

# **The Energy Transition and Energy Security Nexus: An Outlook for the United Kingdom**

**Victor C. Azubike**, Law Lecturer University of Huddersfield, United Kingdom. Email: [v.azubike@hud.ac.uk](mailto:v.azubike@hud.ac.uk)

**Victor C. Azubike** is a Law Lecturer at the University of Huddersfield, in the United Kingdom. His research interest is in international environmental law, energy, and natural resource law, focusing on energy transition, energy security, and net-zero goals. He is a member of the Association of International Energy Negotiators (AIEN). Also, an Associate Member of the Energy Institute (EI).

## **Abstract**

The energy transition and achieving net-zero goals were viewed as a straight road—in some quarters. Still, with the realities on the ground, energy security has emerged as another path governments must earnestly consider. The government of the United Kingdom has backed and committed itself to achieving a greener and clean energy society through various policies and laws. Although, the Russian-Ukraine crisis has raised a vital question of energy security for the government. This paper looks at some issues and opportunities for the UK government pragmatically. Energy security issues are not peculiar to the UK, many countries are saddled with these energy problems.

**Keywords:** Energy Transition; Net-Zero; Energy Security; Environment; Renewable Energy; Energy Policy; Climate Change; United Kingdom

## **1. Introduction**

This paper seeks to conduct a conceptual exercise on energy transition and energy security, with a narrow examination of the United Kingdom's government energy policies geared towards achieving its decarbonisation goals while also ensuring the security of energy supplies. Hardly has it been apparent that energy transition and energy security are presently inseparable – advised by the guiding principle ‘the energy sustainability trilemma,’ expounded as the need to balance energy reliability, affordability, and sustainability.<sup>1</sup> At a time of energy crisis<sup>2</sup> in the UK, the question of energy transition while maintaining energy security dominates both the UK and global energy markets.

The impact of the Russia – Ukraine conflict on the global energy industry is undeniable and the ramification on different countries continues to unfold daily.<sup>3</sup> Governments are seeking energy supply solutions amidst the present ongoing chaos in the global energy markets. Today, governments are making use of reactive efforts and energy policies to address the unbalanced energy markets.<sup>4</sup> The United Kingdom's government is not an exception. The British Energy Security Strategy<sup>5</sup> highlights this point. Also, the UK's net-zero strategy was submitted to the United Nations Framework Convention on Climate Change (UNFCCC) as a component of the UK's long-term low greenhouse under the Paris Agreement.<sup>6</sup>

Climate change actions and the reduction of greenhouse gases to mitigate global warming have made it vital for the UK government to appraise its energy transition and net-zero policies considering the Paris Agreement<sup>7</sup> and Glasgow Climate Pact at the COP26.<sup>8</sup> In

---

<sup>1</sup> Bonafé E, “Revisiting the Energy Trilemma in the European Union” (2022) 3 *Global Energy Law and Sustainability* 18; World Energy Council, “World Energy Trilemma Index: 2022” (*World Energy Council* 2022) <<https://www.worldenergy.org/publications/entry/world-energy-trilemma-index-2022>> accessed February 16, 2023; Kempe F, “Op-Ed: Making the Case for Oil CEO Sultan Al Jaber to Lead the UN Climate Conference This Year” (*CNBC* January 17, 2023) <<https://www.cnbc.com/2023/01/14/climate-change-oil-ceo-sultan-al-jaber-is-ideal-person-to-lead-cop-28.html>> accessed February 7, 2023; See also, Barkindo MS, “Affordability, Security, and Emissions Reductions: The Sustainability Trilemma” (*Atlantic Council* July 8, 2022) <<https://www.atlanticcouncil.org/blogs/energysource/affordability-security-and-emissions-reductions-the-sustainability-trilemma/>> accessed February 7, 2023 and World Energy Council, “World Energy Trilemma Index: 2022” (*World Energy Council* 2022) <<https://www.worldenergy.org/publications/entry/world-energy-trilemma-index-2022>> accessed March 14, 2023

<sup>2</sup> In the UK energy crisis is fuelling inflationary pressures, increasing food insecurity and squeezing household budgets, especially in poor households where a relatively high percentage of income is spent on energy and food. See Energy Transitions Commission “Building Energy Security through Accelerated Energy Transition” (*Energy Transitions Commission* March 7, 2023) <<https://www.energy-transitions.org/publications/building-energy-security/>> accessed March 8, 2023

<sup>3</sup> Financial Times, 'Putin Orders Start of 'Military Operation' In Ukraine' (*Financial Times*, 2022) <<https://www.ft.com/content/3dd7fff0-2efe-4776-bbf2-dbef89f02118>> accessed 11 June 2022. See The Economist, 'Ukraine at War | The Economist' (*The Economist*, 2022) <<https://www.economist.com/ukraine-crisis>> accessed 11 April 2022. See also, Global Conflict Tracker, 'Conflict in Ukraine | Global Conflict Tracker' (*Global Conflict Tracker*, 2022) <<https://www.cfr.org/global-conflict-tracker/conflict/conflict-ukraine>> accessed 11 June 2022.

<sup>4</sup> Derek Brower and Myles McCormick, 'Joe Biden Raids US Oil Reserve After Failing to Bring Gulf Partners on Side' (*Financial Times*, 2022) <<https://www.ft.com/content/6748e5ae-a8ac-44e4-89e6-1ded3978bbcc>> accessed 11 June 2022.

<sup>5</sup> See HM Government 'British Energy Security Strategy' (*Assets.publishing.service.gov.uk*, 2022) <[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1067835/british-energy-security-strategy-web.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1067835/british-energy-security-strategy-web.pdf)> accessed 11 June 2022.

<sup>6</sup> See Department for Business, Energy, and Industrial Strategy (BEIS), 'Net Zero Strategy: Build Back Greener' (UK Government 2021).

<sup>7</sup> United Nations Framework Convention on Climate Change (UNFCCC), 'Paris Agreement' (United Nations 2015).

<sup>8</sup> United Nations Framework Convention on Climate Change, 'Glasgow Climate Pact' (UNFCCC 2021). See 'UN Climate Change Conference (COP26) At the SEC – Glasgow 2021' (*UN Climate Change Conference (COP26) at the SEC – Glasgow 2021*, 2021) <<https://ukcop26.org>> accessed 28 November 2021.

keeping with the Glasgow Climate Pact, actions are required from the government to ensure that limiting global warming to 1.5C and commitments to net zero become a priority for the government. The UK government has enshrined some of these commitments into many legal and policy documents, but the foundation for the UK's approach to addressing climate change is documented in the Climate Change Act 2008.<sup>9</sup> Amongst recent government energy, climate change and environmental policies, the Environment Act 2021<sup>10</sup> became a turning point in the UK's relation to nature, according to Juniper.<sup>11</sup> This articulates environmental targets which will help the UK in meeting its net-zero goals and a chance of limiting the temperatures to below 1.5C.

However, the reality of the present global energy market has brought to the fore – energy security. This has posed some challenges to the UK's energy transition and net-zero goals. Issues further highlighted in the Skidmore Review.<sup>12</sup> To ensure the security of the UK's long-term energy supply, the government created a new Department for Energy Security and Net Zero.<sup>13</sup> Resolving the energy security issues alongside meeting its commitments toward energy transition will require some strategic and pragmatic thinking from policymakers.<sup>14</sup> This paper aims to argue towards a pragmatic perspective for the UK if it were to meet the various set transition goals. Here lie some challenges and opportunities that would be explored in this paper. This paper does not engage in an exercise to analyse the effectiveness of the UK government's energy policies, but to address and engage in the current discussion on the concepts of energy transition and energy security ambitions of the UK government within its energy policies.

## 2. Understanding the Energy Transition

---

<sup>9</sup> Climate Change Act 2008.

<sup>10</sup> Environment Act 2021.

<sup>11</sup> Tony Juniper, 'The Environment Act 2021 – A Turning Point for Nature' (*Natural England*, 2021) <<https://naturalengland.blog.gov.uk/2021/11/23/the-environment-act-2021-a-turning-point-for-nature/>> accessed 11 April 2022.

<sup>12</sup> Skidmore C, "Mission Zero: Independent Review of Net Zero" (*UK Government* 2023) <[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1128689/mis-sion-zero-independent-review.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1128689/mis-sion-zero-independent-review.pdf)> accessed February 27, 2023

<sup>13</sup> See Prime Minister's Office 10 DS, "Making Government Deliver for the British People" (*GOV.UK* February 7, 2023) <<https://www.gov.uk/government/news/making-government-deliver-for-the-british-people>> accessed February 7, 2023. See also, Staff E, "Prioritising Net-Zero or Ignoring Non-Energy Emissions? UK's Green Economy Reacts to SUNAK's Department Shake-Up" (*edie* February 9, 2023) <<https://www.edie.net/prioritising-net-zero-or-ignoring-non-energy-emissions-uks-green-economy-reacts-to-sunaks-department-shake-up/>> accessed February 27, 2023

<sup>14</sup> Sanderson I, "Evaluation, Policy Learning and Evidence-Based Policy Making" (2002) 80 Public Administration 1

At the heart of economic development in every country lies energy.<sup>15</sup> The need to find and utilise energy sources to meet people’s requirements has been a factor from the start of civilisation, and fossil fuels have been a big part of civilisation.<sup>16</sup> Presently, approximately 78% of the UK’s energy comes from fossil fuels—oil, gas, and a little amount from coal.<sup>17</sup> As the world looks to move away from heavy dependency on oil and gas resources, the importance of these natural resources cannot be denied.<sup>18</sup> Also, since the world transitioned from high reliance on coal and wood to oil and gas – as the primary source of energy for industrialisation – it has been widely accepted that oil and gas have been vital to the economic growth of nations.<sup>19</sup> Further, our civilisation was contingent on oil and gas resources more than any other traded commodity.<sup>20</sup>

Over time, several factors have influenced the transition from one energy source to another, but today the over-reliance on fossil fuels has been proven by science, to be detrimental to the earth, thus the need for the world to transition from fossil fuels to renewable energy sources which have a less negative effect on the climate, therefore, mitigating the global climate change.<sup>21</sup> Unlike the previous energy transitions that were based on inter-fuel competition, with coal, oil, or gas emerging as efficient energy sources that drove the economic growth and industrial development of many Western countries, this energy transition will be driven by government regulations and policies.<sup>22</sup> Importantly, the need for governments and its policies and regulations to drive this net-zero transition is to ensure that the adverse effect of global climate change is averted or mitigated.<sup>23</sup> Presumably, collective actions taken on a regional and national level can have a powerful impact globally. Accelerating the energy transition will require strengthening the role of policies, and invariably, the lack of key policies could derail the net-zero transition targets.<sup>24</sup> To put it differently, Yergin adduced that the most important factor to drive this transition will be public policy.<sup>25</sup>

Energy transition means different things to different countries, in particular the developing countries, where millions of people still lack access to electricity, or clean cooking fuel and continue to burn wood or charcoal.<sup>26</sup> Certainly, this is not the case for the UK, where

---

<sup>15</sup> Jonathan Elkind and Carlos Pascual, *Energy Security: Economics, Politics, Strategies, And Implications* (Brookings Institution Press 2010) 1.

<sup>16</sup> Barry D. Solomon and Karthik Krishna, 'The Coming Sustainable Energy Transition: History, Strategies, And Outlook' (2011) 39 *Energy Policy* 7422.

<sup>17</sup> See Harris K, “Digest of UK Energy Statistics: Energy” (*Gov.uk* 2022) <[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1094282/DUKES\\_2022\\_Chapter\\_1.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1094282/DUKES_2022_Chapter_1.pdf)> accessed March 16, 2023

<sup>18</sup> Thijs van de Graaf, *The Politics and Institutions of Global Energy Governance* (Palgrave Macmillan 2013) 8.

<sup>19</sup> Leslie E Grayson, *National Oil Companies* (John Wiley & Sons Ltd 1981) 1-3. See also David Humphreys, ‘Minerals: Industry History and Fault Lines of Conflict’ in Wojciech Ostrowski and Roland Dannreuther (eds), *Global Resources Conflict and Cooperation* (Palgrave Macmillan 2013) 33-34.

<sup>20</sup> Christopher Tugendhat and Adrian Hamilton, *Oil the Biggest Business* (Eyre Methuen Ltd 1975) 1.

<sup>21</sup> Barry D. Solomon and Karthik Krishna, n 16.

<sup>22</sup> James Henderson and Anupama Sen, 'The Energy Transition: Key Challenges for Incumbent and New Players in The Global Energy System' [2021] The Oxford Institute for Energy Studies (OIES) <<https://www.oxfordenergy.org/wpcms/wp-content/uploads/2021/09/Energy-Transition-Key-challenges-for-incumbent-players-in-the-global-energy-system-ET01.pdf>> accessed 25 July 2022.

<sup>23</sup> *Ibid.*

<sup>24</sup> Jorge Blazquez, Rolando Fuentes-Bracamontes and Baltasar Manzano, 'A Road Map to Navigate the Energy Transition' [2021] The Oxford Institute for Energy Studies (OIES) <<https://www.oxfordenergy.org/wpcms/wp-content/uploads/2019/10/A-road-map-to-navigate-the-energy-transition-Insight-59.pdf>> accessed 25 July 2022.

<sup>25</sup> Yergin D, “The Energy Transition Confronts Reality” (*Project Syndicate* February 21, 2023) <<https://www.project-syndicate.org/commentary/energy-transition-four-major-challenges-by-daniel-yergin-2023-01?barrier=accesspaylog>> accessed March 4, 2023

<sup>26</sup> Daniel Yergin, *The New Map: Energy, Climate, And the Clash of Nations* (Penguin Press 2020) 407. See also, David Pilling, 'Can Africa Grow Without Fossil Fuels?' (*Financial Times*, 2022) <<https://www.ft.com/content/1e8c12fe-4823-41a1-8069-b6150876427d>> accessed 2 June 2022.

access to electricity and all forms of energy for various daily activities is obtainable. The energy transition is a vital step that needs to be taken to achieve a reduction of greenhouse gases and mitigate the climate change effects. Although most of the plans are marred with uncertainties,<sup>27</sup> the energy transition has been widely accepted, and the idea is to limit temperature rises to less than 1.5 – degrees centigrade above pre-industrial levels.<sup>28</sup>

## 2.1 The UK's Energy Policy Landscape

Energy policy in the UK was the responsibility of the Department of Business, Energy, and Industrial Strategy (BEIS), now broken up into four departments. The Department of Energy Security and Net Zero is tasked with securing affordable energy supply, from various sources including renewable sources and domestic nuclear sources while ensuring that the country seizes the opportunities of net zero and decarbonisation of the economy. Further commitments within the Sixth Carbon Budget to cut emissions by 78% by 2035.<sup>29</sup> Key to note that this paper will not be conducting a comprehensive analysis of all UK energy policies, but a closer look at a few that intersect the energy transition goals and energy security ambitions of the UK government.

Security, affordability, and decarbonisation are three energy objectives that are centred around successive government policies, which were analysed based on strong evidence of the economics of the UK's net zero transition in the Skidmore review.<sup>30</sup> It is necessary here to clarify what is meant by a policy in this work. There are some theoretical uncertainties when attempting to define 'policy'.<sup>31</sup> Limiting the elaborate theoretical footwork on policy and avoiding the conceptual issues where researchers and scholars overlook the need to define conceptually what they mean by policy, this work will draw from Stephen Ball's version of the meaning of policy as textual interventions into practice, that would be acted on.<sup>32</sup> Particularly, the UK government's policymaking is underpinned by evidence-based policymaking. In an attempt to develop a more coherent approach to policy development, the UK central

---

<sup>27</sup> Mooney A, "Is 1.5C Still Realistic? the Crumbling Consensus over Key Climate Target" (*Financial Times* March 16, 2023) <<https://www.ft.com/content/450a59bb-7c83-4d04-851f-0bbc120c09f7>> accessed March 23, 2023

<sup>28</sup> Daniel Yergin (n 26) 377. See also, 'Energy Transition' (*Planète Énergies*, 2021) <<https://www.planete-energies.com/en/content/energy-transition>> accessed 23 April 2022.

<sup>29</sup> Climate Change Committee, "The Sixth Carbon Budget: The UK's Path to Net Zero" (*Climate Change Committee* 2020) <<https://www.theccc.org.uk/wp-content/uploads/2020/12/The-Sixth-Carbon-Budget-The-UKs-path-to-Net-Zero.pdf>> accessed March 16, 2023

<sup>30</sup> Hinson S, "Energy Policy: An Overview" (*House of Commons Library Briefing Paper* 2020) <<https://researchbriefings.files.parliament.uk/documents/CBP-8980/CBP-8980.pdf>> accessed February 16, 2023; See also Skidmore C, n 12.

<sup>31</sup> See Beilharz P, "Reading Politics: Social Theory and Social Policy" (1987) 23 *The Australian and New Zealand Journal of Sociology* 388; Ozga J, "Policy Research and Policy Theory: A Comment on Fitz and Halpin" (1990) 5 *Journal of Education Policy* 359; See also, Ball SJ, "What Is Policy? 21 Years Later: Reflections on the Possibilities of Policy Research" (2015) 36 *Discourse: Studies in the Cultural Politics of Education* 306 and Bacchi C, "Policy as Discourse: What Does It Mean? Where Does It Get Us?" (2000) 21 *Discourse: Studies in the Cultural Politics of Education* 45

<sup>32</sup> Ball SJ, "What Is Policy? Texts, Trajectories and Toolboxes" (1993) 13 *Discourse: Studies in the Cultural Politics of Education* 10

government under Prime Minister Tony Blair proposed evidence-based policy<sup>33</sup> as a key element in developing fresh thinking and increased policy capability.<sup>34</sup>

Arguably, evidenced-based policymaking (EBP) has shaped the UK government's policymaking<sup>35</sup> since it was set out by the government of then Prime Minister Tony Blair, in the government's White Paper in 1999—Modernising Government.<sup>36</sup> It is believed that the energy policies in the UK have been developed using the integration of experience, judgement and expertise with the best external evidence from systematic research.<sup>37</sup> Therefore, moving away from opinion-based decision-making towards evidence and invariably opinions and judgements of experts which make up high quality reliable and valid evidence.<sup>38</sup> Environmental and climate change non-governmental organisations have been critical of the robustness of the UK government's energy policies.<sup>39</sup> There are obvious difficulties in accepting the reality of the present global energy crisis. In a globalised environment like that of the energy industry, it has raised a new challenge for policymakers to understand the practical technique for adopting and evaluating policy innovations to better resolve energy security issues while engaged in the economy's decarbonisation.<sup>40</sup>

According to Bordoff and O'Sullivan, a net-zero target is vital, as it is a major component that can enable a country to achieve the energy transition.<sup>41</sup> The UK Government has proposed plans and a timeline for the energy transition, but globally, there has not been an agreed speed of the transition or how this will be achieved.<sup>42</sup> For instance, China has set a 2060 carbon neutrality target, and India a 2070 net zero target.<sup>43</sup> The energy transition is girdled with uncertainties and varied targets, thus giving this venture no uniformity globally.<sup>44</sup> There needs to be a movement away from the high use of fossil fuels toward the use of renewable energy

---

<sup>33</sup> Evidence-based policymaking is an approach that assists the government and people to make well informed decisions about policies, programmes, and projects by putting the best available evidence from research at the heart of policy development and implementation. See Sutcliffe S and Court J, "Evidence-Based Policymaking: What Is It? How Does It Work? What Relevance for Developing Countries?" (*ODI2005*) <<https://cdn.odi.org/media/documents/3683.pdf>> accessed February 16, 2023

<sup>34</sup> Head BW, "Reconsidering Evidence-Based Policy: Key Issues and Challenges" (2010) 29 *Policy and Society* 77

<sup>35</sup> Policy making is the process by which governments translate their political vision into programmes and actions to deliver 'outcomes' – desired changes in the real world. See UK Cabinet Office "Modernising Government" (*Cabinet Office*1999) <<https://ntouk.files.wordpress.com/2015/06/modgov.pdf>> accessed February 16, 2023

<sup>36</sup> *Ibid.*

<sup>37</sup> See Sutcliffe S and Court J n 33.

<sup>38</sup> *Ibid.* See also, Shaxson L, "Is Your Evidence Robust Enough? Questions for Policy Makers and Practitioners" (2005) 1 *Evidence and Policy: A Journal of Research, Debate and Practice*, 101

<sup>39</sup> See Sovacool BK and others, "Policy Prescriptions to Address Energy and Transport Poverty in the United Kingdom" [2023] *Nature Energy*; and Svobodova K and others, "Decarbonization, Population Disruption and Resource Inventories in the Global Energy Transition" (2022) 13 *Nature Communications*

<sup>40</sup> See Common R, "Organisational Learning in a Political Environment" (2004) 25 *Policy Studies* 35 See also, Pawson R, "Evidence-Based Policy: In Search of a Method" (2002) 8 *Evaluation* 157

<sup>41</sup> Jason Bordoff and Meghan L. O'Sullivan, 'Green Upheaval: The New Geopolitics of Energy' (*Foreign Affairs*, 2022) <<https://www.foreignaffairs.com/articles/world/2021-11-30/geopolitics-energy-green-upheaval>> accessed 5 April 2022.

<sup>42</sup> Daniel Yergin (n 26) 377 – 378.

<sup>43</sup> See BBC, 'Climate Change: China Aims For 'Carbon Neutrality By 2060' (*BBC News*, 2022) <<https://www.bbc.co.uk/news/science-environment-54256826>> accessed 12 April 2022. See also, 'COP26: India PM Narendra Modi Pledges Net Zero By 2070' (*BBC News*, 2022) <<https://www.bbc.co.uk/news/world-asia-india-59125143>> accessed 12 April 2022.

<sup>44</sup> Energy Institute, 'Could Current Global Events Derail the Energy Transition?' (*Energy Institute*, 2022) <<https://knowledge.energyinst.org/new-energy-world/article?id=126922>> accessed 18 May 2022.

sources for the transition to be achieved.<sup>45</sup> The International Renewable Energy Agency (IRENA) reiterated that the energy transition presently, is far from being on track, as governments continue to face economic recovery and energy security challenges, but progressive actions need to be taken as energy transition holds the key to global energy and climate crisis.<sup>46</sup>

It is a legal duty in the UK, for the reduction of greenhouse gases and carbon dioxide as an approach to mitigate climate change risks.<sup>47</sup> Under the Climate Change Act 2008, the UK government further commits itself to a 2050 target, where reducing greenhouse gas emissions by at least 100% of 1990 levels.<sup>48</sup> The Climate Change Act 2008 gave meaning to what is considered greenhouse gases in the UK: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulphur hexafluoride.<sup>49</sup> Most of these emissions are largely from carbon dioxide, as these are produced from the burning of fossil fuels, while the major sources for the other greenhouse gasses include industrial processes and waste management, such as agriculture and landfill sites.<sup>50</sup>

The net-zero strategies<sup>51</sup> by the UK government accentuated the need for urgent action. According to the Skidmore Review, it is also an opportunity for the UK government, which requires clarity, certainty and consistency of policies, to harness the advantages of the transition.<sup>52</sup> Arguably, amongst Western European countries, the UK has been leading the way in attempts to cut emissions. Further attempts by the UK government to cut emissions through carbon capture and storage saw the government inviting bids from technology companies in the UK's first-ever carbon storage licensing round.<sup>53</sup> The Ten-Point Plan for Greener industrial revolution<sup>54</sup> can be said to have laid the foundation for this. The proposed plans for the UK's economic recovery from the Covid-19 pandemic through green initiatives.<sup>55</sup> In a bid for the country to continue to drive down its emission contribution presently and in the future.<sup>56</sup> However, many of the points for the green industrial revolution are focused on the actualisation of decarbonisation with few concrete plans for the overhaul of the energy systems. Going green, for instance, will be zero-emission vehicles, green public transport, greener buildings et al.,

---

<sup>45</sup> S & P Global 'What Is Energy Transition?' (*S&P Global*, 2020) <<https://www.spglobal.com/en/research-insights/articles/what-is-energy-transition>> accessed 22 April 2021.

<sup>46</sup> IRENA, 'Energy Transition Holds Key to Tackle Global Energy and Climate Crisis' (*IRENA*, 2022) <<https://www.irena.org/newsroom/pressreleases/2022/Mar/Energy-Transition-Holds-Key-to-Tackle-Global-Energy-and-Climate-Crisis>> accessed 12 April 2022.

<sup>47</sup> Climate Change Act 2008.

<sup>48</sup> Section 1 (2) Climate Change Act 2008. See also, Climate Change Committee, "The Sixth Carbon Budget: The UK's Path to Net Zero" n 29.

<sup>49</sup> Section 92 (1) Climate Change Act 2008

<sup>50</sup> See The Institute for Government, 'UK Net Zero Target' (*The Institute for Government*, 2022) <<https://www.instituteforgovernment.org.uk/explainers/net-zero-target>> accessed 12 April 2022.

<sup>51</sup> ... the good news is that there is, still, a path to avoid catastrophic climate change. The science could not be clearer: by the middle of this century, the world has to reduce emissions to as close to zero as possible, with the small amount of remaining emissions absorbed through natural carbon sinks like forests, and new technologies like carbon capture. If we can achieve this, global emissions of greenhouse gases will be 'net zero'. Delivering this requires urgent global action, finishing coal-fired power generation, retiring petrol and diesel engines from all cars, and halting deforestation. These are the steps that the UK is calling for... See Department for Business, Energy, and Industrial Strategy (BEIS) n 6.

<sup>52</sup> Skidmore C, n 12.

<sup>53</sup> North Sea Transition Authority, 'Bids Invited in UK's First-Ever Carbon Storage Licensing Round' (*North Sea Transition Authority (NSTA)*, 2022) <<https://www.nstauthority.co.uk/news-publications/news/2022/bids-invited-in-uk-s-first-ever-carbon-storage-licensing-round/>> accessed 14 June 2022.

<sup>54</sup> The Department for Business, Energy, and Industrial Strategy (BEIS), 'The Ten Point Plan for A Greener Industrial Revolution' (Government of UK 2020).

<sup>55</sup> *Ibid.*

<sup>56</sup> *Ibid.*



which will logically mean higher dependency on electricity.<sup>57</sup> Therefore, making the energy systems a key component in the energy transition, as theoretically, the running of the economy will mostly be reliant on the power generation sector, as electricity will become the major source of energy. As a result, there will be a definite reconfiguration of the energy systems through the energy transition, decarbonisation, and energy security planning.<sup>58</sup> Each component raises issues for the policymakers to address as the financial implications, reserve capacity and storage infrastructures.

Granted that the UK's greenhouse gas emissions (GHG) have reduced over the years, more can be done to ensure that the legal targets set by the government are achieved.<sup>59</sup> Further, according to International Energy Agency (IEA), to avoid the severe impacts of climate change, there needs to be a rapid reduction of emissions and to reach net zero by 2050.<sup>60</sup> The urgency of action was also repeated in the recent Intergovernmental Panel on Climate Change (IPCC) report.<sup>61</sup> IPCC report called for immediate action to protect the earth and cut down the emissions and further warming could be devastating for millions of people globally.<sup>62</sup>

According to the Net Zero Strategy, a lot of the UK's electricity are from renewable energy sources like wind farms and British nuclear reactors which should ensure that families will be protected better from energy price rises and volatility of the global fossil fuel industry.<sup>63</sup> Sadly, the reality of things present in the UK does not align with the above, as the electricity bills of households have surged with the market.<sup>64</sup> This invariably points to the opposite, as the renewable energy facilities that were supposed to guarantee cheaper energy are not inexpensive at the moment. There is a need for a higher level of deployment of renewable energy sources before the prices of energy will fall, as speculated by the government policy documents. As clean electricity and electrification are completely key to the shift to the decarbonisation of energy systems.<sup>65</sup> Also, reflected in the envisaged rising share of electricity in the global final energy consumption and government responses will be needed for these.<sup>66</sup>

---

<sup>57</sup> *Ibid.*

<sup>58</sup> Bocca R and Singh HV, "5 Strategies to Navigate the Shifting Frontiers of the Energy Transition" (*World Economic Forum* 2022) <<https://www.weforum.org/agenda/2022/05/5-strategies-actions-navigate-energy-transition/>> accessed March 23, 2023

<sup>59</sup> See Climate Watch, 'United Kingdom | Greenhouse Gas (GHG) Emissions | Climate Watch' (*Climatewatchdata.org*, 2022) <[https://www.climatewatchdata.org/ghg-emissions?end\\_year=2014&regions=GBR&start\\_year=1990](https://www.climatewatchdata.org/ghg-emissions?end_year=2014&regions=GBR&start_year=1990)> accessed 12 April 2022.

<sup>60</sup> IEA, 'Net Zero By 2050: A Roadmap for The Global Energy Sector' (*IEA*, 2021) <<https://www.iea.org/reports/net-zero-by-2050>> accessed 4 February 2022.

<sup>61</sup> Intergovernmental Panel on Climate Change (IPCC), 'Climate Change 2022: Mitigation of Climate Change' (IPCC 2022) <[https://report.ipcc.ch/ar6wg3/pdf/IPCC\\_AR6\\_WGIII\\_FinalDraft\\_FullReport.pdf](https://report.ipcc.ch/ar6wg3/pdf/IPCC_AR6_WGIII_FinalDraft_FullReport.pdf)> accessed 5 April 2022.

<sup>62</sup> *Ibid.*

<sup>63</sup> Department for Business, Energy, and Industrial Strategy (BEIS) n 5. See also, The Department for Business, Energy, and Industrialised Strategy (BEIS), 'Heat and Buildings Strategy' (UK Government 2021).

<sup>64</sup> Jessica Black, 'Energy Prices: Why Are Power Bills Going Up?' (*BBC News*, 2022) <<https://www.bbc.co.uk/news/uk-northern-ireland-58558645>> accessed 12 April 2022. See OFGEM, 'Price Cap to Increase By £693 From April' (*Ofgem*, 2022) <<https://www.ofgem.gov.uk/publications/price-cap-increase-ps693-april>> accessed 12 April 2022. See also, National World, 'Why UK Energy Bills Are Rising and Increasing Gas Prices Explained' (*Nationalworld.com*, 2022) <<https://www.nationalworld.com/lifestyle/money/why-are-energy-bills-going-up-how-much-will-bill-rise-in-april-2022-uk-prices-increase-and-gas-prices-explained-3507001>> accessed 12 April 2022.

<sup>65</sup> See Energy Transitions Commission, n 2.

Achieving carbon neutrality will require decarbonisation of energy systems, and governments and private expected to ramp up investments in low-carbon generation, energy efficiency, grids and storage. See World Energy Council, n 1.

<sup>66</sup> *Ibid.*

### 3. Energy Security at the Fore

Energy is the lifeline of modern society, cuts across all sectors and contributes to the development of economies around the world.<sup>67</sup> Further, energy supplies, physical availability and affordability are the key components of the energy security definition.<sup>68</sup> Conceptualising energy security from a legal perspective promotes the uninterruptedness of energy supplies proportionate to demand.<sup>69</sup> According to the International Energy Agency (IEA), energy security is the uninterrupted availability of energy sources at an affordable price.<sup>70</sup> Similar to the definition of Yergin, his definition was one from the perspective of a developed country, meaning that the concept can mean different things to different governments and people.<sup>71</sup> Therefore, with energy security, the time-related preferences made by the government and the manner it balances national security and economic and environmental issues are based on the perspective of the government.<sup>72</sup>

As energy systems differ from one country to another, this, therefore, gives rise to different energy security issues and sometimes extends to other energy policy issues, which could range from climate change and energy poverty to the energy transition.<sup>73</sup> Understanding the specific energy security needs of the country, while appreciating the international legal landscape of energy. Further, Paterson argued that in order to meet the challenges raised by climate change, some consideration has to be given to the existing legal conceptualisation of energy.<sup>74</sup> Owing to the fact that so far it has shown its inability to incorporate some of these contemporary problems, to overcome diverse temporal outlooks of key economic, political and technocratic actors, and to make suppositions to the legal concept as they develop together with the economic and political restrictions.<sup>75</sup>

To understand the linkage between energy security policies and climate change actions, broader views of energy security will be used here. For instance, Elkind's defining energy security did not limit it to the availability of energy resources but also included reliability of supply, economic affordability, and sustainability.<sup>76</sup> These four elements attributed to energy security can be gleaned from the UK government's energy security strategy.<sup>77</sup> Although, highlighted to have some gaps by the House of Commons Environmental Audit Committee publication, where it was maintained that greater emphasis should be given to energy-saving

---

<sup>67</sup> World Energy Council, "World Energy Trilemma Index: 2022" (*World Energy Council*2022) <<https://www.worldenergy.org/publications/entry/world-energy-trilemma-index-2022>> accessed March 14, 2023

<sup>68</sup> Ang BW, Choong WL and Ng TS, "Energy Security: Definitions, Dimensions and Indexes" (2015) 42 *Renewable and Sustainable Energy Reviews* 1077

<sup>69</sup> John Paterson, 'Reconceptualising Energy Security from a Legal Perspective in the Context of Climate Change' in Hunter ST and others (eds), *Routledge Handbook of Energy Law* (Routledge 2021) 58 – 59.

<sup>70</sup> IEA 'Energy Security' (IEA, 2022) <<https://www.iea.org/areas-of-work/ensuring-energy-security>> accessed 31 January 2022.

<sup>71</sup> Daniel Yergin, 'Ensuring Energy Security' (2006) 85 *Foreign Affairs* 69. See also, John S. Duffield and Brian Woodall, 'Japan's New Basic Energy Plan' (2011) 39 *Energy Policy* 3741; Christian Winzer, 'Conceptualizing Energy Security' (2012) 46 *Energy Policy* 36 and Bert Kruyt and others, 'Indicators for Energy Security' (2009) 37 *Energy Policy* 2166.

<sup>72</sup> Jonathan Elkind and Carlos Pascual (n 15) 2 – 3.

<sup>73</sup> Aleh Cherp and Jessica Jewell, 'The Concept of Energy Security: Beyond the Four As' (2014) 75 *Energy Policy* 415.

<sup>74</sup> John Paterson, 'Reconceptualising Energy Security from a Legal Perspective in the Context of Climate Change' in Hunter S.T. and others (eds), *Routledge Handbook of Energy Law* (Routledge 2021) 70 – 73.

<sup>75</sup> *Ibid.*

<sup>76</sup> Jonathan Elkind, 'Energy Security: Call for a Broader Agenda' in Jonathan Elkind and Carlos Pascual, *Energy Security: Economics, Politics, Strategies, And Implications* (Brookings Institution Press 2010) 121 - 129.

<sup>77</sup> HM Government 'British Energy Security Strategy' n 5.

measures as a key strategy.<sup>78</sup> Admittedly, all four elements are essential to ensure the overall energy security of the UK, but governments usually prioritise some elements over others.<sup>79</sup> In principle, these elements are needed, but it would seem that these elements are at odds with each other. For example, while countries push for the increased use of sustainable - renewable energy sources, the country's immediate needs for energy to fuel their economic growth and national development often upstage the long-term need for climate action.<sup>80</sup> This situation has become more pronounced recently because of Russia – Ukraine conflict. This could be observed in the UK, as the government continues to issue licences for fossil fuel production in the North Sea.<sup>81</sup>

The intrepid plans of the UK government are to boost long-term energy security and independence. Albeit, overlooks the need to have a short-term plan to mitigate the effects of the government's present-day decisions. From a physical security perspective and as energy security is an element of national security, there seems to be a need to reassess the UK's longer-term energy policy.<sup>82</sup> The UK government is not alone in prioritising energy security, as according to the Energy Transitions Commission, in light of the present situation in the energy market countries are giving high priority to energy security, and seeking ways to balance this with broader decarbonisation policies and achievement of net-zero targets.<sup>83</sup> While there might be some incompatibility for the push to decarbonise while ensuring the security of supply, pragmatically the change or modification of the old energy systems to factor in the renewable energy systems will not happen overnight. Here lie some of the important roles the old energy system will have to play in the short term. Owing to the fact that a high level of investment will be needed to modernise and expand grid infrastructure, as modern lives and economies become increasingly reliant on electricity.

#### **4. The Connection between Energy Security and Energy Transition in the UK**

For modern societies to function smoothly, the availability of energy is crucial.<sup>84</sup> The adverse effects of the use of fossil fuels and coal for electricity generation on the climate have raised political and public concerns in the UK and globally.<sup>85</sup> Electricity generation is a key factor in the goal to transition from fossil fuels to renewable energy sources. This makes the electricity supply security key to the UK's energy policy, and this was reflected in the British energy security strategy.<sup>86</sup> Climate change poses a notable danger to the earth, people's lives,

---

<sup>78</sup> House of Commons Environmental Audit Committee 2023 (Accelerating the transition from fossil fuels and securing energy supplies: Fourth report of session 2022-23) 1

<sup>79</sup> *Ibid.* See also, Marco Antonio Vieira and Klaus Guimarães Dalgaard, 'The Energy-Security-Climate-Change Nexus in Brazil' (2013) 22 *Environmental Politics* 610.

<sup>80</sup> *Ibid.*

<sup>81</sup> Andreas Exarheas, 'New North Sea Licensing Round Planned' (*Rigzone*, 2022) <[https://www.rigzone.com/news/new\\_north\\_sea\\_licensing\\_round\\_planned-08-apr-2022-168572-article/](https://www.rigzone.com/news/new_north_sea_licensing_round_planned-08-apr-2022-168572-article/)> accessed 20 June 2022.

<sup>82</sup> House of Commons Environmental Audit Committee 2023 n 78.

<sup>83</sup> Energy Transitions Commission n 2; See also, Blas J, "Energy Security, Not Climate Change, Is the Theme for 2023" (*Bloomberg* November 24, 2022) <<https://www.bloomberg.com/opinion/articles/2022-11-24/energy-security-not-climate-change-is-the-theme-for-2023?leadSource=uverify+wall>> accessed March 22, 2023

<sup>84</sup> Konstantinos J. Chalvatzis and Elizabeth Hooper, 'Energy Security Vs. Climate Change: Theoretical Framework Development and Experience in Selected EU Electricity Markets' (2009) 13 *Renewable and Sustainable Energy Reviews* 2703.

<sup>85</sup> *Ibid.*

<sup>86</sup> HM Government 'British Energy Security Strategy' n 5.

livelihood, and the environment.<sup>87</sup> According to the International Institute of Sustainable Development (IISD), the two major ways to address the danger of climate change are mitigation and adaptation.<sup>88</sup>

Changing to low-carbon energy systems and increasing carbon sinks, which are actions that reduce anthropogenic greenhouse gas (GHG), relate to mitigation.<sup>89</sup> While the strengthened adaptive capacity of human and natural systems to the changing climate and increased resilience to vulnerabilities and impacts refer to adaptive actions.<sup>90</sup> Mitigation and adaptive instruments could be key to helping tackle the climate change challenge that is facing humanity.<sup>91</sup> Therefore, the requirement to understand the conceptual link between energy security and net-zero transition in the present UK economy and the global economy becomes central to the discussion. For the UK government, expanding renewable and nuclear energy seems to be the main strategy for achieving energy independence. However, there need to be actions taken in the short term, as developing new sources of supply will take years.<sup>92</sup> Securing affordable energy supplies in the short term becomes a key point of action for the government.

Undeniable that the Russia-Ukraine conflict has caused a significant change, where many governments have altered their energy policies to achieve energy security, energy transition, and climate actions.<sup>93</sup> Many governments have pledged to transition their economies away from fossil fuel as a source of energy, but the present reality of the global energy market has put the vital issue of energy security at the fore of the agenda for most of these governments.<sup>94</sup> The push to ensure energy security presently, while simultaneously pushing for the economy to transition from fossil fuels to renewable energy sources, might not be as straightforward as earlier envisaged by governments.

Earlier suggestions that the UK will not be impacted by the Russia-Ukraine crisis as the UK only gets approximately 4% of its gas from Russia, has been a miscalculation as the price of Liquefied Natural Gas (LNG) is determined by the European gas market invariably also decided by the global markets.<sup>95</sup> Subsequently, showing that the UK was not immune from the energy crisis. The energy crisis was viewed as a supply-side problem, and the initial reaction from the Boris Johnson Government was to address the energy security problems in the British Energy Security Strategy<sup>96</sup> where finding a solution within the country and pushing

---

<sup>87</sup> IPCC, 'Climate Change: A Threat to Human Wellbeing and Health of The Planet. Taking Action Now Can Secure Our Future' (IPCC, 2022) <<https://www.ipcc.ch/2022/02/28/pr-wgii-ar6/>> accessed 20 June 2022.

<sup>88</sup> Jeffrey Qi and Anika Terton, 'Addressing Climate Change Through Integrated Responses: Linking Adaptation and Mitigation' (International Institute for Sustainable Development (IISD) 2022) <<https://www.iisd.org/system/files/2022-03/climate-change-linking-adaptation-mitigation.pdf>> accessed 7 June 2022.

<sup>89</sup> Ibid. See also, Article 5 of the United Nations Framework Convention on Climate Change (UNFCCC), 'Paris Agreement' (United Nations 2015).

<sup>90</sup> Ibid.

<sup>91</sup> Article 6 of the United Nations Framework Convention on Climate Change (UNFCCC), 'Paris Agreement' (United Nations 2015).

<sup>92</sup> Gross R and others, "Review of Energy Policy 2022" (UK Energy Research Centre 2022) <[https://d2e1qxpsswcpgz.cloudfront.net/uploads/2017/12/UKERC\\_Review-of-Energy-Policy-2022.pdf](https://d2e1qxpsswcpgz.cloudfront.net/uploads/2017/12/UKERC_Review-of-Energy-Policy-2022.pdf)> accessed March 2, 2023

<sup>93</sup> Trevor Houser and others, 'US Policy Options to Reduce Russian Energy Dependence' (Rhodium Group, 2022) <<https://rhg.com/wp-content/uploads/2022/03/US-Policy-Options-to-Reduce-Russian-Energy-Dependence.pdf>> accessed 7 June 2022.

<sup>94</sup> Greg Muttit, 'Countries Must Phase Out Oil and Gas Production—And Quickly: But How Fast Is Fast Enough?' (International Institute for Sustainable Development, 2022) <<https://www.iisd.org/articles/analysis/phase-out-oil-gas-production>> accessed 7 June 2022.

<sup>95</sup> Gross R and others, "Review of Energy Policy 2022" (UK Energy Research Centre 2022) <[https://d2e1qxpsswcpgz.cloudfront.net/uploads/2017/12/UKERC\\_Review-of-Energy-Policy-2022.pdf](https://d2e1qxpsswcpgz.cloudfront.net/uploads/2017/12/UKERC_Review-of-Energy-Policy-2022.pdf)> accessed March 2, 2023

<sup>96</sup> See HM Government 'British Energy Security Strategy' n 5.



the oil and gas sector will be at the formational centre of the global energy mix.<sup>106</sup> In addition, the UK government's commitment to various national and international policies and guidelines –call for actions to protect the environment and mitigate the effects of climate change.<sup>107</sup> The government's actions can be construed to oppose these. The Climate Change Committee identified significant risks in the government's net zero commitments under Paris Agreement and the Sixth Carbon Budget, also reaffirmed by the High Court ruling,<sup>108</sup> that the government failed to meet its obligations under the Climate Change Act, and requested further detailed policies to evidence how the UK's carbon budget will be met.<sup>109</sup> Based on the realities in the energy market, a need for a balanced pathway to net zero is undoubtedly required.

At present, energy security is the main agenda for the UK government and many other governments. The UK government's prerogative is to make sure that businesses and citizens have access to secure and affordable energy while decarbonising the economy.<sup>110</sup> The government's approval of the Jackdaw large new North Sea gas field, the government's intention to open a new coal mine at Whitehaven in Cumbria<sup>111</sup> and the claim by the Business Secretary, of the need to protect the UK's energy security while also turbocharging renewable energy sources and nuclear energy, gives some insights into some balancing strategies the UK government are adopting.<sup>112</sup> According to Kemfert et al., whether natural gas resources are needed, any further expansion of natural gas infrastructure puts energy transition and the net-zero targets at risk, and would invariably be detrimental to achieving climate protection goals.<sup>113</sup> Based on the present energy crisis, and inflation ensuring the energy supply clearly benefits the economy, but expectations continue to grow to meet decarbonisation goals. Here lies the argument for a balanced pathway where the government fairly and critically sets short-term and long-term policies to achieve its energy security and energy transition goals.

According to Fankhauser et al., for the UK to have energy security, a reduction in the reliance on fossil would be needed, as investing in renewables, and having more renewables raises security and lowers cost, therefore protecting the UK energy market from the volatilities associated with the fossil fuel prices.<sup>114</sup> Today, there are efforts to increase the level of renewable energy sources in the UK's energy mix, while also ensuring energy security by

---

<sup>106</sup> See Rycroft D, "2022 Shows the Need for a Grown-up Conversation about Energy Policy" (*Energy Voice* December 30, 2022) <<https://www.energyvoice.com/opinion/472333/2022-shows-the-need-for-a-grown-up-conversation-about-energy-policy/>> accessed March 4, 2023

<sup>107</sup> Department for Business, Energy and Industrial Strategy (BEIS), 'Net Zero Strategy: Build Back Greener' (UK Government 2021).

<sup>108</sup> See ClientEarth, "Historic High Court Ruling Finds UK Government's Climate Strategy 'Unlawful'" (*ClientEarth*) <<https://www.clientearth.org/latest/press-office/press/historic-high-court-ruling-finds-uk-government-s-climate-strategy-unlawful/>> accessed March 16, 2023; See also, White & Case, "Landmark High Court Decision That the UK's Net Zero Strategy Is Unlawful" (*White & Case LLP* August 31, 2022) <<https://www.whitecase.com/news/media/landmark-high-court-decision-uks-net-zero-strategy-unlawful>> accessed March 16, 2023

<sup>109</sup> House of Commons Environmental Audit Committee 2023 n 78. See also, Climate Change Committee, "The Sixth Carbon Budget: The UK's Path to Net Zero" n 29.

<sup>110</sup> House of Commons Environmental Audit Committee 2023 n 78.

<sup>111</sup> Launay-Smirnov A, "Whitehaven Coal Mine Approval Jeopardises UK's International Commitments" (*Ember* March 10, 2023) <<https://ember-climate.org/insights/research/whitehaven-coal-mine-approval-jeopardises-uks-international-commitments/>> accessed March 16, 2023

<sup>112</sup> Nathalie Thomas, 'UK Government Approves Jackdaw Gas Project in North Sea' (*Financial Times*, 2022) <<https://www.ft.com/content/a650f12e-65d7-4cf1-9d95-568d63229597>> accessed 7 June 2022.

<sup>113</sup> Claudia Kemfert and others, 'The Expansion of Natural Gas Infrastructure Puts Energy Transitions at Risk' (2022) 7 *Nature Energy* 582.

<sup>114</sup> Sam Fankhauser, Steve Smith and Anupama Sen, 'Delaying Clean Energy Transition Would Be 'Lose-Lose' For UK Energy Security, Households and The Climate' (*Smith School of Enterprise and the Environment, University of Oxford*, 2022) <<https://www.ox.ac.uk/news/2022-03-25-delaying-clean-energy-transition-would-be-lose-lose-uk-energy-security-households>> accessed 20 June 2022.

continuing domestic production of hydrocarbon to meet the present and near future needs of the country, which seem to be the goal.<sup>115</sup> This obviously would not go down well with a lot of climate and environment groups and Greenpeace is considering taking legal action against the government.<sup>116</sup> Invariably, approving new hydrocarbon activities in the North Sea would lead to more emissions. According to a report by International Institute for Sustainable Development (IISD), for governments to align with the Paris Agreement and reach its set phaseout targets, there is no room for any country to increase the production of hydrocarbons, as this will deter the global target of reducing emission to 1.5 degree Celsius.<sup>117</sup>

The UK government attempted to unite climate change goals and energy security narratives around the recent publication 'British Energy Security Strategy.'<sup>118</sup> Environmental and climate change scopes of the UK's energy security outlook were included. It can be said that the UK government's immediate goal is to secure the UK's energy supply needs, and in doing this, might be at variance with the climate change and net-zero transition goals of the government.<sup>119</sup> It can be observed in the global energy market and the UK's energy market, the security of energy supplies seems to be of greater importance, therefore preceding climate change, net-zero, and energy transition.<sup>120</sup> Diversification of energy sources, especially clean energy, has become key to the plans of the government. According to the Energy Security Strategy, the UK government is currently focusing on several energy sources for energy security: oil and gas, Nuclear, Hydrogen and renewables (offshore-onshore wind and solar and other technologies).<sup>121</sup>

Fankhauser et al. claimed that the UK government's attempt to ensure energy security and mitigate the high energy prices by developing new fossil fuel reserves will not reduce energy price pressures, because the price of UK gas is set on international markets and not domestic,<sup>122</sup> and therefore energy transition pathway needs to be strengthened, and not weakened.<sup>123</sup> As to achieve its net-zero targets, climate change policies will contribute to energy security and lower energy bills, if the government invests in zero-carbon energy, which will improve energy security, affordability and climate in the long term.<sup>124</sup> Then again, the UK government, like many other European governments, is seeking immediate or short-term remedies to the energy security issues that have affected the global energy industry, directly or

---

<sup>115</sup> See 'Kwarteng Advances Plans for Funding New Nuclear Projects, Including Sizewell C' (*GOV.UK*, 2022) <<https://www.gov.uk/government/news/kwarteng-advances-plans-for-funding-new-nuclear-projects-including-sizewell-c>> accessed 14 June 2022.

<sup>116</sup> Greenpeace, 'UK Government Grants Shell New Permit to Extract Gas from Jackdaw Field – Greenpeace Reaction' (*Greenpeace UK*, 2022) <<https://www.greenpeace.org.uk/news/jackdaw-permit-greenpeace-reaction/>> accessed 7 June 2022.

<sup>117</sup> Dan Calverley and Kevin Anderson, 'Phaseout Pathways for Fossil Fuel Production Within Paris-Compliant Carbon Budgets' (*International Institute for Sustainable Development (IISD)*, 2022) <<https://www.iisd.org/publications/report/phaseout-pathways-fossil-fuel-production-within-paris-compliant-carbon-budgets>> accessed 7 June 2022.

<sup>118</sup> See HM Government 'British Energy Security Strategy' n 5.

<sup>119</sup> *Ibid.* See also, Marco Antonio Vieira and Klaus Guimarães Dalgaard n 79.

<sup>120</sup> *Ibid.* See also, Roula Khalaf and Tom Wilson, 'Energy Shock Shows Need to Rethink Green Transition, Aramco Chief Says' (*Financial Times*, 2022) <<https://www.ft.com/content/f8cc1070-abbe-4489-9c4d-1569eb836195>> accessed 29 May 2022.

<sup>121</sup> See HM Government 'British Energy Security Strategy' n 5.

<sup>122</sup> See Market Insider, 'Natural Gas PRICE Today | Natural Gas Spot Price Chart | Live Price of Natural Gas Per Ounce | Markets Insider' (*Markets Insider*, 2022) <<https://markets.businessinsider.com/commodities/natural-gas-price>> accessed 28 July 2022.

<sup>123</sup> Sam Fankhauser, Steve Smith and Anupama Sen n 114.

<sup>124</sup> *Ibid.* See also, IRENA, 'Majority of New Renewables Undercut Cheapest Fossil Fuel on Cost' (*IRENA*, 2021) <<https://www.irena.org/newsroom/pressreleases/2021/Jun/Majority-of-New-Renewables-Undercut-Cheapest-Fossil-Fuel-on-Cost>> accessed 20 June 2022.

indirectly because of the Russia-Ukraine conflict.<sup>125</sup> Arguably, any comprehensive strategy would include a short-term and long-term plan. Although any short-term increase in the UK oil and gas production in the North Sea as proposed by the government will be “borrowing” emissions from the future.<sup>126</sup> Therefore, there is a need to make mitigating plans for the emissions in the short term. The size of the UK's emissions contribute to global emissions is driven by the total CO<sub>2</sub> emissions up to the point of the net-zero target date, although the energy transition will ensure the UK ends its contribution to global warming.<sup>127</sup>

## 5. A Pragmatic Way Forward: Decarbonisation Concessions

In the UK, the commitment remains to transition in the long term, but the dilemma is in the short term.<sup>128</sup> According to the House of Commons Environment Audit Committee, energy security and affordability issues should not result in the government halting or pausing its climate ambitions, but for the government to view this as an opportunity to achieve synergies between affordability, security and sustainability in the country.<sup>129</sup> The transition from a carbon-intensive economy to a decarbonised economy could arguably offer some solutions to the energy crisis, however reaching the net zero goals poses a huge challenge, and therefore needs a carefully considered process to actualise the goals set by the government.<sup>130</sup> In the UK, the present arguments revolve around a rapid alignment with government energy policies and implementation of the significant recommendations from the Skidmore review, which includes developing a new comprehensive energy plan for infrastructure delivery and key economic incentives for the development of new green technology.<sup>131</sup> This would entail an overhaul of the grid infrastructure to a more flexible system, as proposed by the Skidmore Review.<sup>132</sup> Ensuring energy security while decarbonising will require certain concessions to be made, as the government needs to maintain and ensure energy supply from the present energy systems, while the new green infrastructures are developed and deployed. Testament to the vital need for a secure supply of energy – the recent call by National Grid in the UK to put coal plants on standby as an emergency backup to bolster supply highlights some realities of energy supply today.<sup>133</sup>

---

<sup>125</sup> Olaf Storbeck and David Sheppard, 'Germany Fires Up Coal Plants to Avert Gas Shortage as Russia Cuts Supply' *Financial Times* (2022) <<https://www.ft.com/content/f662a412-9ebc-473a-baca-22de5ff622e2>> accessed 20 June 2022.

<sup>126</sup> Sam Fankhauser, Steve Smith and Anupama Sen n 114.

<sup>127</sup> *Ibid.*

<sup>128</sup> House of Commons Environmental Audit Committee 2023 n 78.

<sup>129</sup> *Ibid.*

<sup>130</sup> See Staff E, “Prioritising Net-Zero or Ignoring Non-Energy Emissions? UK's Green Economy Reacts to Sunak's Department Shake-Up” (*edie* February 9, 2023) <<https://www.edie.net/prioritising-net-zero-or-ignoring-non-energy-emissions-uks-green-economy-reacts-to-sunaks-department-shake-up/>> accessed February 27, 2023

<sup>131</sup> *Ibid.* See also, Skidmore C, n 12.

<sup>132</sup> Skidmore C, n 12. See also, Foster N, “The Skidmore Review Is a Wake-up Call to the UK: Act Now or Risk Losing Opportunities from Net Zero” (*The Carbon Trust* January 31, 2023) <<https://www.carbontrust.com/news-and-insights/insights/the-skidmore-review-is-a-wake-up-call-to-the-uk-act-now-or-risk-losing-opportunities-from-net-zero>> accessed March 23, 2023

<sup>133</sup> See Gillespie T, “National Grid Uses Back-up Coal Plant for the First Time to Secure UK Power Supply” (*Bloomberg.com* March 7, 2023) <<https://www.bloomberg.com/news/articles/2023-03-07/uk-grid-uses-back-up-coal-plant-for-first-time-to-secure-supply?leadSource=uverify+wall>> accessed March 8, 2023; See also, Lawson A, “National Grid Puts Backup Coal Plants into Action for First Time This Winter” (*The Guardian* March 7, 2023) <<https://www.theguardian.com/business/2023/mar/07/national-grid-power-plants-coldest-night-of-year-extra-electricity>> accessed March 8, 2023



It is envisaged that there would be a sequence of trade-offs between energy security objectives and climate action objectives. Considering that renewable energy sources – solar and wind energy are intermittent, this undermines the security of supply and poses a major challenge, but possible technological advances can resolve this problem.<sup>134</sup> Also, flexible grid systems, consistency of policy, financial support, stable environment for new renewable energy technology development, unlocking business-model innovation and driving investment in clean energy technology for the future – are examples of some recommendations of the Skidmore Review evidenced by the economics of the UK’s net-zero transition.<sup>135</sup> To boost the security of supply, the UK government has planned to establish an organisation that will be in charge of building greater energy resilience for the UK by supporting new energy technologies.<sup>136</sup> Today, this falls within the objectives of the newly created government department — the Department of Energy Security and Net-Zero.

Perhaps when the government prioritises energy security before the energy transition, this could lead to a counter-productivity for the net-zero transition targets. It is widely understood that this is not an abrupt stop from the usage of fossil fuels but a transition, which highlights the relevance of oil and gas in the short term while planning for the rapid growth of renewable energy sources in the long term.<sup>137</sup> Multiple factors could lead the government to this compromise. The socio-economic factor becomes key.<sup>138</sup> For instance, to protect its industry, Germany has blocked the ban on new combustion engines.<sup>139</sup> Pascal Canfin, while criticising the German government’s decision to go back on the ban on new combustion engines, expressed that the ethos of the European Union’s (EU) Climate law is to converge towards compromises.<sup>140</sup> The renegeing by Germany, although not wholly accepted within the EU, has raised fears it could precipitate a series of compromises.<sup>141</sup>

In resolving the problems of energy supply security, the UK government has opened the door again for shale gas activities within the country.<sup>142</sup> Therefore, if the science shows that it is safe, and sustainable and would cause minimal disturbance to people, the government would proceed with shale gas activities. Invariably, paving the way for a reconsideration of the moratorium on fracking.<sup>143</sup> This somewhat subverts the energy transition goals of the UK

---

<sup>134</sup> Daniel Yergin, (n 26) 398 – 402. See Konstantinos J. Chalvatzis and Elizabeth Hooper n 84.

<sup>135</sup> See Skidmore C, n 12.

<sup>136</sup> Martin G. Hewitt, 'UK Government Introduces New Future System Operator to Improve Energy Resilience' (*Environment Journal*, 2022) <<https://environmentjournal.online/articles/uk-government-introduces-new-future-system-operator-to-improve-energy-resilience/>> accessed 20 June 2022.

<sup>137</sup> See Croft H, “How Can We Maintain Energy Security during the Transition?” (*RBC Capital Markets / Beyond the Ballot Episode*2022) <<https://www.rbccm.com/en/insights/beyond-the-ballot/episode/how-can-we-maintain-energy-security-during-the-transition>> accessed March 4, 2023

<sup>138</sup> Jing-Yu Liu and others, 'Socioeconomic Factors and Future Challenges of The Goal of Limiting the Increase in Global Average Temperature To 1.5 °C' (2018) 9 *Carbon Management* 447. See also, UKCIP, 'Socio-Economic Scenarios for Climate Change Impact Assessment: A Guide to Their Use in The UK Climate Impacts Programme' (*UK Climate Impact Programme (UKCIP)*, 2001) <[https://www.ukcip.org.uk/wp-content/PDFs/socioeconomic\\_tec.pdf](https://www.ukcip.org.uk/wp-content/PDFs/socioeconomic_tec.pdf)> accessed 28 July 2022.

<sup>139</sup> Power Nation, “Germany Rejects Europe's Proposal to Ban Gas-Powered Vehicles by 2035” (*PowerNation* March 14, 2023) <<https://www.powernationtv.com/post/germany-rejects-eu-proposal-on-gas-powered-vehicles-by-2035>> accessed March 17, 2023

<sup>140</sup> Hancock A, “EU Climate Agenda at Risk after German Pushback” (*Financial Times* March 17, 2023) <<https://www.ft.com/content/64ecc598-fdf7-402a-9351-cd821a4ffc01>> accessed March 17, 2023

<sup>141</sup> *Ibid.*

<sup>142</sup> See 'Scientific Review of Shale Gas Launched' (*GOV.UK*, 2022) <<https://www.gov.uk/government/news/scientific-review-of-shale-gas-launched>> accessed 20 June 2022.

<sup>143</sup> Aubrey Allegretti, Helena Horton and Nadeem Badshah, 'Ministers Launch Fracking Study, Paving Way to End Moratorium in England' *The Guardian* (2022) <<https://www.theguardian.com/environment/2022/apr/05/ministers-launch-uk-fracking-study-paving-way-to-end-moratorium>> accessed 20 June 2022.

government, but these plans and government actions continue to prove the level of importance attributed to energy security presently.

Renewable energy sources presently will need partners because of the intermittency and storage problem, as integrating these renewable sources will require complex management of the grid.<sup>144</sup> The problems of energy security, affordability and availability are major issues in the global energy sector, and according to Amin Nasser, there needs to be a continuous investment into fossil fuels until renewable energy sources can address disruptions in the global energy sector.<sup>145</sup>

The question of the capacity of renewable energy sources to meet the global energy demands is yet to be unequivocally answered, and with practical evidence as there seems to be some level of disconnect from the reality of things, and theories of how it should be within the global energy market. For instance, the firm response by Kwasi Kwarteng to climate activists, stating that he cannot put Britain's energy security at risk, by following the pleadings and persuasions of the climate activist to shut down the domestic North Sea oil and gas production.<sup>146</sup> He further stated that the UK will need oil and gas in the coming decades.<sup>147</sup> This situation can also be seen across a good deal of oil and gas-producing nations, as presently the energy security of countries has become key to their socio-economic development, as the proposed energy transition seems to take a backseat to various governments' agendas. We are presently seeing the synergy between energy security and energy transition actions.

The multi-year 25 per cent tax on the UK oil and gas industry received a backlash from the industry but still did not deter the oil major's assurance to the government of their commitments to continued activity in the North Sea.<sup>148</sup> Recently some oil and gas companies active in the North Sea argued that the Windfall tax will undermine investment, invariably the long-term energy security of the UK and Europe at large while raising strong objections to the Windfall tax with threats of taking their business outside of the UK.<sup>149</sup> The windfall tax – energy profits levy is supposed to remain in place until 2025.<sup>150</sup> As an encouragement to oil and gas companies to continue with hydrocarbon projects and reduce their tax bill, the UK government introduced the New Investment Allowances.<sup>151</sup> The European and global energy landscape continues to change—as per the growing need for natural gas in the UK and Europe,<sup>152</sup> with most governments having winter in mind, there needs to be a holistic assessment of all GHG emissions connected to natural gas and infrastructure expansion, together with its impact on energy transition and net-zero goals of the UK.<sup>153</sup>

---

<sup>144</sup> Daniel Yergin, (n 26) 402.

<sup>145</sup> Roula Khalaf and Tom Wilson n 120.

<sup>146</sup> Dimitris Mavrokefalidis, 'Climate Activists Disrupt Kwasi Kwarteng's Business Lunch' (*Energy Live News*, 2022) <<https://www.energylivenews.com/2022/05/16/climate-activists-disrupt-kwasi-kwartengs-business-lunch/>> accessed 31 May 2022.

<sup>147</sup> *Ibid.*

<sup>148</sup> Nathalie Thomas, Tom Wilson and Jim Pickard, 'North Sea Operators Warn of Reduced Investment and Output' (*Financial Times*, 2022) <<https://www.ft.com/content/521bf3f8-67cd-4417-ba56-cabf700f57e4>> accessed 7 June 2022.

<sup>149</sup> Sheppard D, 'UK Oil and Gas Group Harbour Energy Says Windfall Tax 'Has All but Wiped out' Profit' (*Financial Times* March 9, 2023) <<https://www.ft.com/content/7747b2b8-edc1-4ac2-9d84-8f0b7f599e03>> accessed March 9, 2023

<sup>150</sup> Nathalie Thomas, Tom Wilson and Jim Pickard, n 148.

<sup>151</sup> *Ibid.* See also, UK Government 'New Temporary Tax Reliefs on Qualifying Capital Asset Investments From 1 April 2021' (*GOV.UK*, 2022) <<https://www.gov.uk/government/publications/new-temporary-tax-reliefs-on-qualifying-capital-asset-investments-from-1-april-2021/new-temporary-tax-reliefs-on-qualifying-capital-asset-investments-from-1-april-2021>> accessed 7 June 2022.

<sup>152</sup> See Energy Transitions Commission, n 2.

<sup>153</sup> Claudia Kemfert and others n 113.

## 5.1 Challenges: Climate and Energy Policy

The Russia–Ukraine conflict will have a far-reaching and long-term impact on the UK government's effort to address climate change and global efforts to mitigate global warming.<sup>154</sup> Immediate and far-reaching implications on the success of the Paris Agreement and Glasgow Climate Pact, because of the Russian government's action in Ukraine – energy prices are increasing rapidly, largely because of a sudden rise in the price of natural gas.<sup>155</sup> At the moment and over the long term, the financial attractiveness of renewable energy sources should be supported by the high fossil fuel energy prices, in theory.<sup>156</sup> Yet, the expected rapid switch from fossil fuel to renewable energy sources is not happening.<sup>157</sup> Accelerating the energy transition toward renewable energy sources seems to be the major goal if Europe will have to move away from its gas dependency, but little and far evidence of this happening in the short-term, rather most government outlooks and energy policies look to make plans for the future rather than the present.<sup>158</sup> Energy security becomes the present argument put forward by the government. As evidenced since the early 1970s when governments cannot find a reasoned rationale on the grounds of standard sustainable economic logic for certain energy policies, most times, these policies are promoted as energy security policies.<sup>159</sup>

The energy transition is expected to reduce dependence on imported gas and oil, protect consumers from the volatility of global oil and gas markets, and reduce costs for consumers, however, it will also take time for the government to build a zero-carbon energy system that could supply the domestic energy needs for the UK economy.<sup>160</sup> Decarbonising the energy mix will result from the energy transition policies of the UK government.<sup>161</sup> The net-zero transition will come at a high cost. The government will incur immense costs to achieve this. Given the uncertainty surrounding the energy transition, some calculations of the cost by various groups estimate the financial burden on the government from about £50 billion to £70 billion per year.<sup>162</sup> According to Moslener, there is a deep uncertainty of unknown unknowns, which has

---

<sup>154</sup> Jason Bordoff and Meghan L. O'Sullivan n 41.

<sup>155</sup> Mark Nicholls, 'Russia-Ukraine Conflict: The Net-Zero Transition Just Got Harder - And More Urgent' (*Energy Monitor*, 2022) <<https://www.energymonitor.ai/policy/opinion-the-net-zero-transition-just-got-harder-and-more-urgent>> accessed 13 April 2022. See also, Sonja van Renssen, 'Opinion: The Gas Price Spike – Perfect Storm or Stars Aligning?' (*Energy Monitor*, 2021) <<https://www.energymonitor.ai/policy/opinion-the-gas-price-spike-perfect-storm-or-stars-aligning>> accessed 13 April 2022.

<sup>156</sup> *Ibid.*

<sup>157</sup> Dave Keating, 'Will Rising Gas Prices Hasten the Switch to Renewables?' (*Energy Monitor*, 2022) <<https://www.energymonitor.ai/sectors/power/will-rising-gas-prices-hasten-the-switch-to-renewables>> accessed 13 April 2022.

<sup>158</sup> *Ibid.* See also, Gross R and others, "Review of Energy Policy 2022" (*UK Energy Research Centre*2022) <[https://d2e1qxpsswcpgz.cloudfront.net/uploads/2017/12/UKERC\\_Review-of-Energy-Policy-2022.pdf](https://d2e1qxpsswcpgz.cloudfront.net/uploads/2017/12/UKERC_Review-of-Energy-Policy-2022.pdf)> accessed March 2, 2023

<sup>159</sup> Christian Winzer n 71.

<sup>160</sup> Sam Fankhauser, Steve Smith and Anupama Sen n 126. See Nationalgrid ESO, 'A Day in The Life 2035: How A Fully Decarbonised Electricity System Might Operate' (*National Grid ESO*, 2022) <<https://www.nationalgrideso.com/document/246851/download>> accessed 20 June 2022. See also, IEA, "Energy Security in Energy Transitions – World Energy Outlook 2022 – Analysis" (*IEA*2022) <<https://www.iea.org/reports/world-energy-outlook-2022/energy-security-in-energy-transitions>> accessed March 14, 2023

<sup>161</sup> Jorge Blazquez, Rolando Fuentes-Bracamontes and Baltasar Manzano n 24.

<sup>162</sup> See The Institute for Government 'UK Net Zero Target' (*The Institute for Government*, 2022) <<https://www.instituteforgovernment.org.uk/explainers/net-zero-target>> accessed 12 April 2022. See also, CCC, 'Net Zero - The UK's Contribution to Stopping Global Warming - Climate Change Committee' (*Climate Change Committee*, 2022) <<https://www.theccc.org.uk/publication/net-zero-the-uks-contribution-to-stopping-global-warming/>> accessed 14 June 2022.

delayed vital investments in energy transition technologies.<sup>163</sup> Some note by policymakers and analysts that there is a lack of full-suite technological solutions needed to deliver or deploy the large renewable energy sources needed to reach the net-zero targets set, reducing the emissions that the science community now recommends.<sup>164</sup> The collapse of BritishVolt a battery start-up that was supposed to champion the UK's 'green industrial revolution', has evidenced some uncertainties of this transition.<sup>165</sup> Using the case of BritishVolt to contextualise the financial implications of this energy transition it is estimated that any purchaser that acquires the company would need access to significant financing between £3 billion - £6 billion to fund the capital expenditure required to complete the development of the giga plant.<sup>166</sup> Beyond the frontiers of the energy transition, there are significant uncertainties, which will require a paradigm shift in strategies and actions by the government.<sup>167</sup>

Arguably, the condition needed to achieve some of the energy transition goals needs some level of government support for the development of new technologies that can support the energy transition.<sup>168</sup> This calls for a clear commitment from the government and policymakers, which would send a powerful signal to investors of the government's energy transition plan, therefore encouraging investments into clean technology. BritishVolt got some financial support from the government, with about £100 million conditional on the resumption of the building of its site, in part to protect taxpayer money from going to waste.<sup>169</sup> Also maintained by Moslener, energy transition needs private investment for it to be successful.<sup>170</sup> It requires a concerted effort from all sectors of the economy – public and private investment conducive environment will be required according to The Skidmore Review.<sup>171</sup> The financial support from the UK government has been called into question recently, especially from Ørsted a renewable energy company in the UK expressed its disappointment in the level of renewable energy support package in the government's budget for the renewable energy industry in the UK.<sup>172</sup>

The Energy Transitions Commission in its Insights briefing alluded that sequencing will become important for energy transition targets to be met, this means that there has to be a level of continued investment in fossil fuels to meet the supply and demand need and maintain a balance while the energy transition is in progress.<sup>173</sup> Although the extent of this requirement is entirely reliant on the pace at which renewable energy investment scale up.<sup>174</sup>

---

<sup>163</sup> Ulf Moslener, 'The Deep Uncertainties That Are Stalling Energy Transition' (*Engineering and Technology*, 2022) <<https://eandt.theiet.org/content/articles/2022/05/the-deep-uncertainties-that-are-stalling-energy-transition/>> accessed 14 June 2022.

<sup>164</sup> Jonathan Elkind, 'Energy Security: Call for a Broader Agenda' in Jonathan Elkind and Carlos Pascual (n 47) 129.

<sup>165</sup> Lawson A and Jolly J, "Battery Startup Britishvolt Enters Administration as Rescue Talks Fail" (*The Guardian* January 17, 2023) <<https://www.theguardian.com/business/2023/jan/17/britishvolt-expected-enter-administration-tuesday>> accessed March 17, 2023

<sup>166</sup> Dempsey H, Campbell P and O'Dwyer M, "Britishvolt Owed up to £160mn to Creditors When It Collapsed" (*Financial Times* March 14, 2023) <<https://www.ft.com/content/461f813e-3421-4a29-b1e9-67b94898bf1a>> accessed March 17, 2023

<sup>167</sup> Bocca R and Singh HV, n 58.

<sup>168</sup> James Henderson and Anupama Sen n 22.

<sup>169</sup> Dempsey H, Campbell P and O'Dwyer M, "Britishvolt: How Britain's Big Battery Hope Ran out of Charge" (*Financial Times* January 20, 2023) <<https://www.ft.com/content/937ac165-5fcc-4ae8-bd00-3616d7a32cf1>> accessed March 17, 2023

<sup>170</sup> Ulf Moslener, n 163.

<sup>171</sup> Skidmore C, n 12.

<sup>172</sup> reNEWS, "Ørsted 'Needs Time' to Analyse Impact of Budget on Hornsea 3" (*reNEWS* March 16, 2023) <<https://renews.biz/84455/orsted-needs-time-to-analyse-impact-of-budget-on-hornsea-3/>> accessed March 17, 2023

<sup>173</sup> Energy Transitions Commission, n 2.

<sup>174</sup> *Ibid.*

According to Ember, renewable energy sources became the cheapest form of electricity and are steadily replacing gas power generation in Europe.<sup>175</sup> Although this was limited to gas, coal power generation only declined in countries that closed their coal power plants.<sup>176</sup> However, the initial expectation was for renewable energy sources to replace coal rather than gas, because, from around 2011 to 2019, over 80% of new renewable energy sources came at the expense of coal. After all, there were not enough renewable energy sources online to substitute both coal and gas.<sup>177</sup> Presently, coal energy is more emission-intensive than gas, while renewables continue to replace gas.

The UK government's ambitions to transition from fossil fuel to renewable energy sources are not enough; renewable energy sources must be stimulated through the deployment of policies for a continued timeframe, research, and technology development (RTD) and, importantly, the focus and commitment of the UK government.<sup>178</sup> Tax breaks and a restructuring of the UK's subsidy policies have been the call from companies within the UK renewable energy sector because key financial support from the government would attract international investors into the sector.<sup>179</sup> The financial implication of the net-zero transition is not the only factor for the government to consider, as a lot of planning and construction will have to be done before the new energy systems come on stream, and this could take a decade or more.<sup>180</sup> It has to be clarified that these new energy systems will not come into existence overnight. The approach to prioritise the construction of big, centralised power generation facilities to solve the demand issues within the country highlighted in the British Energy Security Strategy,<sup>181</sup> was opposed by the Report by the House of Commons Environmental Audit Committee, which proposed a move to a smarter, more flexible, digitally enabled grid.<sup>182</sup> Albeit dependent on renewable energy technology innovations, which have shown some potential.

For the UK to achieve its set net-zero targets, the importance of sustained policy efforts in implementing an energy transition cannot be overemphasised. Conventional policy instruments that would influence energy policy in the UK could include direct command-and-control regulation, research and development funding, taxes, government subsidies or incentives directed at the renewable energy industry.<sup>183</sup> According to Fankhauser et al., strong policy safeguards should be in place if the UK government is to ensure energy security is compatible with climate security, and a quick net-zero transition.<sup>184</sup> Although, Elkind argues against government responses in periods like this, as the government's set off, seeking a legislative or technological 'silver bullet', whereas none exist, because half measures do not

---

<sup>175</sup> Last year saw a decline in fossil fuels' share of electricity production in the EU, from 39% in 2019 to 37% in 2021. Renewable electricity has had an average annual growth of 44 terawatt-hours over the past two years, and more than half of that new wind and solar power replaced gas plants. Charles Moore, 'European Electricity Review 2022' (*Ember*, 2022) <<https://ember-climate.org/insights/research/european-electricity-review-2022/>> accessed 13 April 2022. See also, Dave Keating n 100.

<sup>176</sup> *Ibid.*

<sup>177</sup> *Ibid.*

<sup>178</sup> Barry D. Solomon and Karthik Krishna n 16.

<sup>179</sup> See Thomas N, "Wind Farm Developers Demand UK Tax Breaks to Offset Rising Costs" (*Financial Times* February 26, 2023) <<https://www.ft.com/content/80dee308-a564-4ee4-b1f2-ab7dbed643cd>> accessed March 17, 2023; See also, Dempsey H and Campbell P, "Britishvolt Collapse Prompts Calls for Shake-up of UK Subsidy Policies" (*Financial Times* January 28, 2023) <<https://www.ft.com/content/65515ed1-b887-495e-af34-ff9ba86ceeb2>> accessed March 17, 2023

<sup>180</sup> Jonathan Elkind, 'Energy Security: Call for a Broader Agenda' in Jonathan Elkind and Carlos Pascual (n 47) 123.

<sup>181</sup> HM Government 'British Energy Security Strategy' n 5.

<sup>182</sup> House of Commons Environmental Audit Committee 2023 n 78.

<sup>183</sup> Barry D. Solomon and Karthik Krishna n 16.

<sup>184</sup> Sam Fankhauser, Steve Smith and Anupama Sen n 114.

essentially change energy supply or consumption patterns.<sup>185</sup> He further stated that much attention will be paid to the issue whilst the energy prices are high, but once the prices fall, it lulls the government into a false sense of security, with no substantial decline in the energy intensity of its economy.<sup>186</sup> Developed economy – the UK economy relies on a lot of energy to maintain daily activities in the country. Energy powers the UK factories, government and office buildings, schools, and hospitals, heats homes and keeps perishable foods cold.<sup>187</sup> Arguably, at the centre of modern day-to-day activities in the country sits energy. The predominance of fossil fuels for energy generation is at the core of this era's challenge to protect the global environment from the adverse effect of climate change.<sup>188</sup>

## 5.2 Opportunities: Performing while Transforming

The Arab oil embargo of 1973 caused governments around the world to change their energy policies and regulations.<sup>189</sup> Unlike the oil shocks of the 1970s, the energy crisis at the moment has multiple dimensions: natural gas, oil, coal, electricity, food security and climate change, which therefore requires not only a diversification away from one energy source, but to change the nature of the energy system, and doing so while maintaining the affordable and secure provision of energy.<sup>190</sup> Possibly, the present energy transition provides the government with the opportunity to build a safer and more sustainable energy system that would not be exposed to the global energy market volatility.<sup>191</sup> The policy actions taken by the government in improving the resilience of this transition will be a key component in deciding the outcome of this present energy crisis. Progress will come from balancing and progressing on the exigent of economic growth and development, energy security, and environmental sustainability.<sup>192</sup>

Presently, one of the strongest arguments for transitioning away from fossil fuels to renewable energy sources, as quickly as possible, would be the Russia – Ukraine conflict because of energy security.<sup>193</sup> For this energy transition to go according to plan, it has to be structured and managed properly – this requires considerable government engagement in the energy and climate domain which can help resolve the volatility of the markets, mitigate the risks that are bound to happen from the energy transition, and shorten the net-zero emissions pathway.<sup>194</sup> The recent UK's Critical Mineral Strategy aims to speed up growth in the country's domestic capabilities, collaborating with international partners and enhancing the international markets to make them more transparent, responsible and responsive.<sup>195</sup> As evidenced globally,

---

<sup>185</sup> Jonathan Elkind, 'Energy Security: Call for a Broader Agenda' in Jonathan Elkind and Carlos Pascual (n 15) 120.

<sup>186</sup> *Ibid.*

<sup>187</sup> Jonathan Elkind and Carlos Pascual (n 15) 1.

<sup>188</sup> *Ibid.*

<sup>189</sup> Leslie E Grayson (n 19) 7 - 8. See also, Alan H Gelb, *Oil Windfalls: Blessing or Curse* (Oxford University Press 1988) 3.

<sup>190</sup> See Energy Transitions Commission, n 2.

<sup>191</sup> Grasping the opportunity presented by the energy crisis will require a synchronised scaling up of a range of renewable energy technologies and scaling back of fossil fuels energy sources. *Ibid.*

<sup>192</sup> Bocca R and Singh HV, n 58.

<sup>193</sup> Mark Nicholls n 155.

<sup>194</sup> Jason Bordoff and Meghan L. O'Sullivan, 'The New Energy Order: How Governments Will Transform Energy Markets' (*Foreign Affairs*, 2022) <<https://www.foreignaffairs.com/articles/energy/2022-06-07/markets-new-energy-order>> accessed 28 July 2022.

<sup>195</sup> BEIS, 'Resilience for The Future: The UK's Critical Minerals Strategy' (*Department for Business, Energy and Industrial Strategy*, 2022) <<https://www.gov.uk/government/publications/uk-critical-mineral-strategy/resilience-for-the-future-the-uks-critical-minerals-strategy>> accessed 28 July 2022. See also, Jacqueline

a growing number of legislative proposals and policies aimed at boosting energy security, achieving net-zero transition and commitments to climate actions could raise some geopolitical wrangling, but the idea is to have a concerted effort and a wide coalition to support these measures, one that includes everyone from oil and gas industry, climate change activists, to environmentalists.<sup>196</sup> Further, the Skidmore Review emphasised the need for the continuity of policy, clarity, certainty and consistency, as that will signal a conducive investment environment to both public and private actors.<sup>197</sup>

In most markets, renewable energy sources are cheaper than most other forms of energy generation.<sup>198</sup> The argument that renewable energy sources are more expensive than fossil fuels and will lead to higher energy bills is inaccurate. The bad news is those renewables were, until now, going to replace coal instead of gas. From 2011 to 2019, over 80% of new renewables came at the expense of coal.<sup>199</sup> Because there are not yet enough renewables online to replace both, that means the decline in coal is slowing because there are fewer renewables available to replace it – they are busy replacing gas – and yet coal is much more emissions-intensive than gas. This calls for a move away from coal energy.

Renewable energy sources will come with economic benefits and international competitiveness, as this will lead to an enormous investment in domestic manufacturing capacity.<sup>200</sup> For energy security and learning from the history of the global energy industry, the government should not contemplate outsourcing the renewable energy industries, as it could lead to geopolitical issues down the line and make the net-zero transition an expensive one.<sup>201</sup> Globally, investment in the energy transition grew approximately 27% in 2021, which was a record as countries increased their climate policy agendas.<sup>202</sup> Most of the recorded investment went to renewable energy – wind, solar and other renewables.<sup>203</sup>

Demonstrating key commitment to the net-zero transition, the UK government's Energy Security Bill presently in the House of Lords displays key commitments to drive about £100 billion of private sector investment by 2030 into new British industries and support over 400,000 clean jobs. Also, as mentioned earlier, the need for sustained research and support for new technology will be a key factor for the UK to achieve its net-zero transition goals. This Energy Security Bill proposes acceleration of the growth of low-carbon technologies and taking the next enormous leap in the technologies of the future, like hydrogen and fusion.

To ensure that the country is on a pathway that leads to a less carbon society, the need to apply mitigation and adaptation environmental sustainability lens and climate lens to these projects to assess synergies and trade-offs, which invariably strengthens resilience. Although this can be complex, considering opportunities for joint actions will probably create long-term impacts and make sure that climate change actions' goals for mitigation and adaptation are jointly supported by the government plans. To reiterate, implementing multifunctional

---

Holman, 'UK Launches First Critical Minerals Strategy' (*Spglobal*, 2022)

<<https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/energy-transition/072222-uk-launches-first-critical-minerals-strategy>> accessed 28 July 2022.

<sup>196</sup> Jason Bordoff and Meghan L. O'Sullivan n 194.

<sup>197</sup> Skidmore C, n 12.

<sup>198</sup> See Nick Ferris, 'More Renewables Does Not Have to Mean Higher Electricity Bills' (*Energy Monitor*, 2022)

<<https://www.energymonitor.ai/policy/market-design/more-renewables-does-not-have-to-mean-higher-electricity-bills>> accessed 13 April 2022.

<sup>199</sup> *Ibid.* See also, Dave Jones, 'Global Electricity Review 2022' (*Ember*, 2022) <<https://ember-climate.org/insights/research/global-electricity-review-2022/>> accessed 28 July 2022.

<sup>200</sup> Mark Nicholls n 155.

<sup>201</sup> *Ibid.*

<sup>202</sup> Will Mathis, 'Energy Transition Fuels \$755 Billion Of Investment In 2021' (*Bloomberg UK*, 2022)

<<https://www.bloomberg.com/news/articles/2022-01-27/energy-transition-drew-record-755-billion-of-investment-in-2021>> accessed 20 June 2022.

<sup>203</sup> *Ibid.*

initiatives for the energy transition targets at national, subnational, and local levels. Also, the financing scheme becomes crucial.

## 6. Conclusion

Today, energy security and energy transition are inextricably connected, because evidently, governments want to take action to cut global emissions, but the same governments need the security of energy supplies within its territories, therefore achieving energy security. The practicality and reality seem that hydrocarbons still have a major role to play in ensuring the energy security of nations around the world. Pursuing energy transition and explicating the major issues calls for a lot of policy direction from the government – which might need a novel approach to the energy transition, energy security and climate actions. Possibly, to achieve a balanced pathway to its energy transition goals while maintaining energy security through short-term and long-term policy designs. Improving the effectiveness of policy responses calls for better and more rational analysis and understanding of the socio-economic problems facing the country.

The synergetic energy security and energy transition actions by the UK government seem to be the outcome of the present crisis in the global energy industry, but how well the decisions of the UK government to pursue both goals simultaneously, would be observed soon. With the need for urgent climate action, suggestions that the government should tackle these goals separately will not be obtainable, although energy security is now arguably the top priority of the UK government and most governments globally. The UK government must champion climate action, and net-zero transition with sustained **short-term and long-term policies** while being honest and realistic about the challenges the country faces, especially when the issues of energy security arise, or how expensive or the pace of achieving the energy transition is.<sup>204</sup> As opined by the Skidmore Review, these goals can be achieved with clarity, certainty, consistency and continuity of policies by the government.<sup>205</sup>

Like most governments, as shown in this paper, questions have been asked about the UK government's genuine commitment to climate action, net-zero transition and environmental sustainability, but this is not peculiar to the UK government alone. Governments are grappling with ways to harmonise its energy security and energy transition goals simultaneously. Presently, the key challenge for the UK government will be to manage potentially conflicting goals in its energy security, climate action, energy transition, and net zero goals.<sup>206</sup> As argued in this paper, a realistic outlook must be taken by the government with a short-term and long-term perspective for a comprehensive resolution of this. Investigating the future alone, and ignoring the present and what needs to be done will invariably undermine any potential future progress.

---

<sup>204</sup> Mark Nicholls n 155.

<sup>205</sup> Skidmore C, n 12.

<sup>206</sup> Kathryn Hochstetler and Eduardo Viola, 'Brazil and The Politics of Climate Change: Beyond the Global Commons' (2012) 21 Environmental Politics 753.