8

Scotland

From Oil to Wind under a Devolved Government and New Pressures for UK Energy Security

The last country case in this book deals with two dimensions. First, it looks at the UK as a whole and how its energy policy interacts with security and defence policy. Second, it zooms into Scotland as a somewhat comparable country to the other case countries in terms of population size (5.5 million inhabitants), its Nordic location, its pursuit of a zero-emission society, and its rather liberal values. As Scotland's devolved powers do not include energy policy as such, nor security and defence policy, it mainly addresses energy questions via its powers over energy efficiency and land-use planning policies.

UK energy policy is an interesting mix of relatively strong support for fossil fuels coupled with ambitious long-term climate targets via the world's first Climate Change Act, which came into force in 2008. The British coal industry has a long history and began destabilizing a hundred years ago. While coal mines began to close on an accelerated basis in the 1960s, coal sales to the electricity sector continued to expand until the 1980s. A "dash for gas" in the 1990s meant replacing coal as a source of heating fuel for buildings and was a start in reducing the carbon dioxide emissions of the energy sector. However, it was a specific policy instrument, the Carbon Price Floor, in 2013, that contributed to a rapid reduction in coal generation, from 39 percent in 2012 to only 2 percent in 2021 (DESNZ, 2023). The British coal phaseout, however, led merely to coal being replaced with natural gas for heating, which also has rather substantial greenhouse gas emissions. The development of the UK energy mix shows a considerable decline in coal use while the use of petroleum products and natural gas has remained relatively constant (Figure 8.1). In the overall energy mix, the share of renewable energy is rather modest. The extent of the gas network makes achieving heating reform by moving to nonfossil energy sources difficult. The electricity sector has, however, progressed with decarbonization, with 65 percent of electricity produced from renewable energy in Scotland and 38 percent in England and Wales.

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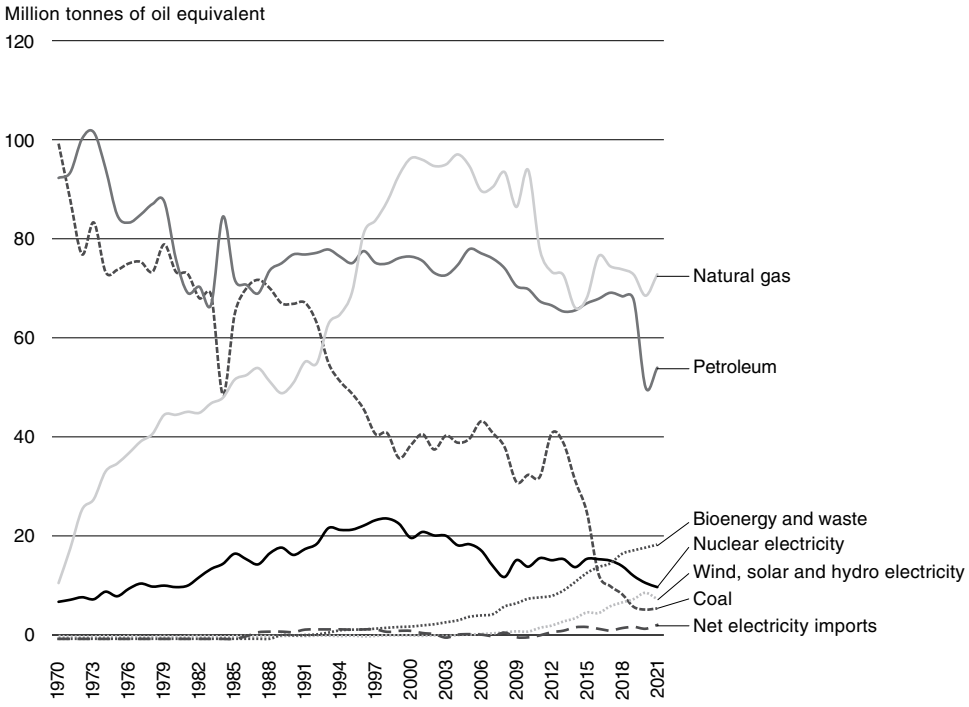


Figure 8.1 Inland consumption of primary fuels and equivalents for energy use, million tons of oil equivalent.
Source: DESNZ (2023).

A kind of rejuvenation of "noncoal fossil fuel" policy happened in 2007, when hydraulic fracking for shale gas was added to the agendas of resource companies and the government alike. Some scholars argue that fracking represents a reproduction of the fossil fuel hegemony justified on the basis of issues such as employment and energy security (Nyberg et al., 2018). The different UK governments' stances on hydraulic fracking of gas and oil have fluctuated from support to bans. In the end, fracking has never taken off properly and has ended for now. Overall, the past fifteen years or so have seen the contradictory parallel tracks of aiming to decarbonize and keeping hold of the fossil economy – somewhat similarly to the Norwegian case.

Scotland has been – and is – important for the UK energy and security sectors. Aberdeen (and the surrounding area) is the center of the British oil and gas industry. It has been described as a nexus of Europe's fossil fuel industry and is the headquarters for many companies (Adams and Mueller-Hirth, 2021). Further, England's electricity demand exceeds its electricity generation, so it needs transfers of electricity from Scotland, Wales, and Continental Europe. Scotland produced 57 percent of the UK's renewable electricity in 2021 (DESNZ, 2023).

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Scotland also has the lowest share of fossil fuel-based electricity generation in the UK and, while it is the hub of fossil fuel production, it uses little of the fossil fuel it produces (akin to Norway). In 2020, 97 percent of Scotland's electricity generation was from renewable energy (Scottish Renewables, 2023). This means, in practice, a fully renewable energy-based power supply. Scotland's wind power capacity in June 2022 was 13.3 gigawatts (GW) and, at that time, a further 16.7 GW of wind power was under construction or planned (Scottish Government, 2022).

One of the key future concerns for Scotland is the substantial decline of oil and gas production from the North Sea. In 2019, the oil and gas industry supported 57,000 direct and indirect high-value jobs and accounted for 9 percent of Scotland's GDP. While the sustainable energy transition will create new jobs, the employment capabilities of the fossil fuel-exporting industry are hard to replace, creating potential socioeconomic insecurity for Scotland. Therefore, support for wind and hydrogen energy is argued to require significant early investment and policy support (Earnst & Young, 2023). The Scottish government wants the fastest possible just transition of the oil and gas sector, by investing, for example, in reskilling fossil fuel workers in the renewables industry and hydrogen sector (Scottish Government, 2023).

Scotland is also an important location with respect to the UK defence system. The country's Faslane and Coulport naval bases are where UK military nuclear submarines are located. This is despite the opposition of many Scots, and especially the Scottish National Party (SNP), to the use of nuclear technology for energy and security purposes.

Finally, Scotland is an interesting case due to its attention on just transitions. The Just Transition Commission was established in 2018 as one of the first concrete just transition developments in the world.

This chapter differs from the other country chapters in that it examines both UK policies as a whole and then zooms into the specificities of Scotland, which has some devolved powers. The chapter describes the key context, that is, the energy and security regimes. It then continues with subsections, drawing on Chapter 4, namely the perceptions of Russia as a landscape pressure for energy transitions; policy coherence and interplay between energy and security regimes including the level of securitization; and, finally, positive and negative security related to niche development and regime (de)stabilization. The data used to inform the analysis comprises energy- and security-related government strategies published since 2006 and two rounds of interviews with energy and security experts, the first between November 2020 and April 2021, and the second in January 2023. The data analysis has been complemented by literature sources.

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8.1 Energy Regime

8.1.1 The United Kingdom

The UK energy regime has a long history, during which the sector has moved from nationalization to privatization. The post-World War II period experienced the nationalization of the energy sector until the 1970s. Prime Minister Thatcher's government began strongly privatizing the energy sector with the hope of taking advantage of low international energy prices and technological innovation (Bolton, 2021). However, the related closure of many coal mines led to mass labor unrest and national strikes in the mid-1980s. Privatization led to the liberalization of the energy sector in the 1990s – as in many other countries – where production and supply were unbundled and competition opened more fully. In 2000s, decarbonization of the energy sector also became a key part of energy policy.

A Labour Party government in 2008 created the Department for Energy and Climate Change (DECC), subsuming energy-related responsibilities from previous economic and environmental ministries. This was linked to the more ambitious climate policy of the government at the time, with the introduction of the Climate Change Act in 2008, and a White Paper on "Energy and Climate Change" in 2009. However, less than a decade later, in 2016, the Conservative government then in power emphasized energy innovation more than decarbonization of the energy sector, and created the new Department of Business, Energy, and Industrial Strategy (BEIS). This change stressed the revival of industrial (energy) policy (Johnstone et al., 2021) and was preceded by the removal of many energy transition policies supportive of renewable energy and energy efficiency (Kern et al., 2017).

The latest administrative change occurred in 2023 with the establishment of the Department of Energy Security and Net Zero (DESNZ), which reflected the changes in the energy landscape caused by the Russian war in Ukraine and the European energy crisis of 2022 (see Section 8.3). DESNZ is oriented, for instance, toward building energy efficiency. However, generally the lack of attention paid by UK governments to energy efficiency as something that improves energy security has often been criticized. The organizational change may also mean a repoliticization of previously depoliticized energy policy but this is not guaranteed. Indeed, the UK has a long history of a market-led energy policy paradigm, which has become deeply entrenched and may be difficult to overcome even in these changed circumstances (see Lockwood et al., 2022).

While generally, in the UK dialogue on climate and energy policy, the importance of the EU has been downplayed, academic research has pointed to the contrary. The EU acted as a significant supranational institution for UK climate policy and in particular influenced its renewable energy policies, which would have been less ambitious without EU influence, according to estimates (Lockwood, 2021). The

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same applies for the influence of the EU on building energy efficiency policies (Kern et al., 2017). Therefore, Brexit – the departure of the UK from the EU in 2020 – has substantially changed the energy policy setting in Scotland and the rest of the UK.

The energy regime in the UK can be described as being under centralized government power – with relatively frequent shifts in the composition of ministries – with the "Big Six" energy companies (British Gas, EDF Energy, E.ON, npower, Scottish Power, and SSE/OVO), or more recently the "Big Five" after E.ON acquired npower, having a great deal of influence. The ownership of wind energy has also been concentrated within the Big Six (Lockwood et al., 2022). With the advancement of decarbonized power supply, the number of suppliers has increased, resulting in around eight with over 5 percent of market share each and smaller suppliers with circa 8 percent of market share in total in the 2020s (Ofgem, 2023). Scottish Power and SSE are the two overall largest companies in Scotland (Wilson, 2022), showing the importance of energy for the Scottish economy.

The Office of Gas and Electricity Markets (Ofgem) is an important agency in the energy administration, operating under the supervision of the ministry in charge of energy. Its role is to regulate companies that operate gas and electricity networks, decide on price controls, and primarily to protect the interests of consumers, being an important actor in liberalized energy markets. While tasked also with overseeing the fulfilment of environmental considerations, Ofgem was mostly focused on prices and competition until the late 2000s (Pearson and Watson, 2012). It has been characterized as having a significant degree of regulatory independence, being a lead actor in some areas of energy policy, with this power somewhat slowing down its orientation toward decarbonization (Lockwood et al., 2017). The Energy White Paper from 2020, "Powering Our Net-Zero Future," stipulated that Ofgem also needs to have a role in advancing the zero-carbon transition: "Subject to Parliamentary approval, the Strategy and Policy Statement will require the Secretary of State and Ofgem to carry out their regulatory functions in a manner which is consistent with securing the government's policy outcomes, including delivering a net zero energy system while ensuring secure supplies at lowest cost for consumers" (HM Government, 2020, p. 86). With regard to the energy transition, Ofgem has earlier recognized as problems the limited role of consumers and lack of consumer-oriented business models (Johnstone and Kivimaa 2018). The experience with Ofgem shows that state-mandated organizations with a great deal of independence may in part slow down the energy transition, while such independence could alternatively be used to exceed the decarbonization goals of the state.

Two independent advisory groups operate under parliament with opportunities to critique and comment on government climate and energy policies: the Committee on Climate Change (CCC) and the National Infrastructure Commission (NIC). The CCC was established in 2009 based on the Climate Change Act. It sets

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carbon budgets that the UK government must meet and which the CCC evaluates annually. The CCC comprises the Climate Change Committee with a chief executive and six academic members, the Adaptation Committee with a chair and five academic members, and the secretariat. The CCC has been regarded as successful in safeguarding long-term policy continuity; its analytical orientation and political awareness has, however, depended on who holds the chairmanship (Fankhouser et al., 2018). The NIC includes two chairs, five commissioners, and the secretariat, with the task of providing impartial advice on infrastructure to the government.

The National Grid has been responsible for maintaining the electricity transmission and gas networks and for security of supply since its establishment in 1935. The company owns one of Britain's three onshore transmission networks and four electricity distribution networks, and the electricity system operator. However, the Energy Act of 2023 stimulated that the latter is replaced with a government-owned independent public corporation National Energy System Operator (NESO) and a Future System Operator, to become operational in summer 2024. The National Grid is a fully privately owned transmission system operator (TSO), unlike other European countries' TSOs, and one of the largest investor-owned utilities in the world with a significant share in foreign ownership (Yates, 2022). This means that, before the establishment of NESO in 2024, responsibility for supply security has been allocated to the profit-seeking private sector and that the owners of the National Grid may not have been so keen on the kind of transmission network investments that the zero-carbon transition requires. This highlights a feature of UK energy governance whereby power has been partially delegated to the energy industry (Lockwood et al., 2022), associated with the depoliticization of energy governance, that is, a lack of political scrutiny (Kuzemko, 2014). The move to a government-owned electricity system operator shifts this setting to similar direction as the other case countries. However, as in many countries, in the UK distribution network operators are often privately owned, and this has implications for network development.

8.1.2 Scotland

The Scottish government's climate and energy policy is more ambitious than the UK government's, but it does not have substantial policymaking power, with most resources at the UK government level (Lockwood, 2021). The principal way in which the Scottish government can influence energy production and use are the land-planning policy and energy efficiency measures. In essence, "key aspects of energy policy are 'executively devolved,' including control over major energy consent and planning, and operational control over aspects of market support" (Cowell et al., 2017, p. 173). Yet the fast growth of renewable energy in Scotland, an almost 2.5-fold increase between 2012 and 2022 (Scottish Government, 2022),

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has increased the political negotiation power of the Scottish government with Westminster (Cowell et al., 2017).

As a former BEIS civil servant pointed out:

> So, while energy policy broadly defined is a reserved power for the UK government, even across energy policy there's a huge amount of consultation and engagement that happens between the Whitehall and Scottish government and various parts of Scottish sub-national government et cetera. These things are never really done genuinely in isolation.

Key themes in Scottish energy policy have been the promotion of renewable energy, the energy efficiency of households, and opposition to new nuclear power stations since about 2010. Increasing attention has been paid to energy poverty and energy justice (Santos Ayllón and Jenkins, 2023). Energy security has received relatively little attention and has mostly been perceived, prior to 2022, via a "markets will deliver" approach, as in the rest of the UK, with no specific Scottish policy on this. An energy expert argued in 2021 that too little attention was paid to the development of energy storage and smart grids as potential facilitators of energy security, with overreliance on the National Grid to deliver.

Scotland has its own Climate Change Act, issued in 2019, and has a net-zero target to reach by 2045. Some interviewees argued that the Scottish Climate Change Act has high targets but has inspired little concrete action. In late 2022, the CCC strongly criticized the lack of concrete plans and insufficient policy progress toward the Scottish climate targets and revealed substantial off-track developments in many areas (CCC, 2022a). Unlike the UK government, the Scottish government has opposed both nuclear power and the fracking of shale gas.

A draft "Energy Strategy and Just Transition Plan" was issued by the Scottish government in early 2023. This plan aimed to more than double wind power production, with increased contributions from solar, hydro, and marine energy, and outlined the establishment of a new energy agency – Heat and Energy Efficiency Scotland – alongside emphasizing energy security much more than before (Scottish Government, 2023). Further, it noted that

> The Scottish Government is clear that unlimited extraction of fossil fuels is not consistent with our climate obligations. It is also clear that unlimited extraction, even if the North Sea was not a declining resource …, is not the right solution to the energy price crisis that people across Scotland are facing or to meeting our energy security needs. (Scottish Government, 2023, p. 97)

A small number of actors, including Scottish Power, dominate Scottish energy policymaking. An expert from a think tank argued in 2021 that the Scottish government is influenced by lobbyists representing large companies and it is headed by former industry representatives. This view was shared by an academic who also perceived that the Energy Saving Trust had a great deal of influence, although

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environmental nongovernmental organizations (NGOs) also played an important role in Scottish policymaking.

The dominance of economic and free market-based energy policy in the UK has been obvious. This originated at least as far back as the 1970s, with emphasis on economics, "rational choice," and free market, but there have been some periods that were more regulation-orientated, especially during 2006–2008 when the Climate Change Act was enacted (Kivimaa and Martiskainen, 2018). This contrasts with the somewhat more sociodemocratic approach of many Scots –which takes account of the natural environment and the welfare of the poor – even though some contrary views also exist.

> My experience is simply: the UK is hard-core free market in its approach to energy. The Scottish government has no ideological approach to energy and has been content to let industry lead. The outcome is that the political perspective is purely about "public communications" – presenting Scotland as a "green powerhouse" or a "world leader in renewables." There seems next to no interest politically in how that is actually developed. (Think tank, 2021)

Nevertheless, Scotland was one of the first countries to form a just transitions body. The Just Transition Commission, set up by the Scottish government, was influenced by a coalition on just transition formed by NGOs and the Scottish Trade Union Congress and established to monitor and counsel on government climate policy according to just transition principles (Santos Ayllón and Jenkins, 2023). An interviewee noted, however, that it had little political or business influence. Figure 8.2 summarizes the key aspects of UK and Scottish energy policy.

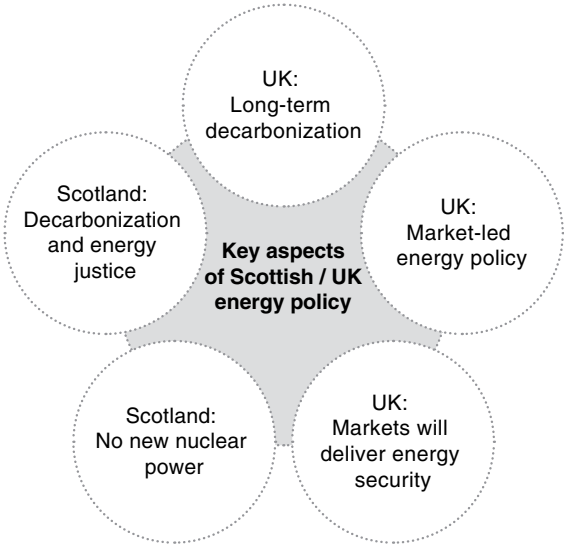


Figure 8.2 Key aspects of UK and Scottish energy policy.

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8.2 Security Regime

Britain is an island state so its defence and security policy are related to the control of waters and maintaining free movement of trade, but also to the centrality of the North Atlantic Treaty Organization (NATO) and close cooperation with the US and France (Dorfman, 2017). The US has been the global hegemon with whom the UK has closely built its security and defence regime (see Regilme and Hartmann, 2019). Perhaps linking to the UK's past global power and international security cooperation, the UK has military bases with a wide global reach. They are located in countries in different parts of the world, such as Canada, Belize, Kenya, and Iraq. The UK also wields soft power via extensive diplomatic efforts and relations globally, albeit with some loss of power after Brexit. These factors were apparent in expert interviews in terms of connections to climate and energy questions.

The first "National Security Strategy" was published in 2008 by the Cabinet Office. It was criticized for a lack of consultation with other departments and, hence, was revised as early as 2009, this time employing cross-government consultation (Dorfman, 2017). The strategy was followed by the establishment of the National Security Council and the post of National Security Adviser in 2010. Since then, each parliament has been expected to produce a parliamentary defence and security review, titled, since 2019, "Integrated Review of Security, Defence, Development, and Foreign Policy." The integrated reviews produced by UK governments have increasingly crosscut several policy domains. The 2023 integrated review stated that: "[t]he most pressing national security and foreign policy priority in the short-to-medium term is to address the threat posed by Russia to European security" and emphasized increases in defence spending (HM Government, 2023, p. 11). It also emphasized broader, nonmilitary security aspects, connecting, for example, to the new Critical Minerals Strategy and the new Semiconductor Strategy. This illustrates the increased importance to secure the supply and promote the science-and-technology development of these materials and components, not only for energy but also for other digitalizing sectors.

Defence policy has as its objective to protect people, to stop conflicts, and to be prepared for potential battles (Ministry of Defence, 2019). Historically, delivering access to oil and gas and securing international supply chains has also been one of the tasks of the UK military sector. In addition, during the current millennium, climate change mitigation has become a part of UK defence policy (Depledge, 2023). British defence policy has also been interested in the Arctic region and the High North, despite the UK not being one of the Arctic states. This concern intertwines with climate change, because defence officials have been concerned about

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Figure 8.3 Key aspects of UK security and defence policy.

the implications of climate change on Arctic resources and trade routes becoming more available in response to sea-ice melting (Depledge et al., 2019). Figure 8.3 summarizes the key aspects of the UK security and defence policy.

Central public actors in security, defence, and international relations include the Ministry of Defence (MoD), the British Army, and the Foreign, Development and Commonwealth Office (FCDO). Scotland does not have devolved powers related to security and defence. Therefore, it is dependent on UK government agencies, not only for military defence, but also for cybersecurity (Neal, 2017). The UK's defence spending was 2.2 percent of GDP in 2021 (HM Government, 2021), having had a declining trend until 2022. The state possesses over 200 nuclear weapons, of which 120 are active, with 40 positioned at a time in four nuclear-powered submarines (Dorfman, 2021). These are located in Faslane and Coulport naval bases in Scotland, although Scotland does not have any say regarding the location of the nuclear weapons. A recent decision was also made by the UK MoD to build twenty-six new military vessels for the Royal Navy in Glasgow.

It is obvious that the political ambitions and worldviews in Scotland differ from that of the broader UK regarding security, defence, and foreign policy:

> Well, I think it's relevant to energy because Scotland, there really isn't an interest in being a global power anymore. That's not a worldview that's held. There's no idea that, of Scotland's got to be in the UN Security Council with America and Russia. It's not an aim. And for Britain, it is a central aim. (Researcher, 2021)

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The reports produced in connection to the 2014 referendum for Scottish independence emphasized a different approach to defence than that in the broader UK (Neal, 2017). An independent Scotland led by the SNP would prefer to be a part of NATO while refusing to hold nuclear weapons or implement nuclear deterrence measures (Ritchie, 2016). However, there are also those who see that Scotland would suffer from independence and, for instance, lose the defence dividend paid by the rest of the UK to Scotland (Fleming, 2021). Therefore, it would be difficult to depict what the security and defence policy of Scotland would look like if it existed.

8.3 Perceptions of Russia as a Landscape Pressure at the Intersection of Energy and Security

The landscape pressures in energy and policy documents, at the energy–security nexus, were similar to those presented in other countries. For instance, during 2006–2010, globally increasing competition for energy, coupled with some states using energy as a "hostile policy tool," was regarded as a security concern. Increased supply disruption risks were anticipated due to social unrest and corruption, while nuclear safety was also a specific landscape concern for Scotland. Russia was perceived as a landscape pressure via the Russia–EU gas dispute, and as applying energy as a political lever. New landscape pressures during 2010–2015 included Arctic developments, nuclear proliferation, and crowding of sea space with transport and offshore energy infrastructure. In 2015–2020, policy documents noted the pressures of climate change, pandemics, cyberattacks, and nuclear and chemical weapons (Kivimaa and Sivonen, 2021). There was very little discussion of Russia per se as a landscape pressure in the policy documents, even after the high media attention of 2006.

Nevertheless, Russia has been one of the countries of "landscape" concern for UK security and defence policies, as with the other case countries in this book. Due to the absence of a joint border, however, the perceptions of Russian pressure have, in this energy–security nexus, perhaps been less substantial. The changes in Russian energy policy from 2004 onward and the Russia–Ukraine gas dispute in 2006 "marked a reversal from the politically and ideologically significant processes of privatisation and liberalisation that Russia had initiated after the Cold War … they represented the polar opposite of the free markets that UK policy makers, and other institutions, such as the International Energy Agency (IEA), had been so actively seeking to establish" (Kuzemko, 2014, p. 265).

Broadly, it seems that, prior to 2022, the influence of the "Russia risk" has been minimal on the UK and Scottish energy regimes. It was barely mentioned by the interviewed energy experts, compared to interviews concerning the other case countries. Some even expressed very relaxed attitudes to any concerns:

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Russia has an economy that shouldn't bother us in the slightest – it is small and vulnerable. It has (as best as I can tell) little capacity to mess around with energy exports based on its economic interests alone. (Think tank, 2021)

I think the EU needs to get over its paranoia about Russia. I find this discussion of Nord Stream 2 … just, the amount of energy and effort wasted on it is unbelievable. I think at the end of the day, what you need is a functioning global gas market. (Researcher, 2021)

However, in hindsight, the latter person remarked two years later:

I think there was a degree of complacency because we only got 4 percent of our gas from Russia, and I think very quickly it became clear that we were exposed to Europe's dependency, and because of our reliance on gas being much greater than just about any EU country, with the possible exception of the Netherlands, we've been particularly hard hit by the high gas price. (Researcher, 2023)

There were select interviewees, however, principally those from the defence and foreign policy sectors, who have always considered the Russian state to be an energy security risk in political decision-making processes. This aspect has been used to legitimize nuclear power by the UK government and renewable energy by the UK and Scottish governments. While, initially, the Scottish decision-makers may have been more concerned than UK decision-makers, their perception became a consensus in 2022:

I think politically in Scotland, the SNP as a whole tends to be slightly more worried about Putin's Russia and the type of influence it exercises in the world. (Politician, 2021)

For some people the indirect links between Russian and UK energy systems were visible, while, for most, the links only became visible via the energy crisis ensuing from the war:

We see Russia, not necessarily a wholly positive player, our relationship with Russia is difficult at the moment. They will use their economic power, their influence, for their own benefit. We need to counteract that, and make sure our own supplies, as we have done, are diversified, but we are also conscious of the possibilities that, say, a move into Ukraine will have for global security. (Civil servant, 2021)

What this tells us is that, first, geopolitical concerns over Russia have not been particularly important for the Scottish or wider UK energy policy, as the country is geographically remote. Nevertheless, the energy transition has received some legitimacy from the indirect dependency of the UK on Russian energy flows. More broadly, however, it also shows the high level of market orientation of UK energy policy, which has been more about economic developments than about different dimensions of security. The events of 2022, however, showed that developments concerning Russia also influence the energy sector substantially, in this case in terms of significant energy price increases.

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8.4 Policy Coherence and Interplay

8.4.1 Interaction between Energy and Security Issues

The relatively small importance of Russia, or geopolitics more generally, for Scottish and UK energy policy is likely to also have moderated the attention that UK energy policy and the energy administration have paid to horizontal coherence between energy policy and security and defence policies and to integrating security aspects into energy policy. Some argue that the discussion on security in the context of UK energy policy has been tightly limited to "energy security" and, even then, mostly on the kind of security that markets can deliver. Even the new "Energy Security Strategy," which was issued in 2022, had few concrete actions to create a more secure low-carbon energy system for the UK and still too little attention paid to energy demand reduction and energy efficiency. In the Westminster Research Forum on Energy Security, organized in October 2022, the chair remarked: "It is very clear we need new nuclear power."

There are, however, deeply rooted interconnections between the energy and security regimes in the UK. The production and expansion of oil benefited twentieth-century war efforts (Johnstone and McLeish, 2022). Further, oil has been connected to UK military efforts in contributing to maintaining stability in the Persian Gulf:

> Presence in the Middle East was one of our military tasks we had to perform what we were directed by the government to do in order to ensure free flow of trade and other issues related to UK diplomacy and interaction … It was principally one that fell to the maritime environment and if you're in the ship you're going to find yourself operating there as much as you going to find yourself operating in the Caribbean or Far East. (Former navy official, 2021)

> Consequence is that we then have British warships and NATO ships in that region on anti-piracy missions, so there's a national security impact there and that also then brings increased instability to the supply lines. (Civil servant, 2021)

These energy–security connections relate more to energy in the external context rather than within the UK.

An analysis of policy strategy documents conducted in 2020 showed that, with regard to objectives, during 2006–2015 there was a rather high level of integration between energy and security policies, which was visible, for instance, through remarks related to energy efficiency, low-carbon technologies, security enhancements at critical energy sites, and Royal Navy ships protecting oil platforms (Kivimaa and Sivonen, 2021). However, from 2016, the policy documents paid much less attention to this integration, coinciding with the change of government in 2015 that also resulted in removing many policy instruments supporting low-carbon technologies and building energy efficiency. This means that energy

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policy was mostly made on economic- and market-based premises with declining interest in both decarbonization and security.

Regarding the latter, the UK energy sector has been governed with the idea that free markets, that is, balancing supply and demand, will deliver energy security. This is a result of a long-term depoliticization of energy policy and the placing of energy policy in technocratic contexts: "Arguably, the placing of elected representatives at a remove from active deliberation also resulted in lack of political capacity to engage with and understand energy and its relationship to wider societal goals, such as security" (Kuzemko, 2014, p. 262). There has also been a contrast between a coherent fossil fuel and security approach to safeguard international fossil fuel routes and the advancement of climate security via the energy transition. For instance, policy documents from the period 2011–2015 framed declining domestic fossil fuels production as a security risk, which conflicts with low-carbon energy policy (Kivimaa and Sivonen, 2021). This insight was confirmed in the expert interviews conducted in 2021 and again in 2023.

In energy policy, energy security was emphasized, particularly during the first decade of the 2000s, following the UK's increasing dependence on imported gas, while it was little discussed around 2020. Moreover, energy security has been understood as physical security and self-sufficiency in fuels. This thinking applies also to renewable energy in a sense. The reduced attention of energy policy strategies toward security of supply had practical implications, such as the closing down of Centrica's Rough gas storage site in 2018, only for it to be reopened after the 2022 events.

International electricity interconnections and the development of demand-side response and energy storage have been regarded as important means of energy security in a low-carbon energy system. Yet, the 2022 CCC progress report, which mentioned security over 100 times, criticized the government's energy security strategy for not employing demand-side measures that would benefit energy security. It also provided a specific policy recommendation related to improved coherence:

> The Government's 2030 Strategic Framework should set out how the international climate and environment capability built up during the UK's COP26 Presidency will be resourced, maintained and further developed to enable delivery of international climate goals. Particular focus should be given to plans for coordination and consistency across departments and the embedding of dedicated climate experts in areas such as trade, security and foreign policy. (CCC, 2022, p. 40)

In addition, it warned about the risk of lock-in to new fossil fuel infrastructure, such as export and import terminals for liquefied natural gas. Such a risk is a real possibility given the low advancement of energy efficiency and heating infrastructure changes in the UK, combined with poor-quality building stock and increasing energy poverty. Hence, the dependence on natural gas is still high.

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A related issue, which had already received some attention in 2021 and has since become much more prevalent, is the supply of critical materials – minerals and metals required for low-carbon energy system technologies and infrastructure as well as other digital devices. In addition, the supply of renewable energy technologies and components is a security concern. European countries have acknowledged the substantial role of China in the global trade-and-supply chains of critical materials and renewable energy technologies, and have been developing strategies to respond to this. In late 2022, the UK announced significant funding for battery research and innovation (BEIS, 2022), and the construction of its first lithium refinery plant with the hope that this strengthens the supply chains for electric vehicles (Lawson, 2022).

The UK "Critical Minerals Strategy" was published in 2022, with some updates provided in 2023. While it had been prepared earlier, key roundtables were conducted after Russia initiated the war in Ukraine. The strategy regarded critical minerals as important for energy security and military systems and noted the risks of growing demand for such materials and geopolitical uncertainties (BEIS, 2023). The key investments linked to the energy transition included the Automotive Transformation Fund (£850 million); the Energy Transformation Fund (£315 million), Energy Intensive Industries schemes, and the UK Infrastructure Bank. This is associated with some cross-coordination efforts, for instance, by the Cabinet Office having a convening role via its critical minerals' portfolio and the Natural Resources Security group operating across different ministries.

Due to not having devolved powers in security policy, it is not surprising that Scottish energy policy has paid little regard to geopolitics. For instance, the "flagship" innovation related to Scottish climate and energy policy, the Just Transition Commission, has not addressed security:

> Honestly, I have not heard word security mentioned once in any of the discussions that I have actually heard through the Just Transition Commission. Or indeed any other Scottish policy issues that I've engaged with. (Academic, 2020)

Given its devolved powers on land-use planning policy, the Scottish government has been able to consider safety and security in connection to nuclear power. From that perspective, also considering selected security aspects around the just transition could have been possible before the events of 2022.

8.4.2 Elements of Coordination between Energy and Security

On a more concrete level, there has been some movement toward advancing policy integration and coherence in Westminster. According to several interviewees, this

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was mostly visible in how security, defence, and foreign policies have integrated energy transition pursuits. The examples include climate change as a strategic agenda for foreign policy, stopping the funding of fossil fuel projects overseas, and regular high-level energy discussions in the defence administration.

This perspective is supported in the recent policy documents. For example, the 2021 "Integrated Review" mentioned measures related to energy, such as the diplomatic climate and energy network, and the need for energy transition to mitigate climate change (HM Government, 2021). Energy transition was mentioned in connection to energy security but the means to achieve this were not specified. The 2023 revised "Integrated Review" emphasized that "the transition to clean energy and net zero … is a geostrategic issue" (HM Government, 2023, p. 10). However, a real case in point, bringing the energy transition and security together, was the establishment of the new Department for Energy Security and Net Zero in early 2023, with plans to draft an "Energy Security Plan" and a "Net Zero Growth Plan."

The MoD has a climate security division. Already in 2015, the "Sustainable MOD Strategy" aimed to improve energy efficiency and reduce dependence on fossil fuels (MoD, 2015). In 2021, the MoD's "Climate Change and Sustainability Strategic Approach" recognized how climate change impacts create instability and connect to energy geopolitics:

> We are already at the forefront of the new and growing green military agenda, trialing new types of vehicles, fuels standards, energy storage and much more. Done right, this will improve how we meet the defence and security challenges of the future. (MoD, 2021, p. 7)

The actions reported include helping at environmental disaster sites, using alternative fuel sources for aircrafts, and improving biodiversity in defence estates. Yet some have also expressed concern that, for instance, climate issues have been on the shoulders of individual civil servants, with limited institutional memory of the activities carried out.

Two thirds of the experts interviewed brought up issues around departmental interaction, that is, coordinating energy and security between different government ministries. Many interviewed experts observed a lack of interaction between the departments working on energy and security, defence, or foreign affairs. One of the reasons for this was believed to be the dominance of a market-oriented approach to security:

> The UK does have a strong belief that the market delivers security. So, they do look at these things, but I think it's not, yeah, it's deemed as market issues and wider security issues, then energy security in terms of us having to have access to energy markets. I think within the FCDO climate change is a big issue and remains that. (Researcher, 2021)

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However, over time, improved policy coherence was observed:

> We still operate in silos, the difference is that tops have been lopped off so we can see the different silos and we can engage with one another, so we've got much better at it. It's still not perfect. It's not seamless by any stretch of the imagination but there are lots now of, what we refer to as cross-Whitehall … cooperation between ministries. (Civil servant, 2021)

On an organizational level, a team has been placed between the ministry in charge of energy and the Foreign Office to deal with questions of international energy security. In addition, collaboration between climate and foreign affairs was perceived by some as quite strong. Yet it appears that formalized structures are still missing and, indeed, that there is organically arising collaboration. The perspective of one civil servant was that certain government divisions work on security of infrastructures and others on energy transitions, with their interconnections limited to selected meetings. Others mentioned both regular and ad hoc meetings.

The National Security Council and the Climate Adaptation and Implementation Committee were seen as formalized groups advancing coherence, and the Nuclear Skills Strategy Group as an example of more specific collaboration.

> One department thought it would be a good idea to phase out fossil fuel funding overseas, that then brought in other departments all who had a view, and this came together under a committee called the Climate Adaptation and Implementation Committee, which was a gathering of, I think six or seven different ministers, chaired by the Secretary of State for Business and Energy; [the] Foreign Secretary was represented on it, the Chancellor was represented on it, so it was a fairly big, high-powered committee. (Civil servant, 2021)

> There's the Nuclear Skills Strategy Group which includes someone from the MOD, someone from BEIS, someone from Rolls-Royce, but it's kind of an arm's length, so they've done this very clever thing and I think the reason they've done it is to protect from freedom of information requests, it's an arm's-length organization where every month these people get around the table and have discussions. (Researcher, 2021)

Following the events of 2022, energy, and especially energy security, have moved much higher up the political agenda. There has been consensus about cutting ties to Russian energy sources and the new "Energy Security Strategy" was published in April 2022. Despite these developments, the interviewees did not detect signs of securitizing energy policy in the UK. Generally, many remarked that the rapid changes in prime ministers slowed down policy processes.

The 2023 draft "Energy Strategy of Scotland" paid much more attention to security than previous Scottish energy policies. It emphasized developing the country's own resources, energy storage, and collaboration around the North Sea. The means outlined were, for instance, UK government-led market mechanisms and the Fuel Insecurity Fund to help struggling households. In Scotland, the highlighted security dimensions pertaining to energy and the energy transition have mainly been

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the socioeconomic security of its residents and nuclear safety. It seems that options to improve energy security – if not broader security – via the energy transition exist, but it is unclear if sufficient actions have been taken by the Scottish government to advance this development.

8.5 Niche Development, Regime Destabilization, and Positive and Negative Security

There is no niche development that substantially comes up in the security context in Scotland. As outlined, onshore wind power has become an established and significant part of the Scottish energy system. (In England and Wales, it has been "de facto" banned since 2015 due to unfavorable planning conditions.) The destabilization of the fossil energy regime is also rarely discussed in the context of positive and negative security. It has been seen to proceed as planned without major hiccups – albeit with significant implications on employment in Scotland and the need to reskill the workforce.

The offshore wind sector could perhaps be seen as a developing niche given its share is much less than that of onshore wind. Offshore wind began gaining increased support when BEIS launched the new industrial strategy at the end of 2017. A perspective arising from the expert interviews in 2020–2021 is that, with regard to the large offshore wind farms constructed on the east coast of Scotland, controversy has been raised over the substantial amount of prefabrication work conducted, for instance, in China, which has enabled lowered costs and increased scaling of renewable energy – but has increased supply dependencies on non-European actors. One reason for this supply chain dependence on Asia is due to the UK Contracts for Difference model, which looks at development costs and not the overall economic impacts of developments.[1] This, in essence, is a somewhat of a security-of-supply risk, but elsewhere it has been noted that, broadly, the development of Scottish offshore wind power benefits UK energy security (Qu et al., 2021). The energy security argument has provided needed legitimacy for the expansion of the offshore wind sector (MacKinnon et al., 2022).

Linked to the established energy regime, an ongoing concern for Scotland has been nuclear power. The Scottish government has taken a no new nuclear power policy stance, led by the SNP, from around 2006. This differs substantially from the rest of the UK's favorable view of nuclear power. In policy strategy documents from 2006 to 2010, the Scottish government saw its no nuclear policy as "a principled priority where the risk of radiation or terrorist attacks is seen larger than

[1] The Contracts for Difference scheme began in 2014, is operated by the National Grid, and means that low-carbon electricity generators are awarded contracts that guarantee them a "strike price" (Munro, 2018).

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energy gains" (Kivimaa and Sivonen, 2021). The general perception in Scotland has been that nuclear power stations and nuclear waste transport and disposal create security risks for society. However, the opposition of nuclear power generation is also linked to the military and its weapons, in essence to the positioning of the UK nuclear deterrent submarines in Scottish waters. Previous research has argued that UK energy policy has adopted a masking strategy that has incorporated nuclear submarine construction costs into civil nuclear programs, which thereby act as a hidden subsidy for military nuclear activities (Johnstone et al., 2017). One interviewed expert stated that, even in the 1950s, the first large-scale commercial civil nuclear power plant's role was to produce plutonium for the nuclear weapons program. The Scottish government, the SNP, and civil society organizations oppose nuclear weapons, new construction of civil nuclear power, and nuclear research alike, yet these capabilities contribute substantially to the economy of some Scottish regions (Heffron and Nuttall, 2017; Ritchie, 2016).

> There are about 65,000 people employed in nuclear in the UK, 30,000 of those are on the defence side. That is the biggest single share of any subsector … The need for nuclear specialists is on the military side. You need to build submarines, that is, you need to build reactors, you need to build warheads, you have to do all these kinds of huge number of activities and, it's incredibly expensive. (Researcher, 2021)

Besides this link between civil nuclear power and nuclear weapons, new security risks related to nuclear infrastructure are emerging due to climate change. The UK civil nuclear infrastructure is argued to be

> profoundly unprepared for climate impact and there is a very high probability that reactors and their associated high-level spent fuel stores will become unfit for purpose. Due to ramping climate induced sea-level rise, storm, storm surge, severe precipitation and raised river-flow, UK nuclear installations are set to flood – and much sooner than either the nuclear industry or regulators suggest. This is because risks to nuclear installations from sea-level rise driven extreme climate events will not be linear, as thresholds at which present natural and built environment coastal and inland flood defence barriers are exceeded. (Dorfman, 2021)

This perspective supports the cautious Scottish approach toward nuclear power.

What is interesting is that the exceptional events of 2022 did not change the Scottish government's opposition to nuclear power and perhaps even strengthened its no new nuclear policy, while the rest of the UK is even more strongly in favor of nuclear power. The former happened as a response to seeing the vulnerability of nuclear power infrastructure as a potential target of war. This differs quite dramatically from the perceptions of nuclear power in Finland, seen as a partial solution to reduce security risks related to energy imports (see Chapter 6). One potential explanation may be the substantial Scottish lead on the production of onshore wind

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power, while another links to the broader UK energy system that is able to balance nonwindy periods. Nevertheless, Scotland has much higher electricity prices than our other case countries and problems with socioeconomic security linked to energy poverty.

Fossil fuel phaseout in Scotland is coupled with renewables expansion. North Sea gas production is expected to be completely phased out by 2050. No serious national security risks are seen to relate to this development, while this could give rise to skills and employment-related risks:

> I think our biggest risk, for our Scottish industry is, how quick the industry, particularly the oil and gas industry, can retool itself to service the renewable market. So, for example, Aberdeen is a centre of excellence on subsea operations, and particularly things like capping of mines and stuff, capping of wells, and pipes, undersea. How can we convert that expertise into things for, say offshore wind platforms or, subsea mining if we end up going down the subsea mining route for critical minerals, so I think the biggest risk is that the industry isn't able to evolve and retrain workers quickly enough. (Civil servant, 2021)

Finally, relatively little has been done in terms of gas security since 2022, apart from reinstating the gas storage facility.

8.6 Concluding Remarks

The links between hydrocarbon energy, the energy transition, and security are rather complex and manifold in Scotland and the wider UK, with relatively fragmented governance in place. While some instances of policy integration between energy and security or defence policies were found, broader policy coherence regarding security and the zero-carbon energy transition appeared lacking (Figure 8.4). This links to the somewhat conflicting intertwining logics of energy and security regimes, which simultaneously support the old energy system while also aiming to change it. In addition, before 2022, many of the efforts that relate to coordination across energy and security regimes were focused on external or global energy questions – such as safeguarding fossil fuel trade routes or advancing energy diplomacy via renewables – instead of domestic energy policy. The events of 2022 seem to have raised questions of security and energy transition links in political and policy agendas pertaining to domestic energy production and use. Figure 8.4 summarizes the key aspects of the energy–security nexus in Scotland and the wider UK and their effects on the energy transition.

Attention paid to broader security questions in energy policy was low, especially between 2016 and 2021, or was sometimes masked from the wider public, as in the case of civic and military nuclear power. Generally, the large influence of the private sector on energy policy and the dominance of economic and market-based values – essentially an active and deeply ingrained depoliticization of energy – have

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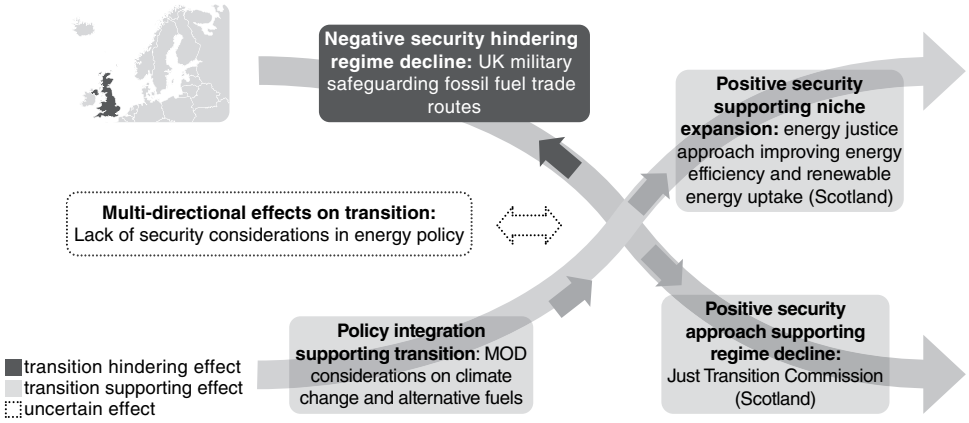


Figure 8.4 Key energy security aspects and their transition impacts in Scotland and the wider UK, 2006–2023.
Source: Kivimaa, Finnish Environment Institute, 2023.

led to relatively little attention being paid to the connection between security and energy transitions prior to 2022. Some argue that insufficient attention was paid to the expansion of new niches, such as energy storage and smart grids, as means to improve energy security, and that there has been an overreliance on the privately owned National Grid in energy security. However, there is rising interest in these issues, in particular critical materials security.

At the level of objectives, in key policy documents some interconnections were made between energy and security in the early 2000s. These reduced in emphasis after the Conservative government came in power in 2015, alongside dilution of earlier ambitious low-carbon energy policies. In addition, a divergence has existed between a hydrocarbon-based security approach to safeguard international fossil fuel routes (which has been rather coherent) and the advancement of climate security via the energy transition. The former represents a kind of negative security-based thinking where physical attacks to fossil fuel flows were prevented (see Hoogensen Gjørv, 2012; Hoogensen Gjørv and Bilgic, 2022), while the latter could benefit broader positive security thinking based on enabling communities via the energy transition to be prepared for climate change impacts. The latter could also connect better to the Scottish just transitions agenda. The economic focus of energy policy has had a negative influence on cross-departmental coordination of energy and broader security issues. Such collaboration is seen to be increasing but, at least before 2022, it has tended to be more organic and ad hoc than formalized.

Geopolitical concerns over Russia were not particularly important for Scottish or wider UK energy policy pre-2022, as the island is geographically remote from

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Russia. Even some of the energy experts understood the indirect interconnections only after the 2022 events. Yet the energy transition, and especially wind power niche expansion, was partly legitimized based on the need to reduce the indirect dependency of the UK on Russian energy flows. Nevertheless, prior to 2022, the discussion on security in UK energy policy was mostly limited to the kind of energy security that markets can deliver or "real-time" security-of-energy supply. While the political rhetoric of energy security became more visible after the 2022 events, little concrete changes in policy instruments were evident in early 2023. However, critical materials availability – linking to growing expectations of geopolitical risks and the need for new learning around the energy transition – is a new issue that brings energy transition and security closer together than before. In the UK, this has mainly been tackled by investments in innovation and domestic lithium production – that is, new niche development.

Scotland has had a different worldview on security in relation to energy transition than the broader UK. While in-depth explorations of these links have been lacking, more attention has been paid to the environmental and health security effects of energy policy choices and just transitions – the latter linking broadly to the conceptualization of positive security. These have been evident, for instance, in the rather long opposition of nuclear power, opposition to fracking, and more consideration of energy poverty and the just transition than in the rest of the UK.

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