6

Finland

Ambivalent Links between Energy and Security

Finland is a small Northern European country in population terms, with only 5.5 million residents. Yet it covers a rather large geographical area – 338,440 square kilometers. The country is situated between Russia in the east, Sweden in the west, and Norway in the north. Estonia is only around 50 kilometers away, across the Gulf of Finland. In the past, Finland has been both a part of Sweden and of Russia, with independence gained in 1917. Both historical connections have partly influenced energy policymaking in Finland, and the country has had active energy trade across eastern and western borders, with the former halted after Russia attacked Ukraine in 2022.

Since World War II, Finland has gradually transformed from an agricultural society to a technological one, where the development of the forest and telecommunications industries was particularly significant. The forest industry has had a profound influence on both the demand for energy and the use of forests. Early on, the industry became an energy producer because postwar industrialization raised energy consumption. Hence, forest industry companies invested in electricity production from hydropower and established their own energy company, Pohjolan Voima (PVO), in 1943. In the 1970s, PVO expanded with condensation and nuclear power plant investments. Innovation in pulp and paper production processes enabled forest industry companies to produce bioenergy via their byproducts from the 1980s and 1990s onward, improving the energy economy of the forest industry. After recession in the early 1990s, the telecommunications industry acted as a spearhead for innovation policy. This industry experienced somewhat of a decline after Microsoft purchased global telecoms leader Nokia in 2014 and, later, ended most of its operations in Finland.

Finland is a rather interesting case to study energy–security relations for multiple reasons. First, its domestically available fuels are limited. Besides wood fuels, Finland uses peat in energy production. Peat provided 7 percent of total energy consumption in its peak year in 2007 but, in 2021, was reduced to 2.7 percent of

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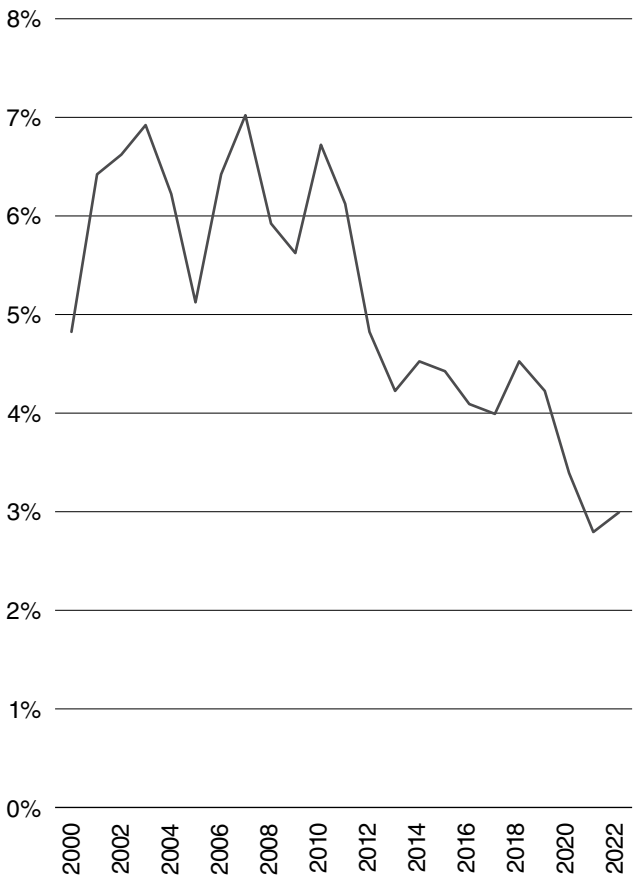


Figure 6.1 Percentage shares of peat in Finland's total energy consumption, 2000–2022.
Source: Statistics Finland (2023).

total energy consumption (Statistics Finland, 2023), with a policy goal to halve the use of peat from the 2020 level by 2030 (Figure 6.1). During the 1993–2012 period, peat provided a minimum of 5 percent of Finland's energy consumption. A strong peat lobby has existed since the 2000s, utilizing security as an argument when favorable. One campaign occurred after the 2006 gas disruptions between Russia and Ukraine, resonating with fears and concerns about energy availability and price (Lempinen, 2019). Following the events of 2022, policies for the peat phaseout were temporarily relaxed and an emergency stockpile of peat created. This case is explored further later in this chapter.

Second, Finland is a neighboring country to Russia, with a 1,340-kilometer shared border, which has meant defence preparedness since Finland's independence in 1917. However, the country also experienced a culture of "Finlandization"

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after World War II, described as the "adaptive acquiescence to the will of the Kremlin during the Cold War" (Arter, 2000, p. 688). This was followed by the search for positive business relations with Russia and with the avoidance of negative remarks toward Russia in energy policy, and more generally in public discussion. Even after the EU imposed sanctions on Russia after the annexation of Crimea in 2014, Finland kept shoring up its relations to Russian energy value chains and maintained the framing of Russian energy (merely) as an economic topic (Höysniemi, 2022). At the same time, Finland has maintained strong territorial defences in the post-Cold War era due to its historical experiences with Russia (Pesu and Iso-Markku, 2020).

Third, in 2019, the coalition government led by the Social Democrats set an ambitious climate policy goal of a carbon-neutral society by 2035, while the previous government had decided to ban the use of coal in energy generation by 2029. These moves have been supported by the already declining trend of the share of fossil fuels in Finland's energy production from about 2010 and an acceleration of new renewable energy sources, especially wind power, from about 2014. During the initial study period 2006–2021, prior to the European energy crisis, the share of oil decreased from 25 percent to 19 percent, coal from 14 percent to 6 percent, and natural gas from 11 percent to 5 percent (Statistics Finland, 2023). While the overall share of natural gas was low in 2022, this was still problematic for Finland because all the natural gas had been imported from Russia. Finland managed to secure a liquefied natural gas (LNG) vessel to compensate for some gas supplies. This is the setting in which the analysis of security and energy transitions takes place.

This chapter presents the country case study of Finland. It first describes Finland's energy and security regimes. It then continues with the analytical sections, drawing on Chapter 4: namely, the perceptions of Russia as a landscape 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 project this book is based on studied Finland's energy and security-related government strategies published since 2006 and conducted two rounds of interviews with energy and security experts, the first between September 2020 and April 2021, and then the second between December 2022 and January 2023. This chapter draws on these materials and on related literature and selected policy reports.

6.1 Energy Regime

The energy sources of the Finnish energy regime are based on a mix: (relatively limited) domestic fuels (wood-based fuels and peat) and imports of coal, oil, and natural gas (which have been significant since World War II). Therefore, wood has

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been an important energy source directly and via forest industry byproducts. The decarbonization of the electricity sector has already reduced dependence on these energy forms but transport – and to a lesser degree heating – still rely on imported oil and natural gas. Overall, the energy profile has been variable with no single source dominating.

Finland has a relatively fixed amount of hydropower as an important balancing capacity, with its further construction restricted since the 1980s for nature protection reasons and because the largest rivers were already utilized for hydropower in the 1960s. While, in the 1950s, over 90 percent of Finland's electricity was produced by hydropower (Kivimaa, 2008), hydroelectric plants began to face opposition from local communities due to disrupted fishing and farming activities, leading to increased support for nuclear power in the 1960s and 1970s (Myllyntaus, 1991). Finland, therefore, heavily relies on hydropower-based electricity imports from Sweden and Norway.

Nuclear power has been part of the mix since the late 1970s, spurred by the worldwide oil crises of that time. In the 1970s and 1980s, four nuclear reactors were constructed. Half a century later, in 2022, the fifth nuclear reactor, Olkiluoto 3, began operating, but suffered from technical difficulties, limiting production, so only began full operation in 2023, about fifteen years behind the initial schedule. Attitudes to nuclear power have varied over time. The pronuclear group has aimed to depoliticize nuclear power with argumentation about technical safety, while the antinuclear camp has aimed to make the issue more political (Ylönen et al., 2017), raising nontechnical questions related to nuclear power.

Biofuels were important in the early 2000s, especially in the form of black liquor, a byproduct of the forest industry, and later also via the direct use of wood for energy. Besides this, various forms of biofuels and technologies have characterized the development of bioenergy (Kivimaa, 2008), alongside a battle for the use of wood for different purposes. Bioenergy was initially perceived as "the fossil-free source" for Finland, but it became more contentious when wood energy's real impacts on greenhouse gas emissions and on carbon sinks became more widely considered in the EU. Increasing concern has been placed on the reducing carbon sink of the forests when the use of wood has increased.

The year 2013 was described as the time when the wind power niche began taking off in Finland (Haukkala, 2018). Wind power has developed rapidly since 2014, contributing almost 12,000 gigawatt hours and 14 percent of electricity consumption in 2022 (Finland's Wind Power Association, 2023). The capacity in 2022 was circa 5,677 megawatts (MW), with further 44,000 MW land-based and 10,000 MW offshore wind power structures planned (Finland's Wind Power Association, 2022).

Another dominant feature of the Finnish energy regime is the district heating system initiated in the 1950s that covers about a half of Finland's residential and

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service buildings, and is closer to 90 percent in cities (Schönach, 2021). However, this is partly being replaced by an expansion of ground-source and air-source heat pumps as more sustainable heating sources than hydrocarbon and biomass-powered district heating. The expansion is taking place especially in detached housing stock, while for larger buildings district heating still dominates. The district heating system is seen as an important means of energy storage, especially considering the shifts currently taking place toward the advancement of electrification.

Fortum, a partially government-owned company, is the largest provider of heat and power. It had heavily expanded into Russia prior to 2022 and it owned part of the German Uniper corporation before Uniper's economic difficulties in the same year and until the German government bought Fortum's share of Uniper. The second-largest energy company is Helsinki Energy, operating in the capital region and owned by the city of Helsinki. The manufacturing industry-owned PVO and the Swedish energy company Vattenfall are the third- and fourth-largest energy sellers.

The governance of the Finnish energy regime has been perceived as rather consensus-seeking and stable, with a small number of the (largely nonparty political) energy elite in power (Kainiemi et al., 2020; Ruostetsaari, 2010). There are close connections between certain economic interest groups and public authorities, where these groups can influence policymaking, for instance, regarding energy and the natural environment (from here onward "the environment") (Vesa et al., 2020). Interestingly, citizens have high trust in experts as decision-makers and are less keen for politicians to be in charge (Ruostetsaari, 2017). This has made it easier to depoliticize energy-related issues. The energy elite that consists of influential actors has, in turn, given more weight to economic competitiveness than climate change, the environment, or security (Ruostetsaari, 2017; Vesa et al., 2020). Nonetheless, in 2009, strategic policymaking assumed that fossil fuels will remain the most important energy sources in the coming decades (PMO, 2009), while, in the same year, the Energy Industries Federation published a vision for carbon-neutral energy. Many incumbent energy actors neither pursued the energy transition actively nor perceived Russia as a security threat (Höysniemi, 2022; Kainiemi et al., 2020). Therefore, the events of 2022 functioned as a major "landscape shock" to the established energy governance system, requiring a new kind of perspective that also accounted for geopolitical security.

As a result of the established energy governance system in Finland, Russia maintained its position as a major energy exporter to the country until 2022. During the 2006–2011 period, 12–14 percent of electricity was imported from Russia, but experienced a major decline in 2012, when capacity payments introduced in Russia made export less profitable. Nevertheless, the share of electricity imports experienced a gradual increase subsequently, apart from 2020, when electricity was very inexpensive in the Nordic countries (see Figure 6.2). For other energy sources,

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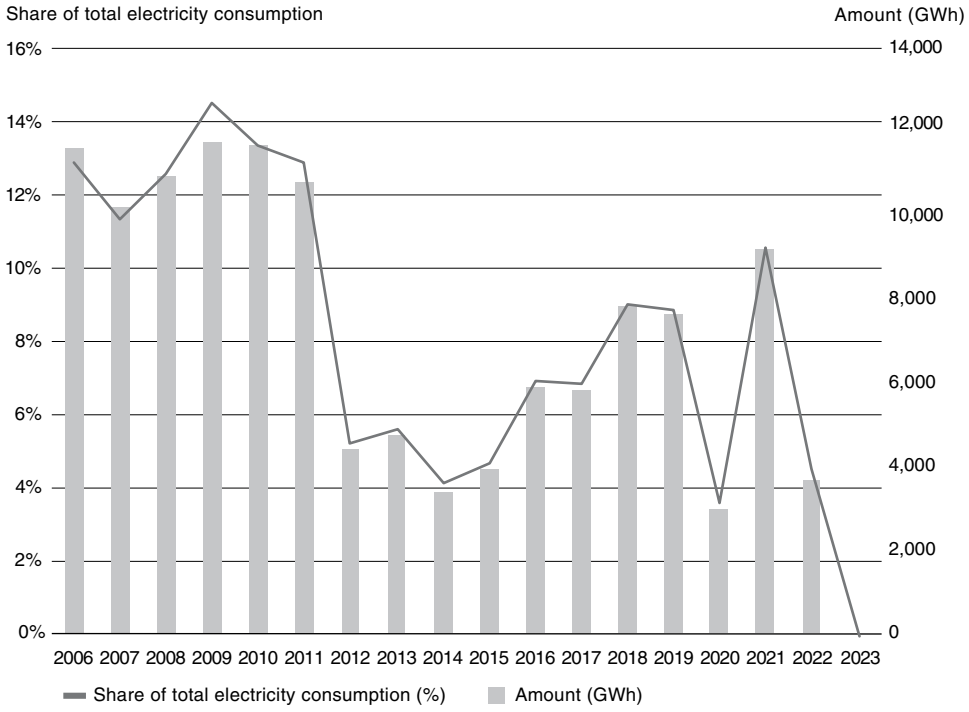


Figure 6.2 The amount of electricity import from Russia to Finland and its share of total electricity consumption, 2006–2023.
Source: Statistics Finland (2023).

the import dependence has been higher – in total 34 percent in 2021 – the largest imported source being oil, followed by nuclear power, natural gas, wood fuels, and coal (Statistics Finland, 2022). A gas pipeline was built from Russia to Finland in the 1970s and 100 percent of natural gas used in Finland came from Russia before 2022. In addition, the oil refinery of Neste Oil specialized in refining Russian oil. Replacing the imports following 2022 was possible, but the prices of energy commodities rose very sharply (Oesch, 2022), experiencing up to tenfold increases in consumer prices.

Energy governance is diffused between different ministries. The Ministry of Economic Affairs and Employment (MEE) has an energy department that coordinates Finnish climate and energy policy and is responsible for energy production and fuel-related issues – the latter together with the ministries of transport and communications (MTC) and of agriculture and forestry (MAF). The Ministry of the Environment oversees building energy efficiency and use, and international climate change negotiations, while the MTC is in charge of transport energy efficiency and use. This can be described as a fragmented energy governance setting.

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The National Emergency Supply Authority (NESA) is an essential actor for energy security and other sectors' security of supply, its budget being based on security of supply payments from companies. Its tasks include the coordination of preparedness cooperation between public and private sectors, overseeing arrangements related to national emergency stockpiles, ensuring the functionality of essential technical systems, safeguarding critical goods and service production, and monitoring international developments (NESA, 2023).

NESA reports that the Energy Sector Pools, consisting of public and private actors who prepare for emergencies and exceptional circumstances, have recently been reorganized to match with the changes created by the energy transition. For example, the new Heating Pool is building preparedness skills for nonfossil-based heating and the role of the Power Pool is growing as electricity is increasingly used to replace other energy forms (NESA, 2022). The pools are one example of the collaborative public–private governance culture adopted in Finland for many issues. Another example of this culture is the cooperation between public and private actors from different sectors in drafting fossil-free roadmaps during 2021 and again in 2024.

Since about 2013, new actors, such as the Clean Energy Association and the Climate Leadership Coalition, have challenged the established energy governance system, alongside the Green Party and environmental nongovernmental organizations (NGOs) (Haukkala, 2018; Kainiemi et al., 2020). Attempts to make the energy transition more visible in party political and government program agendas included, during the 2014–2015 preparliamentary election period, a push from temporary actors, such as the Professor Group on Energy Policy, the Energy Renovation Group (Kainiemi et al., 2020), and the New Energy Policy Initiative (Haukkala, 2018). The pursuits of these new actors have also been supported by some governance changes. For instance, the Finnish Climate Change Panel, composed of fifteen academics selected for one four-year term at a time, has become an important body that advises the government on climate and energy matters and responds to climate change-related consultations regarding new strategies and policy proposals. These have led, importantly, to a decision to phase out coal power together with speeding up favorable policies for renewable energy. Despite the advances made, very little disruptive institutional work has taken place (Kainiemi et al., 2020). Despite the coal phaseout plan, the prolonged debate about the fate of peat – tying in conflicting interests and concerns about employment, energy security, and the environment – is not over (Lempinen, 2019). Moreover, there were calls to establish a new science advice panel on forests and the bioeconomy to create pushback to environmentally oriented preexisting science panels the Climate Change Panel and the Nature Panel; ironically, the new science panel has given similar advice to the older ones.

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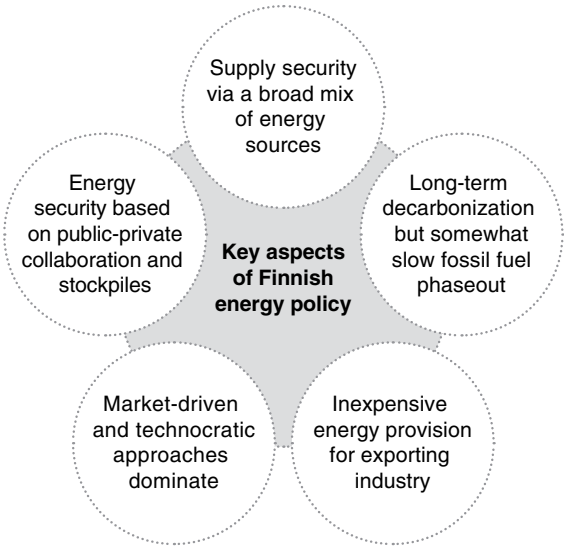


Figure 6.3 Key aspects of Finnish energy policy.

One of the key obstacles to both the energy transition and the broader consideration of security in Finnish energy policy has been the energy policy department of the MEE. Multiple studies have described it being stuck in an economic mindset favoring incumbent forms of energy production. For instance, Höysniemi (2022) describes market-driven and technocratic governance, while Kivimaa (2022) outlines a dominant economic perspective with little attention paid to security and the environment. Further, the ministry has been unwilling to disclose the assumptions in its "Climate and Energy Strategy" scenarios to outsiders (Kainiemi et al., 2020). Overall, the energy department has been slow to change and has lacked an innovation-oriented approach, despite being placed in the same ministry as innovation policy. Some experts, however, argued that the key problem derives from the political level, which has resulted in the fragmented energy governance framework:

> When political decision-making is "limping" so does the civil servant machinery alongside it … If we don't have political willpower, strategy, process, and timetable constructed so that it reaches over several government terms, as in energy policy must be, the civil servant machinery cannot realize things … We have a minister who has other things in mind first. (Business actor, 2023)

The same issue of political decision-making influencing how the public administration is organized and coordinated has affected the policy interplay between energy and security governance. I explore this in Section 6.4. Figure 6.3 summarizes the key aspects of Finnish energy policy.

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6.2 Security Regime

After the end of the Cold War, Finnish defence policy changed and the first ever "Security Policy Report" by the government was published in 1995. The traditional components of Finnish defence policy are territorial defence and the Defence Forces, which have gained strong support across different political parties, in essence keeping the possibility of war part of the strategic culture of Finland (Pesu, 2017). It, therefore, has been quite peculiar that this strategic culture has played hardly any role in government energy policy.

Over time, there has been variation in how security and defence policies have been addressed either in combination or separately. Pesu (2017) argued that to divide the government's security and defence policy into two separate reports during 2016–2017 was an important decision that returned the defence administration back some of its past attention given to it in political decision-making. While the key focus of Finland's defence and security policy has been the threat of the East, before the end of the Cold War it was not acceptable to publicly talk about the threat of the Soviet Union, which hindered security discussion altogether. Even after the Cold War, Russia was the most important nation for bilateral trade relations (Nokkala, 2014).

During 2003–2010, Finland gradually shifted from a total defence approach, meaning military and civil defence, to a broader conceptualization of comprehensive security (Berzina, 2020), tying in both negative and positive security approaches. Comprehensive security means an operational model that relies on safeguarding vital societal functions in collaboration with authorities, businesses, NGOs, and citizens, covering issues such as defence capability, internal security, security of supply, functional capacity, and psychological resilience (Finnish Security Committee, 2017). However, it has meant that it is difficult to define the exact boundaries of Finnish security policy. While threat scenarios have become broader, the role of Russia has remained the same after the Cold War (Nokkala, 2014). Energy has been mentioned as part of comprehensive security, but the experts interviewed perceived considerations of energy to be on a rather general level. One expert speculated that energy was not, prior to 2022, made a specific component of security policy, perhaps because this would extend discussions to Russia as a security threat directly connected to questions of energy policy – which was avoided at the time. So, energy was kept depoliticized and desecuritized.

The security regime in Finland comprises the defence administration, foreign affairs, and internal security (e.g., the police force), with links to preparatory activities by the National Emergency Supply Organization, comprising NESA and a broader network of companies. The Ministry of Defence, the Ministry of Foreign Affairs, and the Ministry of the Interior are important governing actors

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for security. The Defence Forces operate under the Ministry of Defence. The Ministerial Committee on Foreign and Security Policy is one of four statutory ministerial committees and meets with the President of the Republic to prepare important parts of Finland's foreign and security policy. Defence spending has, since 2010, ranged from 1.22 percent of GDP in 2017 and 2018 to 1.96 percent in 2022 (MoD, 2023).

Since about 2010, the defence administration has had to adopt responsibility for new areas. These include, for instance, cybersecurity and climate change. The first "Cybersecurity Strategy" was published in 2013. Cybersecurity issues are located administratively in different places but coordinated by the National Cyber Security Centre placed in the Transport and Communications Agency Traficom. From 2019, cybersecurity in Finland has relied on the national "Cyber Security Strategy" from 2019, international collaboration, and guidance given to companies and other organizations.

The first "Climate Program of the Defence Forces" was published in 2014, initially mostly addressing the energy consumption and efficiency of the defence premises. The third "Climate and Energy Program of the Defence Forces 2022–2025" broadened the focus. It highlighted that the Defence Forces must prepare for the societal transition and recognized that their operation cannot remain solely dependent on fossil fuels in the long term (Finnish Defence Forces, 2022).

Besides the formal security and defence authorities, the National Defence Courses have been running since the 1960s, inviting important members of society to participate. It is a Finnish particularity that aims to improve collaboration between different societal sectors during exceptional circumstances and advance networking between actors operating on comprehensive security.

Overall, there were relatively few changes to the security regime during the study period from 2006 onward, until Finland joined the North Atlantic Treaty Organization (NATO) in 2023. The Finnish security regime has been well prepared for the geopolitical risks from Russia too. What has been lacking is its sufficient coordination with the energy regime (see Section 6.4) and perhaps quite slow awakening to questions of climate change and climate security. Figure 6.4 shows the key aspects of defence and security policy in Finland.

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

Here, I explore landscape pressures, especially how perceptions of Russia by energy and security actors have formed landscape pressure on Finland's energy policy and how these perceptions have changed over time. During 2006–2010,

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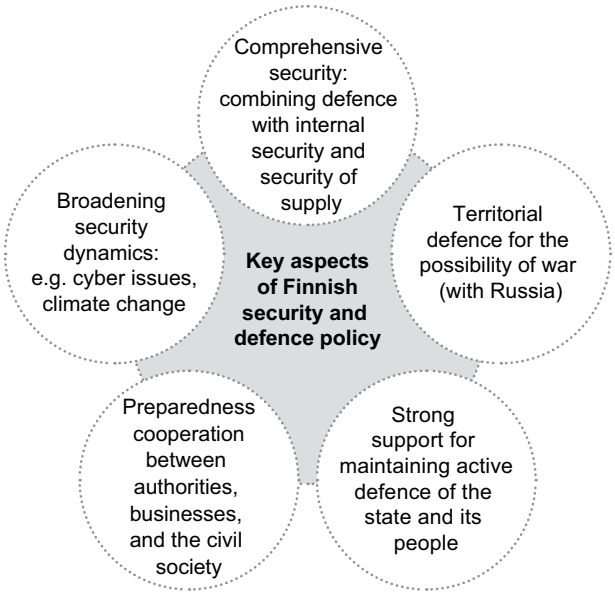


Figure 6.4 Key aspects of Finnish defence and security policy.

the main landscape pressures pertaining to the energy–security nexus in government strategies were the increasing international competition for energy, climate change, and the risk of marine disasters. Russia was at that time called the EU's most important trading partner, although this interdependence was acknowledged to be a security risk. During 2011–2015, the strategy documents began to delve more deeply into Russian issues, Arctic developments, and climate change and how they could constitute potential security risks, while cross-border threats, also including disruptions in energy supply, were envisaged to become more prominent. During 2016–2020, Russia was specifically highlighted as a country aiming for a superpower status with a willingness to use military force and challenge the EU security system (Kivimaa and Sivonen, 2021). This risk materialized in 2022 when Russia began a war in Ukraine.

Climate change has, of course, been depicted as one of the substantial landscape threats. Yet research has found that it has been ordinary citizens, rather than the Finnish energy elite, who have tended to perceive climate change as a bigger challenge. In 2016, circa 80 percent of both the energy elite and citizens perceived that energy imports from Russia should be reduced (Ruostetsaari, 2017); however, this did not effectively happen until 2022, following the European security and energy crisis.

Among the experts interviewed for this book during 2020–2021 there was a division between less and more concerned individuals, with the majority expressing both positives and security risks associated with energy trade between Finland

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and Russia. For example, in October 2020, an expert from the MEE noted that it was important to keep in mind that Finland had not had any political energy problems with Russia. They, however, also mentioned that a certain amount of caution is "in the genes" of civil servants. Also, a researcher at the time did not see Russia as a large problem in energy policy terms due to the replaceability of fossil fuels in the world markets, and saw geopolitical thinking as something rather narrow. Further, a politician stated:

> I think energy, between Soviet Union and Finland and later Russia and Finland, the energy cooperation has in the long run been … incredibly positive for Finland.

Simultaneously, others – from academia, politics, public administration, and business alike – saw Russia as a hugely important landscape pressure in security terms on Finland's energy sector. For instance, one interviewee questioned the feasibility of large strategic energy investments involving Russia as it is an unpredictable actor:

> It is clear that the biggest problem of Finnish foreign and security policy is Russia … And one should not call it a problem but from a policy perspective it is the most central problem that a large part of preparation, preparedness and foresight aims at. … If Russia falls behind the energy transition for the next twenty years … then that [kind of] Russia, I think, is dangerous. More dangerous than today because the means to influence internationally are narrowed down to military [means]. (Researcher, 2020)

A politician stated in November 2020 that

> Everyone knows that Russia uses Rosatom very powerfully as a means of its foreign policy … but I guess there has been … a still surprisingly strong instinctive pursuit of Finland's political and business elite to make sure that relations with Russia do not suffer.

A business actor highlighted how the 2014 events had changed perceptions about Russia:

> In a certain way, this Ukraine crisis and sanctions and Russia have in the last few years hardened the role [of security].

The ways in which experts at the energy–security interface expressed their views and those of the wider Finnish society about Russia prior to 2022 demonstrated a kind of dissonance. In defence terms, it was acceptable to consider the geopolitical risk Russia posed, but, in energy terms, focus was on cooperation and trade alongside the economic benefits that Russia brought via inexpensive energy and increased employment for Finland. The few critical voices were effectively cast as extreme perceptions, especially in party political discussions.

The tendency to downplay the Russian landscape threat to Finnish policymaking was also visible in government strategy documents. For instance, the "Security Strategy" from 2017 stated:

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> Russia is Finland's neighbour, and its democratic development and stability are important. Finland aims to maintain stable and well-functioning relations with Russia. In addition to economic cooperation, collaboration in [the] Arctic and climate questions, for example, remains important. Finland's energy cooperation with Russia is broad and must be interconnected with the development of the EU's Energy Union. Regional and cross-border cooperation with Russia in northern Europe continues at the practical level, which is in the interests of Finland. It is important to support the civil society and direct contact between citizens. In the changed environment Finland must be able to carefully evaluate Russia's development. This calls for more versatile and in-depth knowledge of Russia. (PMO, 2016, pp. 22–23)

Therefore, while there has been implicit deep-rooted caution in the Finnish worldviews, at the same time the official communication was focused on economic relations with Russia, with much less vocality about the geopolitical threats the country poses.

Since around 2010, Russia has become somewhat more distant to Finland while Finland has become closer to the EU. An interviewee described a generational shift in politics that sees Finland primarily as an EU member state that no longer thinks that Russian interests need to be considered first when making decisions. Some interviewed experts also demonstrated increasing awareness of China, the significant dependency on China in many sectors, and China's future influence.

The exceptional events of 2022, when Russia began a war in Europe, had a clear influence on the perception and construction of landscape threats in government energy policymaking in Finland. Abandoning Russian energy was one heading in the new Finnish "Climate and Energy Strategy" from 2022, and this included references to the decisions by the Council of Europe to make Europe independent from Russian imports of gas, oil, and coal as soon as possible. This would have been unheard of prior to the war in Ukraine.

Unlike before, the expert perceptions were uniform post-2022. There was an expression of lost faith and trust in Russia and no change for the better expected in a long time. Some, however, perceived that also a look back is needed to reflect on past policies:

> It is important to go through early 2000s re-Finlandization, because we had an operational culture where it was thought that energy trade and interaction with Russia increases Finnish companies' business opportunities in Russia and keeps Putin more benign to us. This politics has suffered a real "shipwreck" and caused large costs also to companies. (Politician, 2023)

The clarity about Russia post-2022 has also led to more ambitious energy transition policies in Finland and a more open recognition of the geopolitical risks associated with different energy policy decisions. Next, I explore the interplay of energy policy with security and defence policies.

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6.4 Policy Coherence and Interplay

The landscape perceptions about Russia and the dissonance between experiencing Russia as a security threat and a collaborative trade partner before 2022 explain much of the policy incoherence between energy (transition) and security policies that became evident in this study. I explored policy integration, synergies, and conflicts, as well as administrative interaction between the two policy domains by analyzing key energy and security policy strategies published during 2006–2020 and interviews conducted in 2020–2021 and 2022–2023. The results of these analyses have been published in journal articles (Kivimaa, 2022; Kivimaa and Sivonen, 2021) and I outline some of the key findings in this section.

The analysis of the Finnish government's energy and security policy strategies showed moderate integration of energy issues into security and defence policy strategies, whereas the integration of security into energy policy strategies ranged from moderate to low. The low level of integration was observed especially in the concrete policy instruments that the policy documents outlined, and in the way the broader security considerations of the energy transition were not addressed (Kivimaa and Sivonen, 2021).

During 2006–2010, the reference objects at the energy–security nexus of the policy strategies were correlated with "vital functions" of the society that required securing electricity transmission, distribution, and power supply, alongside broader energy availability and supply. However, the referent objects were not only limited to the energy system. Security strategies also mentioned people's health and well-being being affected by disruptions in energy supply and heating networks. In addition, the environment, business activities, and the defence system were recognized as important reference objects related to energy and security. The second period, 2011–2015, was less specific about reference objects. It mostly mentioned the critical energy infrastructure to be secured. Individual mentions of vital societal functions, the environment, and nuclear safety were made. There was no substantial change during the 2016–2020 period: Energy supply in terms of power and fuels was still emphasized as the object of security. There were selected remarks on nuclear safety, data systems, the environment, and the well-being of the population.

The general finding from the interview analysis was that several coordinating elements that have potentially advanced coherence between energy and security policies existed, although instruments or actors that considered both energy and security *in equal measure* were lacking. Examples of elements with potential to advance coherence included the "National Security Strategy," taking a comprehensive security approach; the National Security Council, including energy representation; NESA; the public–private network Power Pool coordinated by NESA;

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and the National Defence Courses. However, neither the "Security Strategy" nor the National Defence Courses have typically addressed the energy sector or energy transitions in detail. The Power Pool system, in contrast, was perceived as very effective in securing the energy system in crises – perhaps proven during the 2022 European energy crisis (Kivimaa, 2022).

NESA, in turn, has received critique from the interviewees. For instance, it was claimed to retain "old world thinking" in terms of energy security. Also, elsewhere it has been described as a rather traditional organization, slow to follow contemporary trends and with its broader network comprising incumbent companies (Höysniemi, 2022). Yet NESA has also begun to orient toward the energy transition by publishing its "Energy 2030 Program" in 2019, which rethinks security of supply. In 2022, the Finnish government announced work to update NESA's mandate to react to the requirements of the energy transition.

> That organization has got a lot of movement and forward-looking exercises. I am sure this crisis has sped it up. (Business actor, 2022)

> NESA has been in the dark for the last fifteen years … They have little by little managed to build certain preparedness … now they use a lot of money on cybersecurity and supporting the digital worlds. A lot of good development has happened. (Business actor, 2023)

Commonly, the interviewees believed that interaction between the ministries and agencies responsible for energy and security has not been sufficient. Prior to 2022, the pursuits for coherence mainly incurred informally, as knowledge exchange in energy- or security-connected meetings. Criticism was also directed toward a siloed and fragmented interface where nobody had general responsibility for the energy–security nexus. More recent interviews have also highlighted the lack of high-level coordination within energy policy itself (see Section 6.1). The critique was partly connected to a political culture of not discussing geopolitical security with respect to energy policy, a "business-oriented" style in energy policy concerning Russia, and a lack of security expertise in the MEE department of energy.

A politician explained the observed incoherence in October 2020 as follows:

> Maybe there has been unwillingness to mix economic interests and these kind of security interests with each other because, if one needs to build or starts to build a connection, then there is easily a need to make choices.

The historical-cultural legacy of "Finlandization" was also referred to by some as an explanation. The incoherence between energy and security policies implies that the security implications of the energy transition have not received appropriate foresight analyses. Yet, more recently for instance, the geopolitics of renewable energy has received increasing focus. Finland's NATO membership may also

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increase collaboration at the energy–security nexus, as NATO is developing strategic awareness of this (Bocse, 2020).

The defence administration, and especially the Defence Forces, have provided rather good examples of energy policy integration – albeit on a very pragmatic level. The Defence Forces' Climate and Energy Program has led to improvements in the energy efficiency of their operations but has also addressed climate adaptation to some degree. While little research has been conducted on alternative energy sources, there has been some follow-up activity on the technological development of this front. To better serve policy coherence, these activities need to be scaled up but are also dependent on how energy governance actors respond.

Perhaps the most visible example of synergies is realized in the context of emergency and crisis preparation of the energy sector. The above-mentioned networks, in the form of energy pools coordinated by NESA and associated practices, are likely to benefit security.

What became clear in the expert interviews was that the root cause of incoherence between energy and security governance was the lack of interest of most political parties, with explicit "hints" even given to civil servants not to explore this connection further (Kivimaa, 2022). This perhaps relates to the need that, if Russian-related risks had been better acknowledged in energy policy, Finland would have had to make some hard choices. In other words, improving the coherence between energy and security policies requires changing the objective setting and measures in one or both of the domains. The connection of the energy transition to national security was even less discussed. One business actor noted in 2020:

> On the political side it [the security effects of the decarbonizing energy system] interests no one. I can immediately say that it really is not sufficiently, I mean the system-level change, it is not noted, and it may be a slightly difficult issue for political decision-makers.

During the study period, from 2006 to 2023, two clear turning points were relevant for the interplay of energy and security policies. The first one was in 2014, with the Russian annexation of Crimea, which inspired some caution in energy policymaking. Yet, at the same time, it did not create a big enough landscape shock to fix any observed incoherencies between energy and security policies.

Nevertheless, relatively important policy decisions took place in 2014; for example, the publication of the "Energy and Climate Roadmap 2020," a report by the Parliamentary Committee on Energy and Climate Change. Interestingly, the word "Russia" appears only once in this seventy-three-page report, despite Russia's significant role as an energy importer to Finland during that time. Moreover, (energy) security was not used as a term, but security of supply and self-sufficiency were mentioned about twenty times each. Therefore, although there was focus on security it was only in somewhat narrow terms.

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The 2014 "Energy and Climate Strategy" was followed by parliamentary approval of the decision in principle to grant permission to build Fennovoima's Hanhikivi nuclear power plant – with one third ownership by the Russian state-owned nuclear power company Rosatom – in December 2014, ten months after Crimea. The decision in principle used security mainly in relation to radiation and nuclear security, not in geopolitical terms. Crimea was mentioned once in relation to the consultation statement by the Ministry of Foreign Affairs that detailed, for instance, that the project would create negative publicity for Finland in Europe and is counter to EU aims to reduce energy dependence on Russia as a reaction to Russia's illegal annexation of Crimea (Formin, 2016). Security of electricity supply was used as one of the key justifications for the parliamentary approval. An interviewee remarked that one explanation may be the historically rather good relations that Finland had with Russia as a supplier of raw materials; although this has also been a dependence by Finland that the Soviet Union and Russia have been able to exploit in negotiations. Parliamentary approval of this nuclear power development did not, however, mean that critical voices did not exist at the time:

> In the discussion about Fennovoima, of course Rosatom's ties to Russian nuclear weapons industry were obvious and clear. That is why critique was focused against it by actors who normally support nuclear power. (Politician, 2020)

> I was very critical about nuclear power but especially about this provider that is bound to Russian interests quite strongly, because Rosatom is a heavily strategic actor of the Russian government that does not operate on a commercial basis but on a political basis. (Politician, 2020)

In 2014, there was also rather extensive discussion about energy independence (aiming to produce all required energy in Finland) versus security of supply (making sure that there are sufficient energy imports available to complement domestic supply). The latter was accepted in policy due to much higher costs of energy independence and the market-oriented approach of the energy department. The broader aim has, nevertheless, been to reduce import dependency on Russia:

> Finland's energy policy has been … the one long policy line [that] has all the time been, and still is, the reduction of import dependence and it has been directed to getting rid of import dependence from Russia. (Business actor, 2020)

A more significant turning point occurred in 2022, when Russia attacked Ukraine. The following higher energy prices and fear of energy shortages when Russian energy flows were lowered, if not completely stopped. In Finland, this created a large shift in energy policy and the political discourse:

> If one thinks about a general strategic level, it has been very strong – this kind of burst of the collective bubble … while discussion was actively quietened before … now it is a completely different kind of situation. (Civil servant, 2022)

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It also led to some rather extraordinary policy decisions, although not constituting securitization as such. The energy imports from Russia were not directly halted for contractual reasons but the placement of sanctions by the EU, on the one hand, and the demands of the Russian government to pay Russian companies in Russian currency (rubles), on the other followed. The policy decisions deviating from regular energy policy made rather a long list, not all pertaining to security, but which, for instance, included alleviating the high electricity prices paid by consumers. One of the most exceptional policies brought into use, according to the interviewees, was the construction of an LNG terminal and acquiring an LNG ship from Texas to secure gas supply for the following winter: "On 20 May 2022, Gasgrid Finland Oy and Excelerate Energy, Inc., from the United States, signed a ten-year lease agreement for the floating LNG terminal vessel Exemplar" (MEE, 2022, p. 45). Another exceptional policy has been the clear strategic line taken to also discontinue Russian energy imports in the long term. The "Climate and Energy Strategy" from 2022 highlighted the importance of replacing gas as an industrial power source, the launch of an energy-saving campaign to respond to the sanctions and bans placed on Russian gas, and the establishment of an emergency stockpile of peat by NESA. It is clear that some short-term measures are counter to the zero-carbon energy transition, even though the discourse still emphasized the benefits of the transition to energy security.

In essence, the interviews conducted in 2022–2023 illustrated a significant shift in the interplay between energy and security policies in Finland:

> Yes, energy has become a strong part of foreign, security, and defence policy, but it has not yet been implemented in our plans as it should. (Business actor, 2023)

Since early 2022, in energy policymaking there has also been more receptiveness to, or even a call for, security messages from the administration and the business sectors alike. In addition, a new security assessment of geopolitical risks was conducted on the Fennovoima Hanhikivi nuclear power plant. The explosions of the Nord Stream gas pipelines also brought into play the need to physically protect the critical energy infrastructure; something which was considered a much lower risk two years previously. While this does not amount to securitization as defined in Chapter 2, it can perhaps be described as a form of partial securitization of previously economic- and decarbonization-oriented energy policy.

6.5 Niche Development, Regime (De)stabilization, and Positive and Negative Security

In this section, I explore, via selected cases, the ways in which energy and security intertwine with niche development and regime destabilization (or the lack thereof). Niche development is principally addressed via the expansion of wind power, this

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being the most extensive new renewable energy source in Finland with the greatest potential. It is also directly connected to national security via tall wind turbines interfering with air surveillance radars and, less directly, via new dependencies on critical materials. While there are other emerging technologies, such as green hydrogen, they are in such an early stage of development that assessing security based on my data sources was not possible. The other cases relate to the stability of the established energy regime. They involve, first, the case of peat and its perceived importance for Finnish energy security, with security arguments playing a role in slowing down the energy transition; and, second, the lack of any security discussion by the Finnish government around the construction of the Nord Stream 2 gas pipeline between Russia and Germany. These cases essentially represent the path dependencies of Finnish energy policy (peat) and the history of "Finlandization" (Nord Stream 2).

Overall, the reconfiguration of the energy regime via electrification – which is neither directly niche development nor regime destabilization – has improved security in Finland. One politician noted, in 2020, that the Nordic electricity market has substantially improved the security political situation in Finland by reducing dependence on Russian energy sources compared to 2006, and that investments in cross-country electricity lines to Sweden and Estonia have also played a role. Generally, the expansion of electrification in Finland (and Estonia) can be seen as a transition that is perhaps more about reconfiguration than niche development. However, this is increasingly intertwined with the niche expansion and mainstreaming of wind power as well as continued support for established nuclear power. Both electrification and the larger share of wind power in electricity production have changed the key logic of the Finnish energy regime to become more responsive to energy availability at any given time (with development in demand and consumption response) and have reduced the role of stockpiling. The objectives behind these developments not only relate to decarbonization but also to visions of Finland as a net-electricity exporter and as attractive to new industries.

6.5.1 Wind Power and Its Conflict with the Defence System

In the beginning of the period of interest for this study, around 2006, the potential of wind power to improve energy security was hardly mentioned in Finland (Varho, 2007). In later discussion and policy documents, the negative effect of wind turbines on Defence Forces' prewarning systems, namely air surveillance radars, emerged as a significant issue. The operation of military air surveillance radars requires that the radio waves they send meet with no obstacles between the radar and the target, the reach of the radar being several hundreds of kilometers

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and 0–20 kilometers in height; wind power turbines reduce the radar range and the blades create reflections on the radars (Joensuu et al., 2021). As a consequence, the restrictions for wind power construction in eastern Finland has meant that wind power is concentrated mostly in one part of the country and the energy system is less able to exploit varying weather conditions in different parts of Finland.

During 2008–2009, certain wind power developments were halted due to the opposition of Defence Forces and the unclear effects on the radar systems (Joensuu et al., 2021). In many eastern Finland regions, close to the Russian border, wind power construction has not been allowed. The Defence Forces have employed case-by-case consideration of wind power plans. Due to highly confidential factors related to defence, those planning wind power projects and those responsible for land-use planning do not have the information on how to design these projects in order to make them more acceptable; from the perspective of the Defence Forces, the project proposals are either accepted or rejected and little to no guidance has been available for wind power developers (Joensuu et al., 2021). However, continued negotiations have been possible in some cases (MEE, 2014).

To better enable wind power construction, a methodology was created during 2010–2011 by the VTT Technical Research Centre of Finland on assessing the wind farms' effects on radars; this development was funded by a group of twenty wind power companies and the public administration and was coordinated by the Energy Industries Federation. As a result, by spring 2021, the Defence Forces had approved over 600 wind power developments composed of 11,000 wind turbines. Of these, 128 were in regions located in the eastern side of Finland but only 28 in the southeast border regions. One of the key problems has been that obtaining a statement from the Defence Forces has been a lengthy process and is not defined in law (Joensuu et al., 2021).

In 2012, the MEE established a working group with the task of advancing the shift to wind power, removing barriers to wind power construction, and coordinating the objectives of different ministries. An arrangement was also made by which obstacles to the operation of radars caused by wind power could be removed by developing the Defence Forces' radar systems. Effectively, in 2013, a new law on wind power compensation areas removed barriers for wind power construction in the west of Finland for offshore wind on the Gulf of Bothnia, covering 2,400 square kilometers. This meant that construction was possible in previously prohibited areas. However, the Defence Forces required that compensation, effectively additional sensors, could not be funded from the defence budget and the wind power producers in these areas need to provide so-called radar compensation payments to cover the additional costs of new radar technology. In turn, a similar compensation area in the Kymenlaakso region closer to Russian border was found to be so expensive to implement that it was regarded economically unviable (MEE, 2014).

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Generally, it has been perceived that the defence administration's perspective on wind power is understandable and acceptable, the Defence Forces are not against wind power as such, and the administration has been engaged in processes that seek to enable wind power construction. The Defence Forces have, since 2009, actively collaborated with other administrative sectors and wind power developers (MEE, 2014). Common solutions have been sought, as demonstrated by the compensation scheme, yet viable technological solutions in the eastern areas have been hard to find.

Following the 2022 war in Ukraine and the energy crisis, Finland increased its support for the expansion of wind power to replace the shortage of electricity previously imported from Russia. This meant new policies speeding up wind power-permitting processes and appointing an official expert to assess potential technical and operational solutions that would allow the expansion of wind power and still enable effective air surveillance in eastern Finland. Some perceived that these new policy lines on wind power would not have been taken forward a few years ago. Nevertheless, it appears that no technical solutions exist to expand wind power substantially further east, and there needs to be a 40–80-kilometer distance between a wind park and a radar (Pöntinen, 2023). Therefore, the conflict between expanding wind power in eastern Finland and maintaining national security prevails.

In this case, state (defence) as a referent objective and negative security in the current world situation have, understandably, taken preference over improved energy security or regional viability (as elements of positive security). Although the compensation model has benefited certain regions, it has placed eastern regions in less attractive positions with regard to new industrial investment and sustained livelihoods. Learning processes and networking have taken place both administratively and technologically, but comprehensive solutions to the policy conflict have not been found despite expectations that wind power will be massively expanded in the coming years. Further, the expansion of wind power, while improving energy security, will also create new dependencies on components and critical materials – linked to geopolitics and trade with China. The events of 2022 led to greater interest in energy transitions policy for wind power, but not to a degree that would have substantially securitized the decision-making.

6.5.2 Peat Energy and Its Promotion as Traditional Energy Security

In Finland, peat and bioenergy are the only domestic energy fuels and, hence, are tied to the decline of the fossil regime. The energy use of peat began as a result of the first oil crisis of the 1970s, with peat providing a domestic energy source to replace some of the imported fossil fuels – especially oil – for heat and

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power production via combustion. As a new energy source at the time, it was well suited for storage, contributing to security of supply. When climate change concerns began to increase, replacing peat with bioenergy in combustion plants came into focus. As noted in the introduction to this chapter, the share of peat in total energy consumption is relatively small but makes a rather substantial contribution to Finland's total greenhouse gas emissions. Large wetland areas have enabled the use of peat for energy production, supported by favorable long-term policies, such as subsidies in different forms, making peat more competitive in relation to other energy sources (IEA, 2018). This has slowed down Finland's zero-carbon energy transition. Following the EU Emissions Trading Scheme, the Finnish government created a peat promotion scheme for 2007–2010 that allowed an additional premium tariff (paid as a subsidy on top of the market price) for electricity produced with peat and extended a tax exemption for peat used in heating (IEA, 2018). In 2017, the government's "Climate and Energy Strategy" noted that taxation will still be used to ensure that peat remains more cost-effective than imported fossil fuels (MEE, 2017).

Peat is regarded important for the local economies and employment in certain regions of Finland, hence contributing to internal socioeconomic security. It has also played a role in energy security via stockpiles equaling six months' use. VAPO, a government company established in the 1940s, initially as "the state's fuel office," has been a significant producer of peat from lands owned by the government, with private sector ownership increasing in the 2000s. It has been an active campaigner for peat energy. In a campaign launched in 2010, following the Russia–Ukraine gas delivery disruptions, it lobbied in favor of peat by using, in particular, the energy security argument, taking advantage of the repoliticization of energy security (Lempinen, 2019). Peat has essentially been linked to a storyline that regards "the energy transition and security as incompatible" (Höysniemi, 2022).

Interestingly, peat as an energy security question was mostly brought up by the politicians interviewed and not by other actors. It illustrates the politicization of the peat question over other energy questions and how the security aspect of peat is linked to political tactics. What seems clear is that security of supply has been used as a lobbying tactic as well as a traditional energy security argument in favor of peat, not by the ministries or Defence Forces, but by NESA, as pointed out by one interviewee. The importance of peat for security of supply was, however, argued by another interviewee to be reducing in the transition from combustion to other forms of electricity and heat production. Yet a third interviewee noted that "peat is important, no matter what anyone says."

The phaseout of peat in energy production has largely been market-based, resulting from the EU emissions trading system. This development, however, experienced a setback in 2022 in response to the security and energy crisis. The crisis led

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to halted wood imports from Russia, while there was also a concern that domestic wood was being used for energy production instead of higher-grade uses in the forest industry. Therefore, tax-free use of peat was allowed up to 10,000 MWh per year during 2022–2026. Furthermore, the government's "Climate and Energy Strategy" from 2022 pointed out, for instance, that the reduction of peat and fossil fuels directs attention to the heating sector's security of supply. It also outlined a new policy, an emergency stockpile of peat used in energy production. Peat production areas are also a focus of the EU just transition efforts and are connected to positive security. To improve socioeconomic security in regions dependent on peat production as a source of employment, funding and advice are made available to develop new businesses, find new employment, and compensate for the depreciation of peat production machinery (MEE, 2022).

Peat as an example of the energy–security interplay places the image of "traditional energy security" as a reference object alongside, perhaps, regional viability – if the latter can be regarded as a referent object for security. Peat, therefore, highlights the negative security aspect of the energy transition, while emphasizing regional livelihoods as positive security. While the latter is important for security, the peat debate includes no long-term approach toward achieving climate and geopolitical security in a rapidly changing world.

6.5.3 Nord Stream 2 Gas Pipeline

The ways in which the Finnish government dealt with the Nord Stream 2 gas pipeline application – as it went through Finland's territorial waters – came up frequently in the expert interviews related to energy and security. This case did not involve Finland's energy consumption as such, but it was linked to maintaining fossil fuels in Central Europe and Finland's relations with Russia. Hence, it is covered here briefly.

Nord Stream refers to a network of offshore gas pipelines constructed to supply Russian natural gas to Germany. The company operating the pipelines is majority-owned by the Russian government-owned company Gazprom (with 51 percent), with the remaining shares owned by German, Dutch, and French companies. The two pipelines of Nord Stream 1 were completed in 2011 and of Nord Stream 2 in 2021.

Nord Stream 2 is an example of officially not connecting security to a fossil fuel project important to Europe, when perhaps this should have been done. Several experts noted that in essence the Nord Stream pipeline project was depoliticized on purpose in Finland. An interviewee remarked that there was an avoidance of discussion: The use of the term "security policy" in particular in that context was avoided and a desire existed to view the gas pipeline as a neutral project despite its potential security ramifications. Certainly, Russia regarded it as security policy,

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another interviewee stated. Yet, essentially, a "political-level" decision was made to not address this issue as a security question and Finland did not take part in international geopolitical discussions.

Officially, the project was addressed as something with potential environmental impacts on the seabed that were assessed in the consultation phase. This perspective was tied to the international agreements of which Finland is a part and the stipulations they have in place. These did not include geopolitical aspects.

Several explanations were offered for the lack of discussion around security. Several experts took the view that the project was important for Europe–Russia relations at the time – and essentially opposition was framed in terms of the economic interests of the US to provide Europe with LNG. It did not affect Finnish energy policy as such and could curtail the energy company Fortum's ventures in Russia and Germany. One interviewee said that Finland has "a tendency to deal with these kinds of issues calmly" and two referred to the lack of any previous problems.

Given the lack of security discussion, it is hard to define a reference object – perhaps the European energy system or wider geopolitical security. As the debate was depoliticized and desecuritized, any positive and negative security implications remained implicit. Security-of-energy supply for Europe could be seen as an element of positive security. In turn, Europe's increased dependence on Russia, climate change effects, and possible infrastructure risk (realized in 2022) were elements of negative security.

6.6 Concluding Remarks

Before 2022, there was an explicit and perhaps politically intentional disconnection between energy policy and geopolitical security. This has also been noted by others (Jääskeläinen et al., 2018). The strong economic interests of Finland for cheap energy imports for industry and of the Finnish energy company Fortum – together with the history of Finlandization, that is, maintaining friendly terms with the Russian government – prevented a genuine assessment and discussion of the geopolitical risks related to energy trade with Russia. Interestingly, Finland was able to maintain a strong defence policy at the same time, which has also kept many areas of eastern Finland, close to the Russian border, inaccessible for wind power expansion. All in all, Russia has been a major landscape influence on the Finnish energy transition – somewhat slowing it down. This effect has occurred via the aim to achieve inexpensive energy for the export industry – where Russian imports have often been low priced – while, simultaneously, decarbonization of the electricity sector has been rather strongly pursued, creating policy incoherence.

Some energy system aspects, such as peat and nuclear power, have been subject to relatively intensive political debates. Yet, at the same time, a goal to depoliticize

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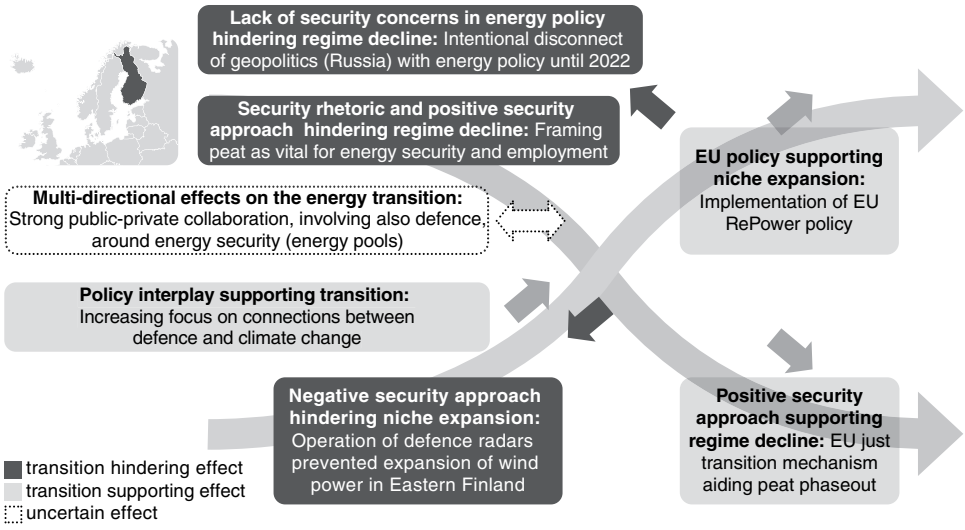


Figure 6.5 Key energy security aspects and their transition impacts in Finland. Source: Kivimaa, Finnish Environment Institute, 2023.

those parts of the energy system that were linked to Russian trade has existed. Examples of this include the general reluctance to discuss geopolitical security – while economic perspectives on security of supply existed – the depoliticization of the Nord Stream 2 gas pipeline debate, and the aim to depoliticize nuclear power. High trust by citizens in expert-based policymaking has supported the depoliticization of some energy questions. Figure 6.5 summarizes the key energy security issues in Finland and their effects on the energy transition.

The events of 2022 led to a substantial shift in perceptions of Russia with regard to the energy system context, the politicization of energy policy, and some exceptional energy policy changes. Time will show whether this will also be influential in changing the energy governance system and how. How will energy and geopolitical security be addressed by the next governments and will that result in a less fragmented energy-governance system? How will the negative and positive security implications of energy transitions be anticipated and reacted to? The experimental governance features emphasized by sustainability transitions studies and studied and tested in other Finnish contexts have been rare in the rather "old world" energy administration of Finland but could be of use here (Kivimaa and Rogge, 2022). Certainly, issues linked to electrification and the expansion of wind power necessitate much governance experimentation and innovation to deal with the defence radar issue as well as the sustainable extraction and supply of critical materials.

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