

Global energy transitions and Russia's energy influence in Finland

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This study argues that in a condition of a rapid energy transition Russia's possibility to use energy trade as leverage diminishes. Therefore, a slow transition to a renewables-dominated world economy is in the interest of Russia.

Energy has always been an essential part of geopolitics. Transitions in energy markets and new technologies can have a significant impact on the geopolitical balance and national security by affecting countries' energy trade, economy and security of supply. For example, combatting global climate change has already had and will continue to have an impact on the demand for hydrocarbons. Decreasing demand can put financial pressure on countries with economies dependent on the export of hydrocarbons, and this may create political instabilities. Simultaneously, political decisions to financially support energy production from renewable sources, mainly wind, have reduced countries' dependency on fossil fuel imports and paved the way for a wave of competitive renewable energy sources.

This policy brief is based on the second phase of a three-phase study on the changing geopolitics of energy.

The first phase of the study involved performing a global, market-based analysis and developing three scenarios: base scenario, rapid development and slow development until 2040. The second phase of the study assesses the impacts of these strategic shifts from the point of view of Russia's energy and security policies. Moreover, the policy brief analyses how Russia is using control of its energy resources and flows of traded energy commodities to exert political leverage in conflict situations. Knowledge of leverage and dependencies in energy trade makes it possible to carry out the third analytical phase, i.e. to propose measures that simultaneously promote the energy transition and energy security in Finland.

This policy brief will focus on the changes taking place in the rapid development scenario, which is based on a target of limiting global temperature increase to 2 degrees (the IEA's 450 scenario) compared to the pre-industrial era. This scenario was chosen because the rapid energy transformation will potentially have a major impact on Russia's economy, and consequently, on the country's foreign policy leverage. The general assumption in this policy brief are that a) regardless of the speed of the energy transition, the key for the Russian Federation is how global energy market trends impact on energy trade between the EU and Russia, b) an equally important factor is the developments occurring in the domestic market and how Russian energy companies can become part of the energy transition e.g. through technological innovations and ownership changes, and c) in terms of foreign and security policy, Russian aims are rather static, but the measures probably reflect internal developments and the nature of the political system more clearly than in some other countries.

The study was conducted in cooperation with Pöyry Management Consulting Oy and Aleksanteri Institute of the University of Helsinki and it will be published at the end of 2017.

THE STUDY ENABLES POLICY MAKERS TO PREPARE FOR THE FUTURE IN THE ENERGY SECTOR

The purpose of this study is to enable Finnish policy makers to prepare for future situations and make sound decisions that will promote the energy transition and energy security in Finland.

Three energy scenarios (base scenario, rapid development and slow development) until 2040 were constructed during the first phase with projections for total energy consumption, demand for oil, gas, coal and electricity, as well as wind and solar power production. The rapid development scenario is based on a target of limiting global temperature increase to 2 degrees compared to the pre-industrial era. The base scenario is a synthesis of five different scenarios from five separate sources that were chosen to represent a wide array of different views and types of organisations. The base scenario thus represents a mainstream view of energy sector development. The slow development scenario was constructed by extrapolating past developments and thereby represents a no-change world; it is an unlikely scenario and primarily serves as a benchmark to reflect on the other scenarios.

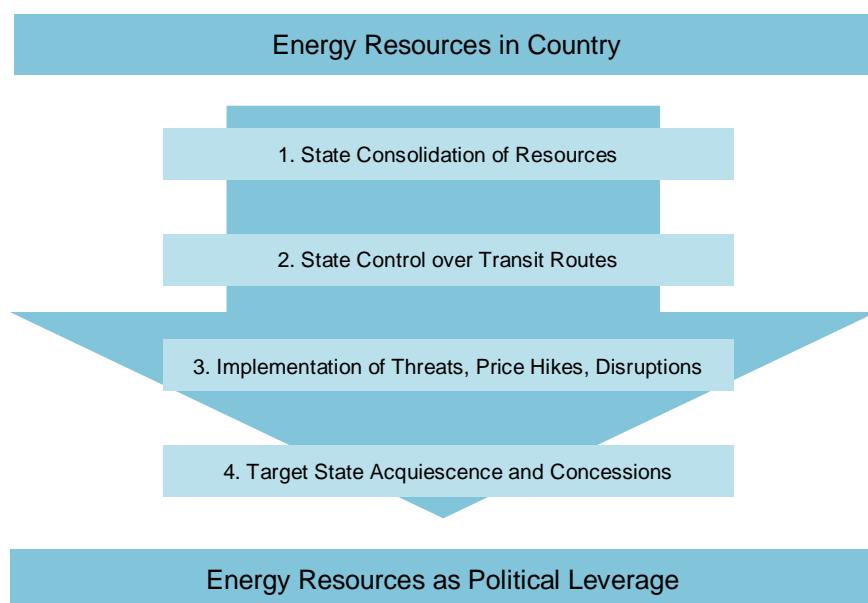
Table 1 – Three energy sector scenarios

Rapid development	Base scenario	Slow development
<ul style="list-style-type: none"> • Corresponds to the IEA 450 scenario • Constructed with a set goal – limiting the increase in global temperature to 2 degrees. The scenario represents a credible path to this objective. • Policy, technology development and renewable energy uptake all support climate change prevention 	<ul style="list-style-type: none"> • A synthesis of five different energy scenarios* • Represents the current mainstream view of future changes • The energy sector transformation continues in this scenario, but at a much slower pace than in the rapid development scenario and e.g. oil remains a critical fuel <p>* IEA 2016, WEC 2016, BP 2017, McKinsey 2017 and EIA 2016</p>	<ul style="list-style-type: none"> • Historical trends extrapolated to the future • A benchmark, 'no will, no change' scenario, showing the unlikely but possible outcome • Requires large-scale political reversals

The focus of this policy brief

The second phase of study analysed what impact these changes would have on Russia, and subsequently on Russian energy trade with Finland in particular. Furthermore, the analysis focused on factors contributing and/or undermining a positive interdependency created via energy trade between Russia and Finland. For this purpose, the “energy weapon” analysis model created by Karen Smith Stegen was applied in the research analysis. (Smith Stegen 2011) The analysis model divides security policy impact into four different phases or elements:

Table 2 – Energy Weapon framework (Smith Stegen, 2011)



The model strives to expand the analysis to any case in which an energy export country attempts to use the resources and flows that it controls to influence the political behaviour of a country purchasing energy. However, the metaphor of the “energy weapon” concept is misleading. This is because Russia has not used tough means of influence – the so-called hard energy weapon – in the context of western Europe. The analytical model does, however, apply just as well to contexts in which an explicit “stick” is not evident. These cases involve a so-called soft energy weapon, which is influence built in a positive manner and a far cry from a *weapon*. Russia has skilfully used this in western Europe and the EU (see Högselius 2013). From the Finnish perspective, this is also a key method of exerting influence via energy. The question is not whether Russia can use the “hard” energy weapon, which is a possibility that cannot be ruled out. However, due to the historical fact that there have been no problems in energy trade and flows, but rather more overt measures such as pricing and contracts (Smith Stegen 2011).

Contextualising Russian – Finnish energy relations

Assessments of the importance of energy resources as part of security policy have varied according to changes in the relations between Russia and the European Union. After the break-up of the Soviet Union, energy and transport infrastructure was seen as an important element for promoting economic integration and interdependency. The situation changed at the turn of the millennium. The high market price of oil fuelled economic growth in Russia. Partial reforms carried out at the same time increased consumption demand. The policy changes that accompanied these reforms diverted state income to strategic projects designated by the Kremlin. This included, for example, the building of the new export ports in the

Gulf of Finland. The main idea was expressed in the energy strategy (2003) according to which energy resources and control of energy flows are one kind of “geopolitical tool”.

These changes have promoted a view of Russia as an “energy superpower”. This concept has provided a framework for several studies of Russian energy and security policy. (Rutland 2014; Smith Stegen 2011). In the frame of an energy superpower, Russia has a dominant position in comparison to its European partners, and the country has presented itself as a “benefactor” in relation to its neighbours, such as Ukraine. From Russia’s perspective, the country has supported the economies of Ukraine and other Soviet countries for years in the form of affordable energy prices. At the same time, it has used uncertainties and irregularities related to price negotiations in the energy sector to link decision-makers more closely to the Kremlin’s sphere of influence or direct control (see Balmaceda 2013).

The attractiveness of the energy sector as a channel of influence is the sum of many things. The energy sector plays a key role with regard to security of supply for modern societies. The importance of the sector as a channel of influence can be attributed to the fact that this is a matter of dependency relationships built over decades and to the central role that the Russian government plays in the Russian energy sector. In Europe, energy dependency has been seen as a symmetric alignment in which both the EU and Russia are dependent on the continuation of the trade relations (Goldthau & Sitter 2015). This does not necessarily apply to the situation with individual countries or companies, which can be subject to occasional or systemic use of the “energy weapon”.

In Finland, 45% of the energy consumed is of Russian origin and 71% of our imported energy comes from Russia.

In Finland, 45% of the energy consumed is of Russian origin and 71% of our imported energy comes from Russia. Although renewable energy accounts for one third of our energy palette and our self-sufficiency is high on a European scale, nearly all of our fossil and nuclear fuel comes from Russia (see Table 3). Thus, the energy relationship between Finland and Russia can be described as asymmetric. With the exception of electricity, Finland accounts for a small percentage of Russia’s energy exports while imported Russian energy, excluding electricity, represents a large share of total imports in Finland. The dependency of Finland’s energy sector on Russian hydrocarbons, nuclear power technology and nuclear fuel exports creates a possibility for leverage.

Table 3 Finland’s dependency on Russia by energy form (Statistics Finland 2017)

Energy form	Imports from Russia as share of total imports	Amount	Share of Russian exports by energy form
Coal	88%	2.5 mill. t.	3%
Oil	89%	11 mill. t.	4%
Refined products	80%	3 mill. t.	n.a.
Natural gas	100%	2400 mill. m ³	2.5%
Uranium	71%	38 t.	n.a.
Biomass	70%	127,000 t.	n.a.
Electricity	7%	5 TWh	80%

RESULTS AND CONCLUSIONS

The base scenario does not lead to major changes compared to the current state of affairs in Russia, whereas the rapid development scenario represents a highly optimistic scenario from the perspective of climate change mitigation. We believe that the outcome will be somewhere between the two and explaining the rapid development scenario provides a basis for understanding the set of challenges and choices energy transformation creates for Russia.

What would be the impacts of different energy scenarios on Russian possibilities to use energy as source of power and political influence?

In the light of Russia's current strategic outlook, the rapid energy transformation is suboptimal. The large-scale shift from hydrocarbons to renewable energy sources provides energy consumers with more choices, meaning that Russia's control of energy flows becomes a less effective instrument of (geopolitical) power. Furthermore, since the Russian state budget is highly dependent on energy export revenues, a major change in this sector will have a negative impact in many other sectors, including, the military buildup. Lastly, due to political and technological factors, Russia is unlikely to pioneer the technology development required for the renewable energy transition. Although Russia is involved in international climate policy, it does not work to promote it and instead strives to use diplomacy to influence international energy and climate policy in a way that discourages change. One key reason for this inactivity is the fact that the political power in Russia is ultimately linked with the control of strategic resources (most importantly, hydrocarbons) and the export revenues derived from these resources.

The rapid development scenario significantly reduces Russian political influence through energy.

The table below (Table 4) describes the presumed effects of three global energy scenarios on Russia's international position, its ability to strengthen military preparedness and use energy as a foreign policy tool.

In the rapid scenario world, Russia's ability to influence Finland through energy would be slight. Some dependencies still remain, as is apparent in the nuclear sector case that is described later in the text. The renewable energy capacity amounts required by the rapid scenario, traditional inertia in energy sectors and interdependencies also affect the duration of the transition phase, and would likely slow the energy transition in Finland.

Table 4. Summary of the scenario-based analysis

	Base scenario	Rapid development	Slow development
Russia's energy income	Energy income remains the same; demand for fossil energy on export markets continues	Energy income decreases due to falling prices and decreasing demand for fossil energy	Energy income remains the same or grows as demand for fossil energy in export markets remains the same (EU) or increases (China)
Geopolitical shifts	Demand and influence increase in Asia / China; demand and influence in Europe fall slightly	Demand for gas in Asia / China increases, but a drop in demand for oil and competition in the gas sector turns the overall situation negative in terms of Russia's current agenda	The importance of Asia / China to Russia is emphasised; Russia is stronger in relation to the EU; Russia's low-carbon agenda is marginalised
Russia's way of acting	Russia's economy grows slowly, but enables military preparedness at the current level; Russia's agenda for the transition to a low-carbon society exists but lags behind others	A negative impact on military preparedness; deteriorating socio-economic conditions may lead to measures to strengthen internal control; dependence on hydrocarbons slows the energy transition	Russia's strengthening economy significantly increases its ability to improve military preparedness; according to social agreement, some income goes to social themes and maintains the authoritative system
Russian influence via energy	Russia's ability to influence through energy remains the same or decreases slightly; invests in soft methods	Russia's ability to influence through energy decreases significantly	Russia's ability to influence through energy increases; Russia invests in hard and soft methods

What are Russia's possibilities to exert political influence vis-à-vis Finland via energy trade?

Finland is aware of its energy dependency on Russia but it is considered manageable. At the root of this thinking is a world view based on liberal values, democracy and free trade that together enable positive interdependency and cooperation. However, increased global competition for economic and natural resources, as well as the emergence of prosperity enclaves among developed nations and between major economic regions presents challenges to previous policy assumptions. In the current global operating environment, economy and trade are even more susceptible to the pursuit of other (foreign) policy objectives; influence produced through trade is based on the dependency relationships created through commodity flows, economic benefits and political "goodwill" – and the threat of its absence.

Analysis of energy security should consider how energy trade practices and flows have affected energy policy

Consequently, security of supply thinking based on a “turn off the taps” scenario has become an inadequate frame for the contemporary and future situations. Instead, the analysis of energy security should consider how energy trade practices, flows and policies have affected Finland’s energy policy and our understanding of energy security.

Accordingly, the set of measures available to influence the energy policy of the target country vary across individual sectors (oil, gas, uranium/nuclear power, coal, bioenergy), but more importantly, they go beyond a single sector. In other words, the build-up of energy leverage (influence on the target country’s energy policy) is one element of the asymmetric measures aimed at preventing a conflict or furthering Russia’s national security interests. Thus, the Russian energy sector is considered as an integral part of the state’s strategic resources rather than an autonomous actor. This aspect is not always understood in the energy policy discussion in Finland, where the major energy companies operate on the basis of market logic as opposed to the logic of *state* security interests.

It can be even argued that the responsibility for defining Finland’s energy security has partly been turned over to the corporate world. Finland’s significant energy dependency on Russia (70% of energy imports) has been justified by the economic profitability of this trade for both parties. However, the state of Finland is, through many different links, tied to these long-term, economic dependencies. Examples of these include Neste Oy, a state majority-owned company and an important international hub for Russian oil and gas flows, and Fortum Oyj, via complex Finnish and Russian nuclear power and gas industry cross-ownerships, and, in the future, via partial ownership in the Nord Stream II project. This puts pressure on ownership steering (in the companies where the state is the majority owner), and requires a systematic approach to controlling overall impacts.

Ensuring the continuity of energy trade is, as such, already an important part of maintaining good relations with Russia, but the economic advantages formed via trade further strengthen this link. In a static world not threatened by climate change, this would not be an energy policy problem. For Finland, which is pursuing an energy transition, it may be difficult to break these dependencies because the current flows of non-renewable energy produce major economic benefits for the country.

In this respect, nuclear power has a special meaning. There are signs that, from the Russian viewpoint, nuclear power cooperation is a top priority in terms of Finnish and Russian relations (see President of Russia 2017). Hanhikivi 1, the Fennovoima nuclear power plant that is waiting for a building permit, is primarily being financed by the National Wellbeing Fund of Russia and the cost estimate for the project is highly competitive in comparison to other nuclear power plant suppliers. The state-owned Rosatom, the legal aim of which is to promote the interests of Russia, is a company not obliged to produce profit and can also offer Finland a significantly less expensive nuclear power plant. The progress of the Fennovoima – Rosatom – Fortum negotiations from 2014 onwards provides a good example of the special nature of nuclear power and underlines the strong foreign policy links in Russian-Finnish nuclear power cooperation: the decision-making processes included flexibility concerning the promised time limits, the government was closely involved in the processes alongside a private company (Fennovoima) and the state majority-owned company Fortum was encouraged to become a shareholder (Tynkkynen 2016b).

Nuclear power cooperation is officially (see Ministry for Foreign Affairs, 2016) an important part of promoting good relations between Finland and Russia *as long as* the project pro-

gresses without problems. The government and several political parties have presented the dimensions of the Rosatom project as being no more than an economic, environmental and energy policy matter. Thus, a foreign or security policy assessment was considered unnecessary. However, the problems faced by the project reflect on relations between the countries and, for example, the opportunities for Finnish companies, such as Fortum, to operate in Russia.

Nuclear energy cooperation potentially hinders a rapid energy transformation in Finland

Nuclear energy cooperation does not only have important ramifications for and, to a certain extent, frame our foreign policy considerations vis-à-vis Russia – it also potentially hinders a rapid energy transformation in Finland. Hanhikivi 2, which is already on Russia's trade policy agenda, would limit growth in the share of renewable energy because a large and inflexible amount of nuclear energy in the electricity system makes it difficult to increase the share of variable renewable energy (see Kopsakangas-Savolainen & Svento 2012).

When Finland obtains its energy and energy production infrastructure from Russia at a very low price, it's worth considering what else has been factored into it – in addition to market price calculations. For example, the successful completion of the Hanhikivi project would provide Rosatom with an internationally acknowledged reference that may help it to secure new international customers for its nuclear power plants. Taking into consideration other objectives that are not directly related to energy, Russia would like Finland and Sweden to remain militarily non-aligned countries. Against this background, we can ask the question of what would happen to the pricing of oil (e.g. transports), and especially energy flows and technology in the gas and nuclear power sectors, if Finland chose differently by, for example, joining NATO?

Finnish energy security discussion often refers to the fact that all energy flows imported from Russia could be replaced. In truth, they could be replaced in a crisis situation but only *hypothetically* in normal conditions. In a business-as-usual situation, factors that maintain dependency limit the choices. Russia is well aware of this. Thus, our manoeuvrability is in many ways more limited than in a decentralised energy procurement scenario, where the market is not dominated by a single energy supplier. Russia could compensate for this trade, but for Finland it would be very expensive. Under normal conditions, it is impossible to imagine a situation in which Finland or the entire EU region could simultaneously purchase its oil, gas, coal, uranium and electricity from somewhere else. The price would inevitably rise and company profits would decrease. It is extremely difficult to prove what this would really mean in terms of freedom of choice regarding decisions on economic, energy, environmental and foreign policy made by Finland or the EU – what decisions have been made or not made because of these dependencies.

In light of this, the fact that Finland's dependency on Russian energy has grown – imports from Russia increased from 65% in 2015 to 71% in 2016 – since the Ukrainian crisis is a very interesting development. Regardless of whether this was dictated by the energy economy or not, it can also be interpreted as a sign of trust in foreign policy: while other western countries "politicise" energy trade, Finland is a "rational" actor that does not mix the economy with foreign and security policy.

Renewables – potential for a symmetric energy relationship

Since Finland and Russia have traditionally had relatively good trade relations and, the energy transition could also be seen as an opportunity to purchase renewable energy from Russia and also export Finnish industry expertise, thus changing the asymmetric relationship in energy trade. However, this would require a change in the balance of power between energy forms in Russia, because the focus, especially when developing the energy infrastructure, is strongly on gas, which is still heavily subsidised (Tynkkynen 2016a).

Biomass could be one example of potential for cooperation in renewable energy. Use of biomass in Russia may double from 32 million to 75 million cubic meters between 2010 and 2030. In terms of export, opportunities for cooperation exist in areas with a good logistics location, such as northwest Russia, because the primary export market – the Nordic countries and the EU area – are close at hand. Russia's own bioenergy consumption must take place in those areas that have the most forest, where fossil fuel availability is poor, or in areas that need energy on a seasonal basis (RENA 2017). In addition to northwest Russia, these areas include those where the forest industry has traditionally had a strong foothold. This link to the forest industry is also the key to developing the bioenergy sector, as it has the institutional leverage needed to influence energy policy choices in Russia. This sector would also be a natural partner when considering Finnish possibilities to influence greening of the Russian energy sector and broader social responsibility. One positive feature of bioenergy trade is that it has in practice remained outside the sphere of politicisation. Despite this, an increase in its use has to be examined critically, especially with regard to social and environmental impacts (Mendez Souza et al. 2017; Tynkkynen 2014).

The above discussion of Finland's energy security serves as an introduction to the analysis below, which examines the processes of energy trade between Finland and Russia via political-economic influence and dependencies. Table 5 presents the factors that appear to be key for each energy sector from the perspective of our analysis, which is based on detailed and concrete cases related to energy companies and actors. At the end of the table is an important summary of the significance and logic of our overall dependence, which is the foundation on which Finnish-Russian energy cooperation and our understanding of energy security has developed.

Table 5. Summary of the energy weapon analysis model by fuel: Russia's methods of influencing Finland via energy trade

	Phase 1 "Russia's state owner- ships"	Phase 2 "Russia's control of flows"	Phase 3 "Rus- sia's measures"	Phase 4 "Finland's reactions"
Gas	Controlled by the Russian state via Gazprom ownership	Export controlled by Gazprom	Low pricing used to maintain customer relationships and "good will"	Share of gas reduced in the energy palette and new gas infrastructure aims at decentralisation, but Neste Oy's flows remain unchanged, difficult to replace
Oil	Russian state owns 2/3 of oil production	State-owned Transneft exports 85% of oil	Oil exports to Finland have remained high mainly for geoeconomic reasons	Oil imports from Russia have remained high (80-90%) due to price and refining technology inertia, which have prevented decentralisation plans
Nuclear power	State-owned Rosatom owns the entire chain	State-owned Rosatom controls the entire chain	Share of Russian uranium has remained high due to pricing and a historical customer relationship related to nuclear power plants; power plant provided for Fennovoima at a low construction price and electricity at a guaranteed price	Despite obvious foreign and security policy links, nuclear power cooperation and trade is defined using economic concepts; a major crisis in EU-Russia relations did not change Finland's stand on Russian nuclear power
Bioenergy	Russia's bioenergy sector is in private hands; a large number of actors	Bioenergy and wood exports under state control, but many and private actors	Bioenergy trade is indirectly politicised due to wood export policy; bioenergy is decoupled from direct Russian state influence interests	Reactions directly related to bioenergy cannot be identified; potentially a lack of desire to increase import due to Finland's own forest sector interests
Joint impact of overall dependence	The majority of Russian actors in Russia-Finland energy trade are state-owned	The majority of flows in Russia-Finland energy trade are controlled by the Russian state	Pricing, good terms and minimising politicisation ensure continuity in the energy trade, which is important for relations between Finland and Russia.	Finland has the need to define its energy cooperation with Russia using economic concepts and underline its importance to good relations, in which case a 70% dependency level is not seen as a problem but as a sign of trust.

Further reading

Global energy sector transitions will have an impact on geopolitics. Prime Minister's Office Article Series of Government's analysis, assessment and research activities 14/2017. <http://tietokayttoon.fi/julkaisu?pubid=21501>

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