Arctic Review on Law and Politics, vol. 5, 2/2014 pp. 177–200. ISSN 1891-6252

Electricity Interconnection and Trade between Norway and Russia

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Received September 2013, accepted December 2013

Abstract: Anticipated industrial growth in northern Norway, particularly of energy intensive industries such as hydrocarbons and mining, will inevitably result in increased electricity consumption. Northern Norway faces security of supply challenges, and substantial investments are needed in generation, transmission and distribution capacity in order to meet the growing electricity demand. This makes it advantageous to reinforce the existing cross-border electricity infrastructure and trade between Norway and Russia. Cross-border interconnections however are complex, and the controversial debate over Norway's position on nuclear power in the Kola Peninsula has created public and political opposition that could permanently hinder interconnection expansion plans. This article provides an outline of the existing electricity interconnection and trade between Norway and Russia and examines the potential for reinforcing those arrangements, as well as the concomitant social, political and legal challenges. It argues that in spite of nuclear power controversies, there is still room for expanding the existing interconnection and electricity trade in view of opportunities for the development of other renewable resources in Russia.

Key words: electricity interconnection, electricity trade, Norway-Russia energy cooperation

1. Introduction

This article examines the potential for reinforcement of electricity interconnection and trade between Norway and Russia in view of the anticipated industrial growth in northern Norway and the concomitant increase in electricity demand. Investment and development in cross-border interconnection however is complex. This article addresses the inherent social, political and legal challenges – predominantly from Norway's perspective. Whilst economic considerations are also essential in the decision-making process concerning cross-border interconnection projects, this paper does not purport to conduct a cost-benefit analysis of reinforcing the existing interconnection with Russia.

The establishment of electricity interconnections between neighbouring States is typically motivated by concerns with security of supply, more specifically by the need to satisfy domestic demand during periods of shortages in generation capacity. A case in point is the electricity interconnection between Norway and Russia linking Kirkenes in the Finnmark County, and Boris Gleb in the Murmansk Oblast.

The first steps towards electricity interconnection between Norway and Russia were taken under the umbrella of a 1957 agreement on the utilization of Pasvik water power.[1] The construction of the power plant at Boris Gleb and interconnection lines with Kirkenes was a response to seasonal variations in the availability of hydropower and power shortages experienced in northern Norway.[2] Additionally, the increased industrialisation experienced at the time in Sydvaranger (Norway) and Nikel (Russia) also justified the interest of both countries in pooling efforts to utilise the hydro potential of the Pasvik. It is remarkable that the Pasvik agreement (1957) was signed and construction of Boris Gleb hydroelectric station and interconnection lines (during the 1960s) was undertaken at the height of the Cold War, when Russia and Norway (as a member of the North Atlantic Treaty Organization) were in opposing political and military camps. In spite of the Cold War both countries managed to cooperate on the use of energy resources and cross-border electricity interconnection and trade, even though such issues are important for national security.[3]

Norway also has a long history of cooperation with Sweden and Finland to develop interconnections (discussed in more detail below), which it has continued to do following the liberalization of energy markets. By contrast, the interconnection and trade with Russia has seen little development since the initial investment.

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1. Agreement between Norway and the Union of Soviet Socialist Republics on the utilization of water-power on the Pasvik (Paatso) River, Oslo 18 December 1957, United Nations, Treaty Series, Vol. 312, 1958, No. 4522, p. 257.
2. 'Northern Norway' geographically encompasses the counties of Nordland, Troms and Finnmark.
3. Riibe, Sissel and Weyergang-Nielsen, Henning, "Kraftoverføringens Kulturminner", Norges vasdrags- og energidirektorat, NVE rapport nr. 17, 2010, pp. 260–263.

The literature on liberalization of energy markets emphasises the importance of cross-border interconnections. Turvey for example indicates that interconnections yield gains by reducing the cost of generation, and by reducing the market power of generators located in the importing areas. Interconnections also offer increased system security and promote efficiency between the interconnected systems.[4] Neuhoff, Neuhoff and Newbery, Brunekreeft et al., and Jamasb and Politt make similar points, emphasising that cross-border interconnections lead to the integration of electricity markets, mitigation of market power, and contribute to a high level of social welfare.[5] Finally, as shown by De Jonghe et al. and Lynch et al., interconnections also facilitate integrating electricity from intermittent renewable energy.[6]

Norway identified these advantages at an early stage, and has collaborated extensively with its Nordic neighbours on energy issues through NORDEL since 1963.[7] Nevertheless, significant changes came in the 1990s. In 1990 Norway became one of the first European countries to liberalise its energy market, moving from a central planning system to a market driven system. In the following years Norway was also the main force behind the development of the integrated Nordic electricity market, which was gradually implemented with the liberalization of the internal energy markets of Sweden (1996), Finland (1998), and Denmark (2000). The establishment of the integrated market led to an increase in cross-border electricity trade between the Nordic States, and the exchange of physical power and financial contracts through the Nordic Power Exchange – Nord Pool.[8] Electricity interconnec-

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4. Turvey, Ralph, "Interconnector Economics", *Energy Policy*, 34, 2006, pp. 1457–1472.
5. Neuhoff, K., "Integrating transmission and energy markets mitigates market power", Working Paper, CMI EP 17, 2003, University of Cambridge; Neuhoff, K. and Newbery, D., "Evolution of electricity markets: does sequencing matter?", *Utilities Policy*, 13, 2006, pp. 163–173; Brunekreeft et al., "Electricity transmission: an overview of the current debate", *Utilities Policy*, 13, 2005, pp. 73–93 and Jamasb, T. and Politt, M., "Electricity market reform in the European Union: review of progress toward liberalization and integration", *Energy*, 26 (Special Issue I), 2006, pp. 11–42.
6. De Jonghe, C., et al., "Determining optimal electricity technology mix with high level of wind power penetration", *Applied Energy*, 88, 2011, pp. 2231–2238 and Lynch, M.A., et al., "Optimal interconnection and renewable targets for north-west Europe", *Energy Policy*, 51, 2012, pp. 605–617.
7. NORDEL was a body constituted by the Transmission System Operators of Norway, Sweden, Finland, Denmark and Iceland, with the purpose of facilitating conditions for the future creation of a harmonised Nordic energy market.
8. For a comprehensive account of the development and functioning of the Nordic electricity market see Wasenden, Odd-Harald, "The Nordic electricity market – a mature international market and power exchange" in Martha M. Roggenkamp and François Boisseleau (eds.), *The Regulation of Power Exchanges in Europe*, (Intersentia 2005), pp. 31–80, and see also Amundsen, Eirik S. and Bergman, Lars, "Integration of multiple national markets for electricity: The case of Norway and Sweden", *Energy Policy*, 35, 2007, pp. 3383–3394.

tion and trade between the Nordic countries via Nord Pool is often singled out as an example of the success of liberalized markets.[9]

The complex process of market liberalisation did however mean that Norway concentrated its efforts on reorganising the electricity system rather than developing additional generation capacity and the electricity grid. In fact, Hammer suggests that Norway was slow to match increased energy consumption with investments in generation and network capacity, and especially so in the northern regions.[10] The investments that were made favoured the links between southern parts of Norway and neighbouring Scandinavian countries and Europe, leaving northern Norway with an obsolete central grid, underdeveloped regional grids, and insufficient generating capacity which therefore had to be complemented by electricity imports from Russia and Finland to satisfy demand.[11]

Forecast industrial growth in northern Norway, particularly the expansion of energy intensive industries such as hydrocarbons and mining, as well as the projected growth in northern Finland and Sweden, will inevitably result in an increase in demand for electricity. The Nordic transmission system operators (TSOs) collaborate extensively in grid development and have identified the need to reinforce the electricity grid in northern areas (especially on the Norwegian side) and a number of projects are being undertaken for that purpose.[12] It may also be advantageous to increase the capacity of the existing interconnection and the electricity exchange between Norway and Russia.

Notwithstanding the gains that interconnections can generate, these projects are not without their detractors. For instance, in the case of Norway-Russia, the debate around the continued use of the two oldest nuclear reactors at the Kola nuclear power plant has created public and political opposition to any enhanced interconnection with Russia. This opposition could permanently hinder expansion plans. Still, such plans should not be dismissed altogether. Controversies around the expansion of wind parks and electricity grids in northern Norway, especially in areas that overlap Sami reindeer husbandry areas, may make further expansion difficult, therefore justifying the need to look to the alternative of enhancing the exist-

9. See e.g. Teusch, Jonas, Behrens, Arno and Egenhofer, Christian, "The Benefits of Investing in Electricity Transmission: Lessons from Northern Europe", CEPS Special Reports, No. 59/January 2012.
10. Hammer, Ulf, "National Approaches: Norway" in Barry Barton et al. (eds.), *Energy Security: Managing Risk in a Dynamic Legal and Regulatory Environment*, Oxford University Press 2005, p.309.
11. Det Kongelige Olje og Energidepartement, Meld. St. 14 (2011–2012), Melding til Stortinget, Vi bygger Norge – om utbygging av strømnettet, pp. 5, 32 and NOU, Norges offentlige utredninger 2012: 9 Energiutredningen – verdiskaping, forsyningssikkerhet og miljø, pp. 167, 168.
12. Nordic Grid Development Plan, (Statnett, Svenska Kraftnät, Fingrid, Energinet.DK and Landsnet), September 2012.

ing interconnection and trade between both countries. Furthermore, if we place this discussion in the context of Norway's role in the integration of the European energy market and as an interlocutor for relations between the European Union (EU) and Russia, reinforcing the interconnection and trade between Russia and Norway could also be significant.

Investing in cross-border networks and increasing cross-border electricity trade is particularly pertinent in the EU. As Kappf and Pellkmans point out " … a physically interconnected Europe-wide electricity grid is a *conditio sine qua non* for a genuine IEM [Internal Energy Market]".[13] In addition, the EU also considers the development and integration of renewable energy sources in cooperation with third neighbouring states as one of the means that EU Member States can use to meet the Energy Roadmap 2050 climate change mitigation objectives.[14] Prospects of further integrating European and Russian electricity markets, and increasing flows into Europe of electricity generated from renewable sources in north-west Russia, can thus be of interest to Norway. Boute and Willems have explored the possibilities for EU-Russia cooperation in renewable energy, more specifically through the implementation of joint projects with third countries under the conditions established by Directive 2009/28/EC. Their analysis suggests that the electricity interconnection between Norway and Russia is one potential corridor for the export of renewable energy generated in Russia into Europe.[15]

This article is organized as follows. Part 2 identifies the underlying causes for the need to increase investments in electricity infrastructures in northern Norway. Part 3 gives an overview of the existing electricity interconnection infrastructure and discusses the opportunities and challenges for further cooperation between both states. Part 4 examines the legal framework for enhancing the interconnection between Norway and Russia. Since the article focuses on the Norwegian perspective, the analysis in this part focuses on Norwegian legislation. An examination of Russian regulatory issues is beyond the scope of this article. Part 5 contains concluding remarks arguing in favour of the reinforcement of interconnection capacity and electricity exchanges between both countries.

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13. Kappf, L. and J. Pelkmans, "Interconnector Investment for a Well-functioning Internal Market. What EU regime of regulatory incentives?" Bruges European Economic Research Papers No. 18(2010), Department of European Economic Studies, College of Europe, p.4.
14. European Commission, Communication COM (2012) 271 Final on Renewable Energy: A Major Player in the European Energy Market, 6 June 2012, p. 9, available at <http://ec.europa.eu/energy/renewables/doc/communication/2012/comm_en.pdf>, accessed 23 August 2013.
15. Boute, A. and P. Williems, "RUSTEC: Greening of Europe's energy supply by developing Russia's renewable energy potential", *Energy Policy* 51, 2012, pp. 618–629.

2. Increased investment in electricity infrastructures in northern Norway

The underlying causes for the increased need to invest in generation, transmission and distribution capacity in northern Norway are essentially linked to: (*i)* reduced security offered by the currently limited generation and network capacity, *(ii)* projected growth in electricity consumption by energy intensive industry, and (*iii)* the potential for development of renewable energy, particularly wind power.[16] The following sections examine each of these issues.

2.1 Limited generation, transmission and distribution capacity

Socio-economic development in northern Norway is significantly dependent on the quality and reliability of electricity supplied to household and non-household consumers. This requires either the development of new generation or increased electricity imports in order to meet growing demand and a system that is vulnerable to fluctuations in water inflows. Northern Norway consumes about 19TWh per year of electricity and has a generating capacity of 24TWh in a normal year. Whilst there is a surplus of 5TWh for the region as a whole over the year, Troms and Finnmark counties experience a power generation deficit during winter periods which needs to be covered by generation in Nordland County and by imports from Russia and Finland.[17]

Investments in new generating capacity however are inextricably linked with the network capacity to sustain new inputs. In the northernmost areas of Troms and Finnmark, central and regional electricity transmission is largely carried out through 132kV and 66kV lines, respectively. As illustrated by figure 1, with no lines with voltage of more than 132vK, northern Norway lacks a central grid capable of supporting the region's development expectations.

16. THEMA Consulting Group, Rapport 2012–29 *På nett med framtida: Kraftnettets betydning for verdiskaping, Region nord*, Januar 2013, p.6.
17. Above n 11 at 32.

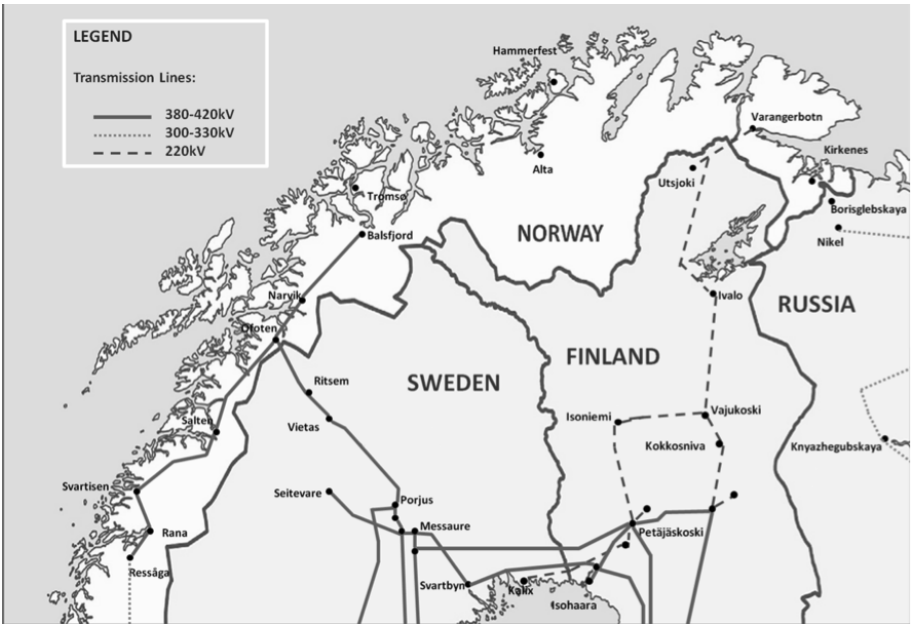

Fig.1: Transmission Lines between 220kV and 420kV in Northern Scandinavia
Source: Author's map based on information from ENTSO-E Interconnected Network of Northern Europe Grid Map, 2012 and Statnett.

This limited capacity, coupled with the fact that a number of the lines are reaching the end of their technical lifetime, makes the need for replacing and enhancing the network capacity evident. As demonstrated in the *Swedish Interconnectors* case, transmission congestion contributes to the creation of a segmented electricity market which can compromise the liberalisation agenda.[18] Therefore, improving the electricity network in northern Norway is also necessary to reduce existing bottlenecks and bring more stability to electricity prices.

Statnett SF, the Norwegian transmission system operator, recognises this problem and has embarked on a number of projects to upgrade the transmission lines.[19]

18. European Commission Decision of 14 April 2010, COMP/39351 *Swedish Interconnectors*.
19. In a press release from 2011, Statnett openly admitted that the security of supply in areas to the north of Ofoten is not only weaker than previously assessed, but also that northern Norway is exposed to blackout risks. See Statnett press release "Forsyningssikerheten i Nord-Norge er dårligere enn tidligere utredet", 19 May 2011, availabe at <http://www.statnett.no/no/Nyheter-og-media/Nyhetsarkiv/Nyhetsarkiv-2011/Forsyningssikkerheten-i-Nord-Norge-er-darligere-enn-tidligere-utredet/>, accessed on 26.06.2013. Also for a detailed account of Statnett's grid development plans in northern Norway see "Nettutviklingsplan 2011", Statnett, November 2011, pp. 47–50.

The 420kV lines between Ofoten-Balsfjord-Hammerfest-Skaidi-Varangerbotn, and the 132kV lines between Varangerbotn-Skogfoss are the most significant of those projects. Regional transmission and distribution companies also have grid reinforcement plans that are expected to require investment of around 8 billion NOK. Total investments required for improving northern Norway's electricity grids are substantial, as illustrated by figure 2.

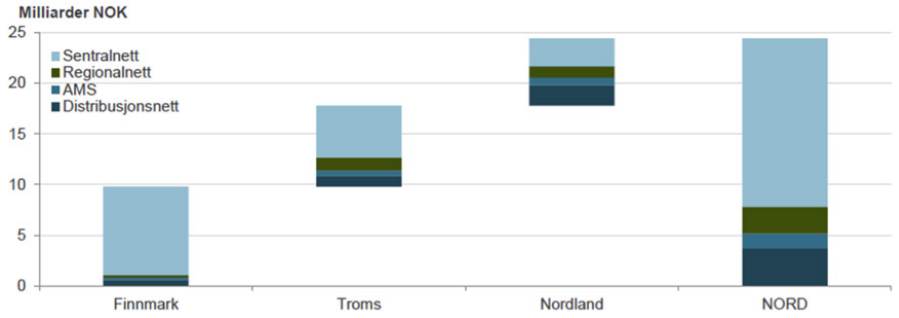

Fig.2. Estimated grid investments for northern-Norway (in billions)
Source: THEMA Consulting Group "På nett med fremtida – Region Nord" 2013

2.2 Increase of industrial activity in northern areas

The Norwegian government considers development in northern Norway to be a priority.[20] In its policy strategy for the High-North, the government highlights the need to facilitate sustainable exploitation of natural resources, socio-economic development and value creation, together with the need to balance such development with the protection of the environment and the protection of the rights of indigenous peoples. Whilst there is still some degree of uncertainty in the projections for hydrocarbon activities in the high-north, there are a number of possible projects as well as projects already under implementation which justify further investments in electricity infrastructure. These projects are mostly related to existing hydrocarbon operations in the Barents Sea, mining activities in Finnmark, and spin-off-effects from industrial development.

20. Norwegian Ministry of Foreign Affairs, Meld. St. (2011–2012) Report to Storting, The High North: Visions and Strategies.

The Ministry of Petroleum and Energy is keen to develop hydrocarbons in the high-north and to augment the use of onshore power to supply offshore facilities.[21] At present, electricity for the operation of offshore platforms is mainly supplied by gas turbines located in situ and with substantial emissions of noxious gases. Connecting the offshore installations to the land power grid is one of the preferred solutions of Climate Cure 2020 to reduce these emissions and increase energy efficiency. This solution reinforces the decision of Norwegian Parliament in 1996 that each new development on the Norwegian continental shelf should include a study on supply of power from land.[22] Studies conducted for the electrification of Snøhvit, Tog I and Tog II at Melkøya indicate that whilst it is cost-effective, there are still concerns regarding construction of new transmission lines and ensuring an undisrupted supply.[23] The Goliat installations will be partially electrified through a subsea power cable connected to the land grid. This will require Hammerfest Energi Nett AS to upgrade the local electricity grid.[24] Discussions over the electrification of Johan Castberg (previously Skrugard) given its distance from land (approximately 240km) have also raised the issue of creating an offshore sub-sea central transmission grid. Overall it is estimated that operations in the Barents Sea after 2020 will require a capacity of approximately 700MW. Future development of hydrocarbons under the umbrella of the maritime delimitation agreement between Norway and Russia[25] could also provide a potential platform for cooperation in electrification of those facilities.

The revitalization of mining activities in Finnmark will also require adequate capacity to meet increasing demand for electricity. A number of decommissioned mines as well as new projects are to be developed given the region's endowment of copper, gold, iron, and other minerals, and currently favourable prices. The Sydva-

21. Norwegian Ministry of Petroleum and Energy, Meld. St. 28 (2010–2011) Report to Storting, An Industry for the Future: Norway's Petroleum Activities, pp.13, 124–126.
22. Climate Cure 2020 is an expert group commissioned by the Norwegian Ministry of the Environment to present various options for achieving national emission target reductions by 2020. The Norwegian Petroleum Directorate provided the analysis for the petroleum sector report which is available at <http://www.npd.no/Global/Norsk/3-Publikasjoner/Rapporter/PDF/Klimakurendelig-rapport.pdf>, accessed 10 June 2013.
23. Tangvik, Kirsti, Statoil, Nord-Norge Konferansen 1 Juni 2012, Elektrefisering av Snøhvit, Tog I og Tog II, available at <http://www.zero.no/foredrag/elektrifisering-av-snohvit-tog-i-og-ii>, accessed 18 June. 2013.
24. See Goliat Field Development information available at <http://www.eninorge.com/en/Field-development/Goliat/Electrification/>, accessed 10 July 2013.
25. Treaty between the Kingdom of Norway and the Russian Federation concerning Maritime Delimitation and Cooperation in the Barents Sea and the Arctic Ocean, Murmansk, 15 September 2010.

ranger and Kvalsund projects alone are expected to require about 60GWh and 150GWh, respectively.[26]

2.3 Development and integration of wind power

Given Norway's ambitious commitment under the agreement on the Renewables Directive 2009/28/EC to increase the share of renewable energy to 67.5 % by 2020[27], the enormous potential for electricity generation from renewable sources in northern Norway is of particular relevance. Whilst there is still capacity to further exploit hydro resources in the region, and some potential for the development of biogas, solar, tidal and wave resources, the focal point for renewable energy generation in northern Norway is wind power.[28] With wind gusts averaging from 7 to 9m/s, northern Norway has optimal conditions for wind power generation, with a theoretical potential of 193TWh, about 70 % of Norway's total wind power potential. However, in practical terms only a small amount of this capacity can be harvested. NVE,[29] responsible for managing domestic energy resources, estimates that the overall technical feasibility for installed onshore wind power in northern Norway until 2025 is between 850MW and 1700MW, depending on a number of variables, one of these being the limited amount of power that can be injected into the transmission network.[30]

3. Existing electricity interconnection capacity and prospects for further cooperation between Norway and Russia

Part 2 provided the context for understanding the need to invest in electricity infrastructure in northern Norway. This part aims to discuss the enhancement of electricity interconnection and trade between Norway and Russia as a potential means to meet the energy demands identified in Part 2. Following an overview of the

26. Above n 16 at 13.
27. Norwegian Ministry of Petroleum and Energy, "National Renewable Energy Action Plan under Directive 2009/28/EC – Norway", Ref. Ares (2013)117932, 30 January 2013, available at <http://ec.europa.eu/energy/renewables/transparency_platform/doc/dir_2009_0028_action_plan_norway__nreap.pdf>, accessed 18 June 2013.
28. For a detailed account of the potential of different renewable energy resources in northern Norway see Halvorsen, Kaj W. et al., "Sektoranalyse av fornybar energi i Nord-Norge", Kunnskapsinnhenting utarbeidet på oppdrag for Nærings – og handelsdepartementet, 25 April 2013.
29. Norwegian Water Resources and Energy Directorate (NVE).
30. Waagaard, Inger Helene et al., "Mulighetsstudie for landbasert vindkraft 2015–2025", Norges vassdrags –og energidirektorat (NVE) og Enova, Desember 2008.

existing electricity interconnection capacity between the two states, the subsequent sections examine interconnection reinforcement plans as well as arguments pro and con for such cooperation.

3.1 Existing electricity interconnection capacity

The Norwegian electricity grid is physically interconnected with the Russian system by means of a 10.7Km 154kV transmission line linking the Kirkenes transformer station to the hydroelectric plant at Boris Gleb. The line has a transmission capacity of 50MW and the power plant at Boris Gleb has two generators with a capacity of 28MW each. One of the generators is in continuous synchronous operation with the Norwegian power system. The interconnection is used to import electricity from Russia to Norway exclusively from the hydroelectric plant, which means that power from the general Russian electricity system and other generation sources cannot be imported. As the holder of the concession for imports of electricity through bilateral agreements and for imports based on trade over Nord Pool, Statnett facilitates the transmission of electricity to purchasers which have a written contract with the Russian generator at Boris Gleb. According to ENTSO-E, the physical electricity inflows to Norway from Russia in 2011 amounted to 212 GWh.[31]

3.2 Drivers for enhancing network interconnection and electricity trade

In general there are a number of measures that can be implemented in order to meet the challenge of increased electricity consumption and demand. These include for instance: (*i)* developing additional generation facilities to increase electricity production, (*ii)* introducing demand-side management and efficiency measures to curb electricity consumption and provide a more intelligent use of the network system, (*iii)* establishing cross-border electricity interconnections to tap into a neighbouring country's resources and reduce costs with domestic generation, and (*iv)* upgrading transmission and distribution lines to relieve congestion.[32]

Because any of these measures entails significant investments and different environmental impacts, it is relevant to opt for those that make good socio-economic and environmental sense. Therefore, the implementation of these measures, indi-

31. European Network of Transmission Systems Operators for Electricity (ENTSO-E), Statistical Yearbook 2011, p. 87.
32. NOU, Norges offentlige utredninger 2012: 9 Energiutredningen – verdiskaping, forsyningssikkerhet og miljø, pp. 168,169.

vidually or combined, requires a coordinated approach to planning supply and demand, along with a cost-benefit analysis. In Norway such assessment is conducted through national and regional[33] power system studies under the auspices of NVE with the collaboration of various energy stakeholders. These power system studies are instrumental in NVE's assessment of license applications for the development of generation capacity and network infrastructure, as well as for the adequate development of the Norwegian power system.[34]

In light of these alternatives, what are the pros and cons of enhancing network interconnection and electricity trade between Norway and Russia rather than adopting one of the other alternatives? There are a number of arguments in favour of improving the interconnection between the two systems, including conflicts over area planning, the insufficiency or inadequacy of other alternatives for meeting electricity demand and security of supply, and the potential for aiding EU member states in meeting targets established under Directive 2009/28/EC.

As demonstrated by Nikolai Winge, area and development planning in northern Norway is particularly challenging and requires a balanced conjugation of many conflicting interests.[35] Development of extensive new electricity projects raises concern for the protection of the rights of indigenous people and the protection of flora and fauna. Wind parks, and transmission and distribution lines pose major challenges for landscape values and for migratory patterns of fauna, and give rise to NIMBY[36] sentiments for local and indigenous communities. For instance, the Sami have been critical of the proliferation of wind parks and industrial activities in northern areas on the grounds that they negatively affect reindeer husbandry.[37] Such opposition can entail delays in licensing procedures, increased costs for com-

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33. For the studies covering northern Norway, i.e. Nordre Nordland and Sør Troms, Troms and Finnmark, see, respectively: <http://www.hlknett.no/hlk/cmsmm.nsf/lupgraphics/Hovedrapport%201.pdf/$file/Hovedrapport%201.pdf>, <http://viadora.tromskraft.no/dokumenter/KSU2011.pdf> and <http://www.varanger-kraft.no/default.asp?menu=120>, accessed 02 November 2013.
34. Regulation on energy studies laid down by the Norwegian Water Resources and Energy Directorate 7 December 2012 pursuant to Regulation 7 December 1990 No. 959 on the generation, transmission, trading, distribution and use of energy etc. (Energy Act Regulations) § 1.9 and Act 29 June 1990 No. 50 relating to the generation, transmission, trading, distribution and use of energy etc. (Energy Act) § 10–6.
35. Winge, Nikolai K., "Kampen om arealene: rettslige styringsmidler for en helhetlig utmarksforvaltning", Universitetsforlaget, 2013.
36. NIMBY stands for Not In My Back Yard.
37. See e.g., Vermes, Thomas, "Ikke i Finnmark", ABC Nyheter, 12.10.2010, available at <http://abcnyheter.no/nyheter/miljo/101012/ikke-i-finnmark>, accessed 06 August 2013; Vuolab, Siv Eli and Guttorm, Kjell Are, "Protesterer mot kraftlinje" NRK Sápmi, 26.01.2011, available at <http://www.nrk.no/kanal/nrk_sapmi/1.7478981>, accessed 06 August 2013 and Pulk, Åse, "Protest-

pensations and the risk that not all the projected generation capacity will be developed in the near future. According to government estimates, the average processing time for license applications is approximately three years, which doubles if there are any appeals or disputes.[38] The amount of time spent by entrepreneurs preparing their applications must also be added. For instance, in the Sima-Samnanger case, strong public opposition fuelled by extensive media coverage over the construction of a mere 410 kV transmission line covering a distance of 90 Km resulted in the delay of the licensing procedure. Statnett applied in 2006 for a license to build and operate the transmission line, which NVE granted in 2008. Subsequently forty-nine entities filed formal complaints with the Ministry of Petroleum and Energy, focusing on the landscape and environmental impacts of the project. Although the Ministry approved the issuance of the license in 2010, the pressure from public opinion led the Ministry to undertake further analysis of the case and a final decision confirming the license was only taken in 2011.[39]

As for the insufficiency or inadequacy of other alternatives for meeting electricity demand and security of supply, the plans for increasing generation capacity in Northern Norway focus predominantly on the development of wind power.[40] However, the intermittent nature of wind power combined with harsh weather conditions in northern areas makes it rather unpredictable. This impacts the energy system by affecting its balancing needs and reliability, i.e. the ability to ensure that there is sufficient output to meet peak demand. In addition, proliferation of wind farms throughout northern Norway also results in additional costly investments in network development. The latter will be necessary to connect wind farms to the grid and the demand. Moreover, there are also increased balancing costs in the transmission system operation. As such, wind power may not be seen as the sole solution to providing a reliable electricity supply to growing industry in northern Norway. Disturbances in the Norwegian electricity system resulting from wind or hydro power fluctuations or force majeure can be offset by increased access to generating capacity on the Russian side of the border. Furthermore, collaboration in

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erer mot gruvedrift", NRK Sápmi, 10.06.2013, available at <http://www.nrk.no/kanal/nrk_sapmi/1.11072931>, accessed 06 August 2013.

38. Above n 27 at 42.

39. Hammer, Ulf, "The Role of Energy Networks in Facilitating Renewables in Norway" in Martha M. Roggenkamp et al. (eds.), *Energy Networks and the Law: Innovative Solutions in Changing Markets*, (Oxford University Press 2012), p.208 and Ruud, Auden et al., "Case Hardanger" En analyse av den formelle konsesjonsprosessen og mediedekningen knyttet til den omsøkte luftledningen Sima-Samnanger, CEDREN – Centre for Environmental Design of Renewable Energy, Rapport Nr. TR A7104, 19 Mai 2011.

40. Above n 33.

an interconnection project and renewables development between both countries may give positive signals to investors, and thus provide impetus for other business opportunities and regional socio-economic growth.

It could be argued that it would be preferable to introduce demand-side management (DSM) measures to curtail the consumption of electricity and to introduce intelligent energy systems (smart grids)[41], thus excluding the need for reinforcing the interconnection with Russia altogether. Developing DSM and smart grids is indeed relevant to achieve an efficient, flexible and low-carbon energy system. However, developing and implementing these new measures still requires time and capital investment to test and upgrade the electricity system, substitute obsolete network infrastructures, and ultimately succeed in modifying consumers' behaviour. The fact that the system becomes more complex also exposes it to higher stability risks. In addition, it can be argued that, in an initial phase and without the support of most consumers, the energy savings generated within the system will not be sufficient. Moreover, there are still some uncertainties as to how these measures are to be implemented, and this will require the drafting of new legislation. As Anita Rønne pointed out, the fact that these measures are innovative also means that it will be necessary to develop adequate regulation capable of addressing a multitude of questions concerning recovery of investment costs, financial support, definition of roles and responsibilities in the energy system monitoring and operation, contractual arrangements with consumers, etc.[42] Introducing demand-side management measures and enhancing interconnection are not mutually exclusive. On the contrary, they should be used in tandem for the development of a stable and environmentally friendly electricity system in northern Norway. Statnett has recently launched a pilot test for the implementation of these measures in northern Norway, and as such it is still too soon to assess how they will impact electricity demand in that region.[43] Finally, the fact that DSM and smart grids are expected to be intro-

41. The European Technology Platform for Electricity Networks of the Future defines 'smart grids' as "electricity networks that can intelligently integrate the behavior and actions of all users connected to it – generators, consumers and those that do both – in order to efficiently deliver sustainable, economic and secure electricity supplies". See <http://www.smartgrids.eu/FAQ#12>, accessed 02 November 2013.
42. Rønne, Anita, "Smart Grids and Intelligent Energy Systems: A European Perspective" in Martha M. Roggenkamp et al. (eds.), *Energy Networks and the Law: Innovative Solutions in Changing Markets*, (Oxford University Press 2012), p.156–159.
43. Statnett, "Nye løsninger for å sikre bedre drift av kraftnettet", Nyhetsarkiv, 22 November 2013, available at <http://www.statnett.no/Media/Nyheter/Nyhetsarkiv-2013/Nye-losninger-for-a-sikre-bedre-drift-av-kraftnettet/>, accessed 28 November 2013.

duced in the future has not discouraged Statnett from pursuing reinforcement of interconnection with Russia, as will be demonstrated in section 3.3.

Enhancing interconnection capacity and electricity trade between Norway and Russia can also be useful in assisting both Norway and EU member states to meet the goals of Directive 2009/28/EC through the implementation of a joint project with Russia.[44] Nordic countries and Russia are endowed with considerable energy resources, as well as the potential for developing renewable energy resources. This provides them not only the capability of satisfying their own needs, but also the possibility of assisting the EU in meeting its needs and climate change mitigation goals whilst reaping the economic gains. By 2020 the Nordic region should overall become a surplus area, and power will necessarily flow from northern areas with a surplus and lower electricity prices to southern areas with a deficit and higher electricity prices in the European market. With the enhancement of the Norway-Russia interconnection and the development of other generation capacity, Northern Norway will not be as constricted by seasonality and risk of shortfalls as it is currently, and should be able to explore the financial gains from transferring power also to the south. Moreover, development of enhanced interconnection capacity with Russia would also reinforce the role of Norway as an interlocutor for energy relations between EU and Russia.

As illustrated in the literature review in section one above, there is wide support for cross-border interconnections because they facilitate new economic trading opportunities resulting from the enhancement of competition, exploitation of lowest marginal cost of power generation, exploitation of balancing and reserve markets, and efficiency gains between the interconnected systems. Those reasons, combined with the arguments presented in this section, make a compelling case for the reinforcement of electricity interconnection and trade between Norway and Russia. This article does not argue that this is the only solution for the energy challenges in northern Norway, but rather that in combination with other measures, a reinforced interconnection can make an important contribution.

3.3 Projected interconnection reinforcement

The arguments in favour of exploring the benefits of interconnection are recognized not only by the companies in charge of managing electricity imports/exports, Statnett and INTER RAO, but also by some of the regional energy companies such as Varanger Kraft and Kolenergo. In 2002 the latter regional companies entered into a cooperation agreement (ROSELNOR project) envisioning the exploration of

44. Above n 15.

the complementarities of the Norwegian and Russian northern regions in relation to the increase of power production in the Pasvik River system, the development of wind power in the Kola Peninsula, and reinforcement of the existing interconnection.[45] Statnett and INTER RAO considered enhancing the existing interconnection in the "Pechenga Power Bridge Project". Both parties signed a protocol for the development of this project on 31 August 2011.[46] The implementation of this project, requiring the construction of new overhead cross-border transmission lines between Skogfoss and Nikel, would allow for extended interconnection capacity between both countries of 130–200 MW in a first phase, and 250–300MW in a second phase.[47] The project also entails the construction of a reversible back-to-back DC link at the Nikel substation, allowing electricity to be transferred in both directions, rather than the current one-sided transmission into Norway. Electricity transmission to Norway during the second phase would partially originate from a nuclear source.

3.4 Obstacles to the implementation of interconnection plans

Amongst the classic barriers to the implementation of interconnection plans are incompatibilities or differences in technical standards, grid operation philosophies, electricity pricing and trading systems, legal and regulatory systems, and finally public and political resistance.[48] Norway and Russia have a long history of electricity cooperation. Therefore enhancing an already existing interconnection should not, in principle, trigger the same difficulties as a new cross-border project. Initial assessments undertaken by Statnett and INTER RAO, and statements by both companies reaffirming the benefits of the 'Pechenga Power Bridge' interconnection, have sent positive signals as to the feasibility of the project, specifically with respect to the technical aspects and the conjugation of two different power systems.[49]

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45. Varanger Kraft Årsrapport 2002, p. 33.
46. Protocol "On Creation of New 200 MW Power Transmission between Russia and Norway", 31 August 2011.
47. See Mannsverk, Leif, "Collaboration between Russia and Norway for possible new cross-border electricity exchange" and Artemyev, Igor "Development of electricity trading business between Russia and Norway: Pechenga Power Bridge", Presentations at the Second Norwegian-Russian Business Forum, November 2011, available at <http://www.nrcc.no/view_IINRBF_energy.php> accessed on 11 June 2013.
48. For a comprehensive overview of the barriers and challenges involved in cross-border electricity interconnections, see U.N. Department of Economic and Social Affairs, Division for Sustainable Development, *Multi-Dimensional Issues in International Electric Power Grid Interconnections*, New York, 2006.
49. Above n 47.

At the moment, the main obstacle to the implementation of these interconnection plans is related to public and political resistance to imports of nuclear power foreseen for the second phase of the project. Norway has been keen on decommissioning the two oldest nuclear reactors at Kola NPP, which have been operating beyond their technical lifespan and pose a security risk for the region. Public and political pressure led the Norwegian Ministry of Petroleum and Energy to order Statnett to suspend the "Pechenga Power Bridge Project" until the nuclear reactors are decommissioned. On the Russian side, pressure to extend the operation of those reactors until 2018/2019 for energy security reasons may consign the interconnection project to a long delay, if not loss of interest altogether.[50] A possible solution would be to tap into energy sources other than nuclear, since Russia also has great potential in wind, biomass, biogas, and hydro in that region.[51]

4. Legal arrangements for reinforcing network interconnection and electricity trade between Norway and Russia

Proceeding towards the integration of both markets and electricity trade flows between both sides of the border also requires the convergence of two different legal and regulatory systems. Such convergence is justified by the need to create a transparent and non-discriminatory level playing field for fair competition, determination of tariffs, access to the network, and operation of the interconnection, etc. But complete harmonization of the legal systems is not required.[52] The integrated Nordic electricity market is a case in point. The legislation of the Nordpool countries is not fully harmonized, and yet this has not prevented this market from being highly successful.[53] Still, at a minimum, a project such as this will require both coordination and cooperation between the relevant stakeholders, such as ministries, national regulatory authorities, transmission systems operators, and market operators.

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50. Lie, Øyvind, "Nekter Statnett å importere russisk atomkraft, Teknisk Ukeblad,"15 August 2012, available at <http://www.tu.no/energi/2012/08/15/nekter-statnett-a-importere-russisk-atomkraft>, accessed 20 October 2012.
51. Above n 15 at 620.
52. van Werven, M.J.N. and van Oostvoorn, F., "Barriers and drivers of new interconnections between EU and non-EU electricity systems: economic and regulatory aspects", Energy Research Centre of the Netherlands, May 2006, p. 29.
53. Wasenden, Odd-Harald, "The Nordic electricity market – a mature international market and power exchange" in Martha M. Roggenkamp and François Boisseleau (eds.), *The Regulation of Power Exchanges in Europe*, (Intersentia 2005), pp. 32 and 36.

As a member of the EEA, Norway's electricity system is governed by principles of market liberalization, focusing on ensuring efficiency and competition in electricity production and trade, and transparent, non-discriminatory access to the natural monopoly segment of networks. Russia is restructuring its power sector towards the liberalization of the electricity market and regulation of the natural resources monopoly segment, but it is not at the same level of implementation as in Norway. Nonetheless, it has seen significant developments in the last ten years, and the aims of Russian reform embrace the same principles: a distinction between competitive and monopoly segments, introduction of competition, non-discriminatory access to networks and efficient regulation of transmission and distribution networks.[54]

The similitude of regulatory aims, and agreements already in place for the existing interconnection, provide the basis for both countries to enter into new agreements to enhance interconnection capacity and power exchange.

Developing cross-border electricity interconnection and trade is a multidimensional effort cutting across different fields of law. This part focuses on only a number of selected legal instruments and issues. The following sections examine the general legal framework supporting cooperation between both states in energy issues, selected EU instruments with EEA relevance targeting electricity interconnection, and specific licensing conditions required under the Norwegian Energy Act for the establishment of cross-border interconnections. This part concludes with a brief discussion of the regulatory issues that both states and the transmission system operators (TSOs) will need to consider.

4.1 General legal framework for cooperation between Norway and Russia in the energy sector

The will to develop an energy partnership between Norway and Russia has been reinforced since 1957, and particularly in the past two decades, due to increasing interest in the potential exploitation of energy resources in the high north. Both states have signed a number of hard and soft law instruments, and instituted the Norwegian-Russian Governmental Commission on Economic, Scientific and Technical Cooperation, paving the way for cooperation in energy relations. Focusing on a few of these instruments, a point of departure for recent efforts in energy cooperation was the signature of the Joint Declaration between Norway and Russia upon president Putin's visit to Oslo in 2002. The declaration underlines the relevance of establishing

54. Seliverstov, Sergey S. and Gudkov, Ivan V., "The Development of Electricity and Gas Networks in Russia" in Martha M. Roggenkamp et al. (eds.), *Energy Networks and the Law: Innovative Solutions in Changing Markets*, (Oxford University Press 2012), p. 397.

an energy discourse between the two countries. This line of dialogue was reiterated in June 2005 when President Putin proclaimed Russia and Norway strategic partners in the development of hydrocarbons in the high north. The signature of the Treaty on Maritime Delimitation and Cooperation in the Barents Sea and the Arctic Ocean in 2010 was also of extreme importance for cooperation in the energy sector. This agreement opens up a wide area for joint development of oil and gas deposits, and potentially for joint projects in the electrification of installations. In addition, the memorandum of understanding signed by both states in 2010 specifically highlighted cooperation in the field of electricity, and the synergies in increasing energy efficiency and promoting the development of renewable resources.[55] Interest in the electricity interconnection project "Pechenga Power Bridge" was expressly reiterated, for instance, at the XIII, XV and XVI meetings of the Norwegian-Russian Governmental Commission on Economic, Scientific and Technical Cooperation.[56]

Finally, considering that there is still a certain degree of instability when it comes to investing in Russia, the Bilateral Investment Agreement (BIT)[57] in force between both countries, covering commercial activity linked with extraction or exploitation of natural resources, and containing substantive and procedural standards of protection, is instrumental in bolstering the confidence of investors in the development of new cross-border energy investments. This BIT is especially relevant for energy investors, given that neither Norway nor Russia have ratified the Energy Charter Treaty.[58]

4.2 Relevant EU/EEA legislation

EU instruments regulating the electricity sector with EEA relevance are important even in a scenario of interconnection and power exchange between Norway and a non-EEA/EU member such as Russia. These instruments provide the framework for

55. Memorandum om gjensidig forståelse mellom Kongeriket Norges Olje- og energidepartement og Den russiske føderasjons Energiministerium om samarbeid innenfor områdene energieffektivisering og bruken av fornybare energikilder, April 2010.
56. Protocol from the XIII meeting of the Norwegian-Russian Governmental Commission on Economic, Scientific and Technical Cooperation, Moscow 8 April 2010, p.4.; Protocol from the XV meeting of the Norwegian-Russian Governmental Commission on Economic, Scientific and Technical Cooperation, Moscow 2 March 2012, p.6., and Protocol from the XVI meeting of the Norwegian-Russian Governmental Commission on Economic, Scientific and Technical Cooperation, Oslo 10–11 June 2013, p.5.
57. Agreement between the Government of the Kingdom of Norway and the Government of the Russian Federation on Promotion and Mutual Protection of Investments, Oslo, 4 October 1995.
58. The Energy Charter Treaty is the only multilateral treaty focusing specifically on the energy sector. It provides the legal framework for energy trade and transit, cross-border investments, and for the resolution of disputes between states and between investors and host states.

Norway's and Norwegian stakeholders' conduct. They not only shape the functioning and regulation of Norway's electricity system, they also promote the establishment of network connections with third states.

Directive 2003/54/EC concerning the common rules for the internal electricity market and Council Regulation (EC) No 1228/2003 concerning the conditions for access to the network for cross-border exchanges, and envisioning the stimulation of competition in the energy market (incorporated in the EEA Agreement in November 2005), have been implemented in the Energy Act[59] and appurtenant regulations. The principles contained in these Directives can serve as guidance in arrangements between Norway and Russia.

Directive 2009/28/EC concerning the establishment of a common framework for the promotion of energy from renewable sources (incorporated into the EEA Agreement in December 2009) has also been implemented through the Energy Act and appurtenant regulations. Article 16 of the Directive is relevant for the establishment of an interconnection with Russia, since it requires that states shall take appropriate measures to develop interconnections with third countries in order to accommodate production of electricity from renewable sources. It thus provides the legal basis to explore joint projects with Russia as mentioned above.

4.3 Legal requirements under the Norwegian Energy Act for the establishment of cross-border interconnection and electricity trade

The construction (including refurbishment or expansion) and operation of transmission lines and electricity trade are regulated by the Energy Act, and its regulations which have the overall purpose of ensuring that those activities are conducted so as to take into account public and private interests, as well as those of society as a whole.[60] Until recently, the development of a cross-border interconnection required a concession under section 3–1'licenses for installations' and section 4–2 'import and export of electrical energy'. Under these provisions, licenses for interconnections and cross-border trade have only been granted by the Ministry of Petroleum and Energy to Statnett and NordPool. However, the ambiguous wording of section 4–2 was problematic, and raised interpretive questions as to whether any sale of power between domestic and foreign stakeholders required a license, and as to the vague criteria for awarding a license. The provision also raised issues concerning

59. Act No. 50 of 29 June 1990 relating to the generation, conversion, transmission, trading, distribution and use of energy etc.

60. Ibid, section 1–2.

the potential breach of obligations under articles 11 and 12 of the EEA Agreement on quantitative restrictions to imports/exports in the European Economic Area. In this context the European Surveillance Authority (ESA) requested the Norwegian Ministry of Petroleum and Energy to clarify Norway's implementation of Directive 2003/54/EF concerning the regime for interconnection licensing. ESA's Internal Market Affairs Directorate's preliminary assessment of the Norwegian foreign trade license regime (section 4–2 of Energy Act) identified a number of potential problems: (*i)* failure to demonstrate that the license regime met the requirements of being "appropriate to the aim pursued and that it does not go beyond what is necessary to achieve that aim", (*ii)* lack of transparency of the criteria for awarding the license, and degree of discretion which could conflict with EEA law, (*iii)* duplication of licensing procedures, and (*iv)* lack of justification for distinct procedures for cross-border transmission and domestic transmission.[61]

At the time of writing, building, owning and operating a cross-border interconnection still requires a party to obtain the proper licenses under sections 3–1 and 4–2, but the amendments to the Act clarify and simplify the procedures. Section 4–2 of the amended Energy Act (July 2013), abandons any reference to import or export of electricity, and makes it clear that the license for interconnection only authorizes the construction, ownership and operation of the infrastructure necessary for the physical power exchange between countries. A power trade undertaken via Nord Pool no longer requires a license under section 4–2, but rather under section 4–5 on the operation of an organized electricity market.

The new text of section 4–2 also elucidates who can own and operate the interconnection. According to this provision, a license for ownership and operation of an interconnection can only be granted to the system operator Statnett, or to an entity in which Statnett has 'controlling influence'. 'Controlling influence' is not defined precisely but in principle, in light of the definitions contained in Norwegian company law, and refers to direct or indirect holding of more than fifty per cent of shares, voting rights, or power to appoint and remove members of the governing boards of the company.[62] In practical terms, the new amendment reaffirms Statnett's monopoly over cross-border interconnections, and blocks the possibility of private development of interconnections (i.e. merchant interconnections) with-

61. See Letter by the Authority to the Norwegian Government dated 5 November 2010 (Event No 570587) available at <http://www.eftasurv.int/media/public-documents/570587-v91-Foreign_Trade_License_-_Reply_to_reply.pdf>, accessed 19 August 2013.

62. See for instance § 1–3 (2) of the Limited Liability Companies Act (Lov 1997–06–13 nr 44) and of the Public Limited Liability Companies Act (Lov 1997–06–13 nr 45).

out a partnership with Statnett[63]. In turn, Statnett is obligated to provide access to the interconnection capacity on transparent and non-discriminatory terms. This limitation is based on ensuring energy security and the integrity of the electricity system. Council Regulation (EC) No 1228/2003 concerning private merchant interconnections does not require ownership separation from the TSO, but there may be competition issues that need to be addressed as suggested by Brunekreeft.[64] This restriction may also raise concerns as to a potential violation of EU/EEA rules on abuse of dominant position and free movement of capital.[65]

The amended section 4–2 also provides a simplified procedure for licensing smaller interconnections in border areas intended for local supply, but while the interconnection plans with Russia do impact more directly the border areas in Kirkenes, the project also contemplates establishing transmission lines, and accordingly the expedited procedure is not likely applicable.

Under the licensing procedure for the development of cross-border interconnections, the Ministry of Petroleum and Energy has the duty to ensure that the public interests of society, security of supply, environmental protection, sound resource management, and economic gain are given proper consideration. The decision to grant a license must be based on a transparent and non-discriminatory evaluation of the project's economic profitability and merit over other competing projects. It is therefore essential that an interconnection project with Russia show clear socio-economic gains.

The Energy Act also refers to other instruments that must be observed in the case of an interconnection, including the Planning and Building Act and the Impact Assessment Regulations.[66]

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63. In the case of reinforcement of interconnection with Russia, it is thus evident that no other company with intentions of pursuing such a project would ever be allowed to do so, since Statnett itself has been ordered to suspend the current reinforcement project with Russia.
64. Brunekreeft, Gert, "Regulatory issues in merchant transmission investment", *Utilities Policy*, 13, 2005, pp. 181–182.
65. These concerns were expressed by a number of entities during the public hearing process for the amendment of the Energy Act. See, for instance, the positions of NorthConnect KS and Vattenfall AB (legal opinion by Wilmer Hale), respectively, available at <http://www.regjeringen.no/pages/38046257/NorthConnect.pdf> and <http://www.regjeringen.no/pages/38046257/Vattenfall_AB_Vedlegg_WilmerHale.pdf>, accessed 10 July 2013.
66. Other Acts that are also pertinent include: Act relating to planning and processing of building applications of 27 June 2008 No. 71, Regulations on environmental impact assessment of 26 June No.855, Act relating to the management of biological, geological and landscape diversity of 19 June 2009 No. 100, Act relating to reindeer husbandry of 15 June 2007, No. 40, Act relating to expropriation of real property of 23 October 1959 No. 3, and the Act relating to competition between undertakings and control of concentrations of 5 March 2004 No. 12.

4.4 Regulatory issues that need to be addressed

Implementing a cross-border interconnection will require stakeholders in Norway and Russia to agree on the regulation of a number of sensitive issues. Amongst the most significant are transmission pricing, allocation of the capacity of the interconnection, compensation of transmission system operators for costs incurred in hosting electricity flows into their networks, operation planning, and congestion management.

The signing a system operation agreement on these issues would send the right signals to market participants. Any unilateral practice that favours domestic market participants over foreign competitors, for instance in the case of transmission tariffs, would have negative effects that could hinder the whole general purpose of the interconnection. Guidelines and network codes elaborated by Entso-E[67] could provide guidance as to how to address and regulate these issues. Norway through Statnett is a member of Entso-E, and Russia collaborates on enhancing optimal operation and management of the synchronous areas of the two electricity grids and facilitation of transboundary exchanges. Nonetheless, provisions on a system operation agreement pursuant to interconnection and bilateral power exchange between Norway and Russia need to be adapted to the particularities of the project and its area of implementation.

5. Conclusion

Taking account of the drivers and barriers presented above, the benefits arising from the enhancement of interconnection capacity and electricity exchange between both countries could outweigh the disadvantages. The potential for reinforcing security of supply, promoting competition and efficiency gains, integrating power from other renewable sources and meeting decarbonisation targets, whilst at the same time taking into account the interests of the Sami and other interest groups and reinforcing the interlocution role of Norway in the relations between Russia and the EU, are all important. Reinforcement of the interconnection capacity and introduction of bilateral power exchanges have the potential to be implemented in a more cost-effective manner and in a shorter period of time compared with the overall development of new generation capacity in Norway. Furthermore, an interconnection can provide necessary power to consumers while new generation is under development.

67. European Network of Transmission System Operators for Electricity.

The "Pechenga Power Bridge Project" has merit, and its suspension should be reconsidered provided that both countries and stakeholders can find a solution to the nuclear power issue. Favouring other electricity generation sources rather than nuclear power is one possible solution. Developing such a project would require the elaboration of clear and predictable rules creating a transparent and non-discriminatory level playing field for the proper operation of the interconnection and power exchange.

Acknowledgements