

# Summaries of Nordic Energy Commission reports

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## White Paper on Norway's energy policy: Power for Change

The Norwegian government presented a White Paper on energy policy – Power for change – an energy policy towards 2030. The main message is that security of supply, consequences for climate and economic growth must be considered together to secure an efficient and climate-friendly energy supply.

Since the last White Paper in 1999, the energy markets and the policies of the countries around us have changed considerably. The Paris agreement has strengthened the international commitment to enhance efforts on emission reductions and climate adaptation. The government wants the Norwegian energy supply to be the basis for continued growth and welfare. Accordingly, our energy policies focus on four areas:

### ***Enhanced security of supply***

The society's focus on security of supply is growing. The government aims to uphold a satisfactory security of supply also in the years to come. We want to make sure that market solutions enhance the flexibility of the energy system. We pursue a strengthened Nordic energy cooperation. The government wants a robust power transmission system on all levels, and will work for better coordination between transmission, consumption and production. New technology and the use of smart management systems will contribute to improved security of supply in the future.

### ***Efficient production of renewables***

Norway is blessed with huge renewable resources and the opportunity to make use of them. The government's energy policy should enable profitable production of renewable power in Norway. The efforts in developing and using new technologies for renewable energy will continue. Stronger integration with other energy markets is important to maintain the value of Norwegian renewable resources. Therefore, the government aims to increase connections with European energy markets. The regulatory framework will be changed so that others than the state-owned TSO Statnett may own and operate interconnectors. To avoid reduced values of our existing renewable production, the government will not introduce new targets under the Green certificate system. We will also make the licensing process more efficient.

The government wants a long-term development of profitable wind power in Norway. The introduction of a national framework for wind power will contribute to dampen conflicts and contribute with appropriate choices of locating wind power.

### ***More efficient and climate-friendly use of energy***

The government wants to alter the focus from supporting mature production technologies towards innovation and the development of new energy and climate solutions. Our national agency for the support of green energy and energy efficiency, Enova, is our main instrument in this work. Enova's overarching aims are reduction of climate emissions, strengthening security of energy supply and the development of technologies that in the long term contribute to lower climate emissions. The government has recently entrusted Enova with the responsibility of contributing to reduce climate emissions from transport. The development of new energy and climate technologies in the industrial sector will continue to be a main area of Enova's work. The government is proposing an ambitious national objective for energy efficiency.

## ***Economic growth and value creation through efficient use of profitable renewable resources***

The energy sector creates substantial values based on our renewable energy resources. The use of renewable energy also enables value creation in other industries and sectors. The government will facilitate the development of our competitive advantages from deploying our renewable energy resources. The government proposes a new law that will enable industrial owners of hydropower to access predictable supplies in the future.

Future value creation based on our renewable resources is contingent on our ability for innovation and knowledge development. The government aims to achieve a smooth employment of tools from different institutions and innovation programs. We want to build on the strategy "Energy 21" which is jointly developed by the industry, research institutions and public authorities.

Link to full report (in Norwegian): <https://www.regjeringen.no/no/dokumenter/meld.-st.-25-20152016/id2482952/sec1>

### Swedish Energy Policy Commission (summary of the final report)

In March 2015, the Government decided to appoint a parliamentary Committee, for a review of energy policy. According to the terms of reference, the task of the Energy Policy Commission is to prepare a proposal for a broad agreement on energy policy with a particular focus on the conditions for electricity supply after 2025–2030.

### **The work**

In accordance with the terms of reference, the Commission's work has been conducted in three phases. During the first phase, knowledge was reviewed and alternatives were formulated. The work has been carried out in broad dialogue with various stakeholders, such as power industry and business sector organisations, environmental organisations, municipalities, government agencies and researchers. The Commission has also examined international developments and made use of experts from other countries.

During the second phase of the work, the challenges and opportunities faced by the energy system were analysed more closely. Finally, based on the framework agreement between five Riksdag political parties in June 2016, the Commission prepared a number of proposals and assessments.

### **Points of departure**

Global demand for energy has grown since the middle of the 20th century, and most commentators expect this to continue in coming decades, primarily because of a powerfully expanding middle class in Asia and rapid industrialisation in many developing countries.

The dominant share of the global energy supply, more than 80 per cent, is still based on fossil fuels (oil, coal and gas). The consumption of renewable energy throughout the world has increased by 71 per cent since 1990. However, renewable energy's share of total energy supply has only increased by around one percentage point.

Nuclear energy's share of the total energy supply has decreased, despite an increase in nuclear energy production worldwide.

Over the past 200 years, Sweden's consumption of energy has increased tenfold. However, in recent decades the level has been stable. Electricity consumption has also levelled off since the mid-1980s. Since peaking in 2001, electricity consumption has decreased in all sectors except transport.

## **A new situation**

The energy system is currently changing in a number of ways, both globally and in our neighbourhood. In large parts of the world, such as Asia and Africa, the consumption of energy is continuing to increase, while in other regions, such as Europe and North America, it is levelling off or even decreasing. Technological development is rapid in all parts of the energy sector. The cost of new technologies, such as solar cells, wind turbines and battery storage, has decreased significantly in recent years.

The supply of electricity, which to date has been largely based on large centralised production sources, features more and more small-scale production, with a high proportion of variable energy and an expectation of more active customers.

A general trend has been the increased significance of electricity in all sectors of society, for example in process control and automation in the manufacturing industry, an increased proportion of electricity-powered vehicles and a greater number of electricity-powered heat pumps in buildings. In many cases, electrification leads to an increase in efficiency. At the same time, the increased dependency on electricity, within the industrial sector for example or as a result of ongoing digitalisation, underscores the necessity of securing the continued robustness of the electricity system.

Energy markets are currently undergoing significant changes. The new conditions mean that a number of new problems have arisen, but they also provide opportunities to enable the maintenance of a secure and adequate energy supply. This concerns, for example, the electricity system's ability to ensure sufficient capacity and energy to customers 24 hours a day.

## **Scenarios**

The Energy Policy Commission has examined and compiled the results of a number of scenarios for future demand for energy, primarily electrical energy. The scenarios clearly illustrate the great uncertainties involved in judging future consumption of electricity. In the scenarios presented, electricity consumption in Sweden in 2030 varies between 116 TWh and 162 TWh, and in 2050 between 107 TWh and 195 TWh.

The challenges in the electricity system involve bringing about investments in production facilities, expanding and adapting electricity grids to new modes of production and making it possible for customers to become more active and flexible in their consumption. At the same time, technology has developed rapidly, which enables a broad range of new solutions. Against this background, it is important to create conditions for an electricity supply that is secure in the long-term and sustainable, and to bring about economically effective investments in all parts of the energy system – supply, conversion, transmission, storage and consumption.

## **Framework agreement**

On 10 June 2016, a framework agreement was reached between five Riksdag political parties: the Swedish Social Democratic Party, the Moderate Party, the Swedish Green Party, the Centre Party and the Christian Democrats. The agreement consists of a common road map for a controlled transition to an entirely renewable electricity system, with a target of 100 per cent renewable electricity production by 2040. This is a target, not a deadline for banning nuclear power, nor does it mean closing nuclear power plants through political decisions. The framework agreement has formed the basis of the proposals and assessments presented in this report.

The proposal of the All-Party Committee on Environmental Objectives on net zero emissions into the atmosphere by 2045 highlights the fact that the transition of the energy system may need to take place more rapidly than previously anticipated.

## **Challenges for the future**

The Commission on Energy has identified a number of challenges during the course of its work.

More efficient consumption of energy and electricity is a prerequisite for the transition of the energy system. The consumption of electricity and other forms of energy continues to become more efficient. At the same time, several factors point to the possibility of electricity consumption increasing in the future, such as the increasing possession of electrical devices and population growth. A transition to electricity may also contribute to a more efficient use of resources and reduced energy supply overall. The announced closure of four nuclear power reactors and the expansion of variable electricity production have contributed to an increased focus on the significance of capacity, that is, the availability of electrical energy at any given time. According to the Commission, there is reason going forward for energy policy not to solely focus on the efficient consumption of energy, but also on the need for capacity.

An ecologically sustainable electricity system with secure and stable electricity supplies is a prerequisite for many important functions in society. Swedish welfare has been largely built on processing timber, ore and hydropower. Other sectors of industry are also strongly reliant on electrical energy. It is important that energy policy also continues to support the development of industry and contributes to strengthened competitiveness.

An increased share of variable electricity production and a reduced share of plannable production leads to a new situation for the production system as the various forms of power have differing characteristics that affect the robustness of the electricity system. This will place new and changed demands on an expansion of transmission capacity throughout the country and to surrounding countries to ensure operational and supply security in the electricity system.

The Swedish electricity system is becoming increasingly internationally connected and consequently increasingly reliant on the surrounding world. Our electricity supply must therefore be viewed in a Nordic and European perspective. Internationalisation

leads to increased complexity and reduced national control, but at the same time creates new opportunities.

Swedish electricity generation today mainly consists of hydropower and nuclear power, but the share of renewable electricity production has increased considerably in recent years mainly through an expansion of wind power. At the same time, the power companies have announced the closure of four nuclear power reactors by 2020. The need for solutions that can create flexibility in the electricity system increases along with these developments. Favourable investment conditions are necessary to bring about investments in generation facilities and in various types of flexibility solutions for the system. Great importance must also be placed on the characteristics of various types of facilities, such as adjustability, plannability and environmental impact.

Electricity generation technology is under constant development. There are a number of opportunities – existing and potential – to increase flexibility in the electricity system through energy storage and consumer flexibility. Together with other smart services and products, new technology in the electricity transmission network, for example measurement and control equipment, can contribute to meeting the capacity needs of the system. Efficient cooperation between various energy carriers, for example between the supply of electricity and heat, has major advantages.

A change in the characteristics of electricity production also creates new challenges both in operating the power system and maintaining its reliability of service. Efficient permit processes and short lead times in investments in power production facilities and transmission networks are very important for ensuring adequate transmission capacity in the electricity network and good access to ancillary services.

New demands will be placed on the future electricity transmission networks at local, regional and national level. Interconnectors will have special significance as a result of the ongoing integration of the Nordic and European markets. Interconnectors may provide opportunities both for the export of surplus and for imports to handle situations of output shortage.

The transition of the energy system also entails changed roles and responsibilities for various actors. This applies to both new actors on the electricity market and existing and established actors. The need for a systemic, holistic approach and a functional division of responsibilities increases. A number of trends are also challenging the traditional role of distribution companies.

Integration of the EU electricity market involves increased reliance on the surrounding world, but also creates the conditions for achieving common solutions to the challenges faced by the electricity system. Security of supply and security policy aspects are intimately connected when seen from an international perspective. Development towards more small-scale electricity production in connection with a good electricity supply in Sweden is important when seen from a security policy perspective.

Today, actors in the electricity market are operating in a challenging investment climate as a result of long periods when electricity prices have been lower than the costs of producing new electricity. To also ensure a favourable energy and capacity balance, high security of supply and competitive electricity prices also in the long term,

an investment climate that promotes both competition and a reasonable return on capital is necessary.

The new situation has led to the design of the electricity market being discussed at EU level, Nordic level and nationally. Various solutions are under discussion to ensure adequate production capacity and security of supply in the system. The ability of the electricity market to supply electrical capacity appears to be particularly important in this respect.

Development of the energy system is rapid, with a constant stream of new solutions. New technologies and new services must be integrated into the system to satisfy the demands for an efficient and secure electricity system, social sustainability and a good environment.

### **Proposals and assessments**

The Commission on Energy presents a number of proposals and assessments to make it possible to tackle this new situation.

- The target by 2040 is 100 per cent renewable electricity production. This is a target, not a deadline for banning nuclear power, nor does it mean closing nuclear power plants through political decisions.
- By 2030, Sweden's energy use is to be 50 per cent more efficient than in 2005. The target is expressed in terms of primary energy use in relation to gross domestic product (GDP).

Sweden must have a robust electricity network with high security of supply and low environmental impact, and offer electricity at competitive prices. This creates a long-term perspective and clarity for actors in the market, and helps generate new jobs and investment in Sweden.

The energy policy is based on the fact that Sweden is closely linked to its neighbours in northern Europe, and aims to find joint solutions to challenges in the common electricity market.

Furthermore, a starting point is that by 2045 at the latest Sweden will have no net emissions of greenhouse gases into the atmosphere, and thereafter achieve negative emissions.

In the report, the Commission presents a number of supplementary proposals and assessments. They involve the following:

- The electricity certificate system will be extended and expanded by 18 TWh of new electricity certificates until 2030.
- The Swedish Energy Agency will be tasked to formulate sectorial strategies for energy efficiency together with various industries. The sectorial strategies will be drafted by the Swedish Energy Agency together with various industries and therefore do not constitute a target established by the Riksdag.

- The fees for connection of offshore wind power plants to the national grid should be abolished. How this should be implemented requires further analysis.
- The tax on thermal nuclear capacity will be phased out gradually over a two-year period beginning in 2017.
- The principles on the conditions for the planning of new nuclear power reactors (Government bill 2008/09:163) remain in place. The investment rules for the Nuclear Waste Fund will be changed such that investment opportunities are expanded from the start of the next three-year period in 2018.
- Sweden must impose modern environmental requirements on hydropower, but with a review procedure that is designed so as not to place unnecessary administrative and financial burdens on the individual companies relative to the environmental benefits sought.
- The property tax on hydropower plants will be reduced to the same level as for most other electrical production plants, i.e. 0.5 per cent. The tax will be reduced gradually over a four-year period beginning in 2017.
- There will be an investigation into how existing regulatory frameworks and tax legislation can be simplified and adapted to facilitate the development of new products and services in the areas of energy efficiency, energy storage and small-scale sales of electricity for various purposes, and the electrification of the transport sector.
- It is proposed that a special energy efficiency programme should be introduced for electricity-intensive Swedish industries, replacing the former “PFE” Programme, as long as responsible financing can be found.
- An inquiry should be appointed to investigate broadly the potential obstacles to enabling services to develop with respect to active customers and energy efficiency. The inquiry should investigate which economic and other policy instruments (e.g. ‘white certificates’) are most effective for increasing efficiency in terms of both energy and output.
- The abolition of the tax on thermal nuclear capacity and reduction of property tax on hydropower plants should be financed through an increase in energy tax. Electricity-intensive industry will be exempted.
- Broad discussions are under way in Europe and in Sweden on which electricity market model should be used in the future. There is no reason to alter the existing market model used in Sweden and the Nordic region in the short term. Nonetheless, it is reasonable to conduct a broad discussion over time on the design of the future market.

The Energy Policy Commission presents a number of additional assessments on various aspects of the energy area. Among other things, an implementation group comprised of representatives of the political parties that concluded the framework agreement should be formed with the aim of continually following up the framework agreement.



## Impact assessments

The Energy Policy Commission has assessed the conceivable consequences of its proposals. The Commission has presented assessments and proposals that aim to facilitate the renewal and transition of the energy system. The costs of achieving a more flexible electricity system and integrating a higher share of renewable electricity production should be assessed in relation to the advantages in the form of increased security of supply and the more efficient use of overall production resources. All in all, the proposed measures are expected to lead to lower total system costs and increased economic efficiency.

Full report (in Swedish):

[http://www.energikommissionen.se/app/uploads/2017/01/sou-2017\\_2\\_webb.pdf](http://www.energikommissionen.se/app/uploads/2017/01/sou-2017_2_webb.pdf)

Danish energy commission's recommendations for future energy policy – summary. Denmark 2017.

Energy supply costs constitute a significant cost for consumers, businesses and society. Consequently, efficiency improvements are needed in the energy supply sector as an important contribution to a cost-effective realisation of a green transition.

Further deployment of renewable energy is necessary. Denmark has the largest share of wind in electricity production in the world, until now driven by targeted subsidies for onshore as well as offshore wind. Energy supply from renewable energy will become the cheapest form of energy, and within a few years, renewable energy expansion will be market-based and without subsidies. Thus, the ambition is to phase out renewable energy subsidies as part of a cost-effective green transition. While progressing towards a non-subsidised energy system, independent of fossil fuels, for a while there will still be a need to subsidise deployment of renewable energy. This support should no longer focus on individual renewable energy technologies, but should instead be based on a principle of technology neutrality in order to support renewable energy deployment, taking into account the overall energy system. The market must be used to achieve lower prices, and different renewable energy technologies must compete with each other.

Denmark is already an energy-efficient country, but from a socio-economic perspective, profitable energy-efficiency improvements are still crucial for the transition to a low-emissions society. Priority must be given to cost-effective initiatives at EU level, and national efforts must be reorganised to ensure a more market-based and technology-neutral effort so that the best and most inexpensive energy savings are realised first.

Electrification is vital in order to integrate an increasing proportion of renewable energy into the energy system. The Danish energy system must be reorganised to make it possible to use electricity to cover heating, production and transport needs. Consequently, it is essential to remove the distortions resulting from the current tax system.

Furthermore, increased electrification will create a need to develop a more flexible energy system. More flexible consumption is required as a result of increasingly fluctuating electricity production from renewable sources. Flexible electricity consumption should be promoted and barriers should be removed. Additionally, initiatives are needed to prepare the integration of electric vehicles into the energy system.

Digitisation is rapidly developing and must be used to support the transition to a more flexible energy system.

For a transitional period, biomass may contribute to green energy supply, but biomass is also a scarce resource, and increased sustainability requirements are likely to lead to price increases. Reliance on biomass up to 2050 is therefore associated with several major uncertainties.

The district heating system must undergo continuing conversion from fuels to electricity through heat pumps and improved exploitation of surplus heat, provided this is rational from a socio-economic perspective.

Denmark has a well-functioning and well-maintained natural gas system. The natural gas system offers good potential during the phase-out of fossil fuels. In the longer term, the natural gas system will be able to exploit renewable energy gases, provided these become competitive.

Denmark's role as an energy-technology front-runner provides a strong basis for cost-effective green transition that, at the same time, will benefit Danish growth, employment and exports. Therefore, it is important that Denmark maintain and expand this role. Funding for research, development and demonstration must be increased considerably and reach a level of DKK 0.8-1.0 bn. per year. Furthermore, it is essential to ensure continuity in efforts throughout the value chain.

The Danish climate commitment outside the ETS sector up to 2030 must primarily be fulfilled through continued ambitious and early efforts towards a transition of the energy system. However, the energy system alone cannot meet the shortfall. Consequently, it is necessary to draw on cost-effective national initiatives outside the energy system as well as on contributions from LULUCF and possibly from CO<sub>2</sub>-allowances, if required.

All areas involve considerable uncertainties concerning price developments for fuels, CO<sub>2</sub>-allowances and not least technological developments. Therefore, it makes no sense at this juncture to decide on a specific route towards 2030, let alone 2050. Developments must be monitored closely in more or less all areas, and the overall situation must be assessed regularly to ensure that society benefits as much as possible from technological developments.

Link to full report (in Danish): [http://efkm.dk/media/8275/energikommissionens-anbefalinger\\_opslag.pdf](http://efkm.dk/media/8275/energikommissionens-anbefalinger_opslag.pdf)

## Finnish National Energy and Climate Strategy (Finland, April 2017)

The National Energy and Climate Strategy outlines the actions that will enable Finland to attain the targets specified in the Government Programme and adopted in the EU for 2030, and to systematically set the course for achieving an 80–95 per cent reduction in greenhouse gas emissions by 2050. With minor exceptions, Finland will phase out the use of coal for energy. The share of transport biofuels will be increased to 30 per cent, and an obligation to blend light fuel oil used in machinery and heating with

10 percent of bio-liquids will be introduced. The minimum aim is to have 250 000 electric and 50 000 gas- powered vehicles on the roads. The electricity market will be developed at the regional and the European level. The flexibility of electricity demand and supply and, in general, system-level energy efficiency will be improved. Technology neutral tendering processes will be organised in 2018–2020, on the basis of which aid will be granted to cost-effective new electricity production from renewable energy.

The share of renewable energy in the end consumption will increase to approx. 50 per cent and the self-sufficiency in energy to 55 percent. The share of renewable energy use in transport will clearly exceed the Government Programme target. The domestic use of imported oil will be halved as planned. The greatest non-ETS sector reductions in emissions will be achieved in the transport sector, and this will be the foundation of the medium-term climate policy plan of 2017.

Link to full report (in Swedish):

[http://julkaisut.valtioneuvosto.fi/bitstream/handle/10024/79190/TEMjul\\_5\\_2017\\_verkk ojulkaisu.pdf?sequence=1](http://julkaisut.valtioneuvosto.fi/bitstream/handle/10024/79190/TEMjul_5_2017_verkk ojulkaisu.pdf?sequence=1)

## Icelandic Energy Strategy 2014 (summary)

In accordance with Article 4 of Directive 2009/28/EC this National Renewable Energy Action Plan (NREAP) sets out the Government's strategic approach and concrete measures on how Iceland will meet the mandatory national targets for 2020 laid down in Directive 2009/28/EC, including the overall target and the 10% target on share of energy from renewable sources in transport. The NREAP is based on the template for the national renewable energy action plans, adopted by the Commission.

The Icelandic energy sector is unique in many ways, not the least because of its isolation from other European networks and the share of renewable energy in the total primary energy budget. Iceland has ample reserves of renewable energy in the form of hydro and geothermal energy, and these energy sources are mainly used for district heating and the production of electricity. The energy profile is unusual as 80% of primary energy supply is from renewable resources, the remaining 20% comes from imported fossil fuels, which are mainly used in transportation and fisheries. The following figure shows the primary energy use in Iceland from 1940.

Renewable energy sources (hydropower and geothermal power) account for 99.9% of electricity production and 99% of space heating. As a result, around 76% of final energy consumption in 2011 is from renewable energy resources. In 2005 this share was around 64%. Therefore the mandatory national target for the year 2020, 73%, referred to in Article 3(1) of Directive 2009/28/EC, has already been met and surpassed.

With regards to the transport sector the situation is very different. The transport sector, along with the fisheries, are the only sectors in Iceland which still are dependent on fossil fuels. The transport sector on land is currently 0.35% based on renewables. Therefore the Icelandic policy and actions are focused on increasing the percentage of renewable energy for transport while maintaining the strong grasp of renewables in electricity and heating sectors.

Renewable energy reduces dependence on fossil fuels, improves security of supply, and reduces greenhouse gas emissions creating environmental benefits while delivering green jobs to the economy, thus contributing to national competitiveness. The Government's commitment to accelerating the development of renewable energy is set out in various Government Policy documents as explained below.

According to the Government Coalition Platform of the Social Democratic Alliance and Left-Green Movement, dated 19 May 2009, the main areas of emphasis in the field of energy are the following:

To boost research, development and production of domestic, environmentally friendly fuel and increase the number of alternative energy outlets. The aim is to enable Iceland to lead the way in coming years in experiments and production of environmentally friendly energy sources, in part by supporting research and development and building up infrastructure.

To encourage better energy utilisation, for instance, by developing industrial parks and factories, horticulture stations, recycling and other activities utilising the steam energy of sustainable geothermal plants.

To formulate a comprehensive energy strategy, aimed at having renewable energy sources replace imported energy. A precautionary and protective approach will be followed in hydroelectric and geothermal energy production. The energy strategy will support diversified industry, emphasising the development of ecologically beneficial high-tech industry. The energy strategy will aim at sustainable utilisation, avoiding for instance aggressive utilisation of geothermal areas.

Preparation of an energy efficiency plan for both commercial enterprises and households. Finalisation of the Master Plan for Utilisation of Renewable Energy Resources as soon as possible and presenting it to the Althingi this coming winter so that it will acquire a legal status. No further decisions will be taken concerning power development on the lower reaches of the River Þjórsá until the Master Plan is available.

Promotion of transparency in agreements for energy sale and ways sought to remove secrecy surrounding energy prices to power intensive industries. The aim will be equitable pricing of electricity for different industrial sectors.

This policy document is based upon a report which was presented and discussed in Parliament in beginning of 2012. It is an overall document laying down the Government emphasis in energy strategy and energy policy for Iceland for the next years. The aim of the Comprehensive Energy Strategy can be summarized as follows:

Having renewable energy sources replace imported energy. Iceland's energy harnessing shall be sustainable for the good of society and the public. A precautionary and protective approach will be followed in hydroelectric and geothermal energy production.

The energy strategy will support diversified industry, emphasising the development of ecologically beneficial high-tech industry. The energy strategy will aim at sustainable utilisation, avoiding for instance aggressive utilisation of geothermal areas. To encourage better energy utilisation, for instance, by developing industrial parks and factories, horticulture stations, recycling and other activities utilising the steam energy of sustainable geothermal plants. Connection of the Icelandic electricity system to Europe, through an interconnector, shall be examined further.

The Government's ambitions for renewable energy and the related national targets are fully commensurate with the European Union's energy policy objectives and the targets addressed to Iceland under the Renewable Energy Directive. Iceland's energy efficiency ambitions (72% and 10% by 2020) as set out in the Comprehensive Energy Strategy are duly reflected in the NREAP.

The energy policy of Iceland could be categorised as ambitious as it aims for carbon neutrality, in that the use of fossil fuels be reduced as possible. Iceland is already well under way in that regard, as all sectors in Iceland, except for transport and fishing, use mostly renewable energy from hydro or geothermal origin.

The Government policy regarding renewable energy in transport is set forth in the policy document; "Alternative energy use for transport (Energy change in the transport sector)". This policy document was presented and discussed in Parliament in beginning of 2012 and has been put into force.

The share of renewable energy in the transport sector is currently 0.35%. However, an ambitious goal of 10% for transport, for the year 2020 in line with Directive 2009/28/EC, has been put forward by the Government in this policy document (along with the Comprehensive Energy Strategy). This target is one of the Government's main targets, which are set forth in the policy document Iceland 2020.

As stated above, one of the primary objectives of Iceland's Energy Strategy is that renewable energy sources in general replace imported energy, mainly fossil fuels in the transport sector. It should be noted that the Government has already introduced economic incentives and active programmes to promote the objective of increasing alternative fuels in the transport sector. The first phase of the project is therefore already underway but a more detailed action plan is in process in line with the policy documents referred to.

General economic instruments, such as carbon dioxide tax and various tax exemptions are fundamental to the long-term energy policy. Use of economic instruments will be mainly targeted at the transport sector due to its fossil fuel dependency.

For further reference in this NREAP it should be noted that as of 1 September 2012 the Ministry of Industry, Energy and Tourism was merged into a new ministry, the Ministry of Industries and Innovation.

Full report (in English):

[https://ec.europa.eu/energy/sites/ener/files/documents/dir\\_2009\\_0028\\_action\\_plan\\_isceland\\_nreap.pdf](https://ec.europa.eu/energy/sites/ener/files/documents/dir_2009_0028_action_plan_isceland_nreap.pdf)

### Nordic Energy Co-operation Strong today – stronger tomorrow

The report contains **14 proposals** for closer Nordic collaboration and is based on the transition to green energy, the Paris climate agreement, trends in the energy sector in the EU and the national energy strategies in the Nordic Region:

1. Draw up a vision for Nordic energy co-operation.
2. Conduct Nordic peer reviews before deciding on and implementing national policies.
3. Strengthen and activate the Nordic voice by deploying it strategically.
4. Multiply the effect of current Nordic research activities through mapping and streamlining.
5. Create a vision for Nordic energy research co-operation.
6. Use Mission Innovation to create and reinforce Nordic positions of strength.
7. Promote Nordic positions of strength by creating a EUR 67 MILLION Nordic research and demonstration programme.
8. Set up a Nordic PhD programme in energy and transform testbeds into new positions of strength.
9. Position Nordic energy solutions globally, leading to a Nordic export strategy.
10. Optimise the Nordic investment environment.
11. Create a link from national development assistance to Nordic energy co-operation.
12. Renew the political vision for the electricity market co-operation.
13. Develop the energy-only electricity market.
14. Establish a Nordic Electricity Market Forum to ensure that the right decisions are taken at the right time.

### **The greatest challenges lie ahead**

One of the main messages in the report is that we have yet to contend with the most difficult challenges in the green transition, especially in the transport sector. “This makes it crucial that small countries work together to assert themselves in the face of global competition,” Ollila explains.

“The next decade will be particularly challenging. Major players are investing massive resources into the green transition, and competition is getting fiercer at an unprecedented rate. At the moment, the Nordic Region is a world leader, but the

individual countries may prove to be too small to cope with the international competition. The question, then, is can we afford not to work together?”

### **New vision important**

According to Ollila, an important first step towards meeting the challenges is to draw up a clear vision for Nordic energy co-operation.

“The level of ambition has to be high. We need to set a goal of developing the smartest energy system in the world and finding the most cost-effective solutions for the green transition.”

The rest of the proposals flow from this overarching vision. They include significantly greater investment in Nordic research and development, He proposes a special vision for Nordic Energy Research, a Nordic energy and innovation PhD programme and Nordic peer reviews of how national energy decisions affect the rest of the Region.

Ollila encourages the Nordic countries to maximise synergies, mentioning the unique and successful collaboration in the electricity market as a prime example.

“It is living proof of what open and trusting partnerships can achieve. The whole Region has benefited from the synergy effects and working together in a similar way would be good for the whole of the energy sector.”

The report also proposes concentrating on a market-based electricity market instead of other solutions and drawing up a Nordic export strategy for energy technology and solutions to be implemented by business associations and national export councils.

### **Good basis for discussions**

The report serves as input into the debate about the future of energy co-operation. Ultimately, the energy ministers and the Nordic governments will decide the shape of future co-operation.

“Nordic energy co-operation is a success as things stand, especially in the electricity market, where it has a good international reputation. I look forward to discussing the proposals in the report with my fellow ministers before decisions are taken about a new Nordic programme,” says Terje Søviknes.

The Council of Ministers’ introduced the concept of strategic studies as part of their reform project ‘New Nordic Region’. Previous topics covered include health and the labour market.

“The purpose of the project is to make Nordic co-operation more efficient and more politically relevant and to try and identify areas where there is potential for new regional co-operation. The energy report is an important continuation of this work and an excellent summary of the challenges ahead. Several of Ollila’s proposals are worth considering, and not just in the energy sector,” says Dagfinn Høybråten, Secretary.

Full report here (in English): <http://norden.diva-portal.org/smash/get/diva2:1106010/FULLTEXT01.pdf>