expose and mitigate energy injustices.³³⁰ Energy justice owes its origins to environmental and climate justice.³³¹ Hence it possesses a more comprehensive platform to address environmental concerns in energy development whilst also addressing availability and accessibility to energy services. Therefore, Heffron et al rightly recommend energy justice as a solution to the energy trilemma.³³² By identifying energy problems such as uneven distribution of cost and benefits, lack of due process and unfair representation in decision-making, energy justice offers a pathway for remediation.³³³ It goes further to question the economic leanings of energy policies and infrastructure development.³³⁴ Consequently, Sovacool et al contend that integrating energy justice into energy law and policy will prioritise issues of equity and equality and minimise emphasis on profit and energy commodification.³³⁵

3.4 Appraising Energy Justice

Sovacool et al defined energy justice as, ‘global energy system that fairly disseminates both the benefits and costs of energy services, and one that contributes to more representative and impartial energy decision-making.’³³⁶ This definition captures the distributional aspect – fair distribution of energy costs and benefits; and the procedural aspect – due process in energy decision-making. They however omit the recognitional and restorative aspects of energy justice. In the same vein, Siciliano *et al* consider energy justice under two aspects of distributive justice and procedural justice.³³⁷ Meanwhile, McCauley et al categorise energy justice under three theories – distributional justice, procedural justice and recognition justice.³³⁸ In justifying this categorisation, Jenkins et al observe that to effectively confront injustice, it is important to identify: the cause – distribution, those affected – recognition, and remediation structures – procedure.³³⁹ Heffron and McCauley add restorative justice as a fourth principle of energy

³³⁰ Kirsten Jenkins et al, ‘Energy Justice: A Conceptual Review’ (2016) 11 *Energy Research & Social Science* 174, 175

³³¹ McCauley et al, ‘Advancing Energy Justice: The Triumvirate of Tenets’ (n 68)

³³² Raphael J. Heffron, Darren McCauley & Benjamin Sovacool, ‘Resolving Society’s Energy Trilemma through the Energy Justice Metric’ (2015) 87 *Energy Policy* 168

³³³ *Ibid*, 172

³³⁴ *Ibid* 175

³³⁵ Sovacool et al, ‘New Frontiers and Conceptual Frameworks for Energy Justice’ (n 144); Aileen McHarg, ‘Energy Justice: Understanding the ‘Ethical Turn’ in Energy Law and Policy’ in Inigo del Guaya et al (eds.), *Energy Justice and Energy Law* (Oxford University Press 2020) 16

³³⁶ Sovacool et al ‘Energy Decisions Reframed as Justice and Ethical Concerns’ (n 11) 4

³³⁷ Giuseppina Siciliano, Daniela Del Bene, Arnim Scheidel, Juan Liu and Frauke Urban, ‘Environmental Justice and Chinese Dam-Building in the Global South’ (2019) 37 *Environmental Sustainability* 20, 22

³³⁸ McCauley et al, ‘Advancing Energy Justice: The Triumvirate of Tenets’ (n 68) 108

³³⁹ Jenkins et al (n 330) 175

justice.³⁴⁰ This thesis will adopt four principles of energy justice namely: distributional justice, procedural justice, recognition justice, and restorative justice.

3.4.1 Distributional Justice

Distributional justice entails an even distribution of the gains and ills of energy to individuals in the society irrespective of physical, social, or economic differences.³⁴¹ In the Jenkins et al analysis, socially disadvantaged groups are unduly affected by energy projects. This is because energy infrastructures are usually sited in localities occupied by less powerful and poorer social classes.³⁴²

Energy poverty among some sections of society is a fallout of distributional injustice.³⁴³ Lack of distribution justice fosters more social injustices on vulnerable groups. For example, people with little or no access to electricity have fewer opportunities for educational progression, are prone to respiratory and other health diseases, have low political representation, low-paying jobs, high crime rates, and premature deaths than those with adequate power supply.³⁴⁴ Similarly, malaria thrives most in areas with erratic power supply because mosquitos are more effective in the absence of good sanitary conditions and absence of electricity. Proponents of distributional justice contend that the right to energy services is a basic right with equal importance as the right to housing, food, and a clean environment.³⁴⁵ The enjoyment of basic rights is impossible in the absence of energy services and a safe environment.³⁴⁶

Distributional justice further questions how the burdens of energy costs are distributed whilst also exploring injustices that arise from energy production and consumption.³⁴⁷ Distributional justice investigates how the siting of energy projects occasions injustices.³⁴⁸ It has been argued

³⁴⁰ Heffron and McCauley, 'The Concept of Energy Justice Across the Disciplines' (n 71)

³⁴¹ *ibid*

³⁴² *Ibid*

³⁴³ Sovacool et al 'Energy Decisions Reframed as Justice and Ethical Concerns' (n 11) 3

³⁴⁴ *Ibid.* see also J Lelieveld, J Evans, M Fnais, D Giannadaki and A Pozzer. 'The Contribution of Outdoor Air Pollution Sources to Premature Mortality on a Global Scale' (2015) 525 *Nature* 367

³⁴⁵ Henry Shua, 'Human Rights, Climate Change, and the Trillionth Ton' in Denis Arnold (ed.), *The Ethics of Global Climate Change* (Cambridge University Press, 2011) 298

³⁴⁶ Simon Caney, 'Cosmopolitan Justice, Responsibility and Global Climate Change' (2005) 18 *Leiden Journal of Int. Law* 747, 768

³⁴⁷ Jenkins et al (n 330) 176

³⁴⁸ *Ibid*

that pollution prone energy infrastructures are sited in localities inhabited by the poor and ethnic minorities.³⁴⁹

Beyond the issue of the location of infrastructures, distributional justice is also concerned with access to energy. This is relevant because of the uneven distribution of the benefits and ills of energy production in society. Vulnerable groups in low-class areas where the energy facilities are located, often tend to benefit least from the presence of the facilities.³⁵⁰ Apart from characteristically being among the poorest in the society, they also lack access to basic amenities such as jobs, good healthcare services, good roads, pipe-borne water, food, grid electricity and education.³⁵¹ They are often deprived of their farmlands and cultural heritage for the ‘public good’. Meanwhile they are usually poverty headquarters, barely getting access to energy services (even where these services are sited in close proximity) and at risk of environmental pollution.³⁵² The upper-class, lives in opulence with regular access to energy services and can afford all the luxuries of life. Though they benefit most from energy infrastructure, they do not face the noise pollution and environmental degradation that come with siting of energy facilities.³⁵³

Distributive injustice counteracts Rawls’ theory of justice as fairness as it festers disproportionate distribution of energy services especially against vulnerable sectors of society. Another area of distributional injustice is in the ownership of energy resources. Most energy infrastructures are either state or privately owned. The private owners are mostly of the upper class.³⁵⁴ This takes energy policy decision-making outside the purview of those mostly affected. To forestall this distributional injustice, this thesis argues for a more citizen-led energy ownership model through community energy and energy democracy.³⁵⁵ More importantly, public engagement in energy decision-making with foster procedural justice.

³⁴⁹ McCauley et al, ‘Energy Justice in the Transition to Low Carbon Energy Systems: Exploring key Themes in Interdisciplinary Research’ (n 72), 917

³⁵⁰ McHarg (n 335) 18

³⁵¹ *ibid*

³⁵² Saidou Abdoulaye Sy & Lamia Mokaddem, ‘Energy Poverty in Developing Countries: A Review of the Concept and its Measurements’ (2022) 89 *Energy Research & Social Science* 102562

³⁵³ *ibid*

³⁵⁴ Jennie C. Stephens, ‘Energy Democracy: Redistributing Power to the People Through Renewable Transformation’ (2019) 61 *Environment: Science and Policy for Sustainable Development* 4, 12; see also Forbes, ‘The 10 Richest Green Energy Billionaires In 2021’ available at: <https://www.forbes.com/sites/jenniferwang/2021/04/22/the-10-richest-green-energy-billionaires-in-2021/> accessed 10 February 2024

³⁵⁵ Matthew Burke, ‘Shared yet Contested: Energy Democracy Counter-Narratives’ (2018) 3 *Frontiers in Communication* 1; See also section 5.9, chapter 5 on energy democracy.

3.4.1.1 Energy Security as Distributional Justice

Energy security is defined by the International Energy Agency as, ‘the uninterrupted availability of energy sources at an affordable price.’³⁵⁶ Gunningham defines energy security as the availability of a reasonably priced, adequate, and reliable energy supply.³⁵⁷ Energy security refers to the management of external and domestic energy sources efficiently to meet present and prospective consumer demands.³⁵⁸

The European Commission’s perception of energy security is aptly captured in its Green Paper as, ‘the uninterrupted physical availability of energy products on the market, at a price which is affordable for all consumers (private and industrial), while respecting environmental concerns and looking towards sustainable development.’³⁵⁹ The Asia Pacific Energy Research Centre (APERC) defines energy security as ‘the ability of an economy to guarantee the availability of energy resource supply in a sustainable and timely manner with the energy price being at a level that will not adversely affect the economic performance of the economy.’³⁶⁰ APERC further identify four areas of energy security – four A’s of energy security (availability, accessibility, acceptability and affordability); availability of energy resources, ability to access these resources, acceptability of energy resources considering their impact and ability to afford energy resources.³⁶¹ Proedrou refers to energy security simply as, ‘that situation whereby states face no energy shortages and meet their energy needs at no excessive cost and without further deteriorating the state of the environment.’³⁶² In recognizing that energy cuts across all aspects of society, energy security therefore involves the development of a robust system of administration that ensures that primary supply of energy is enough to service the ever-increasing energy demands.³⁶³

³⁵⁶ IEA, ‘Energy Security: Ensuring the Uninterrupted Availability of Energy Sources at an Affordable Price’ available at <https://www.iea.org/areas-of-work/ensuring-energy-security> accessed 21 May 2020

³⁵⁷ Gunningham (n 103) 186

³⁵⁸ Arup, ‘Five Minute Guide to the Energy Trilemma’ available at <https://www.arup.com/perspectives/publications/promotional-materials/section/five-minute-guide-to-the-energy-trilemma> accessed 17 May 2019

³⁵⁹ Commission of the European Communities, *Towards a European Strategy for the Security of Energy Supply* (Green Paper, COM 769, 2000) 2

³⁶⁰ APERC (n 53) 6

³⁶¹ Ibid

³⁶² Filippou Proedrou, *EU Energy Security in the Gas Sector: Evolving Dynamics, Policy Dilemmas and Prospects* (Ashgate Publishers, 2012) 3

³⁶³ Ibid

The definition of energy security encompasses availability (politics of supply), affordability (economics) and sustainability (environment) concerns.³⁶⁴ Traditional notions of energy security have emphasised the politics and economics of energy over the environmental dimension due to the commodification of energy. The historical roots of energy, traditionally derived from coal, oil and natural gas, have been a source of influence onto the energy discourse in the last century.³⁶⁵ Thus, energy security has been considered in political terms as a public good and in economic terms as a market commodity.³⁶⁶ This thinking pattern influences the development of energy policies nationally and globally.³⁶⁷ Consequently, energy policies have been designed based on fossil fuels paradigms hence, environmental concerns have always been ancillary.³⁶⁸ However, global awakening to the devastating environmental degradation resulting from traditional energy sources has made room for a paradigm shift. Recently, energy policies have been introduced or amended to promote the development of sustainable alternative energy sources to mitigate climate change.³⁶⁹ This has given room for the development of low/ zero carbon energy alternatives such as nuclear and RES. Consequently, the implications of climate change for energy security have been accorded due recognition. This has further ignited the debate around recognising that climate change infringes on basic human rights such as the right to life guaranteed under the law.³⁷⁰ It is argued that the adverse impacts of climate change hinder the enjoyment of fundamental human rights.³⁷¹ Thus, the development of RES to address energy security needs will simultaneously mitigate the adverse impacts of climate change and foster the enjoyment of human rights.³⁷²

Energy security addresses basic human needs ranging from energy access, economic development, and public health among others.³⁷³ The importance of energy security is felt at various levels of society from the household to workplace and national to international.³⁷⁴

³⁶⁴ Proedrou, 'Energy Security in a Steady-State World' (n 67) 110.

³⁶⁵ Cherp and Jewell, 'The Three Perspectives on Energy Security: Intellectual History, Disciplinary Roots and Potential for Integration' (n 56) 4

³⁶⁶ *ibid*

³⁶⁷ *ibid*

³⁶⁸ Proedrou, 'Energy Security in a Steady-State World' (n 67)

³⁶⁹ See Climate Change Act 2008, (UK) and Climate Change (Emissions Reduction Targets) (Scotland) Act 2019

³⁷⁰ See Constitution of the Federal Republic of Nigeria 1999 (as amended), S 33

³⁷¹ Verena Kahl, 'A Human Right to Climate Protection: Necessary Protection or Human Rights Proliferation?' (2022) 40 *Netherlands Quarterly of Human Rights* 158

³⁷² *ibid*

³⁷³ Martin J Pasqualetti and Benjamin K Sovacool, 'The Importance of Scale to Energy Security' (2012) 9 *Journal of Integrative Environmental Sciences* 167, 168

³⁷⁴ *ibid*

Energy security is the effective management of both domestic and imported energy resources to cater for the energy demands of the population.³⁷⁵

According to Pasqualetti and Sovacool, though each country's perception of energy security may differ based on its developmental status, it is agreed across the board that sustainability, reliability and affordability are an integral part of energy security.³⁷⁶ Energy security is considered an integral part of national security not only because it signifies advancement in development but also because the availability of energy resources and services affords a country the opportunity to efficiently police its borders whilst deploying state-of-the-art equipment to prevent external aggression as well as exercise a measure of influence over other countries.³⁷⁷ This is exemplified by the influence wielded by foreign powers that supply energy resources and equipment. For instance, Russia has gained significant influence over buyers of its oil and gas.³⁷⁸ Consequently, in responding to sanctions imposed on it due to the war in Ukraine, Russia disconnected gas supplies to Poland, and limited supplies to other European countries including the UK.³⁷⁹ This action led to an energy crisis in Europe as the UK contemplated the idea of rationing energy.³⁸⁰ Similarly, China is ramping up its nuclear energy export profile through its Belt and Road Initiative in Pakistan, and international partnership on nuclear projects in the UK.³⁸¹ The overseas influence of energy security is mostly exercised through state-owned/ controlled companies operating in another country. For instance, EDF Energy in the UK.³⁸²

³⁷⁵ Ahmed Abdulwali Mohammed Haidar Al Asbahi, Feng Zhi Gang, Wasim Iqbal, Qaiser Abass, Muhammad Mohsin and Robina Iram, 'Novel Approach of Principal Component Analysis Method to Assess the National Energy Performance via Energy Trilemma Index' (2019) 5 Energy Reports 704, 705

³⁷⁶ Pasqualetti and Sovacool, (n 373), 175

³⁷⁷ Polona Šprajc, Miroslav Bjegović, Bojana Vasić, 'Energy Security in Decision Making and Governance – Methodological Analysis of Energy Trilemma Index' (2019) 114 Renewable and Sustainable Energy Reviews 1; see also Jack A Jarmon, *New Era in US National Security: An Introduction to Emerging Threats and Challenges* (Rowman & Littlefield Publishers 2014)

³⁷⁸ Kirsten Robertson, "Millions 'Facing Power Cuts and Electricity Rations this Winter'" available at: <https://metro.co.uk/2022/05/30/millions-of-homes-could-face-power-cuts-and-rationed-electricity-16733697/> accessed 15 December 2022

³⁷⁹ CNN, 'Russia shuts off Gas Supplies to Poland and Bulgaria' available at: <https://edition.cnn.com/2022/04/26/energy/poland-russia-gas/index.html> accessed 15 December 2022

³⁸⁰ Robertson (n 378)

³⁸¹ David Yellen, 'The Trade War we want China to Win: China's Nuclear Exports can Challenge Russian Dominance' available at <https://www.atlanticcouncil.org/blogs/energysource/the-trade-war-we-want-china-to-win-chinas-nuclear-exports-can-challenge-russian-dominance/> accessed 19 June 2020

³⁸² EDF Energy is a French state-owned company and a major energy producer and distributor in the UK. See EDF Energy, 'About Us' <https://www.edfenergy.com/about> accessed 19/06/2020.

Furthermore, the need for self-sufficiency in energy security has been prioritised by developed countries in response to the oil price shocks of the 1970s.³⁸³ Prior to the '70s, the United States was the major producer of crude oil but as its demand increased, it had to resort to the Arab countries of the Middle East and North Africa which had larger crude oil deposits to meet its domestic needs.³⁸⁴ Having renegotiated oil prices with foreign oil companies to secure a better deal, these countries had taken control of oil leadership.³⁸⁵ At the outbreak of political tension between Israel and Egypt over the Golan height and the Sinai peninsula in October 1973, Arab member states of the Organisation of Petroleum Exporting Countries (OPEC) imposed an oil embargo on western governments who supported Israel, including the US.³⁸⁶ This caused widespread shortages in the supply of petroleum resources in the US and other western states.³⁸⁷ After the embargo was lifted in March 1974, the International Energy Agency (IEA) was established by western states to address energy security among its members – developed countries.³⁸⁸ This situation resulted in increased attention on domestic energy sufficiency, focus on alternative energy and energy efficiency (sustainability).³⁸⁹

Political changes also influence energy security. Given the change in policy direction which usually accompanies political transition, uncertainty in government policy thrust and frequent policy change can affect energy security.³⁹⁰ Energy infrastructure is dependent on investment; hence investors withhold their investment in a climate of policy uncertainty.³⁹¹

The terrain of an area can be a barrier to energy security. For instance, small island states are faced with high costs of energy resources importation, infrastructure construction and maintenance cost due to their location.³⁹² Their vulnerability to natural disasters also poses a

³⁸³ Terry Macalister, 'Background: What Caused the 1970s Oil Price Shock?' <https://www.theguardian.com/environment/2011/mar/03/1970s-oil-price-shock> accessed 13 August 2020

³⁸⁴ Ibid

³⁸⁵ Rasoul Sorkhabi, 'The First Oil Shock' available at <https://www.geoexplor.com/articles/2015/06/the-first-oil-shock> accessed 13 August 2020

³⁸⁶ Kai Ryssdal, 'How an Oil Shortage in the 1970s Shaped Today's Economic Policy' <https://www.marktplace.org/2016/05/31/how-oil-shortage-1970s-shaped-todays-economic-policy/> accessed 13 August 2020

³⁸⁷ Ibid

³⁸⁸ Sorkhabi (n 385)

³⁸⁹ Ibid

³⁹⁰ Abidah B Setyowati, 'Mitigating Energy Poverty: Mobilizing Climate Finance to Manage the Energy Trilemma in Indonesia' (2020) 12 Sustainability Journal 1, 7

³⁹¹ Ibid

³⁹² Dinesh Surroop, Pravesh Raghoo, Franziska Wolf, Kalim U. Shah and Pratima Jeetah, 'Energy Access in Small Island Developing States: Status, Barriers and Policy Measures' (2018) 27 Environmental Development 58, 63

threat to energy security.³⁹³ For example, a category 5 tropical cyclone, Winston resulted in widespread electricity disruption in Fiji and other neighbouring islands.³⁹⁴ Inaccessibility to some rural areas due to their swampy nature, for example, has been cited as a reason for the absence of basic amenities including energy infrastructures.³⁹⁵ These areas require higher construction costs to erect power cable lines and transportation of equipment.³⁹⁶ It is argued in this research that though these are legitimate concerns, they ought not to be the basis for denying the residents electricity services. Considering that irrespective of their remoteness, during elections, political candidates still travel to campaign for votes and election materials always get to these rural communities. The establishment of a RES planning and consenting regime that facilitates the deployment of decentralised mini-grid and off-grid systems powered by RES may adequately cater for the energy needs in such remote areas.³⁹⁷

Domestic security threats to energy infrastructure can pose a great challenge to energy security. For example, in the Niger Delta region of Nigeria, agitation and arms struggle by local militia groups and freedom fighters for better social welfare, together with government inaction and complicity by oil and gas multinational corporations, have destroyed oil and gas facilities thereby halting energy production in most oilfields.³⁹⁸ In North Africa, insurgency and economic sabotage by terrorists have raised energy security concerns both for domestic use and export.³⁹⁹ Similarly, the proliferation of illegal artisanal refineries in the Niger Delta region buoyed by oil theft and oil leakages from faulty oil pipelines poses a threat to energy security as well as compromising environmental protection.⁴⁰⁰

A country's security of supply built on conventional energy systems is influenced by various external factors including economic, social, and political notions of its energy resource

³⁹³ Franziska Wolf, Dinesh Surroop, Anirudh Singh and Walter Leal, 'Energy Access and Security Strategies in Small Island Developing States' (2016) 98 *Energy Policy* 663, 665

³⁹⁴ Ibid

³⁹⁵ Setyowati (n 390)

³⁹⁶ See Ebele Onyeabo, 'China in Africa – A Tale of Strategic Interests, Diplomacy, Energy Security, and Morphing Loans' available at <https://anrelnetwork.com/china-in-africa-a-tale-of-strategic-interests-diplomacy-energy-security-and-morphing-loans/> accessed 25 June 2020

³⁹⁷ Oliver Wyman, *World Energy Trilemma Index 2019* (World Energy Council, 2019) 49; see also Matthew Dornan, 'Access to Electricity in Small Island Developing States of the Pacific: Issues and Challenges' (2014) 31 *Renewable and Sustainable Energy Reviews* 726, 729

³⁹⁸ CNN, Nigerian Militant Group Attacks Major Oil Pipelines (May 25, 2009) available at <http://edition.cnn.com/2009/WORLD/africa/05/25/nigeria.militants.oil.platforms/index.html> accessed 28 May 2020

³⁹⁹ Lacher and Kumetat (n 120) 4470

⁴⁰⁰ Moses Obenade and Gordon T Amangabara, 'The Socio-Economic Implications of Oil Theft and Artisanal Refining in the Niger Delta Region of Nigeria' (2014) 3 *International Journal of Science and Research* 2390, 2391

supplying country.⁴⁰¹ Political changes portend a possible foreign policy tweak which may also affect international trade and relations. Similarly, a supplier government's economic policy can affect the supply of energy resources to purchasers of its energy resource. For example, the 'gas wars' between Russia and Ukraine were prompted by Russia cutting its gas supply to Ukraine whilst passing through Ukraine to supply other European countries.⁴⁰² Disputes over prices of natural gas have been a source of concern between Russia and Belarus.⁴⁰³ Domestic security threats not only affect a country but can also affect its ability to supply energy resources to other countries. For instance, the security threats to oil and gas resources by terrorists and other insurgents in Algeria have affected oil and gas supply to Italy and other European countries in the past.⁴⁰⁴ It is against this backdrop that this research argues in favour of the establishment of a planning and consenting regime to accelerate RES deployment as it ensures energy sovereignty.⁴⁰⁵ To avoid a stalemate in energy supply, countries must diversify their energy mix and energy resource suppliers to achieve energy security.⁴⁰⁶ Essentially, the development of domestic RES technology will ward off such threats to energy security posed by security challenges from supplying countries whilst promoting domestic energy security.

Despite the nuances in energy systems, an evaluation of the energy security of a country cannot be achieved without considering the inter-dependencies within energy geopolitics.⁴⁰⁷ Countries still depend on each other to satisfy their energy needs; this could range from the purchase of energy resources (oil, gas, coal, and uranium), to the production of energy infrastructure (gas and coal turbines) and equipment (solar photovoltaic panels or wind turbines) or transportation routes.⁴⁰⁸ Such interdependencies may be exploited to gain geopolitical advantage as shown in Russia disconnecting Poland from gas supply and thus threatening energy security.⁴⁰⁹

⁴⁰¹ Aliaksandr Novikau, 'Conceptualizing and Achieving Energy Security: The Case of Belarus' (2019) 26 Energy Strategy Reviews 100408, 2

⁴⁰² Yusin Lee, 'Interdependence, Issue Importance, and the 2009 Russia-Ukraine Gas Conflict' (2017) 102 Energy Policy 199, 201

⁴⁰³ Novikau (n 401) 1

⁴⁰⁴ See Lacher and Kumetat (n 120)

⁴⁰⁵ Energy sovereignty has been defined as, 'the right of conscious individuals, communities and peoples to make their own decisions on energy generation, distribution and consumption in a way that is appropriate within their ecological, social, economic and cultural circumstances, provided that these do not affect others negatively' Pablo Cotarelo et al, 'Defining Energy Sovereignty' available at https://odg.cat/wp-content/uploads/2014/08/energy_sovereignty_0.pdf accessed 20 May 2020

⁴⁰⁶ Lee (n 402)

⁴⁰⁷ Patrick Gasser, 'A Review on Energy Security Indices to Compare Country Performances' (2020) 139 Energy Policy 111339, 3

⁴⁰⁸ Ibid

⁴⁰⁹ Daniel Boffey, 'Russia Accused of Blackmail After Gas Supplies to Poland and Bulgaria Halted' available at: <https://www.theguardian.com/world/2022/apr/27/russia-accused-of-blackmail-gazprom-gas-supplies-poland-bulgaria-halted> accessed 10 May 2022

According to Cherp and Jewell, a proper understanding of the four A's of energy security – accessibility, affordability, acceptability, and availability, influences energy policies.⁴¹⁰ While governments aim to develop law and policy to enhance the security of supply and sustainability, it is imperative to ensure that the produced energy is both accessible and affordable to the consumers – these are issues which energy equity seeks to address.⁴¹¹

3.4.1.2 Energy Equity as Distributional Justice

Hall, Hards and Bulkeley define energy equity as, 'access to affordable, safe and reliable energy'.⁴¹² On their part, Xu and Wang define energy equity as, 'the fair distribution of the burdens and benefits of energy production and consumption.'⁴¹³ Energy equity gains expression when government policies integrate social equity like affordable and reliable energy for the populace.⁴¹⁴ Energy equity relates to access to energy and affordability for consumers especially low-income earners and rural dwellers.⁴¹⁵ Energy is viewed as a 'public good' and this therefore imposes an obligation on the government to not only ensure its availability but ultimately, affordability.⁴¹⁶ As the energy debate around the security of supply gains momentum, an important aspect of the debate borders on eliminating energy poverty hence the need for equity.⁴¹⁷ Energy equity speaks of inequality expressed in the lack of access to energy services.⁴¹⁸ It is aptly captured under energy poverty – lack of energy access occasioned by infrastructural deficit, or unaffordability of available energy services because of low income.⁴¹⁹ Where a household's income falls below the national poverty rate after deducting energy bills, such a household is effectively classified as energy poor.⁴²⁰ Apart from households that are below the poverty line based on income threshold, lack of infrastructure or high cost of energy services tends to drag otherwise comfortable households into the poverty cluster.

⁴¹⁰ Cherp and Jewell, 'The concept of Energy Security: Beyond the Four As' (n 58) 420

⁴¹¹ See also Azzuni and Breyer (n 59)

⁴¹² Sarah Marie Hall, Sarah Hards and Harriet Bulkeley, 'New Approaches to Energy: Equity, Justice and Vulnerability' (2013) 18 *Local Environment* 413, 415

⁴¹³ Shengqing Xu and Tao Wang, 'On Energy Equity and China's Policy Choices' (2017) 28 *Energy & Environment* 288, 289

⁴¹⁴ *ibid*

⁴¹⁵ See WEC 2017 (n 113) 27

⁴¹⁶ *Ibid*

⁴¹⁷ Sarah Marie Hall, Sarah Hards and Harriet Bulkeley, 'New Approaches to Energy: Equity, Justice and Vulnerability' (2013) 18 *Local Environment* 413

⁴¹⁸ Athanasios Pliousis Kostas Andriosopoulos, Michalis Doumpos, and Emiliios Galariotis, 'A Multicriteria Assessment Approach to the Energy Trilemma' (2019) 40 *The Energy Journal* 143, 148

⁴¹⁹ *Ibid*

⁴²⁰ John Hills, *Fuel Poverty: The Problem and its Measurement* (CASE Report 69, DECC, 2011) 98

Energy poverty varies from country to country. Energy consumption per capita in a country is dependent on its gross domestic product (GDP).⁴²¹ Thus, high-income countries with a high GDP consume more energy than low-income countries. For example, energy consumption in the US is 80 times more than in sub-Saharan Africa.⁴²² Income level affects energy consumption habits, hence income growth results in an increase in energy consumption.⁴²³ While higher income may instigate waste in energy use, energy efficiency measures are essential.⁴²⁴ Given that generally, income after deduction of energy cost determines energy poverty in most climes, a lower income earner with even lesser energy cost may not be classed as energy poor whereas a higher income earner with higher fuel cost may be energy poor.⁴²⁵ However, energy poverty is defined in developed countries in relation to the cost of energy services in comparison with household income; thus where a significant amount of household income is spent on energy bills above the national median, such a household is considered ‘fuel poor’.⁴²⁶ Meanwhile, energy poverty in developing countries is largely the lack of availability and access to affordable basic energy services including for domestic and commercial use.⁴²⁷

An aspect of energy poverty is access to electricity which has been defined as ‘the ability to connect to and secure affordable, adequate and reliable electricity supply for basic needs.’⁴²⁸ Energy needs differ from country to country, and society to society. Generally, social status determines the energy needs of a household.⁴²⁹ For example, an average rural Nigeria household’s energy requirement may include basic lighting, charging of mobile devices, radio, and cooking. Meanwhile, the energy needs of an upper-class city household include air-conditioning, electricity for lighting, boilers, television sets and sound system, water pumps, washing machine, refrigerator, charging of mobile devices, desktop or laptop computer,

⁴²¹ Chevalier and Ouédraogo (n 312) 107

⁴²² Ibid 102

⁴²³ Stephen Karekezi, Susan McDade, Brenda Boardman, John Kimani and Nora Lustig, ‘Energy, Poverty, and Development’ in Global Energy Assessment Writing Team (Author), *Global Energy Assessment: Toward a Sustainable Future* (pp. 151-190). (Cambridge University Press, 2012) 163

⁴²⁴ Ibid

⁴²⁵ Athanasios Pliousis Kostas Andriosopoulos, Michalis Doumpos, and Emiliios Galarriotis, ‘A Multicriteria Assessment Approach to the Energy Trilemma’ (2019) 40 *The Energy Journal* 143, 148

⁴²⁶ Department of Business, Energy and Industrial Strategy, *Annual Fuel Poverty Statistics Report, 2020* (BEIS, 2020) 3; see also Edo Omic, *Energy Poverty in Europe: How Energy Efficiency and Renewables Can Help* (CEB, 2019)

⁴²⁷ Rajesh H Acharya and Anver C Sadath ‘Energy Poverty and Economic Development: Household-Level Evidence from India’ (2019) 183 *Energy & Buildings* 785, 786

⁴²⁸ Ankit Kumar, ‘Sustainable Energy for All: Can We Take Care of the ‘All’?’ in Julia Tomei and Danielle Gent (eds.) *Equity and the Energy Trilemma: Delivering Sustainable Energy Access in Low-Income Communities* (International Institute for Environment and Development, 2015) 8

⁴²⁹ Franz Fuerst et al, ‘Determinants of Energy Consumption and Exposure to Energy Price Risk: A UK Study’ (2020) 6 *Z Immobilienökonomie* 65

microwave, ironing, electric kettle, toaster, and cooking. From the examples given, the energy requirements of the upper-class are significantly greater than the lower class. Based on their economic means, while the upper-class household may utilize a mixture of energy systems such as grid electricity, gas, and fuel-powered generators to satisfy their energy needs; lower class households may depend on kerosene lamps, small commercial mobile charging outlets and firewood to meet their energy needs. This highlights the energy inequity inherent in energy poverty. In developed countries with a middle class, high cost of energy is dragging more middle-class households into fuel poverty as they also struggle with rising food cost. Intrinsic inequity occasioned by fuel poverty is demonstrated where consumers from the upper-class of society who can afford grid electricity benefit from subsidies and schemes such as the feed-in tariffs and other renewable energy incentives whereas middle and lower-class energy consumers must pay disproportionately higher cost for lesser consumption of grid electricity for which they are solely dependent upon. This social inequity adversely affects vulnerable groups.

Energy poverty poses great risks to vulnerable members of society such as women and girls, the elderly, and children. Women and children are usually the most affected groups as they travel long distances to fetch firewood and water, primarily for cooking purposes.⁴³⁰ They are often exposed to health risks, attacks by wild animals and sexual predators.⁴³¹ In India for example, over half a million untimely deaths of women and children from respiratory diseases occur annually from the use of firewood.⁴³² In rural areas, studying hours for children are rather spent in search of firewood thereby limiting academic productivity.⁴³³ The elderly population are also affected as those living alone may find it difficult to meet their domestic energy needs. Energy poverty also impedes development.⁴³⁴ Availability and access to energy encourage the springing up of small and medium businesses and crafts. Thus, lack of access results in reduced productivity as owners of these businesses stay idle until electricity access is restored; alternatively, they may purchase power-generating sets to boost their businesses whilst

⁴³⁰ Danielle Gent and Julia Tomei, 'Responding to Global Energy Paradigms? Electricity Reforms in Central America' in Julia Tomei and Danielle Gent (eds.) *Equity and the Energy Trilemma: Delivering Sustainable Energy Access in Low-Income Communities* (International Institute for Environment and Development, 2015) 18

⁴³¹ Amie Gaye, *Access to Energy and Human Development* (UNDP, Human Development Report Office Occasional Paper No. 2007/25) 8

⁴³² UNESCO, *Energy Equity and Environmental Security* (Ethics and Climate Change in Asia and the Pacific Project Working Group 7 Report, 2011) 2, see also Amie Gaye, *Access to Energy and Human Development* (UNDP, Human Development Report Office Occasional Paper No. 2007/25) 7

⁴³³ *Ibid*, 3

⁴³⁴ Kumar (n 428) 15

increasing the cost of goods and services. The boundaries of energy access perception need to extend beyond providing basic lighting for homes to other wide-ranging domestic needs and business utilities and these services should be affordable.

Apart from access, affordability is another limb of energy equity. Where energy services are available and accessible the question of affordability must be answered to determine the status of energy poverty. There is no equity when available energy services are unaffordable. Evaluating affordability involves looking at the income levels of the populace. Generally, in developing countries energy services may be affordable to urban dwellers (with better incomes) but not to rural dwellers (who rely on traditional biomass for energy).⁴³⁵ This imposes a duty on the government to ensure that energy services are made affordable to the poor masses.⁴³⁶ This can be done by exploring cheaper energy alternatives, for example off-grid and mini-grid RES projects for rural electrification or subsidising energy services for low-income earners to accelerate universal access.

Tomei and Gent have argued that the Sustainable Development Goals (SDGs), particularly SDG 7 – sustainable energy for all, have a link with energy equity.⁴³⁷ According to them, to eradicate energy poverty for sustainable energy access for all, there is a need to balance the trilemma and make necessary trade-offs.⁴³⁸ Energy equity stems from the need for economic benefits to be evenly distributed.⁴³⁹ The discourse on energy justice is founded upon energy equity.⁴⁴⁰ Energy equity also requires that members of the society are given a fair opportunity to participate in energy decision-making that affects them. The analysis on public engagement is aptly captured by procedural justice.

3.4.2 Procedural Justice

Procedural justice requires inclusiveness and public participation devoid of all forms of discrimination.⁴⁴¹ Procedural justice advocates representative justice, emphasises public participation and due process.⁴⁴² It represents a call for all groups and peoples to be given the

⁴³⁵ Gaye (n 431)

⁴³⁶ This duty is enshrined in chapter 2 of the Constitution of the Federal Republic of Nigeria 1999 (as amended)

⁴³⁷ Julia Tomei and Danielle Gent (eds), *Equity and the Energy Trilemma: Delivering Sustainable Energy Access in Low-Income Communities*, (International Institute for Environment and Development 2015) 7

⁴³⁸ *ibid*

⁴³⁹ Felix Morman, 'Clean Energy Equity' (2019) *Utah Law Review* 335-381, 41

⁴⁴⁰ See McCauley et al, 'Energy Justice in the Transition to Low Carbon Energy Systems: Exploring key Themes in Interdisciplinary Research' (n 72)

⁴⁴¹ *Ibid*, 917

⁴⁴² Sovacool et al 'Energy Decisions Reframed as Justice and Ethical Concerns' (n 11) 2

unfettered opportunity to air their opinion in energy policy decision-making. The process of decision-making is of utmost importance under procedural justice.⁴⁴³ It deals with who is recognised while consultation is ongoing, who partakes in the decision-making and how is the decision-making power shared among stakeholders.⁴⁴⁴ For instance, in conducting public consultation as part of the environmental impact assessment (EIA) process for RES development, procedural justice entails that residents are adequately notified, and their concerns are addressed before planning consent is granted.⁴⁴⁵

Procedural justice also questions the impartiality and transparency of decision-making institutions. Therefore, all stakeholders should be consulted, and their concerns adequately attended to before energy policies are made. This calls for an expansive negotiation table that sits all relevant stakeholders including trade unions, indigenous peoples, and host communities. Civil tension, economic sabotage, and violent activism in the Niger Delta in opposition to oil and gas exploration in the region, has been blamed on the non-inclusion of host communities in decision-making and lack of adequate compensation.⁴⁴⁶ Consequently, it is expedient that public participation through public consultations, townhall meetings and calls for written representations be encouraged in the course of designing a new energy framework for the transition to low/ zero carbon energy. Moreover, handlers of such transition must make full and honest disclosure of information to the public including possible health, economic, social, and environmental impacts.

Another aspect of procedural injustice arises in the involuntary resettlement of millions of people due to energy projects.⁴⁴⁷ An estimated 4 million people are involuntarily displaced annually due to the construction of hydroelectricity plants.⁴⁴⁸ An example of such involuntary displacement is the indigenous Native American tribes of Dene, Cree and Metis who have been forced out of their ancestral home by the expansion of oil tar sands development in Canada.⁴⁴⁹ Apart from indigenous peoples, the elderly, the infirm and women have been impoverished by such resettlement effects (the loss of physical and non-physical assets such as homes, communities, land, livelihood, kinship, cultural structures, traditional sites and symbols,

⁴⁴³ Ibid

⁴⁴⁴ Ibid

⁴⁴⁵ See The Town and Country Planning (Environmental Impact Assessment) Regulations 2017, Reg. 20

⁴⁴⁶ Angela Ajodo-Adebanjoko, 'Towards Ending Conflict and Insecurity in the Niger Delta Region: A Collective Non-Violent Approach' (2017) 17 AJCR 1

⁴⁴⁷ Sovacool et al 'Energy Decisions Reframed as Justice and Ethical Concerns' (n 11) 2

⁴⁴⁸ Ibid

⁴⁴⁹ Ibid

cultural image and support systems) and lack of basic amenities take a toll on them.⁴⁵⁰ Such resettlements, usually done without the consent of the people, denies them the opportunity to adequately prepare and this creates ‘new poverty’.⁴⁵¹ Failure to mitigate the impact of abrupt and unplanned resettlement leaves the population worse off with irreversible consequences of a breakdown in health, loss of social status, joblessness, and landlessness.⁴⁵²

Engaging indigenous local knowledge is essential in energy decision-making.⁴⁵³ Enlistment of local know-how is an aspect of procedural justice. Seeking the opinion of local communities has the advantage of utilising their knowledge of the terrain and ecosystems; thus, useful in conducting environmental impact assessments.⁴⁵⁴ The United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) rightly observed that, ‘...respect for indigenous knowledge, cultures and traditional practices contributes to sustainable and equitable development and proper management of the environment’.⁴⁵⁵ However, unless the UNDRIP principles are enacted into domestic legislations (such as RES laws), the ends of procedural justice will still remain far-fetched as indigenous peoples will be outliers in energy decision-making. Procedural justice also probes issues of representation in decision-making institutions. To guarantee fair and equitable decisions, all sectors of society, ethnicity, race, and gender must be recognised and represented in political, social, and corporate institutions such as energy committees, boards of corporations, and parliament.⁴⁵⁶

Although the Nigerian EIA Act,⁴⁵⁷ gives stakeholders including members of the public, the opportunity to make comments on the environmental impacts of a project, the Act is silent on how those comments will affect the project. Similarly, the publication requirements of projects under the UK EIA Regulations⁴⁵⁸ allows members of the public to make representations about a proposed project. However, the Regulations does not provide for how those representations will affect the project.

⁴⁵⁰ Theodore E Downing, ‘Avoiding New Poverty: Mining-Induced Displacement and Resettlement’ (International Institute for Environment and Development, 2002) 11

⁴⁵¹ Ibid 8

⁴⁵² Ibid 9

⁴⁵³ Jenkins et al (n 330) 179

⁴⁵⁴ Ibid

⁴⁵⁵ See para. 11 of the preamble to the United Nations Declaration on the Rights of Indigenous Peoples (adopted by the UNGA 13 September 2007) A/RES/61/295, 4.

⁴⁵⁶ Jenkins et al (n 330) 179

⁴⁵⁷ Environmental Impact Assessment Act 1992, S 7

⁴⁵⁸ The Town and Country Planning (Environmental Impact Assessment) Regulations 2017, Reg. 20

3.4.3 Recognitional Justice

Recognition justice goes beyond mere participation and involves fair representation and equality devoid of threats of all forms.⁴⁵⁹ Individuals must have equal decision-making rights as others in the development of energy policy.⁴⁶⁰ Recognition justice entails the understanding that different interest groups and peoples may have divergent perspectives on an array of issues; and their viewpoints must be respected even though not in alignment with others. It calls for respect for contrary tribal, social, racial and gender opinions. Misrecognition may take the form of disrespect, non-recognition, and cultural domination.⁴⁶¹ Before labelling opponents to RES development as NIMBYs,⁴⁶² recognition justice requires an understanding of the contextual basis of their opposition. This could be because of their attachment to ancestral lands or objection to the obstruction of communal recreational locations. Acknowledging these concerns will enable developers and planning authorities to design and develop RES infrastructure that avoids adverse effects to these unique features. Lack of recognition justice manifests itself in the form of cultural domination, downgrading and degradation of people's customary identities, sentiments, and value systems.⁴⁶³ An example of this may be demonstrated by a disregard for traditional deities, totems, sacred communal forests, and cultural festivals of communities in the siting of RES infrastructure. Another example is the wanton disregard of the livelihoods of fishermen and women in riverine areas in the development of hydroelectricity.

Recognition justice also requires an understanding that the particular needs, rights, circumstances, and experiences of certain groups make them more vulnerable to energy decisions.⁴⁶⁴ For example, the elderly and disabled people are more susceptible to adverse weather conditions, hence they require greater amounts of energy to meet their basic needs (heating, cooling, cooking and access to water). Similarly, recognition justice identifies societies that are underserved or unserved, and seeks to ensure that these groups are catered for in the development of RES infrastructure. Identifying these social inequities will facilitate the licensing of mini-grid and off-grid RES infrastructure to meet those most affected.

⁴⁵⁹ McCauley et al, 'Advancing Energy Justice: The Triumvirate of Tenets' (n 68) 109

⁴⁶⁰ Jenkins et al (n 330) 177

⁴⁶¹ Ibid. see also Nancy Fraser, 'Social Justice in the Age of Identity Politics' in G Henderson (ed.) *Geographical Thought: A Praxis Perspective* (Taylor and Francis 1999) 56

⁴⁶² Not in my backyard (NIMBY) is a term used to reference opposition to infrastructural development.

⁴⁶³ Ibid

⁴⁶⁴ McHarg (n 335) 21

3.4.4 Restorative Justice

Restorative justice seeks to remedy the harm done to the people and the environment due to the development of energy infrastructure.⁴⁶⁵ Integrating restorative justice at the beginning of the project will ensure that previous harms are repaired, and future harms are prevented. In the context of RES development in Nigeria, given the potential of international oil companies to diversify to RES technology, restorative justice entails the remediation of harm caused to the people and the environment during oil and gas production. For such developments to succeed, pollution clean-up must be a mandatory requirement for the issuance of RES development licenses. Restorative justice also demands that decommissioning plans are part of the planning and consenting application requirements for RES development. The pollution of local communities and the Amazon in Ecuador by Chevron,⁴⁶⁶ and the pollution of Ogoni land by Shell in Nigeria⁴⁶⁷ highlight the need for a decommissioning plan for energy development. To avoid a repeat of these historical environmental degradations, a planning and consenting framework for RES development should implement restorative justice by mandating decommission plans and programmes to address grievances arising from both the development and operation of RES infrastructure.

Applying restorative justice in energy decision-making ensures that where the cost of remediation outweighs the benefit of the project, planning consent may be granted conditionally or refused outright.⁴⁶⁸ Restorative justice further entails identifying where injustices occur and developing new approaches for the avoidance and remediation of these injustices.⁴⁶⁹ It is a problem-solving tool that predicts the possibility of harm and sets out means of remediation.⁴⁷⁰ This is possible by creating remediation funds to tackle the incidence of pollution arising from the development of RES infrastructure such as pollution of water bodies

⁴⁶⁵ Heffron and McCauley, 'The Concept of Energy Justice Across the Disciplines' (n 71) 660

⁴⁶⁶ See Audrey Crasson, 'The Case of Chevron in Ecuador: The Need for an International Crime Against the Environment?' (2017) 9 *Amsterdam Law Forum* 29-48; see also Lorenzo Pellegrini, Murat Arsel, Martí Orta-Martínez, and Carlos F. Mena, 'International Investment Agreements, Human Rights, and Environmental Justice: The Texaco/Chevron Case from the Ecuadorian Amazon' (2020) 23 *Journal of International Economic Law* 455-468

⁴⁶⁷ Olof Lindén and Jonas Pålsson, 'Oil Contamination in Ogoniland, Niger Delta' (2013) 42 *AMBIO Report* 685-701; see also Enes Al Weswasi, 'Spending Blood for Oil in Nigeria: A Frame Analysis of Shell's Neutralisation of Acts that led to Corporate-Initiated State Crime' (2019) 3 *Nordisk Tidsskrift for Kriminalvidenskab* 280-296

⁴⁶⁸ Heffron and McCauley, 'The Concept of Energy Justice Across the Disciplines' (n 71), 661

⁴⁶⁹ McHarg (n 335) 15; see also Darren McCauley, *Energy Justice: Rebalancing the Trilemma of Security, Poverty and Climate Change* (Palgrave Macmillan 2018)

⁴⁷⁰ A Hazrati and R J Heffron, 'Conceptualising Restorative Justice in the Energy Transition: Changing the Perspectives of Fossil Fuels' (2021) 78 *Energy Research & Social Science* 1, 2

from silt from wind farm construction. The overarching ambition of restorative justice in RES development is to promote sustainable energy development that meets the needs of the present generation without jeopardising the ability of future generations to meet their needs. The introduction of the Loss and Damage Fund has echoed the need to help developing countries respond to the adverse effects of climate change.⁴⁷¹ Given its broad/ transgenerational implications, the ideals of restorative can be achieved through environmental sustainability.

3.4.4.1 Restorative Justice through Environmental Sustainability

The third limb of the energy trilemma is environmental sustainability. At the core of the environmental sustainability limb of the energy trilemma is the need to consider environmental impacts in the energy lifecycle.⁴⁷² It entails that governments should encourage the development of low and zero-carbon technologies for energy generation.⁴⁷³ Environmental sustainability draws its inspiration from sustainable development as defined by the Brundtland Report – ‘Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.’⁴⁷⁴ The Sustainable Development Goals (SDGs), particularly goals 6 – clean water and sanitation, 7 – affordable and clean energy, 11 – sustainable cities and communities, 12 – responsible consumption and production, 13 – climate action, 14 – life below water and 15 – life on land, all appeal for environmental change.⁴⁷⁵ This implies that the development of energy should be undertaken in a sustainable manner taking the volatile nature of the planet into account.⁴⁷⁶ Although the SDGs are non-binding guidelines which countries can follow in their development, its principles have been enacted in legislation to make some of the goals mandatory.⁴⁷⁷ Unlike its predecessor, the Millennium Development Goals (MDGs), which only had one goal focused on environmental

⁴⁷¹ 27th Conference of Parties to the United Nations Framework Convention, ‘Funding arrangements for responding to loss and damage associated with the adverse effects of climate change, including a focus on addressing loss and damage’ (Decision -/CP.27 -/CMA.4, Sharm el-Sheikh, November 2022)

⁴⁷² Arup, ‘Five Minute Guide to the Energy Trilemma’ available at <https://www.arup.com/perspectives/publications/promotional-materials/section/five-minute-guide-to-the-energy-trilemma> accessed 17 May 2019

⁴⁷³ WEC 2017 (n 113) 29

⁴⁷⁴ See Gro Harlem Brundtland, *Report of the World Commission on Environment and Development: Our Common Future* (United Nations General Assembly Document A/42/427, 1987) 11

⁴⁷⁵ UNEP (n 65) 15

⁴⁷⁶ Siva Raman Sharvini, Zainura Noor, Chun Chong, Lindsay Stringer, Rafiu Yusuf, ‘Energy Consumption Trends and their Linkages with Renewable Energy Policies in east and Southeast Asian Countries: Challenges and opportunities’ (2018) 28 *Sust. Env. Res.* 257, 262

⁴⁷⁷ For instance, Goal 13 – climate action is enacted in the UK Climate Change Act 2008 and the Nigerian Climate Change Act 2021, while Goal 7 – affordable and clean energy is enacted in the UK Electricity Act 1989 and the Nigerian Electricity Act 2023.

sustainability,⁴⁷⁸ the underlying principle of the SDGs is founded on environmental sustainability.⁴⁷⁹ It is premised on the rationale that a sustainable environment is required for development to thrive, poverty eradication, and human health among other values intrinsic to the environment.⁴⁸⁰ Existing energy systems' heavy reliance on fossil fuels produces the emission of carbons and other greenhouse gases (GHGs) which threaten present and future generations.⁴⁸¹ Consequently, energy sustainability is not only desirable and urgent but also inevitable.

Proedrou defines sustainability as 'a normative concept that refers to a state of affairs whereby the needs of today are not fulfilled at the cost of the needs of tomorrow.'⁴⁸² Environmental sustainability creates an inherent responsibility on the present generation to evaluate the implications of energy choices on future generations.⁴⁸³ This understanding has informed the creation of domestic, regional, and international obligations to promote environmental sustainability.

The Kyoto Protocol⁴⁸⁴ and the Paris Agreement of 2015 represent acknowledgments by the comity of nations of the climate emergency. Similarly, the Convention on Biological Diversity,⁴⁸⁵ its Global Biodiversity Framework (GBF),⁴⁸⁶ and EU Directives on nature conservation⁴⁸⁷ have impacted upon the land available for RES infrastructure. Other countries in the bloc have even gone a step further in developing energy infrastructures that promote renewable energy and energy efficiency. For example, in 2019, electricity generation from renewables overtook fossil fuels for the first time in Germany, accounting for almost 46 % of electricity generation with a contribution of 24 TWh (terawatt hours).⁴⁸⁸ Also, in the United

⁴⁷⁸ See MDG Goal 7, United Nations, Millennium Development Goals available at <https://www.un.org/millenniumgoals> accessed 30 July 2019

⁴⁷⁹ UNEP (n 65)

⁴⁸⁰ *ibid*

⁴⁸¹ Athanasios Pliousis Kostas Andriosopoulos, Michalis Doumpos, and Emiliios Galariotis, 'A Multicriteria Assessment Approach to the Energy Trilemma' (2019) 40 *The Energy Journal* 143, 147

⁴⁸² Proedrou, 'Energy Security in a Steady-State World' (n 67) 113

⁴⁸³ *Ibid*

⁴⁸⁴ Kyoto Protocol to the United Nations Framework Convention on Climate Change (adopted 11 December 1997, entered into force 16 February 2005) 2303 UNTS 162 (Kyoto Protocol)

⁴⁸⁵ United Nations Convention on Biological Diversity (adopted 22 May 1992, entered into force 29 December 1993) 1760 UNTS 69 (CBD)

⁴⁸⁶ See GBF (n 79)

⁴⁸⁷ Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (1992) OJ L206/7; see also Javier Noel Valdés Lucas, Gonzalo Escribano Francés, Enrique San Martín González, 'Energy Security and Renewable Energy Deployment in the EU: Liaisons Dangereuses or Virtuous Circle?' (2016) 62 *Renewable and Sustainable Energy Reviews* 1032, 1043

⁴⁸⁸ Benjamin Wehrmann, 'Renewables Overtake Fossil Fuels in Germany's Annual Power Production for First Time' available at <https://www.cleanenergywire.org/news/renewables-overtake-fossil-fuels-germanys-annual-power-production-first-time> accessed 7 May 2020

Kingdom, between January and March 2020, 44.6 % of electricity was generated from renewables as against 36 % from fossil fuels.⁴⁸⁹ These measures have been achieved because of statutory obligations to explore sustainable energy optimisation and a clearly defined planning and consenting regime for RES development.

From the examples above, achieving energy sustainability requires a legal framework that encourages decarbonisation and promotes clean energy. However, developed countries such as the UK and Germany have taken concerted efforts to reduce emissions by bringing their laws in line with regional and international obligations under EU Directives and the Paris Agreement.⁴⁹⁰ Meanwhile, Nigeria's commitment under the Paris Agreement and the recent GBF goals, is at variance from its policy framework. For example, gas flaring persists in most oil fields in Nigeria because the legal framework for gas flare regulation still condones flaring.⁴⁹¹ Emissions contribute to climate change and adversely affect the conservation of the planet.

The vulnerability of most areas of the planet to climate change indicates that environmental sustainability is urgent and unavoidable. For example, the melting of the ice in the Arctic, the frequent natural disasters – hurricanes and typhoons experienced in the small island states and the Americas, forest fires in Australia and Brazil, changing weather conditions in Europe, drought in sub-Saharan Africa and earthquakes in Asia.⁴⁹² However, the developed countries that have derived the most benefit from fossil fuels for development, are better placed to deploy superior climate change adaptation and mitigation mechanisms than the developing countries.⁴⁹³ Environmental sustainability comes at huge cost which developing countries of the global south cannot afford. Countries with high ratings in the WETI have developed economies and possess advanced technological capacities to diversify their energy mix with emphasis on low/ zero carbon energy sources from renewables and nuclear.⁴⁹⁴

⁴⁸⁹ Emma Gatten, 'Renewables Overtake Fossil Fuels in Britain's Electricity Mix for First Time' available at <https://www.telegraph.co.uk/news/2020/04/08/renewables-overtake-fossil-fuels-britains-electricity-mix-first/> accessed 7 May 2020

⁴⁹⁰ See Climate Change Act 2008; see also Conference of the Parties to the United Nations Framework Convention on Climate Change, Paris Agreement (adopted 13 December 2015) FCCC/CP/2015/10/Add.1

⁴⁹¹ see Associated Gas Re-Injection Act 1979, section 3; see also Etisang Abraham, 'A Comparative Analysis of the Legal Framework for Gas Flaring Regulation in Nigeria and Norway' (LLM Dissertation, 2018) 57. Although the Nigerian Petroleum Industry Act 2021 further penalises gas flaring in Section 104, it also provides exemptions for gas flaring in Section 107.

⁴⁹² Maarten K. van Aalst, 'The Impacts of Climate Change on the Risk of Natural Disasters' (2006) 30 Disasters 5

⁴⁹³ UNESCO (n 432) 8

⁴⁹⁴ Asbahi et al (n 375) 710; see also World Energy Council, World Energy Trilemma Index 2018 (WEC 2018)

Optimisation of renewable energy and energy efficiency policies has been identified as being drivers of emissions reduction.⁴⁹⁵ Schwerhoff and Sy rightly noted that the production of renewable energy has low environmental pollution capabilities when compared with other energy sources such as oil, gas and coal.⁴⁹⁶ It is their argument that owing to its low carbon and greenhouse gas potentials, renewable energy is key to actualizing the SDGs.⁴⁹⁷ They further maintain that while mitigating climate change, renewable energy can become a tool for poverty eradication.⁴⁹⁸ Its low carbon composition can enhance crop productivity and lower the effect of climate change on livestock. When drought and heat resulting from global warming is reduced, increased productivity will result in a fall in food prices and poverty reduction.⁴⁹⁹

Bruce argues that an efficient legislative framework in the energy sector is key to achieving climate change mitigation both internationally and domestically.⁵⁰⁰ This will entail the establishment of a comprehensive RES planning and consenting regime. Effective regulation of energy production will curtail environmental degradation by encouraging the adoption of environmentally friendly technology.⁵⁰¹ Environmental sustainability can be accentuated by the introduction of policies and laws that establish a carrot-and-stick approach in energy production.⁵⁰² Normative policies that set realistic and enforceable standards for the reduction in emissions by energy producers and robust institutions, statutorily, financially and technically equipped to enforce compliance, is essential. These standards can extend to large businesses and energy consumers to adopt energy-efficient consumption patterns. Carbon taxes and renewable obligations in the UK are some examples of such policies introduced to promote environmental sustainability and energy efficiency.⁵⁰³ The introduction of incentives can also help promote environmental sustainability. Feed-in tariffs and tax rebates/holidays can be

⁴⁹⁵ Samuel Asumadu Sarkodie et al, 'Mitigating Degradation and Emissions in China: The Role of Environmental Sustainability, Human Capital and Renewable Energy' (2020) 719 *Science of the Total Environment* 137530, 2

⁴⁹⁶ Gregor Schwerhoff and Mouhamadou Sy, 'Financing Renewable Energy in Africa – Key Challenge of the Sustainable Development Goals (2017) 75 *Renewable and Sustainable Energy Reviews* 393

⁴⁹⁷ *ibid* 394, see also United Nations, Sustainable Development Goals (SDGs) available at <https://sustainabledevelopment.un.org/?menu=1300> assessed 14 March 2019

⁴⁹⁸ *ibid*

⁴⁹⁹ *ibid*

⁵⁰⁰ Stuart Bruce, 'Climate Change Mitigation through Energy Efficiency Laws: from International Obligations to Domestic Regulation' (2013) 31 *Journal of Energy & Natural Resources Law* 313

⁵⁰¹ *Ibid*

⁵⁰² Huaping Sun, Muhammad Mohsin, Majed Alharthi, Qaiser Abbas, 'Measuring Environmental Sustainability Performance of South Asia' (2020) 251 *Journal of Cleaner Production* 119519, 11

⁵⁰³ Carbon taxes, renewable obligations and other incentives to encourage renewable energy and energy efficiency are discussed in Chapter 5 of this thesis.

introduced to encourage environmental sustainability.⁵⁰⁴ The application of these schemes can help protect ecosystems.

Biodiversity conservation is an integral part of environmental sustainability. A great deal of environmental sustainability scholarship has been anthropocentric in focus.⁵⁰⁵ However, a more eco-centric view is needed as environmental degradation is suffered by all species. As observed by the Global Biodiversity Framework (GBF):

An average of around 25 per cent of species in assessed animal and plant groups are threatened, suggesting that around 1 million species already face extinction, many within decades, unless action is taken to reduce the intensity of drivers of biodiversity loss. Without such action, there will be a further acceleration in the global rate of species extinction, which is already at least tens to hundreds of times higher than it has averaged over the past 10 million years.⁵⁰⁶

The development of energy resources is a major driver of biodiversity loss and extinction of species (flora and fauna).⁵⁰⁷ The destruction of habitats for energy exploration results in dislocation of wildlife and other species thereby driving them to unsafe habitats.⁵⁰⁸ Unnatural migration leaves most insect and bird species vulnerable to extinction.⁵⁰⁹ The rising demand for land for industrial energy exploration and domestically for fuel wood results in large scale deforestation.⁵¹⁰ Deforestation can result from fuel wood use for biomass as well as in the cultivation of biofuel plants.⁵¹¹ Similarly, loss of biodiversity because of energy use occurs both in conventional energy production and renewables. For instance, emissions and other pollutants from fossil fuel use have resulted in contaminating forests, lakes and pasture.⁵¹² Likewise, the development of hydroelectricity also causes the destruction of aquatic

⁵⁰⁴ Ibid

⁵⁰⁵ See Proedrou, 'Energy Security in a Steady-State World' (n 67); Samuel Asumadu Sarkodie, Samuel Adams, Phebe Asantewaa Owusu, Thomas Leirvik, Ilhan Ozturk, 'Mitigating Degradation and Emissions in China: The Role of Environmental Sustainability, Human Capital and Renewable Energy' (2020) 719 *Science of the Total Environment* 137530

⁵⁰⁶ GBF (n 79)

⁵⁰⁷ Paul R Ehrlich, 'Energy Use and Biodiversity Loss' (1994) 344 *Royal Society Journal* 99

⁵⁰⁸ Ashley Stumvoll, 'Shift to Renewable Energy Could Have Biodiversity Cost, Researchers Caution' available at <https://news.mongabay.com/2019/06/shift-to-renewable-energy-could-have-biodiversity-cost-researchers-caution/> accessed 7 July 2020

⁵⁰⁹ Ibid

⁵¹⁰ Ehrlich (n 507), 102. See also Jianguo Liu et al, 'Effects of Household Dynamics on Resource Consumption and Biodiversity' (2003) 421 *Nature* 530

⁵¹¹ V Mary Kensa, 'Biodiversity and Energy' (2012) 28 *Jour. of Ind. Poll. & Cont.* 95, 96

⁵¹² Ibid 95

ecosystems.⁵¹³ It is within the purview of environmental sustainability to seek the protection of species in the course of energy production. In line with GBF Goal A on sustainable use, management and enhancement of biodiversity resources for the benefit of people and ecosystems, biodiversity conservation is essential to the realisation of the SDGs.⁵¹⁴ It is contended in this research that biodiversity conservation can be achieved by integrating eco-centric energy and environmental laws in a RES planning and consenting regime that prioritises preservation and enhancement of ecosystems in energy development as well as promotes energy efficiency.

Reduction in energy consumption and energy efficiency are essential for biodiversity conservation. Energy efficiency entails the utilization of facilities and structures that require a significantly lesser amount of energy. For instance, it is argued that homes built with good insulation, insulated doors, and double-glazed windows, retain more heat, and therefore require lesser energy for heating.⁵¹⁵ Moreover, electrical appliances with lower voltage consume less electricity. Energy efficiency arguably results in a reduction in energy consumption.⁵¹⁶ The reduction in energy consumption would mean a reduction in energy costs. In the long run, intensifying energy efficiency can facilitate a decline in energy poverty.⁵¹⁷

In keeping with the need for environmental sustainability, governments and environmental groups are encouraging people to reduce their energy consumption (carbon footprints) by travelling less with cars, buses, trains and aeroplanes as these means of transportation contribute to emissions.⁵¹⁸ People are encouraged to walk, cycle or adopt car-share schemes.⁵¹⁹ Unlike the security and equity arms of the energy trilemma, the energy efficiency aspect of environmental sustainability entails individual efforts and can be costly.

Energy efficiency comes at a huge cost as it requires the acquisition of more modern and expensive technology both for domestic and industrial uses.⁵²⁰ It may also entail overhauling

⁵¹³ Ibid 98

⁵¹⁴ GBF (n 79)

⁵¹⁵ Committee on Climate Change, Reducing UK Emissions: 2018 Progress Report to Parliament, (CCC, June 2018) 85

⁵¹⁶ Horace Herring, 'Energy Efficiency: A Critical View' (2006) 31 Energy 10

⁵¹⁷ Daire McCoy, 'Heating Homes: Do Energy Saving Measures Reduce Energy Consumption in Social Housing?' available at <http://www.lse.ac.uk/granthaminstitute/news/heating-homes-do-energy-saving-measures-reduce-energy-consumption-in-social-housing/> accessed 7 July 2020.

⁵¹⁸ CCC 2018 (n 515) 147

⁵¹⁹ Ibid

⁵²⁰ Otto von Troschke, 'Why Energy Efficiency is Key to Sustainable Development' available at <https://www.weforum.org/agenda/2015/06/why-energy-efficiency-is-key-to-sustainable-development/> accessed 7 July 2020

whole energy systems of buildings to bring them to terms with modern technologies, which may be unaffordable. State subsidies may be helpful to reduce the costs of such modifications.⁵²¹

Although, the rebound effects – a situation where consumption increases due to a reduction in energy cost, may be a challenge to consolidating the gains of energy efficiency.⁵²² Thus, this research contends that energy efficiency should be simultaneously pursued with reduction in energy consumption (energy conservation).⁵²³ Combining energy efficiency laws and policies with incentives can ensure that energy efficiency and reduced consumption are woven into the social fabric.⁵²⁴

Oji, Soumonni and Ojah posit that renewable energy offers a viable route for rural electrification.⁵²⁵ According to them, decentralized renewable energy projects perform dual functions of enhancing access to energy in rural communities and promoting environmental sustainability.⁵²⁶ According to Wright and Pereira, investing in research and development is one mechanism that can be utilized to boost innovation in renewable energy.⁵²⁷ This is very expedient in developing countries with little home-grown expertise in the field.⁵²⁸ However, in developing RES infrastructure, it is imperative to understand the impacts of RES development so that measures can be taken to mitigate these impacts.

3.5 Just Transition

Just transition considers the transition to a low/ zero carbon economy as both inevitable and essential.⁵²⁹ However, such a transition must ensure a fair distribution of the benefits and costs; without disproportionately placing the burden of societally beneficial developments on

⁵²¹ For instance, the UK government has provided support schemes to encourage energy efficiency. See ‘Sunak to Unveil £2bn Home insulation Scheme’ (BBC News, 07/07/2020) available at <https://www.bbc.co.uk/news/business-53313640#:~:text=Hundreds%20of%20thousands%20of%20homeowners,3bn%20plan%20to%20cut%20emissions.>

⁵²² Parakram Pyakurel, ‘Energy Efficiency Gains Must Reduce Our Consumption, Not Just Our Bills’ available at <https://energypost.eu/energy-efficiency-gains-must-reduce-our-consumption-not-just-our-bills/> accessed 07 July 2020

⁵²³ See Herring (n 516) 11

⁵²⁴ Ibid

⁵²⁵ Chijioke Oji, Ogundiran Soumonni and Kalu Ojah, ‘Financing Renewable Energy Projects for Sustainable Economic Development in Africa’ (2016) 93 Energy Procedia 113, 114

⁵²⁶ ibid

⁵²⁷ Helena Wright and Ricardo Pereira, A Legal Framework for Clean Technology Transfer and Finance, in Karen E Makuch and Ricardo Pereira (eds), Environmental and Energy Law (Blackwell Publishing Ltd 2012) 77

⁵²⁸ ibid

⁵²⁹ TUC (n 314) 7

vulnerable sectors of society.⁵³⁰ Importantly, just transition acknowledges that the transition to sustainable energy alternatives such as renewables, will adversely affect workers, communities, and indigenous groups. Hence, social dialogue is necessary to achieve a just transition. The government must engage with businesses, trade unions, community, and religious leaders in the build-up to the enactment and implementation of energy transition law and policies; to ensure all relevant stakeholders are heard.⁵³¹

Just transition unifies climate, energy and environmental (CEE) justice to create a more comprehensive framework.⁵³² Given that sustainability, equity, and fairness are common threads that run across the CEE debates, just transition is a melting pot for these ideologies; it harmonises the demands of CEE. Just transition creates a pathway to achieving environmental and social needs such as affordable housing, sanitation, clean water supply, decent jobs and quality healthcare; by projecting a common front relatable to all interest groups.⁵³³ Beyond stimulating a smooth transition to low/zero carbons, just transition can prevent the repetition of ‘old injustices’ associated with the carbon economy by ensuring equity devoid of social class, gender or race and gaining public trust through social dialogue.⁵³⁴ Admittedly, transition to a low/zero carbon economy is both strenuous and time-consuming, nevertheless, a just transition framework can cushion the effects of the transition; helping the economy and relevant stakeholders cope with the change.

This section seeks to set out the key ideologies of just transition. It traces the origins of just transition before delving into the divergence inherent in the global response to just transition principles.

3.5.1 Defining and Making a Case for Just Transition

McCauley and Heffron rightly define just transition as, ‘a fair and equitable process of moving towards a post-carbon society’.⁵³⁵ While in agreement with the need for decarbonisation – transition to low/ zero carbons, just transition also seeks to ensure that some sections of society are not disproportionately impacted by such transition. Just transition may have its origin traced

⁵³⁰ *ibid*

⁵³¹ *Ibid*

⁵³² Darren McCauley and Raphael Heffron, ‘Just transition: Integrating Climate, Energy and Environmental Justice’ (2018) 119 *Energy Policy* 1

⁵³³ Geoff Evans and Liam Phelan, ‘Transition to a Post-Carbon Society: Linking Environmental Justice and Just Transition Discourses’ (2016) 99 *Energy Policy* 329, 333

⁵³⁴ *Ibid*

⁵³⁵ McCauley and Heffron, ‘Just transition: Integrating Climate, Energy and Environmental Justice’ (n 532) 2

to trade union movements as discussed below, however its application has become universal as it is recognised in the Paris Agreement, the International Labour Organisation (ILO), the Intergovernmental Panel on Climate Change (IPCC) and the Climate Change (Scotland) Act 2009.⁵³⁶ The just transition principle as endorsed in the Climate Change (Scotland) Act 2009 requires the development of emission reduction actions that promotes sustainable jobs, support for low-carbon investment and infrastructure, public engagement with relevant stakeholders (including communities, workers, trade unions, non-governmental organisations (NGOs), and businesses), the creation of decent job opportunities with minimal impact on current workforce, and efficient management of resources that guarantees a sustainable economy with reduced inequality and poverty.⁵³⁷

It is important to note that just transition has both local and global dimensions. The local aspect deals with the impacts of low/zero carbon transitions on jobs, communities, and other social groups. The global aspect is highlighted by the fact that CEE injustices are perpetuated by the global north, which also takes the most benefits to the detriment of the global south.⁵³⁸ Thus, in transitioning to low/zero carbons, the interest of the developing world should be factored in. Developed economies have benefitted from fossil fuels for centuries and have built successful economies with better standards of living. Developing countries still struggling with under-development, also require economic growth. Just transition can offer a framework for advancing developing economies through financial and technical support of the global north whilst striving to achieve sustainability, equity, and fairness.

3.5.2 Just Transition: From Humble Beginnings to International Agenda

The concept of just transition was first introduced by trade unions in the United States of America in the 1970s.⁵³⁹ It was raised to address the apprehension of workers in polluting industries over losing their livelihoods because of new environmental regulations. Subsequently, the concept has become an international norm in the wake of global awareness to climate emergency and the imminent exodus to greener economies with developed countries at the forefront.⁵⁴⁰ Labour unions all over the world have bolstered the call for a just transition

⁵³⁶ See Climate Change (Scotland) Act, S 35C.

⁵³⁷ *ibid*

⁵³⁸ McCauley and Heffron, 'Just transition: Integrating Climate, Energy and Environmental Justice' (n 532) 3

⁵³⁹ *Ibid* 2

⁵⁴⁰ The UN International Labour Organisation (ILO) has developed a guideline for just transition and the Paris Agreement 2015 also references Just Transition in its preamble. See also Conference of the Parties to the United Nations Framework Convention on Climate Change, Paris Agreement (adopted 13 December 2015) FCCC/CP/2015/10/Add.1 (Paris Agreement)

and for workers to be given a seat at the table when discussions are had for the transition to low/ zero carbons.⁵⁴¹

ILO has further amplified the importance of achieving a just transition to low/ zero carbon by setting out a guideline for governments and other stakeholders to consider whilst contemplating a transition.⁵⁴² Just transition is integral to sustainable development.⁵⁴³ The actualisation of the sustainable development goals (SDGs) rests on the ability of governments to achieve a just transition through social dialogue. Given that greening the economy will inevitably result in job loss and displacement, a just transition must be the priority of governments and this cannot be achieved without the input of relevant stakeholders such as trade unions.⁵⁴⁴ ILO just transition guidelines therefore advocates for social dialogue with equitable gender representation which translates into robust statutory and policy frameworks that promote workers' rights, consumer protection and programmes to cushion the knock-on effects of such transition on all vulnerable groups; and such programmes should be carried out in accordance with the national circumstances.⁵⁴⁵

At the 24th Conference of the Parties to the UNFCCC (COP24), the importance of a just transition was further amplified by the adoption of the 'Solidarity and Just Transition Silesia Declaration', a government reaffirmation of the need to appreciate the impact of climate change policy on communities, peoples and workers.⁵⁴⁶ Given its importance, states should incorporate just transition in their NDC strategies to combat GHG under the Paris Agreement 2015.⁵⁴⁷ Plurality in social and economic circumstances indicates that integrating just transition into NDCs gives countries the opportunity of implementing just transition within national frameworks and means.⁵⁴⁸ Despite the differences in domestic contexts, just transition is a global phenomenon hence international cooperation through information sharing and technical

⁵⁴¹ See International Trade Union Confederation, 'Just Transition Centre' available at <https://www.ituc-csi.org/just-transition-centre> accessed 1 April 2020

⁵⁴² International Labour Organisation, Guidelines for a Just Transition Towards Environmentally Sustainable Economies and Societies for all (ILO, 2015) 4

⁵⁴³ Ibid; see also Simone Abram et al, 'Just Transition: A Whole-Systems Approach to Decarbonisation' (2022) 22 Climate Policy 1033

⁵⁴⁴ ILO 2015 (n 542) 5

⁵⁴⁵ Ibid, 6

⁵⁴⁶ Kirsten E H Jenkins, Implementing Just Transition after COP24 (Climate Strategies, 2019) 4; see also Solidarity and Just Transition: Silesia Declaration 2018 available at https://cop24.gov.pl/fileadmin/user_upload/files/Solidarity_and_Just_Transition_Silesia_Declaration.pdf accessed 23 April 2020

⁵⁴⁷ See Preamble to the Paris Agreement 2015

⁵⁴⁸ Jenkins (n 546) 7

support is highly encouraged.⁵⁴⁹ However, achieving this requires an understanding of the divergent perspectives inherent in the just transition debate.

3.5.3 Just Transition: The North-South Divide

Existing literature on energy justice cited in this research is based largely on the energy scenarios and systems of the developed western world.⁵⁵⁰ Calls for energy transition in the global north stem from a need for energy sustainability which follows on the heels of decades of energy services generated from fossil fuels.⁵⁵¹ The situation is different in developing countries where energy poverty is a major theme in the energy debate. Furthermore, economic development driven by fossil fuels is the preoccupation of governments in these countries. In the same vein, democracy has been in operation for decades and centuries in most developed countries hence public opinion, freedom of the press and political liberty are at an advanced stage. Most developing countries that are not under dictatorships have only been enjoying basic democratic freedoms for only a few decades.⁵⁵² Questions of justice as discussed earlier are still evolving in developing countries, hence it is necessary to take these factors into account when debating energy justice and just transition.

It is also important to note that a large part of the fossil fuel energy infrastructures in developing countries were installed either during the colonial era or military regimes without the informed consent of indigenous communities and payment of compensation.⁵⁵³ This existing marginalisation continues to influence local responses to infrastructural development, and breeds suspicion. Thus, attaining a just transition in these marginalised communities will require restorative justice and trust building.

3.6 Critique of Energy Justice and Energy Transition Scholarship

Energy justice discourse is often clad with universality, but it is essential to interpret it into local circumstances if it must achieve its objectives.⁵⁵⁴ The notion of energy justice as bandied by western scholars may be viewed with suspicion in the global south as another attempt at

⁵⁴⁹ Ibid

⁵⁵⁰ See Sovacool et al, 'New Frontiers and Conceptual Frameworks for Energy Justice' (n 144), McHarg (n 335), and McCauley et al, 'Energy Justice in the Transition to Low Carbon Energy Systems: Exploring key Themes in Interdisciplinary Research' (n 72)

⁵⁵¹ Sarah Marie Hall, 'Energy Justice and Ethical Consumption: Comparison, Synthesis and Lesson Drawing' (2013) 18 *Local Environment* 422, 424

⁵⁵² For example, Nigeria's current democratic dispensation started in 1999.

⁵⁵³ Tendai Zvobgo, 'Free, Prior, and Informed Consent: Implications for Transnational Enterprises' (2012) 13 *Sustainable Development Law & Policy* 37

⁵⁵⁴ Michael Carnegie LaBelle, 'In Pursuit of Energy Justice' (2017) 107 *Energy Policy* 615, 616

neo-colonialism.⁵⁵⁵ It may be considered as a ploy to erode cultural practices and traditional life-styles for example cooking with firewood, in favour of western models which leaves the communities at the mercy of western multinationals and their domestic accomplices.⁵⁵⁶

Another drawback of energy justice scholarship is its anthropocentric focus. The existence of energy justice as a social construct is human-centric; seeking to strengthen social dynamics. It does not consider the impact of energy on other non-human members of the ecosystem.⁵⁵⁷ It is against this backdrop that ecological justice (ecojustice) scholars have coined the concept of ‘earth jurisprudence’ – an understanding that humans are only part of the wider nature; and nature itself deserves rights and the protection of law and justice.⁵⁵⁸ Proponents of ecojustice have advocated for the conservation of the ecosystem through wild law for the protection of the planet.⁵⁵⁹ This research argues that the scope of energy justice scholarship needs to be extended to incorporate ecojustice concerns with the necessary trade-offs.

3.7 Advancing Energy Justice and Energy Transition Scholarship in the Context of Developing Countries

Energy justice scholarship developed from traditional environmental and climate justice movements.⁵⁶⁰ In association with energy equity and energy democracy, energy justice advocates for a transition from fossil fuels to low/ zero carbon alternatives.⁵⁶¹ Proponents of energy transition, such as environmental rights activists, have often clamoured for the abolition of fossil fuels in the energy mix as it is the major contributor to irreversible climate change. This hard stance on energy transition is usually backed by climate research linking climate change to fossil fuel consumption.⁵⁶² Given its exigency and popularity, the adverse impacts of climate change due to fossil fuels have been extensively researched.⁵⁶³

⁵⁵⁵ Broto et al (n 324) 647

⁵⁵⁶ Ibid

⁵⁵⁷ See next section on environmental impacts of renewable energy.

⁵⁵⁸ Haydn Washington, Guillaume Chapron, Helen Kopnina, Patrick Curry, Joe Gray and John J. Piccolo, ‘Foregrounding Ecojustice in Conservation’ (2018) 228 *Biological Conservation* 367, 369; Arne Naess, ‘The Shallow and the Deep, Long Range Ecology Movement: A Summary’ (1973) 16 *Inquiry* 95

⁵⁵⁹ Peter Burdon eds., *Exploring Wild Law: The Philosophy of Earth Jurisprudence* (Wakefield Press, 2011) 85; See also Cormac Cullinan, *Wild Law: A Manifesto for Earth Justice* (2nd Ed., Chelsea Green Publishing, 2011) 44

⁵⁶⁰ Kirsty Jenkins et al, ‘Energy justice: A Conceptual Review’ (2016) 11 *Energy Research & Social Science* 174-182; see also Initiative for Energy Justice, ‘Energy Justice Workbook’ available at: <https://iejusa.org/section-1-defining-energy-justice/> accessed 30 September 2022

⁵⁶¹ ibid

⁵⁶² Such as the Intergovernmental Panel on Climate Change, *Climate Change 2022: Impacts, Adaptation and Vulnerability* (Working Group II, 6th Assessment Report, IPCC 2022)

⁵⁶³ ibid

Additionally, political decisions to decarbonise have been premised on the ‘science’ supporting fossil fuel use as a cause of climate change. Furthermore, climate activists have devised extreme measures to compel businesses, and organisations to divest from fossil fuel both at home and abroad.⁵⁶⁴ In response to these pressures, businesses and even higher education institutions have proceeded to divest from fossil fuels whilst using such divestments as an indicator of their efforts to attain carbon neutrality.⁵⁶⁵ Others have resorted to carbon trade-offs whereby carbon emissions incurred by a business is then offset by an activity which contributes to environmental enhancement such as an airline planting trees to offset the carbon emissions of its passengers.⁵⁶⁶

In encouraging the transition to more sustainable energy alternatives, some advocates, particularly labour unions, have called for a just energy transition.⁵⁶⁷ Unsurprisingly, research on just transition has not received the same level of attention as climate change research or scholarship on the exigencies of the transition from fossil fuels. There is limited research on the impacts of energy transition on fossil fuel dependent groups, societies, and economies. Most developing countries in the global south fall into this category.

As observed by Yergin, energy transitions in the past have often involved the addition of a new energy source to the energy mix rather than replacing the existing energy system.⁵⁶⁸ This makes the current transition away from fossil fuels to low/ zero carbon unique in that it demands the eventual elimination of any use of fossil fuels by 2050.⁵⁶⁹ The present energy transition is complex because while sustainable alternatives have been developed, this has not quenched the thirst for fossil fuels. Improved standards of living have increased energy consumption in industrialised nations. Moreover, increased dependence on technological gadgets, cheap goods, and services from newly advancing economies such as China, India and Brazil have led to an

⁵⁶⁴ For instance, Extinction Rebellion often tape themselves to infrastructure to show their opposition to fossil fuels. See Damian Gayle, ‘Eight Arrested after Climate Activists Glue Themselves Around Commons Speaker’s Chair’ available at: <https://www.theguardian.com/environment/2022/sep/02/extinction-rebellion-activists-superglue-themselves-commons-chamber-speaker-seat> accessed 13 October 2022

⁵⁶⁵ University of the West of England, ‘UWE Signs Pledge to Divest from Fossil Fuel Extractor Companies’ available at: <https://info.uwe.ac.uk/news/uwenews/news.aspx?id=4208> accessed 13 October 2022

⁵⁶⁶ Gwyn Topham, ‘EasyJet to Offset Carbon Emissions from all its Flights’ available at: <https://www.theguardian.com/business/2019/nov/19/easyjet-offset-carbon-emissions-flights-thomas-cook-collapse> accessed 13 October 2022. Although Easy Jet has pledged to take more concrete steps to reduce its emission rather than offsetting. See Easy Jet, ‘Road Map to Net-Zero by 2050’ available at: <https://www.easyjet.com/en/sustainability> accessed 13 October 2022

⁵⁶⁷ See Broto et al (n 324).

⁵⁶⁸ Daniel Yergin, ‘Why the Energy Transition Will Be So Complicated’ available at: <https://www.theatlantic.com/international/archive/2021/11/energy-shock-transition/620813/> accessed 15 September 2022

⁵⁶⁹ *ibid*

increase in fossil fuel usage. The complexities of the energy transition are aptly captured by Yergin thus,

Beyond outerwear, the degree to which the world depends on oil and gas is often not understood. It's not just a matter of shifting from gasoline-powered cars to electric ones, which themselves, by the way, are about 20 percent plastic. It's about shifting away from all the other ways we use plastics and other oil and gas derivatives. Plastics are used in wind towers and solar panels, and oil is necessary to lubricate wind turbines. The casing of your cellphone is plastic, and the frames of your glasses likely are too, as well as many of the tools in a hospital operating room. The air frames of the Boeing 787, Airbus A350, and F-35 Joint Strike Fighter jet are all made out of high-strength, petroleum-derived carbon fiber. The number of passenger planes is expected to double in the next two decades. They are also unlikely to fly on batteries. Oil products have been crucial for dealing with the pandemic too, from protective gear for emergency staff to the lipids that are part of the Pfizer and Moderna vaccines. Have a headache? Acetaminophen—including such brands as Tylenol and Panadol—is a petroleum-derived product. In other words, oil and natural-gas products are deeply embedded throughout modern life.⁵⁷⁰

For developed countries, energy priorities are in the areas of attaining affordable energy services with reduced emissions whilst aspiring for carbon neutrality. For developing countries on the other hand, their priorities still lie in the utilisation of fossil fuels to power their economies in order to meet social and economic objectives. The International Energy Agency rightly observed the importance of energy for the development of the country.⁵⁷¹ The Indian Prime Minister acknowledged the need for 'energy transitions' but also hinted at the country's desire to utilise fossil fuels in the process.⁵⁷²

Whilst launching Nigeria's Energy Transition Plan, Nigeria's Vice President highlighted the importance of energy use in accelerating development.⁵⁷³ Given the meagre contribution of Africa to climate change, it is even more worrying that development financial institutions in the global north and some developed countries have banned project finance for oil and gas in

⁵⁷⁰ *ibid*

⁵⁷¹ IEA, India Energy Outlook 2021, available at: https://iea.blob.core.windows.net/assets/1de6d91e-e23f-4e02-b1fb-51fdd6283b22/India_Energy_Outlook_2021.pdf accessed 30 September 2022

⁵⁷² Yergin (n 568)

⁵⁷³ See Sustainable Energy for All, 'Nigeria's Vice President launches Energy Transition Plan as Country Seeks USD 10 Billion Initial Support Package' available at: <https://www.seforall.org/news/nigerias-vice-president-launches-energy-transition-plan-as-country-seeks-usd-10-billion> accessed 30 September 2022

developing countries.⁵⁷⁴ While these measures are aimed at reducing carbon emissions as part of the drive to attain sustainable development, their actions have telling impacts on developing economies which rely on fossil fuels. For instance, over 70% of the Nigerian national budget depends on oil and gas exports.⁵⁷⁵ Additionally, a majority of the population depend on kerosene cooking stoves whilst over 95% of transportation and commerce depend on petroleum and natural gas products.⁵⁷⁶ The Nigerian situation mirrors the experience of most sub-Saharan African countries. The fast-paced energy transition implies that developing countries are being punished for historical fossil fuel consumption of the global north.

The current energy transition trajectory contravenes the spirit of the common but differentiated responsibility and respective capabilities (CBDR&RC) principle espoused in the United Nations Framework Convention on Climate Change and its Paris Agreement.⁵⁷⁷ Developed countries who have, and are currently utilising fossil fuels to sustain their development are introducing embargoes in the form of bans on fossil fuels investment financing in developing countries; which undermines the ability of developing countries to attain socio-economic development. It is argued that energy transition should equally follow the CBDR&RC framework. While this is not meant to encourage reckless fossil fuel consumption, it is a call to apply principles of equity in the energy transition. The capability of developing countries to decarbonise at the pace required by global climate change commitments and indeed the climate emergency depends largely on the support of advanced economies. This could be by providing financial support through global climate finance mechanisms such as the Global Climate Fund or bilateral agreements.⁵⁷⁸

Although developed countries have pledged to support developing countries in their energy transition with \$100 Billion yearly by 2020, these pledges have not been fulfilled.⁵⁷⁹ Similarly,

⁵⁷⁴ Fiona Harvey and Patrick Greenfield, 'Twenty Countries Pledge End to Finance For Overseas Fossil Fuel Projects' available at: <https://www.theguardian.com/environment/2021/nov/03/twenty-countries-pledge-end-to-finance-for-overseas-fossil-fuel-projects> accessed 30 September 2022

⁵⁷⁵ Ohimain (n 256) 353

⁵⁷⁶ *ibid*

⁵⁷⁷ United Nations Framework Convention on Climate Change (adopted 9 May 1992, entered into force 21 March 1994) 1771 UNTS 107, Preamble; see also Adoption of the Paris Agreement (FCCC/CP/2015/L.9/Rev.1). (2015), Preamble, Art. 2

⁵⁷⁸ Green Climate Fund, 'About GCF' available at: <https://www.greenclimate.fund/about> accessed 20 May 2023

⁵⁷⁹ Elena Ares and Philip Loft, 'COP26: Delivering on \$100 Billion Climate Finance' available at: <https://commonslibrary.parliament.uk/cop26-delivering-on-100-billion-climate-finance/> accessed 30 September 2022

developed countries only recently agreed to the establishment of a Loss and Damage Fund.⁵⁸⁰ Moreover, in the wake of the energy crises exacerbated by the Russian invasion of Ukraine,⁵⁸¹ the European Commission has voted to recognise natural gas as a clean fuel and some developed countries have reopened their coal mines.⁵⁸² This further justifies the stance of developing economies in prioritising their development over the urgency for decarbonisation.

The debate around energy justice and energy transition will need to be understood from the perspective of the developing countries. Although they have contributed the least to climate change, developing countries are more vulnerable to the adverse impacts of climate change due to their lack of capacity to adapt to these adverse impacts. Thus, a just energy transition demands an in-depth understanding of the implications of decarbonisation on the attainment of socio-economic development in developing countries. This understanding will inform the development of law, policy and programmes that are tailored to the socio-economic circumstances of these countries whilst also addressing sustainability concerns. This is explored in this research by investigating how a planning and consenting regime for RES development can balance the energy trilemma and promote energy justice.

Similarly, the whole gamut of the energy justice debate is centred around the fair distribution of ‘developmental’ gains and ills. Its pro-development stance encourages the over-exploitation of energy resources from the ecosystem to satisfy human developmental needs at the expense of environmental conservation. This therefore justifies the analysis of the environmental impacts of renewable energy carried out in the previous chapter of this thesis.

3.8 Conclusion

In the evaluation of energy systems, it is essential to ensure the promotion of justice to energy users. This entails identifying the causes of energy injustices occasioned by the distribution of energy infrastructure and services, procedures for public participation in decision-making, recognition of those affected by energy injustices and mechanisms established by the state to adequately redress incidence of injustices in the energy system. Energy justice therefore seeks

⁵⁸⁰ See 27th Conference of Parties to the United Nations Framework Convention, ‘Funding arrangements for responding to loss and damage associated with the adverse effects of climate change, including a focus on addressing loss and damage’ (Decision -/CP.27 -/CMA.4, Sharm el-Sheikh, November 2022).

⁵⁸¹ CNN, ‘The List of Global Sanctions on Russia for the War in Ukraine’ available at: <https://edition.cnn.com/2022/02/25/business/list-global-sanctions-russia-ukraine-war-intl-hnk/index.html> accessed 10 May 2022

⁵⁸² Tommy Greene, ‘Granting of Coal Mining Licence in South Wales Faces Court Challenge’ available at: <https://www.theguardian.com/environment/2022/feb/09/grant-coal-mining-licence-aberpergwm-south-wales-court-challenge> accessed 17 March 2022

to ensure that injustices are addressed through the energy lifecycle by engaging in social dialogue and fair representation of all relevant stakeholders in the development of energy law and policy.

Just transition is a framework that acknowledges the need for sustainable energy through transitioning to low/ zero carbon, but also encourages the provision of arrangements to cushion its effects. It entails that all stakeholders including labour unions, indigenous peoples and minority groups be part of the consultation process for the transition. This will ensure that those made vulnerable by the transition are taken care of to minimise the impacts of the transition. Just transition harmonises climate, energy, and environmental scholarship under a common umbrella. The debate on energy justice and just transition has been overly focused on western paradigms with very little analysis of the situation in the developing world which is most affected by the questions raised. It is therefore pertinent to understand the debate from the perspective of developing countries. The next chapter which analyses the Nigerian situation, provides a developing country case study.

CHAPTER 4 - RENEWABLE ENERGY INTEGRATION IN NIGERIA: CHALLENGES AND PROSPECTS

4.1 Introduction

Energy is an important index of development in any economy as it is needed at all levels of society, including for domestic, industrial, and commercial uses.⁵⁸³ The standard of living in a country is influenced by the security of energy supply, and this can be measured by energy consumption per capita of the country. Historically, energy stimulated the industrial revolution in the 18th Century, and continues to sustain industrialisation in advanced economies in the global north.⁵⁸⁴ However, beyond the availability of energy resources, these resources can only become beneficial when efficiently explored and sustainably harnessed to meet a country's energy demands.

Energy has been stated to be integral to achieving the SDGs as access to energy services clearly improves living standards.⁵⁸⁵ Availability and affordability of energy services to all classes of society is a hallmark of development. However, energy must be sustainably produced to foster economic advancement and environmental protection.⁵⁸⁶

Nigeria is endowed with various energy resources, both RES and fossil fuels. However, these resources have not been efficiently harnessed to meet the energy needs of the country. Nigeria is heavily reliant on oil and gas production both for national revenue and to provide energy services in the country. Nevertheless, despite decades of oil and gas production, energy poverty is still prevalent in the country. There is a widespread lack of electricity in the country with over 60% of the population without access, and about 80% without access to sustainable cooking fuels.⁵⁸⁷

There is the need to develop the country's RES to contribute to the energy mix. Yet, RES integration in the energy mix has been slow in Nigeria due to the lack of an adequate legal

⁵⁸³ Mohammed Modu Aji et al, 'Challenges to Energy Sustainability in Nigeria as a Developing Nation and The Way Forward' (2015) 1 Applied Research Journal 46

⁵⁸⁴ Robert C Allen, 'The British Industrial Revolution in Global Perspective: How Commerce Created the Industrial Revolution and Modern Economic Growth' (2006) available at <https://www.nuffield.ox.ac.uk/media/2162/allen-industrev-global.pdf> accessed 15 October 2020

⁵⁸⁵ Aji et al (n 583)

⁵⁸⁶ Oludamilare Bode Adewuyi, Mark Kipnetich Kiptoo, Ayodeji Fisayo Afolayan, Theophilus Amara, Oluwatobi Idowu Alawode and Tomonobu Senjyu, 'Challenges and Prospects of Nigeria's Sustainable Energy Transition with Lessons from other Countries' Experiences' (2020) 6 Energy Reports 993, 994

⁵⁸⁷ Tonuchi Emmanuel Joseph, 'Investigating Renewable Energy Potentials in Solving Energy Crisis in Niger Delta Riverine Communities, Nigeria' (2019) 7 IJRECE 906

regime, insufficient political support, inefficient regulatory institutions, a lack of domestic expertise, an infrastructural deficit, and corruption.

Chapter 1 discussed the concept of renewable energy and conceptualised the energy trilemma highlighting the environmental, socio-cultural, and economic impacts of RES development. Energy justice and the just transition were assessed in Chapter 3. This chapter therefore analyses RES development in Nigeria. It evaluates the current electricity situation in Nigeria, highlighting the potentials and challenges of achieving sustainable power supply through the infusion of RES into the energy mix. The legal regime for RES utilisation is assessed, revealing the gaps in the law and institutional weaknesses inhibiting RES integration in Nigeria. Finally, the chapter examines the implication of RES development on the energy trilemma, energy justice and the just transition.

4.2 Renewable Energy Development in Nigeria and its Implications on the Energy Trilemma, Energy Justice and the Just Transition

The paradox of the Nigerian energy situation is akin to starvation amidst abundance. Although the country is rich in both fossil fuels and RES, over 60% of the population is without electricity access and about 80% is without clean cooking fuel.⁵⁸⁸ The overdependence on oil and gas for economic revenue and energy supply has been at the expense of other alternative resources. Energy security in the country has been punctuated externally by fluctuating prices in the petroleum market, and internally by infrastructural deficit, corruption, unaccountability, and energy sabotage (mainly in the oil-producing Niger Delta region).⁵⁸⁹ These problems may persist because despite the Federal Government's rhetoric, there has been no active demonstration of the political will to diversify the economy. This is not helped by the fact that both the Petroleum Industry Act 2021 and the Electricity Act 2023 do not have provisions touching on energy transition. Harnessing the country's resources to promote national prosperity and economic self-sufficiency are constitutional objectives of the Nigerian state.⁵⁹⁰ It behoves on the government to take all necessary steps to explore all resources (including renewables) as national prosperity and economic self-sufficiency are unattainable solely through the development of oil and gas.

⁵⁸⁸ *ibid*

⁵⁸⁹ Ajodo-Adebanjoko (n 446)

⁵⁹⁰ See section 16(1) Constitution of the Federal Republic of Nigeria, 1999 (as amended)

Human development, including industrialisation, is the goal of every government. Development brings about increased access to energy services, improved social welfare, better incomes and opportunities, and national prosperity.⁵⁹¹ However, the attainment of development and industrialisation comes at a huge cost to the planet. As argued earlier in this thesis,⁵⁹² one of the characteristics of an industrialised nation is the high level of energy consumption. Industrialisation increases the energy demand for the industrial sector, and domestic consumption patterns increase dramatically. For instance, China's industrialisation drive has increased its energy consumption by about 24% annually, making it the highest energy consumer globally for the past 18 years consecutively.⁵⁹³ Similarly, due to increased industrial growth, electricity consumption in Brazil has been on an upward increase since 1990.⁵⁹⁴ Increased energy consumption results in increased production and this leads to increased emissions. Therefore, whilst Nigeria may be experiencing energy deficits, the development of a RES regime should be aimed at attaining sustainable development rather than development that leads to an excessive hunger for energy. Thus, in accordance with Sustainable Development Goal 12 (responsible consumption and production) and the energy efficiency goal of the National Renewable Energy and Energy Efficiency Policy (NREEEP),⁵⁹⁵ this thesis argues that because the current development paradigms of developed countries are unsustainable, the establishment of a RES planning and consenting regime must prioritise energy efficiency and minimise over-consumption. While this may be a challenge in the short term (as the country strives to attain universal energy access), a strong political will and statutory support can achieve a sustainable development founded on efficient consumption and responsible production patterns.

A decentralised energy market will engender energy equity. This is because the availability of energy infrastructure in a locality does not translate into development, as being a host community does not always translate into accessibility to energy services. This has been evinced in the Nigerian oil and gas industry where host communities have suffered the most from lack of energy access and environmental degradation caused by oil production

⁵⁹¹ UNDP, 'Human Development Reports' available at: <http://hdr.undp.org/en/humandev> accessed 25 May 2021.

⁵⁹² Chevalier and Ouédraogo (n 312); see also section 3.4.1.2 of this thesis.

⁵⁹³ BP, 'Statistical Review 2019' available at: <https://www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/energy-economics/statistical-review/bp-stats-review-2019-china-insights.pdf> accessed 25 May 2021; see also IEA, 'China' available at <https://www.iea.org/countries/china> accessed 25 May 2021

⁵⁹⁴ IEA, 'Brazil' available at: <https://www.iea.org/countries/brazil> accessed 25 May 2021

⁵⁹⁵ NREEEP is discussed in section 4.6.2

activities.⁵⁹⁶ Moreover, inaccessibility to rural communities due to bad transport links and the absence of national grid infrastructure has been identified as some of the causes of poor energy access in rural areas.⁵⁹⁷ This chapter argues that the utilisation of RES technologies is suitable to meet the energy needs of these rural areas. RES projects can provide affordable rural electrification through mini-grids or as standalone facilities to provide energy services to underserved communities. Also, the development of sustainable cooking stoves such as solar stoves and efficient biomass burners can improve the living conditions of rural dwellers as it can help reduce the hours spent sourcing for fuel wood; and the use of solar or wind powered water supply projects can assist in providing portable water within these communities. The social welfare of its citizenry is a core policy objective of the Nigerian state.⁵⁹⁸ The state is enjoined to promote an economy that guarantees social welfare, happiness, justice, and equality.⁵⁹⁹ The provision of available, accessible, and affordable energy can promote social welfare and justice; hence, the Nigerian government ought to prioritise these ideals in the development of energy policies. RES offers a sustainable and pragmatic option to create these social realities, especially among underserved groups.

In the ranking of energy developmental priorities, environmental considerations are usually the last. This is because achieving energy security and energy equity are the foremost priorities of developing countries like Nigeria. This is further evidenced by the lack of environmental sustainability provisions in the Electricity Act 2023. Energy exploitation is considered as central to the attainment of economic prosperity. Despite its huge environmental impacts, the production of oil and gas drives the Nigerian economy as it accounts for about 90% of foreign exchange and powers all sectors of the economy.⁶⁰⁰ Countries in the global south have often considered fossil fuel as a necessity for their development, particularly as developed economies achieved industrialisation, and continue to sustain those industries through fossil fuels (although decarbonisation commitments have led to the setting of decarbonization targets).⁶⁰¹

⁵⁹⁶ Adati Ayuba Kadafa, Mohamad Pauzi Zakaria and Fadhilah Othman, 'Oil Spillage and Pollution in Nigeria: Organizational Management and Institutional Framework' (2012) 2 *Journal of Environmental and Earth Science* 22

⁵⁹⁷ Joseph (n 587)

⁵⁹⁸ Constitution of the Federal Republic of Nigeria, 1999 (as amended), S 16(1)

⁵⁹⁹ *ibid*

⁶⁰⁰ Adebayo Charles, 'How is 100% renewable energy possible for Nigeria?' (Global Energy Network Institute [GENI] 2014) 6

⁶⁰¹ Barbara Unmüßig, Wolfgang Sachs and Thomas Fatheuer, *Critique of the Green Economy Toward Social and Environmental Equity* (Publication Series on Ecology, vol. 22, Heinrich-Böll-Stiftung, Schumannstr, 2012) 19

It has been observed that Nigeria is vulnerable to climate change due to its location as a coastal country as well as the agrarian nature of its rural economies.⁶⁰² Hence, there is a need to take steps to mitigate climate change. This chapter argues that the low GHG emission potential of RES makes its development essential to mitigate climate change. Unlike electricity produced from oil and gas, most RES projects do not require regular fuelling for their operation. Additionally, the sustainable cultivation of biofuel plants can serve as carbon sinks for climate change mitigation.⁶⁰³ On environmental protection, section 20 of the Nigerian Constitution provides, ‘The State shall protect and improve the environment and safeguard the water, air and land, forest and wildlife of Nigeria.’⁶⁰⁴ Environmental sustainability is also an objective of the Nigerian state. Hence the government must begin to diversify the energy mix by integrating RES to mitigate climate change and protect the environment. More importantly, emphasis must be placed on energy efficiency to avoid over-consumption.

EA 2023 and other enactments including the Land Use Act 1978 make provisions for the acquisition of land for public purposes (including electricity infrastructure development).⁶⁰⁵ The law makes the payment of compensation mandatory in the event of such a compulsory acquisition of land for public purposes.⁶⁰⁶ While energy development is considered for public purpose and thus overrides every interest upon the land, it is important that in the development of energy resources, energy justice concerns be adopted. Prior informed consent (social licence) must be sought and obtained before the development of energy resources (including renewables) to foster procedural justice. The absence of procedural justice through community consultation and effective dispute-resolution mechanisms have been common causes of crises between host communities and multinational corporations in the development of oil and gas.⁶⁰⁷ The impact of energy development on indigenous people and their ancestral lands and culture must be acknowledged and handled prudently to avoid perpetuating recognition injustice. Also, rural communities should not just be channels through which energy services pass to get to

⁶⁰² Adeyanju et al (n 91)

⁶⁰³ Grant M. Domke, Sonja N. Oswalt, Brian F. Walters, and Randall S. Morin, ‘Tree planting has the potential to increase carbon sequestration capacity of forests in the United States’ (2020) available at: <https://www.pnas.org/content/117/40/24649> accessed 13 May 2021.

⁶⁰⁴ Constitution of the Federal Republic of Nigeria, 1999 (as amended)

⁶⁰⁵ See Electricity Act 2023, S 118

⁶⁰⁶ Ibid, see also Constitution of the Federal Republic of Nigeria, 1999 (as amended), S 44(1)(a); Land Use Act cap L5 Laws of the Federation of Nigeria 2004, S 28

⁶⁰⁷ Ajodo-Adebanjoko (n 446)

urban areas, they should also benefit from the energy infrastructure. The benefits and burdens of energy development should be shared by all classes of the Nigerian society.

The Nigerian constitutional provisions for economic prosperity, social justice and environmental protection are under the fundamental objectives and directive principles of state policy.⁶⁰⁸ However, these provisions have been rendered non-enforceable by virtue of section 6(6)(c) of the Nigerian Constitution.⁶⁰⁹ Therefore, aside from elections, and where expressly provided elsewhere in the constitution or in a statute, the government cannot be compelled to perform their obligations of providing economic security, social justice (including social welfare) and environmental protection. This makes it imperative to enact a comprehensive RES regime that not only promotes energy security and energy equity but also prioritises environmental and energy justice concerns in tackling Nigeria's energy situation.

4.3 Overview of Nigeria's Energy Situation

Nigeria is a natural resource-endowed country with rich deposits of oil, gas, coal, and various other mineral deposits.⁶¹⁰ Since their discovery and production, oil and gas have been the backbone of the Nigerian economy, accounting for about 90% of national revenue.⁶¹¹

Apart from being the main source of foreign exchange in Nigeria, oil and gas are equally the major sources of energy for the country. Petroleum products power the country's transportation, manufacturing, industries, commercial and public services, agriculture, and homes. About 80% of Nigeria's electricity is generated from gas-powered turbines while hydropower accounts for 14% of electricity generation.⁶¹²

Despite the huge deposits of energy resources, like most African countries, Nigeria has one of the lowest energy consumption rates in the world.⁶¹³ This is due to the country's slow pace of industrialisation as about 65% of the energy used in Nigeria is for domestic purposes.⁶¹⁴ According to the International Energy Agency (IEA), the total final energy consumption in 2018 for Nigeria's domestic sector was 105,592.0 kilo tonnes of oil equivalent (ktoe) whereas

⁶⁰⁸ See Constitution of the Federal Republic of Nigeria, 1999 (as amended), Chapter 2

⁶⁰⁹ Constitution of the Federal Republic of Nigeria, 1999 (as amended), S 6(6)(c)

⁶¹⁰ GENI (n 600) 6

⁶¹¹ Ohimain (n 256) 353

⁶¹² WEC 2018 (n 798) 117

⁶¹³ Sunday Olayinka Oyedepo, 'Energy and Sustainable Development in Nigeria: The Way Forward' (2012) 2 Energy, Sustainability and Society 1, 4

⁶¹⁴ Ibid.

the industrial sector was 7,505.0 ktoe.⁶¹⁵ Meanwhile, within the same period, the total final energy consumption in the Chinese industrial sector was 995,685.0 ktoe and its domestic sector was 345,376.0 ktoe.⁶¹⁶ The low energy consumption is due to the lack of security of energy supply.⁶¹⁷

About 91% of Nigeria's domestic energy consumption goes into cooking, while the rest goes into lighting (6%) and the use of electrical appliances (3%).⁶¹⁸ Kerosene and gas are the predominant cooking fuels in the urban areas. Most of the urban consumers use kerosene stoves for their cooking while few have gas and electric cookers. In rural areas, wood and charcoal are the main energy resources for fuel primarily due to their abundant availability. Moreover, due to bad road networks, transportation of petroleum products (including kerosene) to rural areas is difficult. In rural areas, kerosene is sold at very high prices above official rates; hence, only few rural dwellers can afford kerosene.⁶¹⁹ The lack of availability and access to energy services for rural dwellers highlights the distributional injustice inherent in the Nigerian energy situation.

The use of biomass for domestic cooking and heating mainly in rural areas accounts for about 83% of energy consumption in Nigeria.⁶²⁰ Over 50 million tonnes of firewood (including charcoal) is consumed annually in Nigeria, mostly in rural areas.⁶²¹ Fuel wood consumption in Nigeria is unsustainable as the rate of consumption outweighs the rate of replenishment through tree planting programmes.⁶²² This raises the need for legislative responses to expand protected areas and ecosystems for conservation purposes in accordance with the GBF.⁶²³ While such a conservation drive will engender environmental sustainability, there is a need to balance this objective with the energy needs of rural and underserved populations. Domestic and industrial consumption of fuel wood also contributes to erosion and desertification as the felling of trees makes the land vulnerable to floods and other harms. Annually, about 3.6% of the forest and

⁶¹⁵ IEA, 'Data and Statistics – Nigeria' available at: <https://www.iea.org/data-and-statistics?country=NIGERIA&fuel=Energy%20consumption&indicator=TFCShareBySector> accessed 4 May 2021

⁶¹⁶ IEA, 'Data and Statistics – China' available at: <https://www.iea.org/data-and-statistics?country=CHINA&fuel=Energy%20consumption&indicator=TFCShareBySector> accessed 4 May 2021

⁶¹⁷ Oyedepo (n 613)

⁶¹⁸ *ibid*

⁶¹⁹ *ibid*

⁶²⁰ GENI (n 600)

⁶²¹ Oyedepo (n 613)

⁶²² *ibid*

⁶²³ GBF (n 79)

woodlands are lost to deforestation.⁶²⁴ Because trees and plants absorb CO₂ for their growth, deforestation hinders the ability of these plants to mitigate climate change.⁶²⁵

There is an acute shortage of electricity in Nigeria, as only about 40% of the population has access to electricity, making Nigeria the third largest country with no access to power.⁶²⁶ Many of those with access to electricity only receive few hours of power supply daily, and mostly low-quality power supply.⁶²⁷ Moreover, access to electricity differs in different geopolitical regions. For instance, in the North-east region, 71.6 % of the population have no access to electricity supply.⁶²⁸ Additionally, Nigeria's electricity consumption per capita rate is among the lowest globally at about 134 kWh, whereas the USA has 12,083 kWh, UK 4,704 kWh, South Africa 4,363 kWh, Libya 4,042 kWh, Namibia 1,927 kWh and Ghana 403 kWh.⁶²⁹ Its electricity consumption per capita falls below the 500 kWh minimum average for developing countries.⁶³⁰ Nigeria's power generation capacity of 6,050MW is significantly lower than its demand load of 15,000MW.⁶³¹ This imbalance results in the overloading of the limited power plants, consequently increasing the dependence on private fossil fuel generators for industrial and domestic energy generation.⁶³² Although Nigeria has a similar population to Pakistan and Brazil, however, when compared in terms of electricity generation, Nigeria's electricity generation is 5 times less than Pakistan's and 24 times less than Brazil's.⁶³³

Nigeria's poor power supply festers energy insecurity and energy inequity and this has inhibited the country's economic growth.⁶³⁴ This lack of reliable electricity supply greatly affects the productivity of small-scale businesses which are forced to suspend their operations during intermittent power outages. Alternatively, to make up for the erratic power supply, households and businesses who can afford them, depend on the use of petrol and diesel-

⁶²⁴ *ibid*

⁶²⁵ Akella et al (n 132)

⁶²⁶ Roche et al (n 77) 1

⁶²⁷ Sunday Olayinka Oyedepo et al, 'Towards a Sustainable Electricity Supply in Nigeria: The Role of Decentralized Renewable Energy System' (2018) 2 *European Journal of Sustainable Development Research* 1, 5 <https://doi.org/10.20897/ejosdr/xxxxx>

⁶²⁸ *ibid*

⁶²⁹ *ibid*; see also Osaretin Aigbovo and Ebiton Ogboka, 'Electric Power Sector Reform Act 2005 and the Development of Renewable Energy in Nigeria' (2016) 7 *Ren. Energy Law & Pol. Rev.* 20, 22

⁶³⁰ *ibid*

⁶³¹ *ibid*

⁶³² Aji et al (n 583)

⁶³³ Electricity generation in Pakistan and Brazil is mostly from hydroelectricity, fossil fuels and nuclear. See GENI (n 600) 8.

⁶³⁴ S.E Nwani, E.A Ozegbe, and Y.T Olunlade, 'An Overview of Nigerian Energy Sector: Prospects and Challenges' available at https://www.academia.edu/37834838/AN_OVERVIEW_OF_NIGERIAN_ENERGY_SECTOR_PROSPECTS_AND_CHALLENGES_BY accessed 23/03/2021

powered generators.⁶³⁵ This has increased the cost of goods and services, increasing the burden on consumers. It is estimated that over 60 million Nigerians own petrol and diesel-powered generators with an annual fuelling cost of around \$13.35 billion.⁶³⁶ The situation is even worse for most self-employed entrepreneurs who need to have generators at home as well as at their places of business. This causes a steep rise in household energy bills. Similarly, the self-generation of electricity by manufacturers makes goods produced in Nigeria three times more expensive than foreign products.⁶³⁷ It is estimated that businesses in Nigeria lose about \$29 billion annually to poor electricity.⁶³⁸ Given that domestic uses and industrial purposes account for 75% and 7.5% of electricity consumption respectively, the poor electricity situation not only impacts households but shows a bleak future for the country's industrialisation drive.⁶³⁹ This festers energy injustice as poorer households need to spend a significant percentage of the household income on energy needs and this exacerbates energy poverty.⁶⁴⁰

A possible explanation for the low consumption of electricity by the manufacturing and industrial sectors is the fact that the sector relies heavily on self-generation to avoid subjecting their operations to the instability in electricity supply from the national grid. Self-generation increases operational costs, and this has forced most manufacturers to relocate from Nigeria to neighbouring West African countries resulting in huge capital flight.⁶⁴¹ For example, in 2007, Michelin Tyres closed its tyre production in Nigeria and moved to Ghana and Dunlop Tyres followed suit the next year; they both cited the high cost of operation due to the erratic power situation in the country as part of their reasons for shutting down.⁶⁴² Moreover, the power situation has increased unemployment and poverty as most small and medium enterprises

⁶³⁵ Adewuyi et al (n 586) 995; see also GENI (n 600)

⁶³⁶ Israel Agwu Etu, Enesi Abdulrahman Ahmed and Kufre Esenowo Jack, 'Assessment of Nigeria's Power Situation and the Way Forward' (2015) 1 IJLRET 24

⁶³⁷ Roche et al (n 77)

⁶³⁸ Okechukwu Nnodim, 'Nigeria Businesses Lose \$29bn Annually to Poor Electricity – World Bank' available at <https://punchng.com/nigeria-businesses-lose-29bn-annually-to-poor-electricity-wbank/> accessed 22 April 2021.

⁶³⁹ Nwani et al (n 634)

⁶⁴⁰ Chevalier and Ouédraogo (n 312)

⁶⁴¹ Tunde Olaoye, Titilayo Ajilore, Kunle Akinluwade, Femi Omole, and Adelana Adetunji, 'Energy Crisis in Nigeria: Need for Renewable Energy Mix' (2016) 4 American Journal of Electrical and Electronic Engineering 1

⁶⁴² See Daily Post, 'Michelin, Dunlop Tyres Dumped Nigeria Because of Epileptic Power Supply – Stakeholder' available at <https://dailypost.ng/2016/03/31/michelin-dunlop-tyres-dumped-nigeria-because-of-epileptic-power-supply-stakeholder/> accessed 4 May 2021; see also Helen Oji, 'Dunlop Seeks Partners to Return to Nigeria' available at <https://guardian.ng/business-services/dunlop-seeks-partners-to-return-to-nigeria/#:~:text=The%20Federal%20Government%20in%202006,shutting%20down%20operations%20in%202008.> Accessed 4 May 2021.

(SME) have been forced to shut down. This situation has caused former SME entrepreneurs and employees to seek paid employment elsewhere.⁶⁴³

The impact of the poor state of Nigeria's electricity infrastructure is far-reaching. The health sector is adversely affected as most equipment in hospitals requires electricity to function (for instance, refrigeration of vaccines); hence the power inconsistency poses a threat to the lives of patients.⁶⁴⁴ Since government-owned health centres are often faced with blackouts, the other alternative is to seek medical care from expensive private hospitals. The upper class in Nigeria opt for private medical care or frequently embarks on medical tourism rather than attend local health facilities, leaving those who cannot afford such luxuries to suffer the consequences of the lack of electricity.⁶⁴⁵ This highlights the implications of distributional injustice on other aspects of life of the citizenry such as health care. Thus, the lack of energy access does not only affect the ability to meet basic domestic energy needs such as heating, cooling, use of appliances and cooking, but also affects the quality of health care service available to individuals.

Poor electricity access also affects the educational sector. Due to lack of electricity, most school children depend on candle lights or lamps to study at night. This affects their health and impacts on their academic performance. Similarly, in higher education institutions, the lack of adequate power supply means laboratory and computer facilities depend on rotational availability of power (from national grid and private generator sets). This significantly hinders academic research. Wealthy parents often choose to send their children to private or foreign universities.⁶⁴⁶

The impact of Nigeria's energy paradigm highlights the injustices that lack of energy access can create. Low and medium-income households suffer the most from lack of energy as it affects almost all aspects of their lives leaving them with very few options, namely, patronising exorbitant private institutions or self-generation.⁶⁴⁷ Given that these low and medium-income households do not usually own energy infrastructure or participate in energy decision-making,

⁶⁴³ Ibid

⁶⁴⁴ Aigbovo and Ogboka (n 629)

⁶⁴⁵ The Nigerian President spent over 6 months in the UK in 2017 (provide source) and (medical tourism in Nigeria). Premium Times, 'Timeline: Buhari has Spent 200 Days in UK for Treatment since Assuming Office' available at: <https://www.premiumtimesng.com/news/headlines/477336-timeline-buhari-has-spent-200-days-in-uk-for-treatment-since-assuming-office.html?tztc=1> accessed 11 February 2024

⁶⁴⁶ S Adekalu & O Oludeyi, 'Edutourism: The Nigeria Educational Challenges and International Students' Choice of Study in Nigerian Universities' (2013) 2 International Journal of Academic Research in Progressive Education and Development 53

⁶⁴⁷ Adewuyi et al (n 586) 995

there is a need to develop a RES planning and consenting regime that promotes procedural justice by creating an avenue for members of the public to participate in energy decision-making which affects their survival.

There have been several reforms in the power sector to improve the energy situation in Nigeria. In 2005, the state-owned National Electric Power Authority (NEPA) was privatised, and its assets and liabilities were purchased by Power Holding Company of Nigeria (PHCN); this included 6 generation, 11 distribution companies and a transmission company that formed part of PHCN.⁶⁴⁸ However, the privatisation did not bring about the needed transformation and reform in the electricity sector nor did it improve electricity availability and access. Consequently, in 2013, the 6 generation and 11 distribution companies under the PHCN were sold.⁶⁴⁹ Electricity transmission and systems operation is wholly owned by the Federal Government under the Transmission Company of Nigeria (TCN).⁶⁵⁰

Presently, Nigeria has 23 electricity-generating plants connected to the national grid which have been built and commissioned; three of which are hydroelectricity plants and the rest gas-powered plants.⁶⁵¹ Despite the enormous investment in the construction and commissioning of these power plants, their operation has been below capacity. The combined generation capacity of all the power generating plants is estimated to be between 10,396 MW and 13,234 MW—gas-powered plant being 8,457.6MW and hydroelectricity 1,938.4 MW.⁶⁵² However, according to the Nigerian Electricity Regulatory Commission (NERC), the produced electricity from the power plants stands at 6,056 MW (4,996 MW for gas and 1060 for hydro).⁶⁵³ Liquefied Natural Gas (LNG) needed to power the gas-powered plants are produced in the Niger Delta region, an area plagued with frequent conflict between host communities and international oil corporations (IOCs) over oil and gas production.⁶⁵⁴ These frequent conflicts have greatly hampered the supply of LNG to the gas-powered plants to aid power generation.⁶⁵⁵ The

⁶⁴⁸ Nwani et al (n 634)

⁶⁴⁹ GENI (n 600) 11

⁶⁵⁰ Nwani et al (n 634)

⁶⁵¹ The exact figure is debatable see NERC, 'Generation' available at <https://nerc.gov.ng/index.php/home/nesi/403-generation> accessed 23 March 2021, see also Oyedepo et al (n 627) 5; Omokolade Ajayi, 'Electricity: Nigeria now has an Installed Generation Capacity of 13,000MW – Minister of Power' available at <https://nairametrics.com/2020/10/29/electricity-nigeria-now-has-an-installed-generation-capacity-of-13000mw-minister-of-power/> accessed 22 April 2021

⁶⁵² Ibid

⁶⁵³ Ibid

⁶⁵⁴ Ali I Naibbi and Yusuf M Tukur, 'Ensuring Optimal Electricity Generation and Supply: The Paradox of Nigeria's Situation' (2017) 2 International Research Journal of Environmental Sciences and Studies 1, 7

⁶⁵⁵ Nwani et al (n 634)

hydropower plants have been affected by the changing weather conditions, low water levels and flooding occasioned by climate change.⁶⁵⁶ The percentage of installed capacity compared to available capacity in Nigeria's electricity sector (48% for gas and 54.7% for hydro) echoes the argument of this research that more attention should be given to the development of RES generation. However, in developing renewable electricity, it is important to promote energy efficiency such that production is not driven-up through over-consumption. Meanwhile, the use of free fuel for RES will significantly improve Nigeria's electricity by not only giving the sector more options in its energy mix but will prevent the impact of conflicts and civil unrest on electricity generation.

The electricity sector in Nigeria has been characterised by infrastructural mismanagement, regulatory inefficiency and poor governance, technical incapacity, lack of adequate legal support and non-enforcement of policies, financial mismanagement, and corruption, among others.⁶⁵⁷ This has meant that despite successive governments' huge capital investments in the power sector, there has been no commensurate improvement in the power situation. Additionally, it has made the sector unattractive to private investors.

4.4 Desirability of Renewable Energy Integration in Nigeria

As observed earlier, over 60% of the Nigerian population does not have access to electricity.⁶⁵⁸ Meanwhile, in the rural areas, the number is even more. The country is also vulnerable to the devastating impacts of climate change; and the current oil and gas energy regime is unsustainable.⁶⁵⁹ The mono-economic dependence of Nigeria on oil and gas revenue leaves the country exposed to price uncertainty in the oil and gas market.

RES development offers various benefits including addressing Nigeria's energy deficit, reducing emissions, mitigating climate change impacts, and providing an opportunity to diversify the country's economy.

4.4.1 Provision of Adequate Power Supplies to Address Energy Deficits

An increase in industrial consumption of electricity in Nigeria is the key to industrialisation and economic advancement. Therefore, to improve the country's electricity consumption per

⁶⁵⁶ Etu et al (n 636) 25

⁶⁵⁷ Nwani et al (n 634); This is discussed further under section 4.9 of this thesis.

⁶⁵⁸ Joseph (n 587)

⁶⁵⁹ Abubakar Kabir Aliyu, Babangida Modu, and Chee Wei Tan, 'A Review of Renewable Energy Development in Africa: A Focus in South Africa, Egypt and Nigeria' (2018) 81 *Renewable Sustainable Energy Reviews* 2502, 2503

capita, electricity generation must be ramped up. Nigeria needs about 15,000 MW to meet its electricity demand.⁶⁶⁰ The current electricity regime, heavily dependent on fossil fuel, has not been able to meet these demands despite millions of dollars committed to the sector. It is therefore imperative to integrate RES into the energy mix.

To meet the country's electricity demands, various RES must be integrated into the energy mix. Due to infrastructural deficits and issues of grid balancing, it is argued that the deployment of decentralised RES projects will plug the energy deficits in the power sector. This will promote energy security and energy equity whilst also guaranteeing distributional justice for the large unserved and underserved population.

The majority of the Nigerian population depends on unsustainable use of biomass for domestic cooking and heating. However, given the country's huge biomass and biofuel potential, about 25 billion m³ of Nigeria's biogas potential can replace kerosene, charcoal, and fuelwood as domestic fuels.⁶⁶¹ If the country efficiently and sustainably exploits these resources, fuel poverty will be reduced, and this will lead to poverty eradication for many households and reduction in carbon emissions.

4.4.2 Climate Change Mitigation

Like most developing countries, Nigeria is vulnerable to the adverse impact of climate change due to the dependence on agriculture in rural areas and prevalence of poverty.⁶⁶² This trend is particularly worrying given Nigeria's position as the largest producer of crude oil in Africa with its proven natural gas reserves being the largest on the continent.⁶⁶³ As oil and gas production come with attendant challenges, Nigeria has had a turbulent oil and gas production history.⁶⁶⁴ Apart from the frequent oil spillages which drain into farmlands and water sources (streams, rivers, and lakes), destroying local economies (fishing, farming, and handcrafts), polluting the environment, and resulting in loss of biodiversity, gas flaring has also remained another major source of environmental degradation.

⁶⁶⁰ See PWC, 'Powering Nigeria for the Future' available at: <https://www.pwc.com/gx/en/growth-markets-centre/assets/pdf/powering-nigeria-future.pdf> accessed 12 May 2021.

⁶⁶¹ Joseph (n 587), 908

⁶⁶² Adeyanju et al (n 91)

⁶⁶³ Aarti Gungah, Nnaemeka Vincent Emodi, Michael O Dioha, 'Improving Nigeria's Renewable Energy Policy Design: A Case Study Approach' (2019) 130 Energy Policy 89

⁶⁶⁴ *ibid*

Gas flaring has been a recurrent problem in Nigeria, especially the flaring of associated gas in petroleum production.⁶⁶⁵ Despite the enactment of the Associated Gas Re-Injection Act 1979, other legislation, policies, and associated deadlines to stop the flaring of gas in Nigeria, these measures have not been successful as the practice persists on a larger scale.⁶⁶⁶ Although the Petroleum Industry Act 2021 prohibits gas flaring, there are also exceptions to flare gas.⁶⁶⁷ GHG emissions through the flaring of associated gas contributes to climate change and ozone layer depletion.⁶⁶⁸

The Nigerian economy is heavily dependent on the production of crude oil to meet its energy needs and for foreign export. The large-scale production of petroleum products for domestic energy consumption, electricity production, transportation (including rail, aviation, and shipping), manufacturing of petrochemicals, construction, industrial uses, and export results in massive GHG emissions.⁶⁶⁹ Additionally, as observed earlier, over 60 million Nigerians own petrol- or diesel-powered generators to fill the gap created by the erratic power supply in the country.⁶⁷⁰ Thus, the high rate of electricity self-generation from fossil fuels by private individuals and business also contribute to GHG emissions.

Environmental pollution in Nigeria has made the country susceptible to the adverse impacts of climate change including famine and droughts, declining agricultural yields, decreasing fisheries, erosion and flooding in coastal areas, acid rain, rising temperatures, biodiversity loss, water scarcity, vulnerability to landslides, rising sea levels, loss of cultural heritage and tourism, health hazards including poor air quality, an increase in poverty, hunger, and unemployment.⁶⁷¹

The deployment of RES in the energy mix may not fix all of Nigeria's environmental problems but it will certainly reduce environmental pollution significantly thereby contributing to environmental sustainability. Since RES are generally environmentally benign, their development will help drive down GHG emissions in Nigeria. Embedding environmental

⁶⁶⁵ Amanze R. Ejiogu, 'Gas Flaring in Nigeria: Costs and Policy' (2013) 24 *Energy & Environment* 983; see also Etisang Abraham, *Comparative Analysis of the Legal Framework for Gas Flaring Regulation in Nigeria and Norway* (LLM Dissertation, University of the West of England, Bristol, 2018) 1

⁶⁶⁶ *ibid*

⁶⁶⁷ See Petroleum Industry Act, Ss 104, 105 and 107

⁶⁶⁸ Sanni et al (n 95) 3

⁶⁶⁹ Nnaemeka Vincent Emodi and Kyung-Jin Boo, 'Decomposition Analysis of CO₂ Emissions from Electricity Generation in Nigeria' (2015) 5 *Int'l Journal of Energy Economics and Policy* 565

⁶⁷⁰ See Etu et al (n 636).

⁶⁷¹ Sanni et al (n 95) 4

sustainability in the RES regime will facilitate restorative justice in Nigeria.⁶⁷² Given the adverse impacts of oil and gas production on the environment and host communities, restorative justice will ensure that polluted lands and watercourses are rectified. It will further ensure that ecosystems displaced by oil and gas production can begin to recover due to non-disturbance from RES developments.

Although CO₂ is released during the burning of biofuels because biofuels are made from plants, the produced CO₂ is recaptured by other plants to enhance growth.⁶⁷³ The cultivation of plants for biofuels and biomass utilises this cycle to reduce GHGs.⁶⁷⁴

4.4.3 Economic Diversification

Nigeria's monocultural economy has left the country at the mercy of price fluctuations in the oil and gas market. The country's annual national budgets have been made with the hope of them being funded by revenue from the sale of oil.⁶⁷⁵ Consequently, when oil prices have dropped, national budgets have had to be reviewed accordingly, creating economic uncertainty.⁶⁷⁶

Oil and gas are depletable resources which may not be available to sustain Nigeria's economy in the not-too-distant future.⁶⁷⁷ Moreover, in light of climate change, international decarbonisation and related environmental commitments, and the quest for sustainable energy, most advanced economies and buyers of Nigeria's oil are divesting from fossil fuels and focusing more on renewables. It is only a matter of time before Nigeria's oil trade partners will abandon them for sustainable alternatives.

The development of RES technology has several economic benefits for Nigeria. The integration of RES into the electricity sector will create a new market for alternative energy.⁶⁷⁸ RES integration offers a pathway to breaking free from the resource curse (where revenue from oil

⁶⁷² Restorative justice is discussed in section 3.4.4 of this thesis.

⁶⁷³ Federal Government of Nigeria (FGN), National Economic Empowerment Development Strategy (NEEDS), (National Planning Commission, Nigeria, 2004) 7

⁶⁷⁴ Oyinkansola Chukuka Tasie, 'Expanding Access to Electricity for Sustainable Development in Nigeria: An Analysis of the Electric Power Sector Reform Act 2005' (PhD Thesis, University of Aberdeen 2014) 90

⁶⁷⁵ Budget Office of the Federation, '2021 Citizens Guide: Budget of Economic Recovery and Resilience' (BOF, 2020) 15

⁶⁷⁶ *ibid*

⁶⁷⁷ Sanni et al (n 95) 5

⁶⁷⁸ *ibid*

and gas creates a disincentive for diversification, despite its adverse environmental impacts).⁶⁷⁹ This will give rise to new markets for manufacturing, assembling, sales, servicing, and maintenance of RES technology. Unless RES equipment are produced locally, reliance on importation will affect its profitability. The entire lifecycle of RES technology offers great employment potential. Apart from direct employment for those who will work in the new RES industry, countless indirect jobs will be created through its deployment both in the goods and services sector including transportation of equipment, supply of work and other tools for the sector, hospitality for RES workers, local businesses where RES projects are located, among others. It is estimated that in 2019, jobs in the RES sector rose to about 11.5 million globally.⁶⁸⁰ Whilst RES development will create new jobs, there will be need to develop local expertise as well as facilitate a just transition through training of fossil fuel workers to transition into RES jobs. This requires an efficient energy transition programme. Although the Electricity Act 2023 makes provisions for RES development,⁶⁸¹ there is no provision in the Act to address energy transition.

As discussed earlier, the dependence on fossil fuels to meet domestic energy needs (especially among the low-income earners) and unsustainable fuelwood (among rural dwellers) has resulted in energy poverty as most of the population cannot afford the high cost of fossil fuels to meet domestic energy needs. Hence, RES development will benefit these classes of society by providing clean cooking fuels such as solar stoves, which will reduce their energy bills and significantly reduce energy poverty in the country. This will promote energy equity as well as encourage distributional justice.

A thriving RES sector will attract both local and foreign investors. This investment will undoubtedly impact the country's economy positively. The International Energy Agency (IEA) has forecast that RES is set to account for 95% of global electricity capacity between 2020 and 2025.⁶⁸² As the growth in RES development comes with job creation and economic expansion, this will benefit other sectors of the economy. Hence, positioning the country for the coming

⁶⁷⁹ Mark Swilling, 'Greening African Economies: Reflections on an Emerging Contested Discourse' in Layla Al-Zubaidi, Jochen Luckscheiter and Kulthoum Omari, *Greening the Continent Reflections on Low-Carbon Development Pathways* (Heinrich-Böll-Stiftung e.V., 2014) 12

⁶⁸⁰ IRENA, 'Renewable Energy Jobs Continue Growth to 11.5 Million Worldwide' available at: <https://www.irena.org/newsroom/pressreleases/2020/Sep/Renewable-Energy-Jobs-Continue-Growth-to-11-5-Million-Worldwide> accessed 12 May 2021

⁶⁸¹ See Electricity Act 2023, Part XVII

⁶⁸² IEA, 'Renewables 2020: Analysis and forecast to 2025' available at: <https://iea.blob.core.windows.net/assets/3350006e-c203-4b21-aa45-faefd36f22ad/Renewables2020-ExecutiveSummary.pdf> accessed 12 May 2021

RES expansion will give Nigeria an upper edge in the Sub-Saharan region of Africa in particular, and the continent at large.

Given Nigeria's RES potential and its strategic position in West Africa, Nigeria can become a major player in the regional market and will be able to generate revenue from the export of renewable electricity and RES equipment production sale. For example, using the West African Power Pool (WAPP), Nigeria can leverage on its position as a regional leader to promote regional electricity interconnections and power trade.⁶⁸³ Similarly, Nigeria can benefit from the African Continental Free Trade Area (AfCFTA) to promote its RES technology.⁶⁸⁴

4.5 Previous Attempts to Establish a Renewable Energy Legal Regime

The development of energy policies has never been a challenge in Nigeria; the problem however has always been with the enforcement of these energy policies.⁶⁸⁵ Some of these energy policies and strategies developed include National Energy Policy (NEP), 2003; Renewable Energy Master Plan (REMP) 2005; Renewable Electricity Policy Guidelines (REPG), 2006; Renewable Electricity Action Programme (REAP), 2006; and Nigerian Biofuel Policy and Incentives (NBPI), 2007.⁶⁸⁶ The significant policies are discussed below.

The National Energy Policy was introduced in 2003 to relay the government's blueprint to explore Nigeria's vast energy resources to foster development, environmental protection, energy efficiency, energy financing and policy implementation.⁶⁸⁷ The policy hoped to increase energy security, availability, and affordability in Nigeria by diversifying the country's energy mix and increasing the contribution of RES.⁶⁸⁸ The policy encouraged the development of RES technology with public and private sector participation. The policy objectives are not binding on the government or on energy investors. Consequently, implementation cannot be challenged through legal proceedings.⁶⁸⁹

⁶⁸³ See World Bank, 'Regional Power Trade in West Africa Offers Promises of Affordable, Reliable Electricity' available at <https://www.worldbank.org/en/news/feature/2018/04/20/regional-power-trade-west-africa-offers-promise-affordable-reliable-electricity> accessed 13 April 2021

⁶⁸⁴ See African Union, 'African Business Council Applauds the Start of Trading on the Basis of the AfCFTA' <https://au.int/en/pressreleases/20210104/african-business-council-applauds-start-trading-basis-afcfta> accessed 13 April 2021

⁶⁸⁵ Sanni et al (n 95) 8

⁶⁸⁶ *ibid*

⁶⁸⁷ Energy Commission of Nigeria, National Energy Policy (ECN, 2003) 1; see also Ogbumgbada (n 98), 49

⁶⁸⁸ *ibid*

⁶⁸⁹ *ibid* 49

The Renewable Energy Master Plan (REMP) established a blueprint for addressing Nigeria's energy challenge through RES deployment. It identified a series of challenges inhibiting RES development including the need to diversify Nigeria's energy mix from the dwindling oil and gas sector, the need to coordinate policies to aid RES deployment, utilising RES to increase energy access, and creating a competitive electricity market to encourage investment in RES.⁶⁹⁰ REMP provided for short-, medium- and long-term objectives for transitioning away from fossil fuels. It aimed to achieve this through the introduction and implementation of RES policies, infrastructure, and manpower development. The policy failed to materialise its lofty objectives. REMP failed because of a lack of implementation.⁶⁹¹

The Renewable Electricity Policy Guidelines were introduced in 2006 as the Federal Government's overarching policy guideline on electricity generated from RES.⁶⁹² The policy guidelines set out to achieve, '... accelerated sustainable development through increased share of renewable electric power to the national electricity supply'.⁶⁹³ It also sought to expand the RES market by encouraging local production/ assembly of RES equipment and the introduction of subsidies for RES equipment purchases.⁶⁹⁴ The development of grid-connected and off-grid-connection RES projects, and decentralised generation for rural electrification were identified as key to RES utilisation. The Renewable Electricity Fund was established as a temporary and targeted funding mechanism to drive renewable electricity.⁶⁹⁵ Like most other policies, its implementation has been rather slow.

The Nigerian National Petroleum Corporation (NNPC) was given a mandate to create an enabling environment for the take-off and development of the domestic biofuels (ethanol fuel) industry in Nigeria.⁶⁹⁶ The Nigerian Biofuel Policy and Incentives was introduced in June 2007 by the NNPC as the blueprint for biofuel development in Nigeria.⁶⁹⁷ The policy created a Biofuel Energy Commission, Biofuel Research Agency and granted pioneer status to

⁶⁹⁰ Udochukwu B Akuru and Ogbonnaya I Okoro, 'Renewable energy investment in Nigeria: A review of the Renewable Energy Master Plan' (2014) 25 *Journal of Energy in South Africa* 68

⁶⁹¹ *ibid*

⁶⁹² Federal Ministry of Power and Steel, Renewable Electricity Policy Guidelines (FMPS, 2006) 1; see also Dolapo Kukoyi, Uyiosa Ogiagbe, Muriel Cookey, Adeniyi Amodu and Olufolasewa Sulaimon, 'The Renewable Energy Law Review: Nigeria' available at: <https://thelawreviews.co.uk/title/the-renewable-energy-law-review/nigeria> accessed 20 April 2021

⁶⁹³ Federal Ministry of Power and Steel, Renewable Electricity Policy Guidelines (FMPS, 2006) 4

⁶⁹⁴ *ibid*

⁶⁹⁵ *ibid*

⁶⁹⁶ Peter Kayode Oniemola and Gbenga Sanusi, 'The Nigerian Bio-fuel Policy and Incentives (2007): A Need to Follow the Brazilian Pathway' (2009) Q4 *International Association for Energy Economics* 35; see also Ohimain (n 256) 353.

⁶⁹⁷ NNPC, *Nigerian Bio-Fuel Policy and Incentives* (Nigerian National Petroleum Corporation, 2007)

businesses engaged in the production of feedstock for biofuel production.⁶⁹⁸ Although the policy encouraged technology transfer, there was no clear modality on how to implement them.⁶⁹⁹ Additionally, to date the commission has not been established. The objectives of the policy have also not been realised due to non-implementation.⁷⁰⁰

All these policies had good prospects and the ability to transform the energy situation in Nigeria. However, these efforts did not yield the needed results as their objectives were not implemented. The non-implementation was majorly due to a lack of statutory backing and a failure to establish institutions to further the aims of these policies.⁷⁰¹ Nonetheless, the Electricity Act 2023 was recently enacted and now addresses some of the issues raised in this thesis such as positively encouraging RES integration in the energy mix and providing a legal mechanism for RES support schemes. This will be discussed in the next section.

4.6 Analysing the Statutory and Policy Framework on Electricity and Renewables

Improving energy security and access to affordable and reliable electricity requires a balanced and enhanced generation capacity (including grid-connected power plants and off-grid generation), supported by robust transmission networks and efficient distribution to the end users.⁷⁰² To achieve this synergy, it is germane for laws, policies, and regulations to be in place to encourage large capital investments.⁷⁰³ It is imperative to have specific laws that foster the integration of RES into the energy mix because RES offer a viable and sustainable pathway to available, reliable, and affordable electricity access.

This section will analyse the extant legal regime for electricity and RES development to ascertain the gaps existing in the law.

⁶⁹⁸ *ibid*

⁶⁹⁹ Osahon Livewell Omoregie, *Fostering Sustainability through Renewable Energy Resource Development: The Law and Policy in Nigeria* (The IAFOR International Conference on Sustainability, Energy & the Environment Hawaii 2020) 5

⁷⁰⁰ *ibid*

⁷⁰¹ Nnaemeka Vincent Emodi and Nebedum Ekene Ebele, 'Policies Enhancing Renewable Energy Development and Implications for Nigeria' (2016) 4 *Sustainable Energy* 7, 8

⁷⁰² Oyedepo et al (n 627) 12

⁷⁰³ Joel Teitelbaum et al, 'Law and Policy as Tools in Healthy People 2030' (2021) 27 *Journal of Public Health Management and Practice* 265

4.6.1 Electric Act 2023

The Electricity Act 2023 was signed into law by the Nigerian President in June 2023.⁷⁰⁴ The Act repealed the Electricity Power Sector Reform Act (EPSRA) 2005, the Nigerian Electricity Management Services Act 2015, and the Hydroelectricity Power Producing Areas Development Commission Act 2010.⁷⁰⁵ Consequently, the Electric Act 2023 (EA2023) is the primary legislation for electricity in Nigeria and is supported by subsidiary legislations and regulations made pursuant to the Act.⁷⁰⁶

EA2023 retains the Nigerian Electricity Regulatory Commission (NERC) as the chief regulator of the electricity sector.⁷⁰⁷ The Act further empowers NERC to make regulations to achieve the goals of the Act.⁷⁰⁸ The Act establishes the Nigerian Electricity Management Services Agency (NEMSA) as the body responsible for inspectorate services and maintaining the standards for electricity equipment and infrastructure in the Nigerian electricity industry.⁷⁰⁹ The National Power Training Institute of Nigeria is established in the Act as the institution responsible for providing training and certification for the electricity sector.⁷¹⁰

Some of the salient points that the Act sets out to achieve include creating a competitive electricity market, entrenching consumer protection in the electricity market and rural electrification.⁷¹¹ NERC was created to monitor the electricity market by ensuring that the market runs efficiently and encourages competition.⁷¹² However, in practice, the overbearing influence of NERC seems to stifle competition as it fixes electricity tariff rates rather than allowing market forces to determine the price. Also, the issuance of licences according to the Act encourages the monopolisation of electricity supply by major operators.⁷¹³ This occurs because electricity distributors are given de facto monopoly over their regions of operation. Whilst this practice is meant to enable distributors to shore up their investments, its effect counters healthy competition which the power sector reform sought to achieve, as it substitutes

⁷⁰⁴ Mary Izuaka, 'Tinubu Signs 2023 Electricity Bill into Law' available at: <https://www.premiumtimesng.com/news/more-news/603599-tinubu-signs-2023-electricity-bill-into-law.html> accessed 30 April 2024

⁷⁰⁵ See Electricity Act 2023, Second Schedule

⁷⁰⁶ *ibid*

⁷⁰⁷ *ibid*, S 33. NERC is discussed in section 4.7.1 of this thesis.

⁷⁰⁸ See Electricity Act 2023, S 207

⁷⁰⁹ *Ibid*, Ss 172 and 176. NEMSA is discussed in section 4.7.4 of this thesis.

⁷¹⁰ *Ibid*, Ss 185 and 186

⁷¹¹ Nwani et al (n 634)

⁷¹² See Electricity Act 2023, S 34

⁷¹³ See section 4.7.1 of this thesis.

a public monopoly for a private monopoly.⁷¹⁴ This limits the options available for consumers to choose between electricity providers as there is a single electricity provider in a region.⁷¹⁵ The lack of adequate competition raises issues of distributional justice as poorer consumers may be subjected to higher electricity cost without the option of switching to other electricity providers.

To guarantee the welfare of consumers, the Act empowers NERC, in consultation with electricity operators, to set minimum standards for electricity supply quality and complaint mechanisms for aggrieved consumers.⁷¹⁶ Available data from NERC shows that the complaint mechanism established by the Act has been effective.⁷¹⁷ This is because out of the 333,947 complaints were lodged on issues relating to metering, billing and service interruptions in the third quarter of 2023, 317,179 were resolved, representing a 94.98% resolution rate.⁷¹⁸ The complaint mechanism in the Act addresses some aspects of procedural justice such as the ability of electricity consumers to complaint against poor services from distribution companies and obtain redress from NERC. The Act further creates the Power Consumer Assistance Fund which is to be used to subsidise electricity prices for the ‘underprivileged power consumers’.⁷¹⁹ The Act however fails to define who may be classed as an underprivileged consumer. The Act established the Rural Electrification Agency (REA)⁷²⁰ and the Rural Electrification Fund (REF), which seeks to promote rural electrification programmes.⁷²¹ However, the REF may not be used to subsidise electricity prices.⁷²²

Under the repealed Electric Power Sector Reform Act 2005, NERC was the only agency responsible for the issuance of generation, transmission, distribution, and supply licences for electricity.⁷²³ However, the powers of state governments to make laws and establish institutions and markets for the generation, transmission, distribution, and supply of electricity has been recognised in EA 2023.⁷²⁴ This will facilitate the development of mini-grid and off-grid electricity infrastructure particularly in unserved and underserved areas, thereby promoting energy security, energy equity and distributional justice. Given that the regulation of these

⁷¹⁴ Aigbovo and Ogboka (n 629) 23

⁷¹⁵ *ibid*

⁷¹⁶ Electricity Act 2023, S 119

⁷¹⁷ NERC, NERC Quarterly Report: 3rd Quarter 2023 (NERC, December 2023) 19

⁷¹⁸ *ibid*

⁷¹⁹ Electricity Act 2023, S 122

⁷²⁰ REA is discussed in 3.6.3

⁷²¹ Electricity Act 2023, S 128

⁷²² *ibid*

⁷²³ EPSRA 2005, S 63

⁷²⁴ Electricity Act 2023, S 63(1)

small-scale RES projects will be supervised by state electricity authorities, this will promote procedural justice as local population would have the opportunity to influence electricity development in their respective locales.⁷²⁵ Nevertheless, the ability of each state electricity authority to promote energy justice in RES development will depend on the integration of energy justice principles in its RES planning and consenting framework.

Prior to the enactment of EA 2023, there was no statute on RES utilisation in Nigeria and the EPSRA had no express provision on RES utilisation. This conundrum was underscored by the fact that the EPSRA only referred to renewable energy in relation to rural electrification.⁷²⁶ This provision was clearly inadequate to either encourage or promote RES development. According to Aigbovo and Ogboka, the absence of a comprehensive plan for RES development in the EPSRA hampered renewables deployment in Nigeria.⁷²⁷ Ogbumgbada contends that the lack of a statutory support in the EPSRA for RES development was responsible for Nigeria's failure to integrate various RES policy frameworks to promote RES utilisation.⁷²⁸ Kukoyi and Esan posit that the EPSRA was weak, and its provisions were insufficient to accommodate RES development.⁷²⁹

This has now been remedied by the introduction of RES as a viable electricity source in EA 2023 thus, 'the Commission shall support the development and utilisation of renewable energy and for this purpose, take the measures stipulated under this section to increase the contribution of renewable energy to Nigeria's energy mix...'.⁷³⁰ The Act mandates NERC to stipulate simplified licensing and fee schedule for RES development.⁷³¹ This will ensure that RES developers are not subjected to the same licensing requirements for other electricity power projects such as company incorporation documents, three years tax clearance certificates, power purchase agreements (PPAs), evidence of land acquisition, proof of funds, investment plans, technical expertise of directors and top management, and fuel supply arrangement among others.⁷³² EA 2023 also encourages the promotion of local content in RES development as well as the issuance of mini-grid concessions to RES companies to exclusively serve a

⁷²⁵ Sovacool et al 'Energy Decisions Reframed as Justice and Ethical Concerns' (n 11) 2

⁷²⁶ EPSR Act 2005, S 88(9)(C)

⁷²⁷ Aigbovo and Ogboka (n 629) 26

⁷²⁸ Ogbumgbada (n 98)

⁷²⁹ Dolapo Kukoyi and Adeyemi Esan, 'Nigeria' in Karen B. Wong (ed) *The Renewable Energy Law Review* (Law Business Research 2018) 108

⁷³⁰ Electricity Act 2023, S 164

⁷³¹ Ibid, S 164 (a)

⁷³² NERC, 'Requirements for Licences to be Granted Pursuant to the Application for Licences (Generation, Transmission, System Operation, Distribution and Trading) Regulations 2006' available at: <https://nerc.gov.ng/wp-content/uploads/2012/03/Requirements-for-licences.pdf> accessed 2 May 2024

particular area.⁷³³ While this may be a necessary incentive to encourage RES development, the monopoly created would leave consumers at the mercy of developers who prioritise profits over consumer interests. To create market routes for RES development, the Act mandates NERC to introduce standards for PPAs for RES projects, issue standards for grid connection, and ensure long-term favourable pricing mechanisms for RES developments.⁷³⁴ To promote restorative justice, the Act obligates NERC to introduce standards for decommissioning of RES projects.⁷³⁵ However, the Act does not stipulate environmental impact assessment requirements for RES developments. Whilst it is expected that relevant guidance will be issued subsequently on the operation of RES projects, there is a need to clearly stipulate impact assessment requirements for RES projects as their impacts could affect local communities, local economy, and the environment.⁷³⁶

NERC has the continuing obligation of promoting RES generation, distribution, and supply.⁷³⁷ However, the introduction of renewable obligations is left to NERC's discretion even though there are provisions stipulating how such obligations should operate.⁷³⁸ It is argued that this is deliberately done to afford electricity generators and distributors enough time to develop RES capacity. Furthermore, this will create an opportunity for electricity utilities to lobby NERC against the introduction of renewable obligations which may foster corruption. However, making the introduction of renewable obligations mandatory will spur investments into new RES development and demonstrate a willingness to transition to RES energy.

Land may be acquired for the purposes of generation, transmission, or distribution of electricity under the Act.⁷³⁹ Acquisition of land for electricity generation, transmission or distribution purposes is considered acquisition for a public purpose under the Land Use Act 1978.⁷⁴⁰ The statutory power granted to NERC to declare that a land is required for the generation, transmission, or distribution of electricity is very broad and open to abuse; such declaration may be made with certain exceptions.⁷⁴¹ Although the landowner has a right to object to such a declaration, the Act fails to mention what the likely outcome of such objection will be thereby leaving the dispossessed landowner to seek judicial remedy. In *Dumez Nigeria Plc v.*

⁷³³ Electricity Act 2023, S 164(i) and (l)

⁷³⁴ Ibid, S 164 (b), (d), and (j)

⁷³⁵ Ibid, S 164 (s)

⁷³⁶ The environmental, socio-cultural, and economic impact of RES is discussed in section 1. 12 of this thesis.

⁷³⁷ Electricity Act 2023, Ss 80 and 113

⁷³⁸ Ibid, S 167

⁷³⁹ See Electricity Act 2023, S 118

⁷⁴⁰ See *ibid*, S 188 (2) and Land Use Act 1978, S 28 (1)(2) and (4)

⁷⁴¹ *ibid*

Ademoye,⁷⁴² electricity development was considered as public purpose for compulsory acquisition of land. Moreover, in *Registered Trustees of the United Church in (Nig.) (UCCN) Hekan v. Rogo Local Govt Council*,⁷⁴³ the court held that where a land is compulsorily acquired for public purpose, the landowner is entitled to compensation.

Although the EA 2023 and the Land Use Act provide for compensation in the event of such compulsory acquisition of land, monetary compensation may not equate with centuries of communal ties and sentiments between communities, indigenous peoples, and minority groups, and their lands. It is against this backdrop that this thesis contends that it is essential to incorporate these justice concerns into a RES planning and consenting regime, to forestall avoidable conflicts between host communities and electricity companies as has been the recurrent tale in the oil and gas sector.⁷⁴⁴ Through procedural justice, developers can engage with landowners to discuss alternative locations for energy developments. Furthermore, where recognition justice is embedded in the RES regime, specific unique features of a community and locations of cultural importance such as ancestral graves and traditional shrines will be excluded from energy development.

EA 2023 makes licensing mandatory for all electricity projects generating above 1MW in aggregate at one site or electricity distribution not exceeding 100KW.⁷⁴⁵ The procedure for applying for and obtaining any of the statutory power licences (generation, transmission, distribution, and trading) is complex and cumbersome.⁷⁴⁶ It is also expensive as it involves paying application fees, putting in place certain costly equipment, and annual operation fees.⁷⁴⁷ Licensing also requires incorporating a company; this comes with several hurdles including registering with the Corporate Affairs Commission (CAC) and corporate tax obligations. While the regulation of the power sector is important, the simplified licensing regime for RES projects would incentivise investors, especially indigenous and small-scale renewable entrepreneurs.⁷⁴⁸ However, it is necessary to increase the threshold where licensing is not required as such

⁷⁴² (2014) LPELR-23518 (CA)

⁷⁴³ (2021) LPELR-56571(CA)

⁷⁴⁴ Ajodo-Adebanjoko (n 446)

⁷⁴⁵ See Electricity Act 2023, S 63

⁷⁴⁶ Damilola S. Olawuyi, 'Renewable Energy Sources - Legal Barriers and Potential' (2013) 43 Environmental Policy and Law 233, 236

⁷⁴⁷ See the Nigerian Electricity Regulatory Commission (Licence and Operating Fees) Regulations 2010, Reg. 4 and 6, and Nigerian Electricity Regulatory Commission Application for Licences (Generation, Transmission, System Operations, Distribution & Trading) Regulations 2010

⁷⁴⁸ See Electricity Act 2023, S 164 (a)

exemptions from licensing will encourage the rapid development of small-scale RES projects, especially in rural communities and underserved areas of the country.

The power of NERC to control the market and regulate electricity tariffs pursuant to the Act stifles the market and limits competition.⁷⁴⁹ The lack of a market and competition-driven tariff regime has impacted adversely on return on investment for operators particularly independent power producers (IPP). This has led to tensions between the IPPs and consumers. For instance, in *Funke Adekoya, SAN v VGC Management & Maintenance Co. Ltd and Eko Electricity Distribution Co.*,⁷⁵⁰ the respondents provided power for the residents of Victoria Garden City Estates. The applicant challenged the rates, and the application was upheld as NERC held that IPPs could not unilaterally fix electricity rates outside NERC-approved tariffs. Also, in *Petadis Enterprise v. HFP Properties Limited*,⁷⁵¹ the petitioner challenged the electricity rates charged by the respondents at Ikota Shopping Complex. NERC held that the respondent's operation was illegal, being without a permit in violation of sections 62, 67 and 69 (1) of the EPSRA 2005 (Sections 63, 68 and 70 (1) EA 2023), and the rates were not in compliance with NERC fixed tariffs.

Although EA 2023 introduced provisions to support RES development to foster energy security by promoting 'policies and regulatory measures to increase...power generation, transmission, distribution and supply of electricity in Nigeria'⁷⁵² and energy equity by providing 'a framework for improvement of access to electricity in rural, unserved, underserved, peri-urban and urban areas...' ⁷⁵³, the provisions of the Act are not adequate to promote environmental sustainability. There are no provisions that link the development of RES energy to emission reduction, and outline measures to encourage energy efficiency or energy conservation in the electricity sector.⁷⁵⁴ While RES developments generally produce low/ zero carbon emissions, the Act does not create an obligation for licensees to prioritise emission reduction and environmental sustainability in the development and utilisation of RES electricity. Moreover, EA 2023 does not have any provisions that address a just energy transitions and some issues of energy justice including public engagement in RES development and recognition justice. Given that the development of electricity infrastructure would require land,⁷⁵⁵ the Act failed to

⁷⁴⁹ See also Olawuyi (n 746) 236.

⁷⁵⁰ Order No. NERC/H/061.

⁷⁵¹ Case No. NERC/10/0011/08

⁷⁵² Electricity Act 2023, S 1 (k)

⁷⁵³ Ibid, S 1 (m)

⁷⁵⁴ Energy efficiency and energy conservation are discussed in section 3.4.4.1 of this thesis.

⁷⁵⁵ See Electricity Act 2023, S 118

provide a legal framework to support procedural and recognition justice. For instance, the provision on land acquisition and access to land for electricity development does not prescribe sufficient measures to encourage public engagement in decision-making, the recognition and protection of unique communal features, traditional deities, and cultural landscapes. Unless regulations are made pursuant to the Act by NERC to address these concerns, there is bound to be public opposition and conflicts between developers and host communities.⁷⁵⁶ Nevertheless, EA 2023 implements some of the recommendations of the National Renewable Energy and Energy Efficiency Policy (NREEEP).

4.6.2 National Renewable Energy and Energy Efficiency Policy (NREEEP) 2015

NREEEP was approved by the Federal Executive Council in April 2015 to boost renewable energy and energy efficiency in the country.⁷⁵⁷ Nigeria commits under the policy to realise 20% of national electricity from renewable sources by 2030.⁷⁵⁸ The policy provides a roadmap for the achievement of its huge ambitions.⁷⁵⁹ NREEEP identifies hydropower, biomass, solar, wind, geothermal, wave and tidal energy as the RE sources.⁷⁶⁰ NREEEP is a successor to many other previously unsuccessful policies to engender energy diversification for improved electricity access and environmental protection.⁷⁶¹

The policy recommends the adoption of appropriate strategies to harness the economic, social, and political benefits of RES integration.⁷⁶² It identifies the regulatory gap for renewable energy and energy efficiency (RE&EE) and advocates for the enactment of a comprehensive legal framework to support RE&EE.⁷⁶³ This has now been remedied by the enactment of EA 2023. NREEEP also seeks to align Nigeria's RE&EE policies with the Economic Community of West African States (ECOWAS) renewable energy and energy efficiency policy and targets.⁷⁶⁴

NREEEP advocates the development of economic instruments and support schemes to encourage RES development. Some of the schemes suggested are mandatory or voluntary

⁷⁵⁶ Ajodo-Adebanjoko (n 446)

⁷⁵⁷ Ministry of Power, National Renewable Energy and Energy Efficiency Policy (NREEEP) (FMOP, 2015)

⁷⁵⁸ *ibid* 36

⁷⁵⁹ See Executive Summary to National Renewable Energy and Energy Efficiency Policy (NREEEP) 2015

⁷⁶⁰ See Ministry of Power, NREEEP (n 757) 10-17

⁷⁶¹ See section 4.4 of this thesis; see also Emodi and Ebele (n 701) 8

⁷⁶² Karsten Ley, Jeremy Gaines and Anil Ghatikar, *The Nigerian Energy Sector - An Overview with a Special Emphasis on Renewable Energy, Energy Efficiency and Rural Electrification* (Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, 2015) 75

⁷⁶³ *ibid*

⁷⁶⁴ Adeyanju et al (n 91)

Renewable Energy Portfolio Standards (RPS), a Generation Disclosure Requirement (GDR), a Power Production Tax Credit (which seeks to incentivise renewable electricity generation), FiT, tax holidays, and net metering frameworks.⁷⁶⁵ Some of these recommendations have been implemented in EA 2023 such as RPS, FiT, and the introduction of tax incentives.⁷⁶⁶ To support energy efficiency, the policy seeks to create incentives for homeowners to use energy-efficient appliances, and tax credits for producers of energy-efficient appliances.⁷⁶⁷ The policy also seeks to create grants for communal projects to promote renewable energy and energy efficiency in rural areas.⁷⁶⁸

NREEEP observes that ‘over-dependence on subsidised oil and gas as primary energy sources has slowed down the development of RES in Nigeria’,⁷⁶⁹ and therefore encourages ‘the development of renewable fuels from locally available energy resources and [that] an energy efficient use should therefore be vigorously pursued...’⁷⁷⁰ However, its enormous ambitions have still not yielded any tangible results partly because NREEEP is also unenforceable, its implementation is not mandatory, and relevant authorities cannot be compelled by the courts to implement its provisions. Furthermore, by virtue of Nigeria’s jurisprudence such measures are usually difficult to enforce.⁷⁷¹ In *Ebhota vs. P. I. & P. D. Co. Ltd*,⁷⁷² the Supreme Court stated thus, ‘A policy statement or guideline by the Federal Government does not give rise to a contractual relationship between the Government and a third party; and its non-implementation does not entitle the third party to a legal redress against the Government.’

NREEEP also envisaged the funding of RES projects through public-private-partnerships, foreign direct investments, and green finance options/ emission trading, among others.⁷⁷³ It is contended that while these other options may be feasible (subject to the existence of enabling laws to spur investment), funding through emission trading is still far away. This is because emission trading requires the availability of emission data to thrive. Meanwhile in Nigeria, there is a dearth of accurate data in the energy sector, especially on emissions. The policy also encourages indigenous participation in RES financing. However, due to a lack of regulatory and support schemes, such indigenous participation in RES financing is limited. Thus, this

⁷⁶⁵ Ministry of Power, NREEEP (n 757), 4

⁷⁶⁶ See Electricity Act 2023, Ss 166, 167 and 168

⁷⁶⁷ Adeyanju et al (n 91)

⁷⁶⁸ *ibid*

⁷⁶⁹ *Ibid* 6,

⁷⁷⁰ *Ibid*

⁷⁷¹ Aigbovo and Ogboka (n 629) 21

⁷⁷² (2005) 15 NWLR (PT.948) 266 at 289 paras D-E

⁷⁷³ Ministry of Power, NREEEP (n 757) 7

thesis argues that a clearly defined guideline embedded in law is necessary to expedite RES financing from crowd-pooling arrangements such as *Esusu* and *Adashe*.⁷⁷⁴

RES development requires the input of various government ministries, departments, and agencies. Consequently, the policy advocates for inter-departmental and inter-ministerial cooperation to achieve the ends of RES integration and energy efficiency in the Nigerian power sector.⁷⁷⁵ NREEEP also encourages the development of RES and energy efficiency departments at both state and local government levels to stimulate RES and energy efficiency at the grassroots.⁷⁷⁶ This is essential to promote off-grid electricity access for rural communities.

The policy proposed the establishment of a task force within the Nigerian Customs Service to fast-track the importation and exportation of RES and energy efficiency components. NREEEP also proposed the establishment of monitoring and evaluation mechanism for RES and energy efficiency.⁷⁷⁷ The policy however, fell short by not encouraging the removal of import duties on RES and energy-efficient equipment/appliances. Additionally, NREEEP's target of a minimum of 10% of hydroelectricity contribution to the energy mix is grossly inadequate given that hydroelectricity has contributed over 29% of electricity supply in Nigeria in the past.⁷⁷⁸ Similarly, the solar energy target of 3% by 2020 and 6% by 2030 is very unambitious considering Nigeria's solar energy potential.

The policy fails to provide a comprehensive objective of protecting indigenous groups and the need to entail indigenous consultation in RES development. NREEEP is not a perfect document, but it provides a workable model to promote RES integration. However, for it to succeed, the objectives of NREEEP must be codified in a statute to give it the force of law. Without statutory backing, the lofty goals of NREEEP will remain unenforceable both against the government and operators in the Nigerian electricity supply industry. As will be shown in the UK regime, the enactment of the recommendations of the UK Electricity Market Reforms in the Energy Act 2013 was pivotal in ensuring accelerated deployment of RES infrastructure and emission reduction.⁷⁷⁹ As held in *Professor B.J. Olufeagba and 43 Ors Vs Professor Shuaib*

⁷⁷⁴ See William R Bascom, 'The Esusu: A Credit Institution of the Yoruba' (1952) 82 Journal of the Royal Anthropological Institute of Great Britain and Ireland pp 63-69

⁷⁷⁵ Ibid 8

⁷⁷⁶ Ibid

⁷⁷⁷ Ibid 40

⁷⁷⁸ Aigbovo and Ogboka (n 629) 21

⁷⁷⁹ The Electricity Market Reforms is discussed in section 6.4 of this thesis.

Oba Abdur-Raheem and 3 Ors,⁷⁸⁰ the mandatory provisions of an Act of the National Assembly must be obeyed strictly and cannot be waived. Consequently, where the provisions are not being implemented, a person (including incorporated entities and non-governmental organisations) affected by the non-implementation of the statutory provisions can approach the courts for an *order of mandamus* compelling the government to give effect to the provisions. Additionally, the National Assembly, in the performance of its oversight functions, will be able to investigate the non-implementation of such a statutory provision.⁷⁸¹ Thus, the selective implementation of some of the recommendations of NREEEP in EA 2023 will hinder the realisation of the ideals of the policy.

The National Renewable Energy Action Plan (NREAP) 2016⁷⁸² was developed pursuant to NREEEP⁷⁸³ and in accordance with the ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE) adopted by the 15 ECOWAS members-states.⁷⁸⁴ It provides the strategy for implementing the policy objectives of NREEEP.⁷⁸⁵ However, since its adoption, its target of 27% renewable electricity in the power grid by 2020 was not achieved.⁷⁸⁶

4.6.3 Climate Change Act 2021

After several delays in the National Assembly, the Climate Change Bill was finally passed by both houses of the National Assembly in 2021. The earlier draft passed in 2018 was denied assent due to its duplication of functions with the Federal Ministry of Environment and inelegant drafting.⁷⁸⁷ The bill was further reviewed, and the concerns raised were addressed, thereafter it was sent to the president for assent. At the 26th Conference of Parties to the UN Climate Change Conference (COP26) in Glasgow, Nigeria's president outlined Nigeria's commitment to emission reduction and climate change mitigation and adaptation. This also included the pledge to reduce 47% of emissions by 2030 and attain net zero emissions by 2060

⁷⁸⁰ (2009) 12 SC (Pt II) 1 1262

⁷⁸¹ See Constitution of the Federal Republic of Nigeria 1999 (as amended), s 88

⁷⁸² Inter-Ministerial Committee on Renewable Energy and Energy Efficiency (ICREEE), *National Renewable Energy Action Plans (NREAP)* (2015 – 2030), (First Version July 14, 2016, Approved by the National Council on Power (NACOP))

⁷⁸³ Ministry of Power, NREEEP (n 757) 52

⁷⁸⁴ NREAP (n 782) 4

⁷⁸⁵ Clean Tech Incubation and Acceleration Foundation, 'National Renewable Energy Action Plan (NREAP), 2016 (2015-2030)' available at <https://powerlibrary.nigeriaelectricityhub.com/2020/07/17/national-renewable-energy-action-plan-nreap-2016-2015-2030/> accessed 04 November 2021

⁷⁸⁶ *ibid*

⁷⁸⁷ Policy and Legal Advocacy Centre, 'President Buhari Declines Assent to 5 National Assembly Bills' available at: <https://placng.org/Legist/president-buhari-declines-assent-to-5-national-assembly-bills/> accessed 9 December 2021

through financial assistance and technology transfer from advanced countries.⁷⁸⁸ To show Nigeria's commitment, the Climate Change Bill was signed into law by the president four days after COP26.⁷⁸⁹

The Climate Change Act 2021 established the National Council on Climate Change to coordinate and monitor the formulation and implementation of climate change mitigation and adaptation policies, action plans, targets, and guidelines.⁷⁹⁰ However, the council is overly political as it includes the Nigerian President, Vice President and 11 federal ministers among its members.⁷⁹¹ Public officeholders who are already overburdened with running the government are saddled with the responsibility of addressing climate emergencies under the Act. For instance, the Nigerian president, as the head of state and government, also heads various national committees, and is the de facto minister of petroleum resources.⁷⁹² While it is recommended that experts in climate science, economics, and environment should form the majority of the members of the Council, it is also essential to have government officials to provide a balanced approach to addressing climate change. Nevertheless, the Act shows signs of weaknesses.

Moreover, the Act creates the Climate Change Fund (CCF) to be managed by the council.⁷⁹³ Curiously, while the sources of funding include both local (funds appropriated by the National Assembly) and international (funding from international agencies and donor countries) sources, 90% of the CCF is directly applied to running the council with very little to tackle climate change mitigation and adaptation.⁷⁹⁴ The provisions of the Act create an enabling environment for corruption to thrive. This is further intensified by the fact that the Council determines the penalty to be paid by a public or private entity that undermines mitigation and adaptation efforts.⁷⁹⁵ Given that environmental pollution is mostly carried out by companies in joint

⁷⁸⁸ Ruth Olurounbi, 'Nigeria Pledges to Reach Net-Zero Emissions by 2060, Buhari Says' available at: <https://www.bloomberg.com/news/articles/2021-11-02/nigeria-targets-to-reach-net-zero-emissions-by-2060-buhari-says> accessed 4 November 2021

⁷⁸⁹ Guardian News, 'Buhari Breaks Jinx by Assenting on Climate Change Bill- Lawmaker' available at: <https://guardian.ng/news/buhari-breaks-jinx-by-assenting-on-climate-change-bill-lawmaker/> accessed 9 December 2021

⁷⁹⁰ Nigerian CCA 2021, ss 3 and 4.

⁷⁹¹ Ibid, s 5(1)

⁷⁹² E.g. President Buhari formally clung on to the position of petroleum minister which attracted criticisms. See Nigeria Governors' Forum, 'Buhari Reappoints Himself Petroleum Minister, Swears in 43 Ministers' available at: <https://nggovernorsforum.org/index.php/ngf-governors/82-topics/1303-buhari-reappoints-himself-petroleum-minister-swears-in-43-ministers>; see also <https://www.thecable.ng/pdp-to-buhari-quit-as-petroleum-minister-and-appoint-a-competent-hand>

⁷⁹³ Climate Change Act 2021, S 15

⁷⁹⁴ Ibid

⁷⁹⁵ Ibid, S 34 (1)

venture agreements with government departments or entities wherein public officers have business interests, based on experience with similar bodies such as petroleum production joint venture agreements between NNPC and Shell which has contributed to gas flaring,⁷⁹⁶ it is argued that penalties will be waived for political allies whereas political opponents will be prescribed rigid penalties for environmental pollution.⁷⁹⁷

With respect to the right of NGOs to sue for environmental damage, in *Centre for Oil Pollution Watch v NNPC*, the Supreme Court had ruled that NGOs had the *locus standi* to bring such claims to protect the environment.⁷⁹⁸ However, the Act has overruled this decision by providing that ‘victims [must be] directly affected by the acts that are harmful to the environment’ if they are to obtain compensation.⁷⁹⁹ The provision does not only regress Nigerian jurisprudence on *locus standi* for environmental cases but also derogates from the overarching objective of promoting climate change mitigation and adaptation set out in the Act.⁸⁰⁰ Whilst emission reduction is integral to environmental sustainability, to facilitate energy security and energy access, it is necessary to establish a RES planning and consenting regime that provides support schemes such as feed-in tariffs.

4.6.4 Regulations on Feed-In Tariff for Renewable Energy Sourced Electricity in Nigeria, 2015

FiT schemes afford producers of electricity from RES the opportunity of having their electricity generation purchased by distribution companies at a price above the market rate.⁸⁰¹ FiTs offer a guaranteed cost recovery scheme for a specified duration.⁸⁰² The deployment of FiTs have been effective in stimulating RES development in many European countries including the UK and Germany. The low-risk potential of FiTs makes them appealing to investors.⁸⁰³ Additionally, FiTs apply to small-scale RES projects not requiring huge capital.

⁷⁹⁶ Resolution Law Firm, ‘Joint Ventures in the Nigeria Oil and Gas Industry’ available at: <https://www.resolutionlawng.com/joint-venture-in-the-nigeria-oil-and-gas-industry/> accessed 6 October 2021

⁷⁹⁷ For an example of how large-scale fines can be changed rather arbitrarily, see ENCA News, ‘MTN Pays off Bulk of \$1,5bn Nigeria Fine’ available at: <https://www.enca.com/business/mtn-pays-bulk-15bn-nigeria-fine> accessed 21 June 2022

⁷⁹⁸ (2018) LPELR-50830(SC)

⁷⁹⁹ Climate Change Act 2021, S 34(2) (c)

⁸⁰⁰ Ibid, S 1

⁸⁰¹ Elizabeth Baldwin et al, ‘Global Renewable Electricity Policy: A Comparative Policy Analysis of Countries by Income’ (2017) 19 Status, Journal of Comparative Policy Analysis: Research and Practice 277, 279 DOI: 10.1080/13876988.2016.1166866

⁸⁰² ibid

⁸⁰³ ibid

FiTs in Nigeria are governed by the NERC Feed-in Tariff Regulation⁸⁰⁴ and FiT provisions have now been included in the Electricity Act 2023.⁸⁰⁵ The scheme aims to boost electricity supply from renewables.⁸⁰⁶ It sets out to admit 2,000 MW of RES generated electricity into the national grid by 2020.⁸⁰⁷ Regulations on Feed-In Tariffs (REFITs) establish a guaranteed price for renewable electricity to promote private sector investment.⁸⁰⁸ The scheme encourages competitive bidding for the acquisition of large-scale RES projects in accordance with NERC guidelines.⁸⁰⁹ Investors in RES projects can apply to the NERC for licence to qualify as a renewable electricity generator.⁸¹⁰

EA 2023 mandates NERC to develop guidelines for the operation of FiT schemes in Nigeria.⁸¹¹ The Act stipulates that power purchase agreements between electricity distribution companies and RES generators must be in accordance with the tariff rates and terms determined by NERC.⁸¹² This will prevent distribution companies from unilaterally changing the tariff rates to suit their business profit projections at the expense of RES generators.⁸¹³ The price guarantee introduced by the Act will encourage growth in RES investment as investors would be able to estimate their expected profit.

FiTs arrangements in Nigeria are designed in the form of a power purchase agreement (PPA) between the renewable electricity producer and an off-taker for a duration of 20 years from the commencement of commercial operation.⁸¹⁴ Under the regulation, the Nigerian Bulk Electricity Trading Plc (NBET) is obligated to purchase 50% of the produced electricity from the RES developer and the distribution companies are mandated to purchase the other 50%.⁸¹⁵ To qualify for the scheme, a RES project must be between 1MW and 2000MW.⁸¹⁶ RES projects

⁸⁰⁴ Nigerian Electricity Regulatory Commission's (NERC) Regulations on Feed-In Tariffs 2015 (NERC REFIT's)

⁸⁰⁵ Electricity Act, S 168

⁸⁰⁶ Reg. 3 REFITs

⁸⁰⁷ Reg. 8 REFITs; see also IEA, 'Nigeria Feed-in Tariff for Renewable Energy Sourced Electricity' available at: <https://www.iea.org/policies/5974-nigeria-feed-in-tariff-for-renewable-energy-sourced-electricity> accessed 14 May 2021.

⁸⁰⁸ *ibid*

⁸⁰⁹ Gungah et al (n 663) 94

⁸¹⁰ Reg. 6 REFITs; see also Michael Dugeri, 'Promotion of Renewable Energy in Nigeria Through Feed-In Tariff Schemes: A Legal Analysis' available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3509510 accessed 14 May 2021.

⁸¹¹ Electricity Act 2023, S 168

⁸¹² *ibid*

⁸¹³ *Ibid*, S 169

⁸¹⁴ Reg. 13 REFITs

⁸¹⁵ *Ibid* Reg. 5

⁸¹⁶ *Ibid* Reg. 4

above the capacity will need a PPA to be negotiated like other electricity projects with NBET, distribution licensees or with individual buyers.⁸¹⁷

The policy is due for review every 3 years, although there has been no review since its creation in 2015. It is expected that with the enactment of EA 2023, the process for reviewing REFIT will be accelerated to implement the provisions of the Act. This is essential given that policy uncertainties and tariff shortcomings have caused a dearth of private investment thereby rendering the scheme non-feasible in Nigeria.⁸¹⁸ Moreover, the scheme is not specific on whether the same RES developer can use the scheme for RES projects in different locations. Further, despite stipulating 2,000 MW as the maximum capacity for renewable electricity projects, the benchmark for each source is limited.⁸¹⁹ Under schedule 1, the maximum capacity for wind energy and biomass is 10 MW while solar energy and small hydro are capped at 5 MW and 30 MW, respectively. These limits may discourage RES developers whose projects generate more than the benchmarks as it implies that they can only enter into a PPA with respect to the benchmarks. The marketability of any capacity above the benchmark is not guaranteed under the scheme.

Off-grid RES projects are excluded from the scheme; however, REFIT is silent on whether renewable electricity fed into mini-grids will qualify for the scheme. Given the lack of electricity access in rural areas and the absence of grid-connection, RES projects are the best option for off-grid and mini-grid electricity systems. Excluding off-grid and mini-grid RES projects from FiTs may discourage RES investments in such areas.

After its commencement, 14 solar independent power producers (IPP) entered a PPA with NBET in 2016.⁸²⁰ To shore up their investments, the IPP sought guarantees from the government.⁸²¹ The investors sought a Put-Call Option Agreement (PCOA) which allows the IPPs to sell the solar plants to the government at an agreed price where the projects are failing due to factors outside the IPPs' control but within the control of the government.⁸²² The

⁸¹⁷ Ibid section 6

⁸¹⁸ Ibid

⁸¹⁹ See schedule 1 to REFITs

⁸²⁰ Precious Akanonu, 'How to Resolve the Tariff Disputes Blocking Nigeria's Solar Project Pipeline?' available at: <https://www.energyforgrowth.org/memo/how-to-resolve-the-tariff-disputes-blocking-nigerias-solar-project-pipeline/> accessed 14 May 2021.

⁸²¹ Fadekunayo Adeniyi, 'Overcoming the Market Constraints to On-Grid Renewable Energy Investments in Nigeria' available at <https://www.oxfordenergy.org/wpcms/wp-content/uploads/2019/11/Overcoming-the-Market-Constraints-to-On-Grid-Renewable-Energy-Investments-in-Nigeria-EL37.pdf> accessed 14 May 2021.

⁸²² Ibid 36

agreement also empowers the government to call for the projects to be sold to the government where the plants are not meeting the agreed operational expectations.⁸²³ Out of the 14 IPPs, only 2 have been able to reach an agreement with the government. The IPPs are also seeking a partial risk guarantee (PRG),⁸²⁴ from a development financial institution (DFI). However, NBET has not been able to finalise negotiations on the PRG with the World Bank and the African Development Bank.⁸²⁵

Apart from the complexities inherent in PPAs, the existing infrastructural deficit in the transmission network remains a challenge as balancing and integrating RES into an already overloaded grid remains a major concern for the workability of the Nigerian FiT scheme. These factors have made the scheme unattractive to investors.⁸²⁶

4.6.5 Multi-Year Tariff Order 2020

The Multi-Year Tariff Order (MYTO) was first issued in 2007 by the NERC as the document stipulating the methodology for tariff regulation.⁸²⁷ The Order allows investors to receive returns on their capital investment as well as the cost of operating efficiently and overheads.⁸²⁸ It is an incentive-based tariff model that sets wholesale and retail electricity prices.⁸²⁹ MYTO offers a 15-year tariff stabilisation with minor reviews yearly and major reviews every five years.⁸³⁰ In 2012, MYTO was reviewed and divided into three – MYTO for generation, MYTO for transmission and MYTO for distribution.

⁸²³ *ibid*

⁸²⁴ PRG protects lenders from the risk associated with defaults in repayment of loans. It is used in private sector projects and public private partnerships in the event of failure to meet set obligations by the government. See Kenneth Hansen, ‘World Bank Guarantees for Private Projects’ available at: <https://www.projectfinance.law/publications/2016/april/world-bank-guarantees-for-private-projects/> accessed 14 May 2021.

⁸²⁵ Akanonu (n 820)

⁸²⁶ Olumide Ogunmodimu and Edmund C. Okoroigwe, ‘Solar thermal electricity in Nigeria: Prospects and challenges’ (2019) 128 *Energy Policy* 440, 444

⁸²⁷ Olusina Sipasi, Crystal Okwurionu, and Maranatha Abraham, ‘Nigeria Power Sector Review’ available at: <https://www.aelex.com/wp-content/uploads/2019/07/Power-Sector-Guide-Nigeria-final-24.07.2019.pdf> accessed 14 May 2021; see also Nnamdi B. Anosike, Jude E. Dara, Ugochukwu C. Ngwaka, and Frances O. Enemuoh, ‘Analysis of Nigerian Electricity Generation Multi Year Tariff Order Pricing Model’ (2017) 9 *Energy and Power Engineering* 541

⁸²⁸ *ibid*

⁸²⁹ NERC, ‘Electricity Tariff in Nigerian Electricity Supply Industry’ available at: <https://nerc.gov.ng/index.php/home/myto> accessed 14 May 2021.

⁸³⁰ *ibid*

MYTO was designed to promote fairness of electricity tariffs to consumers and for efficient operators to be able to recover costs and returns on their investments.⁸³¹ Its key objective is to achieve a cost-reflective tariff regime in the power sector considering market factors (including inflation, currency fluctuations and gas prices) and rewarding distribution companies for quality service delivery.⁸³² The Order seeks to guarantee the free flow of funds from the distribution companies to NBET and market operators.⁸³³ The Order excludes certain categories of customers from electricity tariff increases as the tariff for these customers is to be frozen – in the position they were before the review.⁸³⁴ These customer groups are customers enjoying less than 12 hours of electricity supply per day, unmetered customers, and under-privileged customers.⁸³⁵ By providing a guaranteed flow of funds for electricity generators, the effective implementation of the Order will promote the security of supply. The protection afforded for vulnerable customers engenders energy equity by facilitating access and affordability. It further shields customers from the reprehensible estimated billing practice.⁸³⁶

MYTO is undoubtedly aimed at achieving improved electricity service delivery to promote distributional justice. It will motivate electricity distributors to improve their services thereby promoting energy security and energy access, to benefit from the tariff periodic review. Although the Order extends to renewable electricity generation, it is argued that the Order does not sufficiently envisage concerns from RES projects especially considering that the factors that affect quality and service delivery in conventional electricity infrastructure (such as gas prices), may not apply to renewables. Additionally, in the light of falling prices in solar installation, there is a need for clarity on how this will be reflected in tariffs from RES projects. Like the FiT scheme, MYTO caps generation from RES to 10% of the total energy sent to the grid.⁸³⁷ This will greatly impede the development of renewables as the Order demonstrates a preference for conventional energy over RES.

⁸³¹ Olaniwun Ajayi, NERC's Multi Year Tariff Order (MYTO) 2020 (Newsletter, Olaniwun Ajayi September 2020)

⁸³² *ibid*

⁸³³ *ibid*

⁸³⁴ Afolake Lawal, David Edoziem & Olufunke Aluko, 'The Multi-Year Tariff Order ("MYTO") 2020' available at: https://content.web-repository.com/s/17748644798567043/uploads/Images/THE_MULTI-YEAR_TARIFF_ORDER_MYTO_2020_ARTICLE_1-2760244.pdf accessed 14 May 2021.

⁸³⁵ *ibid*

⁸³⁶ Estimated billing is discussed in section 4.9.5

⁸³⁷ Sipasi et al (n 827)

4.7 Regulatory Institutions on Electricity and Renewables: How Institutional Weaknesses Stifle Renewable Energy Integration

Regulation in the power sector requires robust institutions. An independent regulator detached from both state control (not under any government ministry or department) and other external influences (including from key players in the sector) is key to a thriving electricity sector.⁸³⁸ Robust institutions boost investors' confidence in the sector as it demonstrates coordination and limited interference from the government. Apart from promoting efficiency in the sector, a strong regulator must also protect the interest of consumers from abuse by the service providers and the economic interests of the operators from arbitrary state meddling.⁸³⁹

EA 2023 established NERC as the principal regulator of the Nigerian electricity supply industry.⁸⁴⁰ However, other agencies and departments play key roles in the administration of the power sector. The institutional weaknesses of these agencies and duality of functions have limited RES integration in the power sector.

4.7.1 Nigerian Electricity Regulatory Commission (NERC)

NERC was established by the EA 2023 as the primary electricity regulator in Nigeria.⁸⁴¹ Its main objectives include creating, promoting, and preserving a vibrant electricity industry and market structures to guarantee the availability of electricity supply to consumers.⁸⁴² It is within the remit of NERC to provide regulation of the power sector that is fair and balanced for consumers, licensees, and investors alike.⁸⁴³ The statutory functions of NERC are summed up under four goals of providing uninterrupted power supply; creating an investor-friendly and competitive electricity market that encourages profitability, private participation and implementation of codes/standards of operation; consumer protection (including ensuring consumers understand their rights, obligations and have access to dispute resolution mechanisms); and providing fair regulation characterised by firm and fair administration of regulations and guidelines.⁸⁴⁴

⁸³⁸ Warrick Smith, *Regulating Utilities: Thinking About Location Questions* (World Bank Summer Workshop on Market Institutions, July 2000) 2

⁸³⁹ Ashley C. Brown, John Stern and Bernard Tenenbaum, *Handbook for Evaluating Infrastructure Regulatory Systems* (The World Bank, Washington DC, 2006) 50

⁸⁴⁰ See Electricity Act 2023, S 33

⁸⁴¹ *ibid*

⁸⁴² *Ibid*, S 34

⁸⁴³ *ibid*

⁸⁴⁴ See NERC, 'Goals and Objectives' available at <https://nerc.gov.ng/index.php/about/commission/385-goals> accessed 21 April 2021; see also Electricity Act 2023, S 34 (2)

NERC is empowered to issue generation licences,⁸⁴⁵ transmission licences,⁸⁴⁶ system operation licenses⁸⁴⁷, distribution licences⁸⁴⁸ and trading licences.⁸⁴⁹ NERC performs its regulatory functions by producing subsidiary legislation such as regulations, orders, rules, and codes.⁸⁵⁰ Furthermore, the NERC also regulates electricity tariffs to ensure that consumers are not charged excessive amounts for electricity services and that licensees can make a decent profit to enable them to recoup their investments.⁸⁵¹ Price regulation is managed by the NERC through MYTO 2020.⁸⁵²

The Nigerian electricity sector suffers from multi-agency regulation.⁸⁵³ NERC is the overarching regulator in the Nigerian power sector. However, some functions of NERC appear to be similar to the functions of the Nigerian Electricity Management Services Agency (NEMSA). For example, part of the objects and functions of NERC is set out in section 34 (1)(e) and (2) (b) of EA 2023⁸⁵⁴ which provide thus:

34 (1) Subject to this Act, the Commission shall have the following principal objects-

(e) to ensure the safety, security, reliability, and quality of service in the production and delivery of electricity to consumers.

34 (2) For the furtherance of the objects referred to in subsection (1) of this section, the Commission shall perform the following functions-

(b) establish or... approve appropriate operating codes and safety, security, reliability, and quality standards.

⁸⁴⁵ Electricity Act 2023, S 63

⁸⁴⁶ Electricity Act 2023, S 64. The section further provides that the holder of a Transmission Licence may also be obligated to carry out system operation. This function is currently discharged by the Transmission Company of Nigeria (TCN).

⁸⁴⁷ Electricity Act 2023, S 65

⁸⁴⁸ *ibid*, S 66

⁸⁴⁹ *ibid*, S 67

⁸⁵⁰ Lanre A Aladeitan, Enyinnaya C Uwadi and Emmanuel Chukwu, 'Dual Regulatory Agencies in the Nigerian Electricity Supply Industry: An Overkill or Finding the Balance' (2016) 14 OGEL 1, 5

⁸⁵¹ See Electricity Act 2023, S 116 (2); see also Nwani et al (n 634)

⁸⁵² See section 4.6.5 for a discussion of the MYTO.

⁸⁵³ Aladeitan et al (n 850) 8

⁸⁵⁴ Electricity Act 2023, S 33

And this function appears to be duplicated under the functions of NEMSA in EA 2023⁸⁵⁵ under section 176 (d) which provides:

6 Subject to this Act, the NEMSA shall-

(d) ensure that the power systems and networks put in place have been properly executed before use, to ensure that such systems are capable of delivering safe, reliable and sustainable electricity supply to consumers nationwide.

The combined effect of these provisions is that both agencies have the same statutory responsibility to ensure that electricity service providers supply safe, reliable, and quality electricity service to consumers nationwide. This duplicity of functions can create confusion for operators and shows regulatory uncertainty which can discourage potential investors as they risk being exposed to over-regulation.⁸⁵⁶

The command-and-control pattern of NERC demonstrated by its overbearing control of the electricity sector and price control⁸⁵⁷ has smothered competition in the power sector.⁸⁵⁸ It renders the already volatile business climate in Nigeria unappealing to private investors who are unwilling to commit huge capital for RES development without a guaranteed return on investment. It is therefore beneficial for NERC's role to be amended to reflect its status as an overseer in the power sector and tariff reviewer rather than a major player influencing the electricity market.⁸⁵⁹

4.7.2 Energy Commission of Nigeria

The Energy Commission of Nigeria (ECN) was created by the Energy Commission of Nigeria Act 1979.⁸⁶⁰ ECN is responsible for planning and coordinating the country's energy policies.⁸⁶¹ However, the composition of ECN which seeks to bring together ministers from various ministries, clearly shows a more political rather than expert-oriented commission. For example,

⁸⁵⁵ See Electricity Act 2023, S 176

⁸⁵⁶ Aladeitan et al (n 850)

⁸⁵⁷ See section 4.7.1 of this thesis for discussion on NERC's tariff control.

⁸⁵⁸ Olawuyi (n 746) 236

⁸⁵⁹ *ibid*

⁸⁶⁰ As amended by Act No. 32 of 1988 and Act No. 19 of 1989, CAP E10 Laws of the Federation of Nigeria, 2004

⁸⁶¹ See ECN Act 1979, S 5

having the President of Nigeria as the chairman of the ECN seems more for administrative convenience rather than practicality.

The advancement of research and development into RES falls within the remit of the ECN, hence the ECN Act recognises five centres for energy research and development (four of these centres are based on RES research and development); these centres which are funded by the ECN, also have representatives in the ECN's Technical Advisory Committee.⁸⁶² Meanwhile, upon carefully scrutinising the activities of these centres, their output and contributions to RES technology development have been inadequate as most projects of these centres are small-scale RES projects whilst some are based on research projects carried out abroad as part of PhD research.⁸⁶³ For example, the Energy Research Centre of the University of Nigeria Nsukka includes PhD research conducted in the Netherlands and the UK as part of its projects.⁸⁶⁴ Some of these centres have a broad mandate to research and develop all types of RES. However, for purposes of effectiveness, each centre needs to have its RES specialisation and channel all its resources into the research and development of that renewable energy source.

The functions of ECN are mainly information gathering and advisory duties on sustainable energy.⁸⁶⁵ Hence its ability to actualise the promotion of renewables is dependent on the activities of the government and NERC. Besides its general responsibility of developing various energy resources in Nigeria, the ECN Act does not specifically empower ECN to develop or regulate RES in Nigeria. The absence of any reference to RES in the ECN Act may be due to the period of its enactment in 1979. At this period, RES development was not on the developmental agenda of the government, possibly due to the limited awareness of RES potential; government's priority was to boost development through oil and gas production.⁸⁶⁶

⁸⁶² See ECN Act 1979, S 3 (2) (n). These centres are Energy Research Centre University of Nigeria Nsukka (Solar and other renewables), The Usman Danfodiyo University Sokoto Energy Research Centre (Solar and other renewables), The University of Lagos, National Centre for Energy Efficiency and Conservation, The University of Ilorin National Centre for Hydropower Research and Development and Abubakar Tafawa Balewa University Bauchi Centre for Petroleum Research and Development. See also Zubairu Gatugel Usman, Serkan Abbasoglu, 'An Overview of Power Sector Laws, Policies and Reforms in Nigeria (2014) 4 ATE 1

⁸⁶³ See Adewuyi et al (n 586) 999.

⁸⁶⁴ See Energy Research Centre UNN, 'Projects' available at <https://energyresearch.unn.edu.ng/projects/> accessed 23 March 2021.

⁸⁶⁵ See Energy Commission of Nigeria Act 2004, S 5

⁸⁶⁶ Ogbumbada (n 98) 49.

4.7.3 Federal Ministry of Power

The Federal Ministry of Power is the government ministry responsible for outlining and articulating the Federal Government's plans and policies in the power sector.⁸⁶⁷ The Ministry is also responsible initiating the process for formulating the National Electricity Policy and Strategic Implementation Plan within one year from the commencement of the Electricity Act 2023.⁸⁶⁸ The ministry is headed by the Federal Minister of Power and is charged with ensuring that government policies and strategies are coordinated to promote sustainable electricity access to drive economic growth and development.⁸⁶⁹

The Minister of Power is empowered by the EPSRA to supervise the electricity market.⁸⁷⁰ The minister also has supervisory powers over NERC, NEMSA and REA.⁸⁷¹ Whilst it is important for the ministry to oversee and monitor the activities of NERC to ensure accountability, the extensive powers given to the minister under the EPSRA counteracts NERC's position as an independent regulator. For instance, the budget of NERC must be approved by the Minister of Power.⁸⁷² Where there is a delay in budget approval due to bureaucratic issues, the regulatory duties of NERC may be affected.

Also, the Minister of Power protects the interest of the government (including the population) whereas NERC is expected to be neutral by protecting the interests of both consumers and investors.⁸⁷³ When the interest of the government and the investors are at variance, the minister may be able to influence NERC's decision in favour of the government.⁸⁷⁴ It is argued that where a sector regulator is heavily influenced by the government, this may discourage potential investors, and this will have adverse consequences for energy security and energy equity.

⁸⁶⁷ Ley et al (n 762) 50

⁸⁶⁸ See Electricity Act 2023, S 3 (1). The process is expected to have been commenced from 9 June 2023.

⁸⁶⁹ FMOP, 'About Federal Ministry of Power' available at <https://www.power.gov.ng/about-nigeria-federal-ministry-of-power/> accessed 11 May 2021.

⁸⁷⁰ See Electricity Act 2023, S 5

⁸⁷¹ *ibid*, Ss 151 and 182

⁸⁷² *ibid*, S 52

⁸⁷³ Festus Okechukwu Ukwueze & Peace Onubuleze, 'Appraisal of the Protection of the Rights and Interests of Electricity Consumers in Nigeria' (2019) 92 *Journal of Law, Policy and Globalization* 137; see also Milan Babic et al, 'States versus Corporations: Rethinking the Power of Business in International Politics' (2017) 52 *The International Spectator* 20

⁸⁷⁴ *ibid*

4.7.4 Nigerian Electricity Management Services Agency (NEMSA)

The Nigerian Electricity Management Services Agency (NEMSA) was established by the Electricity Act 2023.⁸⁷⁵ The functions of NEMSA include the provision of electrical inspectorate services for the power sector, the enforcement of technical standards and monitoring of compliance with regulations.⁸⁷⁶ NEMSA is also responsible for setting the construction, running and maintenance standards for power plants, transmission systems, the distribution grid and power lines.⁸⁷⁷ NEMSA also certifies all electrical installations in the country as well as provides certification for engineers and other qualified electrical personnel in the power sector.⁸⁷⁸ They also carry out periodic testing and certification of electrical equipment used in the entire electricity value chain (generation, transmission and distribution).⁸⁷⁹

It is argued that the duality of regulation in the Nigerian power sector creates complications for operators as it also increases their financial burden as they must deal with several agencies and departments.⁸⁸⁰ Moreover, given the fact that these agencies are funded by the government, regulatory duality significantly contributes to the high cost of governance in Nigeria as such funds could be better utilised in addressing the power problem in the country especially in the rural areas.

4.7.5 Rural Electrification Agency (REA)

Section 122 of the Electricity Act 2023 establishes the Rural Electrification Agency (REA). REA is tasked with the mandate of promoting and coordinating rural electrification in Nigeria.⁸⁸¹ The Agency is responsible for providing the framework for the development and utilisation of RES technology as well as RES investment in rural areas.⁸⁸² Its objectives are aimed at providing the institutional and governance framework to ensure distributional justice in RES electricity development in unserved and underserved communities. By encouraging grassroots development of RES infrastructure, REA occupies a strategic position as the regulatory institution closest to the rural population. The effective implementation of the

⁸⁷⁵ Electricity Act 2023, S 172

⁸⁷⁶ Ibid, S 176

⁸⁷⁷ Aladeitan (n 1163) 8

⁸⁷⁸ See Electricity Act 2023, S 176 (h) and (m)

⁸⁷⁹ *ibid*, S 176(j)(k)

⁸⁸⁰ Aladeitan (n 1163) 12

⁸⁸¹ Electricity Act 2023, S 128, see also REA, 'About Us' available at: <https://rea.gov.ng/theagency/> accessed 18 April 2021.

⁸⁸² Electricity Act 2023, S 128 (f)

objectives of the Agency will accelerate small and medium scale RES infrastructure to address the lack of electricity availability (energy security), affordability and access (energy equity) for rural communities. Given that rural communities are usually located in remote areas far away from electricity grid networks, the development of off-grid and mini-grid RES networks will address distributional justice and energy security concerns.⁸⁸³ In addition, it will also promote procedural justice as it will afford local communities the opportunity to not only influence energy development in their localities but also an opportunity to own RES projects. It is within the remit of REA to promote an enabling environment for community energy.⁸⁸⁴ This entails outlining the procedures and guidelines for companies and co-operative societies looking to develop RES projects in rural areas.⁸⁸⁵ This thesis argues that the utilisation of traditional crowd-pooling mechanisms such as *Esusu* and *Adashe* to raise funds for RES development could be an essential driver of community energy.⁸⁸⁶ However, this can only be achieved through the introduction of guidelines by relevant regulatory institutions such as REA.

To achieve its mandate, REA implements both grid-connected and off-grid electricity projects in rural areas.⁸⁸⁷ Public-private projects, private projects and community-owned rural electrification projects benefit from the support of the REA. The agency also provides training and mobilisation for rural community dwellers to form Rural Electricity Users' Cooperative Societies geared towards empowering communities to own, operate, and maintain their electricity networks.⁸⁸⁸ Taking advantage of their presence in the six geopolitical zones in Nigeria, REA conducts feasibility studies and market surveys to provide rural electrification investors with the feasibility report required for the projects.⁸⁸⁹

EA 2023 also creates the Rural Electrification Fund (REF) to be administered by the agency.⁸⁹⁰ The purpose of the Fund is to support the expansion of rural electrification across the country.⁸⁹¹ Through the Rural Electrification Fund, the REA provides capital subsidies for eligible public and private-sector-led rural electrification projects, through a transparent and

⁸⁸³ Joseph (n 587) 906

⁸⁸⁴ Community energy is discussed in section 5.8 of this thesis.

⁸⁸⁵ Electricity Act 2023, S 128 (a)

⁸⁸⁶ Abigail Osiki, 'Esusu Cooperative' as a Means of Extending Social Protection to the Nigerian Informal Economy' (2020)15 Contemporary Social Science 461-475

⁸⁸⁷ Ley et al (n 762) 51

⁸⁸⁸ REA, 'Rural Electricity Users Cooperative Society' available at: <https://rea.gov.ng/rural-electricity-users-cooperative-society/> accessed 10 May 2021.

⁸⁸⁹ Ley et al (n 762)

⁸⁹⁰ Electricity Act 2023, Ss 129 (1) (c) and 142

⁸⁹¹ Ibid, S 143

competitive bidding process.⁸⁹² Although the enactment of EA 2023 has given REA some regulatory powers over RES development in rural areas. However, the Act does not specify the maximum RES generation capacity that is within the scope of the powers of REA. For instance, where a solar farm with a capacity of 100 MW is to be built in a rural area, it is unclear which institution would issue the licence between NERC and REA. There is a need to specify REA's limits to avoid institutional conflicts. Furthermore, the agency has been embroiled in several corruption scandals as senior management officials of the agency have been convicted for embezzlement of the Rural Electrification Funds.⁸⁹³

4.8 Necessity for Governmental Support for Renewable Energy Integration

The Nigerian energy market is dominated by oil and gas. Hence to integrate RES into the energy mix, political support is needed.⁸⁹⁴ Besides the lack of financial and technical support for RES development, the major barrier to RES development has been the lack of political will to transition from fossil fuels.⁸⁹⁵ The government can promote RES development in various ways including funding RES research and development programmes, providing low-interest credit for small-scale RES projects, providing fiscal incentives and support schemes, setting RES targets for utilities and businesses, and subsidising RES.⁸⁹⁶

4.8.1 Encouraging and Funding Research and Development into Renewable Energy

Upon its establishment, the Energy Commission of Nigeria (ECN) was given the mandate to supervise and fund the existing energy research centres.⁸⁹⁷ There are currently four energy research centres with the mandate to research solar energy and other renewable energy sources.⁸⁹⁸ The centres also have a duty to provide public education and sensitisation on RES benefits and energy efficiency.⁸⁹⁹

⁸⁹² *ibid*

⁸⁹³ Ikechukwu Nnochiri, 'Court Jails 5 Directors Over N5.2bn Electricity Project Fraud' available at: <https://www.vanguardngr.com/2019/06/court-jails-5-directors-over-n5-2bn-electricity-project-fraud/> accessed 13 May 2021.

⁸⁹⁴ Temitope Tunbi Onifade, *Legal and Institutional Framework for Promoting Environmental Sustainability in Nigeria through Renewable Energy: Possible Lessons from Brazil, China and India* (LLM Thesis, University of Ibadan, 2014) 98.

⁸⁹⁵ D Abdullahi, S Suresh, S Renukappa, D Oloke, 'Key Barriers to the Implementation of Solar Energy in Nigeria: A Critical Analysis' (2nd International Conference on Green Energy Technology, 2017) 5

⁸⁹⁶ Tatjana Tupy, 'The Importance of the Legal and Regulatory Framework for the Development of Renewable Energy' (10th Baku International Congress – "Energy, Ecology, Economy", Baku, 23rd September 2009) 5

⁸⁹⁷ Energy Research Centre UNN, 'History' available at <https://energyresearch.unn.edu.ng/history/> accessed 5 May 2021.

⁸⁹⁸ *ibid*

⁸⁹⁹ P A Ilenikhena and L N Ezemonye, 'Solar Energy Applications in Nigeria' (WEC Montreal, 2010) 2

Research and development in RES in Nigeria have been mainly focused on solar energy.⁹⁰⁰ This is due to the relative simplicity of its development and its availability all year round in all regions of the country.⁹⁰¹ Moreover, the research and developmental output from these centres has been minimal. Most RES projects of the centres are limited to mini-RES projects aimed at providing water supply, and electrification of standalone educational facilities.⁹⁰² While these baby steps may be in the right direction, it is however inadequate to meet the growing energy demands.⁹⁰³

Inadequate infrastructure, insufficient funding and technological constraints are some of the challenges of energy research in Nigeria.⁹⁰⁴ Although most of the projects of the energy research centres include biomass cooking stoves, these stoves are still inefficient compared to those imported from overseas.⁹⁰⁵ There is a need to ramp up funding for research and development of RES technologies both for electricity generation and domestic cooking as this will address energy insecurity, energy poverty and distributional injustice among the population especially low income households. Given that firewood is generally accessible, the development of sustainable biomass cooking stoves will result in efficient use of fuel wood and prevent respiratory diseases caused by smoke inhalation.⁹⁰⁶

Additionally, the National Power Training Institute of Nigeria (NAPTIN) was established in March 2009 to provide training for personnel working in the Nigerian power sector.⁹⁰⁷ NAPTIN also offers training courses on solar photovoltaic installation, maintenance, and supervision.⁹⁰⁸ However, the institute only has 8 centres in Nigeria.⁹⁰⁹ It is essential to expand NAPTIN's power training courses to include other renewable energy sources. Further, the institute needs to create additional centres or affiliates within colleges and tertiary institutions so that training can be accessible.

⁹⁰⁰ Adewuyi et al (n 586) 997.

⁹⁰¹ *ibid*

⁹⁰² See Energy Research Centre UNN, 'Projects' available at <https://energyresearch.unn.edu.ng/projects/> accessed 23 March 2021.

⁹⁰³ Gungah et al (n 663) 94

⁹⁰⁴ Roseline Kela, Ahmad Tijjani and Kaisan M. Usman, 'Current Status of Research and Development Activities on Efficient Cookstoves in Nigeria' (2015) 1 *Journal of Energy Policy, Research and Development* 53, 58

⁹⁰⁵ *ibid*

⁹⁰⁶ Jorg Langbein, 'Firewood, Smoke and Respiratory Diseases in Developing Countries—The Neglected Role of Outdoor Cooking' (2017) 12 *PLoS ONE Journal* 1 <https://doi.org/10.1371/journal.pone.0178631>

⁹⁰⁷ Electricity Act 2023, S 185; see also NAPTIN, 'About Us' available at: <http://www.naptin.gov.ng/index.php/about-us> accessed 11 May 2021

⁹⁰⁸ *ibid*

⁹⁰⁹ Ley et al (n 762) 52

For RES to contribute significantly to the energy mix, it is imperative that more funding should be committed to the centres, and periodic supervision should be provided by the ECN (for the energy research centres) and the Federal Ministry of Power (for NAPTIN) to monitor progress and promote accountability.⁹¹⁰

4.8.2 Encouraging Homegrown Expertise, Innovation, Small-Scale Renewable Energy Start-ups and Low-Interest Credit Facility

RES integration requires technical expertise for the installation, servicing, and maintenance of RES projects. Due to a dearth of technical expertise in the construction and maintenance of large-scale RES projects, the services of foreign expatriates may be required. The services of foreign expatriates come at a premium; as seen in the oil and gas industry, the expatriates are not only paid in foreign currencies, but the company must also provide them with security, especially those operating in volatile areas.⁹¹¹ Therefore, it is expedient for technical colleges and tertiary institutions to integrate RES knowledge into the curriculums. Additionally, electricity experts may be offered upskilling opportunities in RES engineering and operation as this will facilitate the energy transition. Governments at the federal, state, and local levels should prioritise the training and education of indigenous RES experts.

Annually, graduates from engineering faculties in Nigeria and indigenous young inventors display RES project ideas and prototypes either as final-year projects (as part of their studies) or independent projects, on social media.⁹¹² However, these bright inventions that could potentially contribute to alleviating energy poverty are often frustrated due to lack of governmental support. The government can encourage these inventors by creating a transparent fund or programme to sponsor RES innovative ideas. The creation of a RES innovation fund/grant will harness the innovative capabilities of local inventors to develop diverse RES equipment. The grant can support RES inventions through their research and developmental phases, paving the way for external investors to provide the funds to scale up the production and distribution of successful RES innovative projects. This will ensure local development of RES equipment to support distributional justice and address issues of energy security and

⁹¹⁰ Adewuyi et al (n 586) 999

⁹¹¹ Orient Energy Review, 'Nigeria Blames Expatriates, Others For High Production Cost Of Oil' available at: <https://www.orientenergyreview.com/oil-and-gas/nigeria-blames-expatriates-others-for-high-production-cost-of-oil/> accessed 10 May 2021

⁹¹² In 2019 Emeka Nelson invented a hydroelectricity generator. See Channels Television, 'Nigerian Invents Generator that Runs on Water | Gist Nigeria' available at: <https://www.youtube.com/watch?v=SaHC5sOmQJA> accessed 10 May 2021.

access. Although the RES innovation projects supported by the grant may not always be successful enough to warrant commercial viability, the few that are successful will be pacesetters for future innovation projects.

Due to the current energy deficits in Nigeria, this thesis argues for decentralisation of the Nigerian energy mix to address the shortfalls. Decentralised RES development can be spearheaded by small-scale eco-entrepreneurs.⁹¹³ Small-scale RES entrepreneurs and RES start-ups are faced with competition from the subsidised and well-established oil and gas market on the one hand, and the inability to access credit on the other hand.⁹¹⁴ However, to survive in a fossil fuel-dominated energy market, the government needs to support these eco-entrepreneurs investing in small-scale RES projects.⁹¹⁵ The government can support small-scale RES projects by creating low-interest credit facilities in partnership with commercial banks, development banks and microfinance institutions. Providing credits for eco-entrepreneurs will enable them to provide energy-efficient cooking stoves, solar lighting, and solar electrification, among others.⁹¹⁶ These measures will address the funding gap for small-scale RES projects and promote energy security and access in rural areas and among underserved groups.

4.8.3 Providing Incentives, Support Schemes, and Tax Holidays for Renewable Energy Investment

RES projects are capital intensive, hence, to spur their development, the Federal Government must create a conducive investment environment to attract the necessary RES investments. This can be achieved by introducing new incentives and strengthening existing support schemes (FiTs) to show the preparedness of the government to welcome investors. RES deployment can only be achieved through a combination of mechanisms. The introduction of renewable portfolio standards (RPS), mandating electricity generators to source some percentage of their electricity from RES will provide the necessary push for the transition away from fossil fuels.⁹¹⁷ Whilst the introduction of a renewable purchase obligation has now been

⁹¹³ Damilola Olawuyi, 'From Energy Consumers to Energy Citizens: Legal Dimensions of Energy Citizenship' in K. Huhta et al (eds), *Sustainable Energy Democracy and the Law* (Brill, fc 2021), 4

⁹¹⁴ Temitope Tunbi Onifade, 'Global Clues for Choosing Suitable Support Systems for Renewable Energy in the Power Sector' (2015) 1 RELP 25, 27

⁹¹⁵ Chunhong Sheng, 'Not Just the State: The Role of Entrepreneurs in China's Energy Transition' (2020) 70 *Energy Research and Social Sciences* 1, 6

⁹¹⁶ Olawuyi (n 913) 5

⁹¹⁷ Baldwin et al (n 801)

made an option in the Electricity Act 2023,⁹¹⁸ there is a need for NERC to develop relevant regulations and guideline stipulating this obligation on electricity distribution and trading companies.

Furthermore, EA 2023 provides that,

‘...the Federal Ministry responsible for Finance shall introduce such tax incentives as are necessary to promote and facilitate the generation and consumption of energy from renewable energy sources and...such tax reliefs that would incentivise implementation of renewable energy projects in Nigeria.’⁹¹⁹

It is necessary for this provision to be implemented swiftly to encourage new investments in RES projects as this will increase energy security and access as well as foster energy justice in the Nigerian energy sector.

In Nigeria, large electricity consumers may be issued permits for captive generation, allowing them to generate electricity exceeding 1MW for their consumption, which is not to be sold to a third party.⁹²⁰ The government can also extend RPS to these captive generation permit holders. As a reward, tax rebates can be provided to renewable electricity generators and captive generation permit holders generating their electricity from RES.

4.8.4 Granting Pioneer Status to Renewable Energy Equipment and Projects

The Nigerian government offers pioneer status incentive grants to certain businesses or industries operating in Nigeria.⁹²¹ This is to encourage the growth of new businesses and industries not currently existing in Nigeria or whose strength is insufficient to meet the national demand.⁹²² The scheme permits up to 5 years Company Income Tax exemption for businesses

⁹¹⁸ Electricity Act 2023, S 167

⁹¹⁹ Electricity Act 2023, S 166

⁹²⁰ Nigerian Electricity Regulatory Commission (Permits for Captive Power Generation) Regulations, 2008; see also NERC, ‘Licencing’ available at <https://nerc.gov.ng/index.php/library/documents/Licensing/> accessed 07 May 2021.

⁹²¹ Ugochukwu Dibia and Chukwuemeka Chime, ‘Matters Arising from Government’s Review of Pioneer Status Incentive: Is the Holiday Over?’ available at <https://www.pwc.com/ng/en/assets/pdf/tax-bite-march-2015.pdf> accessed 10 May 2021.

⁹²² *ibid*

carrying out activities on the approved list. The Nigerian Investment Promotion Commission (NIPC) administers the scheme by issuing Pioneer Status Certificates to eligible businesses.⁹²³

The list of pioneer industries and products in Nigeria includes the manufacture of solar energy components (including solar panels and solar home systems).⁹²⁴ The list also includes the operation of renewable electricity generation facilities.⁹²⁵ The cultivation of industrial and agricultural plants (including biomass and biofuels plants) is eligible for pioneer status.⁹²⁶

Apart from solar energy equipment, the list does not include the manufacturing of other RES equipment such as biomass cooking stoves, wind energy equipment production, biofuel production equipment, among others. It is contended that to encourage RES integration, it is important to also include the manufacturing of wind turbines and wind energy equipment, biomass plants, biofuel production, energy-efficient biomass cooking stoves, solar thermal facilities and servicing and maintenance of these RES components. It is also advocated that RES equipment be given import duty waivers as an incentive.

4.9 Challenges to Renewable Energy Integration in Nigeria's Electricity Sector

Nigeria, despite its huge renewable energy potentials, have been unable to attain optimization of renewable energy resources.⁹²⁷ A lack of funding and the high cost of RES projects have been identified as some of the factors responsible for the slow pace of development of renewables.⁹²⁸ Further, scant investments in the electricity sector and poor maintenance of existing facilities have been huge barriers inhibiting the development of renewables in Nigeria.⁹²⁹ Weak leadership, lack of technical know-how and lack of awareness have been

⁹²³ See Section 4 Nigerian Investment Promotion Commission Act, cap N117 Laws of the Federation of Nigeria 2004; see also Abubakar Zakari, Haruna Muhammed Aliero, Ahmed Bawa Abdul-Quadir, 'The Role of Nigerian Investment Promotion Commission (NIPC) in Attracting Foreign Direct Investment in Nigeria' (2010) 8 European Science Journal 150

⁹²⁴ Ministry of Industry, Trade and Investment, *List of Pioneer Industries and Products, 2017* (Official Gazette No. 84, 14 August 2017) no. 48

⁹²⁵ Ibid no. 80

⁹²⁶ Ibid no. 1

⁹²⁷ Olaoye et al (n 641) 7

⁹²⁸ Peter K Oniemola, 'Powering Nigeria through Renewable Electricity Investments: Legal Framework for Progressive Realization' (2015) 6 Journal of Sus. Dev. Law & Policy 84; see also Chris Newson, *Renewable Energy Potential in Nigeria: Low-Carbon Approaches to Tackling Nigeria's Energy Poverty* (International Institute for Environment and Development, 2012) 27.

⁹²⁹ Damilola Olawuyi, 'Power Generation through Renewable Energy Sources: An Analysis of the Legal Barriers and Potentials in Nigeria' (2013) 10 Journal of Res. Energy & Dev. 106; see also Abubakar Sambo, 'Strategic Developments in Renewable Energy in Nigeria' (2009) Q3 Int. Ass. for Energy Economics 15, 17

identified as other challenges facing the development of RES.⁹³⁰ The lack of a robust RES planning and consenting legal regime represents one of the major challenges to RES integration in Nigeria.

4.9.1 Inadequate Legal Framework to Support Renewable Energy Integration

The introduction of clearly defined policy objectives and time-bound targets with political commitment, are necessary for an effective RES policy design.⁹³¹ Overarching legislative backing to realise these ideals has shown to be essential in achieving an efficient RES legal framework in the UK, Germany and Belgium.⁹³² The absence of comprehensive legal and regulatory mechanisms and lack of enforcement of policies for RES integration has stifled RES development in Nigeria.⁹³³

Additionally, the lack of efficient policies and fiscal incentives due to political instability, are other factors militating against RES deployment in Nigeria.⁹³⁴ Nigeria's RES laws were broadly policy based. While policies in themselves are not a problem, Nigerian policies are often viewed as political aspirations and propaganda.⁹³⁵ Like most political manifestoes, they end up as failed political promises due to lack of enforcement. Consequently, they are usually abandoned by successive administrations.⁹³⁶ This is unlike legislation which outlives the incumbent government and can only be amended through rigorous legislative processes. The non-enforcement of governmental policies on RES has been a major challenge to RES development.⁹³⁷ Specific statutory provisions to support RES policies are a prerequisite to achieving utilisation of renewables.⁹³⁸ For a policy to succeed, it needs to be anchored on a legislative provision(s).⁹³⁹ Incentives, subsidies, tax exemptions and administrative processes can be contained in a legislation to promote policy objectives.⁹⁴⁰ However, law and policy

⁹³⁰ Yinka O Omorogbe, 'Promoting Sustainable Development through the Use of Renewable Energy: The Role of Law' in D Zilman, C Redgwell, Y Omorogbe and L Barrera-Hernandez (eds), *Beyond the Carbon Economy* (Oxford University Press 2008) 45, 58

⁹³¹ Gungah et al (n 663) 91

⁹³² *ibid*

⁹³³ Aliyu et al (n 659) 2515

⁹³⁴ Aji et al (n 583) 48; see also Dolapo Kukoyi and Adeyemi Esan, 'Nigeria' in Karen B. Wong (ed) *The Renewable Energy Law Review* (Law Business Research 2018) 108

⁹³⁵ Ogbumbada (n 98) 51

⁹³⁶ *Ibid*

⁹³⁷ Aji et al (n 583) 48

⁹³⁸ Aigbovo and Ogboka (n 629)

⁹³⁹ *Ibid* 27

⁹⁴⁰ Omorogbe, 'Promoting Sustainable Development through the Use of Renewable Energy: The Role of Law' (n 1251)

must be mutually complementary to actualise set objectives.⁹⁴¹ A sector governed by policies without law leaves such a sector at the mercy of regulatory officers, and in such an environment, corruption thrives.⁹⁴² This applies to RES policies in Nigeria until the enactment of EA 2023.

However, with the enactment of EA 2023, it is expected that the implementation of the provisions of the Act on RES integration will provide the needed legal framework to support RES planning and consenting and attract investors.⁹⁴³ Similarly, it is expected that minimum standards for RES projects will be formulated pursuant to the Act.⁹⁴⁴ Regardless of the provisions of EA 2023, the Federal, State, and Local Governments and relevant regulatory bodies need to show sincere commitment to implementing the provisions of the Act with regards to RES integration to achieve optimal RES development in Nigeria.⁹⁴⁵ The support provided by EA 2023 will ensure that RES policies made pursuant to the Act or aligned with the Act will drive RES integration to promote energy justice and energy security in Nigeria.

The impact of statutory backing for policies can be seen in the petroleum sector through the local content policy.⁹⁴⁶ Although the government had advocated for an increase in indigenous participation in the oil and gas industry since the 1970s, it only became entrenched in the petroleum sector after the enactment of the Nigerian Oil and Gas Industry Content Development Act.⁹⁴⁷ The Act gives priority to Nigerian operators in the issuance of oil and gas licences and other associated activities.⁹⁴⁸ Consequently, there has been a significant increase in local participation in oil and gas development in Nigeria.⁹⁴⁹ In the UK, the enactment of the recommendations of the Electricity Market Reforms in the Energy Act 2013 has enabled the UK to balance its energy trilemma.⁹⁵⁰

Whilst having a law and policy which caters for all RES jointly is good, it is apposite for government and policymakers to understand that the various renewable energy sources have their dynamics and may need to be addressed individually in RES policies or statutory

⁹⁴¹ Ibid

⁹⁴² Yinka Omorogbe, *Why We Have No Energy* (University of Ibadan Press, 2008)

⁹⁴³ See Electricity Act 2023, Pt XVIII

⁹⁴⁴ Ibid

⁹⁴⁵ GENI (n 600) 17

⁹⁴⁶ Jean Balouga, 'Nigerian Local Content: Challenges and Prospects' (2012) Q3 International Association for Energy Economics 23

⁹⁴⁷ Nigerian Oil and Gas Industry Content Development Act 2010

⁹⁴⁸ Ibid section 3

⁹⁴⁹ Aigbovo and Ogboka (n 629) 27

⁹⁵⁰ See chapter 6 on the energy situation in UK.

instruments to regulate their development.⁹⁵¹ This is pertinent because the development of solar may require a different topography from hydroelectricity; hence the standard of pre-project survey needed for each will differ. Moreover, the environmental impact of hydroelectricity and wind power will also be different. Importantly, because of seasonality and geography, the productivity and contribution of various RES to the energy mix may differ all year round and from location to location. Hence the need to have a comprehensive RES planning and consenting regime that addresses renewable energy sources individually.

4.9.2 Economic Attachment to the Oil Wealth

Nigeria is a country rich in both crude oil and natural gas. Oil and gas are the major sources of revenue for Nigeria; hence this makes the development of RES unenticing.⁹⁵² As an ‘oil-centric economy’, despite its enormous benefits, RES does not enjoy equal opportunity with conventional energy.⁹⁵³ Furthermore, the provision of subsidies on petroleum products drives down the price for consumers (but has been abused by operators).⁹⁵⁴ This promotes inefficiency and overconsumption. Given that Nigeria’s power sector is heavily reliant on oil and gas for electricity generation, petroleum subsidies significantly hinder RES integration in the energy market.⁹⁵⁵ Petroleum subsidies can stifle RES competitiveness and discourage private sector participation in RES investment.⁹⁵⁶ Apart from subsidies, existing incentives and tax exemptions are granted to electricity generated from oil and gas.⁹⁵⁷

To encourage RES integration, the energy market must truly be liberalised to reduce the economic dependence on oil and gas and create a level playing field to stimulate RES deployment.⁹⁵⁸

4.9.3 Lack of Institutional and Structural Support for Renewable Energy

Construction of a power project including RES project entails several legal and regulatory hurdles.⁹⁵⁹ The bureaucratic bottlenecks involved in securing the requisite permits and

⁹⁵¹ GENI (n 600) 16

⁹⁵² Peter Kayode Oniemola, ‘Why Should Oil Rich Nigeria Make a Law for the Promotion of Renewable Energy in the Power Sector’ (2016) 60 *Journal of African Law* 29, 32

⁹⁵³ Ibid

⁹⁵⁴ Udemé Akpan and Mike Eboh, ‘Fuel Subsidy Hits N2.4Bn Daily’ (Vanguard Newspaper, 19 June 2018); see also The Africa Report, ‘The Rising Cost of Nigeria’s Petroleum Subsidy’ available at <https://www.theafricareport.com/418/nigeria-the-cost-of-cheaper-petrol/> accessed 11 April 2019

⁹⁵⁵ Olawuyi (n 90) 230.

⁹⁵⁶ ibid

⁹⁵⁷ Oniemola (n 952)

⁹⁵⁸ Adeyanju et al (n 91)

⁹⁵⁹ Aliyu et al (n 659) 2515

approvals can be frustrating as there are various ministries, departments, and agencies issuing these permits. This lack of institutional support which stems from duplication of functions among government departments can fester confusion and inter-ministerial conflicts. For instance, both the Standards Organization of Nigeria (SON) and the National Environmental Standards and Regulations Enforcement Agency have the duty to monitor and enforce compliance with technical and operational standards.⁹⁶⁰ Similarly, as noted earlier, the establishment of NEMSA has caused a lot of confusion as the functions of NEMSA also conflict with the functions of NERC.⁹⁶¹

The lack of effective market monitoring mechanisms has rendered the electricity sector vulnerable to energy theft through illegal connections.⁹⁶² Most electricity infrastructure is sited in areas far from cities with very minimal supervision. Power cables and electricity transformers in densely populated urban areas are hardly maintained thereby paving the way for illegal connections that increases the load on the transmission network.

The development of RES requires the involvement of various government ministries, departments, and agencies. For instance, while the NERC caters for licensing and regulation, the National Environmental Safety Regulatory and Enforcement Agency (NESREA) will oversee the enforcement of environmental impact assessments for RES projects. Also, the Ministry of Finance and the Central Bank of Nigeria will be key actors in ensuring smooth access to credit for investors while The National Office for Technology Acquisition and Promotion (NOTAP) will need to promote the acquisition and adaptation of RES technologies in Nigeria. The list is non-exhaustive as some RES projects may require approvals from some departments at the state level such as state ministries of land, land registry departments, town planning offices and state internal revenue offices. Institutional cooperation is needed but more importantly, this thesis argues that a bespoke agency or department can be created to act as a one-stop-shop to ease the administrative bottlenecks involved in developing RES projects.⁹⁶³

4.9.4 Infrastructural Deficit and Poor Maintenance Culture

The power sector suffers from lack of adequate facilities to meet the growing electricity demand. The majority of the existing electricity infrastructures were built in the 1960s, 1970s

⁹⁶⁰ *ibid*

⁹⁶¹ See 4.7.1; see also Nwani et al (n 634)

⁹⁶² Adewuyi et al (n 586) 999.

⁹⁶³ Olawuyi (n 90) 237

and 1980s. These electricity power stations, power lines, and connection networks were built to serve a much smaller population than at present. For instance, Nigeria's population in 1960 was about 45 million compared to its population in 2020 of over 200 million.⁹⁶⁴

The power sector suffers from outdated facilities and inefficiency in the transmission and distribution network.⁹⁶⁵ Because of this obsolete equipment and systemic inefficiencies in the transmission and distribution networks, about 35% of electricity produced is either lost during transmission or at distribution through illegal connections.⁹⁶⁶ Apart from new independent power projects (IPP), there have been no new power plants built in over 2 decades and even old power plants are hardly maintained or replaced.⁹⁶⁷ Most electricity infrastructures in the country have operated beyond their estimated lifespan and there has been no replacement carried out to ensure continuity.⁹⁶⁸ Moreover, about 27 containers of imported power equipment costing billions of naira were reportedly abandoned at the seaport, with the containers exposed to the elements.⁹⁶⁹

The installed capacity for electricity generation is about 13000MW,⁹⁷⁰ however, due to inadequate transmission facilities, the Nigerian electricity transmission system can only support about 5500MW. Similarly, due to their datedness and system overload, the transmission system frequently experiences collapse which results in blackouts.⁹⁷¹

The power sector suffers from high levels of energy loss.⁹⁷² Between electricity generation to final consumption, it is estimated that about a third of the energy generated is lost.⁹⁷³ Losses occur due to unbilled consumption from unmetered customers, losses in transmission and distribution and technical losses arising due to long distances from power stations and

⁹⁶⁴ Victor Okolobah and Zuhaimy Ismail, 'On the Issues, Challenges and Prospects of Electrical Power Sector in Nigeria' (2016) 2 International Journal of Economy, Management and Social Sciences 410, 416

⁹⁶⁵ Nwani et al (n 634)

⁹⁶⁶ Etu et al (n 636); see also Okolobah and Ismail (n 964) 414

⁹⁶⁷ *ibid*

⁹⁶⁸ Adeyemi Esan, 'Electricity challenges and the prospects of greater renewable energy reliance in Nigeria: Lessons to be learned from the Renewable Energy programs in the United States' available at https://www.academia.edu/7247651/Electricity_challenges_and_the_prospects_of_greater_renewable_energy_reliance_in_Nigeria accessed 3 May 2021

⁹⁶⁹ *Ibid*

⁹⁷⁰ Omokolade Ajayi, 'Electricity: Nigeria now has an Installed Generation Capacity of 13,000MW – Minister of Power' available at <https://nairametrics.com/2020/10/29/electricity-nigeria-now-has-an-installed-generation-capacity-of-13000mw-minister-of-power/> accessed 22 April 2021.

⁹⁷¹ Okolobah and Ismail (n 964) 414

⁹⁷² Nnaemeka Vincent Emodi and Samson D. Yusuf, 'Improving Electricity Access in Nigeria: Obstacles and the Way Forward' (2015) 5 International Journal of Energy Economics and Policy 335, 341

⁹⁷³ *Ibid* 5

consumers.⁹⁷⁴ The existing electricity grid suffers from inadequate infrastructure for generation, transmission, and distribution.⁹⁷⁵ This inadequacy not only raises concerns of how RES can be integrated into the grid but more importantly how to address the problems with balancing RES electricity without damaging existing power infrastructure and causing disruptions.⁹⁷⁶

To address this issue, decentralised (stand-alone), mini-grid and grid-connected utility-scale RES technology must be developed. Connecting some RES to the national grid network will provide an additional cushion for the RES plant from energy fluctuations that may arise due to weather changes.⁹⁷⁷ Additionally, the grid network may be improved to mitigate the incidence of voltage instability.⁹⁷⁸ Decentralised, mini-grid, and off-grid RES infrastructure will address the frequent collapsing of the national grid but it will also provide energy security and access to unserved and underserved communities. Also, the distributional injustice suffered by rural dwellers due to the lack of access to grid-connection will be rectified by developing off-grid systems powered by RES infrastructure.

The integration of RES into Nigeria's national grid requires advanced environmentally sound technologies including wind turbines, solar photovoltaic panels, and remote sensing devices.⁹⁷⁹ Considering the high cost of these technologies and the lack of local manufacturing of RES equipment, it is expedient to obtain these infrastructures through technology transfer and private-sector driven investment.⁹⁸⁰ NOTAP is responsible for implementing technology acquisition and adapting them to meet local needs.⁹⁸¹ However, the NOTAP Act does not mention RES technologies and has no clear modalities on technology acquisition and transfer.⁹⁸² The absence of clearly defined specifications for clean technology under the NOTAP Act means environmentally unsound technologies may be imported into the country under the guise of RES technology transfer and acquisition.⁹⁸³ The complex bureaucratic nature

⁹⁷⁴ *ibid*

⁹⁷⁵ Roche et al (n 77) 3

⁹⁷⁶ Olawuyi (n 90) 232

⁹⁷⁷ Adewuyi et al (n 586) 1002.

⁹⁷⁸ *ibid*

⁹⁷⁹ Olawuyi (n 90) 234

⁹⁸⁰ *Ibid*, 235

⁹⁸¹ See National Office for Technology Acquisition and Promotion Act Cap N68 Laws of the Federation of Nigeria 2004; see also NOTAP, 'Mandate' available at <https://notap.gov.ng/content/mandate> accessed 21 April 2021.

⁹⁸² Olawuyi (n 90) 235

⁹⁸³ *ibid*

of obtaining approvals and permits from NOTAP can possibly discourage RES investors and slow RES technology transfer.⁹⁸⁴

4.9.5 Inefficient Billing and Tariff System

The old billing system inherited from the defunct PHCN has been a source of challenge to electricity distribution companies in Nigeria. Retaining the old metering system has caused heightened tensions between the distribution companies and the consumers, leaving mounting debts.⁹⁸⁵ The majority of the old meters were installed in the 1980s and early 1990s; whilst some give incorrect readings of electricity usage, others do not give any reading at all. Consequently, distribution companies resort to issuing ‘estimated bills’ (a monthly estimate of a household’s electricity consumption). Often, these estimated bills which tend to be excessive do not match electricity supplied, thereby forcing consumers to refuse to pay or alternatively accumulating the bill as debt (this is especially the case with consumers who live in rented apartments). Estimated billing fosters energy injustice as unmetered electricity consumers are subjected to charges for unsupplied electricity.⁹⁸⁶

Although the NERC has sought to regulate estimated billing by putting a limit on the issuance of estimated bills to unmetered consumers,⁹⁸⁷ and mandating distribution companies to engage the services of third-party meter asset providers to bridge the metering gap,⁹⁸⁸ these moves have not been complied with and distribution companies continue to take advantage of electricity consumers under the guise of estimated billing. NERC proceeded to issue the Order on the Capping of Estimated Bills in 2020⁹⁸⁹ to rein in estimated billing. Whilst this has limited the practice, 11 distribution companies were recently sanctioned by NERC for failure to comply with the Order.⁹⁹⁰ Additionally, EA 2023 makes the installation of a proper meter a condition for the supply of electricity to any property by electricity distribution and supply

⁹⁸⁴ *ibid*

⁹⁸⁵ Nwani et al (n 634)

⁹⁸⁶ *ibid*

⁹⁸⁷ See Section 5 NERC (Methodology for Estimated Billing) Regulation 2012

⁹⁸⁸ See section 4 NERC Meter Asset Provider (MAP) Regulations, 2018

⁹⁸⁹ NERC, *Order on the Capping of Estimated Bills*, (Order No NERC/197/2020)

⁹⁹⁰ NERC, ‘NERC Sanctions Eleven (11) DisCos Over Non-Compliance with Capping of Estimated Bills for Unmetered Customers’ available at: <https://nerc.gov.ng/media/nerc-sanctions-eleven-11-discos-over-non-compliance-with-capping-of-estimated-bills-for-unmetered-customers/> accessed 6 May 2024

licensees.⁹⁹¹ NERC is mandated to specify a period after which all properties must be equipped with meters.⁹⁹²

4.9.6 Lack of Sufficient Funding for Renewable Energy Projects

The unavailability of finance for RES is a major challenge to RES integration in Nigeria.⁹⁹³ Annually, huge sums of money are allocated in the national budget for electricity, yet these allocations are mostly channelled to the development of conventional energy by the Federal Ministry of Power and its various departments. This approach has failed to improve the electricity situation in the country. Consequently, it is essential to channel a significant percentage of electricity allocations to RES research and development.

Lack of funding and high initial cost of RES projects have been cited by Oniemola as factors inhibiting RES development in Nigeria.⁹⁹⁴ However, Schwerhoffa and Sy contend that although RES investment has a high initial cost, in the long term it offers higher returns on investment.⁹⁹⁵ Olawuyi extends this argument further by observing that inadequate investments in the electricity sector and poor maintenance of power facilities have been huge barriers impeding the development of renewables in Nigeria.⁹⁹⁶ Oji et al observe that the prevalent economic conditions in the country hinder access to credit for RES projects and this also contributes to the lack of RES financing.⁹⁹⁷

The Government alone cannot fully plug the financial gap for RES development. Public-private-partnerships (PPP) are needed to boost RES integration. In addition, traditional crowdfunding schemes such as *Esusu* and *Adashe* should be encouraged to accelerate funding for small-scale RES developments.⁹⁹⁸ Since participants usually have a common interest (from the same locality or similar trade), such schemes can promote decentralised community-owned RES projects, thereby enhancing energy security and access. However, this can only be

⁹⁹¹ Electricity Act 2023, S 114(1)

⁹⁹² *ibid*

⁹⁹³ Chris Newson, *Renewable Energy Potential in Nigeria: Low-Carbon Approaches to Tackling Nigeria's Energy Poverty* (International Institute for Environment and Development, 2012) 27.

⁹⁹⁴ Oniemola (n 952)

⁹⁹⁵ Gregor Schwerhoff and Mouhamadou Sy, 'Financing Renewable Energy in Africa – Key Challenge of the Sustainable Development Goals (2017) 75 Renewable and Sustainable Energy Reviews 393; see also Ado Ahmed, 'Overcoming the Challenges of Financing Utility Scale Renewable Energy Projects in Nigeria' (2018) Q1 IAEE Energy Forum 22

⁹⁹⁶ Olawuyi (n 98) 106; see also Sambo (n 1249)

⁹⁹⁷ Oji et al (n 525)

⁹⁹⁸ William R Bascom, 'The Esusu: A Credit Institution of the Yoruba' (1952) 82 Journal of the Royal Anthropological Institute of Great Britain and Ireland pp 63-69

achieved where there is legislative guidance on the procedure for such schemes. Renewables may have high costs in the short term, however as observed earlier, in the long run their economic benefits are greater.⁹⁹⁹ Therefore, creating an enabling environment for private sector participation will encourage both local and foreign corporate organisations to engage in RES development to improve the energy mix. This has been seen in most advanced economies where oil and gas companies are increasingly diversifying into RES development.¹⁰⁰⁰ Moreover, corporate bodies will also be more amenable to partnering with research institutions to fund RES research as they would have a vested economic interest to protect.¹⁰⁰¹

Decentralisation of the energy sector will promote the uptake of small-scale RES projects. This will increase electricity access, reduce the cost of energy services, and create a conducive investment climate for RES investors.¹⁰⁰² Furthermore, government can encourage small-scale RES investments by local communities, energy cooperative societies and RES entrepreneurs by addressing existing legal and institutional constraints to citizen-led renewable energy efforts.¹⁰⁰³

Energy access in rural areas has been a major challenge as the transportation of fossil fuels has been difficult due to the lack of transport networks.¹⁰⁰⁴ Also, electricity access has been impaired by the difficult terrain (mountains in the north and creeks in the south) that make the installation of transmission networks almost impossible. Therefore, only about 10% of rural households are connected to the electricity grid.¹⁰⁰⁵ Meanwhile, these areas have the potential for solar energy, small hydro plants, and biomass.¹⁰⁰⁶ This thesis argues that if the government creates an enabling environment, investors can embark on the development of decentralised RES projects to meet the energy needs of rural areas. The establishment of standalone projects or RES mini grids can efficiently replace fossil fuel power plants and can dispense with the high cost of connecting these communities to the already overloaded national grid. Additionally, given the availability of RES resources in rural areas, the energy solution for

⁹⁹⁹ Ibid 40; see also World Energy Council, 'Cost of Energy Technologies' (2013, World Energy Council)

¹⁰⁰⁰ For instance, Shell is investing rapidly on wind and solar energy. See Shell, 'Renewables and Energy Solutions (Formerly New Energies)' available at: <https://www.shell.com/energy-and-innovation/new-energies.html> accessed 26 May 2021.

¹⁰⁰¹ GENI (n 600) 17

¹⁰⁰² Aliyu et al (n 659)

¹⁰⁰³ Olawuyi (n 913) 5

¹⁰⁰⁴ Joseph (n 587) 906

¹⁰⁰⁵ Ahmed (n 995)

¹⁰⁰⁶ Abubakar Sadiq Aliyu, Joseph O. Dada and Ibrahim Khalil Adam, 'Current Status and Future Prospects of Renewable Energy in Nigeria' (2015) 48 *Renewable and Sustainable Energy Reviews* 336

rural electrification can be sourced locally, thereby driving down operational costs. Also, the communities can provide security for these RES projects through local vigilantes (neighbourhood watch) and neighbourhood watch teams. This will address energy access issues in rural areas and among under-served groups in the country such as women, the elderly, and people with a disability.

4.9.7 Limited Homegrown Technological and Technical Know-How

The vast majority of equipment and technical expertise for RES development is from overseas. This makes it both difficult and costly to achieve RES integration in the power sector. The curriculum of most schools, colleges and engineering faculties is designed around fossil fuels. This lack of technical knowledge has adversely affected the availability of adequate homegrown technical expertise in RES technology.¹⁰⁰⁷ Consequently, the country depends on expatriates to provide the needed technical knowledge for RES projects. Employing their services contributes to the high cost of RES development.

Similarly, the majority of the equipment used in RES technology is produced abroad and imported into Nigeria, costing the country considerable foreign exchange and huge economic loss.¹⁰⁰⁸ Beyond the huge funds expended in acquiring RES technology equipment, the lack of domestic production also robs Nigeria of potential job opportunities for its increasingly unemployed population. The Federal Ministry of Education and National University Commission (NUC) must begin to redesign school curriculums to integrate education for RES technologies. Technical colleges and universities need to be prepared and equipped to train the future managers and renewable energy experts needed for the transition to RES. This will help train home-grown talents in RES technology production, installation, and maintenance.¹⁰⁰⁹

4.9.8 Corruption and Lack of Accountability

Nigeria is ranked 150 out of 180 countries (1 being least corrupt and 180 being most corrupt) on Transparency International's Corruption Perception Index.¹⁰¹⁰ Corruption in the country is also prevalent in the energy sector. For example, between 1999 and 2015, \$36 billion has been spent on electricity development with no tangible results.¹⁰¹¹ Meanwhile, Brazil, South Africa,

¹⁰⁰⁷ Aliyu et al (n 659); see also Adewuyi et al (n 586) 996.

¹⁰⁰⁸ Etu et al (n 636)

¹⁰⁰⁹ Oyedepo et al (n 627) 18

¹⁰¹⁰ Corruption Perception Index, Nigeria available at <https://www.transparency.org/en/cpi/2022/index/nga> accessed 19 February 2023.

¹⁰¹¹ Nwani et al (n 634)

and Indonesia have better electricity systems even though they have spent less than Nigeria.¹⁰¹² These countries have lower levels of corruption and more accountability than Nigeria.

In 2019, 5 directors of the Rural Electrification Agency were convicted for embezzling N5.2 billion in a rural electrification contract scam.¹⁰¹³ Monies were approved and allocated for rural electrification projects, but these funds were withdrawn and shared by the convicted directors without executing the projects. In another instance, the House of Representative Committee on Power in its Exclusive Power Probe Report (2008), reported that between 1999 and 2007, \$16 billion was misappropriated in the power sector. The report recommended the investigation of 17 high-profile individuals including an ex-president, federal ministers, legislators, businessmen and companies.¹⁰¹⁴ It was reported that due process was wilfully scuttled to give presidential waivers to some contractors close to the corridors of power; inflation of project cost, awarding a contract multiple times, and awarding contracts to fictitious companies, among others. In another twist, shortly after the report was submitted, The Economic and Financial Crimes Commission (EFCC) charged the chairman of the Committee on Power with corruption in the power sector.¹⁰¹⁵ The power probe has since been abandoned without any culpability for those alleged. Sadly, huge sums of money meant for electricity projects and rural electrification have been embezzled with little accountability; the effect is the continued severe power shortage that is bedevilling the country.

Although this thesis argues for the development of law, policy, and institutional structures to encourage RES integration, it is apt to note that regardless of the existing legal regime, a sector grounded in corruption will hamper the effective delivery of the objectives of RES law and policy.¹⁰¹⁶ Unless institutional corruption is addressed, RES developers will have to deal with corrupt officials, and funds allocated for RES development will be misappropriated as was the case of the REA. It is therefore expedient that anticorruption measures such as making payments for application and other licencing levies through banks as opposed to cash payments at regulatory offices, and the establishment of transparent accounting mechanisms, are implemented in the RES planning and consenting regime.

¹⁰¹² *ibid*

¹⁰¹³ Nnochiri (n 893)

¹⁰¹⁴ Nwani et al (n 634)

¹⁰¹⁵ Etu et al (n 636) 29

¹⁰¹⁶ K Hope, 'Institutions and the Culture Dimension of Corruption in Nigeria' (2018) 70 *Crime Law Soc Change* 503 <https://doi.org/10.1007/s10611-018-9779-6>

4.10 Conclusion

This chapter reviewed the current energy situation in Nigeria where it was observed that the lack of adequate electricity supply is responsible for energy poverty and low electricity consumption per capita in the country. To meet energy needs, there is heavy reliance on private generators and unsustainable use of biomass. The chapter also highlighted the extant regime for RES integration in the power sector which was characterised by non-binding and unenforceable policies and weak institutions until the enactment of the Electricity Act 2023. Moreover, institutional weakness in the governance of the power sector has stifled RES development.

Although there are research and development centres to promote RES research and development, their output has been significantly low; only featuring in the development of small-scale RES projects such as utilising solar energy for water pumping in rural communities. The FiT scheme in Nigeria was shown to be inadequate to spur RES development. Hence, the study identified the need for political support and the creation of other incentives to encourage domestic and foreign RES investment. It is also expected that the current FiT scheme will be reviewed, and other incentives introduced pursuant to EA 2023.

Achieving these lofty ambitions through RES integration requires the establishment of a robust regime. An incentivised electricity sector that embodies legislative clarity, sufficient governmental support, and a truly independent regulatory institution are essential to attract the needed investment in RES to address availability and access to reliable and affordable electricity services.¹⁰¹⁷

However, to balance the energy trilemma and achieve energy justice, there is a need for a clearly defined planning and consenting regime characterised by clear statutory guidelines and a strong regulatory institution that serves as a repository for information and data necessary for the sector to thrive. This will be considered in the next chapter.

¹⁰¹⁷ Aigbovo and Ogboka (n 629) 21

CHAPTER 5 – THE ROLE OF A RENEWABLE ENERGY PLANNING AND CONSENTING REGIME IN BALANCING THE ENERGY TRILEMMA AND PROMOTING ENERGY JUSTICE IN NIGERIA

5.1 Introduction

Renewable energy development has been emphasised by researchers, international organisations, and energy groups as the game changer for sustainable energy utilisation.¹⁰¹⁸ Its development has enormous benefits such as climate change mitigation, provision of sustainable and affordable energy, accessibility to underserved energy consumers (i.e. rural communities and indigenous groups), job creation and a catalyst for sustainable development.¹⁰¹⁹ In comparison with conventional energy sources (coal, natural gas, crude oil and nuclear), renewable energy sources (RES) are both considerably cheaper in the long-term and self-replenishing. Although RES have their shortcomings,¹⁰²⁰ their advantages outweigh the disadvantages.

Over the last decade and in the light of increased awareness of the impact of climate change and the enormous benefits of RES to help reduce emissions, countries are embarking on RES development on a larger scale.¹⁰²¹ Governments, particularly in the developed economies, have increased their commitment and targets to reduce their countries' carbon emissions in line with international, regional, and national legal instruments (both binding and non-binding).¹⁰²² The emission reduction agenda is premised mainly on the continuous development of RES technology to replace reliance on conventional fuels.¹⁰²³

The development of sustainable energy is a step in the right direction, especially for the planet. However, its development must be matched by a bespoke regulatory regime to administer and

¹⁰¹⁸ Oji et al (n 525); IPCC 2012 (n 23)

¹⁰¹⁹ The benefits of RES development are highlighted in chapters 2, 3 and 4 of this thesis.

¹⁰²⁰ See section 1.2.2 of this thesis; see also Mahesh Kumar, 'Social, Economic, and Environmental Impacts of Renewable Energy Resources' in Kenneth Eloghene Okedu, Ahmed Tahour and Abdel Ghani Aissaou (eds), *Wind Solar Hybrid Renewable Energy System* (2020 IntechOpen)

¹⁰²¹ Kenneth Palmer and David Grinlinton, 'Developments in Renewable Energy Law and Policy in New Zealand' available at <http://archive.legalscholars.ac.uk/edinburgh/restricted/download.cfm?id=229> accessed 23 April 2021

¹⁰²² For example, at the 26th Conference of Parties to the United Nations Framework Convention on Climate Change (COP26), the governments of the United States of America, the United Kingdom and the European Union announced an initiative to reduce methane emission by 30% before 2030. See BBC News, 'COP26: US to Tackle Methane Leaks from Oil and Gas Wells' available at: <https://www.bbc.co.uk/news/world-us-canada-59131282> accessed 4 November 2021

¹⁰²³ Roger Harrabin, 'COP26: Leaders Agree Global Plan to Boost Green Technology' available at: <https://www.bbc.co.uk/news/science-environment-59138622> accessed 4 November 2021

achieve a sustainable renewable energy regime to promote development.¹⁰²⁴ This is important in Nigeria where the exploitation of oil and gas has resulted in tensions between international oil companies (IOCs) and the government over regulatory issues, between IOCs and indigenous/ host communities over issues of energy injustice, and between governments and host communities. Conflicts stemming from perceived injustices by IOCs in collusion with government forces to wreak havoc on host communities have been a subject matter of judicial proceedings.¹⁰²⁵ Complaints have been centred around the lack of consultation of host communities for prior informed consent (social licence) before oil exploration is commenced and the non-payment of compensation for exploration-related pollution.¹⁰²⁶

To minimise or prevent future conflicts arising from RES development, this chapter therefore sets out to evaluate the importance of developing a robust renewable energy planning and consenting regime to balance the energy trilemma and ensure energy justice. The chapter begins by highlighting the importance of a RES planning and consenting regime and the adverse effects of the lack of it. The chapter thereafter analyses how Nigeria can balance the energy trilemma through a comprehensive RES planning and consenting regime. The imperatives of developing a RES planning and consenting regime for the actualisation of energy justice and the just transition are examined in this chapter. Given the important role of the private sector, the chapter espouses the exploitation of private sector and citizen-led approaches to achieving improved RES optimisation through public-private partnerships, community energy, and energy democracy. The implications of balancing the energy trilemma are assessed against other pressing national developmental priorities.

5.2 Necessity for a Planning and Consenting Regime for Renewable Energy Projects

A RES planning and consenting regime is defined in this research to include strategic planning (including national and regional RES plans), zoning, the design and scoping of RES projects in accordance with statutorily defined minimum standards; planning processes (including seeking and obtaining prior informed consents from relevant regulatory agencies and host communities); necessary environmental, socio-cultural, and economic impact assessments;

¹⁰²⁴ Catherine Banet, Electricity Distribution Network Tariffs' in Inigo del Guayo et al (eds), *Energy Justice and Energy Law* (OUP 2020) 93

¹⁰²⁵ The case of the Ogoni people of Niger Delta, Nigeria against Shell Petroleum Ltd is an example. See *Wiwa v Royal Dutch Petroleum Co.* (2009) 96 Civ. 8386 (KMW) (HBP), 01; *Kiobel v. Royal Dutch Petroleum Co.* (2013) 569 U.S. 108

¹⁰²⁶ Okechukwu Ejims, 'The Impact of Nigerian International Petroleum Contracts on Environmental and Human Rights of Indigenous Communities' (2013) 21 *African Journal of International and Comparative Law* 345

relevant notices; public consultations; dispute resolution mechanisms; local content requirements; land acquisition; support schemes; tax rates and rebates; proof of means and technical capacity to execute and maintain a project; environmental remediation plans, and project decommissioning plans, all embedded in statute. It also involves the creation of a well-equipped regulatory body to monitor the implementation and enforcement of these processes.

An under-regulated or self-regulated industry lends itself to abuse as the absence of monitoring mechanisms can provide little incentive to comply with minimum standards.¹⁰²⁷ Given the innate desire to maximise profit whilst keeping costs low, there is a proclivity by industry operators to prioritise profit over acceptable operational standards.¹⁰²⁸ Hence, while the industry is still in its formative years, it is important to clearly stipulate government's renewable energy policy direction, operational guidelines and standards to be monitored by a strong regulator. A defined mode of operation will assist operators and investors to measure the costs and benefits of investing in the industry.¹⁰²⁹ It will also help regulatory agencies to effectively monitor the activities of operators in the industry and ensure that established standards are maintained.¹⁰³⁰ It will further provide policymakers with the necessary tool for periodic review of laws and policies as the sector evolves.

Statutory provisions for regulating the renewable energy sector in Nigeria have recently been enacted in EA 2023.¹⁰³¹ Prior to its enactment, renewable energy regulation in Nigeria was largely based on disparate and non-binding renewable energy policies which did not serve any regulatory functions and were therefore unenforceable.¹⁰³² Nonetheless, the homogenous regulation in the current electricity regime overlooks the differences between electricity generated from oil and gas, and renewable electricity. Factors such as seasonality, weather conditions and temperature changes affect the productivity of renewable energy sources.¹⁰³³ Unlike electricity from gas, for instance, electricity from wind or solar depends on the weather conditions while water levels affect hydroelectricity. Homogenous regulation for all energy

¹⁰²⁷ Directorate for Science, Technology and Innovation Committee on Consumer Policy, *Industry Self-Regulation: Role and Use in Supporting Consumer Interests* (OECD 2015) 6

¹⁰²⁸ McHarg (n 335) 28; see also Andrew Edgecliffe-Johnson, 'Beyond the Bottom Line: Should Business Put Purpose Before Profit?' available at <https://www.ft.com/content/a84647f8-0d0b-11e9-a3aa-118c761d2745> accessed 30 September 2021

¹⁰²⁹ Department of Business, Energy and Industrial Strategy, *Business Regulation: Understanding Business' Perceptions and Behaviour* (BEIS Research Paper Number 2019/024) 30

¹⁰³⁰ Ibid 26; see also John Kitching, Mark Hart and Nick Wilson, 'Burden or benefit? Regulation as a Dynamic Influence on Small Business Performance' (2015) 33 *International Small Business Journal* 130, 139

¹⁰³¹ Electricity Act 2023, pt XVII

¹⁰³² See section 4.6.2 chapter 4.

¹⁰³³ Adewuyi et al (n 586) 1002.

sources shows a clear misunderstanding of the workings of renewable energy, hence the need for a bespoke RES planning and consenting regime.

The planning and consenting procedure for renewable electricity requires set standards with regard to quality, output, capacity, and impacts.¹⁰³⁴ These issues must be addressed before the commencement of a RES project. Without set standards, renewable energy development in Nigeria will be characterised by substandard equipment, inferior quality products and environmentally unsafe technologies.¹⁰³⁵ Furthermore, a clearly defined planning and consenting process will entail wider consultation with all relevant stakeholders including regulators, standards organisation, indigenous population, and trade unions.

A planning and consenting regime will deal with issues of distributional justice and local content for RES projects.¹⁰³⁶ It will stipulate the percentage of workers that must be sourced locally in the entire value chain for RES projects – purchase, transportation of equipment, installation, maintenance, and servicing. The regime can also mandate RES developers to first exhaust local expertise before seeking foreign expertise.¹⁰³⁷ Increase in employment opportunities is the natural implication of such engagement of the local workforce. The knock-on effect will include availability of disposable income for RES project host communities, increase in commercial and hospitality services for workers at the sites and poverty reduction among the local population. The reduction in unemployment and poverty will address issues of energy poverty among the local population as the availability of disposable income means the population can afford to pay for energy services. However, the ability to pay for energy services will depend on the availability of energy services which is not guaranteed merely by the siting of a RES project.¹⁰³⁸ Another challenge with siting a RES project in a local community is that it leads to a significant decline in agricultural activities as most farmers would prefer to work for a big company which offers better wages and greater certainty of employment over a longer period, rather than continue to toil in their farms with minimal profit. This can lead to food shortages and a rise in the cost of food.¹⁰³⁹ Where the RES project is a

¹⁰³⁴ Vincent Nnaemeka Emodi, Samson D Yusuf, Kyun-Jin Boo, 'The Necessity of the Development of Standards for Renewable Energy Technologies in Nigeria' (2014) 5 *Smart Grid and Renewable Energy* 259, 270

¹⁰³⁵ Seetharaman, Krishna Moorthy, Nitin Patwa, Saravanan, and Yash Gupta, 'Breaking Barriers in Deployment of Renewable Energy' (2019) 5 *Heliyon* 1, 8

¹⁰³⁶ OECD, *Overcoming Barriers to International Investment in Clean Energy, Green Finance and Investment* (OECD Publishing 2015) 48

¹⁰³⁷ *ibid*

¹⁰³⁸ Annalisa Savaresi, 'Community Energy and a Just Transition: What We Know and What We Still Need to Find Out' in Inigo del Guayo et al (eds), *Energy Justice and Energy Law* (OUP 2020) 79

¹⁰³⁹ APERC (n 53) 31

biofuel plant for example, the attention of the farmers will shift towards the cultivation of biofuel plants to supply the biofuel developer with materials required for the plant, rather than food crops. Furthermore, the planning and consenting regime will mandate developers to first source for RES materials locally before exploring external import options. For instance, when developing a biofuel plant, the developers can be mandated to patronise local farmers for their biofuel feed before seeking alternative suppliers elsewhere.¹⁰⁴⁰

The acquisition of land for RES projects including the right of passage for transmission lines, will require the prior informed consent (social licence) of host communities and indigenous peoples. Therefore, a planning and consenting regime will provide guidelines on how a potential RES developer can go about seeking the requisite consent before commencing a project. This is important given the problem between landowners and businesses. A frequent cause of conflicts between companies and communities over land stems from not knowing who the rightful owner of the land is.¹⁰⁴¹ There are a plethora of cases in court between companies and different alleged landowners in Nigeria.¹⁰⁴² Oftentimes, companies are led into purchasing disputed pieces of land and thereafter left to pay all the people claiming the interest on the land. This contributes to the cost of projects and can discourage potential investors. Hence, a planning and consenting regime needs to stipulate the necessary authorities in possession of the right information regarding interests in land. Additionally, it will stipulate the correct levies and dues payable upon land to prevent potential developers from being taken advantage of by dubious tax agents and others under the guise of ambiguous land rates and charges.

Furthermore, although the payment of compensation for land acquired for public purposes (including electricity needs) is stipulated in various statutes in Nigeria,¹⁰⁴³ it has been a thorny issue in the Nigerian petroleum industry.¹⁰⁴⁴ The non-payment of adequate compensation and the communities' demand for a 'memorandum of understanding (MOU)' which usually seeks to create the company's corporate social responsibilities have been some of the issues that have

¹⁰⁴⁰ Gaylor Montmasson-Clair and Reena das Nair, *The Importance of Effective Economic Regulation for Inclusive Growth: Lessons from South Africa's Renewable Energy Programmes* (Working Paper 10/2015) 17

¹⁰⁴¹ Amabipi Abby Kalio, 'Understanding Host Community Distrust and Violence Against Oil Companies in Nigeria' (PhD Thesis, Walden University 2016) 8

¹⁰⁴² *Mogaji & Ors v. Cadbury (Nig) Ltd* (1985) LPELR – 1889 (SC), *Ogbogoh v. Fanyali & Co. (Nig) Ltd* (2018) LPELR – 46736 (CA), *Makon Engr. & Tech. Services Ltd & Anor v. Nwokedinkor* (2019) LPELR – 49071 (CA), *Unity Bank Plc v. Gwadabe & Ors* (2020) LPELR – 52027 (CA),

¹⁰⁴³ See Electricity Act 2023, S 118, Constitution of the Federal Republic of Nigeria 1999 (as amended), S 44(1)(a); and Land Use Act cap L5 Laws of the Federation of Nigeria 2004, S 28

¹⁰⁴⁴ Kalio (n 1041)

marred oil and gas production in Nigeria.¹⁰⁴⁵ These obligations which are usually equitable rather than legal, are mostly enforceable at the discretion of courts. However, this has not reduced instances of conflict between host communities and corporations. A planning and consenting regime will create a standardised, legally enforceable, and mutually beneficial obligation for both the developer as a responsible corporate citizen and the community as a responsible host.¹⁰⁴⁶ Where the siting of a RES project will affect certain communal sites or items of interest to the community such as sacred shrines or ancestral resting places, a planning and consenting regime will provide guidelines on how such matters are to be handled amicably.¹⁰⁴⁷ In cases where it is necessary to relocate some members of the community, the regime will also define timelines and procedures on how to achieve such a relocation justly. This will prevent forced relocation and enhance energy justice for the affected communities.

In the event of a conflict, the regime will stipulate alternative dispute resolution mechanisms. It can provide for mediation and arbitration before an unbiased arbitral panel that is affordable and accessible, especially to communities and other stakeholders. The regime will provide for notice requirements for RES projects published in a medium accessible to all members of the locality by publishing such notices in town halls, traditional rulers' palaces, religious places, and the use of town criers (where necessary); also, such notices would be written in the local dialect.¹⁰⁴⁸ This will enable members of the public to register their opposition including concerns over environmental impacts.

As discussed in Chapter One of this thesis, despite the many benefits of renewable energy, RES has diverse environmental, socio-cultural, and economic impacts.¹⁰⁴⁹ Therefore, a planning and consenting regime is important as it can stipulate the various dimensions that must be covered by an environmental, socio-cultural, and economic impact assessment report. EA 2023 does not provide for environmental impact assessment for electricity projects. Although section 13 (d) of the Environmental Impact Assessment Act¹⁰⁵⁰ provides omnibus grounds which can be interpreted to apply to RES projects licensed by the Nigerian Electricity Regulatory

¹⁰⁴⁵ Beloveth Odochi Nwankwo, 'Conflict in the Niger Delta and Corporate Social Responsibility of Multinational Oil Companies: An Assessment' (PhD thesis, University of Derby 2017) 226

¹⁰⁴⁶ Mark Anthony Camilleri, 'Corporate Sustainability and Responsibility: Creating Value for Business, Society and the Environment' (2017) 2 Asian Journal of Sustainability and Social Responsibility 59

¹⁰⁴⁷ Kenneth Palmer and David Grinlinton, 'Developments in Renewable Energy Law and Policy in New Zealand' (2014) 32 Journal of Energy & Natural Resources Law 245, 261

¹⁰⁴⁸ Jenanne Ferguson and Evgeniia Sidorova, 'The Usage of Indigenous Languages as a Tool for Meaningful Engagement with Northern Indigenous Governments and Communities' (2023) 15 SPP Research Paper 1

¹⁰⁴⁹ See section 1.12 of this thesis.

¹⁰⁵⁰ Cap E12 Laws of the Federation of Nigeria 2004

Commission (NERC), the provision is not comprehensive. For instance, the main contents of an EIA report under the EIA Act include the description of the proposed activities, their potential effect on the environment, mitigation measures, gaps in knowledge of the extent of the impact, and information on external areas (within and outside Nigeria) likely to be affected by the proposed activity.¹⁰⁵¹ This report does not consider the impact of such activities on the rural economy, social and cultural practices. The development of hydroelectricity, for instance, does not only affect the aquatic lives but also threatens the livelihood of fishermen in the community. Similarly, hydroelectricity plants can affect cultural festivals and ceremonial practices of coastal communities such as the boat regatta among the Kalabari tribes in Rivers State¹⁰⁵² and the Argungu fishing festival in Kebbi State.¹⁰⁵³ These ceremonies are not only expressions of age-long cultural celebrations but a huge source of tourism revenues for these communities. A planning and consenting regime will therefore provide guidelines for a comprehensive environmental, socio-cultural, and economic impact assessment. A comprehensive environmental, socio-cultural, and economic impact assessment provision will address issues of recognition justice as it will ensure that the cultural practices are recognised and mitigative measures are established before the commencement of a RES project. Although Sustainability Assessment may be adopted to assess these impacts, however, given the wide scope of sustainability (incorporating the sustainable development goals), its implementation will be vague, cumbersome, and unrealistic in the context of Nigeria.¹⁰⁵⁴ Thus, a more focused assessment of the environmental, socio-cultural, and economic impact tailored to the particular circumstances of Nigeria is the most suitable option. Such measures can be monitored and implemented by a well-equipped regulatory institution.

The establishment of a robust regulatory institution to serve as a repository of information and as the chief regulator of renewable energy projects is essential for RES integration in Nigeria.¹⁰⁵⁵ A planning and consenting regime will establish such an institution which is well-equipped both technically and in terms of manpower to effectively regulate RES projects in

¹⁰⁵¹ See EIA Act 2004, S 4

¹⁰⁵² W Nzeda Tagowa, 'The Changing Patterns of the Boat Regatta as Maritime Heritage in Nigeria' (2005) 79 WIT Transactions on The Built Environment 143

¹⁰⁵³ See Folarin Shyllon, 'Argungu Fishing Festival in Northwestern Nigeria: Promoting the Idea of a Sustainable Cultural Fest' (2007) 14 International Journal of Cultural Property 329; see also UNESCO, 'Argungu International Fishing and Cultural Festival' available at: <https://ich.unesco.org/en/RL/argungu-international-fishing-and-cultural-festival-00901> accessed 30 September 2021

¹⁰⁵⁴ See Rajesh Kumar Singh, H.R. Murty, S.K. Gupta, A.K. Dikshit, 'An Overview of Sustainability Assessment Methodologies' (2009) 9 Ecological Indicators 189–212, on the indices of a sustainability assessment.

¹⁰⁵⁵ See Ogbumbada (n 98)

Nigeria. Such a bespoke agency in liaison with other governmental ministries, departments, and agencies can provide a harmonised compendium of requirements, fees, and approvals for RES projects. This will ease the stress of dealing with different agencies and cut down the burden of multiple levying on RES project developers. The absence of regulatory harmony adversely affects RES development in Nigeria.

5.3 Implications of Balancing the Energy Trilemma, Energy Justice, and the Just Transition

Achieving universal access to energy services and security of supply is the priority of most developing economies including Nigeria. This is required to improve living standards in the country and to promote economic development. Political statements and policies have highlighted the need to promote climate change mitigation and sustainable development.¹⁰⁵⁶ However, sustainable development is used in this context to connote the sustainable development of fossil fuels. For instance, despite Nigeria's commitment to climate change mitigation and adaptation, the country recently passed the Petroleum Industry Act 2021 to provide a 'legal, governance, regulatory and fiscal framework' to maximise its oil and gas resources for the development of the economy and national wellbeing.¹⁰⁵⁷

The development of low/ zero carbon energy is necessary to promote energy security, access to affordable energy, and climate change mitigation. However, the urgency in the global momentum for transition to alternative energy sources is arguably a manifestation of energy injustice to states in the global south.¹⁰⁵⁸ The socio-economic impoverishment being experienced in developing countries shows unpreparedness for an urgent transition, as there is a lack of financial capacity, technical structures, and political will to afford an urgent transition to RES technologies. Moreover, the majority of these countries are monocultural economies which depend on oil and gas revenue for their survival. Hence the global drive for decarbonisation poses a great threat to their economic survival. Additionally, despite possessing abundant natural resources, the lack of requisite infrastructure, legal and

¹⁰⁵⁶ See Ministry of Power, NREEEP (n 757); see also FGN, 'Nigeria's Intended Nationally Determined Contribution' available at: https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Nigeria%20First/Approved%20Nigeria%27s%20INDC_271115.pdf accessed 27 July 2021

¹⁰⁵⁷ See Preamble to the Petroleum Industry Act 2021; See also Solina Kennedy, Martin D. Brauch, Perrine Toledano & Tehtena Mebratu-Tsegaye, 'Nigeria's Petroleum Industry Bill: A Missed Opportunity to Prepare for the Zero-Carbon Future' (2021) available at: : https://scholarship.law.columbia.edu/sustainable_investment_staffpubs/191 accessed 29 September 2021

¹⁰⁵⁸ Adewuyi et al (n 586) 996.

institutional support has made it impossible for these countries to effectively harness these resources to meet their energy needs.

These sentiments are often echoed by heads of state and other representatives of developing economies who often accuse the global north of attaining economic development with fossil fuels and then trying to discourage developing economies from doing same.¹⁰⁵⁹ The disparity in GHG emissions and energy consumption between developed countries and their developing counterparts show staggering figures of emissions emanating from the developed economies. For instance, in 2016, the electricity consumption of New York City alone stood at 53.65 TWh, higher than electricity consumption in Sub-Saharan Africa (excluding South Africa), under 40 TWh.¹⁰⁶⁰ This reflects the overproduction of energy from countries such as the USA, China and India which are increasingly utilising coal to meet their ever-growing energy demands; and the UK which is still granting new licences for coal mining despite its commitment to zero-carbons by 2050.¹⁰⁶¹

In the wake of the global climate emergency, balancing the energy trilemma in developing economies have become more expedient. There is a need for developed economies to lead the decarbonisation agenda by eschewing hypocrisy and cutting down on their emissions. Additionally, cooperation between the developed and developing world must accelerate energy transitions. Given the low capabilities of developing economies to transition to sustainable energy, and their vulnerability to the impacts of climate change, international cooperation in the areas of finance, technology transfer, technical training, infrastructural development, monitoring of foreign subsidiaries' compliance with environmental standards, and public engagement are some of the measures to stimulate energy transitions in the global south.

Nevertheless, the transition from fossil fuels to low/ zero carbon energy should be tailored to the particular circumstances of each developing country. It should be undertaken within the

¹⁰⁵⁹ These were some of the sentiments evident in the discussions at the 2012 United Nations Conference on Sustainable Development (Rio+20). See Kailyn Ellison, 'Rio+20: How the Tension Between Developing and Developed Countries Influenced Sustainable Development Efforts' (2014) 27 Pac. McGeorge Global Bus. & Dev. L.J. 107, 113; see also Martin Khor, 'An Assessment of the Rio Summit on Sustainable Development' (2012) 47 Economic and Political Weekly 11, 14

¹⁰⁶⁰ USEIA, 'Hydro and Fossil Fuels Power Electricity Growth in Sub-Saharan Africa' available at: <https://www.eia.gov/todayinenergy/detail.php?id=37153> accessed 28 September 2021; see also Statista, 'Annual Electric Energy Consumption in New York in 2015 and 2016, by Region' available at: <https://www.statista.com/statistics/858006/annual-electric-energy-consumption-by-region-in-new-york/> accessed 28 September 2021

¹⁰⁶¹ Guardian Newspaper, 'First New Deep Coalmine in UK for 30 Years Gets Go Ahead' available at: <https://www.theguardian.com/business/2020/oct/02/first-new-deep-coalmine-in-uk-for-30-years-gets-green-light> accessed 07 October 2021

confines of energy justice to minimise adverse impacts on the national economy, workers, communities, and indigenous groups to ensure a just transition.

5.4 Analysing the Legal Framework for Renewable Energy Planning and Consenting in Nigeria

The overarching strategic plan for RES integration in Nigeria is laid out in the National Renewable Energy Action Plan (NREAP 2015 – 2030) made pursuant to the National Renewable Energy and Energy Efficiency Policy (NREEEP) 2015.¹⁰⁶² The contribution of RES (excluding medium and large hydroelectricity) to the electricity mix was projected to be 2,785MW by 2020 and 9,100MW by 2030.¹⁰⁶³ The target for 2020 was not met and the 2030 target is still doubtful judging by the present electricity capacity in the country.¹⁰⁶⁴ This is primarily because the proposed measures to achieve these targets including competitive procurement programmes, soft loans and subsidies for RES projects among others, are yet to be implemented.¹⁰⁶⁵

Furthermore, designing and planning for RES projects including zoning and scoping are not provided for in the Nigerian Urban and Regional Planning Act 1992.¹⁰⁶⁶ Although NEMSA is responsible for the ‘enforcement of technical standards and regulations, technical inspection, testing and certification of all categories of electrical installations’,¹⁰⁶⁷ there is no guideline expressly setting out the standards and design specifications for RES projects. Guidelines for RES development will promote distributional justice by ensuring that the siting of RES projects do not disproportionately affect rural communities.¹⁰⁶⁸ It will also ensure that these communities benefit from the siting of RES projects and participate in the decision making process in line with procedural justice.¹⁰⁶⁹ Moreover, whilst issues of environmental impact assessments and land acquisition may be gleaned from disparate legislation,¹⁰⁷⁰ energy justice

¹⁰⁶² See section 4.6.2 chapter 4 of this thesis for a discussion of NREEEP.

¹⁰⁶³ See NREAP (n 782) 10

¹⁰⁶⁴ NERC, ‘Generation’ available at <https://nerc.gov.ng/index.php/home/nesi/403-generation> accessed 23 March 2021

¹⁰⁶⁵ NREAP (n 782) 31

¹⁰⁶⁶ Cap N138 Laws of the Federation of Nigeria, 2004

¹⁰⁶⁷ Electricity Act 2023, S 176; NEMSA, ‘Nigerian Electricity Management Services Agency’ available at: <https://nerp.org.ng/agency/nigerian-electricity-management-services-agency/> accessed 16 November 2021

¹⁰⁶⁸ Jenkins et al (n 330) 176

¹⁰⁶⁹ Sovacool et al ‘Energy Decisions Reframed as Justice and Ethical Concerns’ (n 11) 2

¹⁰⁷⁰ See Environmental Impact Assessment Act, Cap E12 Laws of the Federation of Nigeria 2004; Land Use Act 1979, Cap L5 Laws of the Federation of Nigeria 2004

concerns, indigenous peoples, and environmental remediation for RES projects are not covered under extant laws.

The Nigerian Constitution empowers both the Nigerian National Assembly and State Houses of Assembly to enact laws to regulate electricity.¹⁰⁷¹ This implies that electricity regulation can be carried out at the national and state levels. However, in practice, electricity generation, transmission, and distribution in Nigeria (including from renewable energy sources) are regulated centrally by NERC.¹⁰⁷² The regulatory power of NERC is enshrined in the Electricity Act 2023,¹⁰⁷³ which is also the primary legislation for the electricity industry in Nigeria.¹⁰⁷⁴

A generation licence is required for renewable electricity generation projects with a capacity above 1MW.¹⁰⁷⁵ NERC has also approved other means of connecting renewable electricity to the national grid through net-metering for capacities under 1MW, feed-in tariff for different capacities depending on their sources (solar – 5MW, wind and biomass - 10MW, and small hydro – 30MW), and competitive tenders for capacities above the listed thresholds purchasable through NBET.¹⁰⁷⁶

The over-centralisation of electricity regulation in Nigeria stifles the development of RES infrastructure. Due to the administrative complexities involved in obtaining the requisite approvals from NERC, the procedure may discourage small- and medium-scale RES investors. It is therefore argued in this research that to optimise RES infrastructure, there is a need to decentralise the planning and consenting framework for RES projects in Nigeria. Thus, with states now empowered to enact laws to regulate electricity,¹⁰⁷⁷ it is essential for states to establish RES planning and consenting regimes and institutions to regulate the sector to promote distributional justice. Given that rural communities with limited access to electricity services are generally within state boundaries, state electricity regulators would be closer to them than NERC. Hence, state regulators would have a better understanding of their electricity challenges and how to address them. Additionally, representatives of these communities should

¹⁰⁷¹ See Constitution of the Federal Republic of Nigerian, 1999 (as amended), Part ii, Second Schedule

¹⁰⁷² See chapter 4 of this thesis.

¹⁰⁷³ Electricity Act 2023, S 34

¹⁰⁷⁴ See chapter 4 of this thesis.

¹⁰⁷⁵ See Electricity Act 2023, S 63

¹⁰⁷⁶ NERC, 'Renewable Energy Sourced Electricity' available at:

<https://nerc.gov.ng/index.php/home/operators/renewable-energy> accessed 16 November 2021. Feed-in tariffs for renewable energy source electricity is discussed extensively in chapter 4 of this thesis.

¹⁰⁷⁷ Electricity Act 2023, S 63, Constitution of the Federal Republic of Nigerian, 1999 (as amended), Part ii, Second Schedule

be included in the decision-making bodies for RES developments. This will enable these representatives to serve as liaison between the regulator and developer on the one hand and the communities on the other hand to facilitate public engagement and local participation.¹⁰⁷⁸

It is further argued that the enactment of a RES legislation can address recognition justice issues associated with RES development such as the protection of cultural heritage sites, communal shrines, ancestral graves, recreational sites, and sacred communal forests.¹⁰⁷⁹ Similarly, the procedure for engaging with host communities should be stipulated in law. For instance, to promote respect for the cultural identity and value systems of host communities, consultations should be had in English and the traditional language of the community with interpreters. Also, the statutory notices¹⁰⁸⁰ for RES development should be made available in local languages and posted in locations accessible to members of the community such as traditional palaces, places of worship and through town criers. This will facilitate recognition justice in RES development.

Given the adverse impacts of RES development, restorative justice should be embedded in a RES regime.¹⁰⁸¹ RES legislation should ensure that decommissioning plans accompany planning applications for RES projects. At the end of the project lifespan, RES infrastructures should be removed from the land and the environment should be restored to the state it was before the development. This will facilitate habitat and biodiversity restoration. Similarly, where the land was compulsorily acquired, restorative justice requires that at the end of the project lifespan, the land is offered to the original owners.¹⁰⁸² This has now been addressed in section 118 (3) of the Electricity Act 2023 which provides as follows:

Except where acquired through voluntary acquisition procedure, where a licensee...ceases to require the land for the purposes of the licenced activity, the licensee shall –

- (a) Offer the land to the previous holder of the right of occupancy, for the repurchase at an amount equivalent to the value of the improvement made on the land by the licensee or permit holder...

¹⁰⁷⁸ Sovacool et al 'Energy Decisions Reframed as Justice and Ethical Concerns' (n 11) 2

¹⁰⁷⁹ Fraser (n 461) 56

¹⁰⁸⁰ Environmental Impact Assessment Act, Cap E12 Laws of the Federation of Nigeria 2004, S 24

¹⁰⁸¹ Hazrati and Heffron (n 470)

¹⁰⁸² *ibid*

It is also important to establish a bespoke RES regulator at both the federal and state levels. This will make the sector attractive to investors, promote grassroots monitoring for RES projects and reduce costs for investors. However, the challenge of having ‘mini’ regulators at local levels is that it increases the incidence of corruption and reduced technical standards. Nonetheless, the lack of a comprehensive RES planning and consenting regime is detrimental to Nigeria’s development.

5.5 Adverse Impacts of the Absence of a Renewable Energy Planning and Consenting Regime in Nigeria

The absence of a clearly defined planning and consenting framework for RES development in Nigeria undermines the government’s efforts to scale up electricity generation to meet growing demands. Understanding the various impacts of not having a planning and consenting regime for RES is essential as it reveals far-reaching problems that can potentially be addressed through law and policy. The implication of such understanding is so that it can help inform policymakers of the inherent benefits derivable from the establishment of a planning and consenting legal regime for RES.

Some of the problems inherent in the lack of a planning and consenting framework for RES development in Nigeria include the government’s inability to decide the direction of the sector from the outset, the unattractiveness of the sector to potential investors, slow progress on climate change, protracted delays in achieving the sustainable development goals, and slow economic diversification.

5.5.1 Undermined State Control

Regulating an industry is easier when the sector is still in its formative years rather than when it is fully developed.¹⁰⁸³ Whilst still in its infancy, strategic governmental planning can help give shape to the industry, stipulating standards, entrenching consumer welfare, monitoring compliance, and preventing monopolies.¹⁰⁸⁴ Setting out the government’s strategic plans for RES integration can provide a vision with which development and investment can align. Early

¹⁰⁸³ John Frank Weaver, 'Everything is Not Terminator: The Importance of Regulating AI as Soon as Possible' (2018) 1 RAIL 131

¹⁰⁸⁴ Ibid. The tobacco industry in the US is an example of an industry where regulation was introduced rather late. Despite the health implications of tobacco use, several efforts by the US government to regulate the industry was challenged by the tobacco producers in US courts citing a lack of Congressional support. The government was able to regulate the sector after the enactment of the Family Smoking Prevention and Tobacco Control Act in 2009.

regulation of the renewable energy sector enables the government to set the rules of the game before the game kicks off.¹⁰⁸⁵ For instance, financial requirements, technical expertise, RES models and standards, land ownership, project viability in chosen sites, stakeholder consultation, public engagement and environmental consents are some of the areas that can be embedded in regulation.¹⁰⁸⁶ This can ward off resistance from RES operators who will not only be aware of the compliance requirement but also must fulfil the stipulated conditions before commencing operation.¹⁰⁸⁷ It will further ensure that the principles of energy justice are complied with in RES development.

The government can better control the market and effectively protect the interests of consumers by introducing service and quality monitoring mechanisms, as well as small businesses by ensuring that big companies do not abuse their dominant position through anti-competitive practices.¹⁰⁸⁸ The government can also specify local content requirements for RES developers including sourcing certain percentages of their raw materials, equipment and workforce locally as evidenced in South Africa through the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP).¹⁰⁸⁹ However, over-regulation can be a disincentive to investors as it can raise fears of excessive government influence in the sector.¹⁰⁹⁰ Moreover, where local raw material production and equipment manufacturing capacity is low, meeting the local content requirement can result in undue delays.¹⁰⁹¹ For instance, the Brazilian Programme of Incentives for Alternative Electricity Sources (PROINFA) which stipulated 60% for locally manufactured wind farm facilities hampered the growth of wind farm development because the country only had one equipment manufacturer who could not meet the demands.¹⁰⁹² Furthermore, where the minimum operational threshold contains stringent conditions such as proof of land ownership and huge financial liquidity, small and medium eco-entrepreneurs may find it difficult to access credit to meet these conditions. This can

¹⁰⁸⁵ Montmasson-Clair and Nair (n 1040) 4

¹⁰⁸⁶ Ibid 9. The introduction of minimum thresholds for the operation of small, medium, and large-scale renewable energy projects can provide clarity to potential investors and therefore stimulate development.

¹⁰⁸⁷ Weaver (n 1083) 134

¹⁰⁸⁸ Emodi et al (n 1034)

¹⁰⁸⁹ Under the REIPPPP, the government buys electricity from independent power producers through a competitive bidding programme and injected into the electricity system. One of the requirements of the REIPPPP is that IPP must fulfil the minimum threshold for local content of about 40%. See Montmasson-Clair and Nair (n 1040) 17

¹⁰⁹⁰ BEIS (n 1029)

¹⁰⁹¹ Gabriela Elizondo Azuela and Luiz Augusto Barroso, *Design and Performance of Policy Instruments to Promote the Development of Renewable Energy: Emerging Experience in Selected Developing Countries* (Energy and Mining Sector Board Discussion Paper No 22, 2011) 15

¹⁰⁹² *ibid*

discourage indigenous eco-entrepreneurs by making the sector inaccessible to start-ups and creating an uncompetitive market wherein consumers will suffer.

Achieving social welfare and consumer protection are key mandates of the Nigerian state.¹⁰⁹³ In line with statutory obligations under EA 2023 and the Constitution, the government can achieve these by creating a regulatory regime that guarantees competitiveness in the sector and ensures social justice for consumers. Achieving social justice through equitable access to energy services is rooted in effective regulation of the RES sector.¹⁰⁹⁴ Energy equity, sustainability and energy justice cannot be achieved in a sector that is unregulated or self-regulated. In such an unregulated climate, consumers will be at the mercy of businesses; the interests of host communities will be neglected, and standards will be traded for profit at the expense of the environment. Additionally, the underregulation of the RES sector diminishes investors' confidence thus making the sector unattractive.

5.5.2 Unattractiveness to Energy Investors

Nigeria has abundant renewable energy resources including solar energy, wind power, hydroelectricity, and biomass to meet its energy demands. Moreover, with a population of over 200 million, 60% without access to electricity, Nigeria has a large market for RES development.¹⁰⁹⁵ Also, Nigeria is Africa's biggest economy which makes the country an investment haven for both local, and foreign investors (mainly from the US, China and Europe) who are competing to leverage on the country's large market for their commercial interests.¹⁰⁹⁶ Against this backdrop, it is therefore puzzling why developers of renewable energy technologies have been reluctant to take advantage of the market by investing in the renewable energy sector.

The challenges of RES development in Nigeria have been discussed earlier in this thesis and include a lack of legal framework for RES integration (which has now been remedied by the

¹⁰⁹³ See Constitution of the Federal Republic of Nigeria 1999 (as amended), S 16

¹⁰⁹⁴ By creating a competitive market, the inflow of multiple RES developers will drive down the cost of energy services and this will benefit poor households and rural dwellers. See also Montmasson-Clair and Nair (n 1040) 6

¹⁰⁹⁵ World Bank, 'Population Total - Nigeria' available at:

<https://data.worldbank.org/indicator/SP.POP.TOTL?locations=NG> accessed 21 July 2021

¹⁰⁹⁶ Melissa Cook, 'This Country Recently Became Africa's Largest Economy. Now It's Too Big for Businesses to Ignore' available at <https://www.brinknews.com/this-country-recently-became-africas-largest-economy-now-its-too-big-for-businesses-to-ignore/> accessed 21 July 2021; see also Prinesha Naidoo, 'Nigeria Tops South Africa as the Continent's Biggest Economy' available at: <https://www.bloomberg.com/news/articles/2020-03-03/nigeria-now-tops-south-africa-as-the-continent-s-biggest-economy> accessed 21 July 2021

enactment of EA 2023), insufficient funding, lack of technical know-how and home-grown expertise, and infrastructure deficits among others.¹⁰⁹⁷ Whilst EA 2023 contains provisions to encourage RES integration in the energy mix,¹⁰⁹⁸ a comprehensive RES planning and consenting regime is still lacking.¹⁰⁹⁹ Thus, without a clearly defined legal regime, the renewable energy industry would not contribute significantly to the energy mix. Given that RES development demands huge initial capital costs, regulatory uncertainty about the planning and consenting procedure, for example, makes it a huge risk to invest in RES development.¹¹⁰⁰ Hence, accessing credit for RES investment becomes increasingly difficult for RES developers. A stable RES regime is vital to stimulate the needed investment flow into RES development in Nigeria. The Nigerian telecommunication sector exemplifies the interdependence between an effective legal regime and investment growth.¹¹⁰¹

Before the telecommunication sector reforms began in 1999, telecommunication services were dependent on the state-owned Nigeria Telecommunications Ltd (NITEL) and were expensive, inaccessible, and difficult to maintain.¹¹⁰² However, after the implementation of the National Telecommunications Policy recommendations embodied in the Nigerian Communications Act (NCA) 2003,¹¹⁰³ the industry was liberalised paving the way for more investors in the sector. The NCA 2003 provided a clearly defined legal framework for the sector and strengthened the Nigerian Communications Commission (NCC) as the sector regulator.¹¹⁰⁴ Buoyed by regulatory stability, the sector has witnessed significant development in terms of infrastructure, increased access, affordability, and competition.¹¹⁰⁵ From about 400,000 users before 1999, the current subscribers to telecommunication services are over 187 million.¹¹⁰⁶ The

¹⁰⁹⁷ See section 4.9 of this thesis.

¹⁰⁹⁸ See Electricity Act 2023, pt XVII on renewable energy and energy efficiency.

¹⁰⁹⁹ RES planning and consenting is defined in section 1.3.2 of this thesis.

¹¹⁰⁰ Aitor Ciarreta, Cristina Pizarro-Irizar and Ainhua Zarrag ‘Renewable Energy Regulation and Structural Breaks: An Empirical Analysis of Spanish Electricity Price Volatility’ (2020) 88 *Energy Economics* 1, 2

¹¹⁰¹ Oxford Business Group, ‘Telecoms Growth in Nigeria Supported by Reforms and Infrastructure’ available at: <https://oxfordbusinessgroup.com/overview/paving-way-reforms-listings-and-infrastructure-support-mobile-growth> accessed 26 July 2021

¹¹⁰² Adewale Eyitayo, ‘A Look at the GSM/Telecommunications Revolution in Nigeria: Possible Applications in Nigeria’s Electricity Industry’ (2019) Q2 IAEEE Energy Forum 13, 14; see also Ernest Ndukwe, ‘The Telecommunication Revolution in Nigeria’ (Convocation Lecture delivered at Igbinedion University, Okada, 2nd December 2011) 6

¹¹⁰³ Nigerian Communications Act, Cap N9 Laws of the Federation of Nigeria, 2004

¹¹⁰⁴ Oxford Business Group, ‘Telecoms Growth in Nigeria Supported by Reforms and Infrastructure’ available at: <https://oxfordbusinessgroup.com/overview/paving-way-reforms-listings-and-infrastructure-support-mobile-growth> accessed 26 July 2021

¹¹⁰⁵ *ibid*

¹¹⁰⁶ NCC, ‘Subscriber Statistics’ available at: <https://www.ncc.gov.ng/statistics-reports/subscriber-data> accessed 26 July 2021

telecommunication industry reform has not only improved access to telecommunication services but the sector is also a major source of employment.¹¹⁰⁷ From a sector reliant on NITEL, the Nigerian telecommunication sector has attracted investors from all over the world including South Africa, Europe and Asia. In 2015, about \$15.75 billion in foreign direct investment was injected into the Nigerian economy from telecommunication investors.¹¹⁰⁸ An important lesson to draw from the impact of the Nigerian telecommunications reforms is that an effective regulatory regime is essential to attract investment into the RES sector in Nigeria. With more investors, there will be an increase in competition. With effective regulation, increased competition can be advantageous to consumers by improving availability, access to quality energy services, and affordability.

Regulatory stability represents a country's preparedness to welcome potential investors in the RES sector. It further guarantees investors that their business interests are protected by law. By creating mutually beneficial duties and obligations codified in legal instruments and monitored by an overarching independent regulator, a stable regulatory regime signposts investors about planning and consenting requirements. Additionally, the regulatory regime will stipulate the parameters of PPA based on the type and capacity of different RES technology and investors whilst ensuring that in the event of a dispute, investors are aware of their rights and dispute resolution mechanisms.¹¹⁰⁹

The current electricity regulatory regime in Nigeria features a dual arrangement wherein NBET purchases electricity from independent power producers (electricity generation companies) and then sells it to electricity distribution companies.¹¹¹⁰ This arrangement was created by the EPSRA (and retained in EA 2023) for NBET to provide a guarantee that the electricity produced will be paid for, due to the financial illiquidity of the distribution companies. However, this arrangement has proven to be unsustainable as the distribution companies continue to default in payment of produced electricity.¹¹¹¹ A comprehensive regulatory regime with clearly defined planning and consenting procedure can minimise the financial burden on the government (NBET) as investors will provide the necessary capital for RES development.

¹¹⁰⁷ Eyitayo (n 1102), 15

¹¹⁰⁸ Oxford Business Group, 'A Handful of Mobile Operators Dominate Nigeria's Rapidly Expanding Telecoms Sector' available at: <https://oxfordbusinessgroup.com/overview/handful-mobile-operators-dominate-nigerias-rapidly-expanding-telecoms-sector> accessed 26 July 2021

¹¹⁰⁹ Priyantha D.C. Wijayatunga, 'Regulation for Renewable Energy Development: Lessons from Sri Lanka Experience' (2014) 61 Renewable Energy 29, 30

¹¹¹⁰ See EPSRA 2005, S 25 (a), see now Electricity Act 2023, S 6 (f)

¹¹¹¹ Nwani et al (n 634)

EA 2023 now mandates NERC to provide standards, specific requirements, and terms to govern PPAs for generation and distribution of renewable electricity.¹¹¹² Given that RES investments are influenced by regulatory policies, an investor-friendly regulatory climate for RES development can position Nigeria on the right path to achieving energy security, energy equity, sustainability, and energy justice.¹¹¹³ Moreover, without a RES planning and consenting regime, it will be difficult for Nigeria to fulfil its obligation to mitigate climate change under international instruments.¹¹¹⁴

5.5.3 Slow Progress on Climate Change

Nigeria is a party to the UNFCCC, having ratified the convention in 1994 and Kyoto Protocol in 2004.¹¹¹⁵ The country is also a party to the Paris Agreement and its objective of reducing GHG emissions by limiting temperature increases to below 2°C compared to pre-industrial levels.¹¹¹⁶ As a legally binding treaty, parties to the agreement are required to communicate the actions they intend to take to reduce GHG emissions – this is contained in the country’s NDC.¹¹¹⁷

In its intended NDC, Nigeria pledged to cut down its Business as Usual (BAU) emissions by 20% unconditionally and 45% conditionally.¹¹¹⁸ Some of the measures projected to drive the unconditional reduction of BAU emissions include enhancing energy efficiency by 20%, providing 13 GW of renewable electricity to rural communities and ending the flaring of associated gas by 2030.¹¹¹⁹ Nigeria intends to reduce GHG emissions by 45% with international

¹¹¹² Electricity Act 2023, S 164 (d)

¹¹¹³ IRENA, Renewable Energy Policies in a Time of Transition (IRENA, OECD/IEA and REN21, 2018) 14

¹¹¹⁴ See United Nations Framework Convention on Climate Change (adopted 9 May 1992, entered into force 21 March 1994) 1771 UNTS 107 (UNFCCC), and Conference of the Parties to the United Nations Framework Convention on Climate Change, Paris Agreement (adopted 13 December 2015) FCCC/CP/2015/10/Add.1 (Paris Agreement 2015); see also Federal Government of Nigeria, ‘Nigeria’s Nationally Determined Contribution – Update’ available at <https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Nigeria%20First/NDC%20INTERIM%20REPORT%20SUBMISSION%20-%20NIGERIA.pdf> accessed 26 July 2021

¹¹¹⁵ Michael O Dioha and Atul Kumar, ‘Exploring the Energy System Impacts of Nigeria’s Nationally Determined Contributions and Low-Carbon Transition to Mid-Century’ (2020) 144 Energy Policy 111703 1, 2

¹¹¹⁶ Ibid; see also Conference of the Parties to the United Nations Framework Convention on Climate Change, Paris Agreement (adopted 13 December 2015) FCCC/CP/2015/10/Add.1 (Paris Agreement 2015)

¹¹¹⁷ Ibid

¹¹¹⁸ Business as usual (BAU) envisages a scenario where the country focuses all its attention in economic and human development without due regards to climate change mitigation. See FGN, ‘Nigeria’s Intended Nationally Determined Contribution’ available at: <https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Nigeria%20First/Approved%20Nigeria%27s%20INDC%20271115.pdf> accessed 27 July 2021

¹¹¹⁹ Ibid

support in the areas of finance and investment, technology transfer and capacity building.¹¹²⁰ Furthermore, at COP26, Nigeria's President pledged to reduce 47% of emissions by 2030 and net zero emissions by 2060 through financial assistance and technology transfer from advanced countries.¹¹²¹

Whilst the impacts of climate change affect all countries irrespective of their developmental status, Nigeria, like most developing countries, is more vulnerable due to the lack of mitigation and adaptation capabilities.¹¹²² As observed earlier in this thesis, the country is vulnerable to famine and drought, erosion, flooding, decreasing fisheries, acid rain, declining agricultural yields, and loss of biodiversity among others.¹¹²³ This is reiterated in the country's NDC which identifies the northern region of the country as being more vulnerable to drought possibly due to its proximity to the Sahara Desert.¹¹²⁴ To mitigate these adverse impacts of climate change, there is a need to take deliberate actions as outlined in Nigeria's NDC.

Meeting Nigeria's NDC will be a utopian dream without positive actions. Having identified renewable energy development as being central to achieving emission reduction, poverty alleviation, human, and economic development, both in Nigeria's NDC and the NREEEP,¹¹²⁵ there is a need to introduce legislation and create and/or strengthen regulatory institutions to realise these objectives. Despite its desire to provide 13 GW of renewable electricity, very little efforts have been made in rural electrification. Out of the 60% of the Nigerian population without access to electricity, over 80% are rural dwellers.¹¹²⁶ Furthermore, gas flaring persists in Nigeria due to the country's dependence on crude oil for its economic development and export purposes.¹¹²⁷ It is therefore imperative for the country to develop a planning and consenting regime to stimulate RES development. Curiously, the provisions on RES integration in EA 2023 do not link RES development to climate change mitigation.¹¹²⁸ Whilst this may be a legislative oversight, a RES planning and consenting regime will facilitate the connection

¹¹²⁰ Ibid; see also Dioha and Kumar (n 1115).

¹¹²¹ Ruth Olurounbi, 'Nigeria Pledges to Reach Net-Zero Emissions by 2060, Buhari Says' available at: <https://www.bloomberg.com/news/articles/2021-11-02/nigeria-targets-to-reach-net-zero-emissions-by-2060-buhari-says> accessed 4 November 2021

¹¹²² Philip Antwi-Agyei, Andrew J. Dougill, Thomas P. Agyekum & Lindsay C. Stringer, 'Alignment between nationally determined contributions and the sustainable development goals for West Africa' (2018) 18 Climate Policy 1296, 1298

¹¹²³ See section 4.4.2, chapter 4 of this thesis.

¹¹²⁴ FGN, 'Nigeria's Intended Nationally Determined Contribution' (n 1114)

¹¹²⁵ See Section 4.5.2, chapter 4 of this thesis.

¹¹²⁶ See Joseph (n 587)

¹¹²⁷ See GENI (n 600)

¹¹²⁸ See Electricity Act 2023, pt XVII

between RES development and climate change mitigation. Moreover, given that most power plants in Nigeria are gas-fired, and a majority of Nigerian businesses and households rely on diesel-powered generators for electricity supply,¹¹²⁹ renewable energy optimisation can increase electricity access especially rural electrification whilst also driving down emissions. Environmental remediation and climate change mitigation introduced through a RES planning and consenting regime will promote restorative justice.

Apart from hydroelectricity that has historically contributed to Nigeria's energy mix, most RES projects in the country are solar energy projects.¹¹³⁰ Likewise, Nigeria's NDC estimation of 13 GW of rural electrification is expected to be generated through solar energy.¹¹³¹ The over concentration of RES research and development on solar energy limits the country's ability to exploit the potentials of other renewables such as wind and biomass.¹¹³² This lopsided exploitation of solar energy portends the underutilization of all RES resources to the detriment of the country and its climate change mitigation obligations. Nevertheless, a comprehensive planning and consenting regime for RES can address this omission. Feasibility reports and location mapping can be provided by a bespoke RES agency for all forms of RES technology to assist developers. Also, relevant statutes, regulations and guidelines introduced in pursuance of a RES regime can provide modalities for the development of wind turbines and biomass plants for example, to encourage the deployment of these technologies to suit domestic circumstances.

Achieving universal access to electricity, distributional justice and sustainability are key objectives of Nigeria's developmental drive. However, sustainability in energy development must align with energy justice concerns to promote a just energy transition and actualise the SDGs.

5.5.4 Difficulty in Realising the SDGs

The SDGs represent a collective international effort to tackle various global challenges by addressing imbalances inherent in current economic and environmental spheres.¹¹³³ Although

¹¹²⁹ See Etu et al (n 636)

¹¹³⁰ Tope Alake, 'Nigeria Bets on Solar to Power Its Covid Recovery' available at: www.bloomberg.com/news/articles/2021-04-08/nigeria-bets-on-solar-to-power-its-covid-recovery accessed 27 July 2021

¹¹³¹ FGN, 'Nigeria's Intended Nationally Determined Contribution' (n 1114)

¹¹³² See Joseph (n 587)

¹¹³³ Philip Antwi-Agyei, Andrew J. Dougill, Thomas P. Agyekum & Lindsay C. Stringer, 'Alignment between Nationally Determined Contributions and the Sustainable Development Goals for West Africa' (2018) 18 Climate Policy 1296, 1297

the SDGs are not legally binding on Nigeria, the goals align with the Nigerian government's social and economic objectives.¹¹³⁴ The 17 goals and 169 targets provide a measurable pathway to achieving economic, social, and environmental wellbeing through international cooperation by 2030.¹¹³⁵ Some of the goals have been enacted in statute such as EA 2023 which addresses the objectives of Goal 7 – affordable and clean energy,¹¹³⁶ and Climate Change Act 2021 which seeks to operationalise the objectives of Goal 13 – climate action.¹¹³⁷ Although Goal 7 sets out to achieve universal access to affordable and reliable sustainable energy for all, it is considered integral to the actualisation of the other goals.¹¹³⁸ Given the low/ zero carbon potentials of RES technologies, their development, including off-grid and mini-grid RES projects, are key to achieving the SDGs.¹¹³⁹

The lack of access to energy including electricity and clean cooking fuels festers energy poverty, especially in developing countries, whilst the high cost of energy results in fuel poverty which is prevalent in developed economies.¹¹⁴⁰ Similarly, the lack of clean energy affects the quality of life of populations as it deprives them of access to basic amenities such as good healthcare facilities, portable drinking water and quality education at an affordable cost.¹¹⁴¹

Moreover, the development of any society can be measured by the availability of energy services to drive industries, infrastructure, commerce, and other sectors of the economy.¹¹⁴² Without access to jobs and better working conditions (such as cooling or heating at workplaces), anthropogenic threats to biodiversity by over-hunting and fishing and use of unsustainable agricultural methods will be sustained. Without a reliable power supply,

¹¹³⁴ See Constitution of the Federal Republic of Nigeria 1999 (as amended), chapter two.

¹¹³⁵ United Nations, Transforming Our World: The 2030 Agenda For Sustainable Development' available at: <https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf> accessed 28 July 2021; see also Francesco Fusco Nerini et al, 'Energy and the Sustainable Development Goals' available at: https://discovery.ucl.ac.uk/id/eprint/10037715/3/Tomei_Manuscript%20-%20Energy%20and%20the%20SDGs_final.pdf accessed 28 July 2021

¹¹³⁶ Electricity Act 2023

¹¹³⁷ United Nations, 'Sustainable Development Goals' available at: <https://sdgs.un.org/> accessed 6 May 2024

¹¹³⁸ Aji et al (n 583); Nerini et al (n 1135); Roche et al (n 77)

¹¹³⁹ IRENA (n 1113) 15

¹¹⁴⁰ Fuel poverty is a situation where a household cannot afford to maintain its energy needs at a reasonable cost, usually above 10% of its income. See Inigo del Guaya, 'Energy Poverty and Energy Access: A Legal Analysis' in Inigo del Guaya, Lee Godden, Donald Zillman, Milton F Montoya and Jose Juan Gonzalez (eds.), *Energy Justice and Energy Law* (OUP 2020) 35

¹¹⁴¹ See section 4.2, chapter 4 of this thesis. See also Shonali Pachauri et al, "Energy Access for Development," *Global Energy Assessment: Toward a Sustainable Future* (Cambridge University Press 2012) 1407

¹¹⁴² See Allen (n 584)

privileged individuals and businesses will continue to use petrol and diesel-powered generating sets to augment their energy needs especially to produce goods and services. Conflicts between host communities and IOCs have been aggravated by historical injustices in the distribution of the proceeds of energy resources; and access to justice is equally threatened when the courts are not provided with basic energy services to attend to aggrieved litigants.¹¹⁴³ The consequences of these challenges are an astronomical increase in climate change, insecurity (including energy insecurity), and a widening of the gap between the rich and the poor within societies and among countries. It further accentuates energy poverty and aggravates energy injustice as poor communities continue to bear the brunt of fossil fuel usage. The uptake in RES development is therefore essential to address these problems.

The problems highlighted above are prevalent in Nigeria thereby making the realisation of the SDGs by 2030 unfeasible. Unless the country makes concerted efforts to promote RES development, the fate of the SDGs will be the same as the MDGs which were largely unrealised at the end of its deadline in 2015.¹¹⁴⁴ Consequently, the government needs to develop a planning and consenting regime for RES development. A RES planning and consenting regime requires the enactment of enforceable laws and policies, and the creation of a bespoke regulatory body to facilitate the development of decentralised RES projects, which is key to the realisation of the SDGs.¹¹⁴⁵

Given that the actualisation of the SDGs can be addressed at both national and local levels, the development of RES technologies at community levels will stimulate local economies and address the problems raised in the SDGs at the grassroots without having to rely on a top-down approach to meeting the goals.¹¹⁴⁶ For example, the development of solar energy projects in communities without connection to the national grid can power small-and medium-enterprises such as salons and barbershops, bars and restaurants, local artisans, convenience stores as well as public infrastructures including primary health care centres and schools. This is possible

¹¹⁴³ Naomi Creutzfeldt et al, *Access to Justice for Vulnerable and Energy-Poor Consumers: Just Energy* (Hart Publishing 2021) 30

¹¹⁴⁴ Anu Durokifa and Abdul-Wasi Babatunde Moshood, 'Evaluating Nigeria's Achievement of the Millennium Development Goals (MDGs): Determinants, Deliverables, and Shortfall' (2016) 4 *Africa's Public Service Delivery and Performance Review* 656

¹¹⁴⁵ IRENA (n 1113)

¹¹⁴⁶ Ibid 20; see also B Ugwoke et al, 'Demonstration of the Integrated Rural Energy Planning Framework for Sustainable Energy Development in Low-Income Countries: Case Studies of Rural Communities in Nigeria' (2021) 144 *Renewable and Sustainable Energy Reviews* 110983

because their energy consumption is minimal compared to big cities.¹¹⁴⁷ Similarly, small wind turbines can be installed close to farmlands to support milling, irrigation, and water supply for nearby residents as pilot schemes carried out in northern Nigeria by the Sokoto Energy Research Centre (SERC) have shown.¹¹⁴⁸ In urban areas, tertiary institutions, private business premises and government offices can be powered by standalone RES projects. For example, the Nigerian Federal Ministries of Works and Environment recently commissioned solar energy to provide part of its electricity needs.¹¹⁴⁹ Besides realising the SDGs, these measures can help balance the energy trilemma.

In actualising the SDGs, a RES planning and consenting regime will also facilitate the availability of energy services, reduce energy poverty, and protect the environment whilst promoting distributional justice among underserved groups. Given the instability in the oil and gas market causing dwindling prices, a RES planning and consenting regime will open the country to more economic opportunities beyond the oil and gas sector.

5.5.5 Slow Economic Diversification

It has been observed earlier in this thesis that the Nigerian economy is heavily reliant on oil and gas with the export of petroleum products accounting for almost 90% of total export revenue in the country.¹¹⁵⁰ Given the huge contribution of export revenues from petroleum products, the incessant fluctuation in prices adversely impacts the Nigerian economy.¹¹⁵¹ Nigeria's national budgets are often drafted with the hope of funding the budgets mainly from petroleum products exports. Thus, when the actual revenues fall below budgetary projections (as is always the case), the Federal Government resorts to borrowing to meet the deficit.¹¹⁵² This frequent recourse to loans to fund budgetary deficits has further plunged the country into

¹¹⁴⁷ Salisu Isihak, Uduak Akpan, and Sanusi Ohiare, 'The Evolution of Rural Household Electricity Demand in Grid-Connected Communities in Developing Countries: Result of a Survey' (2020) 6 *Future Cities and Environment* 1, 6

¹¹⁴⁸ See Aliyu et al (n 659), 2503; Abdullahi Abubakar Mas'ud et al, 'Wind Power Potentials in Cameroon and Nigeria: Lessons from South Africa' (2016) 10 *Energies* 443; SERC, 'Projects' available at <http://serc.org.ng/projects/> accessed 3 May 2020.

¹¹⁴⁹ See Faruk Shuaibu 'Works, Environment Ministries Get 1.52MW Solar Power Grid' available at: <https://dailytrust.com/works-environment-ministries-get-1-52mw-solar-power-grid> accessed 29 July 2021

¹¹⁵⁰ See GENI (n 600), see also OPEC, 'Nigeria' available at: https://www.opec.org/opec_web/en/about_us/167.htm accessed 19 August 2021

¹¹⁵¹ Ibid. As a member of the Organization of the Petroleum Exporting Countries (OPEC), Nigeria is subject to petroleum product price adjustments by OPEC.

¹¹⁵² John Akubo, Msugh Ityokura and Rotimi Agboluaje, 'Buhari Seeks Fresh N2.3tr Loan to Fund 2021 Budget' available at: <https://guardian.ng/news/buhari-seeks-fresh-n2-3tr-loan-to-fund-2021-budget/> accessed 19 August 2021

debt.¹¹⁵³ According to Nigeria's Debt Management Office, as of March 2023, Nigeria's external debt stood at \$42.67 Billion.¹¹⁵⁴ The benefits of these loans are hardly felt by ordinary citizens given the prevalence of poverty in the country; hence this frustration leads to conflicts including the destruction of petroleum facilities by aggrieved unemployed youths.

The Nigerian oil and gas sector is characterised by destruction of petroleum pipelines and other oil and gas installations, crude oil theft, and picketing of offices and locations of international oil companies among other economic vices; these are an offshoot of a poorly governed oil and gas sector.¹¹⁵⁵ These activities not only harm the environment and the population, but they also hinder petroleum production which causes economic stagnation.¹¹⁵⁶ Furthermore, historical neglect of host communities by IOCs and IOCs' collusion with government forces have worsened relations with host communities.¹¹⁵⁷ Preventing the incidence of conflicts among key players in the Nigerian economy demands the entrenchment of the distributive, recognition, procedural and restorative tenets of energy justice as argued in this research.¹¹⁵⁸ Apart from ensuring that host communities are not disproportionately affected in the distribution of the burdens and benefits of energy resources, it is equally important to ensure that indigenous characteristics such as cultural practices, sacred lands and institutions are recognised and respected. Also, community involvement in decision-making must be prioritised before commencing any project; whilst creating unbiased and accessible dispute resolution mechanisms. Incorporating this ethos in a RES planning and consenting regime will promote peaceful coexistence between businesses and communities. Social harmony between businesses and communities will prevent conflicts and encourage economic diversification by spurring both direct and indirect economic growth all through the RES value chain in Nigeria.¹¹⁵⁹

¹¹⁵³ *ibid*

¹¹⁵⁴ Debt Management Office Nigeria, 'Nigeria's Total Public Debt Portfolio as at March 31, 2023' available at: <https://www.dmo.gov.ng/debt-profile/total-public-debt/4324-nigeria-s-total-public-debt-as-at-march-31-2023/file> accessed 28 July 2023

¹¹⁵⁵ World Energy Council, World Energy Trilemma Index 2020 (WEC 2020)

¹¹⁵⁶ Nwani et al (n 634)

¹¹⁵⁷ The case of Shell versus the Ogoni people provides a classic example of the conflicts between oil producing host communities and IOCs. See *Wiwa v Royal Dutch Petroleum Co.* (2009) 96 Civ. 8386 (KMW) (HBP), 01; *Kiobel v. Royal Dutch Petroleum Co.* (2013) 569 U.S. 108

¹¹⁵⁸ See section 3.4 of this thesis.

¹¹⁵⁹ Raphael Heffron, Rory Connor, Penelope Crossley, Vicente López-Ibor Mayor, Kim Talus & Joseph Tomain, 'The Identification and Impact of Justice Risks to Commercial Risks in the Energy Sector: Post COVID-19 and for the Energy Transition (2021) *Journal of Energy & Natural Resources Law*, DOI: 10.1080/02646811.2021.1874148, 7

A well-developed RES regime will attract economic growth in the areas of RES project design, equipment manufacturing and installation.¹¹⁶⁰ Apart from the job creation potentials, the operation, maintenance, and decommissioning of RES projects will benefit other sectors of the economy including transportation, hospitality, agriculture, and financial services.¹¹⁶¹ Thus, a legal framework for RES planning and consenting will provide for manufacturing and installation standards for various RES projects. Given that RES technology is not completely environmentally benign, it will also provide for essential environmental safeguards in the operation and decommissioning of projects.¹¹⁶² In accordance with extant labour laws, the regime will not only guarantee employment rights for RES workers but more importantly, it can be a tool to transition fossil fuel workers into the new RES sector.¹¹⁶³

It is important to add that the reformation of the oil and gas regulatory framework was delayed partly due to IOC's concerns over the impacts of such reforms on their business interest.¹¹⁶⁴ Consequently, the Petroleum Industry Act 2021 spent over 20 years in the Nigerian National Assembly.¹¹⁶⁵ The energy transition will not only minimise the influence of 'powerful' IOCs, but it will also expedite economic diversification. However, given the contribution of oil and gas to the Nigerian economy, such a transition must be carried out within energy justice parameters and founded upon a comprehensive RES planning and consenting regime.

5.6 Balancing Nigeria's Energy Trilemma through a Comprehensive Planning and Consenting Legal and Institutional Framework for Renewable Energy

The energy trilemma has been discussed extensively earlier in this thesis.¹¹⁶⁶ Resolving the various competing demands in energy development – security of supply, accessibility to affordable energy services and climate change mitigation, requires trade-offs.¹¹⁶⁷ However, to avoid a business-as-usual attitude to these trade-offs, it is imperative that a country's renewable energy objectives and policies are embedded in law. A strong regulator must be backed by

¹¹⁶⁰ Clean Energy Ministerial, *The Socio-economic Benefits of Solar and Wind Energy* (Technical Report, May 2014, IRENA) 3

¹¹⁶¹ *ibid*

¹¹⁶² See section 1.12.1 of this thesis for the discussion on the environmental impacts of RES.

¹¹⁶³ McHarg (n 335) 18

¹¹⁶⁴ See King & Wood Mallesons, 'Further Delays in Finalising the Nigerian Petroleum Industry Bill (PIB)' available at: <https://www.kwm.com/en/uk/knowledge/insights/further-delays-in-finalising-the-nigerian-petroleum-industry-bill-pib-20160101> accessed 11 November 2021

¹¹⁶⁵ *ibid*

¹¹⁶⁶ See chapter 1 of this thesis.

¹¹⁶⁷ Julia Tomei and Danielle Gent (eds), *Equity and the Energy Trilemma: Delivering Sustainable Energy Access in Low-Income Communities* (International Institute for Environment and Development 2015) 5

enabling statutes to enforce compliance with national targets, policies, laws, and regulations. Entrenching RES targets and policies in law gives them legitimacy, enforceability and demonstrates the political will to realise them.¹¹⁶⁸

This section explores Nigeria's performance in the energy trilemma index and assesses the prospects and challenges of balancing Nigeria's energy trilemma through a comprehensive RES planning and consenting regime.

5.6.1 Achieving Energy Security through Renewable Energy Integration

The Constitution mandates the Nigerian state to harness the country's resources to promote national prosperity, economic advancement, and the unfettered enjoyment of every right guaranteed in the Constitution, among its citizenry.¹¹⁶⁹ Attaining human development, economic prosperity, and social wellbeing requires the availability of primary energy services such as electricity and cooking fuels. The security of supply of basic energy services makes for the enjoyment of other constitutional rights.¹¹⁷⁰ Nigeria has huge RES potentials, hence the integration of RES technology into Nigeria's energy mix will enhance energy security. Furthermore, it will accelerate economic diversification whilst also promoting human development and social welfare in the country. It will also enable Nigeria to attain energy independence.

The notion of energy independence envisages a situation where domestic energy production is sufficient to meet a country's energy needs without having to depend on other foreign sources.¹¹⁷¹ Domestic oil refineries in Nigeria have been operating well below capacity; hence the country exports crude oil to other countries and purchases refined products for use in its energy mix.¹¹⁷² Additionally, liquified petroleum gas (LPG) which powers most thermal power

¹¹⁶⁸ World Economic Forum & BCG, *The Net-Zero Challenge: Fast-Forward to Decisive Climate Action* (Insight Report) (WEF 2020) 5

¹¹⁶⁹ See Constitution of the Federal Republic of Nigeria 1999 (as amended), S 16

¹¹⁷⁰ Lars Löfquist, 'Is there a Universal Human Right to Electricity?' (2020) 24 *The International Journal of Human Rights* 711; see also Margaretha Wewerinke-Singh, 'A Human Rights Approach to Energy: Realizing the Rights of Billions Within Ecological Limits' (2021) *Review of European, Comparative & International Environmental Law* 1; see also Boute (n 301) 128.

¹¹⁷¹ Branko Terzic, 'Energy Independence and Security: A Reality Check' (A Report by the Deloitte Center for Energy Solutions, 2013) 4. The concept of energy independence emerged during the oil price shocks of the 1970s. See section 3.4.1.1 of this thesis for a discussion of the oil price shocks.

¹¹⁷² Anthony Ogbuigwe, 'Refining in Nigeria: History, Challenges and Prospects' (2018) 8 *Applied Petrochemical Research* 181

plants is imported despite the country's huge natural gas deposits.¹¹⁷³ This is due to insecurity and lack of infrastructure. This situation has not only affected the cost of energy services, but also contributes to the problem of availability and access to energy.¹¹⁷⁴ This also puts huge burden on the country's economy and currency as evidenced by the frequent devaluation of the naira.¹¹⁷⁵ The establishment of a RES planning and consenting regime is therefore essential to enable Nigeria to harness its RES resources for the actualisation of its constitutional mandate and the attainment of energy independence.¹¹⁷⁶ Given that RES uses free fuel (sunlight, wind, water etc.), it is less likely to be impacted by market fluctuations and theft (as in crude oil theft). The development of a RES planning and consenting regime will therefore afford the country the opportunity of meeting the majority of its energy demands domestically without depending on foreign sources. It will also give the country influence over other countries in the energy market.

The oil price shocks revealed the power dynamics in favour of energy resource-rich countries over other countries.¹¹⁷⁷ The dependence on oil exports by the western governments was exploited and used as a bargaining chip by the Arab states to achieve their objectives. Given that Nigeria currently supplies gas through the West African Gas Pipeline project to Ghana, Togo and Benin, its leadership position in the region can be leveraged to lead the RES market if energy security is accelerated through renewables optimisation.¹¹⁷⁸

Nigeria is ranked 83rd and graded D in the Energy Trilemma Index on energy security, and its energy sector is import dependent.¹¹⁷⁹ Moreover, a large percentage of the country depends on the use of petrol and diesel-powered generators which are both unsustainable and costly to maintain.¹¹⁸⁰ However, developing a RES planning and consenting regime with relevant

¹¹⁷³ Emmanuel Addeh, 'PPPRA: Nigeria Imported 62% of LPG Consumed in 2019' available at: <https://www.thisdaylive.com/index.php/2020/10/06/pppra-nigeria-imported-62-of-lpg-consumed-in-2019/> accessed 30 September 2021

¹¹⁷⁴ M M Akrof, 'An Analysis of Energy Diversification and Transition Trends in Africa' (2021) 5 International Journal of Energy and Water Resources 1, 2

¹¹⁷⁵ Emele Onu and Tope Alake, 'Nigeria Devalues Naira on Migration to Single Exchange Rate' available at: <https://www.bloomberg.com/news/articles/2021-05-25/nigeria-devalues-naira-on-migration-to-single-exchange-rate> accessed 30 September 2021

¹¹⁷⁶ Although energy independence cannot be absolute as countries will always depend on each other for other areas of energy development such as raw materials for energy infrastructure construction.

¹¹⁷⁷ Macalister (n 383)

¹¹⁷⁸ Hydrocarbons Technology, 'West African Gas Pipeline (WAGP)' available at: <https://www.hydrocarbons-technology.com/projects/west-african-gas-pipeline/> accessed 30 September 2021

¹¹⁷⁹ World Energy Council, World Energy Trilemma Index 2022 (WEC 2022); see also WEC, 'Nigeria' available at <https://trilemma.worldenergy.org/#!/country-profile?country=Nigeria&year=2022> accessed 30/12/2022

¹¹⁸⁰ Etu et al (n 636)

support schemes will incentivise RES utilisation. Additionally, the Nigerian state will cement its place as a regional leader in RES deployment, reducing its import dependence and benefiting from a larger share of the market whilst also accelerating energy access and affordability for its populace.

5.6.2 Accessing Affordable Energy

Energy equity may be defined as access to affordable, reliable, clean, and safe energy to meet basic energy needs.¹¹⁸¹ Access to affordable energy affects the living standards of members of the society. It has been argued earlier in this thesis that energy access promotes quality education, health care services and social equality.¹¹⁸² Hence, the lack of energy access results in energy poverty.¹¹⁸³

The first goal of the SDGs is poverty alleviation.¹¹⁸⁴ Energy poverty is another manifestation of poverty.¹¹⁸⁵ According to Del Guayo, energy poverty may be identified as the lack of means to pay for energy bills, the lack of energy-efficient appliances or the lack of clean fuels.¹¹⁸⁶ Additionally, the absence of basic energy infrastructure such as grid/off-grid and mini-grid electricity connection is considered more appropriate in describing energy poverty in the global south.¹¹⁸⁷ Where access to energy is low or inexistent, poverty is bound to thrive.¹¹⁸⁸ For instance, only about 50% of the population in Sub-Saharan Africa have access to energy services and only 25% have access to clean cooking fuels.¹¹⁸⁹ Hence, economic growth in the region is equally low.¹¹⁹⁰ According to the World Bank, about 40% of the population in Sub-Saharan Africa lives below the poverty line.¹¹⁹¹

¹¹⁸¹ See Sarah Marie Hall, Sarah Hards and Harriet Bulkeley, 'New Approaches to Energy: Equity, Justice and Vulnerability' (2013) 18 *Local Environment* 413, 415;

¹¹⁸² See text to n 1141; see also Pachauri et al (n 1141).

¹¹⁸³ Kumar (n 428) 5

¹¹⁸⁴ See SDG (n 93)

¹¹⁸⁵ Inigo del Guayo, 'Energy Poverty and Energy Access: A Legal Analysis' in Inigo del Guayo et al (eds.), *Energy Justice and Energy Law* (OUP 2020) 31

¹¹⁸⁶ *Ibid* 32

¹¹⁸⁷ *ibid*

¹¹⁸⁸ Ali I Naibbi and Richard G Healey, 'Access to Cooking Fuel Energy in Nigeria: The Early Impact of Subsidy Removal' in Julia Tomei and Danielle Gent, *Equity and the Energy Trilemma: Delivering Sustainable Energy Access in Low-Income Communities* (IIED 2015) 47

¹¹⁸⁹ Jan Corfee-Morlot, Paul Parks, James Ogunleye and Famous Ayeni, 'Achieving Clean Energy Access in sub-Saharan Africa' available at: <https://www.oecd.org/environment/cc/climate-futures/Achieving-clean-energy-access-Sub-Saharan-Africa.pdf> accessed 07/09/2021

¹¹⁹⁰ *ibid*

¹¹⁹¹ Marta Schoch and Christoph Lakner, 'The Number of Poor People Continues to Rise in Sub-Saharan Africa, Despite a Slow Decline in the Poverty Rate' available at: <https://blogs.worldbank.org/opendata/number-poor-people-continues-rise-sub-saharan-africa-despite-slow-decline-poverty-rate> accessed 07/09/2021

Given that Nigeria is situated within the Sub-Saharan African region, the problem of lack of energy access is commonplace. With over 60% of the population without access to electricity and 80% without clean cooking fuels, lack of energy access remains a major challenge to balancing the energy trilemma in Nigeria.¹¹⁹² Furthermore, available electricity services come at a huge cost as the population with electricity access still struggle with tariff problems including estimated billing and the high cost of electricity bills, even when the service supplied is not commensurate.¹¹⁹³ This places the consumers at the mercy of utility companies.

Sustainable energy services depend on the availability of efficient infrastructure such as distribution and transmission networks operated largely by private utility companies. Whilst renewable energy investments are required to optimise availability of energy resources, it is important to ensure that these companies are effectively regulated by law and statutory institutions.¹¹⁹⁴ In developing law and policy for energy development, the Federal Government must prioritise the interests of consumers by ensuring that energy access is available and affordable to all especially low-income households. Given that energy tariffs need to be cost reflective, this may hinder the ability of low-income households and rural dwellers to pay for energy services. Hence, the Federal Government needs to restructure the Power Consumer Assistance Fund¹¹⁹⁵ to effectively capture underprivileged consumers and show transparency in the administration of the funds.

To adequately address the lack of rural access to energy services, the government should establish a robust RES planning and consenting regime that provides incentives to accelerate the development of off-grid renewable electricity projects.¹¹⁹⁶ At the design and planning stages of RES projects, the grant of consents should be predicated on the accessibility and affordability of such projects to end users. Consumer welfare should be at the heart of the planning and consenting regime. The government needs to ensure that in the development of RES infrastructure, investors' need to recoup their investment is not done at the expense of vulnerable groups in society. In the likely event that some consumers are unable to pay for

¹¹⁹² See section 4.9.

¹¹⁹³ See Nwani et al (n 634).

¹¹⁹⁴ Del Guayo (n 1185) 35

¹¹⁹⁵ Electricity Act 2023, S 122

¹¹⁹⁶ Raphael Heffron et al, 'The Identification and Impact of Justice Risks to Commercial Risks in the Energy Sector: Post COVID-19 and for the Energy Transition (2021) *Journal of Energy & Natural Resources Law*, DOI: 10.1080/02646811.2021.1874148, 8

energy services, limited subsidies may be introduced.¹¹⁹⁷ Additionally, given that energy access problems are prevalent in rural communities, incentives such as tax holidays, pioneer status, and low-interest credit for RES investments in underserved areas should be guaranteed by statute to boost investor confidence, and monitored by a strong regulator.¹¹⁹⁸

Promoting accessible and affordable energy requires a well-equipped regulatory institution. A bespoke regulator is needed to ensure that RES investors benefiting from statutory incentives are equally fulfilling stipulated standards and conditions. When faced with issues of lack of access or poor quality of energy access, consumers should be able to approach the regulator. The regulator must be able to balance the interest of consumers and operators.¹¹⁹⁹ Ultimately, the regulator must ensure that availability and access to energy services are affordable and within acceptable environmental safety parameters.

5.6.3 Environmental Protection

The goal of sustainable energy development is the deployment of energy infrastructure with minimal impact on habitats and species.¹²⁰⁰ The utilisation of low/ zero carbon energy sources has been identified in this research as being essential to emission reduction and environmental preservation. Moreover, human development and biodiversity conservation has been linked to environmental sustainability given the interrelationship between species and their ecosystems.¹²⁰¹ However, achieving environmental sustainability requires deliberate actions including the introduction of legal instruments to encourage and/ or mandate the development of low/zero carbon energy resources, energy efficiency, and biodiversity conservation.

Through the introduction of fiscal incentives and other support schemes, a planning and consenting regime for RES development can encourage the development of low/ zero carbon energy. The provision of import duty waivers, low-interest grants, and tax rebates for RES projects can lead to an increase in RES investments. Energy investors seeking to benefit from such schemes can increase the share of renewables in their energy production. Such an increase in RES production will lead to emission reduction. Furthermore, granting pioneer status to RES

¹¹⁹⁷ To avoid instances of abuse and corruption, the parameters to determine beneficiaries of such subsidies must be strictly scrutinised and periodically reviewed.

¹¹⁹⁸ See section 4.9.3 for discussion on the need for support schemes.

¹¹⁹⁹ Boute (n 301) 125

¹²⁰⁰ Chew Tin Lee et al, 'Sustaining the Low-Carbon Emission Development in Asia and Beyond: Sustainable Energy, Water, Transportation and Low-Carbon Emission Technology' (2017) 146 *Journal of Cleaner Production* 1

¹²⁰¹ UNEP (n 65)

companies can actively encourage the growth of the industry as other companies seek to diversify to renewables to benefit from such programmes. To consolidate such schemes, the government can introduce renewable portfolio standards (RPS) for electricity generators as well as captive generation permit holders.¹²⁰² Although EA 2023 now contains provisions to enable the introduction of renewable purchase obligation (a type of RPS), its introduction is at the discretion of NERC.¹²⁰³ Nevertheless, due to institutional weakness and corruption in Nigeria, the enforcement of RPS may be difficult. Additionally, given the current state of electricity supply in Nigeria where the government's policy priority lies in achieving universal access, the workability of RPS is still far-off. RPS can also be supported by efficient consumption to attain environmental sustainability.

Energy efficiency occupies an important role in Nigeria's energy policy direction as evinced in Nigeria's NDC to the Paris Agreement and NREEEP.¹²⁰⁴ The Nigerian government has identified energy efficiency and conservation as being essential to promoting increased energy access and environmental protection.¹²⁰⁵ Efficient consumption is a cost effective strategy which can enhance the economy without increasing energy production.¹²⁰⁶ Moreover, it can accelerate the growth of new commercial opportunities for the production of energy-efficient products such as energy saving light bulbs, refrigerators, and solar cooking stoves; and this leads to reduced emissions from energy production.¹²⁰⁷ NREEEP proposed the introduction of an energy efficiency policy to guide the development of sustainable energy infrastructure in Nigeria.¹²⁰⁸ Given the experience of the low impact of policies in Nigeria, it is contended in this thesis that an energy efficiency policy can be embedded in a RES planning and consenting regime. Planning and consents for RES projects can be premised on the availability of energy efficiency in the construction and operation of proposed RES plants. However, achieving energy efficiency requires the installation of expensive efficient products (mostly imported). In a country with about 43% of the population below the poverty line, energy efficiency is a luxury that cannot be afforded by most. Hence, it is necessary to increase domestic production of energy-efficient products while the government can provide some grants and/ or subsidies

¹²⁰² See section 4.8.3, Chapter 4

¹²⁰³ Electricity Act 2023, S 167

¹²⁰⁴ See FGN, 'Nigeria's Intended Nationally Determined Contribution' (n 1114). See also Ministry of Power, NREEEP (n 757)

¹²⁰⁵ *ibid* 26

¹²⁰⁶ *ibid*

¹²⁰⁷ *ibid*

¹²⁰⁸ Ministry of Power, NREEEP (n 757) viii.

for the acquisition of energy-efficient appliances for households and businesses. The utilisation of efficient appliances will minimise the threat posed by inefficient consumption on biodiversity whilst promoting restorative justice.

The overarching aim of a RES planning and consenting regime is to address environmental degradation by encouraging the development of sustainable energy. Sustainable energy development also entails the preservation of all species.¹²⁰⁹ A RES planning and consenting regime can therefore ensure that in the siting of RES projects, native species and other biodiversity habitats are not displaced. This will require the conduct of a comprehensive impact assessment for each project. In the event of a possible displacement, the regime can provide for the resettlement of endangered species (where possible) and the restoration of depleted forest resources (in the case of biomass production) as well as opportunities for environmental enhancement in line with the principles of restorative justice.¹²¹⁰ It has been argued earlier in this thesis that the exploitation of biomass for electricity production may lead to emissions reduction.¹²¹¹ However, the utilisation of plant stalks (including wood pellets) to power biomass plants may cause problems of deforestation and loss of habitats. For example, the felling of trees in North Carolina, US for wood pellets production to generate power in Europe has led to deforestation, loss of habitats, dust, and noise pollution for residents.¹²¹² Also, the cultivation of biofuel crops may pose significant threats to biodiversity and loss of species.¹²¹³ Addressing these challenges will require the establishment of a RES planning and consenting regime and a strong regulatory institution to coordinate other government ministries and departments.¹²¹⁴

To improve environmental sustainability in energy development in Nigeria and to balance the energy trilemma, achieve energy justice and a just transition, there is a need for institutional co-operation among RES regulators, electricity regulators, environmental agencies, and local councils, as well as the active participation of host communities, indigenous groups, and other stakeholders.

¹²⁰⁹ Jeffrey E Lovich and Joshua R Ennen, 'Wildlife Conservation and Solar Energy Development in the Desert Southwest, United States' (2011) 61 *BioScience* 982

¹²¹⁰ Hazrati and Heffron (n 470)

¹²¹¹ See Tasie (n 674).

¹²¹² Majlie de Puy Kamp, 'How Marginalized Communities in the South are Paying the Price for 'Green Energy' in Europe' available at <https://edition.cnn.com/interactive/2021/07/us/american-south-biomass-energy-invs/> accessed 9 July 2021

¹²¹³ APERC (n 53)

¹²¹⁴ Ministry of Power, NREEEP (n 757) viii

5.7 Necessity for Developing a Legal and Institutional Framework for Renewable Energy Planning and Consenting that Addresses Energy Justice and Just Transition Concerns in Nigeria

The exploitation of energy resources in Nigeria have been marred by complaints of energy injustice, host community neglect, environmental pollution, bloody armed conflicts, non-payment of adequate compensation and a total lack of public engagement.¹²¹⁵ Since the discovery of oil and gas in Nigeria, successive legal frameworks for petroleum regulation and political administrations have steered the petroleum industry in a direction that perpetrates injustice mainly against host communities. Section 1 of the Petroleum Industry Act 2021¹²¹⁶ and the Nigerian Constitution¹²¹⁷ vests all mineral resources including oil and gas in the Federal Government. Although the Petroleum Industry Act provides for the payment of compensation to anyone who has an interest over the land, which is subject of a licence granted under the Act,¹²¹⁸ the adequacy of the compensation paid has been a thorny issue. Furthermore, the petroleum laws do not adequately address energy justice issues such as public engagement, prior informed consent (social licence), benefit-sharing, displacements, comprehensive environmental, socio-cultural, and economic impacts of oil and gas exploitation on host communities. This section will underscore the need to address these injustices in the development of RES infrastructure through a RES planning and consenting regime.¹²¹⁹

Procedural justice demands public participation in the development of a RES regime.¹²²⁰ In the local level, it requires the involvement of host communities and other stakeholders before the commencement of RES projects. To ensure procedural justice, the RES regime must ensure that the complaints of members of the public over the project are welcomed and acted upon, where necessary. Public engagement builds mutual trust between the community and the company.¹²²¹ By involving stakeholders such as traditional rulers, youth and women groups, religious leaders, and trade unions in the decision-making, RES projects gain legitimacy as it

¹²¹⁵ Kalio (n 1041)

¹²¹⁶ The PIA replaced the Petroleum Act 1969 Cap P10 Laws of the Federation of Nigeria 2004

¹²¹⁷ Item 39, Second Schedule – Exclusive Legislative List, Constitution of the Federal Republic of Nigeria, 1999 (as amended). The exclusive legislative list contains items within the exclusive powers of the National Assembly.

¹²¹⁸ See Petroleum Industry Act 2021, s 101 (1) (c) (iii)

¹²¹⁹ McHarg (n 335) 19

¹²²⁰ See section 3.4.2 Chapter 3 of this thesis.

¹²²¹ Johannes Flacke and Cheryl de Boer, ‘An Interactive Planning Support Tool for Addressing Social Acceptance of Renewable Energy Projects in The Netherlands’ (2017) 6 Internal Journal of Geo-Information 313

creates a sense of belonging. However, public participation may be slow and time-consuming as it involves several townhall meetings, community consultations and even internal communal argument. Nonetheless, where successfully navigated and conducted transparently, the benefit of such engagement usually endures all through the lifespan of the project as it makes the process of obtaining consent efficient.

Where the people are engaged in the discussion over a RES project prior to its commencement, there is a general willingness to trade their land for the execution of such projects. Additionally, it minimises the incidence of not in my backyard (NIMBY).¹²²² Applying for and obtaining prior informed consent (social licence) before the project commences and after stakeholder engagement ensures that issues of possible resettlement due to the project are properly discussed, alternative plans explored, and necessary customary sites are relocated in time.¹²²³ Whilst these issues can best be captured in a legal framework for RES planning and consenting, they also lay the foundation for distributive justice in RES development.

In the development of a RES regime, it is important that wherever RES infrastructure is sited, the inhabitants are not allowed to suffer disproportionately from the impacts of such projects. For instance, in planning and designing hydropower plants, the operation of such projects may inevitably come at a huge cost to indigenous fishermen and other water-related trade and commerce. Hence, in the development of a legal regime, the law must prioritise the mitigation of such impacts on the inhabitants in accordance with distributional justice.¹²²⁴ Given that the public interest in renewable electricity may outweigh the interest of a few individuals who depend on the water source for their livelihood, provision of alternative jobs or possible employment within the project may help in the mitigation.¹²²⁵ However, employment in the RES sector for members of host communities may lead to a decline in agriculture and other traditional jobs, as more people would prefer the job security and better pay of the new opportunities. Yet this can forestall conflicts between aggrieved communities and RES companies.

¹²²² *ibid*

¹²²³ In the development of infrastructure, sometimes local shrines and deities may have to be relocated to make way for development. Relocating such shrines and deities in accordance with cultural practices demonstrates recognition justice in energy development. See also section 3.4.3.

¹²²⁴ Heffron and McCauley, 'The Concept of Energy Justice Across the Disciplines' (n 71)

¹²²⁵ McHarg (n 335) 18

Most communities in the Niger Delta have been left impoverished due to lack of reskilling plans for those adversely affected by oil and gas exploitation.¹²²⁶ For example, crude oil was first discovered in commercial quantity in the town of Oloibiri in present-day Bayelsa state in southern Nigeria. However, since crude oil was drained from the land, the town has been neglected and is now a shadow of its former self. Poverty, dilapidated oil infrastructure and pollution are what is left of ‘Well No. 1’.¹²²⁷ This has been possible because of a lack of any comprehensive decommissioning plan. Hence, it is important that from the planning stage of RES projects, restorative justice principles are followed in ensuring that decommissioning and ecosystem restoration plans accompany the planning application under the RES regime.

Furthermore, in the distribution of energy produced by RES plants, host communities should be given favourable consideration. From the outset, the communities and RES investor must negotiate how the project will benefit the community. Benefit-sharing must form part of the discussion as it allows all parties to make their demands and come to a possible written agreement. Such a clear stipulation ensures that the investor is not in doubt as to what to expect and precludes host communities from making unnecessary demands. Whilst for example, the company can set out its corporate social responsibility, it can also obtain a warranty from the community that its RES infrastructure will be protected from sabotage. A robust benefit-sharing scheme requires the guidance of an independent regulator who may serve as a custodian of these pledges with the power to effect compliance from both parties. The existing practice by IOCs in Nigeria to enter Memorandum of Understanding (MoU) with host communities containing their corporate social responsibilities (CSRs), portends enforcement challenges as they are selectively implemented or ignored.¹²²⁸ Thus, the rights and obligations of all parties should be contained in a RES statute to make it enforceable.¹²²⁹ Other benefits could include ensuring that renewable electricity produced is accessible to the community. Granting energy access to host communities from RES projects in their domain promotes distributive justice;

¹²²⁶ Uwafiokun Idemudia and Uwem E Ite, ‘Demystifying the Niger Delta Conflict: Towards an Integrated Explanation’ (2006) 33 *Review of African Political Economy* 391, 401

¹²²⁷ Well No 1 is a metonym for the first oil well that produced crude oil in Oloibiri, Bayelsa State, Nigeria. Although crude oil has dried up, it has been left as a relic. See Macleans A. Geo-JaJa and Steve Azaiki, ‘Poverty and Inequality in the Niger Delta: Is National Economic Empowerment and Development Strategy the Answer?’ (2007) 36 *Canadian and International Education* 75; see also B I Ugwuanyi, I Obaje, C S Ohaeri, C E Ugwu and C A Ohagwu, ‘Militancy in the Niger Delta Region of Nigeria: A Reflective Discourse on the Cause, Amnesty and Imperatives’ (2014) 3 *Review of Public Administration and Management* 76

¹²²⁸ See Osamuyimen Egbon, Uwafiokun Idemudia and Kenneth Amaeshi, ‘Shell Nigeria’s Global Memorandum of Understanding and Corporate-Community Accountability Relations: A Critical Appraisal’ (2018) 31 *AAAJ* 51, 67

¹²²⁹ Memorandum of Understanding (MoU) has been employed by international oil companies (IOCs) in Nigeria to capture obligations between oil companies and host communities. *ibid*

and a comprehensive decommissioning plan addresses restorative justice.¹²³⁰ These impacts of RES development cannot be adequately addressed unless they are properly recognised in law.

The impacts of RES development have been discussed earlier in this thesis.¹²³¹ However, these impacts must be recognised and mitigated where possible. Recognising them requires comprehensive environmental, socio-cultural, and economic impact assessments to be conducted for each RES project.¹²³² Beyond creating a platform for public participation, the concerns and opinions of various groups must be attended to. Recognition justice requires that historical landmarks such as ancestral graveyards, objects of cultural significance such as traditional totems and shrines; and cultural practices such as fishing festivals must be considered before planning is granted.¹²³³ Where a project encroaches upon ancestral lands, historical sites, or wild land for instance, approving authorities must ensure that the project is either diverted or refused planning permission.¹²³⁴

Cultural heritage must not be sacrificed on the altar of development. A RES planning and consenting regime must be designed to protect indigenous groups and their common heritage as well as biodiversity and native species. For instance, in Scotland, the Lowther Hills wind farm project was denied planning approval by the Scottish Ministers because of its adverse effect on the historic scenery of Wanlockhead.¹²³⁵ Also, two solar farms were rejected because of the ‘impact of development in a green belt location’.¹²³⁶ In Wales, a 250,000 solar panel project was rejected because of its impact on the historic Gwent levels.¹²³⁷ The Australian government rejected plans for a wind, solar and hydrogen project because of its impact on ‘internationally recognised wetlands and migratory bird species’.¹²³⁸ This underscores the importance that recognition justice must play in the development of a RES planning and

¹²³⁰ See section 3.4 of this thesis on energy justice.

¹²³¹ See section 1.12 of this thesis.

¹²³² Flacke and de Boer (n 1221)

¹²³³ See Fraser (n 461)

¹²³⁴ Simon Marsden, ‘Protecting Wild Land from Wind Farms in a Post-EU Scotland’ (2018) 18 Int Environ Agreements 295, 310

¹²³⁵ BBC News, ‘Lowther Hills Wind Farm Project Rejected by Government’ available at: <https://www.bbc.co.uk/news/uk-scotland-south-scotland-55617221> accessed 14 September 2021

¹²³⁶ Martha Harris, ‘Appeal: Two Solar Farms Refused for Lochwinnoch’ available at: <https://www.theplanner.co.uk/decision/appeal-two-solar-farms-refused-for-lochwinnoch> accessed 14 September 2021

¹²³⁷ Sion Barry, ‘Welsh Government Refuse Plans for Huge Solar Farm at the Gwent Levels’ available at: <https://www.business-live.co.uk/economic-development/welsh-government-refuse-plans-huge-21570279> accessed 14 September 2021

¹²³⁸ Sonali Paul, ‘Australia rejects \$36 Billion Wind, Solar, Hydrogen Project’ available at <https://www.reuters.com/business/sustainable-business/australia-rejects-36-bln-wind-solar-hydrogen-project-2021-06-21/> accessed: 14 September 2021

consenting regime. Having explored avenues for mitigation and statutorily required public consultations, these countries were able to refuse the RES projects despite their huge benefits because the preservation of historical locations was considered priceless. Additionally, these refusals were done out of an abundance of data to support the adverse impacts of the RES projects.

The variations in RES technology suggest that the impacts of RES projects depend on their type. While data for the impacts of some RES sources such as solar and wind may be available, the impacts of marine renewable sources may be scant.¹²³⁹ To avoid precautionary denial of RES planning consents based on limited or inexistent data, it is exigent for the regulator to be well-equipped with current data either by having a research department or by collaborating with relevant institutions and laboratories.¹²⁴⁰ Apart from being a repository of all information for investors, there is a need for the regulator to equally possess technical knowledge of the impacts of different RES sources as well as capability to vet RES impact assessment reports. Importantly, a RES planning and consenting regime can set out the pathway for energy transition.

As observed earlier in this thesis, the Nigerian economy is heavily reliant on oil and gas. The petroleum sector is the major foreign exchange earner, caters largely for the country's energy needs, and provides both direct and indirect employment for its populace.¹²⁴¹ Similarly, based on the principle of derivation, 13% of oil and gas revenue accrues to oil-producing communities.¹²⁴² Also, the Petroleum Industry Act 2021 mandates oil and gas operators to annually contribute 3% of their operating expenditure to the host community development trust fund.¹²⁴³ In addition to the aforementioned benefits, different IOCs have their CSR commitments to host communities including scholarship grants, construction of schools, primary health centres, roads, and pipe borne water.¹²⁴⁴ In light of all these benefits, the transition to low/zero carbons will be decidedly slow. Hence, a just transition needed.¹²⁴⁵

¹²³⁹ Ocean Energy Systems, 'The State of Knowledge for Environmental Effects: Driving Consenting/Permitting for the Marine Renewable Energy Industry' available at: <https://www.wavec.org/contents/reports/position-paper-environmental-effects.pdf> 15 September 2021

¹²⁴⁰ *ibid*

¹²⁴¹ Ohimain (n 256)

¹²⁴² Constitution of the Federal Republic of Nigeria 1999 (as amended), S 162 (2)

¹²⁴³ Petroleum Industry Act 2021, S 240 (2)

¹²⁴⁴ See Shell, 'Global Memorandum of Understanding (GMOU)' available at: <https://www.shell.com.ng/sustainability/communities/gmou.html> accessed 15 September 2021

¹²⁴⁵ Just transition has been discussed extensively in chapter 2.

Given the finiteness of fossil fuels, energy transition is both urgent and inevitable.¹²⁴⁶ Furthermore, the global decarbonisation agenda to mitigate the impacts of climate change means in the not-too-distant future, Nigeria's oil and gas buyers will abandon the country for other sustainable alternatives.¹²⁴⁷ However, the manner of handling the transition will either promote justice or injustice as in the case of the closure of coal mining in the UK. Some of the impacts on local communities identified after the closure of coal mines include job losses, massive migration, disruption of social structure (including social interaction among coal workers and families), mental health decline and adverse decline in the housing market.¹²⁴⁸ The impact of the transition from coal significantly affected women as high numbers of female employment in the manufacturing and service sectors were lost to former coal male workers.¹²⁴⁹

The energy transition cannot be achieved overnight; hence there is a need for the establishment of a transition programme by the Federal Government in collaboration with operators, workers union, community leaders and civil liberty organisations.¹²⁵⁰ It is the argument of this thesis that to achieve a just energy transition, there is a need for the Federal Government to set short-term and long-term measurable targets codified in legislation. The energy transition cannot become mainstream unless there is an acknowledgement by the Federal Government of the need to transition. This acknowledgement can take the form of an executive proclamation followed by media campaigns, public engagement/ consultation and ultimately an energy transition legislation. The energy transition legislation can embody the Federal Government's short-and long-term plans for energy transition.

In August 2022, the Nigerian Vice President launched the Nigerian Energy Transition Plan.¹²⁵¹ The Plan seeks to alleviate poverty through economic growth, facilitate universal access to

¹²⁴⁶ Sanni et al (n 95)

¹²⁴⁷ The US has ramped up its shale gas development while the UK and EU countries have increased their emphasis on developing low/ zero carbon energy sources. See also Bill Lehan, 'Nigeria Struggles to Find Buyers for October Oil Exports' available at: <https://www.worldoil.com/news/2021/9/9/nigeria-struggles-to-find-buyers-for-october-oil-exports> accessed 07 October 2021

¹²⁴⁸ Claudia Strambo, May Thazin Aung and Aaron Atteridge, Navigating Coal Mining Closure and Societal Change: Learning from Past Cases of Mining Decline (SEI working paper, July 2019) 7

¹²⁴⁹ Fernando M Aragon, Juan Pablo Rud and Gerhard Toews, 'Mining Closure, Gender and Employment Reallocations: The Case of UK Coal Mines' (October 2015) available at: <https://www.yorku.ca/laps/econ/wp-content/uploads/sites/205/2020/10/minesUK.pdf> accessed 15 September 2021

¹²⁵⁰ Mine, 'Social Transition and why it Matters in Coal Mine Closure' available at: https://mine.nridigital.com/mine_jan20/social_transition_and_why_it_matters_in_coal_mine_closure accessed 15 September 2021

¹²⁵¹ Guardian Newspaper, 'Osinbajo Launches FG's Energy Transition Plan as Nigeria Seeks \$10b Initial Package' available at: <https://guardian.ng/news/osinbajo-launches-fgs-energy-transition-plan-as-nigeria-seeks-10b-initial-package/> accessed 30 December 2022

energy services, manage job losses in the oil and gas sector, and promote equitable transition through the utilisation of natural gas as a transitional fuel.¹²⁵² A major aspect of the Plan focuses on raising \$1.9 Trillion to finance carbon neutrality (net zero) by 2060.¹²⁵³ However, the plan is silent on how these funds will be allocated to support the transition. Without specific upskilling and retraining programmes for workers and restoration programmes for host communities, the Plan is susceptible to corruption and possible failure. Moreover, the Plan does not adequately cater for the impact of the transition on communities and indigenous peoples. It is argued that given that the Plan is not hinged on any substantive legislation, its implementation will be like other failed policies discussed earlier.¹²⁵⁴

Measures that should be introduced include a phased closure of fossil fuel-producing stations. This gives the population, workers, and communities adequate time to prepare for the closure. It also affords them the opportunity of retraining, upskilling, upscaling, and diversifying into other sectors. The government can set up new skill acquisition centres to train former fossil fuel workers in some skills required in the RES industry. Also, grants can be made for some local population who may be interested in investing in small-scale RES projects.¹²⁵⁵ To benefit fossil fuel host communities, time-bound endowment funds may be created by statute to assist host communities adapt to the transition. These funds can go towards providing scholarships, business grants, and infrastructure development for these former host communities as well as addressing environmental impacts from decades of fossil fuel exploitation.

Given the huge environmental impacts of fossil fuel production on communities, just transition demands that in the decommissioning of former fossil fuel plants, extensive environmental remediation is carried out.¹²⁵⁶ Polluted farmlands and water sources need to be cleaned up and decontaminated. While issues of executive and judicial sanctioned land grabbing,¹²⁵⁷ desecration of sacred lands, fossil fuel-related bloodletting, and irreversible destruction of

¹²⁵² Nigerian Energy Transition Plan (n 49)

¹²⁵³ *ibid*

¹²⁵⁴ Unsuccessful policies to encourage RES integration and energy efficiency are discussed in section 4.4.

¹²⁵⁵ Public participation will be discussed further in subsequent sections of this chapter.

¹²⁵⁶ Savaresi (n 1038) 80

¹²⁵⁷ Some host communities have lost cases against IOCs due to judgements delivered based on technical grounds. See *Shell Petroleum Development Company (Nigeria) Ltd v. Abel Isaiah* (2001) 5 S.C. (Pt. 11) 1, where the issue of the trial court's jurisdiction was only raised at the Supreme Court and a ground for granting the appeal. See also *Mobil Producing (Nig) Unlimited v. LASEPA, FEPA & Ors* (2002) 18 NWLR (pt. 798) 1; (2003) FWLR (pt. 137) 1029; See S Fagbemi & A Akpanke, 'Environmental Litigation in Nigeria: The Role of the Judiciary' (2019) 10 NAUJILJ 26; see also Daniels Igoni, 'Bayelsa Landowners Accuse SPDC of land Grabbing' available at: <https://punchng.com/bayelsa-landowners-accuse-spdc-of-land-grabbing/> accessed 11 November 2021

habitats may not be remediable, genuine commitment to a just transition may help minimise oppositions.

No matter how beneficial, change always faces opposition. For instance, the removal of partial subsidy by the Federal Government of Nigeria in 2012 was met with pushbacks from labour unions, civil liberty organisations, youth and women groups as being anti-people.¹²⁵⁸ The transition from fossil fuels to low/zero carbon will face resistance. Public opposition should be expected from host communities, fossil fuel workers, labour unions, fossil fuel operators, and beneficiaries (who have the wherewithal to sponsor resistance). Other expected objections towards energy transition may include sabotage of RES facilities, nationwide protests, picketing of government and corporate offices as well as armed insurrection. The responses from law enforcement agencies may give rise to human rights violations.¹²⁵⁹ However, creating a just transition framework backed up by legislation will provide a solid basis to defend any legal challenge to energy transition before any judicial forum and it will establish a basis for private sector participation in the development of renewable energy.

5.8 Tackling Energy Access Problems through Private Sector Participation

RES integration is a capital-intensive endeavour as it requires the installation of advanced technologies.¹²⁶⁰ The equipment for RES technologies is often produced abroad and thereafter shipped to the RES project locations. Given the capital-intensive nature of RES technologies, integrating renewables into the energy mix cannot be achieved solely through government investment. It is therefore imperative for the private sector to participate in its deployment. It has been argued earlier in this thesis that to enhance private sector involvement in RES integration, the Government must create the enabling environment including through a RES planning and consenting regime, support schemes and incentives, tax rebates, low-interest credit for small-scale RES projects, the provision of grants for small start-ups, among others.¹²⁶¹ Where the market is conducive for RES investments, the private sector can participate in RES development through Public Private Partnerships (PPPs), crowd-funded RES projects and community energy.

¹²⁵⁸ BBC News, 'Nigerian Fuel Subsidy: Strike Suspended' available at: <https://www.bbc.co.uk/news/world-africa-16579001> accessed 06 October 2021

¹²⁵⁹ *ibid*

¹²⁶⁰ Damilola S. Olawuyi, 'Energy Poverty in the MENA Region' in Inigo del Guayo et al, *Energy Justice and Energy Law* (OUP 2020) 264; see also Ciarreta et al (n 1100)

¹²⁶¹ See section 4.9 chapter 4.

Agreements between the government and private sector for energy development are not unpopular.¹²⁶² For instance, in the development of petroleum resources, the Federal Government of Nigeria through the Nigerian National Petroleum Corporation has entered into joint-venture agreements with IOCs for the development of oil and gas in Nigeria.¹²⁶³ The Infrastructure Concession Regulatory Commission (ICRC)¹²⁶⁴ oversees the creation and operation of public-private partnership agreements between the Federal Government, its ministries, departments or agencies, and the private sector. The ICRC Act empowers the government to enter into agreements with private establishments for the financing, construction, operation, or maintenance of infrastructure.¹²⁶⁵

Given the technical abilities of private businesses, and their willingness to provide funding and management, the creation of PPPs for the development of RES is hugely beneficial to the government.¹²⁶⁶ It reduces the financial burden associated with RES project development; it allows the private sector to provide energy access to unserved communities, and it dispenses with the bureaucracy and institutional decline prevalent in the civil service.¹²⁶⁷ Additionally, a private sector-driven RES integration can allow the government to focus its attention on other sectors of the economy whilst still providing regulatory oversight for RES development.¹²⁶⁸ Although the ICRC Act is the overarching legislation for PPPs, its provisions are broadly generic for all types of infrastructure.¹²⁶⁹ However, a RES planning and consenting regime can provide essential elements that a PPP agreement for the development of RES infrastructure should contain. It can further provide statutory warranties for investors to remedy losses suffered due to breach of the agreement by the Government, besides contract law remedies.

Despite the benefits of PPPs, in Nigeria, PPPs have been beset with several challenges including corruption and lack of due process in the bidding process, poor planning and coordination, allocation of contracts to political cronies, non-involvement of stakeholders

¹²⁶² Resolution Law Firm (n 796)

¹²⁶³ *ibid*

¹²⁶⁴ The Infrastructure Concession Regulatory Commission (establishment, etc) Act 2005 (ICRC Act 2005)

¹²⁶⁵ *ibid*, S 1

¹²⁶⁶ Olawuyi (n 1260) 265

¹²⁶⁷ John C Anyanwu, 'Public-Private Partnerships in the Nigerian Energy Sector: Banks' Roles and Lessons of Experience' in James B. Tobin and Lawrence R. Parker (eds), *Joint Ventures, Mergers and Acquisitions, and Capital Flow* (2009, Nova Science Publishers Inc.) 17

¹²⁶⁸ Ivan M. Potravnyi et al, 'The Usage of Renewable Energy Sources in the Arctic: The Role of Public-Private Partnership' (2020) 13 *Economic and Social Changes: Facts, Trends, Forecast* 144, 146; see also Zeeshan Khan, Muhsin Ali, Dervis Kirikkaleli, Salman Wahab, Zhilun Jiao, 'The Impact of Technological Innovation and Public-Private Partnership Investment on Sustainable Environment in China: Consumption-Based Carbon Emissions Analysis' (2020) 28 *Sustainable Development* 1317–1330. <https://doi.org/10.1002/SD.2086>

¹²⁶⁹ ICRC Act 2005, Part 1

(trade unions and host communities), inappropriate risk and benefit allocation, and failure on the part of the government to fulfil their obligations.¹²⁷⁰ Given the Nigerian Government's proclivity to breach PPPs in the past,¹²⁷¹ a RES planning and consenting regime can ensure that necessary safeguards in the form of financial institution (including international development banks) backed indemnities to protect investors' interests are embedded in PPPs. Such safeguards will encourage investors to partner with the government in developing RES infrastructure and this will promote distributional justice, energy security and access for underserved communities. It can further spur interest in community energy.

Community energy entails a situation where members of a community own RES infrastructure either solely or partly.¹²⁷² Community energy gives members of the society an opportunity of having a direct stake in energy infrastructure development affecting their wellbeing.¹²⁷³ They are usually developed to meet economic, environmental, or social needs of local communities or shareholders rather than for profit.¹²⁷⁴ The ability of communities to influence energy development will depend on whether such projects were developed by the communities, or whether members of the community were invited to purchase shares in a project by an independent developer. Where the project is initiated by the community, shareholding can be restricted to prevent usurpation by external investors.¹²⁷⁵ The protection of the local area will remain the priority whilst the project can be harnessed to meet local energy demands.

The electricity needs of rural communities in Nigeria, for instance, may include powering light bulbs, electric fans, irrigation, operating pipe-borne water, charging of mobile devices, domestic gadgets, and for small businesses.¹²⁷⁶ Given the low consumption patterns of rural dwellers, the development of small-scale RES projects can be achieved through crowdfunding. Additionally, businesses in a local market can contribute to developing solar photovoltaic technology to power their shops. With the aid of traditional financial instruments such as *Esusu/ Adashe/ Ajo*, thrift societies, and weekly/ monthly contributions by co-operative societies,

¹²⁷⁰ Sunday Bontur Lugard, 'Risks and Challenges in Public-Private Partnership Projects in Nigeria: A Case Study of the Concession of Murtala Mohammed Airport 2 Terminal (Lagos) to BiCourtney Nigeria Ltd' (2019) 6 KAS African Law Study Library 563, 564

¹²⁷¹ Ibid 571; See also *Bi-Courtney Aviation Services Ltd. v. Attorney General of the Federation & AMCON* (2012) 14 NWLR (PT. 1321) 457 at 484.

¹²⁷² Savaresi (n 1038) 67

¹²⁷³ See Directive (EU) 2019/944 of The European Parliament and of The Council of 5 June 2019 on common rules for the internal market for electricity and amending Directive 2012/27/EU (recast) (2019) OJ L158/125, para. 43 of the Preamble

¹²⁷⁴ *ibid*, Art. 2 (11)

¹²⁷⁵ Savaresi (n 1038) 73

¹²⁷⁶ Isihak et al (n 1147)

residents and members of a particular trade may pool funds together to finance small solar projects.¹²⁷⁷ Currently, the operation of such credit instruments is loosely regulated; the security of the funds is based on the personal integrity of the organiser(s) and member's personal knowledge of the organiser.¹²⁷⁸ This makes the schemes susceptible to fraud and abuse.

Moreover, the Rural Electrification Agency encourages rural dwellers to form Rural Electricity Users Cooperative Societies.¹²⁷⁹ The Agency provides mobilisation and training to facilitate community energy.¹²⁸⁰ However, to effectively exploit these local credit schemes for RES development, such schemes must be embedded in a RES planning and consenting regime. The regime can define its operational limits and guide the administration of the funds. The law can further define how members should benefit from the development of RES technology through the funds. It will also engender accountability for administrators of such crowdfunds.

The development of community RES projects gives members of the public a sense of ownership which increases the desire to protect 'their' assets. Importantly, where RES infrastructure is owned and/ or operated by members of the society and locally sited, it will promote energy justice as well as facilitate energy access for unserved, underserved, and vulnerable groups. It will further minimise local resistance to RES infrastructure development.¹²⁸¹

5.9 Ensuring an Inclusive Transition through Energy Democracy

The development of RES is beneficial for the improvement of energy security, access, and climate change mitigation. However, the construction of individual RES projects has faced several challenges in some European countries including the UK, Germany, and Denmark.¹²⁸²

¹²⁷⁷ Esusu also known as adashe or ajo is a local fund wherein members contribute a fixed amount at intervals, usually daily or weekly. Members take turns to receive the proceeds of the fund for each cycle. See William R. Bascom, 'The Esusu: A Credit Institution of the Yoruba' (1952) 82 *The Journal of the Royal Anthropological Institute of Great Britain and Ireland* 63; see also Osiki (n 886)

¹²⁷⁸ *ibid*

¹²⁷⁹ REA, 'Rural Electricity Users Cooperative Society' available at: <https://rea.gov.ng/rural-electricity-users-cooperative-society/> accessed 10 May 2021.

¹²⁸⁰ *ibid*

¹²⁸¹ Sara Bjørn Aaen, Søren Kerndrup and Ivar Lyhne, 'Beyond Public Acceptance of Energy Infrastructure: How Citizens Make Sense and Form Reactions by Enacting Networks of Entities in Infrastructure Development' (2016) 96 *Energy Policy* 576, 577

¹²⁸² Patrick Devine-Wright, 'Place Attachment and Public Acceptance of Renewable Energy: A Tidal Energy Case Study' (2011) 31 *Journal of Environmental Psychology* 336

One of such challenges is in residents' objections to the development of specific RES projects in their locality often referred to as 'not in my backyard (NIMBY)'.¹²⁸³

According to Aaen et al, local resistance to RES infrastructure stems from their perception of the project and its impact on their wellbeing.¹²⁸⁴ This perception is based on the information (or lack of it) garnered from personal understanding or provided by public authorities. They, therefore, argue that to prevent NIMBYism, it is important to see the project from the citizens' worldview.¹²⁸⁵ Liu et al contend that educating the public about RES technology and its benefits will improve local acceptance.¹²⁸⁶ Devine-Wright considers the concept of NIMBY as a degrading way of waving off mostly genuine reservations of residents to RES projects.¹²⁸⁷ According to him, understanding the 'place attachment' – emotional bond between people and their locality is imperative to conflict-free execution of developmental projects.¹²⁸⁸ Understanding and acknowledging the significance of a place to the people is the first step to obtaining acceptance for RES technology as it promotes recognition justice. Kortsch et al argue that the size of the RES project and its benefit to immediate communities influence public acceptance.¹²⁸⁹ The result of their study showed that decentralised RES projects with proximity to residents were more likely to be accepted than large plants benefitting big companies. Also, local participation in the planning and consenting process enhanced acceptance.¹²⁹⁰

This thesis has argued in the previous section that a transparent public engagement with stakeholders promotes energy justice as it accords the people the opportunity of having their grievances addressed before the commencement of the project; it also gives developers a means of understanding the emotional bond between the people and their place. This allows them to participate in the decision-making process as it affects them collectively.

¹²⁸³ Patrick Devine-Wright, 'Public Engagement with Renewable Energy: Introduction' in Patrick Devine-Wright, *Renewable Energy and the Public: From NIMBY to Participation* (Taylor & Francis 2010) xxiii

¹²⁸⁴ Sara Bjørn Aaen, Søren Kerndrup and Ivar Lyhne, 'Beyond Public Acceptance of Energy Infrastructure: How Citizens Make Sense and Form Reactions by Enacting Networks of Entities in Infrastructure Development' (2016) 96 *Energy Policy* 576, 577

¹²⁸⁵ *ibid*

¹²⁸⁶ Wenling Liu, Can Wang, and Arthur P.J. Mol, 'Rural Public Acceptance of Renewable Energy Deployment: The Case of Shandong in China' (2013) 102 *Applied Energy* 1187

¹²⁸⁷ Devine-Wright, 'Place Attachment and Public Acceptance of Renewable Energy: A Tidal Energy Case Study' (n 1282)

¹²⁸⁸ *ibid*

¹²⁸⁹ Timo Kortsch, Jan Hildebrand and Petra Schweizer-Ries 'Acceptance of Biomass Plants: Results of a Longitudinal Study in the Bioenergy-Region Altmark' (2015) 83 *Renewable Energy* 690, 691

¹²⁹⁰ *ibid*

Involving the public in energy and environmental decision-making fosters trust between the government and the people on the one hand and between the people and energy developers on the other.¹²⁹¹ It also allows the public to understand the project and its benefits to the locality. In accordance with procedural justice, public engagement in impact assessment analysis and decision-making for RES projects promotes its legitimacy and creates a sense of belonging among the population as it allows the public to influence decision-making, integrate communal values and the opportunity to be heard. This aligns with energy justice as participation in decision-making provides the opportunity for the community to raise their concerns and objections at the planning stage of the project, as well as gives all parties the opportunity to address all such concerns before the project is underway. However, community participation in decision-making can prolong the planning process as all concerns must be addressed thereby delaying the project. Furthermore, engaging the community in the planning process for RES projects exposes RES developers to diverse factions and intracommunal rivalries which may increase the cost of the planning process. Nonetheless, some emerging notions in the energy debate consider a more people-based approach to energy ownership – the so-called energy democracy.

Energy democracy as a concept contemplates the development of sustainable energy infrastructure that seeks to topple existing fossil fuel energy systems and its associated injustices and environmental degradation.¹²⁹² Local communities, public partnerships, and social groups are at the heart of energy democracy.¹²⁹³ It seeks to enthrone democratic tenets by ensuring that the people not only benefit but also play a pivotal role in developing RES technologies.¹²⁹⁴ By reversing historical neglect, energy monopolisation, and environmental injustice, energy democracy seeks to enthrone social and political change by giving the power and control of energy back to the people.¹²⁹⁵ The underlying belief of energy democracy is that replacing fossil fuels with renewables goes beyond technological substitutions; it is an instrument of social reengineering.¹²⁹⁶ While energy democracy portends great ideals in theory,

¹²⁹¹ Devine-Wright, 'Public Engagement with Renewable Energy: Introduction' (n 1283)

¹²⁹² Matthew Burke, 'Shared yet Contested: Energy Democracy Counter-Narratives' (2018) 3 *Frontiers in Communication* 1

¹²⁹³ *ibid*

¹²⁹⁴ Jennie C Stephens, Matthew J Burke, Brock Gibian, Elie Jordi and Richard Watts, 'Operationalizing Energy Democracy: Challenges and Opportunities in Vermont's Renewable Energy Transformation' *Narratives* (2018) 3 *Frontiers in Communication* 43

¹²⁹⁵ *Ibid*; see also Sufyan Droubi, Raphael J. Heffron & Darren McCauley, 'A Critical Review of Energy Democracy: A Failure to Deliver Justice?' (2022) 86 *Energy Research & Social Science* 102444

¹²⁹⁶ Jennie C Stephens, 'Energy Democracy: Redistributing Power to the People Through Renewable Transformation' (2019) 61 *Environment: Science and Policy for Sustainable Development* 4

its outlook speaks of activism. The fine details of how such repossession of energy infrastructure for the masses will play out are unclear. The concept does not fully appreciate the economic dimensions of such a ‘coup’ on the national economy, the immediate impact on the people, the ability to access funds for RES projects, and the challenges inherent in mass leadership.

It is, therefore, the argument of this thesis that whilst the idea of incorporating democratic tenets in renewable energy development is a wholesome idea which aligns with energy justice, approaching it with a revolutionary stance will occasion injustice, and subject the masses to untold hardships. Moreover, grassroots energy does not amount to altruism as grassroots leaders may still be self-serving.¹²⁹⁷ It is therefore alternatively canvassed that a more liberal approach which seeks to progressively transition energy systems from fossil fuels to renewables is more beneficial as it gives time for systems to adapt and makes room for the creation of community energy. The development of a RES planning and consenting regime can create an enabling environment for the development of people-centred energy infrastructure. By incentivising renewables and providing legal guidance for RES development, a planning and consenting regime can progressively mainstream the long-term goal of energy democracy.¹²⁹⁸ Balancing the energy trilemma through a RES planning and consenting regime is not without its challenges.

5.10 Conclusion

This chapter set out to postulate the establishment of a robust RES planning and consenting regime as a means of resolving the energy trilemma, energy justice and the just transition. The chapter began by setting out some of the features of a RES planning and consenting regime to include the design and scoping of the project in line with set standards, relevant approvals, impact assessments, public consultations, dispute resolution mechanisms, local content mandates, land acquisition and proof of means, remediation plans, decommissioning plans, a bespoke regulator among others. It was observed that the absence of a RES planning and consenting regime undermined governmental control over the sector, rendered the sector unattractive to potential investors, hampered the country’s progress in meeting its climate

¹²⁹⁷ Kacper Szulecki and Indra Overland, ‘Energy Democracy as a Process, an Outcome and a Goal: A Conceptual Review’ (2020) 69 *Energy Research & Social Science* 1017682

¹²⁹⁸ Adewuyi et al (n 586) 1002.

change obligations under international instruments, difficulty in achieving the SDGs and slow economic diversification.

The chapter explored the prospects of achieving energy security through RES integration, improved electricity access, and sustainability in energy development, through the establishment of a comprehensive RES planning and consenting regime. As the debate on energy justice grows, the chapter explored the possibility of developing a RES regime that not only balances the trilemma but also addresses justice concerns prevalent in the petroleum regime. Addressing these concerns from the outset will minimise the incidence of conflicts between businesses and communities as well as promote a just transition. Given the reliance of fossil fuel host communities on certain benefits from the sector, the chapter further outlined transition pathways that should be explored in the transition to low/ zero carbon energy alternatives and possible challenges such as resistance from local populations and (oil and gas) workforce.

The role of the private sector and communities in the development of RES technology was analysed in this chapter. It was observed that to attract the private sector, the government needs to create an enabling legislative and governance environment. The exploitation of local credit instruments was considered germane to accelerating community energy projects. The chapter further underscored the need for transparent public consultation before the commencement of RES projects. It was noted that this was necessary to prevent public opposition to the development of RES infrastructure (so-called NIMBY).

Whilst public resistance may be addressed by wider consultation, the lack of energy availability and access in developing countries remains a major challenge preventing the resolution of the energy trilemma. The chapter suggested international cooperation between developed economies and developing countries as essential to accelerate the transition to low/ zero carbon energy. For a developing economy such as Nigeria, there are many lessons to be learnt from the progressive transition to low/ zero carbons by developed countries such as the UK. This will be the focus of the next chapter.

CHAPTER 6 – RENEWABLE ENERGY INTEGRATION IN THE UK: LESSONS FOR NIGERIA

6.1 Introduction

The legal regime for the actualisation of emission reduction targets and RES optimisation in the United Kingdom is expressed at different levels – UK government, devolved administrations (Scotland for the purposes of this thesis), and local councils. The policy climate encourages the development of energy resources to achieve energy security, energy access and sustainability. To this end, planning and consenting for RES infrastructure is therefore decentralised in the UK allowing government departments, agencies, and LPAs to exercise regulatory functions.

This chapter explores the legal regime for RES integration in the UK. The chapter provides a contextual appraisal of the UK energy situation, highlighting the transition from predominantly fossil fuel-based energy to low/zero carbon energy. It explores the electricity market reform and its role in the UK's energy paradigm shift. The chapter will further analyse the role of low-carbon and renewable energy law and policy enacted to drive the UK's low-carbon transition policy direction. The institutional framework will be examined to underscore the importance of regulatory efficiency and institutional coordination in emission reduction and RES development. The chapter will also analyse relevant incentives and support schemes and their impact on RES optimisation. The shortcomings of the UK and its energy trilemma will be evaluated in this chapter.

It is important to note from the outset that this chapter will provide an appraisal of the UK regime for RES integration before zeroing in on the analysis of the Scottish RES planning and consenting regime. Whilst the planning and consenting regimes for RES infrastructure amongst the different jurisdictions in the UK have some similarities, the Scottish regime offers an underlying energy justice dimension which aligns more with the tenor of this research. Hence, the chapter will further assess the legal framework for energy justice and just transition in Scotland. These analyses will set the stage for the comparative analysis in the next chapter and the lessons to be learnt by Nigeria.

6.2 Evaluating UK's Energy Trilemma, Energy Justice and Just Transition

The UK has maintained AAA in the 2022 Energy Trilemma Index.¹²⁹⁹ This achievement has been made possible by a combination of factors including setting ambitious targets matched by actions, law and policy evolution, regulatory flexibility, introduction of fiscal incentives and support mechanisms, and political will to support the energy transition. Although the UK energy trilemma is not flawless, it provides a working exemplar which Nigeria can learn from to address its own energy trilemma.

The decline in the use of coal for electricity generation and the move to alternative energy sources such as gas, nuclear energy and RES has facilitated emission reduction and decarbonisation in the UK energy sector.¹³⁰⁰ Additionally, given the impact of the oil shocks of the 1970s on the UK economy, the development of low/ zero carbon energy has become expedient to meet growing domestic energy needs.¹³⁰¹ This gave rise to the construction of nuclear plants (although the last nuclear plant that was built in the UK was in 1995 – Sizewell B) and more recently renewable energy (mainly wind and solar energy). In the last decade, renewable energy has been on the increase to meet the country's energy needs. For example, between 2000 and 2020 the contribution of renewable energy to the electricity mix grew from less than 5% to 43%.¹³⁰² Furthermore, the introduction of support schemes such as contracts for difference (CfD), feed-in tariffs (FiTs), and smart export guarantee (SEG)¹³⁰³ has accelerated the contribution of independent power producers and small-scale RES installations to the energy mix thereby making the market conducive for investors. It is important to observe that although renewable energy has been deployed for electrification to a greater extent, a large percentage of buildings in the UK still rely on gas for heating, cooling, and domestic cooking.¹³⁰⁴ Moreover, the UK still maintains interconnection with neighbouring European countries such as the Republic of Ireland, France, Germany, and Norway as a backup for electricity supplies. Given the variability of RES resources, these measures are in addition to domestic renewable energy infrastructure. Nevertheless, through a mixture of conventional and

¹²⁹⁹ WEC, World Energy Trilemma Index 2021 (WEC, 2022)

¹³⁰⁰ See Alina Averchenkova, Sam Fankhauser & Jared J. Finnegan, 'The Impact of Strategic Climate Legislation: Evidence from Expert Interviews on the UK Climate Change Act' (2021) 21 Climate Policy 251-263, DOI: 10.1080/14693062.2020.1819190), 259

¹³⁰¹ *ibid*

¹³⁰² Department for Business Energy and Industrial Strategy, 'UK Energy in Brief 2021' available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1032260/UK_Energy_in_Brief_2021.pdf accessed 25 February 2023

¹³⁰³ CfD, UK FiTs, and SEG are discussed in section 6... below

¹³⁰⁴ The Renewable Heat Incentive was introduced to accelerate the development of renewable heating.

low/ zero carbon energy sources, the UK has been able to attain security of supply of energy services (energy security). However, the decarbonisation of the UK energy sector has had adverse impacts on some vulnerable members of the country, namely low-income households.

Regulatory clarity and availability of legal support in the UK energy regime has promoted energy equity. The UK has been able to guarantee access to energy services for its citizenry including rural and island communities through the development of grid-connected, off-grid and standalone infrastructure. The FiT and SEG schemes have encouraged the development of small-scale RES projects to boost access. However, the rising cost of energy bills including electricity has festered fuel poverty.¹³⁰⁵ The spread of fuel poverty in the population amounts to the following: England 13.4%, Scotland 25%, Northern Ireland 18%, and Wales 12%.¹³⁰⁶ This is a stark reminder that the ideals of energy equity require that people must be at the centre of energy transition. The development of variable energy resources must not be at the expense of consumers and energy should be seen as a public good.¹³⁰⁷ The UK continues to maintain a high score in the WETI possibly because fuel poverty is hardly considered an integral determinant of energy equity.¹³⁰⁸ Consequently, even though the UK has universal access to energy services (including electricity and heating for buildings), most households are still considered fuel-poor. It is argued in this research that although some government support has been introduced to assist low-income households, such policies should be sustained and extended to others affected by the high cost of energy bills. Efficient implementation of these measures can drive down the impact of high energy bills on households in the same way that fiscal measures and support schemes have facilitated emissions reduction in the energy sector.

Between 1990 and 2021, carbon emissions in the UK fell by 41%.¹³⁰⁹ The rapid decarbonisation of the power sector characterised by decommissioning coal powered plants and intensifying low/ zero carbon energy (mainly wind energy and nuclear) in the same period has had positive impacts on environmental sustainability. The codification of legally binding emissions reduction obligations in the Climate Change Act 2008 has positioned emissions reduction as a key government policy. As a statutory obligation, decarbonisation has survived

¹³⁰⁵ See note 1048 for a definition of fuel poverty; see also John Hills, *Fuel Poverty: The Problem and its Measurement* (Interim Report of the Fuel Poverty Review, Case Report 69, DECC, October 2011) Ch 2

¹³⁰⁶ BEIS, 'UK Energy in Brief 2021' (n 1302)

¹³⁰⁷ See WEC 2017 (n 113)

¹³⁰⁸ WEC, *World Energy Trilemma Index 2021* (WEC, 2022)

¹³⁰⁹ WWF, 'Carbon Footprint: Exploring the UK's Contribution to Climate Change' available at:

https://www.wwf.org.uk/sites/default/files/2020-04/FINAL-WWF-UK_Carbon_Footprint_Analysis_Report_March_2020%20%28003%29.pdf accessed 21 March 2022

several changes in government. The introduction of renewables obligations (ROs) had made decarbonisation mandatory for some energy generators; and carbon trading has provided adequate motivation to both encourage emissions reduction and penalise carbon emissions. However, the same decarbonisation success recorded in the electricity sector needs to be replicated in other sectors including agriculture, construction, building, manufacturing, transportation, and heating among others.

Primarily, the UK regime for RES integration is aimed at promoting distributional justice. For instance, a key objective of the Electricity Market Reforms (EMR) and for which the Secretary of State must take into account in implementing the provisions of the Energy Act 2013 is to ‘ensure the security of supply to consumers of electricity’.¹³¹⁰ Similarly, before RES projects are consented, statutory consultees and members of the public likely to be affected are given the opportunity to express their opinions on the proposed development in accordance with procedural justice.¹³¹¹ Where planning permission is issued regardless of objections from consultees and members of the public, the UK regime allows aggrieved parties to challenge the planning decision in court.¹³¹² Nonetheless, before planning permission is granted, licensing authorities consider the impacts on designated sites and communal historic views. For instance, in Scotland a wind farm project was denied permission for its adverse impacts on the historic scenery of Wanlockhead,¹³¹³ while a solar energy project was rejected due on its impact on the historic Gwent levels.¹³¹⁴ In these instances and in line with recognition justice, the licensing authorities acknowledged the importance of these historic landmarks on both the local communities and visitors. To foster restorative justice, environmental enhancement and biodiversity net gain are required in RES development.¹³¹⁵ In addition, decommissioning plans are also required during the planning stage to ensure that necessary arrangements are put in place to restore the environment to the position it was prior to the development.¹³¹⁶

To foster a just transition, the Climate Change (Scotland) Act 2009 has introduced the just transition principle to ensure that the development of RES and emission reduction law and

¹³¹⁰ Energy Act 2013, S 5(2)(C)

¹³¹¹ See Environmental Assessment Act 2005, S 15

¹³¹² See *Wildland Ltd and The Welbeck Estates v Scottish Ministers* [2017] CSOH 113

¹³¹³ BBC News, ‘Lowther Hills Wind Farm Project Rejected by Government’ available at: <https://www.bbc.co.uk/news/uk-scotland-south-scotland-55617221> accessed 14 September 2021

¹³¹⁴ Sion Barry, ‘Welsh Government Refuse Plans for Huge Solar Farm at the Gwent Levels’ available at: <https://www.business-live.co.uk/economic-development/welsh-government-refuse-plans-huge-21570279> accessed 14 September 2021

¹³¹⁵ Environment Act 2021, S 98

¹³¹⁶ See Energy Act 2004, S 105(8)

policy promotes job creation, support for communities, encourages public engagement and minimises the adverse impact of the transition on vulnerable groups.¹³¹⁷ Before delving into these issues in more depth, it is apt to understand the UK energy situation as this will aid the analysis of the impact of a RES regime on RES integration in the UK.

6.3 Appraising the UK Energy Situation

The United Kingdom was the epicentre of the Industrial Revolution.¹³¹⁸ The emergence of new mechanised processes and industries required greater amounts of energy to function. To drive this development, the production of coal was ramped up in the UK. As industrialisation expanded between the 18th and 20th Centuries, various energy sources were exploited to meet growing energy demands in the country. The energy mix in the UK today comprises coal, crude oil, natural gas, nuclear, hydro, and more recently renewable energy (solar, wind, and biomass).¹³¹⁹

The UK's reliance on coal has been on the decline since the Margaret Thatcher administration set out to phase out the use of coal.¹³²⁰ At the same time, most coal plants were coming to the end of their lifecycle. This decline was further accelerated by growing concerns about climate change and the introduction of the carbon price floor and emission performance standard which set a limit on how much carbon emission fossil fuel electricity generators could emit annually.¹³²¹ These measures made electricity generation from coal less profitable. The UK has been on a path of transition to low/ zero carbon energy alternatives.¹³²² This has led to the

¹³¹⁷ Climate Change (Scotland) Act 2009, S 35C. The just transition is further discussed in section 6....

¹³¹⁸ Laurie Laybourn Langton, 'Britain has a Historic Responsibility to Tackle Climate Change – and Time is Running Out' available at: <https://www.newstatesman.com/politics/2019/06/britain-has-historic-responsibility-tackle-climate-change-and-time-running> accessed 5 January 2022; see also Peter Somerville, 'The Continuing Failure of UK Climate Change Mitigation Policy' (2021) 41 Critical Social Policy 628, 629

¹³¹⁹ Ayi Asuquo Iboh, 'Framework for the Implementation of Community Renewable Energy Projects in the UK' (PhD Thesis, Heriot-Watt University, 2018) 18

¹³²⁰ Some of the factors responsible for the demise of coal include economic reasons (the high cost of domestic production of coal made it uncompetitive in comparison with cheaper imports from overseas), political reasons (to diminish the power of the coal unions), and environmental considerations given that coal produced more carbon emission than its alternatives such as crude oil, natural gas, and nuclear energy. See Hanna Brauers, Pao-Yu Oei and Paula Walk, 'Comparing Coal Phase-Out Pathways: The United Kingdom's and Germany's Diverging Transitions' (2020) 37 Environmental Innovation and Societal Transitions 238; see also Andrew Glyn, 'Economic Costs of Coal Pit Closure Programme in UK' (1992) 27 Economic and Political Weekly, 2638

¹³²¹ See Energy Act 2013, S 57; see also Brauers (n 1320) 241.

¹³²² Marta Krajewska, 'Energy Transition in Great Britain' in Mariusz Ruszel, Tomasz Młynarski and Adam Szurlej (eds.), *Energy Policy Transition: The Perspective of Different States* (Ignacy Lukaszewicz Energy Policy Institute, 2017) 152; see also Elliott (n 78) 27

shutting down of most coal mines and expansion in the research and development of RES for electricity and heating.¹³²³

Achieving this feat has been made possible by several factors including the promulgation of laws and policies to promote sustainable energy optimisation, setting emission reduction targets, introducing fiscal mechanisms to drive down emissions, policy schemes and incentives, research and development into low/zero carbon technologies and periodic progress review.¹³²⁴ Strategic plans such as the UK Low Carbon Transition Plan: National Strategy for Climate and Energy which set out the UK's transition plan to low/zero carbon sources through target setting, funding RES development and providing financial support schemes for households and businesses,¹³²⁵ and the Carbon Plan which set out measures and strategies to be deployed to achieve emission reduction targets, were introduced; while the UK Renewable Energy Roadmap was introduced to set out the government's approach to optimising RES resources.¹³²⁶

Nuclear energy has also been developed and relied upon as a major source of low-carbon energy in the UK. Since the oil price shocks of the 1970s,¹³²⁷ national governments have sought to promote domestic production of energy resources to guarantee energy security. More recently, the invasion of Ukraine by Russia and the attendant sanctions imposed on the Russian economy by western states have exacerbated the energy crisis, adding to pressure on energy infrastructure in the west as most European countries (including the UK) rely on Russia for the supply of natural gas.¹³²⁸ Against this backdrop, western governments are racing against time to wean their economies off 'Russian gas' as a way of protecting their economies against sudden shocks. It is therefore not a coincidence that the UK government announced its plan to build eight new nuclear reactors to promote energy security.¹³²⁹ Although nuclear energy is considered a low-carbon clean energy source, it is not renewable. Uranium, which is the main

¹³²³ See Brauers (n 1320)

¹³²⁴ These statutes and schemes will be considered later in sections 6.4 and 6.5 of this chapter.

¹³²⁵ See DECC, UK Low Carbon Transition Plan: National Strategy for Climate and Energy (HM Government, 2009)

¹³²⁶ DECC, UK Renewable Energy Roadmap (HM Government, 2011) and DECC, The Carbon Plan (HM Government, 2011); see also Thomas L Muinzer, *Climate and Energy Governance for the UK Low Carbon Transition: The Climate Change Act 2008* (Palgrave Macmillan, 2019) 2

¹³²⁷ Discussed in chapter 2 of this thesis.

¹³²⁸ CNN, 'The List of Global Sanctions on Russia for the War in Ukraine' available at: <https://edition.cnn.com/2022/02/25/business/list-global-sanctions-russia-ukraine-war-intl-hnk/index.html> accessed 10 May 2022

¹³²⁹ BBC, 'Energy strategy: UK Plans Eight New Nuclear Reactors to Boost Production' available at: <https://www.bbc.co.uk/news/business-61010605/> accessed 3 May 2022

component required for nuclear energy, is finite and is estimated to be depleted within 100 years.¹³³⁰ Moreover, nuclear energy is more expensive and takes longer to complete than RES and requires more water for cooling than RES.¹³³¹ Moreover, the lengthy construction time for nuclear power makes it difficult to address current energy challenges in the UK. Another major downside to nuclear energy lies in the disposal of radioactive waste generated as well as the devastation that can be witnessed in the event of an accident (as in the case of Fukushima and Chernobyl).¹³³² In the long run, these concerns may exceed whatever benefits nuclear energy provides in the form of electricity and domestic heating.

The UK was the first country to set legally binding emission reduction targets in legislation through the enactment of the Climate Change Act 2008.¹³³³ Despite its pioneering efforts to reduce emissions, the UK climate change mitigation approach has been criticised for being mostly political rhetoric.¹³³⁴ According to Somerville, successive UK governments have employed ‘progressive green discourse’ as a tool to appeal to young voters.¹³³⁵ He further contends that in the last decade, the energy policy drive has shifted from state intervention to a market-driven approach characterised by reduced investment in low/ zero carbon infrastructure and more support for fossil fuel development (including fracking and licencing new coal and crude oil mining).¹³³⁶ The House of Commons’ Energy and Climate Change Committee further observed that institutional cooperation between Ofgem and LPAs was needed to enhance the UK’s ability to meet emission targets as different incentives were administered by different departments.¹³³⁷ Although the UK has recorded a decline in GHG emission from electricity generation, from over 200 Mt in 1990 to 80.7 Mt in 2021,¹³³⁸ due to austerity and improved energy efficiency measures, these reductions have been negated by the fact that a large percentage of goods (including low carbon energy and energy-efficient equipment) utilised in

¹³³⁰ Mark Z Jacobson and Mark A Delucchi, ‘Providing All Global Energy with Wind, Water, and Solar Power, Part I: Technologies, Energy Resources, Quantities and Areas of Infrastructure, and Materials’ (2011) 39 Energy Policy 1154, 1156

¹³³¹ Ibid

¹³³² Somerville (n 1318) 635

¹³³³ Ibid

¹³³⁴ Ibid, 629

¹³³⁵ Ibid

¹³³⁶ Ibid

¹³³⁷ House of Commons, ‘2020 Renewable Heat and Transport Target’ available at: https://publications.parliament.uk/pa/cm201617/cmselect/cmenergy/173/17303.htm#_idTextAnchor004 accessed 06 January 2022

¹³³⁸ BEIS, ‘2021 UK Greenhouse Gas Emissions, Provisional Figures’ 31 March 2022 available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1064923/2021-provisional-emissions-statistics-report.pdf accessed 24 February 2023

the UK are produced abroad, thereby outsourcing emissions.¹³³⁹ Moreover, the successes recorded in emission reduction from electricity have not been replicated in other sectors particularly agriculture, industry, transport, construction, and buildings.¹³⁴⁰ The optimisation of RES for energy generation and the increased reliance on energy-efficient appliances has increased the cost of energy bills for households thereby exacerbating energy poverty. The UK has introduced several measures to address energy poverty, but these schemes have their limitations. Although the UK has a lot of improvements to make in tackling fuel poverty (such as increasing RES investment to reduce energy bills and supporting households with improved home insulation and energy-efficient appliances),¹³⁴¹ its deployment of RES infrastructure to balance the energy trilemma provides useful lessons for Nigeria. It is therefore apposite to evaluate the policy framework that underpins renewable energy integration in the UK.

6.4 Electricity Market Reform as a Catalyst for Renewable Energy Integration

The Electricity Market Reform (EMR) began in 2010 but only became law in 2013 with the enactment of the Energy Act 2013.¹³⁴² It was a government policy set up to incentivise low/zero carbon energy investments and promote distributional justice through security of supply and affordability of electricity for consumers.¹³⁴³ It was introduced to promote decarbonisation in the electricity sector by 2030 and encourage the increase of renewable energy contribution

¹³³⁹ Somerville (n 1318), 634

¹³⁴⁰ Climate Change Committee, Progress in reducing emissions 2021 Report to Parliament (CCC, June 2021) 60

¹³⁴¹ Fuel poverty is a situation where a household spends over 10% of its earning on energy bills. Although the UK has universal access to energy services (including electricity and heating for buildings), most households are still considered fuel poor. For example, in 2019, 3.18 million households were living in fuel poverty in England - this represents 13.4% of the population, Scotland 25%, Northern Ireland 18% and Wales 12%. See Department of Business, Energy and Industrial Strategy, 'Annual Fuel Poverty Statistics in England, 2021 (2019 data)' available at:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/966509/Annual_Fuel_Poverty_Statistics_LILEE_Report_2021_2019_data.pdf accessed 06 January 2022

¹³⁴² See Energy Act 2013, Introductory Text; see also Department of Energy and Climate Change, Electricity Market Reform: Policy Overview' November 2012 available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/65634/7090-electricity-market-reform-policy-overview-.pdf accessed 24 February 2023; see also Michael G. Pollitt and Karim L. Anaya, 'Can Current Electricity Markets Cope with High Shares of Renewables? – A Comparison of Approaches in Germany, the UK and the State of New York' (2015, Energy Policy Research Group, Working Paper) 17

¹³⁴³ Ian Wood, 'EMR: A Review of the Contract for Difference and Capacity Market Schemes' available at <https://www.kwm.com/en/uk/knowledge/insights/emr-a-review-of-the-contract-for-difference-and-capacity-market-schemes-20160810> accessed 8 November 2020

to electricity production.¹³⁴⁴ According to Pollitt and Haney, the EMR aims, ‘...to deliver secure power, renewables and carbon reduction simultaneously.’¹³⁴⁵

The EMR became crucial as the UK was planning to replace about 25% of electricity generation from ageing power plants as well as phasing out coal-powered plants.¹³⁴⁶ Additionally, to drive investment in the electricity sector, it was imperative for laws and policies to guarantee long-term market predictability of around 20 – 30 years, so that investors could rely on market trajectories.¹³⁴⁷ Similarly, demand and supply needed to be influenced by market conditions rather than political dynamics.¹³⁴⁸ Thus, government was to play a supervisory role in so far as to promote competition in the electricity market and to ensure consumer protection. Given the UK’s commitment to achieving 20% renewables under the EU’s Renewable Energy Directive 2009/28/EC, such bold commitments had to be matched by actions.¹³⁴⁹ The EMR was therefore key in driving the UK’s emission reduction commitments under the Climate Change Act 2008 and its renewables target under the EU’s Renewable Energy Directive 2009/28/EC.¹³⁵⁰

The extant market at the time was hugely influenced by fossil fuels with coal accounting for 71.9%, and oil and gas 6.6% of electricity generation.¹³⁵¹ With state-owned generation companies privatised by the Electricity Act 1989,¹³⁵² the new entities – National Grid and Regional Electricity Companies enjoyed monopoly for electricity wholesale and retail.¹³⁵³ These entities thrived on coal power generation and were also responsible for fixing electricity prices. At the same period, the emergence of natural gas as a cheaper alternative resulted in the decline of coal power.¹³⁵⁴ Nevertheless, this new arrangement favoured independent power

¹³⁴⁴ The EMR does not apply to Northern Ireland. See Energy Act 2013, S 155, see also Michael Grubb and David Newbery, ‘UK Electricity Market Reform and the Energy Transition: Emerging Lessons’ (EPRG Working Paper, 1817, Cambridge Working Paper in Economics 1834), 6

¹³⁴⁵ Michael G Pollitt and Aoife B Haney, ‘Dismantling a Competitive Electricity Sector: The U.K.’s Electricity Market Reform’ (2013) 26 *The Electricity Journal* 8, 9

¹³⁴⁶ Wood (n 1343)

¹³⁴⁷ Grubb and Newbery (n 1344)

¹³⁴⁸ *ibid*

¹³⁴⁹ *ibid*

¹³⁵⁰ *Ibid*; a summation of the legal relationship between the UK and the EU is provided in Section 6.5 of this thesis.

¹³⁵¹ BEIS, ‘UK Energy in Brief 2021’ (n 1302); see also Grubb and Newbery (n 1344), 2

¹³⁵² Electricity Act 1989, S 6, authorised the issuance of electricity licences to private entities.

¹³⁵³ *Ibid*

¹³⁵⁴ The lifting of the ban on new gas fired power plants coincided with the introduction of the New Electricity Trading Arrangements (NETA) provided the framework for electricity trading. This was bolstered by newly developed Combined Cycle Gas Turbines (CCGT) which encouraged new entrants into the market. *Ibid*; see also Ofgem, ‘New Electricity Trading Arrangements (NETA) – Implementation Phase NETA Go Live Decision Making Indicators’ (Ofgem, November 2000); see also House of Commons, *New Electricity Trading Arrangements in England and Wales* (2nd Report of Session 2003-03, December 2003)

producers (IPP) of Combined Cycle Gas Turbines (CCGT).¹³⁵⁵ This paradigm posed a threat to decarbonisation. Moreover, energy security could not be achieved unless there was a reform.¹³⁵⁶ After wide consultations with stakeholders, the Department of Energy and Climate Change (DECC) White Paper on EMR recommended four mechanisms to reform the electricity market.¹³⁵⁷ These EMR mechanisms consist of contract for difference (CfD) which covers renewables, carbon capture and storage and nuclear plants; carbon price floor (CPF) to cater for the EU Emission Trading Scheme for fossil fuel generators; emissions performance standard (EPS) which sets an emission limit for electricity generated from fossil fuel, and creation of capacity market (CM).¹³⁵⁸

Given the imminent closure of most fossil fuel power plants, it was predicted that these shutdowns would inevitably affect the security of supply. Consequently, the CM scheme was introduced as a mechanism to cushion the immediate effects of these closures on the electricity network and on consumers.¹³⁵⁹ It is designed to serve as an insurance against future power shutdowns in the country.¹³⁶⁰ Under the scheme, electricity generators can bid in an auction to provide capacity in periods of low generation from low-carbon sources.¹³⁶¹ CM recognises the inherent susceptibility of renewable sources to weather conditions and thus provides cover for intermittent low-carbon generation. However, CM may be available to support capacities in other countries rather than the UK, through interconnectors.¹³⁶² CM's support for coal plants has been criticised for discouraging decarbonisation.¹³⁶³ Assuming without conceding that environmental concerns were the key motivation for shutting down coal mines, the introduction of CM which benefits coal-fired powered plants over RES technologies stymies this objective. For instance, the CM final auction for 2022/2023 shows that 411.13 MW capacity was awarded

¹³⁵⁵ Grubb and Newbery (n 1344), 14

¹³⁵⁶ *ibid*, 9

¹³⁵⁷ See Department of Energy and Climate Change, *Planning our Electric Future: A White Paper for Secure, Affordable and Low-Carbon Electricity* (White Paper, CM 8099, July 2011)

¹³⁵⁸ Pollitt and Anaya (n 1342); CfD is discussed later in section 6.6.2 of this thesis.

¹³⁵⁹ Pollitt and Haney (n 1345), 11; See also Elliott (n 78)

¹³⁶⁰ Wood (n 1343)

¹³⁶¹ Pollitt and Haney (n 1345), 12

¹³⁶² Interconnectors are electricity cables that connect electricity networks between countries. They serve as backup when there is shortage of generation in one country, and as channels to transport excess production. See also Pollitt and Haney (n 1345), 12

¹³⁶³ See Ian Wood and Robert Broom, 'EMR: A Review of the Contract for Difference and Capacity Market Schemes' available at: <https://www.kwm.com/en/uk/knowledge/insights/emr-a-review-of-the-contract-for-difference-and-capacity-market-schemes-20160810> accessed 08 December 2021. The Capacity Market was a subject of litigation over its subsidies for fossil fuel generators in *Tempus Energy v Commission* (C-57/19 P, ECLI:EU:T:2018:790)

to coal whereas only 16.26 MW was awarded to solar and onshore wind.¹³⁶⁴ Since its inception, CM has favoured fossil fuels over low/zero carbon energy sources, and this was challenged in *Tempus Energy v Commission*,¹³⁶⁵ where the claimant alleged that such inequality in the allocation of capacities in favour of fossil fuels was discriminatory. However, the Court of Justice of the European Union (CJEU) held that the European Commission were correct to rely on information provided by the UK on the operation of the Capacity Market mechanism.¹³⁶⁶ The Commission's reliance on information supplied by the UK implies that in the absence of a clear breach of EU laws, state aid mechanisms may be introduced to support energy security in domestic contexts, even where such mechanisms support fossil fuel electricity generation. Furthermore, given that the *Tempus Energy* case was the last CJEU decision on state aid in the UK before leaving the EU, the decision is persuasive on UK courts and may be relied upon in similar disputes in UK courts.¹³⁶⁷ However, where the court's decision is incompatible with any UK legislation, the decision will not be applied by UK courts.¹³⁶⁸

By discouraging the development of new fossil fuel power plants, the EMR set the stage for decarbonising the electricity sector.¹³⁶⁹ Given the initial high cost of RES infrastructure installation, the EMR provides subsidies to accelerate the widescale deployment of RES technology for electricity generation to promote distributional justice. It also opened the electricity market to small-scale generators through the feed-in tariff scheme. The carrot-and-stick approach of taxing carbon emissions and making them a tradeable commodity provides an incentive for low-carbon generation. Hence, electricity generators whose emissions are below their carbon credit can sell such carbon credits for profit. Whilst this ensures that generators can keep emissions within their carbon credit limit (either by emitting below their carbon credit or purchasing carbon credit), it does not provide a strong deterrent for carbon emissions.

¹³⁶⁴ National Grid ESO, Final Auction Report – 2021 One year Ahead Capacity Auction (T-1) Delivery Year 2022/2023, (National Grid ESO, 25 February 2022), 5

¹³⁶⁵ *Tempus Energy v Commission* (C-57/19 P, ECLI:EU:T:2018:790)

¹³⁶⁶ *Ibid*, paras. 198-212

¹³⁶⁷ David Pérez de Lamo, 'Tempus Energy v Commission (C-57/19 P, ECLI:EU:T:2018:790): The Court of Justice Defines the Commission's Investigative Duties During the Preliminary Examination Phase of State Aid Proceedings' available at: <https://competitionlawblog.kluwercompetitionlaw.com/2021/10/05/tempus-energy-v-commission-c-57-19-p-the-court-of-justice-defines-the-commissions-investigative-duties-during-the-preliminary-examination-phase-of-state-aid-proceedings/> accessed 27 February 2023

¹³⁶⁸ European Union (Withdrawal) Act 2018, S 6, Retained EU Law (Revocation and Reform) Act 2023, S 6

¹³⁶⁹ This efforts are being undermined by the licensing of new fossil fuel. This is discussed in section 6.10 below.

The recommendations of the EMR were codified in the Energy Act 2013.¹³⁷⁰ Moreover, other statutes such as the Electricity Act 1989 and the Climate Change Act 2008 have been amended to bring them in line with the EMR. The next section will evaluate this legislation alongside other statutes which underlie the energy and renewable energy regime in the UK.

6.5 Assessing the Statutory Regime for Renewable Energy Integration in the UK

Before delving into the analysis of the RES regime in the UK, it is important to note that the UK energy and environmental law and policy has been significantly influenced by the European Union (EU). Prior to leaving the bloc,¹³⁷¹ EU laws and directives were binding on the UK and had precedence over domestic laws, and judgements of the Court of Justice of the European Union were binding on UK courts.¹³⁷² Upon leaving the EU, some EU laws have been retained by the UK either as EU-derived domestic legislation or direct EU legislation.¹³⁷³ The first kind refers to domestic laws implementing EU directives, regulations, treaties, or community guidelines. For instance, EU Directive 2003/87/EC on greenhouse gas emission allowance trading was implemented through the Climate Change Act 2008.¹³⁷⁴ The second kind entails EU laws that have been domesticated by the UK Parliament as UK laws. For instance, the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 and the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 domesticate the EU EIA directive which demands an assessment of the impacts of certain projects on the environment. Having been domesticated in the UK, these legislations are legally binding like other UK legislations enacted in the UK Parliament.

Emission reduction and RES optimisation have been facilitated in the UK through legislation. Statutory provisions have codified emission reduction targets and have introduced support schemes for low/ zero carbon energy development. This section will assess how the implementation of the Energy Act 2013, Climate Change Act 2008 and Electricity Act 1989

¹³⁷⁰ The Energy Act 2013 is discussed in Section 6.5.1 of this chapter.

¹³⁷¹ The UK voted to leave the European Union on 23 June 2016 by a majority of 51.9%. This triggered Article 50 of the Treaty on European Union, on member state's withdrawal. The UK's withdrawal from the EU, commonly called 'Brexit', took effect on 31 January 2020 and the period of transition was finalised on 31 December 2020. See UK Parliament, 'Brexit Timeline: Events Leading to the UK's Exit from the European Union' available at: <https://commonslibrary.parliament.uk/research-briefings/cbp-7960/> accessed 4 May 2022

¹³⁷² European Commission, 'European Commission Reaffirms the Primacy of EU Law' available at: https://ec.europa.eu/commission/presscorner/detail/en/statement_21_5142 accessed 4 May 2022

¹³⁷³ See Sections 2 and 3 European Union (Withdrawal) Act 2018.

¹³⁷⁴ See Climate Change Act 2008, Part 3, and Schedules 2 and 3. The EU Emission Trading Scheme has been replaced by the UK Emission Trading Scheme via the Greenhouse Gas Emissions Trading Scheme Order 2020, SI 2020/1265.

has engendered security of supply, energy access and emission reduction in the UK energy regime.

6.5.1 Energy Act 2013

The Energy Act 2013 is arguably one of the most significant energy legislation in the UK that promotes the development of RES technology.¹³⁷⁵ The Energy Act 2013 implemented the recommendations of the EMR.¹³⁷⁶ The primary objective of the Act is to stimulate and incentivise investments in low/zero carbons.¹³⁷⁷ Setting out the various support schemes (CfD, CPF, EPS and CM)¹³⁷⁸ for the development of low/zero carbon energy in the Act ensured that renewable utilisation was given priority in the electricity market.¹³⁷⁹ The Act provides easy access to the market for RES developers and gives them a competitive edge among well-established fossil fuel generators by providing for PPAs ‘...under which a licensed supplier agrees to purchase electricity generated by an electricity generator at a discount to a prevailing market price.’¹³⁸⁰ Low government investment in RES and grid infrastructure has reduced the number of RES developers that can both access credit and connect to the grid network.¹³⁸¹ The price stability offered through the Act¹³⁸² promotes investors’ confidence and protects consumers from sudden shocks in electricity prices. However, the protection provided in the Act does not extend to progressive price increases which has forced many households into fuel poverty. Through the CM mechanism, the Act establishes pre-emptive measures to guarantee the security of supply in the event of high demands or shortages in domestic production as such shortfalls can be met by external suppliers under the scheme.¹³⁸³ However, whilst the Act aims to reduce carbon emissions, the availability of support under the CM for fossil fuel plants

¹³⁷⁵ Energy Act 2004 (covers nuclear energy and renewables), Energy Act 2008 (provides for gas storage and introduces renewable obligations among other things), Energy Act 2011 (provides for energy efficiency) and Energy Act 2016 (oil and gas authority) are some of the other energy legislations in the UK

¹³⁷⁶ Michal Nachmany et al, ‘Climate Change Legislation in United Kingdom’ available at: https://www.lse.ac.uk/GranthamInstitute/wp-content/uploads/2015/05/UNITED_KINGDOM.pdf accessed 7 March 2022

¹³⁷⁷ Herbert Smith Freehills, ‘Energy Act 2013’ available at: <https://www.lexology.com/library/detail.aspx?g=c6b1a23d-a84d-424f-9ef5-80db1ef6fd3> accessed 8 March 2022

¹³⁷⁸ Some of the support schemes are discussed in section 6.6 of this thesis.

¹³⁷⁹ Freehills (n 1377)

¹³⁸⁰ Energy Act 2013, S 50 (3)(b)

¹³⁸¹ UK Parliament, ‘MPs Call for Grid Improvements and Affordable Household Loans So More Can Join the Solar Revolution’ available at: <https://committees.parliament.uk/committee/62/environmental-audit-committee/news/195090/mps-call-for-grid-improvements-and-affordable-household-loans-so-more-can-join-the-solar-revolution/> accessed 9 July 2023

¹³⁸² Ibid; See also Energy Act 2013, S 49

¹³⁸³ Ibid, S 28

undermines its emission reduction objectives.¹³⁸⁴ Nevertheless, clearly spelling out the various institutions responsible for the different support schemes provides regulatory clarity and aids the effective implementation of the EMR in the UK as developers are signposted to available support schemes and sector regulators.¹³⁸⁵ Implementing the provisions of the Energy Act 2013 has significantly increased the share of RES investments in the UK energy market thereby promoting security of supply, accessibility, and environmental sustainability in the country.¹³⁸⁶ For instance, renewable electricity accounted for 50% of electricity consumption in the UK in December 2022 compared to 2% in December 1991,¹³⁸⁷ and emissions from electricity and gas declined from about 220 Mt in 1990 to about 60 Mt in 2020.¹³⁸⁸ The support schemes created in the Act have reduced cost for consumers considerably when compared with the era of Renewable Obligations. For instance, electricity prices in the first quarter (Q1) of 2021 under CfD were 8% lesser than Q1 2013.¹³⁸⁹ However, the support schemes introduced in the Act have not been able to cushion the impacts of the energy crisis on consumers. Renewables' optimisation in the EMR and indeed the Energy Act 2013 has been greatly improved by the introduction of emission reduction targets in the Climate Change Act 2008.¹³⁹⁰

6.5.2 Climate Change Act 2008

As the first country to enact a climate change legislation in the world, the UK Climate Change Act 2008 (CCA) introduced statutory emission reduction targets with measurable milestones and reporting obligations.¹³⁹¹ The CCA sets a legally binding emission reduction target of net-zero by 2050.¹³⁹² Other features of the Act include the provision of short-term climate change mitigation targets (carbon budgets), the creation of an expert-based independent advisory body

¹³⁸⁴ Energy Act 2013, S 1

¹³⁸⁵ See Energy Act 2013, Ss 20, 30 & 31

¹³⁸⁶ Grant Thornton, 'Independent Evaluation of the Electricity Market Reform: Final Report to the Department of Energy and Climate Change (DECC, 15 October 2015)

¹³⁸⁷ National Grid, 'How Much of the UK's Energy is Renewable?' available at:

<https://www.nationalgrid.com/stories/energy-explained/how-much-uks-energy-renewable> accessed 28 February 2023

¹³⁸⁸ Department of Business, Energy and Industrial Strategy, 'Annex 2: 2020 UK Greenhouse Gas Emissions, by Standard Industrial Classification' 30 June 2022 available at:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1086805/1990-2020-final-emissions-standard-industrial-classification-annex-2.pdf accessed 28 February 2023

¹³⁸⁹ Although electricity prices are not just reflective of RES deployment but also include prices for gas and nuclear energy. See Office for National Statistics, 'RPI: Percentage change over 12 months – Electricity' available at: <https://www.ons.gov.uk/economy/inflationandpriceindices/timeseries/czcz/mm23> accessed 28 February 2023

¹³⁹⁰ Averchenkova et al (n 1300) 259

¹³⁹¹ Somerville (n 1318)

¹³⁹² Climate Change Act 2008, S 1 The net-zero target was included in the 2019 amendment to the CCA. See also Averchenkova et al (n 1300)

– the Committee on Climate Change (CCC),¹³⁹³ a system of climate change adaptation planning and a periodic government reporting mechanism on implementation progress.¹³⁹⁴

The CCA has influenced the development of climate change legislation in other countries,¹³⁹⁵ and has been instrumental in driving down carbon emissions in the UK.¹³⁹⁶ The Act has created policy certainty by providing a strategic guardrail and defined governmental direction in climate policy development.¹³⁹⁷ Enacting the government’s climate policy into law, this reduces the instances of political backsliding from set targets.¹³⁹⁸ It further boosts investors’ confidence in the government’s direction hence enabling investors to make informed decisions.¹³⁹⁹ The Act promotes restorative justice by providing a blueprint for mitigating environmental harms such as through carbon emissions reduction in energy development.¹⁴⁰⁰ The Act further seeks to ensure continuity in climate change mitigation and adaptation efforts, by eliminating policy volatility associated with change in administration. Hence, despite witnessing six different governments, these changes in administration have neither significantly altered the provisions of the Act nor affected emission reduction targets. Different administrations have had disparate priorities with respect to support for energy technology which has affected RES development.¹⁴⁰¹ Nonetheless, while policy documents may be amended on a whim, domestic legislation goes through a rigorous process to either amend or abolish the law.¹⁴⁰² Additionally, where government officials refuse to meet the obligations contained in the Act, judicial measures such as court proceedings, can be initiated to enforce compliance. For instance, in *Dawes v Secretary of State for the Transport Department*,¹⁴⁰³ where the applicant challenged the grant of development consent for the reopening of an airport on the grounds that the project will undermine emission reduction targets under the CCA, the application was dismissed by the court. Similarly, in *Barbone v Secretary of State for*

¹³⁹³ The CCC is discussed in extenso in section 6.7.4.

¹³⁹⁴ See Averchenkova et al (n 1300), 252.

¹³⁹⁵ Mexico (General Law on Climate Change 2012), Finland (Climate Change Act 2015), Ireland (Climate Action and Low Carbon Development Act 2015), Sweden (Climate Act 2017), France (Energy and Climate Law 2019), and Germany (Climate Protection Law 2019).

¹³⁹⁶ Shaikh M. S. U. Eskander and Sam Fankhauser, ‘Reduction in Greenhouse Gas Emissions from National Climate Legislation’ (2020) 10 *Nature and Climate Change* 750, 755

¹³⁹⁷ Averchenkova et al (n 1300), 254

¹³⁹⁸ *ibid*

¹³⁹⁹ *ibid*

¹⁴⁰⁰ Climate Change Act, S 1

¹⁴⁰¹ For instance, the Labour Government up to 2010 favoured RES while subsequent Conservative administrations have opposed onshore windfarms whilst licencing new fossil fuels. See also Elliott (n 78), 150.

¹⁴⁰² Gabriela Iacobuta, Navroz K. Dubash, Prabhat Upadhyaya, Mekdelawit Deribe & Niklas Höhne, ‘National Climate Change Mitigation Legislation, Strategy and Targets: A Global Update’ (2018) 18 *Climate Policy* 1114, 1124, DOI: 10.1080/14693062.2018.1489772

¹⁴⁰³ [2023] EWHC 2352 (Admin)

Transport,¹⁴⁰⁴ the applicants challenge to the granting of planning permission for an airport extension was dismissed as the court held that the government had considered the impacts of the development on climate change. This promotes procedural justice as members of the public have a means of compelling the government to implement the provisions of the Act.

However, the inadequate implementation of the CCA has made it difficult to meet its objectives.¹⁴⁰⁵ Consequently, the CCC has repeatedly warned that the UK is not on track to achieve its emission targets.¹⁴⁰⁶ Furthermore, the CCA had done little to accelerate emission reduction from other sectors. Also, the Act does not have any provisions to sanction the government or at least government departments where they fail to meet emission targets.¹⁴⁰⁷ This leaves NGOs with the responsibility of calling out the government for such failings which will cause political embarrassment and requests for judicial review.¹⁴⁰⁸ Consequently, in *R (oao Friends of the Earth et al) v Secretary of State for Business Energy and Industrial Strategy*,¹⁴⁰⁹ the Applicants applied for a judicial review of the Net Zero Strategy (NZS) published by the Respondent. They argued that the strategy failed to comply with the Climate Change Act 2008 which requires that in the preparation of policies to meet carbon budgets, the Respondent must take account of the quality of the analysis and the quantity of emission which the individual policy aims to reduce,¹⁴¹⁰ and such numeric explanation ought to be reflected in the report.¹⁴¹¹ The High Court found in favour of the Applicant and held that the NZS contravened the provisions of the Climate Change Act.¹⁴¹² The Respondent was ordered to comply with the law and submit a new report by the end of March 2023.¹⁴¹³ The enforceability of the CCA allows public officers to be held to account for statutory obligations.

¹⁴⁰⁴ [2009] EWHC 463

¹⁴⁰⁵ See Climate Change Act 2008, Introductory Text (which contains its objectives)

¹⁴⁰⁶ Committee on Climate Change, Reducing UK emissions: Progress Report to Parliament (CCC, June 2020) 51

¹⁴⁰⁷ The Nigerian CCA empowers the Climate Change Council to sanction government institutions for failure to meet emission reduction targets. Climate Change Act 2021, S 34; See also Averchenkova et al (n 1300), 256

¹⁴⁰⁸ *ibid*

¹⁴⁰⁹ [2022] EWHC 1841

¹⁴¹⁰ Climate Change Act 2008, S 13

¹⁴¹¹ *Ibid*, S 14

¹⁴¹² [2022] EWHC 1841 paras 194-222, 223-260

¹⁴¹³ This has not yet been done.

6.5.3 Electricity Act 1989

The Electricity Act 1989 is the main statute governing electricity development and optimisation in the UK.¹⁴¹⁴ It is also the primary legislation regulating the development of renewable electricity. It empowers the relevant regulatory authority to make Renewables Obligations (RO) to encourage the development of low/zero carbon energy.¹⁴¹⁵ Section 36 of the Act empowers the Secretary of State and the Scottish Ministers to issue licences for the generation of electricity including from renewable sources to promote distributional justice and energy security.¹⁴¹⁶ However, the issuing of separate licences for electricity generation and supply under the Act has been a subject of judicial proceedings.¹⁴¹⁷ In *Sustainable Shetland v Scottish Ministers*,¹⁴¹⁸ the Court of Session, Outer House, per Lady Clark of Carlton, held that a section 36 consent (generation licence) could only be issued to an applicant already holding a licence to supply under section 4.¹⁴¹⁹ However, a subsequent decision of the Court of Session Outer House in *Trump International Golf Club Scotland Ltd v Scottish Ministers*,¹⁴²⁰ rejecting the earlier judgement, held that the holding of a supply licence is not a condition precedent for the issuance of a generation licence. This decision was endorsed by the Court of Session Inner House in *Sustainable Shetland v Scottish Ministers*.¹⁴²¹ These cases emphasise the powers of relevant authorities to issue electricity licences and thus limit the powers of the court to alter licensing decisions where there is no express breach of the law. Moreover, the decisions in these cases are underpinned by the need to balance environmental sustainability concerns with the development of energy infrastructure to meet demands.

The Act also prescribes the statutory functions of regulatory bodies including the Secretary of State for Energy, Scottish Ministers,¹⁴²² Gas and Electricity Market Authority (GEMA) and Office for Gas and Electricity Market (Ofgem). The Act mandates Ofgem to make regulations

¹⁴¹⁴ Mhairi Main Garcia and Dentons & Co, 'Practical Cross-Border Insights into Renewable Energy Law – Renewable Energy 2022 UK' available at: <https://bracewell.com/sites/default/files/knowledge-center/International%20Comparative%20Legal%20Guides%20-%20UK%20Renewable%20Energy%202022.pdf> accessed 9 March 2022

¹⁴¹⁵ See Electricity Act 1989, S 32. Renewable Obligation is discussed subsequently in section 6.6.1 of this thesis.

¹⁴¹⁶ Ibid, S36

¹⁴¹⁷ Olivia Woolley, 'Interpreting Section 36 of the Electricity Act 1989: Has Clarity Been Restored?' Edinburgh (2015) 19 Law Review 124

¹⁴¹⁸ [2013] CSOH 158, 2013 SLT 1173

¹⁴¹⁹ See Electricity Act 1989, Ss 4 and 36

¹⁴²⁰ [2014] CSOH 22, 2014 SLT 406

¹⁴²¹ [2014] CSIH 60, 2014 SLT 806. NB: Under the hierarchy of the Scottish courts, the Court of Session Inner House is higher than the Outer House.

¹⁴²² For developments in Scotland

that will promote consumer welfare.¹⁴²³ This includes setting basic acceptable standards of service to be provided by licensees and means of obtaining remedy in the event of a failure to meet such set standards.¹⁴²⁴ Beyond facilitating energy security, the consumer welfare provisions in the Act aim to promote energy equity by ensuring that the interests of consumers, particularly vulnerable consumers, are protected by Ofgem. It imposes a cost-reduction obligation on suppliers to facilitate affordability.¹⁴²⁵ To promote environmental sustainability, the Act empowers relevant regulators to stipulate carbon emission reduction targets for electricity suppliers.¹⁴²⁶ The Act further imposes on relevant regulatory bodies the responsibility of promoting competition in the electricity sector.¹⁴²⁷ Creating a competitive market which is both beneficial for the security of supply and access, entails the provision of variable support schemes to stimulate the development of renewables and provide easy access to the market. Essentially, the Act was enacted to demonopolize the electricity industry making way for private sector operators, facilitating the decline of coal energy and promoting energy security. Through several amendments and effective implementation, these objectives have largely been successful. However, to facilitate the transition to sustainable energy and energy equity, the Act needs to prioritise RES development as well as provide adequate support for vulnerable electricity consumers, particularly in the wake of the current energy crisis.

6.6 Support Schemes and their Impact on Renewable Energy Integration: An Analysis

Emission reduction and energy efficiency come at huge costs both for the planet and its inhabitants, global economy, states, and businesses. In some cases, achieving a reduction in emissions to meet set targets may require a mixed approach of incentives and penalisation. Thus, the UK government utilises both tools to drive down GHG emissions and promote energy efficiency. Similarly, due to their relative novelty, renewable energy technologies are quite expensive. The high cost of renewable technologies may discourage small-scale private energy producers and even households from considering renewable sources as a viable alternative. Although in recent years, the cost of RES development has become cheaper than fossil fuel electricity projects; yet securing credit to finance new RES projects remains a challenge for small-scale developers.¹⁴²⁸ Consequently, the UK government introduced support schemes to

¹⁴²³ Electricity Act 1989, S 39

¹⁴²⁴ *ibid*

¹⁴²⁵ *Ibid*, S 41B

¹⁴²⁶ *Ibid*, S 41A

¹⁴²⁷ *Ibid*, S 43

¹⁴²⁸ Purkayastha Dhruba, *Managing Credit Risk and Improving Access to Finance in Green Energy Projects* (ADB Working Paper Series, August 2018)

incentivise and, in some cases, subsidise renewable technology development.¹⁴²⁹ This section considers some of these schemes.

6.6.1 Renewables Obligation (RO)

RO was a statutorily enabled support scheme for large-scale electricity generation through renewables.¹⁴³⁰ The Electricity Act 1989 empowers the Secretary of State and the Scottish Ministers to ‘...make a renewables obligation order.’¹⁴³¹ Pursuant to this provision, the Renewables Obligation Order 2015, and the Renewables Obligation (Scotland) Order 2009 (as amended) were made by the Secretary of State and the Scottish Ministers respectively.¹⁴³²

RO which came into force in 2002, imposed an obligation on licensed suppliers of electricity to acquire a stipulated percentage of electricity from RES annually.¹⁴³³ The Department for Energy and Climate Change (DECC)¹⁴³⁴ fixed the Renewables Obligation annually. Electricity suppliers could meet these targets either by directly purchasing Renewables Obligation Certificates (ROC) from renewable electricity generators and/ or by procuring same from the ROC market.¹⁴³⁵ Electricity generators were issued ROCs for electricity generated from RES and these could be sold to electricity suppliers. Electricity suppliers could then use these ROCs to show that they had met their renewable obligations annually.¹⁴³⁶ Electricity suppliers were required to pay the ‘buy-out price’ to the government as a penalty if they were unable to obtain sufficient ROCs to meet their obligations.¹⁴³⁷ The RO was fixed six months before it came into effect usually on 1 October of the present year to come into effect on 1 April of the next year.¹⁴³⁸

¹⁴²⁹ Yoshihiro Yamamoto, *Feed-in Tariffs and the Economics of Renewable Energy* (Springer, 2018) 2

¹⁴³⁰ Ofgem, ‘About RO’ available at <https://www.ofgem.gov.uk/environmental-programmes/ro/about-ro> accessed 5 November 2020.

¹⁴³¹ Electricity Act 1989, S 32 (1)

¹⁴³² See introduction to Renewables Obligation Order 2015, SI 2015/1947 and Renewables Obligation (Scotland) Order 2009, SSI 2009/140.

¹⁴³³ Ofgem, ‘About RO’ available at <https://www.ofgem.gov.uk/environmental-programmes/ro/about-ro> accessed 5 November 2020.

¹⁴³⁴ The Department for Business, Energy & Industrial Strategy (BEIS) replaced the Department of Climate Change (DECC)

¹⁴³⁵ Ibid; see also Blaid Raybould, Wai M. Cheung, Chris Connor, Ross Butcher, ‘An Investigation into UK Government Policy and Legislation to Renewable Energy and Greenhouse Gas Reduction Commitments’ (2020) 22 *Clean Techn Environ Policy* 371, 376

¹⁴³⁶ E.ON Energy, ‘The Renewables Obligation Explained’ available at <https://www.eonenergy.com/~media/2390C47918784D15BED091AEEF4E481B.pdf> accessed 5 November 2020

¹⁴³⁷ Ibid

¹⁴³⁸ Department of Energy and Climate Change, 2010 to 2015 Government Policy: Low Carbon Technologies (DECC Policy Paper, May 2015)

The RO operated as a hybrid tax and trading scheme by incentivising renewable electricity generation whilst defaulters were penalised.¹⁴³⁹ A combination of factors in the implementation of the RO was instrumental in driving up renewable electricity utilisation in the UK to ensure distributional justice and energy security. The obligation imposed by electricity generators to report the volume of electricity generated monthly from renewable sources to Ofgem accelerated the development of renewable infrastructure by generators. Thus, renewable electricity generation increased from 5.8 GW in 2000 to 46.8 GW in 2018.¹⁴⁴⁰ Given the tradeable nature of ROCs, generators were incentivised to leverage on the scheme by selling ROCs to licensed electricity suppliers as well as having a positive consumer review – as a renewable electricity generator.¹⁴⁴¹ Additionally, the funds gathered from buy-out and late payment were re-distributed by Ofgem to suppliers with the required ROCs on a pro-rata basis.¹⁴⁴² Despite its closure, RES installations developed due to the operation of this scheme have promoted distributional justice and energy security by increasing the contribution of RES to the UK energy mix from less than 10% in 2010 to over 40% in 2020.¹⁴⁴³ Although the implementation of renewable obligations aided the development of low/ zero carbon technology to facilitate the realisation of emission targets, the cost of purchasing ROCs was borne by final consumers as it increased energy bills.¹⁴⁴⁴ For instance, the impact of RO on household energy costs in 2013 was estimated at £30 per household.¹⁴⁴⁵

RO closed to new generators of solar photovoltaic on 31 March 2016, onshore wind 12 May 2016 and all other RES on 31 March 2017; however, eligible electricity generators under the scheme will continue to receive full support through the lifetime (20 years) of accredited renewable electricity generating stations until the end of the scheme in 2037.¹⁴⁴⁶ It was replaced by the Contracts for Difference (CfD) FiT.

¹⁴³⁹ Steve Sorrell, 'WHO OWNS THE CARBON? Interactions between the EU Emissions Trading Scheme and the UK Renewables Obligation and Energy Efficiency Commitment' (2003) 14 *Energy & Environment* 677, 681

¹⁴⁴⁰ BEIS, 'UK Energy in Brief 2021' (n 1302)

¹⁴⁴¹ *Ibid*

¹⁴⁴² *Ibid*

¹⁴⁴³ Jillian Ambrose, 'UK Electricity from Renewables Outpaces Gas and Coal Power' available at: <https://www.theguardian.com/environment/2021/jan/28/uk-electricity-from-renewables-outpaces-gas-and-coal-power> accessed 24 January 2022

¹⁴⁴⁴ DECC 2013 (n 311) 78

¹⁴⁴⁵ *Ibid*

¹⁴⁴⁶ See Renewables Obligation (Closure) Order 2014, Order 3

6.6.2 Contract for Difference (CfD) FiT

The Contracts for Difference (CfD) support scheme is another government initiative to financially incentivise electricity generation through renewables.¹⁴⁴⁷ Although the CfD FiT came into force in 2017, the first CfD allocation round ran from October 2014 to March 2015.¹⁴⁴⁸ The scheme replaced RO, as the government's main low-carbon electricity support mechanism.¹⁴⁴⁹ Chapter 2 of the Energy Act 2013 provides for CfD. The Act describes a CfD as a contract that may be entered into between a CfD counterparty and an eligible generator in line with the provisions of the Act and on standard terms.¹⁴⁵⁰ It was designed to cushion renewable energy investors from market instabilities including price fluctuations. It aims to protect investors from sudden market shocks by providing guaranteed payments for generated renewable electricity, whilst reducing energy costs for consumers.¹⁴⁵¹ The objective of CfD is more about stabilising the electricity market rather than subsidising costs.¹⁴⁵² Compared to RO where profitability is determined by market conditions, the CfD FiT generally provides income security for RES generators in its operation.¹⁴⁵³

CfD operates as a long-term contract between a renewable electricity generator and the government-owned Low Carbon Contract Company (LCCC) (hereafter called 'CfD counterparty').¹⁴⁵⁴ Under this scheme, the CfD counterparty enters a contract with a generator of renewable electricity for a term (15 years for some technologies).¹⁴⁵⁵ In this arrangement, there is a fixed strike price agreed by both parties for the sale of electricity.¹⁴⁵⁶ The strike price

¹⁴⁴⁷ Department for Business, Energy and Industrial Strategy, 'Policy Paper: Contracts for Difference' available at <https://www.gov.uk/government/publications/contracts-for-difference/contract-for-difference> accessed 8 November 2020

¹⁴⁴⁸ Department for Business, Energy and Industrial Strategy, 'Contracts for Difference (CfD): First Allocation Round' available at: <https://www.gov.uk/government/collections/contracts-for-difference-cfd-first-allocation-round> accessed 9 March 2023

¹⁴⁴⁹ Hugh Taylor, 'Contracts for Difference Scheme: What Impact will it have on the Solar Site Acquisition Market?' available at <https://roadnighttaylor.co.uk/guest-blog/contract-for-difference-solar-site-acquisition/> accessed 8 November 2020

¹⁴⁵⁰ See Energy Act 2013, S 6 (2), 10 and 14.

¹⁴⁵¹ Ibid

¹⁴⁵² Ibid

¹⁴⁵³ Derek Bunn and Tim Yusupov, 'The Progressive Inefficiency of Replacing Renewable Obligation Certificates with Contracts-for-Differences in the UK Electricity Market' (2015) 82 Energy Policy 298

¹⁴⁵⁴ Natalie Kozlov, 'Contracts for Difference: Risks Faced by Generators under the New Renewables Support Scheme in the UK' (2014) 7 Journal of World Energy Law and Business 282

¹⁴⁵⁵ Department for Business, Energy & Industrial Strategy, 'Policy Paper: Contracts for Difference' available at <https://www.gov.uk/government/publications/contracts-for-difference/contract-for-difference> accessed 12 November 2020

¹⁴⁵⁶ John Dewar, Seyda Duman, 'Renewable Energy: United Kingdom' (2017) <https://gettingthedealthrough.com/area/99/jurisdiction/22/renewable-energy-2018-united-kingdom/> accessed 7 August 2018

acts as a guarantee to protect the investment cost of the eligible renewable technology.¹⁴⁵⁷ Where the market price (reference price) falls below the strike price, the CfD counterparty pays the generator the difference and where the market price goes above the strike price, the generator pays the CfD counterparty the difference.¹⁴⁵⁸

CfD shields electricity generators from price shocks, however, this does not guarantee profitability.¹⁴⁵⁹ Generators still need to enter into power purchase agreements (PPA) with electricity suppliers to access the market. Hence, where the PPA price is below the market price, the generator will operate at a loss as the CfD counterparty only pays the difference between the market price and the strike price.¹⁴⁶⁰ The allocation of CfDs through auctions, where generators are assessed based on their sealed bids and the generator with the lowest strike price are considered first, creates room for transparency.¹⁴⁶¹

Apart from renewable energy projects, CfD is also available for a range of other low-carbon generation projects such as carbon capture and storage (CCS) projects and nuclear plants.¹⁴⁶² By incentivising the development of other non-renewable low-carbon energy projects, CfD extends the scope for potential investors to consider taking advantage of the scheme. Beyond supporting electricity generation projects with zero/low carbon emissions, the inclusion of CCS projects means even traditional fossil-fuelled plants and industries may be able to take advantage of the scheme if CCS technology is installed and utilised to reduce emissions. If this option is explored, even though the CfD scheme can help drive down emissions in fossil fuel plants, it may also provide a lifeline for the continued utilisation of fossil fuels for electricity generation.

Unlike RO, several low-carbon technologies are excluded from the CfD scheme. For example, standard bioliquids, biomass co-firing, biomass plants without Combined Heat and Power and geopressured geothermal plants.¹⁴⁶³ At its inception, solar and onshore wind were excluded from projects covered by the scheme until March 2020.¹⁴⁶⁴ It is important to note that the ban on onshore wind turbines in England still excludes such projects from benefiting from the

¹⁴⁵⁷ Kozlov (n 1454)

¹⁴⁵⁸ *ibid*

¹⁴⁵⁹ Wood and Broom (n 1363)

¹⁴⁶⁰ *ibid*

¹⁴⁶¹ Kozlov (n 1454) 283

¹⁴⁶² Ross Fairley and Emma Andrews, 'Electricity Market Reform: An Update on Contracts for Difference' available at <https://www.inhouselawyer.co.uk/legal-briefing/electricity-market-reform-an-update-on-contracts-for-difference/> accessed 8 November 2020

¹⁴⁶³ *ibid*

¹⁴⁶⁴ Taylor (n 1449)

scheme.¹⁴⁶⁵ Furthermore, the CfD scheme requires a generator to provide an irrevocable standby letter of credit or cash as a collateral for the benefit of the CfD counterparty in the event of the generator defaulting with payment.¹⁴⁶⁶ This requirement may not be commercially viable for small generators who do not have a holding company to guarantee the letter of credit.¹⁴⁶⁷ Additionally, the competition between established RES technologies such as wind and solar photovoltaic and less developed RES such as wave and tidal energy for CfDs may weaken the chances of the latter. This may also inhibit access to the electricity market for less developed RES technology, and available market share to aid their development. The other option available for less developed technologies is to seek alternative support schemes such as the Smart Export Guarantee which replaced the Feed-in Tariff (FiT).

6.6.3 Feed-in Tariff (FiT)

FiT scheme is a government policy which encourages households and businesses who generate renewable and low-carbon electricity to export some of the generated electricity to the grid in exchange for payment.¹⁴⁶⁸ FiTs is a policy tool which promotes renewables deployment and utilisation at a minimal level.

The UK FiT scheme was introduced on 1 April 2010.¹⁴⁶⁹ Under the scheme, eligible installations are paid by licenced electricity service providers for electricity generated and exported to the national grid.¹⁴⁷⁰ The scheme was open to businesses or households with an installation capacity of 5 MW of electricity generated from solar photovoltaic (solar PV), hydro, wind and anaerobic digestion (AD), or 2 kW for micro combined heat and power (CHP).¹⁴⁷¹

Under the scheme, electricity suppliers (FiT licensees) with up to 250,000 domestic customers were obligated to make FiT payments to FiT generators for accredited FiT installations.¹⁴⁷² FiT

¹⁴⁶⁵ The proviso to paragraph 158 of the National Planning Framework acts as a *de facto* ban on onshore wind farms in England. See Ministry of Housing Communities and Local Government, 'National Planning Policy Framework' available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf accessed 9 July 2023

¹⁴⁶⁶ Kozlov (n 1454) 284

¹⁴⁶⁷ Ibid

¹⁴⁶⁸ Yoshihiro Yamamoto, *Feed-in Tariffs and the Economics of Renewable Energy* (Springer 2018) 11

¹⁴⁶⁹ Ofgem, 'About the FIT Scheme' available at <https://www.ofgem.gov.uk/environmental-programmes/fit/about-fit-scheme> accessed 7 October 2020

¹⁴⁷⁰ Ibid

¹⁴⁷¹ Ibid

¹⁴⁷² Standard Conditions of Electricity Supply Licences 2019, Conditions 33 and 34; see also The Feed-in Tariffs Order 2012, Part 2

generators could register with any FiT licensee to receive payments for any electricity generated from their accredited FiT installations and exported to the national grid.¹⁴⁷³ These payments were made quarterly and the support could last between 10 and 15 years depending on the technology type and capacity.¹⁴⁷⁴ Although each FiT licensee was in charge of administering the scheme with respect to its FiT generators, Ofgem exercised oversight over the scheme including maintaining the central FiT register of FiT licensees and FiT generators and ensuring regulatory compliance across the scheme.¹⁴⁷⁵

The FiT scheme accelerated the installation of small-scale RES infrastructure in the UK to guarantee security of supply and distributional justice as 682,511 installations were recorded between 2010 and 2015 with a capacity of 3,567 MW added to the electricity mix.¹⁴⁷⁶ Given that the FiT generators under the scheme included industrial sectors, commercial sectors, community energy and domestic sectors, this had implications for emission reduction in these sectors as well as the creation of employment.¹⁴⁷⁷ For example, the FiT scheme contributed about £30 billion to the UK economy between 2010 and 2014 and supported over 100,000 jobs from equipment manufacturing to installation and from operation to maintenance. Nevertheless, the scheme was over-subscribed in the UK; hence it was ended for a more market-based system to avoid rising costs for consumers.¹⁴⁷⁸

Despite its success in other European countries, FiTs were initially resisted by the UK government possibly because FiTs are considered as state-aid contrary to European Commission guidelines.¹⁴⁷⁹ However, pressure from stakeholders including investors and eco-NGOs, prevailed on the government to alter its stance.¹⁴⁸⁰ Moreover, the UK FiT was accepted by the European Commission as the projected profit margin for users of the scheme did not

¹⁴⁷³ Ofgem, 'About the FiT Scheme' (n 1469)

¹⁴⁷⁴ *ibid*

¹⁴⁷⁵ Merethe Dotterud Leiren, Tor Håkon Jackson Inderberg, and Tim Rayner, 'Policy styles, opportunity structures and proportionality: Comparing renewable electricity policies in the UK' (2021) 42 *International Political Science Review* 33-47

¹⁴⁷⁶ Department of Energy and Climate Change, 'Performance and Impact of the Feed-in-Tariff Scheme: Review of Evidence' (Final Report, 2015) available at:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/456181/FIT_Evidence_Review.pdf accessed 9 March 2023

¹⁴⁷⁷ *Ibid*, 29

¹⁴⁷⁸ The FiT was closed to new subscribers on 1st April 2019. See Ofgem, 'Feed-in Tariffs (FiT): Scheme Closure' available at: <https://www.ofgem.gov.uk/environmental-and-social-schemes/feed-tariffs-fit/scheme-closure> accessed 11 May 2022

¹⁴⁷⁹ Merethe Dotterud Leiren and Inken Reimer, 'Historical Institutional Perspective on the Shift from Feed-in Tariffs Towards Auctioning in Germany Renewable Energy Policy' (2018) 43 *Energy Research & Social Science* 33

¹⁴⁸⁰ Elliott (n 78), 291

exceed 12% in accordance with the EU State-Aid Guidelines.¹⁴⁸¹ Nonetheless, the introduction of FiT has been credited with enabling the establishment of small-scale renewable infrastructure at an initial lower cost.¹⁴⁸² Unlike other support schemes such as RO and CfD that require auctioning, the relative ease of access to FiT made it attractive to investors and provided guaranteed returns and lower cost for consumers.¹⁴⁸³ Although FiT are supplemental to other support schemes, their introduction has strengthened new renewable technologies.

FiT scheme has proven to be successful in most countries including Germany and the UK. Its viability in providing guaranteed income with reduced consumer costs makes it attractive for countries looking to develop decentralised small-scale RES infrastructure to meet the energy needs of underserved or unserved minorities. It can accelerate the development of variable renewable technologies at their early stages. It can further create a market for RES technology especially in fossil fuel-rich economies. However, the experience of Germany and the UK shows that FiTs are beneficial in the short-term as over time, their over-subscription may lead to increased costs for consumers.¹⁴⁸⁴ Given that the FiT scheme is funded through levies imposed on electricity suppliers, higher subscription to the scheme means higher levies on suppliers. These additional costs are thereafter passed on to consumers through electricity rates.¹⁴⁸⁵ Nonetheless, a nuanced view of FiTs is that their introduction can lead to a higher installation of domestic RES capacities by households and community energy. The development of small-scale RES infrastructure through FiTs can promote distributional justice and security of supply for unserved and underserved communities. It can further promote procedural and recognition justice particularly where small-scale RES infrastructures are owned locally as community energy projects. In the long term, this domestic ownership of RES capacity may lead to reduced reliance on the national grid. Furthermore, it is estimated that the

¹⁴⁸¹ European Commission, Community Guidelines on State Aid for Environmental Protection [2008] OJ C82/1; see also Department of Energy and Climate Change, 'Consultation on a Review of the Feed-in Tariffs Scheme' 27 August 2015 available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/469476/Consultation_on_a_Review_of_feed-in_tariff_scheme.pdf accessed 9 March 2023

¹⁴⁸² *ibid*

¹⁴⁸³ *ibid*

¹⁴⁸⁴ Elliott (n 78) 292

¹⁴⁸⁵ BEIS, 'FITs Closure: Impact Assessment' available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/727193/IA_for_FITs_closure.pdf accessed 12 May 2022

introduction of FiT in the UK created about 25,000 direct jobs mostly from small- and medium enterprises.¹⁴⁸⁶

There are other schemes introduced to support RES development in the UK such as the Smart Export Guarantee (SEG),¹⁴⁸⁷ which replaced the FiT scheme and the Offtaker of Last Resort scheme. Although these schemes are important for RES development, they will not be analysed in detail in this thesis for a few reasons. The SEG scheme is mostly like the FiT in its operation as it relates to small-scale RES development. The key differences are that it is mandatory for electricity suppliers with 150,000 customers to participate in the scheme, compared to 250,000 customers under the FiT,¹⁴⁸⁸ the rate payable is determined by individual SEG licensees (electricity suppliers), and there is no limit on the number of accredited RES installations that can receive support under the SEG scheme.¹⁴⁸⁹ The Offtaker of Last Resort is another support scheme which was introduced to assist RES developers with securing power purchase agreements.¹⁴⁹⁰ This will not be discussed as there has been no record of its utilisation since its introduction.¹⁴⁹¹ This highlights the popularity of existing support schemes among developers as well as institutions responsible for their administration.

6.7 Appraising the Regulatory Institutions for Renewable Energy Integration

The effective coordination of emission reduction efforts and RES optimisation cannot be achieved without the existence of robust regulatory institutions. The multilateral landscape of RES regulation involves regulatory activities including strategic planning, market supervision, promotion of competition, consumer protection, grid balancing, stipulation of standards, and provision of evidence-based expert recommendations. This section will analyse some of the key institutions whose mandates are central to driving RES integration in the UK. The

¹⁴⁸⁶ R. Cherrington et al, 'The Feed-in Tariff in the UK: A Case Study Focus on Domestic Photovoltaic Systems' (2013) 50 Renewable Energy 421, 424

¹⁴⁸⁷ Suzanna Hinson, Support for Small Scale Renewables (House of Commons Briefing Paper No 8624, 27 January 2020)

¹⁴⁸⁸ Standard Conditions of Electricity Supply Licences 2019, Conditions 33 and 34; see also The Feed-in Tariffs Order 2012, Part 2

¹⁴⁸⁹ Ofgem, 'Smart Export Guarantee (SEG)' available at: <https://www.ofgem.gov.uk/environmental-and-social-schemes/smart-export-guarantee-seg> accessed 15 March 2022

¹⁴⁹⁰ Ofgem, 'Offtaker of Last Resort (OLR)' available at: <https://www.ofgem.gov.uk/environmental-and-social-schemes/offtaker-last-resort-olr> accessed 15 March 2022; see also DECC, 'Implementing the Offtaker of Last Resort' available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/324227/OLR_Consultation_Final_27_June.pdf accessed 15 March 2022

¹⁴⁹¹ Ofgem, 'Offtaker of Last Resort Annual Report 2020-21' available at: <https://www.ofgem.gov.uk/publications/offtaker-last-resort-annual-report-2020-21> accessed 15 March 2022

institutions discussed in this section have a wider scope of regulatory functions covering the UK in its entirety.

6.7.1 Department for Business, Energy, and Industrial Strategy (BEIS)

BEIS replaced the Department of Energy and Climate Change as the principal government department responsible for setting out the governments energy policies and programmes to drive energy security, energy equity and sustainability.¹⁴⁹² BEIS is also responsible for implementing the EMR. As the government department in charge of energy development, BEIS sets the statutory prices stipulated in the Energy Act 2013 in liaison with relevant regulatory institutions.¹⁴⁹³ Its oversight function over the electricity market is to guarantee competition and protect the interests of consumers. However, in *R (oao Friends of the Earth) v. Secretary of State for Business Energy and Industrial Strategy*,¹⁴⁹⁴ the Net Zero Strategy (NZS) and the Heat and Buildings Strategy (HBS) were held to have been adopted unlawfully and in contravention of sections 13 and 14 of the Climate Change Act 2008. The NZS has been updated pursuant to the court's decision.¹⁴⁹⁵ Moreover, it has been argued that the department does not yet have clear vision on how best to manage the energy market in the best interest of consumers during the transition to low/ zero carbon energy.¹⁴⁹⁶ Whilst BEIS sets government plans, targets and policy direction in the electricity and gas sector in Great Britain, Ofgem is responsible for monitoring their implementation in the electricity and gas market, as well as enforcing compliance by sector operators.¹⁴⁹⁷

¹⁴⁹² Energy Act 2013, S 1

¹⁴⁹³ BEIS, 'Contract for Difference' available at:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/566337/CONTRACT_FOR_DIFFERENCE_STRIKE_PRICE_METHODODOLOGY_final.pdf accessed 17 March 2022

¹⁴⁹⁴ [2022] EWHC 1841 (Admin)

¹⁴⁹⁵ Department for Energy Security & Net Zero, 'Powering Up Britain: Net Zero Growth Plan' (April 2023) available at: <https://www.gov.uk/government/publications/powering-up-britain/powering-up-britain-net-zero-growth-plan> accessed 16 May 2024

¹⁴⁹⁶ House of Commons Committee of Public Accounts, 'Regulation of Energy Suppliers' (Twenty-Fifth Report of Session 2022–23) available at:

<https://committees.parliament.uk/publications/31575/documents/177114/default/> accessed 16 May 2024

¹⁴⁹⁷ IEA, 'Energy Policies of IEA Countries: United Kingdom 2019 Review' available at:

https://iea.blob.core.windows.net/assets/298930c2-4e7c-436e-9ad0-2fb8f1cce2c6/Energy_Policies_of_IEA_Countries_United_Kingdom_2019_Review.pdf accessed 9 March 2022

6.7.2 Office of Gas and Electricity Markets (Ofgem)

Ofgem is a non-governmental national regulatory agency responsible for the regulation of the British electricity and natural gas markets and governed by GEMA.¹⁴⁹⁸ The powers and functions of Ofgem are provided in various statutes including the Gas Act 1986, Electricity Act 1989, Competition Act 1998, Utilities Act 2000, Enterprise Act 2002 and the Energy Acts, 2004, 2008, 2010 and 2011.¹⁴⁹⁹ Ofgem is empowered to issue electricity generation licences, transmission licences, distribution licences, supply licences, interconnector licences and a smart meter communication licence.¹⁵⁰⁰ They can also issue gas transporter licences to convey gas through pipes to premises in a specified area or to another gas transporter's system.¹⁵⁰¹ In addition, the enforcement of compliance with set guidelines and standards in the electricity and gas industry including price monitoring, are part of the functions of Ofgem.

As the key regulatory institution responsible for the implementation of the EMR, Ofgem's statutory functions underscore the need to promote distributional justice and the security of supply of energy services, facilitate access to affordable energy, and promote the development of sustainable energy infrastructure with minimal impacts to the environment to ensure restorative justice.¹⁵⁰² As argued earlier, the various support mechanisms created in the Energy Act 2013 exist to promote the security of supply. However, the implementation of some of these schemes such as the CM scheme, which is available for fossil fuel (and RES technologies), may promote the security of supply whilst simultaneously undermining environmental sustainability. This poses a challenge to Ofgem's ability to balance the energy trilemma. Thus, successes recorded in the deployment of RES infrastructure may offset carbon emissions caused by temporary reliance on the CM scheme during periods of shortages caused by poor weather or infrastructural failure. Nevertheless, it is apt to note that these trade-offs in energy utilisation will ultimately benefit the consumers.

The protection of the interests of consumers remains the core responsibility of Ofgem.¹⁵⁰³ Statutorily, Ofgem has an obligation to pursue emission reduction in electricity generation

¹⁴⁹⁸ Ofgem, 'Who We Are' available at <https://www.ofgem.gov.uk/about-us/who-we-are> accessed 26 October 2020

¹⁴⁹⁹ Ofgem, 'Gas and Electricity Markets Authority' available at <https://www.ofgem.gov.uk/about-us/who-we-are/gas-and-electricity-markets-authority> accessed 26 October 2020

¹⁵⁰⁰ See Electricity Act 1989, S 6

¹⁵⁰¹ Gas Act 1986, S 7

¹⁵⁰² Electricity Act 1989, S 3A

¹⁵⁰³ Electricity Act 1989, S 3A (1)

whilst promoting the security of supply.¹⁵⁰⁴ However, the pursuit of these obligations is aimed at achieving the best possible outcome for the consumers. Meanwhile, in the Twenty-Fifth Report of Session 2022–23 of the House of Commons Committee of Public Accounts, it was noted that Ofgem’s failure to adequately regulate the energy market had cost consumers an estimated £2.7 billion.¹⁵⁰⁵ This was because Ofgem failed to carry out detailed investigation of the finances of new licensees. Consequently, when the licensees exited the market, the cost of their collapse was transferred to consumers.¹⁵⁰⁶

Whilst the UK has been able to attain universal energy access through the deployment of variable energy infrastructure, including RES technology, the increase in energy prices exacerbated by the Russian war in Ukraine has adversely affected households.¹⁵⁰⁷ This has made it challenging for Ofgem to effectively exercise its energy equity obligations under the law.¹⁵⁰⁸ Although the energy price cap which sets a maximum price that energy suppliers can charge consumers for each kWh of energy used, is set by Ofgem,¹⁵⁰⁹ this has had limited impacts on households. This is because whilst Ofgem has a duty to protect consumers from exorbitant energy prices, they also have an obligation to energy suppliers to ensure that their businesses are profitable and cost reflective. Protecting the interests of consumers by ensuring that energy prices are affordable to the most vulnerable households without stifling RES investment is daunting for Ofgem. Thus, balancing energy security and energy equity requires state intervention in the form of temporary financial support to consumers, which is beyond the budget of Ofgem.¹⁵¹⁰ The UK Government has stepped in to provide financial support to consumers such as the Energy Bills Support Scheme among other financial support to vulnerable consumers.¹⁵¹¹

¹⁵⁰⁴ See Electricity Act 1989, S 3A(1A) and Gas Act 1986, S 4AA(1A)

¹⁵⁰⁵ House of Commons Committee of Public Accounts, ‘Regulation of Energy Suppliers’ (Twenty-Fifth Report of Session 2022–23) (n 1496)

¹⁵⁰⁶ *ibid*

¹⁵⁰⁷ CNN (n 581)

¹⁵⁰⁸ Electricity Act 1989, S 3A (1)

¹⁵⁰⁹ Ofgem, ‘Energy Price Cap Explained’ <https://www.ofgem.gov.uk/information-consumers/energy-advice-households/check-if-energy-price-cap-affects-you> accessed 14 March 2023

¹⁵¹⁰ For instance, Ofgem’s expenditure for 2021–2022 was £129.9 Million whereas the Energy Bills Support Scheme, which was available to all British households is approximately £11.2 billion. See Ofgem, ‘Accountability Report’ 2021–2022 available at: https://www.ofgem.gov.uk/sites/default/files/2022-07/OFG2169%20Ofgem%20AR%26A%202022_Accountability.pdf accessed 14 March 2023; See also UK Government, ‘Help with your Energy Bills’ available at: <https://www.gov.uk/get-help-energy-bills> accessed 14 March 2023

¹⁵¹¹ *ibid*

The ideals of energy equity are woven into Ofgem's responsibility. It is statutorily enjoined to prioritise the interests of vulnerable groups in the performance of its functions.¹⁵¹² The interest of consumers with a disability or chronic ailments, the elderly, low-income earners, and rural dwellers must be protected in the generation, transmission, supply and distribution of gas and electricity.¹⁵¹³ This has energy justice implications as it entails, for instance, that the issuance of generation licenses for rural locations must not disproportionately impact the residents. It also demands that irrespective of their proximity, rural dwellers and other vulnerable groups must be granted access to energy services at affordable rates, even if it means government subsidising the costs.

Since balancing the energy trilemma is an integral aspect of Ofgem's function, the objectives of achieving energy security and consumer welfare must be pursued together with sustainability. Consequently, Ofgem must promote effective competition in the supply of gas and electricity generation, transmission, and distribution.¹⁵¹⁴ Exercising this duty entails creating an electricity market that is conducive to RES development. The implementation of relevant support schemes such as the CfD FiT and the creation of routes to the market for RES technologies,¹⁵¹⁵ provide an opportunity for Ofgem to meet the decarbonisation obligations of the Energy Act.¹⁵¹⁶ It further accelerates the development of RES technology to fast-track the transition to low/ zero carbon energy in line with government policies and strategies.¹⁵¹⁷ Given the environmental impact of energy generation and consumption, energy efficiency must be encouraged within the populace.¹⁵¹⁸ Ofgem also possesses prosecutorial powers against the breach of the provisions of the Electricity Act.¹⁵¹⁹

In the performance of its function of promoting competition in the electricity market, Ofgem and the Competition and Markets Authority (CMA) have concurrent jurisdiction.¹⁵²⁰ It is argued that this provision gives rise to the duplicity of functions and may result in administrative disputes between Ofgem and CMA. Although, in the event of such a

¹⁵¹² See section 3A (3) Electricity Act 1989

¹⁵¹³ Ibid

¹⁵¹⁴ See Electricity Act 1989, S 3A(1B) and Gas Act 1986, S 4AA (1B)

¹⁵¹⁵ Energy Act 2013, Chapter 6

¹⁵¹⁶ Ibid Ss 1,2 and 39

¹⁵¹⁷ HM Government, British Energy Security Strategy: Secure, Clean and Affordable British Energy for the Long Term' April 2022 available at: <https://www.gov.uk/government/publications/british-energy-security-strategy/british-energy-security-strategy> accessed 14 March 2023

¹⁵¹⁸ Utilities Act 2000, S 3A (5)

¹⁵¹⁹ See Electricity Act 1989, S 4(3) and Gas Act 1986, S 5(4)

¹⁵²⁰ See Electricity Act 1989, S 43

jurisdictional dispute, the CMA has primacy.¹⁵²¹ Nevertheless, to forestall conflicts, Ofgem and CMA entered a ‘none-binding’ memorandum of understanding (MoU) on the exercise of their concurrent functions on competition in the electricity and gas market.¹⁵²² Given that there is still the possibility of administrative disputes as the MoU is not legally enforceable, and given that Ofgem has noted that CMA has far-reaching statutory powers and technical expertise to investigate and implement competition,¹⁵²³ it is recommended that competition responsibilities over the gas and electricity market be reserved for CMA whilst Ofgem retains the right to refer suspected breach of competition rules to CMA.

The functions of Ofgem are duplicated in various statutes. For instance, its duty to protect energy consumers are replicated in the Electricity Act 1989, the Gas Act 1986, and the Utilities Act 2000.¹⁵²⁴ Moreover, amendments in one statute usually repeal or amend the provision of another. For example, section 43 of the Electricity Act 1989 was amended by section 279 of the Enterprises Act 2002, and further amended by the Enterprise and Regulatory Reform Act 2013. Despite these amendments, the Electricity Act 1989 still provides a reference to the long list of amendments and substitutions. The multiplicity of Ofgem’s functions in different statutes and the retention of the complex web of amendments make it cumbersome to keep track of Ofgem’s statutory duties. It is argued in this thesis that this legislative multiplicity and disarrangement may pose confusion for operators, researchers, solicitors, and other stakeholders. Thus, the codification of all the various amendments into a single comprehensive and harmonised legislation may be the best way to go. This will make the legal framework clearer, avoid ambiguity and be more accessible for small-scale developers.

6.7.3 Committee on Climate Change (CCC)

The CCC was created by the Climate Change Act 2008 as an expert-driven advisory body on climate change mitigation and adaptation.¹⁵²⁵ The main responsibilities of the CCC are to advise the UK and devolved governments on emission reduction targets, reporting to the UK Parliament as well as the devolved parliaments on the progress made in achieving emission targets, specific actions undertaken to drive down emissions and future plans, climate change

¹⁵²¹ Competition Act 1998 (Concurrency) Regulations 2014, Regulation 5

¹⁵²² See Ofgem, ‘CMA and OFGEM – Memorandum of Understanding’ available at: <https://www.ofgem.gov.uk/publications/cma-and-ofgem-memorandum-understanding> accessed 17 May 2022

¹⁵²³ Ofgem, ‘Ofgem Proposes a Reference to the CMA to Investigate the Energy Market’ available at: <https://www.ofgem.gov.uk/publications/ofgem-proposes-reference-cma-investigate-energy-market> accessed 17 May 2022

¹⁵²⁴ See Electricity Act 1989, S 3A

¹⁵²⁵ Climate Change Act 2008, S 32.

mitigation and adaptation efforts.¹⁵²⁶ The underlying objective of the CCC borders on restorative justice as it seeks to ensure that environmental pollution in the energy sector is remediated through emission reduction mechanisms.¹⁵²⁷ In discharging its advisory responsibilities to the government and in reporting the progress in emission reduction, the committee enables the embedding of restorative justice principles in energy law and policy in the UK by highlighting the exigencies of the climate emergency and its impacts.

Members of the CCC are appointed by the UK Government in consonance with the devolved administrations for a period of 5 years.¹⁵²⁸ Although the UK Government and devolved governments provide funding for the CCC, and are empowered to give guidance and direction to the Committee,¹⁵²⁹ the CCC is an independent entity.¹⁵³⁰ The CCC's advisory activities help legitimise climate policy decisions as they are evidence-based.¹⁵³¹ Moreover, the CCC's expertise provides access to quality independent data for the government, parliament and businesses. This informs public policy decisions and business strategies. Given the political neutrality of the Committee and its expert composition, the CCC's reports ensure transparency and accountability. Consequently, its views are respected across the board irrespective of political leanings and social ideologies.

The periodic reporting of the CCC has mainstreamed climate change action in the UK. Their advice and opinions have been widely adopted by the UK and devolved governments, referenced in their respective parliaments, and have been vital tools for organisations and businesses.¹⁵³² However, its recommendations have largely been based on actions to be taken within the UK.¹⁵³³ Despite having identified the high prevalence of imported emissions in the UK, its recommendations have not focused on the need to mandate UK businesses to reduce

¹⁵²⁶ See Climate Change Act 2008, Ss 34, 35, 36, 56 and 59; see also Climate Change Committee, 'About the Climate Change Committee' available at: <https://www.theccc.org.uk/about/> accessed 5 January 2022

¹⁵²⁷ Heffron and McCauley, 'The Concept of Energy Justice Across the Disciplines' (n 71)

¹⁵²⁸ See Climate Change Act 2008, Schedule 1, S. 1; see also Committee on Climate Change Framework Document (HM Government, The Scottish Government, The Welsh Assembly Government, and Department of the Environment, Northern Ireland, April 2010), 17

¹⁵²⁹ See Climate Change Act 2008, Ss 40, 41 and 42.

¹⁵³⁰ See *ibid*, Schedule 1, S 27

¹⁵³¹ Awerchenkova et al (n 1300), 257

¹⁵³² *ibid*

¹⁵³³ *ibid*

imported emissions.¹⁵³⁴ Similarly, its recommendation for the development of CCS infrastructure tacitly encourages the continued financing and development of fossil fuels.¹⁵³⁵

6.8 Analysis of the Scottish Renewable Energy Planning and Consenting Regime

This thesis focuses on comparing the RES regulatory regime of Nigeria and the UK. Given that the UK RES regulatory regime has been decentralised to allow the different jurisdictions (England, Scotland, Wales, and Northern Ireland) exercise some regulatory powers over RES planning and consenting, this thesis zeros in on the Scottish RES planning and consenting regime because it promotes energy justice and has statutory provisions for a just transition.¹⁵³⁶ Whilst this is not an attempt to analyse the UK constitutional law and devolution, as it is beyond the scope of this thesis, it is necessary to understand how legislative powers are distributed between the central government and the other UK jurisdictions as it affects RES regulation.

The UK is a unitary state with powers held at the centre and some powers distributed among constituent nations.¹⁵³⁷ The UK Parliament is the principal legislature in the UK. It is responsible for the enactment of laws, including most energy laws.¹⁵³⁸ However, based on the principle of devolution, some legislative powers are devolved to the Scottish Parliament.¹⁵³⁹ Furthermore, some legislative functions may be delegated to the Scottish Government or Scottish Parliament in accordance with enabling statutes.¹⁵⁴⁰

¹⁵³⁴ Committee on Climate Change, 'Reducing the UK's Carbon Footprint' April 2013 available at: <https://www.theccc.org.uk/publication/carbon-footprint-and-competitiveness/> accessed 14 March 2023

¹⁵³⁵ Somerville, (n 1677), 638

¹⁵³⁶ See Climate Change (Scotland) Act 2009, S 35C

¹⁵³⁷ Other views consider the UK as a union of nations. See Stephen Tierney, 'Giving with One Hand: Scottish Devolution Within a Unitary State' (2007) 5 International Journal of Constitutional Law 730–753; Matthew Graves, 'The United Kingdom between Unitary State and Union State: A Geopolitical Analysis' In: Isabelle Bour and Antoine Mioche (eds.), *Bonds of Union: Practices and Representations of Political Union in the United Kingdom (18th-20th centuries)*, (Tours, 2005); Michael Keating, 'Back to the Unitary State?' available at: <https://www.centreonconstitutionalchange.ac.uk/news-and-opinion/back-unitary-state> accessed 23 November 2021

¹⁵³⁸ See Scotland Act 1998, Schedule 5. There are some aspects of energy law that are devolved to the Scottish Government. These are generally with respect to environmental regulation for energy development. Although more recently, section 47 of the Scotland Act 2016 has granted the Scottish parliament the regulatory powers to grant oil exploration and exploitation licences within the Scottish onshore area. See also Gavin Little, 'Energy and the Scotland Act 2016' (2016) 20 Edin. Law Review 394

¹⁵³⁹ The UK Parliament has exclusive legislative powers over reserved matters. See Scotland Act 1998, Sch. 5. However, the UK Parliament can still legislate over devolved matters, but this must be done with the consent of the Scottish Parliament in line with the Sewel Convention. See Scotland Act 1998, S 28(7)(8). However, in *R (Miller) v Secretary of State for Exiting the European Union (Birnie intervening)* [2018] AC 61, it was held by the UK Supreme Court that the Sewel Convention is a political convention and is not justiciable.

¹⁵⁴⁰ See Energy Act 2004, S 84 (5)

In pursuance of the powers conferred on the Secretary of State in the Energy Act 2004,¹⁵⁴¹ the Renewable Energy Zone (Designation of Area) (Scottish Ministers) Order 2005 was issued, granting the Scottish Ministers authority to exercise regulatory functions in the Renewable Energy Zone within Scottish (sea) borders.¹⁵⁴² Furthermore, the Scottish Government is the principal regulatory authority for the issuance of consents for the construction and installation of electricity generation projects in Scotland.¹⁵⁴³ Nonetheless, given that national planning and developmental consents fall within the remit of both the Scottish Government and LPAs, this also includes the powers to approve RES projects.¹⁵⁴⁴

6.8.1 Strategic Planning Framework as a Determinant of Development Control: An Overview of the Scottish Planning System

Town planning is a devolved matter; hence the Scottish government has the statutory power to legislate on the subject.¹⁵⁴⁵ In addition, the Scottish planning policies are created by the Scottish government and embedded in the Scottish Planning Policy and Scottish National Planning Framework.¹⁵⁴⁶ Through these instruments, the Scottish Government articulates its developmental priorities and land use to promote national prosperity, economic development, social wellbeing, environmental preservation, and actualisation of emission reduction targets.¹⁵⁴⁷ At a strategic level, the principal aim of the Scottish planning regime is to facilitate the development and utilisation of land for the long-term benefit of the society.¹⁵⁴⁸ This includes using land in a manner that encourages the sustainable development of infrastructures such as low/zero carbon energy.¹⁵⁴⁹ The development and use of land for public interest are also reflected at the local level as LPAs are also obligated to produce local development plans that align with the overarching national strategic development plan.¹⁵⁵⁰ On a practical level, local development plans set out the kinds of development that are permissible at different locations of the relevant local council. Given the flexibility of the Scottish planning regime, local councils can develop local development plans in accordance with their individual

¹⁵⁴¹ *ibid*

¹⁵⁴² The Renewable Energy Zone (Designation of Area) (Scottish Ministers) Order 2005, SSI 2005/3153

¹⁵⁴³ Electricity Act 1989, S 36(1), (10)(a)

¹⁵⁴⁴ See Town and Country Planning (Scotland) Act 1997, S 1

¹⁵⁴⁵ See Scotland Act 1998, S 29; see also Francis McManus, *Environmental Law in Scotland: An Introduction and Guide* (EUP 2016) 269

¹⁵⁴⁶ The Planning etc (Scotland) Act 2006, S 1, introduced the National Planning Framework into the Town and Country Planning (Scotland) Act 1997 – S 3A.

¹⁵⁴⁷ *Ibid* S 3A (3)

¹⁵⁴⁸ Town and Country Planning (Scotland) Act 1997, S 3ZA

¹⁵⁴⁹ *ibid*

¹⁵⁵⁰ Town and Country Planning (Scotland) Act 1997, S 15

developmental needs. For instance, where housing is considered a major developmental need, planning applications for houses will be encouraged by the local authority whereas where reduction of population density and promotion of social wellbeing is a developmental priority of another council, the building of green spaces and social infrastructures such as community halls will be actively encouraged in the local development plan. Therefore, the strategic planning framework influences the kinds of development that can secure planning permits.

As observed earlier, the strategic planning policy direction is set centrally by the Scottish government; however, these guidelines are mostly implemented by LPAs. This is expressed through development control or management¹⁵⁵¹ in the granting or refusal of development planning applications such as for green spaces, buildings and even construction of low/zero carbon energy infrastructure. In deciding on whether to grant relevant permits or not, LPAs have a statutory duty to consider the implication of the application on both strategic and local development plans.¹⁵⁵² The success of a planning application is materially influenced by its public interest benefit and its alignment with extant development plans. For a proposed development to succeed, it must not only be beneficial to society, but it must also be seen to fulfil the policy objectives of the national or local development framework.

Strategic and local planning policies are formulated upon consultation with relevant stakeholders including the Scottish Environmental Protection Agency (SEPA), Marine Scotland, NatureScot, and local communities.¹⁵⁵³ However, LPAs are responsible for development controls including the granting of relevant planning permits for developments such as infrastructure and low/zero carbon energy. Planning decisions may be challenged (by appealing to the local review body in the first instance and thereafter to the Scottish ministers);¹⁵⁵⁴ however, where intelligible reasons are provided for the decision, the courts can only do little to alter planning decisions as they are mostly administrative decisions. In *Wildland Ltd and The Welbeck Estates v Scottish Ministers*,¹⁵⁵⁵ the petitioners sought to challenge the Scottish Government's decision to grant a section 36 consent for the construction

¹⁵⁵¹ Development control (now called development management) refers to the process involved in applying and obtaining planning consents for developments on lands. It also involves the various ancillary permits and consultations that may be required depending on the type and size of the proposed development. see Eric Young and Jeremy Rowan-Robinson, *Scottish Planning Law and Procedure* (William Hodge & Co, 1985) 185; see also Raymond McMaster, Alan Prior, and John Watchman (eds), *Scottish Planning Law 3rd ed.*, (Bloomsbury Publishing, 2013) 149

¹⁵⁵² Town and Country Planning (Scotland) Act 1997, S 37; See also McMaster et al (n 1551) 15

¹⁵⁵³ *Ibid*, 19

¹⁵⁵⁴ *Ibid* 21

¹⁵⁵⁵ [2017] CSOH 113

of Creag Riabhach wind farm on the Altnaharra Estate in Sutherland. They argued that the construction of 22 wind turbines would disrupt the scenic views and the wild land and that the consent was granted despite NatureScot's objection. However, the Court of Session Outer House upheld the decision of the Scottish Ministers to grant the consent because the benefits of the wind farm outweighed the concerns raised in the objections.¹⁵⁵⁶ Furthermore, the Scottish ministers had provided intelligible reasons for rejecting the objection of NatureScot. The court stated per Lord Boyd of Duncansby, '*It is not for the court to make assessments as to why decisions on individual applications might reach different results. These are planning judgements for ministers on the facts of each case applying the policy in force at the time.*' The decision in this case underlines the fact that development control is influenced by strategic development plans; hence, the best opportunity to achieve different outcomes is to participate in the public consultation for the formulation of strategic plans as opposed to challenging planning application decisions.

Decisions on development consents are generally hinged on 'public interest'. Thus, given the transitory nature of social interests, the boundary of public interest is constantly shifting. This is evident in the development of onshore wind energy. Previous discussions about energy security in Scotland have centred on expanding offshore RES capacity.¹⁵⁵⁷ However, in the wake of the impact of the Russian invasion of Ukraine and its attendant impact on energy prices globally, it has become expedient to explore all viable energy options including onshore wind to sustain the security of supply. Nevertheless, clear guidelines must be stipulated in the strategic planning framework to protect sites of national heritage such as scenic areas, parks, and historic and wild lands, such that onshore wind energy development can be carried out in so far as it does not adversely affect these locations. When this is clearly spelt out, developers will be well guided in making their application and relevant planning authorities and regulators will be better placed to make decisions that conform with these guidelines.¹⁵⁵⁸ In the light of the current social dynamics, the Scottish Government is currently consulting about expanding onshore wind capacity.¹⁵⁵⁹ This promotes procedural justice and provides an avenue for

¹⁵⁵⁶ Ibid 16

¹⁵⁵⁷ Scottish Government, 'Third National Planning Framework' available at: <https://www.gov.scot/publications/national-planning-framework-3/documents/> accessed 12 April 2022

¹⁵⁵⁸ John Muir Trust, 'John Muir Trust's Onshore Wind Policy Statement Response' available at: <https://www.johnmuirtrust.org/resources/1066-trust-response-to-onshore-wind-policy-statement/> accessed 12 April 2022

¹⁵⁵⁹ Scottish Government, 'Onshore Wind Policy Statement Refresh 2021: Consultative Draft' available at: <https://www.gov.scot/publications/onshore-wind-policy-statement-refresh-2021-consultative-draft/> accessed 12 April 2022

members of the public and other interest groups to contribute to the formulation of strategic plans that facilitate low/zero carbon energy development with minimal impact on social wellbeing.

Onshore wind farm planning approvals have expanded recently due to energy security/independence issues vis-a-vis the need to preserve the aesthetic features of land and other impacts on biodiversity and habitats. These factors have influenced the evolution of the Scottish RES planning and consenting regime.

6.8.2 Renewable Energy Planning and Consenting in Scotland

Before commencing electricity generation in the UK, a developer must first obtain energy consent from the relevant authority – so-called Section 36 consent.¹⁵⁶⁰ In Scotland, the authority for granting planning consents and approvals for RES developments is determined by the kind of RES technology and the generation capacity. For instance, the Scottish ministers have the authority to grant approvals for the construction, operation, and modification of onshore renewable electricity generation projects with generation capacities of 50 MW and above.¹⁵⁶¹ This power is exercised through the Energy Consents Unit for onshore RES development.¹⁵⁶² Planning approvals for renewable electricity generation capacities below 50 MW are handled by LPAs.¹⁵⁶³ Additionally, RES infrastructure of up to 50kW for electricity and 45kW for heat are considered microgeneration and qualify for permitted development rights (i.e. developments that do not require planning approvals).¹⁵⁶⁴ By dispensing with the need to go through the tedious planning and consenting process, the Scottish consenting regime encourages small electricity developers to harness the country's RES potential.¹⁵⁶⁵ Electricity generating stations with capacities below the threshold must still obtain planning permission from the relevant council area where the project is to be sited.¹⁵⁶⁶ Marine Scotland is the government directorate responsible for the issuance of planning licences for offshore renewable

¹⁵⁶⁰ Electricity Act 1989, S 36

¹⁵⁶¹ Energy and Climate Change Directorate, 'Energy Infrastructure' available at: <https://www.gov.scot/policies/energy-infrastructure/energy-consents/> accessed 7 February 2022

¹⁵⁶² *ibid*

¹⁵⁶³ See Electricity Act 1989, S 36(2)(a). Although where the generating station is situated within territorial waters and driven wholly or majorly by wind or water, the capacity reduces to 1MW. See Article 3 The Electricity Act 1989 (Requirement of Consent for Offshore Generating Stations) (Scotland) Order 2002

¹⁵⁶⁴ Scottish Government, 'Microgeneration: Planning Advice' available at: <https://www.gov.scot/publications/microgeneration-planning-advice/> accessed 4 March 2022; see also Climate Change (Scotland) Act 2009, S 71 and Energy Act 2004, S 82

¹⁵⁶⁵ Ruven Zeuschner, 'The Development of the Consenting Regime for Offshore Renewable Energy Projects in Scotland' (2011) 4 IELR 150, 151

¹⁵⁶⁶ *ibid*

energy.¹⁵⁶⁷ However, as noted earlier,¹⁵⁶⁸ the Scottish and UK legal framework for offshore wind energy will not be analysed in this thesis because it is a complex area of research which cannot be efficiently addressed within this thesis. Nevertheless, aspects of offshore wind energy will be considered in relation to the energy trilemma. Additionally, besides the complex regulatory environment for offshore wind energy in Scotland, the issue of offshore energy resources has been a thorny discourse in Nigeria.¹⁵⁶⁹

The Scottish planning and consenting regime make it mandatory for renewable energy entities to carry out relevant impact assessments where the proposed project is likely to have significant effects on the environment. The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 prescribes factors that must be considered in conducting an EIA such as the impact of the development on the population and their health, biodiversity (including the protection of natural habitats, wild birds, and endangered species), the physical environment and climate, and items/ assets of cultural heritage and their surrounding landscapes.¹⁵⁷⁰ This promotes distributional justice by ensuring that the siting of RES infrastructure does not disproportionately affect local communities, native species and their habitats.¹⁵⁷¹ It further promotes recognition justice as public opposition to RES development may be borne out of the need to protect unique features such as scenic landscapes, communal recreational areas, and species; hence the need to ensure that adverse impacts on these features are assessed and addressed in the planning and consenting stage of RES development.¹⁵⁷²

Consequently, depending on the nature of the project and its size, the environmental assessment required under the Scottish legal regime includes Environmental Impact Assessment (EIA), Habitats Regulations Appraisal (HRA) and Strategic Environmental Assessment (SEA).¹⁵⁷³ For instance, the installation of hydroelectricity dams of up to 0.5 MW, wind energy with more

¹⁵⁶⁷ Marine Scotland, 'Marine Scotland Consenting and Licensing Guidance for Offshore Wind, Wave and Tidal Energy Applications' available at: <https://www.gov.scot/binaries/content/documents/govscot/publications/consultation-paper/2018/10/marine-scotland-consenting-licensing-manual-offshore-wind-wave-tidal-energy-applications/documents/00542001-pdf/00542001-pdf/govscot%3Adocument/00542001.pdf> accessed 1 March 2022

¹⁵⁶⁸ Text to n 94.

¹⁵⁶⁹ *ibid*

¹⁵⁷⁰ See Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017, SI 2017/102, Regs 3 and 4

¹⁵⁷¹ Jenkins et al (n 330) 176

¹⁵⁷² *Ibid*, 177

¹⁵⁷³ Scottish Government, 'Environmental Assessment' available at: <https://www.gov.scot/policies/environmental-assessment/strategic-environmental-assessment-sea/> accessed 7 February 2022

than two turbines, and other renewable energy sources with an area of 0.5 hectares require an EIA,¹⁵⁷⁴ whereas the installations below these thresholds do not need EIA.¹⁵⁷⁵ HRA is required for planning projects that are likely to affect sites of natural heritage, species and their habitats, and protected assets.¹⁵⁷⁶ SEA applies to public entities and large private entities such as LPAs and utility companies.¹⁵⁷⁷ It entails the holistic assessment of the environmental impacts of their plans, strategies and processes. SEA ensures that before plans and policies are introduced by public entities (including local authorities, government ministries, departments, and agencies), an assessment of the impacts of these plans and strategies is carried out to mitigate adverse environmental impacts and facilitate public participation in such planning. This is important given that such strategic or developmental plans will provide the basis upon which licensing decisions are made. SEA has more far-reaching implications as it is not limited to a single project but could influence the outcome of a plan that affects an entire locality, region, or sector of the economy. Moreover, environmental assessments in Scotland also entail mandatory consultation with consulting authorities before planning decisions are made.¹⁵⁷⁸ While these statutory consultees do not all have regulatory powers, they exist to protect environmental resources and natural heritage on behalf of the population. This promotes nature conservation and public participation (procedural justice).

The conduct of relevant environmental assessments as a condition precedent for the granting of planning consents for energy development ensures that the impacts of energy projects are known from the outset. Thus, whether consent is granted or refused, developers are better placed to develop alternative projects tailored to the topography of the proposed site. Moreover, where impacts cannot be prevented or mitigated, the relevant consenting authority can make informed decisions that not only favour the populace but also the environment. The Scottish RES planning and consenting legal regimes ensure that in developing energy infrastructure, developers must study the impact of their projects on biodiversity habitats. In deviating from anthropocentric impact assessments, the Scottish regime underscores the impact of development on biodiversity. HRA ensures that native species and their habitats are not dislodged by RES development. Additionally, the protection of endangered species is crucial

¹⁵⁷⁴ Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017, Schedule 1, Para. 15

¹⁵⁷⁵ *Ibid*, Schedule 2, Para. 3

¹⁵⁷⁶ Scottish Natural Heritage, *Habitats Regulations Appraisal of Plans Guidance for Plan-Making Bodies in Scotland* (David Tyldesley and Associates, January 2015)

¹⁵⁷⁷ Scottish Government, 'Environmental Assessment' (n 1573)

¹⁵⁷⁸ The statutory consulting authorities are Historic Environment Scotland, the Scottish Environment Protection Agency, and NatureScot. See *Environmental Assessment (Scotland) Act 2005*, S 14 and 15

in granting planning consents. Besides the impact of RES projects, the Scottish regime ensures that processes and strategies employed by developers do not adversely affect the environment. SEA requires developers to consult with the public and relevant authorities through the developmental process of the project in line with procedural justice. This ensures that members of the public are kept informed of the development and that concerns are addressed as they come up. This guarantees procedural justice as it gives the public the opportunity to be heard; it also shows respect for the public thereby building mutual trust between the developers and their host communities.

Under the Scottish RES planning and consenting regime, developers of renewable electricity are required to give notice of their application to the public.¹⁵⁷⁹ Where the development requires EIA,¹⁵⁸⁰ the EIA must also be publicised and made accessible to the public.¹⁵⁸¹ The publicity requirement ensures that relevant notices are published in local newspapers with sufficient details to describe the nature and location of the development. As observed earlier in this research,¹⁵⁸² RES infrastructure development comes with its impacts. Hence, by publicising the application, members of the public can raise any concerns or objections to the development. This affords the public the opportunity to influence the development and to protect their localities. This also gives the developer an opportunity to engage with the community as a responsible corporate citizen. Through this medium, developers can communicate the socio-economic benefits of the development as well as any project they intend to give back to their host communities.¹⁵⁸³

Further, before planning consent is granted for large RES developments, relevant bodies such as SEPA, relevant LPAs, NatureScot, and Historic Environment Scotland, must be consulted.¹⁵⁸⁴ These consulting bodies play an important part in the entire process as they have to ensure that the proposed development does not interfere with local developments, culturally significant landmarks, and the environment; and where this is inevitable, adequate measures are put in place to mitigate the impacts of the development. The Scottish Ministers (as regulators) can provide details of what an EIA report should contain.¹⁵⁸⁵ This makes room for

¹⁵⁷⁹ The Electricity (Applications for Consent) Regulations 1990, SI 1990/455, Reg. 4

¹⁵⁸⁰ See Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017, SI 2017/101, Reg. 14

¹⁵⁸¹ *Ibid*, Reg. 18

¹⁵⁸² See section 1.12 of this thesis on the environmental, socio-cultural and economic impacts of renewables.

¹⁵⁸³ See South Lanarkshire Council, Supporting Planning Guidance: Renewable Energy (South Lanarkshire Local Development Plan 2, 2018)

¹⁵⁸⁴ Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017, SI 2017/101, Reg 23

¹⁵⁸⁵ *ibid*, Reg 12

regulatory clarity and ensures that developers are well-guided on the extent of the EIA required. The support received in the application process can encourage the development of RES infrastructure as developers can be supported in the preparation of EIA reports. Additionally, this signposts to potential investors that the planning and consenting regime is not hostile or riddled with rigorous bureaucracy.

The decentralised governance of renewable energy planning and consenting under Scots law allows for flexibility and efficiency. Given that LPAs are closer to the affected communities they are more approachable for renewable energy planning consents than the Scottish ministers and Marine Scotland. Additionally, different local councils have the liberty to set their standards in line with the national overarching policy or guidelines, and council developmental plans.¹⁵⁸⁶ For instance, South Lanarkshire Council requires renewable energy developers to submit a socio-economic impact assessment statement alongside their application.¹⁵⁸⁷ This ensures that the impact of each project on the local economy is assessed, and the council can encourage small-scale RES development designed according to the council's developmental priority. Furthermore, councils have the liberty of selecting RES zones, RES mappings (to highlight areas with high potential for RES), and scoping based on their immediate needs and in alignment with local topography rather than being imposed by the national authorities.

The regulatory flexibility of the Scottish RES planning and consenting regime has impacted the country's ability to balance its energy trilemma. As noted earlier, over 97% of electricity generation was from renewable sources in 2020. A conducive investment climate with simplified regulation has led to an increase in RES development. Additionally, the country is one of the global leaders in wind energy thereby promoting environmental sustainability. However, the lack of domestic production of RES equipment significantly hampers Scotland's ability to maximise the benefits of its green sector. Although there is universal access to energy services, Scotland's reliance on natural gas for heating of buildings remains a major challenge to its energy transition. Further, the accelerated transition from fossil fuels has contributed to increasing fuel poverty in the country as the energy bills continue to rise with poor households most affected; this raises energy justice concerns.

¹⁵⁸⁶ See South Lanarkshire Council (n 1583), 24

¹⁵⁸⁷ Ibid

6.9 Assessing the Scottish Legal Framework for Energy Justice and Just Transition: Lessons from Legislative, Policy and Institutional Responses

Energy has been at the nucleus of industrialisation and economic development. This has led to the exploitation of different energy sources to meet the growing energy demands. This point was buttressed by George Orwell who asserted that coal was the livewire of the then British society given its impact on all sectors of the country.¹⁵⁸⁸ However, as alternative energy sources have been developed, conventional energy sources have been on the decline. Moreover, the need for clean energy has accelerated the transition from fossil fuels to more sustainable alternatives such as nuclear energy and renewables.

Energy transitions come at huge social, economic, and environmental costs.¹⁵⁸⁹ Energy transitions also entail the installation of expensive new energy infrastructure. Furthermore, the shutting down and decommissioning of old sites have tremendous impacts on local economies and livelihoods. Some of the impacts recorded during the transition from coal in the UK include job losses, mental health breakdown, loss of social structure, loss of homes, discontentment, geographical and occupational immobility among others.¹⁵⁹⁰ To mitigate these impacts in the current transition to low/zero carbon energy, it is essential to ensure that wider consultations involving communities, businesses, the organised labour, and the general public are had, and programmes and plans are introduced to facilitate a progressive energy transition that is just. As observed earlier in this thesis,¹⁵⁹¹ achieving a just energy transition requires citizen-centred approaches codified in legislation and policy with a robust institutional outfit to monitor its realisation. These are some of the measures introduced by the Scottish Government to address just transition.

Scotland has demonstrated its desire to reduce carbon emissions to net zero by 2045 by enacting its target in statute.¹⁵⁹² However, perceptive of the implications of attaining net zero, the Scottish government has introduced policy responses to engender a just transition that achieves

¹⁵⁸⁸ George Orwell, *Down the Mine in: The Road to Wigan Pier* (Pt 1. Ch. 2), GB, London

¹⁵⁸⁹ Grantham Research Institute on Climate Change and the Environment, 'Policy Brief Investing in a Just Transition in the UK' available at: https://www.lse.ac.uk/granthaminstitute/wp-content/uploads/2019/02/Investing-in-a-just-transition-in-the-UK_policy-brief_8pp-1.pdf accessed 25 February 2022

¹⁵⁹⁰ Tejvan Pettinger, 'The Decline of the UK Coal Industry' available at: <https://www.economicshelp.org/blog/6498/uncategorized/the-decline-of-the-uk-coal-industry/> accessed 21 February 2022

¹⁵⁹¹ Chapter 3 discusses energy justice and just transition.

¹⁵⁹² Climate Change (Emissions Reduction Targets) (Scotland) Act 2019, S A1

set targets as well as fairness to those impacted by the transition.¹⁵⁹³ The Just Transition Commission was established as an advisory body to advise the Scottish Government on the most effective approaches to developing just transition plans.¹⁵⁹⁴ The body is also responsible for engaging with relevant stakeholders including those affected by the transition, experts, businesses, public and private institutions, and the third sector. The Commission also has oversight functions over the implementation of just transition initiatives.¹⁵⁹⁵ Just energy transition has become mainstream in Scotland as the Climate Change (Scotland) Act 2009 was amended in 2019 to include provisions for just transition principles in the development of low-carbon energy.¹⁵⁹⁶ The Act provides thus:

1. In this Act, the “just transition principles” are the importance of taking action to reduce net Scottish emissions of greenhouse gases in a way which—

- (a) supports environmentally and socially sustainable jobs,
- (b) supports low-carbon investment and infrastructure,
- (c) develops and maintains social consensus through engagement with workers, trade unions, communities, non-governmental organisations, representatives of the interests of business and industry and such other persons as the Scottish Ministers consider appropriate,
- (d) creates decent, fair and high-value work in a way which does not negatively affect the current workforce and overall economy,
- (e) contributes to resource efficient and sustainable economic approaches which help to address inequality and poverty.¹⁵⁹⁷

The just transition principle as espoused in the Act requires the development of emission reduction actions that guarantee support for sustainable jobs, support for low-carbon investment and infrastructure, public engagement with relevant stakeholders (including

¹⁵⁹³ Scottish Government, ‘Just Transition Commission’ available at: <https://www.gov.scot/groups/just-transition-commission/> accessed 21 February 2022

¹⁵⁹⁴ *ibid*

¹⁵⁹⁵ Just Transition Commission, ‘A National Mission for a Fairer, Greener Scotland’ (Report of the Just Transition Commission) available at: <https://www.gov.scot/publications/transition-commission-national-mission-fairer-greener-scotland/pages/1/> accessed 14 October 2021

¹⁵⁹⁶ See Climate Change (Scotland) Act 2009, S 35C.

¹⁵⁹⁷ *Ibid*, S 35C (1)

communities, workers, trade unions, NGOs, and businesses), the creation of decent job opportunities with minimal impact on current workforce, and efficient resource management that promotes a sustainable economy with reduced inequality and poverty.¹⁵⁹⁸ This places communities, workers, and businesses at the heart of a just transition. Thus, the formulation of law and policy to facilitate emission reduction and RES deployment should be undertaken whilst taking cognisance of the impact on these stakeholders. This entails upholding the principles of energy justice in the implementation of emission reduction policies and the development of RES infrastructure.¹⁵⁹⁹ For instance, the siting of RES projects should not disproportionately affect rural communities in violation of distributional justice.¹⁶⁰⁰ Also, in shutting down fossil fuel plants, procedural justice dictates that public engagement with workers and communities should be undertaken to understand (recognise) the adverse impacts on them and how to support them through the transition.¹⁶⁰¹ Moreover, helping former fossil fuel workers secure alternative employment including in RES jobs and restoring environmental landscapes for the communities accords with restorative justice.¹⁶⁰²

Achieving a just transition requires the collective effort of the government and private sector. Whilst the government provides the policy direction and schemes to support investments and infrastructural development, the private sector can provide the expertise and finance to drive the government's goals. With adequate support and regulatory flexibility, the development of sustainable energy infrastructure can create new job opportunities.

In Scotland, around 23,000 jobs are directly or indirectly supported by the renewable energy sector.¹⁶⁰³ Onshore and offshore wind energy particularly accounts for almost 13,500 direct employments.¹⁶⁰⁴ This is expected to rise as the transition progresses. However, without adequate re-training and upskilling, workers in fossil fuel sectors may find it difficult to get employment in the green sector. Therefore, just transition dictates that workers in the fossil fuel industry should be offered training opportunities to enable them to acquire skills needed for them to find jobs in the green sector. In developing energy transition plans, the government must provide programmes and funding to support these workers. Guidance and support should

¹⁵⁹⁸ *ibid*

¹⁵⁹⁹ Energy justice is discussed in chapter three of this thesis.

¹⁶⁰⁰ Distributional justice is discussed in section 3.4.1 of this thesis.

¹⁶⁰¹ Procedural justice is discussed in section 3.4.2 of this thesis.

¹⁶⁰² Restorative justice is discussed in section 3.4.4 of this thesis.

¹⁶⁰³ Allister Thomas, 'New Figures Show Renewable Energy Supports 23,000 Jobs in Scotland' available at: <https://www.energyvoice.com/renewables-energy-transition/327709/scotland-new-figures-show-renewable-energy-supports-23000-jobs/> accessed 22 February 2022

¹⁶⁰⁴ *ibid*

be provided to assist them in finding jobs that are suitable to their skill set or where they can utilise transferable skills. For example, plumbers and gas installation engineers should be trained on how to install hydrogen heaters.¹⁶⁰⁵ New jobs must be offered on reasonable terms and good working conditions (including opportunities for on-the-job training). Some RES jobs utilise smart technologies and systems which may not be the strongest points of most fossil fuel workers; hence labour and equality laws must be complied with to avoid situations where employment criteria are unduly inflexible to disproportionately hinder fossil fuel workers.

Procedural justice principles such as public engagement is vital for just transition. The views of communities, workers, businesses, and NGOs should be sought in the development of sustainable energy policies. As discussed in the previous chapter, public participation will accord legitimacy to the transition process and avoid NIMBY situations. Through public engagement, relevant stakeholders are given the opportunity to contribute to the transition and an opportunity to be heard on their concerns. Another aspect of public engagement involves working with the populace in designing and testing new systems (for example household heating) as opposed to imposing these new sustainable systems on households.¹⁶⁰⁶ A transparent engagement will engender distributive, procedural, and recognition justice. Public engagement will ensure that the lower class are not unfairly affected by the development of low-carbon energy infrastructure such as siting wind turbines close to poorer localities or indiscriminate felling of trees in rural villages to use as wood pellets for bioenergy.¹⁶⁰⁷ Given the disruptive impacts of decommissioning energy infrastructure on fossil fuel host communities and the possible loss of benefits accruing thereof, promptly notifying those affected of the impacts and remediation efforts will serve the ends of restorative justice. These concerns have been highlighted through the establishment of a Citizens Assembly by the Climate Change Act (Scotland) 2009.¹⁶⁰⁸

Scotland's approach to promoting public participation in climate action is embodied by the creation of a Citizens Assembly.¹⁶⁰⁹ This is a panel consisting of people deemed to be representatives of the society and independent of the Scottish government and parliament. Its

¹⁶⁰⁵ Just Transition Commission (n 1595), 29. Although renewable transportation is not within the core remit of this thesis, it should be added that just transition will ensure that there are adequate supply of electric vehicle charging points including in rural areas. There should also be support for petrol stations to install EV charging infrastructure. Diesel and petrol mechanics and garages should be supported with training and finance to acquire the skills and equipment needed to fix EVs as this will aid their transition.

¹⁶⁰⁶ Just Transition Commission (n 1595), 28

¹⁶⁰⁷ *ibid.*

¹⁶⁰⁸ Climate Change (Scotland) Act, 2009, S 32A

¹⁶⁰⁹ *ibid*

functions include investigating measures to avoid, remedy, or mitigate climate change impacts; and recommendations of emission reduction measures.¹⁶¹⁰ Such an assembly not only makes it compulsory to seek the input of the public in energy policy making but it also ensures that the government can draw from the expertise and experience of members of the panel. This further buttresses the point made earlier about public engagement promoting policy legitimacy. The Act ensures that the recommendations of the Citizens Assembly are not ignored by the government, hence the government is obliged to respond to its report.¹⁶¹¹ Although members of the Citizens Assembly are appointed by the Scottish Ministers, the government has limited influence over the outcome and processes of the panel's deliberation as they report directly to the Scottish Parliament.¹⁶¹² Scottish ministers are mandated to ensure that climate change plans do not only take into account just transition principles, but they must also explain the level of consideration accorded just transition principles in the relevant plan.¹⁶¹³ This emphasises the importance of these principles as they underlie climate policy decisions. The importance of these considerations is further highlighted by the Just Transition Commission:

'A successful transition will need to be underpinned by a strengthening of social partnership working in Scotland, with Government, business, trade unions and communities coming together to work towards a shared goal.

*...The imperative of a just transition is that Governments design policies in a way that ensures the benefits of climate change action are shared widely, while the costs do not unfairly burden those least able to pay, or whose livelihoods are directly or indirectly at risk as the economy shifts and changes'*¹⁶¹⁴

Just transition in Scotland is designed to promote opportunities through increased investments in low-carbon energy infrastructure, the provision of governmental support linked with emissions reduction, stakeholder engagement and increased local support.¹⁶¹⁵ Sensitising the public, especially those involved in carbon-intensive sectors (including agriculture, transportation, and construction), on the importance of emission reduction and low carbon operational alternatives is imperative in equipping the population for the transition. Education

¹⁶¹⁰ Ibid S 32A (5)

¹⁶¹¹ Ibid 32A (9)

¹⁶¹² Ibid, S 32A (10)

¹⁶¹³ Climate Change (Scotland) Act 2009, S 35(20)(22) and (24)

¹⁶¹⁴ Just Transition Commission (n 1595)

¹⁶¹⁵ *ibid*

and training must be provided to transition people to new low-carbon industries. To forestall backlash, a just transition should be influenced by the populace and not imposed by the government.¹⁶¹⁶ This is imperative to encourage widescale acceptance and deployment of RES technology.

The successful deployment of RES technology for electricity generation has been central in driving the energy transition in Scotland. However, similar successes have not been achieved in other sectors of the economy such as agriculture, transportation, and heating of buildings.¹⁶¹⁷ Nevertheless, as progress is made in green technology this will lead to an increase in the demand for RES-powered vehicles, machines, and tools. Conversely, an increase in demand for RES technology will lead to a decline in the consumption of coal, oil, and gas, an increase in the cost of smart goods, and the inevitable increase in energy bills. A just transition must ensure that disadvantaged groups and poor households do not disproportionately bear the burden of such sudden change. Mechanisms must be introduced to cushion the impact of these changes in the form of temporary subsidies, energy efficiency grants, and energy rebates. Since household heating is mostly reliant on gas, a timed phasing out of natural gas as a domestic fuel must be undertaken within just transition principles. If the transition is carried out hastily, households without sustainable heating appliances and poor insulation may be susceptible to adverse weather conditions. Moreover, they will be exposed to sudden price increases leaving them the option of choosing between heating and eating. It is argued in this research that natural gas is a transitional fuel.¹⁶¹⁸ As observed by the Energy White Paper, natural gas will continue to be an integral part of the UK energy mix for the foreseeable future.¹⁶¹⁹ The importance of natural gas as a transitional fuel has been accentuated by the European Parliament's vote in support of the European Commission's inclusion of natural gas as an environmentally sustainable energy source.¹⁶²⁰ Although natural gas is a fossil fuel, it produces 50% less CO₂ than coal and 33% less CO₂ than crude oil.¹⁶²¹ Given that most buildings in the UK are

¹⁶¹⁶ Ibid; see also Sinead Mercier, Four Case Studies on Just Transition: Lessons for Ireland (Research Series, Paper No. 15, May 2020, NESCC)

¹⁶¹⁷ Committee on Climate Change (n 1534)

¹⁶¹⁸ See Al-Amin B Bugaje, Michael O Dioha, Magnus C Abraham-Dukuma, and Muhammad Wakil, 'Rethinking the Position of Natural Gas in a Low-Carbon Energy Transition' (2022) 90 Energy Research & Social Science 1

¹⁶¹⁹ HM Government, Powering Our Net Zero Future, (Energy White Paper, CP 337, December 2020) 84

¹⁶²⁰ European Parliament, 'Taxonomy: Parliament to Vote on Commission's Plan to Include Gas and Nuclear' available at: <https://www.europarl.europa.eu/news/en/agenda/briefing/2022-07-04/0/taxonomy-parliament-to-vote-on-commission-s-plan-to-include-gas-and-nuclear> accessed 11 July 2022

¹⁶²¹ See M Steen, Greenhouse Gas Emissions from Fossil Fuels Fired Power Generation Systems (European Commission Joint Research Centre, 2001) 21; see also Centre for Climate and Energy Solutions, 'Natural Gas'

connected to the gas grid for heating and cooking, the transition from fossil fuels will have telling implications for households and businesses. Natural gas therefore offers a transitional pathway to enable buildings to adapt over time through the installation of green heating alternatives and allows government energy efficiency initiatives to permeate the national energy fabric. It is important to note that whilst sustainability is needed in the energy dynamics, energy security is equally essential to balance the energy trilemma. A well-managed transition is crucial to mitigate the impacts on the populace.

The shutting down of the Scottish Power-operated Longannet coal-powered station in Fife, Scotland provides a commendable example of just transition at work.¹⁶²² Upon indicating its intention to shut down the station, the Longannet Task Force was set up by the Scottish Government to oversee the transition process. The Task Force which was led by government ministers and Fife council head, set out to understand, and most importantly mitigate the impact of the station's closure on workers, local communities, and businesses.¹⁶²³ Membership of the Task Force included representatives of Scottish Power, the Scottish Government, local councils, government departments in charge of transport, work and pensions, skills development organisations, representatives of trade unions, private sector representatives, local politicians, and representatives of community groups.¹⁶²⁴ The Task Force developed an economic recovery action plan that provided support for workers in the form of retraining, mitigating the impact of the closure on communities and supply chains, environmental remediation and infrastructural upgrade in the local economy to cushion the effects of the shutdown in the long term.¹⁶²⁵ As a result of the prompt and strategic implementation of the Action Plan, about 99% of the workforce received support to either seek alternative employment or skills upgrade to seek other opportunities.¹⁶²⁶ The Scottish Enterprise and Business Gateway also provided a forum for affected businesses to explore available

available at: <https://www.c2es.org/content/natural-gas/> accessed 23 March 2022; Ivie Ehanmo, Making A Case for Natural Gas as a Transition Fuel to a Renewable-Based Future for Sub-Saharan Africa: 'CBDR-RC'

Principle to the Rescue' available at: [1645028161593 \(licdn.com\)](https://www.licdn.com/company/details/1645028161593) accessed 28 February 2022

¹⁶²² JTC, 'Longannet Task Force' available at: <https://www.gov.scot/publications/just-transition-commission-meeting-papers-april-2019/> accessed 25 February 2022

¹⁶²³ *ibid*

¹⁶²⁴ *Ibid*; see also Mercier (n 1616), 127

¹⁶²⁵ *ibid*

¹⁶²⁶ Leeza Clark, 'Nearly all 370 Longannet Workers Find Jobs or Training' available at:

<https://www.thecourier.co.uk/fp/news/fife/671876/nearly-all-370-longannet-workers-find-jobs-or-training/> accessed 25 February 2022

support.¹⁶²⁷ Additional financial support was provided by the Scottish Government and local councils to facilitate the transition.¹⁶²⁸

The Energy Transition Fund (ETF) was introduced by the Scottish government in 2020 to support businesses in the energy sector to recover from the impact of the COVID-19 pandemic and to facilitate their diversification and development of low/zero carbon energy infrastructure.¹⁶²⁹ Such funds are essential to support small and medium-scale enterprises in transitioning. It is also imperative to consolidate the gains made in the transition before the COVID-19 pandemic. Through the ETF job losses can be prevented whilst businesses strive to abide by emission reduction targets and sector mandates. It further enables businesses to cope with exorbitant cost of acquiring energy-efficient equipment and low/zero carbon infrastructure installation.

The drive to attain net zero not only involves developing renewable energy infrastructure but also entails the development of land and other nature-based approaches to emissions reduction. It is expedient to ensure that efficient land use systems are managed to balance the interests of providing food, leisure, and biodiversity conservation.¹⁶³⁰ In developing new forest reserves and peatlands, the interests of local communities should be protected. An understanding of the interplay between land use for food production, energy production, industries, recreation, and preservation of habitats is essential to drive a just transition to net zero.¹⁶³¹ The Scottish Government acknowledges that the need to balance these competing demands for land use, and make trade-offs where necessary, are essential to achieve a just transition.¹⁶³² In developing low-carbon alternatives, attention is to be paid to the risk of increasing the energy bills for households. If not properly managed transition to low-carbon energy will further aggravate fuel poverty among vulnerable and low-income households.¹⁶³³

The Scottish JTC has a broad focus covering all sectors of the country. However, this approach has been criticised as being too wide and lacking industry or regional focus.¹⁶³⁴ The JTC is

¹⁶²⁷ Mercier (n 1616), 129

¹⁶²⁸ *ibid*

¹⁶²⁹ Scottish Government, '£62 Million Fund for Energy Sector' available at: <https://www.gov.scot/news/gbp-62-million-fund-for-energy-sector/> accessed 23 February 2022

¹⁶³⁰ Scottish Government, 'Update to the Climate Change Plan 2018-2032' available at: <https://www.gov.scot/publications/securing-green-recovery-path-net-zero-update-climate-change-plan-20182032/> accessed 23 February 2022, p. 64

¹⁶³¹ Scottish Government, Scotland's Third Land Use Strategy 2021-2026 (March 2021, SG/2021/81, Scottish Government) 12

¹⁶³² *Ibid*, 11

¹⁶³³ Just Transition Commission (n 1595) 26

¹⁶³⁴ Mercier (n 1616), 117

mostly involved in information gathering and advisory rather than a hands-on approach such as skills transition support.¹⁶³⁵ The commission's scope does not extend to giving advice on statutory emission reduction targets or poverty reduction as in the case of the CCC.¹⁶³⁶

6.10 Shortcomings of UK Renewable Energy Integration

The UK has undoubtedly made giant strides in emission reduction and RES integration. Prior to the global obligations imposed by the Paris Accord, the UK Climate Change Act 2008 provided a pioneering model of nationally imposed legally binding emission reduction obligation embedded in statute and emulated by other countries of the world.¹⁶³⁷ The Act has been further amended to increase the country's carbon emission reduction obligations to demonstrate its preparedness to accelerate the transition to sustainable energy utilisation.¹⁶³⁸ A combination of fiscal mechanisms and support schemes have provided a conducive environment for low/ zero carbon energy development to thrive. However, these regulations and incentives have mostly been applied in the transition from electricity generated through fossil fuel to low/ zero carbon alternatives. This has given rise to an expansion in offshore wind energy development and a massive decline in coal-powered energy production.¹⁶³⁹ As observed earlier, the successes recorded in decarbonising the electricity sector have not been replicated in other sectors of the UK economy such as agriculture, transportation, aviation, shipping, construction, and domestic fuel among others. Similarly, policy decisions such as the granting of new coal mining licences and new oil and gas mining threaten to undermine the achievements recorded by the UK in the last decade. Whilst the UK has increasingly shifted its energy mix to low/ zero carbon energy, the transition has led to an increase in energy bills.¹⁶⁴⁰ The high cost of energy bills adversely affects low-income households thereby exacerbating fuel poverty. Another limitation of the UK RES regime that has unfortunately received little attention is the outsourcing of emissions. In discussing these concerns, it will be argued that given the global nature of climate challenges, sustainability should not only be measured by how much low/zero carbon technology a country utilises in its energy mix nor its low emission

¹⁶³⁵ *ibid*

¹⁶³⁶ *ibid*

¹⁶³⁷ See Averchenkova (n 1659)

¹⁶³⁸ The initial enactment fixed 2050 as the date to attain 80% emission reduction but this commitment was increased to 100% by the same date through the Climate Change Act 2008 (2050 Target Amendment) Order 2019 (SI 2019/1056)

¹⁶³⁹ Raphael Heffron, Rory Connor, Penelope Crossley, Vicente López-Ibor Mayor, Kim Talus & Joseph Tomain, 'The Identification and Impact of Justice Risks to Commercial Risks in the Energy Sector: Post COVID-19 and for the Energy Transition (2021) *Journal of Energy & Natural Resources Law*, DOI: 10.1080/02646811.2021.1874148, 9

¹⁶⁴⁰ DECC 2013 (n 311)

profile, but importantly, the impact of a country's consumption on emission data overseas should be taken into account in developing national climate change law and policy.

6.10.1 Licensing of New Coal Mines

At COP26, the UK Prime Minister reiterated the country's intention to phase-out coal in its energy mix by 2025.¹⁶⁴¹ He further called on other parties to the UNFCCC to, 'consign coal to history.'¹⁶⁴² However, a few weeks after COP26, the UK government issued a permit to expand the Aberpergwm coal mining site enabling the applicant, Energybuild Ltd to extract 40 million tonnes of hard coal for 2 decades.¹⁶⁴³ The mine is expected to emit over 100 million tonnes of methane gas throughout its lifespan.¹⁶⁴⁴ Another coal mining licence application that is generating objection from environmental activists, NGOs and the general public is the Whitehaven West Cumbrian coal mine which is currently undergoing public enquiries.¹⁶⁴⁵

Issuing the coal mining licences threatens to undermine the UK's emission reduction achievements and its ability to meet statutory targets. The public outcry being generated over the new mining licences is understandable given the impact of the mining activities on the immediate environment including during their construction and all through their lifespan. The impact on the environment and the overall effect on the global emission reduction stride make a strong case against the issuance of these licences. However, the decision whether to issue or refuse the licences is quite complex given the variable factors involved. Whilst activists and local groups may accuse the government of prioritising the economic prospects of the mines over their environmental impact, an argument that those in support may want to hold onto relates to the mines being essential for energy sovereignty and reliance on domestic energy supplies.

The UK government is faced with an existential dilemma of promoting energy security from domestic sources with minimal recourse to external sources, and its statutory obligation of meeting emission reduction targets. Balancing these competing demands in the face of the

¹⁶⁴¹ Tommy Greene, 'Granting of Coal Mining Licence in South Wales Faces Court Challenge' available at: <https://www.theguardian.com/environment/2022/feb/09/grant-coal-mining-licence-aberpergwm-south-wales-court-challenge> accessed 17 March 2022

¹⁶⁴² *ibid*

¹⁶⁴³ *ibid*

¹⁶⁴⁴ BBC, 'Coal: Aberpergwm Colliery Gets OK to Mine 40 million Tonnes' available at: <https://www.bbc.co.uk/news/uk-wales-politics-60147423> accessed 17 March 2022

¹⁶⁴⁵ Tommy Greene, 'Cumbria Coalmine Would Hit Global Decarbonisation Efforts, Inquiry Hears' available at: <https://www.theguardian.com/environment/2021/oct/01/cumbria-coalmine-global-decarbonisation-inquiry> accessed 17 March 2022

global energy crisis caused by the Russian invasion of Ukraine has made it increasingly difficult to prioritise decarbonisation obligations over driving down the cost of household energy bills. Nevertheless, as has been argued in this research, there is a need for trade-offs in the energy transition. Hence, whilst fossil fuels may be relied on ‘temporarily’ to avoid high costs of energy bills, the issuance of new licences must be premised on their temporality. This must be accompanied by effective environmental and social impact assessments as well as emission mitigating measures (including installing CCS technologies) put in place to curtail these impacts. Also, this state of affairs must be achieved with the active participation and consent of the affected public. Balancing the energy trilemma demands the secured availability of energy services in a manner that does not overly harm the environment. However, this must be extended to cater for emissions from other sectors of the economy as well as imported emissions.

6.10.2 Outsourcing Emissions from Fossil Fuel Import and Other Sectors

It is argued in this research that emission reduction and just transition cannot truly be realised through national responses within national borders solely, given the impact of a country’s activities on other countries. As globalisation unifies countries through trade, countries can capitalise on these opportunities to sustain economic development to meet domestic needs from external markets. Economic advancement leads to increased energy consumption which can often not be satisfied by domestic production alone; hence the need to rely on importation to meet domestic demands. In addition, economic advancement leads to better pay for workers and better living standards in society. With better earnings and living conditions, people can afford extra luxuries, appliances, goods, and services.¹⁶⁴⁶ Generally, to meet these growing demands and to maximise profits whilst keeping prices down, manufacturers seek cheaper production markets overseas, usually in less developed economies and transitional economies. These markets offer cheap labour, raw material, and fast turnaround to meet the desires of growing number of consumers. However, the impact of increased domestic consumption patterns in developed countries can have tremendous effects on GHG emissions in other countries.

The UK has significantly reduced its emissions in the last three decades by over 41% mainly due to a steep decline in coal power and an upsurge in its use of low/ zero carbon energy.¹⁶⁴⁷

¹⁶⁴⁶ Committee on Climate Change, ‘Reducing the UK’s Carbon Footprint’ (CCC, April 2013), 9

¹⁶⁴⁷ WWF (n 1309)

However, this does not reflect the true picture of the UK's carbon footprint as about 50% of its emission are recorded overseas.¹⁶⁴⁸ Its importation of crude oil, natural gas, and coal is a major source of emissions overseas occasioned by the UK consumption patterns. In 2020, 28% of fossil fuel energy consumption in the UK was imported.¹⁶⁴⁹ The implication is that whilst the UK may be reducing its emissions at home, its importation of energy from overseas contributes to global carbon emissions. Given that the emissions do not occur at home, these figures are not usually included in emission data from the UK but are added to these countries' emission data. For example, Qatar, Russia, and the USA who are the major suppliers of the UK's liquified natural gas (LNG) are some of the biggest carbon emitters, responsible for about 20% of global CO₂ emissions annually.¹⁶⁵⁰ Other areas where emissions are farmed out are electronic devices (including computers, domestic appliances, and mobile phones) and fashion. The fashion industry accounts for up to 10% of global emissions.¹⁶⁵¹ The rise in 'fast fashion'¹⁶⁵² has various environmental impacts through the production value chain.¹⁶⁵³ With cheaper brands, UK consumers can engage in overconsumption of textile materials. However, the impacts continue to mount up – from the cultivation of textile materials to the production workshops in Asia, and from the emission caused by transportation to their disposal. The cheap labour markets offered by low-income countries in Asia have been able to sustain the fast fashion business model and continue to entice consumers.¹⁶⁵⁴ Given the carbon footprints of manufacturers, contractors, and suppliers of UK goods overseas, genuinely sustainable transition must also influence the activities of these businesses abroad.¹⁶⁵⁵ Whilst the UK cannot control emissions overseas, it can make it obligatory for emission data from overseas to be reported on imported products as this may be necessary to appeal to UK consumers. In the same way that brands are named and shamed for having poor human rights and workers welfare records abroad, they can also be called out for their emission contributions overseas. However,

¹⁶⁴⁸ *ibid*

¹⁶⁴⁹ BEIS, 'UK Energy in Brief 2021' (n 1302)

¹⁶⁵⁰ World Bank, 'CO₂ Emissions (Metric Tonnes Per Capita)' available at: <https://data.worldbank.org/indicator/EN.ATM.CO2E.PC> accessed 21 March 2022

¹⁶⁵¹ Kirsi Niinimäki, Greg Peters, Helena Dahlbo, Patsy Perry, Timo Rissanen and Alison Gwilt, 'The Environmental Price of Fast Fashion' (2020) 1 *Nature Reviews Earth & Environment* 189

¹⁶⁵² Fast fashion refers to the practice of providing consumers with low-priced new fashion lines consistently. See N Anguelov, *The Dirty Side of the Garment Industry: Fast Fashion and its Negative Impact on Environment and Society* (Taylor & Francis, 2015); see also Mark Heuer and Carolin Becker-Leifhold (eds), *Eco-Friendly and Fair: Fast Fashion and Consumer Behaviour* (Routledge 2018)

¹⁶⁵³ Niinimäki et al (n 1651)

¹⁶⁵⁴ Greg Peters Mengyu Li and Manfred Lenzen, 'The Need to Decelerate Fast Fashion in a Hot Climate: A Global Sustainability Perspective on the Garment Industry' (2021) 295 *Journal of Cleaner Production* 1

¹⁶⁵⁵ Mercier (n 1616) 115

consumers have a greater responsibility to reduce consumption and reuse goods where possible. Given that outsourced emissions are not included in emission calculation, the UK is highly ranked in the energy trilemma index as one of the countries with a top score on all three aspects of the energy trilemma. However, this does not reflect the true picture of the UK's carbon footprint.

6.11 Conclusion

This chapter explored the UK energy regime underlining the role played by the EMR in promoting the development of low/ zero carbon energy. The chapter identified the enactment of EMR into statute - via the Energy Act 2013, as paving the way for the implementation of fiscal mechanisms and support schemes. The introduction and effective implementation of supports schemes such as RO, CfD, FiT, SEG, and carbon trading were shown to have facilitated the expansion of RES technology and emission reduction. The codification of carbon emission reduction targets in the Climate Change Act 2008 has provided a solid foundation for the UK to realise its net zero targets. It was observed that effective regulation and a robust institutional framework have not only ensured the decline in emissions but also an increase in the contribution of RES to the energy mix. The CCC's mandate of reporting on the progress made in attaining national targets as well as providing valuable recommendations to support mitigation and adaptation efforts has provided an evidence-based repository of information to support energy and climate policymaking in the UK. A culmination of these factors has enabled the UK to balance its energy trilemma; although it has also highlighted concerns regarding methodology in terms of how emissions data is calculated.

The chapter further highlighted the importance of a well-defined planning and consenting regime as being pivotal to accelerating the development of RES technology. Having considered the national legal and institutional framework for RES integration, the chapter thereafter zeroed in on the Scottish planning and consenting regime. The decentralised regulation of RES infrastructure based on capacity and location was analysed to show that the Scottish regime encourages the development of small-scale RES infrastructure allowing LPAs to play a key role in RES infrastructure development in keeping with local development plans. This has led to an increased reliance on RES technology to meet electricity needs in Scotland. Moreover, the chapter appraised the mainstreaming of energy justice and just transition under the Scottish regime. The provision of just transition principles in the Climate Change (Scotland) Act 2009 demonstrated preparedness to operationalise energy justice in the implementation of energy

transition and the development of climate change law and policy. This was further accentuated by the creation of the Citizens Assembly in the Climate Change (Scotland) Act 2009, and the setting up of the Just Transition Commission. The Scottish regime was shown to provide support for workers and businesses to transition away from fossil fuels. A workable exemplar of the Scottish regime's handling of energy transition was demonstrated in the shutting down of the coal-powered power station in Longannet where through engagement with relevant stakeholders and provision of support, former workers of the station were supported to find alternative jobs or training, and local businesses and contractors were supported.

The UK is highly ranked in WETI due to its ability to achieve energy security through effective management of energy resources including the development of low/ zero carbon energy, universal access to energy services and emission reduction to promote sustainable energy development. However, the prevalence of fuel poverty, its licensing of new fossil fuel mines, and the outsourcing of emissions from imported products remain a challenge for the UK. Nevertheless, the UK's energy regime provides lessons for Nigeria in the development of RES resources to resolve its energy trilemma and the development of laws and policies to facilitate a just energy transition. The next chapter will set out the lessons learned for Nigeria.

CHAPTER 7 – COMPARATIVE ANALYSIS AND LESSONS LEARNED

7.1 Introduction

The legal regimes which underpin the development of renewable energy sources (RES) for energy generation in Nigeria and the UK have been discussed in chapters four, five and six. This chapter therefore sets out to analyse how the principles of energy justice have been implemented in the contexts of Nigeria and the UK. It examines how the UK regime promotes distributional justice. It also highlights the lack of energy access in Nigeria as a driver of distributional injustice. The chapter further analyses procedural justice in both jurisdictions and the role of courts in promoting access to justice for litigants aggrieved at energy decisions. the chapter also examines how divergent views on energy decision-making is protected to attain recognition justice in the context of Nigeria and the UK. Given the impacts of energy development on the environment and people, the chapter evaluates the legal requirement for decommissioning of energy infrastructure as central to achieving restorative justice. The implementation of the principles of energy justice and just transition in law is also discussed in this chapter. The next section will examine the role of law in facilitating energy justice.

7.2 Analysing Energy Justice and the Role of Law

This section evaluates the application of the four principles of energy justice as discussed in this thesis – distributional justice, procedural justice, recognition justice and restorative justice, in the context of Nigeria and the UK. It aims to compare how the principles of energy justice have been embedded in law and operationalised in the development of energy infrastructure. It explores the evolution of case law as an instrument to engender energy justice in energy development. This analysis is essential to drawing lessons that may be learned across the board and to achieve a just energy transition.

7.2.1 Distributional Justice

Distributional justice aims to distribute the benefits and ills of energy development equitably such that no section of the society is disproportionately affected by the burdens of energy development.¹⁶⁵⁶ In carrying out this objective, distributional justice looks out for areas of distributional injustice in the entire value chain of energy infrastructure development including, planning, construction, operation, and decommissioning. The choice of location for an energy project could determine whether distributional justice has been done. The choice of location

¹⁶⁵⁶ Heffron and McCauley, ‘The Concept of Energy Justice Across the Disciplines’ (n 71)

for fossil fuel projects such as petroleum production, is mostly based on the availability of oil and gas resources. Technically and logistically, it is reasonably expected to set up the petroleum production plant close to the locality where the resource is found. Yet, distributive justice demands that the host community should not suffer disproportionately from pollution and forced displacement as a result. This has been the experience of petroleum production in Nigeria where host communities have been subjected to environmental degradation at a massive scale.¹⁶⁵⁷ Until the enactment of the Petroleum Industry Act 2021, the relationship between host communities and international oil corporations was based on non-binding memorandum of understanding or expensive litigation overseas.¹⁶⁵⁸ Thus, a RES planning and consenting regime must embed distributional justice in RES laws, policies and guidance as shown in the UK RES regime, to avoid the injustices of the fossil fuel regime.

Given the huge potential for wind energy in remote areas of the UK, distributional justice principles are woven into the planning and consenting regime for wind energy development to take note of the impacts of the development on designated sites, wildlands, protected habitats, historical features, local landscapes, and rural communities.¹⁶⁵⁹ This ensures that before a windfarm project is granted permission, relevant statutory consultees such as SEPA, NatureScot, Historic Environment Scotland, and local planning authorities; and non-statutory consultees such as local community councils are consulted to understand how the proposed project might affect them.¹⁶⁶⁰ Whilst objections from the consultees may not always lead to a refusal of planning permission as in the case of *Wildland Ltd and The Welbeck Estates v Scottish Ministers*,¹⁶⁶¹ it ensures that the interests of these stakeholders are considered by the relevant planning body in reaching a decision. This aims to avoid distributional injustice in the siting of energy project by ensuring that local residents are not disproportionately burdened by energy infrastructure. Although in practice, the impacts of the development (such as the disturbance of aesthetic views) are weighed against the overall long-term benefits of the project (such as the provision of clean energy to meet climate change targets).

Another area of distributional injustice is in the availability and access to energy services. Distributional justice demands that energy services should be made available and accessible to

¹⁶⁵⁷ Ajodo-Adebanjoko (n 446)

¹⁶⁵⁸ Petroleum Industry Act 2021, S 235 provides for host community development.

¹⁶⁵⁹ The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017, Reg 4

¹⁶⁶⁰ See Environmental Assessment (Scotland) Act 2005, Ss 3, 14 and 15

¹⁶⁶¹ [2017] CSOH 113

different parts of society regardless of their location and status.¹⁶⁶² This entails providing energy services to both urban and rural populations. In Nigeria, whilst about 60% of the population is without access to electricity, this goes up to 80% for the rural population.¹⁶⁶³ Similarly, about 80% of the population do not have access to clean cooking fuel.¹⁶⁶⁴ Much of the rural communities are in remote areas and difficult terrains such as the swamps of the Niger Delta riverine communities and the hills and deserts in the north.¹⁶⁶⁵ Thus, to promote distributional justice, this thesis argues for the development of decentralised RES infrastructure in underserved and unserved communities to tackle the shortage and lack of electricity access.

Although there is universal access to energy services in the UK, distributional injustice abounds when energy services are unaffordable to lower income households.¹⁶⁶⁶ Thus fuel poverty, defined as when a household cannot afford to maintain its energy needs at a reasonable cost, usually above 10% of its income, is an upshot of distributional injustice.¹⁶⁶⁷ Regardless of the availability of energy services, where it is inaccessible due to high costs, this festers distributional injustice. Although the UK government has introduced financial support mechanisms to cushion the impact of high energy cost on vulnerable households such as Warm Home Discount Scheme, Winter Fuel Payment, and Winter Heating payment among others.¹⁶⁶⁸ However, these schemes have end dates and have limited applications in terms of beneficiaries for instance, only people on benefits can claim these payments.¹⁶⁶⁹ Moreover, the amounts given through the schemes do not increase in line with inflation or increases in the energy price cap.¹⁶⁷⁰

Distributional injustice also abounds in the ownership of energy infrastructure. Most energy infrastructure are either state or privately owned, and the private owners are mostly of the upper

¹⁶⁶² McHarg (n 335) 16

¹⁶⁶³ Tonuchi Emmanuel Joseph, 'Investigating Renewable Energy Potentials in Solving Energy Crisis in Niger Delta Riverine Communities, Nigeria' (2019) 7 IJRECE 906, 908

¹⁶⁶⁴ *ibid*

¹⁶⁶⁵ *ibid*

¹⁶⁶⁶ See Inigo del Guaya, 'Energy Poverty and Energy Access: A Legal Analysis' in Inigo del Guaya, Lee Godden, Donald Zillman, Milton F Montoya and Jose Juan Gonzalez (eds.), *Energy Justice and Energy Law* (OUP 2020) 35

¹⁶⁶⁷ *ibid*

¹⁶⁶⁸ UK Government, 'Help with your Energy Bills' available at: <https://www.gov.uk/get-help-energy-bills> accessed: 20 March 2024

¹⁶⁶⁹ *ibid*

¹⁶⁷⁰ Ofgem, 'Energy Price Cap Explained' <https://www.ofgem.gov.uk/information-consumers/energy-advice-households/check-if-energy-price-cap-affects-you> accessed 14 March 2023

class.¹⁶⁷¹ In the context of Nigeria, this thesis argues for the introduction of decentralised RES energy infrastructure to encourage community energy and energy democracy. The Electricity Act 2023 empowers the Rural Electrification Agency (REA) to promote community ownership of energy infrastructure.¹⁶⁷² However, the Agency has been faced with corruption thereby limiting its ability to promote community energy.¹⁶⁷³ In the UK, community energy development has been growing since its emergence in the late 1990s.¹⁶⁷⁴ There are currently about 495 community energy groups engaged in developing RES infrastructure in the UK.¹⁶⁷⁵ Community energy has thrived in the UK due to an enabling policy climate and the provision of support by the government.¹⁶⁷⁶ The Community Energy Strategy provides a policy background to encourage its development.¹⁶⁷⁷ Similarly, the UK energy security strategy promotes community energy as being key to attaining energy security.¹⁶⁷⁸ Moreover, the availability of support schemes such as the FiT scheme and the Smart Export Guarantee scheme have been beneficial to community energy developers.¹⁶⁷⁹ Nevertheless, political and policy changes, coupled with increase in community energy groups vying for limited funding opportunities is a major challenge facing community energy development in the UK.¹⁶⁸⁰ However, community energy ensures members of the local area take part in decision-making for new RES projects, thus promoting procedural justice in the UK.

¹⁶⁷¹ Jennie C. Stephens, 'Energy Democracy: Redistributing Power to the People Through Renewable Transformation' (2019) 61 *Environment: Science and Policy for Sustainable Development* 4, 12; see also Forbes, 'The 10 Richest Green Energy Billionaires In 2021' available at: <https://www.forbes.com/sites/jenniferwang/2021/04/22/the-10-richest-green-energy-billionaires-in-2021/> accessed 10 February 2024

¹⁶⁷²

¹⁶⁷³ Nnochiri (n 893)

¹⁶⁷⁴ Tim Braunholtz-Speight, *The Evolution of Community Energy in the UK* (UKERC Working Paper, September 2018) 3

¹⁶⁷⁵ Community Energy England, Scotland and Wales, 'Community Energy: State of the Sector Report 2022' available at:

https://communityenergyengland.org/files/document/626/1655376945_CommunityEnergyStateoftheSectorUKReport2022.pdf accessed 21 March 2024; see also Suzanna Hinson & Nikki Sutherland, *Community Energy* (Commons Library Research Briefing, 29 June 2021) 7

¹⁶⁷⁶ Department for Energy Security & Net Zero, 'Guidance - Local Net Zero: Central Support for Local Authorities and Communities' 2 February 2024 available at: <https://www.gov.uk/government/publications/local-net-zero-support-for-local-authorities-and-communities/local-net-zero-central-support-for-local-authorities-and-communities> accessed 21 March 2024

¹⁶⁷⁷ DECC, *The Community Energy Strategy: Full Report* (27 January 2014) available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/275163/20140126Community_Energy_Strategy.pdf accessed 21 March 2024

¹⁶⁷⁸ BEIS, 'British Energy Security Strategy' available at: <https://www.gov.uk/government/publications/british-energy-security-strategy/british-energy-security-strategy> accessed 21 March 2024

¹⁶⁷⁹ See section 6.6 of this thesis for a discussion on support schemes in the UK

¹⁶⁸⁰ Braunholtz-Speight (n 1674)

7.2.2 Procedural Justice

Procedural justice requires public engagement through the lifecycle of energy project development.¹⁶⁸¹ Public participation in RES development decision-making ensures that members of the public are allowed to raise their concerns over the proposed development. This entails obtaining social licence and limits public opposition to RES development - the so called 'NIMBY'.¹⁶⁸²

The Land Reform (Scotland) Act 2016 mandates the Scottish Government to issue guidance on public engagement in decisions relating to land when it affects members of the community.¹⁶⁸³ Before making a decision on land, for instance, the issuance of planning permission for the development of RES infrastructure, members of the local community should be consulted to express their opinions and ideas.¹⁶⁸⁴ This thesis argues that community engagement does not always elicit public opposition to developments. Rather, community engagement is also an opportunity for the developers to outline the benefits of the project to the community, create clear channels of communication, and an avenue to draw on local knowledge to improve the proposed project design and operation.¹⁶⁸⁵ Embedding community engagement in law engenders procedural justice as the views of affected communities are taken into account in the decision-making process and this further gives the project public acceptance and legitimacy.¹⁶⁸⁶ There is no similar community engagement provision in the Nigerian Land Use Act 1978.

The publication of EIA application notices are mandatory requirements under the Nigerian and UK EIA regimes.¹⁶⁸⁷ Whilst the UK regime allows both statutory consultees and members of the public to make representations to the relevant planning authority, the Nigerian regime expands this to include government agencies, experts in any relevant discipline and any interested groups.¹⁶⁸⁸ The overarching aim of these provisions is to notify members of the public of the existence of the project and an opportunity to influence the decision, in line with

¹⁶⁸¹ Sovacool et al 'Energy Decisions Reframed as Justice and Ethical Concerns' (n 11) 2

¹⁶⁸² Patrick Devine-Wright, 'Public Engagement with Renewable Energy: Introduction' (n 1283) xxiii

¹⁶⁸³ Land Reform (Scotland) Act 2016, S 44

¹⁶⁸⁴ Scottish Government, 'Guidance on Engaging Communities in Decisions Relating to Land' available at: <https://www.scottishlandandestates.co.uk/sites/default/files/library/Guidance%20on%20Engaging%20Communities%20in%20Decisions%20Relating%20to%20Land.pdf> accessed 21 March 2024

¹⁶⁸⁵ *ibid*

¹⁶⁸⁶ Sovacool et al 'Energy Decisions Reframed as Justice and Ethical Concerns' (n 11)

¹⁶⁸⁷ See Environmental Impact Assessment Act, CAP E12 Laws of the Federation of Nigeria 2004, (Nigerian EIA Act) S 24 and The Town and Country Planning (Environmental Impact Assessment) Regulations 2017, Regulation 20

¹⁶⁸⁸ Nigerian EIA Act, S 7

procedural justice. However, despite the notification of the existence of an EIA project, the effect of the representations made will be weighed against other developmental and policy priorities to determine whether the proposed application is granted planning permission.¹⁶⁸⁹

An integral aspect of procedural justice is the need to ensure that those who have been impacted by energy development decision-making have a means of seeking redress. This could be through complaint and/or dispute resolution mechanisms established in statute such as the complaint mechanism in the Electricity Act 2023.¹⁶⁹⁰ Stakeholders should be able to challenge energy development planning decisions by applying for a judicial review of the decision in the light of the impacts of the development. For instance, in *Wildland Ltd and The Welbeck Estates v Scottish Ministers*,¹⁶⁹¹ the applicants challenged the Scottish Ministers' decision to grant planning permission for 22 wind turbines on wild land. However, the court held that the benefits of the wind farm outweighed the concerns raised in the objections. Similarly, in *R. (on application of Corbett) v. Cornwall Council*,¹⁶⁹² where local residents and NGOs challenged the decision to grant planning permission for the construction of a wind farm despite its visual and landscape impacts, the application was dismissed. These cases show that the UK regime promotes procedural justice as it allows relevant stakeholders to challenge energy development decision-making. The advancement in environmental and climate change litigation in the UK enables NGOs and interest groups to challenge planning decisions to protect the environment including landscapes and habitats from the adverse impacts of energy developments.¹⁶⁹³ Litigants do not have to show personal damage to be able to institute legal proceedings against energy decision-making. However, having the means of seeking redress does not translate into obtaining remedy as the impacts complained of will be weighed against the long-term energy security benefits of the energy development.¹⁶⁹⁴

Access to justice for energy decision-making in Nigeria, particularly with regards to petroleum development, has been challenging. The judicial attitude of upholding technicalities such as *locus standi* has limited the ability of litigants to seek redress for energy decision-making and

¹⁶⁸⁹ See *Wildland Ltd and The Welbeck Estates v Scottish Ministers* [2017] CSOH 113

¹⁶⁹⁰ Electricity Act 2023, S 119(1)(c)

¹⁶⁹¹ [2017] CSOH 113

¹⁶⁹² [2013] EWCA 3958

¹⁶⁹³ *ClientEarth v. Secretary of State* [2021] EWCA Civ 43, *Greenpeace Ltd v (1) Secretary of State for Business, Energy and Industrial Strategy* [2023] EWHC 2608 (Admin), *Campaign to Protect Rural England v Secretary of State for Transport* [2023] EWHC 2917 (Admin)

¹⁶⁹⁴ See *ClientEarth v. Secretary of State* [2021] EWCA Civ 43

its associated environmental cost.¹⁶⁹⁵ Historically, litigants had to show personal damage to be able to institute legal action against energy development decisions.¹⁶⁹⁶ This prevented NGOs from challenging energy development decision-making. However, in *Centre for Oil Pollution Watch v NNPC*, the Supreme Court had ruled that NGOs had the *locus standi* to bring such claims to protect the environment.¹⁶⁹⁷ Nevertheless, this decision has been limited by the enactment of the Climate Change Act 2021 which provides that ‘victims [must be] directly affected by the acts that are harmful to the environment’ if they are to obtain compensation.¹⁶⁹⁸ The Act is relatively new, so this provision has not been interpreted by the courts. This thesis argues that a RES planning and consenting regime will engender procedural justice by removing roadblocks to access to justice for energy decision-making.

Apart from engaging with and ensuring that the interest of indigenous communities and vulnerable groups are protected in line with procedural justice, there is a need to recognise the particular features of these groups which make them vulnerable to energy injustice, hence the need for recognition justice.

7.2.3 Recognition Justice

Recognition justice is rooted in the understanding that there may be divergent views on the development of energy infrastructure.¹⁶⁹⁹ Therefore, it is essential to understand the context upon which these different views are held. For instance, local residents may be opposed to the siting of wind turbines because of its impact on cultural heritage locations. The Scottish Ministers refused planning permission for the Lowther Hills wind farm project because of its adverse effect on the historic scenery of Wanlockhead.¹⁷⁰⁰ Similarly, a 250,000 solar panel project was rejected in Wales because of its impact on the historic Gwent levels.¹⁷⁰¹ These decisions were based on objections from stakeholders including local communities.¹⁷⁰² The

¹⁶⁹⁵ Eloamaka Carol Okonkwo, ‘Assessing the Role of the Courts in Enhancing Access to Environmental Justice in Oil Pollution Matters in Nigeria’ (2020) 28 *African Journal of International and Comparative Law* 195; Rufus Akpofurere Mmadu, ‘Judicial Attitude to Environmental Litigation and Access to Environmental Justice in Nigeria: Lessons from Kiobel’ (2013) 2 *Journal of Sustainable Development Law and Policy* 149

¹⁶⁹⁶ *Oronto Douglas v Shell Petroleum Development Company Nigeria Limited and Ors* Unreported Suit No: FHC/L/CS/573/96, 17 February 1997

¹⁶⁹⁷ (2018) LPELR-50830(SC)

¹⁶⁹⁸ Climate Change Act 2021, S 34(2) (c)

¹⁶⁹⁹ McCauley et al, ‘Advancing Energy Justice: The Triumvirate of Tenets’ (n 68) 109

¹⁷⁰⁰ BBC News, ‘Lowther Hills Wind Farm Project Rejected by Government’ available at: <https://www.bbc.co.uk/news/uk-scotland-south-scotland-55617221> accessed 14 September 2021

¹⁷⁰¹ Sion Barry, ‘Welsh Government Refuse Plans for Huge Solar Farm at the Gwent Levels’ available at: <https://www.business-live.co.uk/economic-development/welsh-government-refuse-plans-huge-21570279> accessed 14 September 2021

¹⁷⁰² *ibid*

relevant planning authorities – the Scottish Ministers and the Welsh Ministers, recognised the importance of these cultural features to the local communities and the need to protect them from the adverse impacts of RES development.

Embedding recognition justice in RES planning and consenting enables developers and planning authorities to understand the basis of local objection to energy projects and redesign such projects to minimise adverse impacts. For example, the Achany Extension wind farm project was initially refused planning permission due to its adverse impacts to wildlands.¹⁷⁰³ However, it was granted planning permission after being redesigned with some turbines removed and relocated 2 km from the previous location to minimise adverse impacts.¹⁷⁰⁴

Recognition injustice may take the form of cultural domination (being subjected to cultural practices and language different from one's own), disrespect (desecrating cultural symbols and ancestral graves), and nonrecognition (not having representatives in decision-making institutions).¹⁷⁰⁵ There is a need to understand that RES development impacts various groups differently. For instance, whilst the development of offshore wind energy and hydroelectricity may be beneficial for energy security, it could adversely impact fishermen and shipping as well as communities depending on these sectors. Thus, to promote recognition justice, those affected should be represented in the decision-making process to discuss these impacts and how best to avoid or mitigate them.

The UK RES regime promotes recognition justice by ensuring that local views are considered before planning permissions are issued for RES development. Local objections based on the potential adverse impacts are not dismissed as NIMBYs. Rather, where such objections are adjudged to be cogent, it can be the basis for refusal of planning permission. Developers can redesign the proposed project to avoid or mitigate the adverse impacts complained of. Regardless of the adverse impacts of a proposed RES project and objections from statutory consultees and local residents, where the benefits of the project (such as the provision of energy security and emission reduction to meet the government's policy and statutory targets) outweigh the adverse impacts, planning permission can still be granted.¹⁷⁰⁶

¹⁷⁰³ SSE Renewables, 'Onshore Wind Projects: Achany Extension (formerly Glencassley)' available at: <https://www.sserenewables.com/onshore-wind/in-development/achany-extension/> accessed 29 March 2024

¹⁷⁰⁴ *ibid*

¹⁷⁰⁵ Nynke van Uffelen, 'Revisiting Recognition in Energy Justice' (2022) 92 Energy Research & Social Science 102764 <https://doi.org/10.1016/j.erss.2022.102764>

¹⁷⁰⁶ See *Wildland Ltd and The Welbeck Estates v Scottish Ministers* [2017] CSOH 113

Marginalisation of host communities has been identified as a major source of (recognition) injustice in the Nigerian oil and gas sector.¹⁷⁰⁷ The lack of respect for ancestral lands and the desecration of traditional deities due to petroleum development has led to conflicts between host communities and international oil companies.¹⁷⁰⁸ The unique features of riverine communities dependent on farming and fishing, were not considered during the commencement of petroleum production.¹⁷⁰⁹ This historical recognition injustices were unrectified by extant energy laws until the enactment of Petroleum Industry Act 2021. The Act precludes licensees from entering into or occupying sacred areas (such as ancestral shrines), public recreational spaces, farmlands, and private properties without the prior informed consent of the land owners and regulators.¹⁷¹⁰ Similarly, the Acquisition of Land and Access Rights for Electricity Projects Regulations 2012 provides that, 'Project Affected Persons ('PAPs') shall be consulted and participate in the planning, implementation and monitoring of the acquisition and resettlement.'¹⁷¹¹ However, where voluntary acquisition is not possible due to PAPs' refusal to sell, and the land has been adjudged by NERC to be necessary for the project, the land may be acquired compulsorily.¹⁷¹² A Resettlement Action Plan must be submitted by the developer to NERC containing 'measures to improve the livelihoods and standards of living of the PAPs or at least restore them to pre-displacement levels.'¹⁷¹³ Whilst the payment of compensation and resettlement is encouraged, displacement from ancestral lands and social structure for energy development cannot be adequately compensated by money or resettlement. Thus, to foster recognition justice, there is a need to develop a RES planning and consenting regime that acknowledges the unique differences of various groups and how their unique features may be affected by RES development. This should form the basis for granting planning permission for RES development. Just like designated sites in the UK, this will ensure that unique cultural features are protected in law thereby imposing even higher planning conditions when considered for energy development.

¹⁷⁰⁷ Augusta C. Nkem et al, 'The Impact of Oil Industry-Related Social Exclusion on Community Wellbeing and Health in African Countries' (2022) 10 Front Public Health 1 doi: [10.3389/fpubh.2022.858512](https://doi.org/10.3389/fpubh.2022.858512)

¹⁷⁰⁸ H.A. Umar et al, 'Environmental and Socioeconomic Impacts of Pipeline Transport Interdiction in Niger Delta, Nigeria' (2021) 7 Heliyon 1

¹⁷⁰⁹ *ibid*

¹⁷¹⁰ Petroleum Industry Act 2021, S 101

¹⁷¹¹ Acquisition of Land and Access Rights for Electricity Projects Regulations 2012, Reg 3(8)

¹⁷¹² *Ibid*, Reg 4

¹⁷¹³ *Ibid*, Reg 4(5)

Nevertheless, where indigenous peoples, host communities, workers and other affected groups have suffered recognition injustice from energy development, there is a need to rectify these injustices.

7.2.4 Restorative Justice

Restorative justice seeks to put victims of energy injustice in the position they were before the injustice.¹⁷¹⁴ In the context of this thesis, victims of energy injustice includes the physical environment damaged as a result of energy development, farmers and fishermen whose livelihoods have been affected by energy development, landowners whose land were compulsorily acquired for energy development, workers who lost their jobs as a result of energy development, and indigenous peoples who were involuntarily displaced because of energy development.¹⁷¹⁵

Where it is anticipated that ecosystems may be destroyed, habitats lost, species displaced, or the environment polluted during the development and operation of energy infrastructure, restorative justice demands that measures are introduced in the first instance to prevent this from happening.¹⁷¹⁶ Alternatively, where this was not anticipated, measures to remediate the environment for the harm suffered is required under the principles of restorative justice. Under the UK regime, the prevention of adverse environmental harms is addressed at the environmental impact assessment stage.¹⁷¹⁷ Possible adverse environmental impacts are identified during the EIA screening, paving way for this to be addressed including through the introduction of mitigation measures where the adverse impacts identified cannot be avoided.¹⁷¹⁸ Environmental remediation at the end of the lifespan of an energy project is done during the decommissioning stage of the development in the UK. For instance, the Petroleum Act 1998 requires an abandonment programme to be submitted when a petroleum installation is to be abandoned.¹⁷¹⁹ Similarly, for offshore windfarms, the Energy Act 2004 requires the developer to submit a decommissioning programme that, ‘... must include provision about restoring that place to the condition that it was in prior to the construction of the object.’¹⁷²⁰ Although there is no express statutory provision on decommissioning of onshore windfarms,

¹⁷¹⁴ Hazrati and Heffron (n 470)

¹⁷¹⁵ Richard J Wallsgrove, ‘Restorative Energy Justice’ (2022) 40 *Journal of Environmental Law* 133

¹⁷¹⁶ Hazrati and Heffron (n 470)

¹⁷¹⁷ The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017, Reg 4

¹⁷¹⁸ *Ibid*, Reg 6

¹⁷¹⁹ See Petroleum Act 1998, Ss 28A and 29

¹⁷²⁰ Energy Act 2004, S 105(8)

other statutory institutions such as SEPA, NatureScot and local authorities have developed different guidance on onshore windfarm decommissioning which is applied by developers in undertaking decommissioning of onshore windfarms.¹⁷²¹

A practical application of restorative justice was shown in the decommissioning of the Scottish Power-operated Longannet coal-powered station in Fife, Scotland.¹⁷²² The Longannet Task Force set out to understand the impact of the decommissioning on workers, local communities, and businesses, and developed an economic recovery plan for the area as well as provided support for workers, the local communities, and businesses.¹⁷²³

In comparison with Nigeria, decommissioning plans have only recently become a legal requirement for petroleum project development with the enactment of the Petroleum Industry Act 2021.¹⁷²⁴ The lack of a legal requirement for a decommissioning plan in the previous petroleum regime was responsible for the poor management and neglect of Well No. 1 in Oloibiri, the first oil well in Nigeria.¹⁷²⁵ At the end of the production of crude oil from Well No. 1, the community was abandoned, equipment and machinery were left to rot, polluted farmlands and waterways were not remedied and workers were not supported to seek alternative employment.¹⁷²⁶ This anomaly has now been addressed in the Petroleum Industry Act 2021.

Under the Petroleum Industry Act 2021, licensees are mandated to make financial contributions into an environmental remediation fund as a condition of their licences.¹⁷²⁷ These funds are set aside to address pollution events that may occur due to petroleum activities. This ensures that the environment and host communities affected by environmental pollution are adequately catered for to promote restorative justice. Similarly, the Act also outlines the processes that must be followed to decommission petroleum installations.¹⁷²⁸ The Act also mandates licensees

¹⁷²¹ See SEPA, Guidance on Life Extension and Decommissioning of Onshore Windfarms (version 1, November 2016); Scottish Natural Heritage, Guidance on Decommissioning and Restoration Plans for Windfarms (Version 2, February 2016); Development and Infrastructure Service, Onshore Wind Energy (Committee Draft, August 2016, The Highland Council)

¹⁷²² JTC (n 1622)

¹⁷²³ *ibid*

¹⁷²⁴ Petroleum Industry Act 2021, S 232

¹⁷²⁵ See Macleans A. Geo-JaJa and Steve Azaiki, 'Poverty and Inequality in the Niger Delta: Is National Economic Empowerment and Development Strategy the Answer?' (2007) 36 Canadian and International Education 75

¹⁷²⁶ *ibid*

¹⁷²⁷ Petroleum Industry Act 2021, S 103

¹⁷²⁸ *ibid*, S 232

to set up a decommissioning fund.¹⁷²⁹ The introduction of decommissioning obligation under the Petroleum Industry Act 2021 is aimed at facilitating restorative justice. Although the provisions are relatively new, there is a need for accountability and regulatory supervision to avoid corruption in the administration of the funds. There is also the need to establish mechanisms to monitor the implementation of decommissioning activities to ensure compliance with the principles of restorative justice.

Under the Electricity Act 2023, there are no provisions for decommissioning of electricity installations. However, at the end of the lifespan of an electricity development, the Act mandates the licensee to offer the land for sale to the original owner where the land was compulsorily acquired.¹⁷³⁰ Returning landowners to their land after the end of energy development promotes restorative justice. However, where they were initially displaced, it may be unsettling to return them to their previous state when they have moved on. Although this may not be the case for ancestral lands where the attachment was never really lost. Moreover, the Electricity Act 2023 was recently amended to introduce a host community development fund.¹⁷³¹ The amendment mandates electricity generation companies to set aside 5% of their operational cost for the development of host communities.¹⁷³²

Host community development funds are essential contributors to restorative justice. However, their effect can only be felt by the host community affected by energy development when the funds are utilised for developmental projects such as community centres, road networks, potable water, primary health centres, schools, and skill acquisition centres. For this to happen, there should be mechanism in place to monitor the disbursement of the funds to show accountability. Without these measures, host community funds will be lost in the cycle of corruption as seen in the embezzlement of rural electrification funds where directors were sentenced for stealing from the funds.¹⁷³³

Achieving restorative justice in former petroleum host communities that have been abandoned, such as Oloibiri, presents a challenging situation for RES developers. This raises the question

¹⁷²⁹ Ibid, S 233

¹⁷³⁰ Electricity Act 2023, S 118

¹⁷³¹ Ibid, S 95 (2)(C); see also Thisday Newspaper, ‘Tinubu Signs Electricity Act Amendment Bill into Law’ available at: <https://www.thisdaylive.com/index.php/2024/02/10/tinubu-signs-electricity-act-amendment-bill-into-law-2> accessed 12 April 2024.

¹⁷³² Ibid

¹⁷³³ P Roy, K Iwuamadi & J Ibrahim, Breaking the Cycle of Corruption in Nigeria’s Electricity Sector: A Political Settlements Analysis (SOAS Anti-Corruption Evidence Working Paper 20, March 2020) 4; see also Nnochiri (n 893)

of who should bear the cost of rectifying injustices and pollution from petroleum production. Placing the burden on RES developers will increase their project cost. Hence, there is a need for the government to provide restorative justice through existing funds such as host community development fund and the newly created environmental remediation funds.¹⁷³⁴

Restorative justice facilitates just transition as it ensures that those who have been affected by energy decisions such as workers retrenched due to the shutting down of petroleum production plants, are re-established in RES jobs through retraining and upskilling.

To achieve a just energy transition, it is essential that the principles of energy justice are codified in law. Given that the energy transition will adversely affect communities, workers, and indigenous groups, it is imperative that licensing standards that protect the interest of these groups are set in statute and that transition programmes are underpinned by law. Additionally, regulatory institutions established by legislation should oversee the transition process.

7.3 Incorporating Energy Justice and Just Transition into Law

The law and policy for the development of low/zero carbon, environmental sustainability and energy transition must be deeply rooted in principles of energy justice. This will ensure that the national interest of attaining developments that are sustainable are balanced with the interest of other relevant stakeholders such as workers, indigenous peoples, host communities, and other vulnerable groups to attain a just energy transition. This section examines how the principles of energy justice and just transition have been embedded in law in the UK and Nigeria.

As noted in the previous chapter on the UK, the functions of Ofgem requires the observance of principles of energy justice.¹⁷³⁵ The interest of vulnerable groups should not be sacrificed on the altar of development and economic advancement. Moreover, the creation of a Citizens Assembly in the Climate Change Act (Scotland) 2009 represents a progressive exemplar of public engagement in energy and climate policy development.¹⁷³⁶ The limited government influence over the Assembly's deliberation ensures that representatives of the society can have a say in policymaking beyond those advocated by their elected representatives without fear or favour. Additionally, the Scottish Parliament exercises oversight over the Assembly and its recommendations cannot be rejected by the government without cogent explanation. Therefore,

¹⁷³⁴ Petroleum Industry Act 2021, S 103

¹⁷³⁵ See section 6.7.2 of this thesis.

¹⁷³⁶ Climate Change (Scotland) Act 2009, S 32A

through this medium and other statutory notice requirements, members of the public can communicate their grievances regarding proposed developments including their impact on their social fabric and livelihoods. There is no similar statutory provision for a forum where members of the public can influence energy decision-making in Nigeria. Although members of the Nigerian Climate Change Council include a representative of women, youth, and persons with disability,¹⁷³⁷ this is inadequate as the Council operates at the national level. Energy policy decisions made at the strategic level affect local communities; hence procedural justice demands that residents should have a say in what RES projects are permitted within their locality.

From the outset, this thesis had observed that the transition from conventional energy sources to low/ zero carbon energy sources will come at huge costs to households, communities, businesses, and livelihoods. Thus, to ease the impact on these groups, energy transition should not be a rushed act but a comprehensive programme with public engagement at the centre. Support should be provided to communities as well as businesses to help them adapt to the energy transition. Fossil fuel workers should be supported to transition to more sustainable energy industries by providing training, upscaling, and opportunities for skill transfers. The energy transition must be undertaken within the confines of energy justice. This is to avoid the injustices occasioned in the current fossil fuel regime on oil-producing host communities in developing countries by IOCs; as this has led to conflicts between oil companies and host communities, economic sabotage, insecurity, and poor community relationships.

Energy justice requirements of the energy transition should be founded on statutory provisions. Principles of just transition and energy justice should be contained in legislation and made enforceable to avoid political backsliding.¹⁷³⁸ Under the Scottish Climate Change Act, Scottish Ministers are obligated to take cognisance of just transition principles in designing emission reduction plans and policy.¹⁷³⁹ The Act further provides a template of what just transition principles should address.¹⁷⁴⁰ The implication of its enactment in statute is that just transition has been elevated from a policy statement to an enforceable statutory requirement. Thus, government decisions (including licensing of RES developments) which run contrary to the

¹⁷³⁷ Climate Change Act 2021, S 5(1)(s)

¹⁷³⁸ The fundamental objectives and directive principles of state policy as contained in chapter 2 of the Constitution of the Federal Republic of Nigeria 1999 (as amended) has social justice and social welfare provisions. However, by virtue of section 6 (6) (C) of the 1999 Constitution, the provisions of chapter 2 of the Constitution are not enforceable unless they are further provided in other sections of the Constitution.

¹⁷³⁹ See Climate Change (Scotland) Act 2009, S 35C.

¹⁷⁴⁰ *ibid.*

just transition principles as articulated in the Act, can be challenged through judicial processes. In contrast, the Nigerian Energy Transition Plan which was launched recently is not anchored on any statutory provision.¹⁷⁴¹ Thus, the policy is at best a political wish list which is unenforceable, and as the Supreme Court held in *Ebhota vs. P. I. & P. D. Co. Ltd*,¹⁷⁴² the non-implementation of governmental policies does not give the right to enforcement action against the government. Unless the Plan is underpinned by substantive and enforceable statutory provisions, its overarching objective of achieving zero carbon emissions by 2060 will be unattainable.

7.4 Conclusion

This chapter has provided a comparative analysis of the principles of energy justice and the just transition in the context of Nigeria and the UK. The chapter examined how distributional justice has been implemented in the UK to attain energy security. It further examined how the lack of energy access for 60% of the Nigerian population festers distributional injustice. The role of courts in facilitating procedural justice was explored in the contexts of Nigeria and the UK. It was shown that while access to courts for energy decisions is advanced in the UK, energy and environmental litigation has been limited in Nigeria due to technicalities in the courts. The chapter further highlighted the importance of recognition justice in energy development. It was argued that to facilitate social licence for energy development there is a need to understand the basis upon which local objections to energy projects are held. This understanding will enable decision-makers and developers to design energy projects that address the concerns of local residents. The chapter further evaluated how extant legislation in Nigeria and the UK promote restorative justice through the requirement of decommissioning plans for projects to put the environment back in the state it was before the development. Finally, the chapter observed that enacting energy justice and just transition into statute is fundamental to facilitating the development of RES infrastructure that upholds the principles of energy justice and promotes a just energy transition. Having analysed the lessons that Nigeria can learn from the UK in establishing a robust RES planning and consenting regime that addresses energy justice and just transition, the next step is to recommend practical steps to implement these lessons in the context of Nigeria. Thus, the next chapter will provide recommendations.

¹⁷⁴¹ Nigerian Energy Transition Plan (n 49)

¹⁷⁴² (2005) 15 NWLR (Pt. 948) 266 at 289 paras D-E

CHAPTER 8 – CONCLUSIONS AND RECOMMENDATIONS

8.1 Introduction

This thesis set out to scrutinise the legal framework supporting the development of renewable energy infrastructure in Nigeria. The research examined the planning and consenting regime for RES projects in Nigeria highlighting its weaknesses. Given the weak legal regime for RES development in Nigeria, the thesis has evaluated the UK regime to understand the factors that have enabled the country to optimise RES potentials to balance the energy trilemma and promote energy justice whilst also making necessary trade-offs, to understand lessons that may be learnt by Nigeria. To meet security of supply, promote availability and access to affordable energy services, and environmental protection, it is expedient to transition from conventional energy sources (mainly fossil fuels) to low/zero carbon alternatives. However, energy transition comes at huge costs especially to workers, households, and communities supported by the fossil fuel industry. Beside the impact on energy bills which will foster fuel poverty, the transition raises energy justice concerns. This research has extensively analysed the principles of energy justice and the need for a just transition.

This chapter therefore concludes the thesis by answering the research questions raised in the first chapter. From the analysis and lessons learned, the chapter provides recommendations. The chapter recommends the development of energy transition theory from the perspective of developing countries. The chapter also recommends guidelines for the creation of a RES planning and consenting legal regime characterised by enabling RES legislation, decentralised and equipped regulatory institutions, diverse support schemes, and a just energy transition embedded in the law. These recommendations can be applied by policymakers, *mutatis mutandis*, in other developing country jurisdictions.

8.2 Final Conclusions

To answer the central research question, this thesis concludes that to balance Nigeria's energy trilemma and achieve energy justice and a just transition, its RES planning and consenting regime must be underpinned by a comprehensive legislative and institutional framework. The objectives of RES policies such as NREEEP should be enacted into statute to make them enforceable.¹⁷⁴³ Although the Electricity Act 2023 has introduced provisions to support RES

¹⁷⁴³ NREEEP (n 1070)

integration in the energy mix,¹⁷⁴⁴ its provisions need to be implemented within the confines of energy justice principles to promote security of supply.¹⁷⁴⁵ Moreover, the institutional structure for RES regulation should be established at national and local levels to facilitate small, medium, and large-scale RES deployment. To avoid duplicity of functions, the duties and powers of each regulatory body should be clearly defined in statute.¹⁷⁴⁶ To encourage investment in RES technologies, requisite support schemes including FiTs, RPS, tax rebates and local funding mechanisms for community RES projects should be introduced, as this will facilitate energy access to unserved and underserved populations.¹⁷⁴⁷ Widespread deployment of RES infrastructure will contribute to emission reduction thereby promoting environmental sustainability. However, to achieve a just energy transition from fossil fuels to RES, RES laws and policies should be implemented within the boundaries of energy justice, taking into account the interests of host communities, workers, vulnerable groups, and indigenous peoples that will be affected by the energy transition.¹⁷⁴⁸ This conclusion has been reached after answering the following subsidiary research questions:

1. What are the principles of energy trilemma and energy justice?

This thesis examined the three principles of the energy trilemma namely: energy security – the availability of energy services to meet domestic demands, energy equity – access to and affordability of energy services, and environmental sustainability – the development and utilisation of low/ zero carbon energy infrastructure in a manner that causes minimal adverse impacts on the environment.¹⁷⁴⁹ Balancing these three competing demands portends a trilemma for countries. Nevertheless, this is achievable through the establishment of a robust legal framework to support RES development and reduce carbon emissions. However, as argued in this thesis, energy justice principles should be complied with.

Energy justice has been analysed under four principles namely: distributional justice - defined as the equitable distribution of the benefits and costs of energy development to individuals in the society irrespective of physical, social, or economic differences,¹⁷⁵⁰ procedural justice – which entails public participation in energy decision-making,¹⁷⁵¹ recognition justice – which

¹⁷⁴⁴ See Electricity Act 2023, S 164

¹⁷⁴⁵ Heffron, McCauley, & de Rubens (n 97)

¹⁷⁴⁶ Aladeitan et al (n 850)

¹⁷⁴⁷ Del Guayo (n 1185)

¹⁷⁴⁸ McCauley and Heffron, 'Just transition: Integrating Climate, Energy and Environmental Justice' (n 532)

¹⁷⁴⁹ Heffron, McCauley, & de Rubens (n 97)

¹⁷⁵⁰ Heffron and McCauley, 'The Concept of Energy Justice Across the Disciplines' (n 71)

¹⁷⁵¹ Sovacool et al 'Energy Decisions Reframed as Justice and Ethical Concerns' (n 11)

entails acknowledging divergent opinions of stakeholders and unique features of host communities in energy development,¹⁷⁵² and restorative justice – which seeks to remedy the harm done to people and the environment due to energy development.¹⁷⁵³

This thesis has argued that energy justice is a golden thread that runs through the energy trilemma. This is because attaining each aspect of the energy trilemma requires a consideration of the energy justice implications.

2. Why is the integration of renewable energy in the electricity sector essential in Nigeria?

Almost half of the Nigerian population does not have access to modern electricity services.¹⁷⁵⁴ Those with access to electricity services are exposed to erratic supply. Thus, it is imperative to develop Nigeria's renewable energy potentials to meet the energy demands of the country. Given the availability of renewable energy sources all over the country, different RES technologies can be developed to meet the energy needs of unserved and underserved communities in rural Nigeria through off-grid and mini-grid systems. Moreover, in the light of Nigeria's international climate change commitments and its ambition of attaining net zero carbon emissions by 2060,¹⁷⁵⁵ the development and integration of RES technology is essential to achieving net zero carbon emissions by 2060.

3. What are the extant legal and institutional frameworks for renewable energy integration in Nigeria?

The Electricity Act 2023 (EA 2023) repealed the Electric Power Sector Reform Act 2005 (EPSRA 2005) as the main electricity legislation. Prior to the enactment of EA 2023, there was no substantive legislative framework for the development of RES technology in Nigeria.¹⁷⁵⁶ Given that EPSRA 2005 did not provide any statutory support for RES development, Nigeria's RES drive was based on non-binding policies such as NREEEP 2015,¹⁷⁵⁷ REMP,¹⁷⁵⁸ and NREAP 2016.¹⁷⁵⁹ These policies contained ambitious targets and plans but were not legally enforceable, hence could not be implemented to stimulate widespread RES development.

¹⁷⁵² Jenkins et al (n 330)

¹⁷⁵³ Heffron and McCauley, 'The Concept of Energy Justice Across the Disciplines' (n 71)

¹⁷⁵⁴ Oyedepo (n 613)

¹⁷⁵⁵ Nigerian Energy Transition Plan (n 49)

¹⁷⁵⁶ Ogbumgbada (n 98)

¹⁷⁵⁷ NREEEP (n 1070)

¹⁷⁵⁸ Akuru and Okoro (n 690)

¹⁷⁵⁹ NREAP (n 782)

However, EA 2023 actively encourages the development and integration of RES into the Nigerian energy mix to promote security of supply.¹⁷⁶⁰ The Act also encourages the introduction of incentives to facilitate RES deployment.¹⁷⁶¹ These incentives have not yet been introduced given that the Act only became law in June 2023. Regardless of the provisions of EA 2023, its application to accelerate RES deployment will depend on how its provisions are implemented by regulatory institutions.

NERC, as the principal regulator for the electricity sector, is also responsible for promoting the development and utilisation of RES in the energy sector.¹⁷⁶² Other institutions with regulatory duties over RES integration are NEMSA, who are responsible for inspecting electricity installations (including RES infrastructure) as well as enforcing compliance with standards,¹⁷⁶³ and Rural Electrification Agency whose remit includes the deployment of RES infrastructure for rural electrification.¹⁷⁶⁴ EA 2023 also empowers state legislatures to enact laws enabling state electricity bodies to regulate electricity generation, distribution, transmission and supply within their respective states.¹⁷⁶⁵

4. What are the current planning and consenting laws for renewable energy projects in Nigeria and the UK?

RES planning and consenting in the UK is supported by various legislation including the Electricity Act 1989 which introduced Renewables Obligations and encouraged the development of RES technology, Energy Act 2013 which provides various support schemes to facilitate RES development, and the Town and Country Planning (Scotland) Act which empowers LPAs to issue RES generation licences for capacities below 50 MW. In Nigeria, EA 2023 supports RES planning and consenting. Although EA 2023 mandates NERC to stipulate simplified licensing and fees regime for licensing RES projects, this is yet to be implemented due to the novelty of the Act.¹⁷⁶⁶ Moreover, the Nigerian Urban and Regional Planning Act 1992 has no provision to encourage RES deployment. This is unsurprising given the concentration of regulating powers over electricity licensing on NERC prior to the enactment of EA 2023. It is argued that with the decentralisation of licensing powers over RES

¹⁷⁶⁰ Electricity Act 2023, S 164

¹⁷⁶¹ Ibid, S 166

¹⁷⁶² Ibid, S 34 (1) (i)

¹⁷⁶³ Ibid, S 176

¹⁷⁶⁴ Ibid, S 128

¹⁷⁶⁵ Ibid, S 63

¹⁷⁶⁶ Ibid, S 164 (A)

developments to state institutions, relevant planning and consenting law, policy and guidelines will be introduced in due course.

5. How can a renewable energy planning and consenting legal regime be used to balance the energy trilemma and promote energy justice in Nigeria?

A RES planning and consenting legal regime will introduce laws to actively encourage RES development. These laws will also provide support schemes to assist developers as well as establish decentralised and robust regulatory institutions to oversee RES development and enforce compliance with standards. Such a regime will boost investors' confidence thereby accelerating the widespread deployment of small, medium, and large-scale RES infrastructure. Multiple installations of RES technology will contribute to the energy mix and improve energy security. Widespread RES deployment will engender energy access to unserved and underserved communities, thus promoting energy equity. The regulatory clarity provided, and the support schemes introduced by a RES planning and consenting regime will encourage businesses, households, and communities to invest in RES technology as an alternative to diesel- and petrol-powered generating sets. Given their significantly low emissions properties, switching to RES technology will reduce carbon emissions and promote environmental sustainability. Lastly, a RES planning and consenting regime will require the application of energy justice principles in the development of RES infrastructure.

6. What factors are responsible for renewable energy integration in the UK and what lessons can Nigeria learn?

This thesis has shown that for a country to take advantage of its RES potentials to drive development, there should be laws, policy, and technical guidelines that encourage RES development. The mere enactment of RES law and policy does not guarantee RES integration. It is necessary to establish regulatory institutions that are empowered by statute to issue licences and maintain standards at both national and regional levels. Moreover, support schemes should be provided in statute to assist developers, as well as to create routes to the market and guarantee profitability. Nigeria can learn these lessons from the UK and adapt them to suit its domestic circumstances.

7. How should a legal and institutional framework for renewable energy planning and consenting that balances the energy trilemma and addresses energy justice and just transition concerns be designed in the Nigerian context?

A RES planning and consenting regime that balances the energy trilemma and addresses energy justice and just transition in the Nigerian context should begin with the enactment of laws to support RES development. It should further introduce support mechanisms tailored to the Nigerian situation. Moreover, regulatory institutions should be strengthened to provide efficient regulatory support as well as to enforce set standards. Finally, the development of RES infrastructure and the transition from fossil fuels to RES should be undertaken within the confines of energy justice. A just energy transition should be underpinned by law and made legally enforceable. Given the above findings, the next section provides recommendations.

8.3 Recommendations

This section seeks to provide recommendations to facilitate the development of energy law and policy. These recommendations contribute to knowledge by introducing a nuanced perspective to the energy transition scholarship in that it canvasses a developing country perspective to the energy transition discourse. Beyond setting out developing country-specific considerations, the recommendations will also provide a means of operationalising a just energy transition in the context of a developing country.

Having extensively analysed the legal framework for RES regulation in Nigeria, this thesis has shown that the extant regime is inadequate.¹⁷⁶⁷ Although the absence of a RES statutory framework to encourage the development of renewable energy infrastructure, regulatory institutions equipped to cater for RES development, and support mechanisms to promote RES utilisation were key constraints under EPSRA 2005, EA 2023 now has provisions to support RES development and utilisation.¹⁷⁶⁸ However, these provisions are not adequate to address these constraints given that the implementation of some of the provisions of the Act are at the discretion of NERC.¹⁷⁶⁹ Moreover, state legislatures have been empowered to make laws for the regulation of the electricity sector in their respective states.¹⁷⁷⁰ Whilst some states in Nigeria such as Lagos State and Edo State already had state electricity institutions,¹⁷⁷¹ it is essential for other states to develop a robust RES planning and consenting regime to facilitate decentralised RES development. This is essential given that the lack of a defined RES planning and consenting regime has greatly hindered Nigeria's capacity to leverage on its RES potentials to

¹⁷⁶⁷ Aigbovo and Ogboka (n 629).

¹⁷⁶⁸ See Electricity Act 2023, Pt XVII on renewable energy integration.

¹⁷⁶⁹ Ibid, S 167

¹⁷⁷⁰ Ibid, S 63

¹⁷⁷¹ See Lagos State Electricity Board Law 1980, S 1, see also Edo State Electricity Regulatory Commission, 'About Us' available at: <https://erc.edostate.gov.ng/about-us/> accessed 19 May 2024

guarantee security of supply, access to affordable energy and environmental sustainability as well as its ability to promote energy justice in the development of RES infrastructure and engender a just transition.¹⁷⁷² Meanwhile, in the UK, a well-established legislative regime, including the Energy Act 2013, Electricity Act 1989, and the Climate Change Act 2008, underpins the development of low/ zero carbon energy infrastructure (including RES technology). Additionally, a variety of support mechanisms and a mixture of incentives and penalties have been introduced to reduce carbon emissions whilst optimising RES technology.¹⁷⁷³ Moreover, a decentralised regulatory structure and robust institutions have not only ensured the competitiveness of RES technology as a major source of energy but also created an easy planning and consenting process for RES developers.¹⁷⁷⁴ The UK regime has made deliberate efforts to incorporate energy justice and just transition principles in its energy and climate change law and policy.¹⁷⁷⁵ Having highlighted the salient lessons that Nigeria can learn from the UK regime and taking cognisance of Nigeria's circumstance, this section sets out the guiding principles that should guide policymakers in developing a bespoke RES regime that addresses Nigeria's energy trilemma as well as fosters energy justice. These recommendations may be implemented in other developing countries with similar conditions as Nigeria.

8.3.1 The Development of Energy Transition Theory from the Perspective of Developing Countries

This thesis has observed that the energy systems of societies have been supported by fossil fuels (especially coal) from prehistoric periods.¹⁷⁷⁶ Coal was the mainstay of the Industrial Revolution era and continues to support development in developed countries.¹⁷⁷⁷ Its exploitation was instrumental to mechanisation, transportation, industrialisation, electricity, and heating in developed countries. Similarly, oil and gas have been developed to augment coal in the energy mix of developed economies. Centuries of fossil fuel exploitation have led to economic and technological advancements, improved standards of living, national economic wealth, military sophistication, transportation (including aviation and shipping), medical innovations, advancements in research, and universal access to energy services in developed

¹⁷⁷² Gungah et al (n 663)

¹⁷⁷³ Pollitt and Haney (n 1345)

¹⁷⁷⁴ Averchenkova et al (n 1300)

¹⁷⁷⁵ See Climate Change (Scotland) Act 2009, S 35C

¹⁷⁷⁶ Krajewska (n 1681)

¹⁷⁷⁷ Allen (n 584)

countries. However, these fossil fuel uses have resulted in environmental degradation which has put the planet on a path of irreversible climate change.¹⁷⁷⁸ Consequently, environmental pollution has made the transition to low/zero carbon energy systems more expedient.

Whilst the current energy transition aims to introduce low/zero carbon energy systems to the energy mix to replace fossil fuels as the main source of energy, it also intends to phase out fossil fuels in the energy mix.¹⁷⁷⁹ Moreover, the extant energy transition discourse is from developed countries' perspective and involves developing RES technology and nuclear energy to meet energy needs, attaining net zero emissions by 2050,¹⁷⁸⁰ an ambition that has been enacted in the UK Climate Change Act,¹⁷⁸¹ encouraging energy efficiency, stopping new fossil fuel investments abroad (whilst licensing new fossil fuel production domestically),¹⁷⁸² voting to support natural gas as a clean fuel¹⁷⁸³ (to meet domestic needs and avoid Russian gas), among others. The energy transition discourse rarely acknowledges that fossil fuel products are still required for several activities including petrochemicals, construction, vaccine/ medicine production, carbon fibre for aircraft, and lubricants for wind turbines among others.¹⁷⁸⁴ Moreover, outsourced emissions from fashion, electronic/ computer gadgets production, importation of agricultural produce and oil and gas from abroad are seldom included in transition plans. Yet, while developed countries have advanced in their development to be able to adapt to the transition with minimal impact on their economies and societies, developing countries do not have the capacity to transition at the same speed required.

Governments in developing countries are obligated under domestic legislation to exploit natural resources to meet domestic needs including energy security and access to affordable energy services, industrialisation, improved transportation systems, improved health care services, available housing, potable water supply, modern domestic fuel for cooking, heating, and cooling, job creation, and better social welfare for their citizens.¹⁷⁸⁵ Most developing countries including Nigeria, depend mainly on fossil fuels to sustain their economies and generate national revenue.¹⁷⁸⁶ Thus, energy transition without addressing these developmental

¹⁷⁷⁸ IPCC 2022 (n 866)

¹⁷⁷⁹ Yergin (n 568)

¹⁷⁸⁰ IPCC 2022 (n 866)

¹⁷⁸¹ Climate Change Act 2008

¹⁷⁸² Greene (n 1641)

¹⁷⁸³ European Parliament (n 48)

¹⁷⁸⁴ Jeremy Hess et al, 'Petroleum and Health Care: Evaluating and Managing Health Care's Vulnerability to Petroleum Supply Shifts' (2011) *American Journal of Public Health* 1568

¹⁷⁸⁵ See Constitution of the Federal Republic of Nigeria 1999 (as amended), Chapter 2

¹⁷⁸⁶ Ohimain (n 256)

priorities poses an existential threat, hence it is not top on their agenda. Moreover, governments of developing economies are reluctant to transition because they owe their citizens a constitutional duty to exploit their resources to achieve economic and social development. This is further buoyed by the understanding that developed countries that have contributed the most to climate change have also benefitted the most from fossil fuels in developing their economies and societies. Thus, expecting developing countries to phase out their fossil fuels due to climate change as well as banning new fossil fuel investments in developing countries amounts to punishing these countries for centuries of fossil fuel consumption by developed countries.¹⁷⁸⁷ Given that most developing countries (especially in Africa) have been independent for only about 60 years, and have gone through turbulent military regimes, and civil wars, they have not had enough time to develop their resources to attain sustained economic development. Nonetheless, although developing countries have contributed the least to climate change, they are more vulnerable to its adverse impacts.¹⁷⁸⁸

However, given the climate emergency and the vulnerability of developing countries to the adverse impacts of climate change,¹⁷⁸⁹ there is a need to promote energy transition to mitigate adverse impacts. Similarly, fossil fuel resources are finite, and their market is in decline compared to RES,¹⁷⁹⁰ hence the transition to low/ zero carbon energy system presents developing countries with an opportunity to diversify their economies by capitalising on its economic potentials including job creation and low-cost energy development.¹⁷⁹¹ Therefore, it is essential for policymakers, energy lawyers and scholars to understand the nuances of energy transition from the lens of developing countries to formulate energy transition models and programmes tailored to the needs of developing countries. Thus, a just energy transition tailored to their domestic circumstances with the support of the developed countries is needed.

Achieving a just energy transition in developing countries requires support from developed countries. Such support includes financial support to fund the development of low/ zero carbon energy infrastructure to improve energy security and access, funding carbon capture and storage technologies to reduce emissions, providing targeted funding for fossil fuel

¹⁷⁸⁷ See Yergin (n 568); see also Aljazeera, ‘Africa being ‘Punished’ by Fossil Fuel Investment Ban – Niger’ available at: <https://www.aljazeera.com/news/2022/6/15/africa-punished-by-investment-clamp-on-fossils-says-niger> accessed 26 April 2023

¹⁷⁸⁸ Text to n 553

¹⁷⁸⁹ Adeyanju et al (n 91)

¹⁷⁹⁰ IRENA, ‘Majority of New Renewables Undercut Cheapest Fossil Fuel on Cost’ (Press Release, 22 June 2021) available at: <https://www.irena.org/news/pressreleases/2021/Jun/Majority-of-New-Renewables-Undercut-Cheapest-Fossil-Fuel-on-Cost> accessed 19 May 2024

¹⁷⁹¹ Akella et al (n 132)

developments with higher environmental standards (whilst setting a decarbonisation timeline in accord with developing countries after which funding can cease), demanding greater environmental accountability from businesses headquartered in developed countries but operating in developing countries, technology transfer, knowledge exchange, and human capital development. Funding could be achieved through existing global climate finance mechanisms or bilateral funding arrangements.¹⁷⁹²

Developed countries pledged \$100 Billion annually to support developing countries with their transition by 2020 but this target was not achieved.¹⁷⁹³ Similarly, the Loss and Damage Fund was introduced at COP27 to assist developing countries with tackling the adverse impacts of climate change.¹⁷⁹⁴ The introduction of these tranches of support is highly commendable. However, achieving a just energy transition from the perspective of developing countries, will depend on the fulfilment of these financial pledges and the effective management of these funds by the developing countries.

8.3.2 Guiding Principles for a Comprehensive Planning and Consenting Legal Framework for Renewable Energy Integration in Nigeria

The proper foundation for RES integration in Nigeria is by recognising renewable energy in statute as a source of energy whose development should be actively encouraged by the government. It is contended that the statutory recognition of RES energy as an important source of energy in EA 2023 will mainstream its development by energy developers.¹⁷⁹⁵ However, there is a need to introduce provisions in EA 2023 that link the development of RES to climate change mitigation. Although the Act makes the provision of renewable purchase obligation at the discretion of NERC, the Act should be amended to provide a timeline for its introduction.¹⁷⁹⁶ The amendment should further strengthen regulatory institutions to implement such provisions. EA 2023 should be amended to introduce different levels of planning and consenting pathways for RES development including generation capacities that can be licensed by state regulators and permitted development. As has been argued in this thesis, a

¹⁷⁹² Green Climate Fund, 'About GCF' available at: <https://www.greenclimate.fund/about> accessed 20 May 2023

¹⁷⁹³ Elena Ares and Philip Loft, 'COP26: Delivering on \$100 Billion Climate Finance' available at: <https://commonslibrary.parliament.uk/cop26-delivering-on-100-billion-climate-finance/> accessed 30 September 2022

¹⁷⁹⁴ 27th Conference of Parties to the United Nations Framework Convention, 'Funding arrangements for responding to loss and damage associated with the adverse effects of climate change, including a focus on addressing loss and damage' (Decision -/CP.27 -/CMA.4, Sharm el-Sheikh, November 2022)

¹⁷⁹⁵ Electricity Act 2023, S 164

¹⁷⁹⁶ Electricity Act 2023, S 167

decentralised regulatory model is fundamental to accelerate the development of small-scale, medium-scale and utility-scale RES infrastructure.¹⁷⁹⁷

A decentralised regulatory regime is in keeping with the letter and spirit of the Nigerian Constitution and the Electricity Act 2023.¹⁷⁹⁸ With states now empowered by EA 2023 to exercise regulatory powers over electricity within their state boundaries, relevant state legislatures should develop electricity regulatory laws to specify licensing conditions for small and medium-scale RES generation.¹⁷⁹⁹ Similarly, a new Renewable Energy Agency separate from NERC should be created to cater for utility-scale RES generation at the national level, while the issuance of distribution and transmission licences can be retained by NERC. Delegating some regulatory functions over RES technology development will entrench effectiveness. When the regulation of small and medium-scale RES developments is handled by local and state agencies, this will lighten the administrative burden of the Renewable Energy Agency which should only be concerned with licensing utility-scale RES projects.¹⁸⁰⁰

Furthermore, the planning and consenting requirements for RES projects should be clearly spelt out in regulations and guidance. The simplified licensing and fee regime for RES projects should ensure that the requirements and fees for small-scale developments are significantly less than for larger developments.¹⁸⁰¹ Additionally, the law should stipulate various categories of generation capacities including capacities that qualify as permitted developments, capacities that can be handled by local or state agencies and capacities that should be within the regulatory powers of the national institution. Licensing requirements for RES technology should include an opportunity for public engagement in the planning and consenting process in line with procedural justice and this should be stated in statute. Also, the appeal process should be laid out in the event of a refusal of planning consent.

As shown earlier in this research, RES technologies have varying impacts on the environment, biodiversity, habitats, communities, local economies, and cultural practices.¹⁸⁰² Consequently, the Nigerian Environmental Impact Assessment Act 1992 should be amended to address the impacts of RES developments on these categories and EIA should be made mandatory for

¹⁷⁹⁷ Text to n 1774; see also Averchenkova et al (n 1300)

¹⁷⁹⁸ Constitution of the Federal Republic of Nigeria 1999 (as amended), Second Schedule; see also Electricity Act 2023, S 63

¹⁷⁹⁹ *ibid*

¹⁸⁰⁰ Averchenkova et al (n 1300)

¹⁸⁰¹ See Electricity Act 2023, S 164 (1) (a).

¹⁸⁰² See section 1.12 of this thesis on the adverse impacts of RES development.

medium-scale and utility-scale RES projects.¹⁸⁰³ As the 7th most populous country in the world, Nigeria has an array of diverse peoples, local cultures, local economies as well as a variety of biodiversity and their habitats. Thus, the impacts of various RES technology will differ based on location. Hence, such heterogeneous environmental assessments are not only beneficial to mitigating the impacts of RES development on these groups but also essential in recognising the diversity in the country. This will make Nigeria's environmental assessment regime more effective (beyond ticking of boxes) and in line with global best practices.¹⁸⁰⁴ To effectively monitor such environmental assessments, NESREA should be statutorily mandated and equipped with the necessary tools and resources to verify the impact assessment reports and the mitigation measures put in place by the developer. NESREA will need to work together with other regulatory institutions to ensure compliance with stipulated minimum standards.

8.3.3 Establishment of a Principal Renewable Energy Agency

A principal Renewable Energy Agency (RES Agency) should be established under the amended EA 2023 to coordinate the country's RES targets, policy and law. It should be empowered to issue generation licences for RES developments. For effective regulation, the RES Agency should have divisions in all the states in Nigeria, as this will be essential for states without substantive electricity laws, until such time when state electricity agencies are established. To avoid conflicts with NERC, the RES Agency should be responsible for the issuance of generation licenses for RES projects while NERC should remain in charge of generation licenses for other energy sources, as well as distribution licences, supply licences and transmission licences. While the federal office of the Agency may be responsible for licensing of large-scale RES generation capacity of 50MW and above, licensing for medium-scale RES projects (1MW - 50MW) should be within the remit of state divisions. Moreover, RES generation capacities of 5kW – 1MW should be licenced by local government planning authorities with the Agency providing minimum technical standards and monitoring. Generation capacities below these thresholds should be considered permitted developments.¹⁸⁰⁵

The RES Agency should be an independent body with minimal control from NERC and the Minister of Power. Its functions should be spelt out in statute with clear separation of powers

¹⁸⁰³ See Environmental Impact Assessment Act 1992

¹⁸⁰⁴ The EIA should be more extensive as in the Scottish regime. See Scottish Government, 'Environmental Assessment' (n 1573).

¹⁸⁰⁵ See Climate Change (Scotland) Act 2009, S 71; see also Scottish Government, 'Microgeneration: Planning Advice' available at: <https://www.gov.scot/publications/microgeneration-planning-advice/> accessed 4 March 2022

from other government agencies to avoid duplicity of functions.¹⁸⁰⁶ The head of the RES Agency should be appointed by the president after screening and confirmation by the Senate. This will guarantee independence and accountability and enable the National Assembly to exercise oversight over the Agency. Appointment of the head and other principal members of the Agency should be based on their expertise and experience unlike the Climate Change Council.¹⁸⁰⁷ Given that the effectiveness of the Agency will largely be influenced by the quality of technical leadership provided at the departments and divisions, it is imperative that appointments to these positions are based on merit as opposed to nepotism.

The responsibility of setting standards for variable RES technology should be embedded in the Agency by statute. Therefore, the RES Agency should have a technical committee comprised of relevant experts and representatives of the NEMSA, Standard Organisation of Nigeria (SON), NERC, and NESREA who should be responsible for setting minimum standards for RES infrastructure.¹⁸⁰⁸ Other divisions in the Agency should include licensing division, monitoring and enforcement division, community relations, finance division, human resource department, department for information and data, and research and development division.

The Agency should also be responsible for promoting RES development by signposting developers to support schemes, incentives, and funding available to RES development. The agency should also collaborate with the Nigerian Investment Promotion Commission (NIPC) to facilitate the introduction of RES investments in Nigeria.¹⁸⁰⁹ It can also act as an interphase between foreign RES investors and local developers. RES development involves various government ministries, departments, and agencies; thus, the RES Agency can produce a high-level application guideline from information collated on relevant assessments, permits and other approvals that will be needed for variable renewable energy installations including from NESREA (with regards to EIAs) and land departments.

The Agency, through its state divisions, should conduct a status assessment for each state of Nigeria to determine the viability of variable renewable resources.¹⁸¹⁰ The purpose of the initial

¹⁸⁰⁶ Aladeitan et al (n 850)

¹⁸⁰⁷ Pontian Okoli and Etisang Abraham, 'In Search of a Sustainable Future: A Comparative Assessment of Climate Change Regimes in Nigeria and Kenya' (2024) *RECIEL* 1, 15 doi:10.1111/reel.12545

¹⁸⁰⁸ The responsibility to set standards for RES installation should be removed from NEMSA. Section 4.6.5 of this thesis discusses the functions of NEMSA. See also Aliyu et al (n 659) 2515

¹⁸⁰⁹ See Section 4 Nigerian Investment Promotion Commission Act, cap N117 Laws of the Federation of Nigeria 2004; see also Zakari, Aliero & Abdul-Quadir, (n 923)

¹⁸¹⁰ This is in keeping with the definition of a planning and consenting regime as espoused in this thesis. See section 1.2.3 and section 5.3 of this thesis.

assessment is to ascertain the baseline conditions for these locations and their topography as it will form the basis upon which licences are issued.¹⁸¹¹ It is also important to enhance effective monitoring of RES installations to ensure that baseline conditions are maintained, and environmental enhancement is encouraged as this will promote restorative justice.¹⁸¹² As a statutory requirement, these reports and the accompanying geographic information system (GIS) mappings¹⁸¹³ should be maintained in a database by the Agency and accessible to the public and applicants.¹⁸¹⁴ This will assist RES developers to make informed decisions in their choice of location, and RES technology. It will also enable licensing officials to make evidenced-based licensing decisions. These databases should also be accessible digitally and updated periodically in line with technological advancement, changing baseline conditions and the discovery of more sustainable methodologies. Ultimately, the Agency should be a one-stop-shop institution that can assist developers with all the information relevant to the planning and consenting process for RES developments.¹⁸¹⁵

To forestall institutional conflicts and duplication of functions, the responsibilities of the RES Agency should be embedded in the amended EA 2023. Where there is institutional overlap, the functions of different agencies such as NERC, NEMSA, and NESREA should be clearly defined, to be distinct from the functions of the Renewable Energy Agency. This will entail the amendment of other enabling statutes to reflect the distinction. Similarly, statutory consultees without regulatory powers should be defined in legislation, and their right to be consulted and to make representations regarding proposed developments should be guaranteed in statute.¹⁸¹⁶

The development of RES infrastructure should be founded on practical strategic and sustainable renewable energy and climate change policies, plans and advice.¹⁸¹⁷ In the exercise of its statutory obligations, the Agency will benefit from an expert-based advisory body such

¹⁸¹¹ See Town and Country Planning (Scotland) Act 1997, S 37; see also McMaster et al (n 1551)

¹⁸¹² Hazrati and Heffron (n 470)

¹⁸¹³ GIS mapping facilitates the collection of different data on a location and makes it easy to capture, store and analyse these data in a map. These can be represented in 2D or 3D formats and can be useful to RES developers. See also National Geographic, 'Geographic Information System (GIS)' available at: <https://education.nationalgeographic.org/resource/geographic-information-system-gis> accessed 23 September 2022

¹⁸¹⁴ See Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017, Reg. 18

¹⁸¹⁵ Olawuyi (n 90) 237

¹⁸¹⁶ See Environmental Assessment (Scotland) Act 2005, Ss 3, 14 and 15 for the statutory consultees under the Scottish RES regime.

¹⁸¹⁷ See section 6.8.1 on the Scottish strategic planning framework which sets the blueprint for RES development; see also Montmasson-Clair and Nair (n 1040) 4

as the Nigerian Council on Climate Change (NCCC). Hence, the NCCC should be reconstituted to make room for an expert-led body to advise the government on climate change.¹⁸¹⁸

As currently constituted, the Nigerian Council on Climate Change does not possess the requisite skills and expertise to address the exigencies of climate change.¹⁸¹⁹ Apart from being already overburdened with other government responsibilities, the politically elected or appointed officials in the NCCC still face conflicts of interest as they head ministries that are directly or indirectly involved in activities that contribute to carbon emissions. For instance, GHG emissions from gas flaring and other pollution from oil and gas production are caused by international oil companies who are in joint venture partnerships with the petroleum ministry.¹⁸²⁰ Additionally, such an overly political council lacks legitimacy across the political divide unlike the UK CCC.¹⁸²¹ Therefore, the NCCC should be reconstituted and experts in climate change, environmental, engineering, legal, economic, and industrial sectors should be appointed to perform the advisory responsibilities of the Council as this will promote credibility and minimise concerns over bias. There should be representatives of the government to provide a nuanced approach to the formulation of low/ zero carbon energy and climate change policies. Furthermore, given the adjudicatory responsibility of the Council, the Nigerian Climate Change Act 2021 should be amended to create provisions detailing how issues of conflict of interest should be dealt with. With sufficient expertise in the NCCC, the Council can recommend support schemes tailored to the Nigerian circumstances such as introducing a crowd-pooling funds modelled after the traditional credit instrument of *Esusu*.¹⁸²²

8.3.4 Developing Renewable Energy Support Schemes

Electricity producers and suppliers are generally averse to loss no matter how temporal. Thus, given that RES development requires large upfront costs which could be recovered over time, most electricity producers and suppliers may not be keen on putting large sums of investors' funds into an industry that is shrouded in uncertainty. However, if directed by legislation, it is no longer discretionary but becomes a legal obligation. Thus, it is necessary to implement the renewable purchase obligation stated in EA 2023 by amending the Act to introduce a timeline for its implementation.¹⁸²³ The introduction of renewable purchase obligation will create a

¹⁸¹⁸ Okoli and Abraham (n 1807)

¹⁸¹⁹ *ibid*

¹⁸²⁰ See Resolution Law Firm (n 796)

¹⁸²¹ Averbchenkova et al (n 1300)

¹⁸²² Osiki (n 886)

¹⁸²³ Electricity Act 2023, S 167

profitable route to the market for RES developers. It will further drive down carbon emissions as increased reliance on renewable electricity will reduce reliance on fossil fuels. In the Nigerian context, introducing renewable purchase obligation will entail wide consultations with stakeholders to understand the impact of its introduction on consumers and how to mitigate such adverse impacts, hence the need to stipulate a timeline for its implementation. In the case of the UK, the renewables obligation contributed to higher energy prices for consumers in the same way as the oversubscription of FiT schemes before its closure and remodelling.¹⁸²⁴

While the renewable purchase obligation may provide a route to the market for large electricity generators, other support schemes may be introduced to benefit small-scale RES developers. Thus, it is essential for NERC to engage with other stakeholders including the Federal Ministry of Finance, electricity operators, and consumer groups to develop other support schemes and fiscal incentives to attract investment in RES development in line with EA 2023,¹⁸²⁵ whilst strengthening existing schemes such as the FiT scheme. The Nigerian FiT scheme has not achieved the objectives set out at its introduction, hence there is a need to revamp the scheme in line with the provisions of EA 2023.¹⁸²⁶ One of the reasons for its failure was that the scheme since its introduction has not evolved with the changing energy market and the economy. The scheme was overdue for review in line with its establishing regulation.¹⁸²⁷ Moreover, to benefit from the scheme, RES projects must generate a minimum of 1MW.¹⁸²⁸ This capacity is clearly beyond most small-scale developers. FiT schemes in the UK (and Germany) have succeeded because there is no minimum capacity, but the focus is on feeding renewable electricity to the national grid.¹⁸²⁹ This has allowed households to benefit from the scheme by developing RES projects with small-scale capacities.¹⁸³⁰ Therefore, the Nigerian FiT should be reviewed to make room for lower capacities. However, balancing and integrating these new capacities into a struggling national grid is another challenge that may hinder its effective implementation; and this could be addressed by upgrading the national grid and setting up mini-grid networks.¹⁸³¹

¹⁸²⁴ See DECC 2013 (n 311)

¹⁸²⁵ Electricity Act, S 166

¹⁸²⁶ See section 4.6.4 of this thesis.

¹⁸²⁷ See Nigerian Electricity Regulatory Commission's (NERC) Regulations on Feed-In Tariffs (NERC REFIT's), Reg 17

¹⁸²⁸ Ibid, Reg 13

¹⁸²⁹ Department of Energy and Climate Change, 'Performance and Impact of the Feed-in-Tariff Scheme: Review of Evidence' (Final Report, 2015) (n 1476)

¹⁸³⁰ Cherrington et al (n 1486)

¹⁸³¹ Dornan (n 397)

Another support scheme that can encourage the development of RES technology is the strengthening of existing low-interest credit facility/ fund – the Rural Electrification Fund.¹⁸³² Although the Rural Electrification Agency facilitates the formation of Rural Electricity Users Cooperative Societies and administers the Rural Electrification Fund to promote the development of electricity infrastructure in rural areas, it has been plagued by cases of corruption and mismanagement of the funds.¹⁸³³ There is a need for transparency in the management of the funds and accountability in its utilisation.

Crowd-pooling schemes patterned after traditional *Esusu* schemes should be introduced to raise needed funding for RES development.¹⁸³⁴ A crowd-funding statutory instrument setting out guidelines for the creation and operation of crowd-pooling schemes for small-scale and community RES projects should be developed by the Central Bank of Nigeria (CBN) in consonance with the RES Agency. Such guidelines should outline conditions for the operation of a crowd-pooling scheme, provide minimum qualifications for operators of such a scheme, as well as impose periodic reporting obligations on operators of the scheme. In addition, the amended EA 2023 can mandate state Ministries of Finance to monitor the operation of each scheme within their state. This will ensure accountability and foster trust in the scheme. Given that crowd-pooling arrangements in the form of *Esusu* and *Adashe* have been in existence for many decades, a crowd-pooling scheme for RES development with effective regulation, governmental recognition and clear articulation of its risks and benefits can ride on the goodwill of these past credit tools to gain public acceptance and to optimise RES integration in rural and underserved localities.¹⁸³⁵

Fiscal schemes such as import waivers for RES equipment should also be introduced. These will create new markets for these products and create new jobs. In addition, whilst pioneer status is available for solar energy equipment production, such benefits should extend to other RES technology such as wind energy equipment and bioenergy technology.¹⁸³⁶

¹⁸³² Electricity Act 2023, S 128

¹⁸³³ See section 4.9.8 of this thesis; see also Nnochiri (n 893)

¹⁸³⁴ Osiki (n 886)

¹⁸³⁵ *ibid*

¹⁸³⁶ See section 4.8.4 of this thesis for a discussion of pioneer status.

8.3.5 Integrating Energy Justice and Just Transition Principles into Renewable Energy Laws

The exploitation of petroleum resources in Nigeria has been characterised by complaints of injustice and marginalisation by host communities and indigenous groups, environmental degradation and pollution of epic proportions, loss of livelihoods, farmlands, places of communal significance, and loss of biodiversity.¹⁸³⁷ As a result of these unaddressed injustices, host communities and aggrieved groups have resorted to picketing of international oil multinational companies with criminal groups taking extreme measures such as sabotage, crude oil theft and oil bunkering, militancy, kidnapping of oil workers and violence.¹⁸³⁸ These ills have thrived in the petroleum industry because economic profit has been placed over the adverse impacts of oil and gas production on the populace. The issues have been exacerbated by political complicity, inadequate legal framework to address energy injustices, and a general lack of political willpower.

As the debate around RES development gains momentum, it is important to understand the injustices occasioned in the oil and gas industry upon workers and communities and its implications on the society with a view to avoiding similar errors in the development of a RES legal regime. In order not to repeat the mistakes and injustices meted out by the oil and gas industry on host communities, indigenous groups, and workers, it is imperative to incorporate principles of energy justice in renewable energy laws.

Integrating principles of energy justice in the renewable energy regime entails enacting public consultation requirements in legislation as part of the planning and consenting process for RES development.¹⁸³⁹ Involving members of the public in the entire planning and consenting process will promote procedural justice and legitimacy for RES projects, whilst creating mutual trust between developers and host communities. Importantly, it will ensure prior informed consent (social licence) from indigenous communities is first sought and obtained before the commencement of proposed developments.¹⁸⁴⁰ A well-defined process set out in statute for lodging grievances and objections over a RES development will aid procedural justice. It will further ensure that the siting of RES infrastructure does not disproportionately disadvantage

¹⁸³⁷ WEC 2020 (n 1155)

¹⁸³⁸ Ajodo-Adebanjoko (n 446)

¹⁸³⁹ Flacke and de Boer (n 1221)

¹⁸⁴⁰ See UNDRIP, Art 10

some sections of the population over others thereby fostering distributive justice.¹⁸⁴¹ Given the heterogeneous nature of the Nigerian society, recognition justice will be best served when unique features of indigenous groups or localities are accorded due consideration in the issuance of permits and licences.¹⁸⁴² This will enable developers to factor in mitigation measures to avoid adverse impacts on these groups. Host communities where petroleum production has ceased have suffered neglect in Nigeria due to lack of decommissioning plans.¹⁸⁴³ It is imperative that a RES regime should request decommissioning plans as part of the application process as this will foster restorative justice.¹⁸⁴⁴ As observed in the shutting down of the Scottish Power-operated Longannet coal-powered station in Fife, Scotland, an effective decommissioning plan with the active participation of stakeholders such as workers, residents, local council, businesses, and government will foster just transition and minimise the adverse impacts on communities, businesses and households depending on the industry.¹⁸⁴⁵

This thesis recommends the enactment of an Energy Transition Act that will underpin the transition from fossil fuels to renewable energy. The energy transition needs a robust legislation to embody a comprehensive Energy Transition Plan that caters for all sectors of the economy that will be affected by the transition. It is recommended that the transition should not be rushed but a progressive process to allow for retraining and reskilling of fossil fuel workers, it also needs huge funds which cannot be realised overnight, and a practical transition programme which will support communities, households, businesses and save jobs.

¹⁸⁴¹ Heffron and McCauley, 'The Concept of Energy Justice Across the Disciplines' (n 71)

¹⁸⁴² *ibid*

¹⁸⁴³ A O Y Raji & T S Abejide, 'An Assessment of Environmental Problems Associated with Oil Pollution and Gas Flaring in the Niger Delta Region Nigeria, C.1960s-2000' (2013) 3 *Arabian Journal of Business and Management Review* 48-62

¹⁸⁴⁴ Hazrati and Heffron (n 470)

¹⁸⁴⁵ See JTC (n 1622)

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