Energy Transition and Foreign Energy Policy: What Can the Netherlands Learn from Other Countries?

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EXECUTIVE SUMMARY

Dutch international energy policy is described in consecutive Energy Reports. Until recently it was based on the Energy Report 2011. The most recent Energy Report appeared in January 2016 and contains a cautious change in orientation, with CO$_2$ reduction becoming a more important objective while adhering to affordability, security and safety as conditions. The new Energy Report leaves room for making the policy more concrete and announces a dialogue with society to realize this. The translation of the new priorities into international energy policy is currently taking place. In developing a new international energy policy it is worthwhile to take into account lessons that can be drawn from the energy policies of other countries.

This report aims to provide suggestions for formulating and implementing the Dutch international energy policy. By applying a comparative approach, we analyse the international energy policy of Denmark, Germany, Norway, the UK, the US and the Netherlands. Although they differ in terms of economic indicators and concrete energy policy strategies, these countries share similarities in their energy policy objectives and strategy implementation, which can serve as examples for the Netherlands.

One of the lessons drawn from this report is that national and international energy policies of countries need to be interlinked. Synthesizing experiences from the five foreign countries and taking into account the current practice and situation of the Netherlands, we provide a general scheme for selecting policy priorities, governance infrastructure, as well as implementing energy strategies. Specifically, we show that it is important to:

- Start the energy policy framework with a definite and consistent long-term objective that incorporates policy priorities. In the case of conflicts and trade-offs between objectives, it is vital to make clear what the policy direction is.
- Have one leading ministry take the major responsibilities while cooperating with other ministries and being supported by implementation agencies.
- Exhibit flexibility in selecting policy instruments and in the implementation, which includes:
  - Selecting collaborative partners;
  - Participating in major multilateral programmes and playing a leading role in selected multilateral initiatives;
  - Assembling resources to develop and establish flagship development programmes.
  - Establishing an information infrastructure and a network platform, and providing financial support to promote foreign trade and investment.
A long-term orientation and comprehensive policy framework are indispensable to enhance the efficiency and consistency of energy policy implementation, particularly in the international energy policy context.
Energy is important for economies, and energy is an important issue in governments’ foreign policy. Historically, governments develop and maintain diplomatic relations in order to secure demand or supply of fossil fuels. However, this situation is changing. In most countries there is an increased commitment to sustainable energy supply and reduced dependence on fossil fuels. This is related to the wish to exploit indigenous resources, to address air pollution, to get access to energy for the poorest people and to combat climate change. This commitment is also changing the role of energy in the foreign policies of many countries.

In the Netherlands, foreign energy policy used to be primarily focused on oil and gas and was connected with the relationship with oil- and gas-producing countries. The Dutch government is changing its energy policy and shows commitment to strongly reduce its greenhouse gas emissions by 2050. This raises the question of whether the international energy policy of the Netherlands should also change. Other countries are also increasingly focusing their policies on making their energy systems more sustainable. The Dutch government can learn from the experiences of other countries.

By applying a comparative approach, this report collects, synthesizes, and analyses the international energy policy of five foreign countries to draw recommendations for the formulation of the Dutch international energy policy. To provide sensible input, we examined both large economies, such as the US, the UK and Germany, and countries that are comparable to the Netherlands with respect to their economic situations, such as Denmark and Norway. Denmark and Norway also have established rather efficient energy policy frameworks that support and boost economic growth and employment.

For each country, we start by analysing the objectives of national and international energy policy, as well as geopolitical influences. To execute and implement policy decisions, an effective governance infrastructure is also outlined. Depending on the policy objectives and economic situations, four instruments (i.e. collaborative partnership, participation in international organisations, development programmes, and promotion of foreign trade and investment) are often implemented to realize international energy policy. We discuss each of these instruments and illustrate with examples how certain instruments are applied. Building on this information and analysis, we conclude the report by providing a general energy-policy scheme as a reference point for formulating Dutch energy policy.
BACKGROUND INFORMATION

Denmark is one of the most efficient users of energy compared to other OECD countries. Since 1990, energy consumption has remained more or less constant. The Danish economy has grown by 35%, while CO₂ emissions have decreased by 7.2%. The Danish energy policy has largely been stable for the past 25 years. The long-term goal of the Danish energy policy is clear: by 2050 the entire energy supply – electricity, heating, industry and transport – should be fuelled by renewable energy. This vision serves objectives that relate to climate policy, energy security and economic development.

Published in February 2011, the Energy Strategy 2050 outlined proposals for the early phases of the process towards meeting the long-term goal of achieving national independence from coal, oil and gas. It also set out the energy policy tools required to deliver long-term energy goals and identified medium-term actions for government. In March 2012 a historic Energy Agreement was reached in Denmark. The Agreement contains a wide range of ambitious initiatives, bringing Denmark a good step closer to the target of 100% renewable energy in the energy and transport sectors by 2050.

GOALS OF NATIONAL AND INTERNATIONAL ENERGY POLICY

NATIONAL ENERGY POLICY

As stated in the Energy Strategy 2050, the long-term goal of the Danish government is independence from coal, oil and gas by 2050. With this move to fossil-fuel independence, Denmark will also satisfy two other important ambitions:

1. It will maintain a high security of supply and ensure stable, affordable energy supply.
2. It will contribute to limiting global climate change as agreed in Copenhagen in 2009 and in Cancún in 2010.

In addition, the government’s strategy for fossil-fuel independence will help secure and develop the strength of Danish companies within the fields of new green energy, climate and environmental technology. A stronger coupling between innovation, production and deployment
will improve companies’ opportunities to take advantage of the increasing global demand for green technologies in order to create growth and employment.

INTERNATIONAL ENERGY POLICY

In accordance with its national energy goals, Denmark’s international energy policy is centred around the theme to promote green growth and the Danish energy products and solutions. Ensuring energy security and climate change mitigation are the goals. The Danish Ministry of Climate, Energy and Building as well as the Ministry of Foreign Affairs of Denmark jointly work towards this goal by actively participating in multilateral organisations and forums, and strengthening its bilateral cooperation with emerging economies.

The global map of economic and political power is shifting, and the energy landscape is changing along with it. It is forecast that over the next 20 years, a large proportion of the growth in energy consumption will come from the Indo-Pacific region. China is about to become the world’s biggest importer of oil. India is expected to be the biggest importer of coal by 2020. Facing the new geopolitics of energy, Denmark targets countries and regions where the demand for (renewable) energy solutions will grow significantly.

GOVERNANCE INFRASTRUCTURE

The Danish Ministry of Climate, Energy and Building is primarily responsible for energy-related activities and policy making. Established in November 2007, it was created as a part of the government’s increased efforts to promote a greener and more sustainable society. The ministry is responsible for national and international efforts to mitigate climate change, as well as for energy, national geological surveys in Denmark and Greenland, and for meteorology and buildings.

Established in 1976, the Danish Energy Agency (DEA) implements policies put forward by the Ministry of Climate, Energy and Building. The DEA is involved in the entire chain of tasks linked to the production, transmission and utilization of energy, and its impact on climate change. With a workforce of 300 employees, it engages nationally and internationally in policies for the production, supply and consumption of energy – as well as for efforts to reduce emissions of greenhouse gases.

To facilitate the realization of energy goals, State of Green was founded by the Danish Government, the Confederation of Danish Industry, the Danish Energy Association, the Danish Agriculture & Food Council and the Danish Wind Industry Association. As a public-private partnership (which employs about 16 people), it gathers all leading players in the fields of
energy, climate, water and environment, and fosters relations with international stakeholders interested in learning from the Danish experience.

The Ministry of Foreign Affairs supervises and administers funds and activities for development assistance via Denmark’s development cooperation (i.e. Danida). Energy generation and supply is one of the areas of development assistance.

INSTRUMENTS FOR AND APPROACHES TO INTERNATIONAL ENERGY POLICY

In 2011, Danish enterprises exported green products (green goods, solutions and services pursuant to Eurostat's definition) valuing 80 billion DKK, corresponding to more than 10% of total Danish exports. Renewable technologies account for the largest green commercial area. It is estimated that around 22,000 enterprises in Denmark produce and sell one or several green products, and that these enterprises employ more than 100,000 people¹ (Energy Policy Report 2013). The Danish Ministry of Climate, Energy and Building, together with the Ministry of Foreign Affairs of Denmark and the DEA support the promotion and dissemination of the Danish energy solutions through collaboration partnership, active participation in multilateral forums, and development programmes.

COLLABORATIVE PARTNERSHIP

The Ministry of Climate, Energy and Building has launched a collaborative partnership with authorities from e.g. China, Vietnam, Mexico and South Africa, and, also, newly initiated cooperation with Turkey, Indonesia and Ukraine. Focusing on growing economies, the Danish approach to the energy system can assist the retrofit and development of the future energy system to be cleaner, more efficient, flexible and reliable. Denmark’s ambition with this is to help ensure viable development for the energy sector in selected countries through spreading awareness about the unique Danish policy and regulatory experience in the area of energy policy. As the Danes have proved to be successful in their own country, their advice to authorities in other countries can be considered as convincing.

While promoting a more efficient and reliable energy system and strengthening collaboration between governments, this partnership also helps spotlight Denmark’s stronghold in green solutions and, thus, pave the way for more trading collaboration, directly, and indirectly, as a result of an expanded market for Danish energy products and solutions. The Danish model can serve as an option for the Dutch international energy-policy strategies.

PARTICIPATION IN INTERNATIONAL ORGANISATIONS

Denmark takes care of Danish energy policy interests through its active role in multilateral cooperation on energy and environment policy. On behalf of the Ministry of Climate, Energy and Building, the DEA seeks to promote Denmark’s international position in the area of energy and to strengthen business and export opportunities for Danish energy technology and know-how. These activities take place in a number of different forums, including the EU, the European Energy Charter, the OECD, the International Energy Agency (IEA), the UN, the Nordic Council of Ministers and the International Renewable Energy Agency (IRENA).

The renowned and traditionally very active role of Denmark in energy forums is being expanded through Denmark’s additional active involvement in more recently-established forums such as the Clean Energy Ministerial (CEM) and the Global Green Growth Forum. In the context of these forums, the focus is on supplying Danish input to the international agenda, based on Danish strongholds and Danish priorities. For instance, Denmark has taken the lead in supporting the Friends of Fossil Fuel Subsidy Reform, a group of non-G20 countries, to phase out inefficient fossil-fuel subsidies.

DEVELOPMENT PROGRAMMES

Denmark’s development policy aims to combat fighting poverty through promoting human rights and economic growth. Under the Ministry of Foreign Affairs, Danida is responsible for the planning, implementation and quality assurance of Denmark’s development cooperation. Energy generation and supply is one of the areas of development assistance.

In 2014, Denmark disbursed roughly 15.75 billion DKK (or 2.98 billion USD) in development assistance, mostly in the format of bilateral partnership (71.95% of the total budget). The support for energy generation and supply constitutes about 2.96% (approx. 51.7 million USD) of the total development assistance. The allocation of the energy budget is shown in Figure 1.

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2 Based on information from http://openaid.um.dk/en/sectors/230
Figure 1: Danish Energy Generation and Supply Development Assistance 2014

PROMOTION OF FOREIGN TRADE AND INVESTMENT

On behalf of the Ministry of Climate, Energy and Building, the DEA seeks to promote Danish enterprises’ exports of energy technology and know-how, and participates in many systems-export projects. In cooperation with industry parties, the DEA conducts export-promotion activities, creates a platform for Danish industry and know-how, and develops a link between bilateral support and exports.

As a result of active promotion and dissemination of Danish energy solutions, the importance of energy technology in the Danish economy is increasing. In 2014, Danish businesses’ export totals 74.4 billion DKK, an increase of 10.7% compared to 2013. This constituted 12% of Denmark’s total exports of goods. The ambition for Denmark’s energy-technology export is to reach 100 billion DKK by 2020.

SUMMARY

With a clear aim to reach fossil-fuel independence by 2050, the international energy policy of Denmark emphasizes promoting green growth and the Danish energy products and solutions. Collaborative energy partnerships, participation in multilateral organisations, development programmes, and promotion of foreign trade and investments are the major instruments of Denmark’s international energy-policy strategies. Denmark plays a very active role in multilateral cooperation in energy and environment policy to take care of its energy-policy interests. Denmark’s contribution to development programmes is mostly carried out through collaborative partnerships.

Denmark has a strong position in exporting energy technologies and equipment. The overview of its international energy policy and strategies highlights at least three reasons for the country’s success. First, the implementation of Denmark’s energy policy and strategies is guided by clear goals and frameworks. Box 1 demonstrates how various international energy strategies are implemented to realize the goal of exporting the Danish energy solutions.

Box 1: EXPORT THE DANISH SOLUTIONS

Guided by the general foreign policy strategy for export promotion and economic diplomacy, Denmark’s international energy strategies are centred around the aim of promoting Danish energy products and solutions. Figure 2 illustrates how different international energy strategies facilitate the central goal of promoting the Danish solutions.

![Figure 2: Danish Solutions and Strategies](http://ec.europa.eu/priorities/energy-union/state-energy-union/docs/denmark-national-factsheet_en.pdf)

This clear general policy framework provides a solid foundation for the formulation and development of international energy policy. Second, the Danish policy framework leverages the country’s strengths in energy technology and solutions. Guided by this general guideline, the international energy policy aims to promote and further reinforce these strengths. Third, transparent and well-organised information is another important facilitator for implementing Denmark’s international energy policies. It efficiently aids the major players, such as policy makers, researchers and practitioners in the sector.
BACKGROUND INFORMATION

Over the past two decades, Germany has made considerable progress in reducing the carbon and energy intensities of its economy. It decoupled GHG emissions and economic growth at least until the early 2010s, and domestic GHG emissions have declined more than required by the Kyoto target. Energy-efficiency improvements and the rapid development of renewable energy sources were among the key drivers of this decline. In the first decade of this century Germany was the global leader in deploying wind and solar energy. Conversely, however, Germany’s energy and electricity mixes remain very dependent on fossil fuels, notably oil and domestically-produced lignite. After the Fukushima accident, the German government decided to close down its nuclear production capacity. The cornerstone of German energy policy is the Energiewende based on the twin pillars of the federal government's Energy Concept of 2010 and the Energy Package of 2011.

GOALS OF NATIONAL AND INTERNATIONAL ENERGY POLICY

NATIONAL ENERGY POLICY

The German federal government adopted a new energy concept in 2010, in which it set the objective of making the country one of the world's most energy-efficient and environment friendly economies, while at the same time enjoying affordable energy prices and a high level of prosperity. This objective is further delineated into several energy policy goals: securing supply, protecting the climate, and promoting the growth and competitiveness of German industry. By its stated end of nuclear energy, the fast implementation of this policy and especially rapid increase of renewable energy became more urgent.

5 Energy policies of IEA countries: Germany 2013 review. International Energy Agency
INTERNATIONAL ENERGY POLICY

The Federal Ministry for Economic Affairs and Energy (Bundesministerium für Wirtschaft und Energie, BMWi) states that Germany currently meets about two thirds of its energy needs with imported energy carriers. In accordance with the general energy policy, one of the primary goals of its international energy policy is to safeguard the reliability and affordability of energy imports over the long term, as well as to promote Germany’s energy export. To facilitate the realization of this goal, the BMWi set three central objectives:

1. Cultivate good relations with the energy producing and transit countries most important for Germany and for Europe’s energy supply.
2. Cooperate both with major energy consumers such as Brazil, China and India, and with major energy producers such as Russia on ‘clean energy technologies’, a field with particularly bright prospects, as well as on energy efficiency and renewable energies.
3. Create and guarantee transparent, competitive, environmentally-conscious, more global energy markets through active participation in the work of multilateral organisations, forums and initiatives.

Germany tailors energy policies in two ways to reduce its energy dependency and geopolitical risks. On the one hand, it strengthens relationships with major energy consumers and producers. On the other hand, it invests in technology-centred renewable-energy products, research, and systems.

GOVERNANCE INFRASTRUCTURE

Several ministries are involved in energy-related activities and policy making. The BMWi is responsible for monitoring security of supply in gas and electricity and for supply in times of oil crises. The Federal Ministry for the Environment, Nature Conservation, Building, and Nuclear Safety (BMU) administers the Renewable Energy Sources Act and is responsible for environmental regulation that affects the energy sector. It supports investment projects abroad which will have direct environmental effects on Germany. Matters concerning energy savings in buildings are shared between BMWi and the Federal Ministry of Transport, Building and Urban Development (BMVBS). The Federal Ministry for Economic Cooperation and Development (BMZ) is responsible for policies to contribute to international-development objectives. Development of energy supply in developing countries is one of the major issues for this ministry.

In addition to the ministries, several governmental agencies are also involved in energy policies and regulations. The German Energy Agency (DENA) is the federal government’s centre for energy efficiency and renewable energy sources. It is jointly owned by the German government
and several financial organisations. The German Corporation for International Cooperation (GIZ) specializes in international development in a variety of fields, including energy. It operates on behalf of BMZ. The KfW, formerly KfW Bankengruppe, is a German government-owned development bank. It helps the Federal Government achieve its developmental goals by engaging in activities such as poverty reduction and economic development, good governance, education and healthcare, and protection of the climate and the environment.

**BOX 2: DENA and GIZ**

The BMWi and the BMZ implement national and international energy policy with assistance from DENA and GIZ. These companies are (partly) owned by the federal government. They carry out projects and missions from the ministries and at the same time provide service and advice for profit. This format of operation ensures the implementation of the government’s policy and strategies. The expertise and experiences from policy implementation can also be applied to a broader context to promote Germany’s technology and knowledge in the energy sector. Some key facts of the DENA and GIZ are listed below.

**DENA:**
- Germany’s centre of expertise in energy efficiency, renewable energy sources and intelligent energy systems;
- Founded in 2000;
- Shareholders are the Federal Republic of Germany, the KfW Group, Allianz SE, Deutsche Bank AG and DZ BANK AG;
- Total revenue in 2013 was 19.2 million EUR;
- Between 2005 and 2014, 50% of the average revenue came from public grants and 50% from cooperation with private partners.

**GIZ:**
- World’s leading provider of international cooperation services for sustainable development;
- Established in 2011;
- The sole shareholder: the Federal Republic of Germany;
- Business volume exceeded 2 billion EUR in 2014;
- Around 70% of local workforce of 16,410 people is national personnel working in over 130 countries.
INSTRUMENTS FOR AND APPROACHES TO INTERNATIONAL ENERGY POLICY

The BMWi and the BMZ together implement Germany’s foreign energy policy. The BMWi initiates new collaborative partnerships, participates in multilateral dialogues, and promotes foreign trade and investment of German products, systems, and technologies. The BMZ supports development programmes in the format of bilateral partnership and participation in multilateral organisations.

COLLABORATIVE PARTNERSHIP

Collaboration in energy partnerships is a key instrument in the BMWi’s international energy policy strategy. The main aim of the partnerships is to provide political backing to projects of German investors and importers in order to secure energy supply. In addition, the partnerships serve to improve the opportunities of German firms to export energy-efficient products and innovative energy-related installations.

Compared with other formats for cooperation, for Germany the advantages of collaborative energy partnerships are threefold:

1. The link-up between high-level government-to-government dialogues can address problems of German companies with market access or cooperation and barrier to investment. This is particularly important where the state has a dominant influence on commerce.

2. The energy partnerships bring together the organisation of previously separate activities of different ministries, implementing organisations and the business community on both sides, with a view to achieving more comprehensive and coherent energy cooperation.

3. Under the umbrella of energy partnerships, the interests of the private sector can be packaged with a view to developing solutions for market-access problems and barriers to investment that affect more companies. This can enhance the efficiency of individual companies in developing new markets.

Together with other ministries, the BMWi maintains a number of collaborative energy partnerships with major consumer countries like India, China, South Africa and Brazil, since these countries are increasingly influencing the global consumption of fossil fuels and, thus, also the corresponding world market prices.
Examples of other existing energy partnerships are German-Norwegian energy cooperation, the German-Russian modernisation partnership (with its focus on cooperation on energy efficiency), the energy partnerships with Nigeria and Turkey as well as the ‘Desertec target countries (clean energy and local added value in desert regions)’ of Morocco and Tunisia.

PARTICIPATION IN INTERNATIONAL ORGANISATIONS

Germany actively participates in the work of multilateral organisations and initiatives to create and guarantee transparent, competitive and more global energy markets. Involvement in multilateral activities also expands and cultivates international dialogue about forward-looking policymaking on renewable energies, energy efficiency, markets and climate change. Germany is a member of many organisations and networks, including the IEA, the International Energy Forum (IEF), the IRENA, the International Atomic Energy Agency (IAEA), the Energy Charter Treaty (ECT), the Global Bioenergy Partnership (GBEP), the CEM, the Baltic Sea Region Energy Cooperation (BASREC), the Renewable Energy Policy Network for the 21st Century (REN21), the Sustainable Energy for All initiative, the Global Network on Energy for Sustainable Development (GNESD), the World Bank and regional development banks. Germany and the United Arab Emirates are the two largest sponsors of IRENA, and both countries host IRENA offices.

DEVELOPMENT PROGRAMMES

The major objective of German energy development policy is to provide people with a sustainable energy supply, and consequently reduce global poverty and decrease dependency on costly fossil fuels. Germany therefore supports the dissemination of sustainable and local energy production technologies, and aims to help achieve efficient energy production and utilisation.

BMZ is supporting energy projects in more than 50 partner countries, as well as numerous regional and global programmes. In 2009, new commitments to renewable energies and energy efficiency amounted to over 1 billion EUR. Over the next five years, at least €2.5 billion will be made available for renewable energies alone. The German government has agreed to make energy a priority area of cooperation with 15 countries: Afghanistan, Albania, Bangladesh, Bosnia and Herzegovina, Brazil, India, Kosovo, Mexico, Montenegro, Nepal, Pakistan, Senegal, Serbia, Uganda and Ukraine. In Mongolia, South Africa and Tunisia energy projects are being promoted within the scope of other priority areas. Similar to Denmark’s policies, Germany’s international-policy strategies align with general energy-policy priorities. Currently, the GIZ is managing about 93 development projects in the format of bilateral partnership and multilateral cooperation in various countries and regions.

PROMOTION OF FOREIGN TRADE AND INVESTMENT
Apart from taking action to foster energy partnerships, Germany also utilises its extensive range of instruments for the promotion of foreign trade and investment, including the BMWi’s Energy Efficiency Export Initiative and Renewable Energies Export Initiative. These schemes establish an information infrastructure that ensures open markets for the sale of modern energy products, systems, and technologies in order to export to regions that are important to Germany.

SUMMARY

Rooted in the national energy policy, the priorities of Germany’s international energy policy are to safeguard the reliability and affordability of energy imports over the long term, as well as to promote and export Germany’s energy products, systems, and technologies. The BMWi utilizes collaborative partnership as a key instrument to reach policy goals, while the BMZ is primarily responsible for development programmes. Germany’s international energy policy is well aligned with its general energy policy and goals. This is important to ensure the effectiveness and efficiency of policy implementation.

Germany’s international energy policy is formulated and implemented by the BMWi (assisted by DENA) and the BMZ (assisted by GIZ). A clear division of responsibilities between ministries enhances efficiency and cooperation in policy implementation. DENA and GIZ carry out projects and missions from the ministries and at the same time provide service and advice for profit. This format of operation ensures the implementation of the government’s policy and strategies. The expertise and experiences from policy implementation can also be applied to a broader context to promote Germany’s technology and knowledge in the energy sector.
BACKGROUND INFORMATION

As the third largest exporter of energy in the world, oil and natural gas production is the largest sector in the Norwegian economy and will continue to generate significant wealth for the country. In 2009, the sector generated 22% of GDP and 47% of exports. It also accounted for 26% of investment in the country and provided 27% of government revenue.

Domestically, Norway generates its own electricity primarily from hydroelectric plants. Out of all the electricity produced in Norway, about 98% comes from hydropower. The other 2% is generated by wind and thermal powered generators. Regionally, the country forms part of the regional Nordic wholesale market which is widely regarded as a model for effective cross-border market integration.

GOALS OF NATIONAL AND INTERNATIONAL ENERGY POLICY

NATIONAL ENERGY POLICY

Norway has played somewhat contradictory roles in its energy policies. On the one hand, Norway largely contributes to high-energy consuming nations that are greatly affecting global climate change. On the other hand, Norway is known for being a major advocate of climate change mitigation. Because of the rising demand in fossil fuels, Norway’s energy policies support an increase in the production and recovery of these fuels. Simultaneously, Norway has integrated a number of environmental considerations into its efforts of production and recovery. Therefore, the government’s aim is to produce oil and gas in an environmentally-friendly manner with low emissions of greenhouse gases (GHGs). The target is to become carbon-neutral by 2050 by improving energy efficiency and by having more flexibility in the energy supply.

Norway’s environmentally-conscious energy policy contributes to balancing its seemingly contradictory roles (i.e. major gas and oil exporter and advocate of climate change mitigation). With part of its revenue received from fossil fuel exports, the government is investing in green solutions that may benefit the world. First, Norway funds innovative technologies to reduce

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carbon emission in their gas and oil production, manufacturing, and transportation. Second, Norway maintains and provides a transparent and reliable framework for its energy-production and resources management. Third, the Norwegian government shares its experience in managing petroleum resources in a sustainable manner to eradicate poverty and ensure environmental sustainability.

INTERNATIONAL ENERGY POLICY

As the third largest exporter of energy in the world, it seems that the Norwegian international energy policy places more importance on climate change mitigation and promoting industry opportunities, although the latter is not explicitly stated. Climate Change and Environment is one of the major themes of the Norwegian Agency for Development Cooperation (Norad). Directly related to energy, the Norwegian government shares its experience in managing petroleum resources in a sustainable manner through, for instance, the Oil for Development (OfD) programme. This effort not only contributes to eradicating extreme poverty and ensuring environmental sustainability, but it also ensures the export of energy-efficient and clean production technologies.

As a major energy exporter, Norway's current policy on its oil and gas export is primarily transparent. Providing a reliable and predictable framework for production and exploration, Norway contributes to overall security of energy trade throughout the world. Norway is also dedicated to developing the regional Nordic wholesale market, the model for effective cross-border market integration.

GOVERNANCE INFRASTRUCTURE

The Ministry of Petroleum and Energy (MPE) together with its subordinate agencies, the Norwegian Petroleum Directorate (NPD) and the Norwegian Water Resources and Energy Directorate (NVE) hold the overall responsibility for the management of petroleum resources on the Norwegian Continental Shelf (NCS) and the management of energy and water resources on mainland Norway. The MPE ensures the sound management in both economic and environmental terms.

The main task of the Ministry of Foreign Affairs (MFA) is to secure and promote Norway's interests internationally. Extensive export of oil and gas is one of the major interests of the country. Supervised by the MFA, the development cooperation related to energy includes oil for development and the green climate fund. Norad carries out the quality assurance of Norwegian development cooperation. The agency is a directorate under the MFA. In matters regarding International Climate and Forest Initiative (NICFI), Norad reports to the Ministry of Climate and Environment (MCE). Norad has approximately 230 employees working in 8
different departments. Innovation Norway is a state-owned company and a national development bank. It promotes nationwide industrial development. Sustainability is one of its priority areas.

**INSTRUMENTS FOR AND APPROACHES TO INTERNATIONAL ENERGY POLICY**

As the third largest exporter of energy in the world, Norway contributes to the energy security of consuming countries. At the same time, as Norwegians highly value environmental sustainability, the country is taking climate policy very seriously and plays an active role in multilateral organisations. The available information about Norwegian international energy-policy instruments is mostly centred around development cooperation and support for foreign trade and investment.

**COLLABORATIVE PARTNERSHIP**

Norway maintains its collaborative partnership with developing countries through development cooperation. Collaborative relationships with developed countries focus on research and development.

**PARTICIPATION IN INTERNATIONAL ORGANISATIONS**

In addition to active participation in multilateral organisations and initiatives, such as the IEA, IRENA, REN21, BASREC, the country forms part of the regional Nordic wholesale energy market, the model for effective cross-border market integration. In its contribution to regional development and security, Norway also plays a major role in the energy collaboration in the Council of the Baltic Sea States.

**DEVELOPMENT PROGRAMMES**

Norwegian development cooperation programmes and funds are implemented and managed by Norad. The total development assistance budget of 2014 is about 31.7 billion Nok (about 3.44 billion EUR\(^9\)), among which circa 17% was allocated to the environment and energy sector (approx. 5.5 billion Nok or 600 million EUR). The aims of the development cooperation in this sector are to reduce poverty by promoting sustainable and responsible management of petroleum resources, to provide access to sustainable energy services, and to contribute to climate change mitigation. The signature programmes and funds (among others) are OfD programmes (illustrated in Box 3\(^10\)), Clean Energy for Development Initiative, and Green

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\(^9\) Based on the exchange rate of Nov 11, 2015.

\(^10\) [http://www.norad.no/en/front/thematic-areas/oil-for-development/oil-for-development-programme/]
Climate Fund. Norad is very transparent and structured in providing information on its development cooperation programmes and its evaluations.

**BOX 3: OfD PROGRAM**

The OfD Program is a flagship programme in Norwegian development cooperation. It aims for poverty reduction through responsible management of petroleum resources and long-term collaboration with partner countries. The programme takes a holistic approach to petroleum management and supports capacity development through institutional collaboration. The partners of the programme include Norwegian public institutions, consultancies and research institutions, multilateral actors such as the IMF and the World Bank, the foundation Petrad, as well as civil society organisations, the media and academia.

Key facts:
- Established in 2005;
- Shares Norwegian experiences in petroleum management;
- Cooperation with 11 countries (i.e. Angola, Cuba, Ghana, Iraq, Lebanon, Mozambique, Myanmar, South Sudan, Sudan, Tanzania and Uganda) in 2015;
- A yearly budget at about 300 million Nok (32.5 million EUR);
- Coordinated and quality controlled by the OfD secretariat in Norad.

**PROMOTION OF FOREIGN TRADE AND INVESTMENT**

Promoting Norwegian business interests abroad has always been one of the most important tasks of the MFA. This is consistent with the government’s priorities to increase competitiveness and build knowledge. In line with these strategic goals, various initiatives have been taken to establish platforms to facilitate foreign investment and knowledge export.

For instance, the Norwegian Renewable Energy Partners (INTPOW) is a networking organisation founded by the Norwegian renewable industry and the Norwegian government to promote cooperation between Norwegian and foreign players in the renewable energy industry. Leveraged on its knowledge and resources in hydropower, Norway also initiated and established the International Centre for Hydropower, an international association of companies and organisations that are active in all aspects of hydropower generation and supply to promote the hydropower industry in general.
SUMMARY

As one of the third largest exporters of fossil energy in the world, Norway is also one of the most prosperous countries in the world. It is an example of how a country can utilize its oil and gas revenues for long-term development.

Norway’s international energy policy combines climate change mitigation and promoting industry opportunities, although the latter is not explicitly stated. Accordingly, the country plays an active role in multilateral organisations, invests in development cooperation, and establishes well-structured support for foreign trade and investment.

The Netherlands and Norway have similarities and differences in their positions in the demand and supply chain of the world energy market. Both countries are exporters of natural gas. However, Norway also exports significant amounts of oil and it has larger natural gas reserves than the Netherlands. First, Norway’s model of exporting its expertise and technology through development cooperation can be an example for exporting Dutch solutions. Nevertheless, it should be noted that Norway is already ahead of the Netherlands as it built its oil-for-development programme a decade before the Netherlands started in this area. Second, the Netherlands can also learn from Norway’s experience in strongly supporting foreign investment and partnership. A third area where the Netherlands can learn from Norway is its well-structured and transparent bilateral programmes.
BACKGROUND INFORMATION

In comparison with other IEA countries, the United Kingdom has a rather high share of fossil fuels in its energy mix and among the lowest shares of renewables\textsuperscript{11}. Natural gas dominates energy supply in the United Kingdom. It accounts for 35\% of total primary energy supply (TPES). Oil is the second-largest energy source, accounting for 32\% of TPES. Coal accounts for 19\% of TPES.

The 2007 White Paper *Meeting the Energy Challenge* sets out the government’s international and domestic energy strategy to address the long-term energy challenges faced by the UK. The most recent policy document is the 2014 Annual Energy Statement to Parliament. The political parties broadly agree that the energy system needs to be transformed to become more secure and low-carbon. The current focus of policy is on reforming the Electricity Market.

GOALS OF NATIONAL AND INTERNATIONAL ENERGY POLICY

NATIONAL ENERGY POLICY

The UK government outlined its general energy policy goals in the 2014 Annual Energy Statement to Parliament. Although the government was changed in 2015, the outline of energy policies remains largely unaffected. The political parties broadly agree that the major challenges for UK energy policy are affordability, climate change, and energy security. Accordingly, the government set three strategic priorities:

1. Supporting consumers and keeping energy bills down.
2. Supporting investment in the UK’s energy infrastructure.
3. Promoting action in the EU and internationally to maintain energy security and mitigate dangerous climate change.

\textsuperscript{11} Energy policies of IEA countries: The United Kingdom 2012 review. International Energy Agency.
INTERNATIONAL ENERGY POLICY

The UK became a net importer of oil in 2005 and a net importer of gas in 2004\textsuperscript{12}. The country is also dependent on international energy markets for investment. It has been estimated that the UK needs 110 billion GBP investment by 2020 in the electricity sector alone, which will bring great opportunities for businesses, jobs and economic growth.

Taking into account its dependence on the international energy market, UK’s international energy policy aims to maintain security of supply and affordability while playing its part in the transition to a low-carbon economy. In particular, the government intends to enhance energy price stability, secure sufficient international inward investment in UK energy infrastructure, and ensure reliable energy supplies by encouraging greater liberalisation of energy markets and strengthened trading links and infrastructure.

In 2013, 47\% of energy used in the UK was imported due to the general decline in oil and gas output. Imports are sourced from a wide variety of countries. Russia remained the leading source of coal (41\%). The key source of crude oil imports is Norway (40\%). The largest source country of petroleum products is the Netherlands, and Norway accounted for 58\% of UK gas imports\textsuperscript{13}. The geopolitics of UK energy supply is an important factor for international energy policy.

GOVERNANCE INFRASTRUCTURE

UK’s energy and climate change mitigation policy is managed by the Department of Energy and Climate Change (DECC). It was created in 2008 and brings together energy policy, and climate-change-mitigation policy. It employs around 1600 staff. The DECC works to make sure the UK has secure, clean, affordable energy supplies and promote international action to mitigate climate change. It is also responsible for several non-departmental public bodies, including the Nuclear Decommissioning Authority and the Coal Authority. Two other ministerial departments, the Foreign and Commonwealth Office (FCO) and the Department for International Development (DFID) are involved in development programmes in energy.

INSTRUMENTS FOR AND APPROACHES TO INTERNATIONAL ENERGY POLICY

\textsuperscript{12} https://www.gov.uk/government/speeches/approaching-international-energy-security
To fulfil its energy goals, multilaterally, the UK government demonstrates its leadership at the EU level, ensures progress in multilateral negotiations, and builds political momentum. Bilaterally, through the FCO’s overseas network, the UK is engaging with other countries to share expertise gained from developing and implementing domestic energy and climate-change policies. Helping developing countries to take up low carbon development, protect forests and adapt to the impacts of climate change is another international action the government implements.

COLLABORATIVE PARTNERSHIP

Flexibility in implementing collaborative activities is an important feature in the UK context. The government utilises bilateral partnership, regional approach, and bilateral funding for different countries and projects. First, the FCO maintains collaborative partnerships with various countries for energy security and economic growth. For instance, Norway is a key supplier of oil and gas to the UK. The Norway-UK Energy Partnership for Sustainable Growth covers a wide range of energy activities, including safe and environmentally sensitive oil and gas extraction, long-term gas supply, renewable-energy investment, electricity interconnection and international climate-change policy development. Alongside this agreement, UK and Norwegian companies have announced billions of pounds of new investment with the potential to create thousands of new jobs. Cooperation between the UK and France in nuclear industry and projects is also achieved by collaborative partnership.

A regional approach is the second format of UK’s collaborative partnership. Building Prosperity with South East Asia is a good example. The UK government advances its interests in the region by reinforcing the reputation of the UK and British products and services while helping more UK companies to do business in the region. It also works to secure a global deal on climate change, supporting the use of lower carbon energy and supporting the development of low carbon businesses in the ‘green-growth’ sector.

Third, the government provides bilateral funding for collaborative projects and programmes (e.g. the Bilateral Co-operation Fund for Venezuela, and the UK Bilateral Projects Programme for Russia). These contribute towards achieving results within the strategic objectives of the foreign and British governments. Energy efficiency and climate security are often one of the objectives or priorities.

PARTICIPATION IN INTERNATIONAL ORGANISATIONS

To secure reliable imports of oil and gas, the UK’s participation in multilateral initiatives can be classified under several strategic goals:

Increase the use of low-carbon technologies and energy efficiency
Enhanced energy efficiency will slow rising oil and gas demand. For this purpose, the UK government works with Carbon Sequestration Leadership Forum, Clean Energy Ministerial, the G20, the IEA, International Partnership on Energy Efficiency Co-operation, IRENA, and Renewable Energy & Energy Efficiency Partnership.

Encourage global investment in oil and gas production
In this process, the government tries to maximise UK commercial opportunities through a range of multilateral initiatives. For instance, the UK works with IEA on the analysis of investment needs and outlook, and contributes to the Energy Charter Treaty rules on protecting energy investments.

Ensure reliable energy supply
To ensure a reliable energy supply, the UK government encourages greater liberalisation of energy markets and strengthened trading links and infrastructure. This includes work at a European level, in particular to implement the requirements of the Third Package of legislation on the internal energy market.

Enhance energy price stability
The UK supports communication between producers and consumers and greater market transparency. The activities include being an active member of the International Energy Forum, which brings together all the main countries that produce oil and gas, and working with the IEA on price data and analysis as well as the G20 on increasing transparency in energy markets.

DEVELOPMENT PROGRAMMES
The Official Development Assistance (ODA) and the International Climate Fund (ICF) are the two major development initiatives from the UK government. The FCO’s planned ODA expenditure for 2015-2016 is about 444 million GBP (about 632 million EUR\(^\text{16}\)), which includes aid-related frontline diplomacy, bilateral programmes, and international subscriptions\(^\text{17}\).

The government has provided 3.87 billion GBP (about 5.51 billion EUR\(^\text{18}\)) between April 2011 and March 2016 to the ICF, which is the UK government’s commitment to developing countries to help them address the challenges presented by climate change and benefit from opportunities.

The planned budget from the period between April 2016 and March 2021 is 5.8 billion GBP\(^\text{19}\) (about 8.25 billion EUR\(^\text{20}\)). The results of the ICF reported by spring 2015 are presented in Figure 2.

\(^\text{16}\) Based on the exchange rate of Nov 27, 2015.
\(^\text{18}\) Based on the exchange rate of Nov 27, 2015.
\(^\text{20}\) Based on the exchange rate of Nov 27, 2015.
INTERNATIONAL CLIMATE FUND: Impact on the ground

Achieved results
Results reported to the ICF secretariat by spring 2015:

- **2.6 million people** with improved access to clean energy
- **39 thousand** jobs created
- **2.3 million tonnes** of Greenhouse Gas emissions avoided (CO2e)
- **15 million people** supported to cope with the effects of climate change
- **£1.2 billion pounds** of public finance mobilised for climate change purposes

Figure 2: Results of the ICF reported by spring 2015

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SUMMARY

The major challenges for UK energy policy are affordability, climate change, and energy security. Hence, the government's energy policies seek to meet three primary objectives: ensuring that light, power, heat and transport are affordable for households and businesses; providing energy security; and reducing carbon emissions. In addition, government policy supports the energy sector in its role as a major contributor to the UK economy. To facilitate the general energy policy, the UK’s international energy policy aims to maintain security of supply and affordability.

The UK maintains collaborative energy partnerships with various countries and plays a leading role in multilateral initiatives and negotiations, particularly in the EU and the G7.

Similar to Denmark, the UK government implements its energy strategies guided by its energy-policy priorities in both national and international contexts. For instance, the multilateral initiatives are organised around four strategic goals. This clear vision enhances the effectiveness of strategic actions. The second feature that contributes to the efficiency of policy instruments is the UK’s flexibility in policy implementation, particularly in establishing collaborative partnership. Specifically, the government applies different approaches to different countries, programmes, and projects (e.g. regional approach, bilateral funds, and collaborative partnership).
BACKGROUND INFORMATION

The energy policy framework in the United States has undergone significant change due to the change of the US energy landscape. Specifically, the country has become the world’s leading producer of oil and natural gas combined. It has become less dependent on foreign oil, as a percentage of national oil consumption.

The US has been criticised for its lack of a coherent national-level energy policy by many external and internal critics. Since 2009, however, a number of strategic energy policy documents have been published which go some way towards addressing such criticisms, and guide the US economy away from its reliance on fossil fuels and towards a sustainable energy system with greater energy independence. The most notable among these policy documents are the President’s Blueprint for a Secure Energy Future and the All-of-the-Above Energy Strategy22.

GOALS OF NATIONAL AND INTERNATIONAL ENERGY POLICY

NATIONAL ENERGY POLICY

Guided by President Obama’s All-of-the-Above energy strategy in his January 2012 State of the Union address, the US’s energy policy has three key goals23:

1. To support economic growth and job creation.
2. To enhance energy security.
3. To deploy low-carbon energy technologies and lay the foundation for a clean energy future.

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23 https://www.whitehouse.gov/blog/2014/05/29/new-report-all-above-energy-strategy-path-sustainable-economic-growth
INTERNATIONAL ENERGY POLICY

The international energy policy and activities of the US align with its national energy strategies and goals. Energy security, climate change mitigation and clean energy, as well as promoting industry opportunities are the priorities of the country’s international energy policy.

After decades of dependency on the Middle East, the US is emerging as a global energy producing giant. It is estimated that its shale oil production will more than triple between 2010 and 2020. If the US were to open up its Atlantic and Pacific coastlines to drilling, oil production in the US and Canada could eventually equal the consumption in both countries. This change in geopolitics scope provides the country a strong position in terms of energy security and makes a substantial contribution to economic activity and employment.

GOVERNANCE INFRASTRUCTURE

As one of the largest energy producers and consumers, the US has set up a well-structured governance infrastructure and an evaluation and information system for establishing and implementing energy policy.

FEDERAL DEPARTMENTS

Comprised of approximately 14,000 federal employees and 12 offices, the mission of the Department of Energy (DOE) is to advance the national, economic and energy security of the US. The DOE encourages the development of reliable, clean and affordable energy, and ensures nuclear security. Within the DOE, the Office of International Affairs (IA) has primary responsibility for international cooperation in energy, science and technology. It leads and develops the department’s bilateral and multilateral R&D cooperation, including investment and trade activities, and represents the department and the US government in interagency processes, intergovernmental forums, and bilateral and multilateral proceedings.

The Department of State manages relationships with foreign governments, international organisations, and the people of other countries. The Bureau of Energy Resources (ENR) works to ensure that US diplomatic relationships advance its interests in having access to secure, reliable and ever-cleaner sources of energy.

In addition, the North American Development Bank (NADB) helps to develop and finance infrastructure necessary for a clean and healthy environment. The bank is a binational financial institution capitalised and governed equally by the Federal Governments of the US and Mexico.

EVALUATION AND REVIEW
In June 2013, President Obama directed his Administration to initiate an interagency Quadrennial Energy Review (QER) to help ensure that Federal energy policy is appropriately matched to the country's economic, security, and climate goals. The approximately annual instalments of the QER over the ensuing four years are to focus on different components of the country’s energy system –resource extraction and processing, energy transport and storage infrastructure, electricity generation, energy end-use – while providing findings and recommendations on how Federal energy policy can best complement and incentivise state, local, tribal, and private sector actions, so as to meet ongoing and emerging challenges and take advantage of new opportunities.

ENERGY DATA AND INFORMATION
Established in 1977, the Energy Information Administration (EIA) is the statistical and analytical agency within the DOE. It collects, analyses, and disseminates independent and impartial energy information to promote sound policy making, efficient markets, and public understanding of energy and its interaction with the economy and the environment. Each year, the EIA produces projections of energy supply and demand in the Annual Energy Outlook (AEO), which presents long-term annual projections of energy supply, demand and prices, based on results from the EIA's National Energy Modeling System (NEMS).

INSTRUMENTS FOR AND APPROACHES TO INTERNATIONAL ENERGY POLICY

As the largest economy in the world, the US actively utilises various strategies and approaches to advance its international energy policy. Substantive support to the private sector’s foreign investment and export in general creates considerable opportunities for economy growth and jobs.

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COLLABORATIVE PARTNERSHIP

Similar to the UK government, the US government develops and maintains collaborative partnership through collaborative relationship with individual countries and a regional approach. The US government has established collaborative relationship with various countries in diverse formats. For instance, with its close neighbour Canada, built on the US-Canada Clean Energy Dialogue (CED) in February 2009, the DOE developed an action plan of 20 initiatives to cooperate with Environment Canada in the development of clean energy technologies. The cooperation with Turkey is under the Near-Zero Zone (NZZ) project, which was designed to reduce Turkey’s dependence on energy imports, bolster energy security, cut carbon emissions, and make industry more profitable, while creating business opportunities for US and Turkish energy-efficiency technology and service providers. The DOC also leads cooperation with China, India and Israel.

The US-Asia Pacific Comprehensive Energy Partnership (USACEP) provides a good example of the regional approach of the collaborative relationship in the US international energy strategies. The USACEP aims to expand electricity access to the estimated 387 million people in the Asia-Pacific currently without electrical power.

PARTICIPATION IN INTERNATIONAL ORGANISATIONS

The US actively initiates and participates in regional and international multilateral organisations and activities. In addition to being an active member of organisations and initiatives such as the IEA, Sustainable Energy for All, and the Caribbean Energy Security Initiative, the government also plays a leading role in initiating and developing cooperation and partnerships in energy technology. The Clean Energy Solutions Center demonstrated in Box 4 provides an example of this type of activities.

DEVELOPMENT PROGRAMMES

The U.S. Agency for International Development (USAID) is the lead US government agency that provides foreign assistance to end extreme global poverty and enable resilient, democratic societies to realize their potential. Improving environmental sustainability and energy efficiency is one of the focal areas of the USAID. US foreign assistance has always had the twofold purpose of furthering America’s interests while improving lives in the developing world. These assistance programmes are designed for both individual countries and regional development.

25 http://www.energy.gov/ia/turkey-near-zero-zone
26 https://www.usaid.gov/
On a regional level, the U.S. contributes to Africa’s energy system development through Power Africa Initiatives. The Caribbean Energy Security Initiative provides technical assistance for improved governance in the Caribbean energy sector. To support the growing Central American regional electricity market and providing technical assistance for market integration in Central and South America, the Connecting the Americas 2022 program was established and developed. Examples of the US’s assistance to individual countries are the Pakistan Power Reform, the USAID Indonesia Clean Energy Development Program, and the USAID Catalysing Clean Energy in Bangladesh Program.

PROMOTION OF FOREIGN TRADE AND INVESTMENT
The US Overseas Private Investment Corporation (OPIC) and the National Export Initiative (under the Department of Commerce, International Trade Administration) support private sector export activities. Established in 1971, the OPIC is the government’s development finance institution and operates on a self-sustaining basis. It mobilises private capital to help address critical development challenges and in doing so, advances US foreign policy and national security priorities. The OPIC helps US businesses gain footholds in emerging markets, catalysing revenues, jobs and growth opportunities, both at home and abroad, by providing investors with financing, political risk insurance and support for private equity investment funds including the Enterprise Development Network.
SUMMARY

President Obama’s All-of-the-Above energy strategy in 2012 sets clear goals and priorities for the US’s energy policy. Aligned with general national policy, the international energy policy gives priorities to energy security, climate-change mitigation and clean energy, as well as promoting industry opportunities, although the resurgence of oil and gas production has been strengthening energy security for the past years.

The US is a much larger economic entity in comparison with the Netherlands, which makes it difficult to directly apply or implement specific American approaches of international energy policy in the Dutch context. For instance, the Power Africa programme has committed over 20 billion USD (circa 18.8 billion EUR\(^{27}\)) and covers the entire sub-Saharan Africa. America’s experiences illustrate how clear policy visions and substantive government support (e.g. in governance structure and assistance) can advance the implementation of international energy policy.

\(^{27}\) Based on the exchange rate of Nov 18, 2015.
BACKGROUND INFORMATION

The Netherlands is a densely populated country with an energy mix that is mainly based on fossil fuels and with a relatively large share of natural gas. The central position in north-western Europe is favourable for the transport and trade of energy. The Netherlands has a relatively large oil-refining and chemical industry. The energy sector accounts for 10.9% of GDP. The share of renewable energy was 5.6% in 2014. The production of natural gas is substantial, but is now decreasing due to depletion of gas fields and to reduce the occurrence of earthquakes (that are caused by the production of natural gas).

The energy policy of the Netherlands is framed by EU requirements on issues such as the electricity and gas markets, energy efficiency, renewable energy, state aid, the environment and greenhouse gas (GHG) emissions. There are policies in place to meet the EU targets for 2020.

In the long term (2050) the Dutch economy must switch to sustainable, low-carbon energy supplies. The government acknowledges that the deployment of all low-carbon technologies are needed to realize the required CO$_2$ reduction and none of the low-carbon options are excluded as long as they are safe, reliable and affordable.

GOALS OF NATIONAL AND INTERNATIONAL ENERGY POLICY

NATIONAL ENERGY POLICY

The Dutch Government has three objectives in its energy policy: security of supply, affordability and sustainability. The balance between these objectives has changed several times. In order to have a large energy-intensive industry which competes globally and contributes to its economic welfare, affordability and competitiveness are key issues. Recently, one can observe the Dutch government putting a bigger emphasis on the need to reduce its greenhouse gas emissions drastically in the long run.

The most recent energy strategy document is the Energy Report 2016. It contains elements of an energy vision until 2050. Compared to the previous Energy Report (2011) it is more directed to meeting climate objectives. The Dutch government aims – in an international setting – at
having an energy system with low carbon emissions which is safe, reliable and affordable. Three reference points are central in its policy: 1) CO₂ reduction, 2) capitalising on economic opportunities and 3) integrating energy in spatial-planning policy. The Dutch government considers CO₂ reduction as the main aim. With its Energy Report 2016 the Dutch government developed a vision for the longer-term development of the energy system. The government supports the EU target to reduce greenhouse gas emissions by 80% to 95% by 2050, but it has not developed a strategy or plan as to how this can be realized, neither are policies in place to reach such a target. The Energy Report 2016 acknowledges that all energy sources are needed and encourages their development, without being very concrete about how this development is being supported. A dialogue with relevant stakeholders will be organised in 2016 with the aim to achieve a shared vision and strategy.

Compared to e.g. the Danish energy policy, the Dutch energy policy is more cautious in addressing its commitment to realize drastic reduction of CO₂ emissions. While the Danish government refers to intermediate targets, clear technology choices and acknowledges that the transition will have economic consequences, the Dutch government emphasises the different kinds of challenges that need to be overcome to realize a low carbon energy system and marks the boundary conditions on affordability and reliability.

Many of the current and recently-implemented policies and measures are linked to the Energy Agreement which has a 2023 time horizon. The Energy Agreement for Sustainable Growth was signed in September 2013 and is the outcome of a process that includes employers’ associations, trade unions, environmental organisations, and local, provincial and national governments. The reason to develop this agreement was that the Dutch energy transition policy, which was largely an industrial policy, had reached a point of stagnation and suffered from short-term priorities of changing government coalitions. The Agreement shows a strong consensus on the benefits stemmed from doubling planned energy efficiency savings to 1.5% or 100 PJ from the country’s final energy consumption by 2020, deploying more renewable energies (14% by 2020 and 16% by 2023) and creating extra jobs (15,000 full-time jobs in 2020). It promotes sustainable energy at local level, network investment and a strong EU Emissions Trading Scheme. A commission with representation of all signatories of the Energy Agreement regularly monitors progress in reaching the objectives. Most of the policies of the Energy Agreement have been implemented. The most recent national energy outlook (ECN, 2015) indicates that several of the targets for energy savings and renewable energy will not be met.

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There is a variety of support schemes available in the Netherlands to aid the energy policy. The government has e.g. incentives in place to increase the share of renewable energy, energy savings in buildings and electric transport.

Production of natural gas in the Netherlands is significantly contributing to government revenues. The volume of gas production has recently been reduced in order to limit the risks of earthquakes caused by depleting gas reserves.

In 2012 the Dutch government has introduced a new approach to innovation policy, the so-called Top-sector approach. The energy research and innovation activities are guided by a Top Team Energy that oversees the entire energy innovation portfolio and seven Top Consortia for Knowledge and Innovation. These consortia are public-private partnerships meant to accelerate innovation in seven areas in which the Netherlands is strong. The Top-sector approach aims to strengthen the competitiveness of the Dutch energy sector.

INTERNATIONAL ENERGY POLICY

The Energy Report 2016 clearly indicates that the Dutch government builds its CO₂ reduction policy (a significant part) on international policies such as the Emission Trading Scheme (ETS) and on binding agreements at EU level for sectoral CO₂ emission reduction.

Dutch energy diplomacy aims to secure energy supply, strengthen economic and political stability and strengthen interests of Dutch companies. The Netherlands participates in several international organisations and programmes which deal with security of supply. This covers among others the IEA, the Energy Charter Treaty, the International Energy Forum, and the Gas Exporting Countries Forum.

The Dutch government supports development programmes that aim to increase developing countries’ access to sustainable energy production.

GOVERNANCE INFRASTRUCTURE

Among the countries covered in this study, the Netherlands is the only country that does not have the word ‘energy’ in the name of a ministry. The Ministry of Economic Affairs is leading the national energy policy. Climate policy is part of the Ministry of Infrastructure and Environment. In addition, the Ministry of Internal Affairs and Kingdom Relations is responsible for energy policy for the built environment. The Ministry of Foreign Affairs and the Ministry of Economic Affairs closely collaborate in international energy policy. The role of the Ministry of
Infrastructure and Environment in international energy issues is very small. The focus in international climate issues of this ministry is on climate adaptation and water issues.

The Netherlands Enterprise Agency (RVO) is the organisation that carries out several energy policies such as the stimulation of Sustainable Energy Production (SDE+). The RVO also has a unit that carries out a number of programmes linked to global cooperation on water, sustainable energy and health for development. Only a few persons are working on international energy issues.

INSTRUMENTS FOR AND APPROACHES TO INTERNATIONAL ENERGY POLICY

COLLABORATIVE PARTNERSHIP

In foreign energy practice, a bottom-up approach is often in place. That is, companies initiate activities based on their need, and then embassies make plans and policies to facilitate the activities. This leads to a scattered picture with energy activities in some countries.

PARTICIPATION IN INTERNATIONAL ORGANISATIONS

The Dutch government participates in several energy-related multilateral initiatives. It aims for renewable energy projects in the lowest income countries to mitigate climate change, to increase access to energy and to promote inclusive green growth. Examples are the Africa Biogas Partnership and the Energizing for Development (ENDEV) programme. The ENDEV programme aims for clean cooking and electrification of households. All these activities are scattered and are not developed or coordinated under a central theme. The Dutch government is actively involved in the energy activities of the Worldbank.
PROMOTION OF FOREIGN TRADE AND INVESTMENT

Through various programmes, businesses can obtain advice or financial support. The Dutch government organises export-promotion trips to selected countries. Businesses can apply for subsidies to start up activities in other countries.

The Top Sector Energy recently started to develop export strategies for each of the seven Top Consortia for Knowledge and Innovation. This refers to documents that identify strengths of the Netherlands in the value chains of different energy technologies and how they might match demand in other countries. The Top Sector Energy selected five focus countries: Germany, France, US, China and Singapore.

BOX 5: THE ENDEV PROGRAMME

The Energising Development (EnDev) programme is a multi-donor partnership, currently financed and governed by the governments of the Netherlands, Germany, Norway, Australia, the United Kingdom and Switzerland. EnDev promotes sustainable access to modern energy services for households, social institutions and small to medium-sized enterprises in developing countries in Africa, Asia and Latin America. The supported energy services meet the needs of the poor, i.e. they are long lasting, affordable, and appreciated by users. Since its initiation in 2005, EnDev has attained a prominent position in the international energy access debate. EnDev is one of the first outcome-based and performance-based programmes in the energy sector. The programme promotes e.g. the extension and densification of power grids, the installation of hydropower plants and the distribution of solar home systems.

Key facts:
- Established in 2005;
- Coordinated by GIZ;
- A total of 14.8 million people, 17,700 social institutions and 30,500 small enterprises have gained sustainable access to modern energy services.
SUMMARY

Economic interests have been dominant in Dutch energy policy. With its significant gas production, its large energy-intensive industry and its central location in north-west Europe, the main focus of Dutch energy policy has been on affordability, energy security and maintaining its economic strengths. The Netherlands actively participates in initiatives to have properly working energy markets and in international organisations that deal with security-of-supply issues. The Dutch government supports the long-term targets of reducing greenhouse gases by 2050. The Energy Report 2016 does provide elements for strengthened CO₂ policies but it still has a relatively-vague strategy on how it can reach its CO₂ reduction objective.

In its international energy policy the Dutch government’s aim is to secure energy supply, strengthen economic and political stability, and strengthen interests of Dutch companies. It also aims for renewable energy projects in the lowest income countries to mitigate climate change, to increase access to energy and to promote inclusive green growth.

Since the 2013 Energy Agreement, Dutch energy policy has become more oriented towards accelerating energy savings and the deployment of renewable energy, but it is lagging behind to those of other countries. The economic returns from the natural gas sector are under pressure due to market developments and the reduction of production. It is currently reconsidering what national and international energy policy focus should be selected and what the strategy should be. A dialogue with relevant stakeholders with the aim to achieve a shared vision and strategy will be organised in 2016.

The Netherlands has not developed a renewable industry sector that is equally strong as in Germany and Denmark. The absence of clear strengths in sustainable energy makes it complicated to identify an international energy policy strategy. As the Dutch water and food sectors are already strong, export promotion is more aimed at these sectors.
DISCUSSION

The review and analysis of the international energy policy and strategies of the five foreign countries mentioned in this report seem to suggest that long-term orientation and consistent and clear policy goals are the foundation for ensuring an efficient energy policy framework and effective international policy. Accordingly, governance structure and energy strategy formulation, selection, and implementation can be established and adjusted around goals and priorities.

In this section, we present and discuss lessons for the Netherlands from the energy policy frameworks of other countries. Taking into account the current practice and situation of the Netherlands, recommendations have been outlined for the selection of policy priorities, governance structure, and implementation of energy strategies.

GOALS OF NATIONAL AND INTERNATIONAL ENERGY POLICY

Over the past ten years, most foreign countries reviewed in this study developed and formulated well-outlined energy policy objectives to guide activities in the sector. Direction was also provided in case of conflicts and trade-offs between objectives. Although the level of concreteness differs, the countries show consistency in their policy implementation. The Netherlands appears to lag behind in these two aspects: definite energy policy objectives that show direction in case of conflicting objectives and consistency in policy implementation.

The Energy Report 2011 of the Dutch government outlined the ambition of the Netherlands to become more sustainable in terms of energy and less dependent on fossil fuels in the transition to a low-carbon economy by 2050. Nonetheless, it lacked a plan to reach its long-term energy objectives. Instead, the report was mostly focused on expanding the role of the Netherlands in natural gas exports. The recent Energy Report 2016 presents CO₂ reduction as one of the main objectives, with a much smaller role for (the export of) natural gas. Hence, the document goes a step further towards climate mitigation. Moreover, it identifies elements and barriers that need to be covered in realizing such a low-carbon society. CO₂ reduction, exploiting economic opportunities and integrating energy in spatial planning are key aims. The Dutch government leaves all energy options open and wishes not to choose what the contributions of energy sources should be. It does not provide intermediate goals, nor does it provide quantitative intermediate targets or indicative budgets. Compared with the definite policy objectives of, for instance, Denmark, the Dutch policy goal remains rather general and broad, which limits its
effectiveness in guiding the energy framework. Instead, the Dutch government invites business, citizens, environmental NGOs and knowledge institutes to participate in a dialogue on the long-term developments in the Netherlands’ energy system. A successful dialogue may lead to a clearer vision and intermediate goals.

In summary, delineating definite policy objectives is the indispensable first step to set up the country’s energy policy framework. While retaining policy consistency, policy priorities and their trade-offs need to be taken into account.
### Table 1: Country Overview of Energy Policy Objectives, Priorities, Governance Infrastructure, and Instruments

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<tbody>
<tr>
<td><strong>Denmark</strong></td>
<td>34</td>
<td>TPES (2010)**: 19.7 Mtoe</td>
<td>• Independence from fossil fuel by 2050</td>
<td>• Industry opportunities</td>
<td>One ministry takes the major responsibility, and implementation by one agency.</td>
<td>Utilises all policy instruments and selective collaborative partnership.</td>
<td>Clear policy goals and consistent energy strategies</td>
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<td></td>
<td></td>
<td>Net exports: 3.4 Mtoe</td>
<td>• Security of energy supply</td>
<td>• Climate-change mitigation</td>
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<td></td>
<td></td>
<td></td>
<td>• Economic growth and employment</td>
<td>• Energy Security</td>
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<td><strong>Germany</strong></td>
<td>4</td>
<td>TPES (2011): 311.8 Mtoe</td>
<td>• One of the world’s most energy-efficient and environment friendly economies</td>
<td>• Energy Security</td>
<td>Several ministries share the responsibilities, and implementation by two agencies.</td>
<td>Focuses on ‘collaborative partnership’ and ‘support for foreign trade and investment’.</td>
<td>Format of operation: ministries and implementing agencies</td>
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<td>IEP**: 124.2 Mtoe 39.8% of TPES</td>
<td>• Affordable energy prices</td>
<td>• Affordability</td>
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<td></td>
<td></td>
<td></td>
<td>• Economic growth</td>
<td>• Industry opportunities</td>
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<td><strong>Norway</strong></td>
<td>27</td>
<td>TPES (2009); 26.5 Mtoe</td>
<td>• Carbon neutral by 2050</td>
<td>• Climate-change mitigation</td>
<td>Two ministries take the major responsibility, and implementation by several agencies.</td>
<td>Focuses on ‘development programme’ and ‘support for foreign trade and investment’.</td>
<td>Selective energy strategies for policy priorities</td>
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<td>Net exports: 192 Mtoe</td>
<td>• Climate-change mitigation</td>
<td>• Industry opportunities</td>
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<td></td>
<td></td>
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<td>• Improving energy efficiency and more flexibility in the energy supply</td>
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<td><strong>United Kingdom</strong></td>
<td>5</td>
<td>TPES (2010); 203 Mtoe</td>
<td>• Affordable energy prices</td>
<td>• Energy Security</td>
<td>One ministry takes the major responsibility, and support from two other ministries.</td>
<td>Utilises all policy instruments, but not much information on ‘support for foreign trade and investment’.</td>
<td>Flexibility in strategy implementation (different type of collaborative partnership)</td>
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<td></td>
<td>IEP; 149 Mtoe 73.4% of TPES</td>
<td>• Support investment in the UK’s energy infrastructure</td>
<td>• Affordability</td>
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<td></td>
<td></td>
<td></td>
<td>• Maintains energy security and mitigates dangerous climate change</td>
<td>• Climate-change mitigation</td>
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<td><strong>United States</strong></td>
<td>1</td>
<td>TPES (2013); 2186.7 Mtoe</td>
<td>• Supports economic growth and job creation.</td>
<td>• Energy Security</td>
<td>Two government institutes take the major responsibilities.</td>
<td>Utilises all policy instruments.</td>
<td>Clear policy vision and substantive government support</td>
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<td>IEP; 1859.3 Mtoe 85% of TPES</td>
<td>• Enhances energy security.</td>
<td>• Affordability</td>
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<td></td>
<td></td>
<td>• Deploys low-carbon energy technologies and builds a clean energy future</td>
<td>• Industry opportunities</td>
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<td></td>
<td></td>
<td></td>
<td>• Maintains energy security and mitigates dangerous climate change</td>
<td>• Climate-change mitigation</td>
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<td><strong>the Netherlands</strong></td>
<td>17</td>
<td>TPES (2012); 78.6 Mtoe</td>
<td>• Ensures reliable, safe energy supply at competitive prices</td>
<td>• Energy Security</td>
<td>Three ministries involved, one takes the main responsibility, and implementation by one agency.</td>
<td>Energy diplomacy, participation in international organisation and multilateral initiatives</td>
<td>Energy diplomacy, participation in international organisation and multilateral initiatives</td>
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<td></td>
<td>IEP; 64.7 Mtoe 82.3%</td>
<td>• Aims for CO2 reduction</td>
<td>• Industry opportunities</td>
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<td></td>
<td></td>
<td></td>
<td>• Capitalises on economic opportunities</td>
<td>• Climate-change mitigation</td>
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</table>

*List by the World Bank (2014)

** Total Primary Energy Supply (TPES) is TPES is made up of production + imports - exports - international marine bunkers - international aviation bunkers ± stock changes. This equals the total supply of energy that is consumed domestically, either in transformation (for example refining) or in final use.

***IEP: Inland energy production: 1) CO2 reduction, 2) capitalising on economic opportunities and 3) integrating energy in spatial-planning policy
GOVERNANCE INFRASTRUCTURE

After setting definite energy policy objectives that prioritise climate mitigation, energy security, affordability and opportunities for economic growth, an effective governance infrastructure needs to be in place to ensure policy implementation. All countries we reviewed, except the Netherlands, have the word ‘energy’ in the name of a ministry and a government body for energy issues. Only Germany assigns the responsibility to the Ministry of Economic Affairs, but, to emphasise the importance of the energy sector, the ministry is named the Federal Ministry of Economic Affairs and Energy. From other countries’ experiences, ‘one leading ministry and several implementing agencies’ seems to be the most effective managing structure for a middle-sized economic entity.

The implementation of energy policy can be carried out by agencies that are (partly) owned by the government, as in Germany’s case. The advantages of this format of operation are twofold. First, a specialised agency enhances the efficiency and flexibility of policy implementation. Second, the expertise and experiences acquired from policy implementation can be applied to a broader context (e.g. private sectors, national and international wide) to promote the Netherlands’ technology and knowledge in energy. Depending on the amount of work, the Netherlands can go for either one agency for all energy projects or two agencies, one for general projects and one for development programmes.

INSTRUMENTS FOR AND APPROACHES TO INTERNATIONAL ENERGY POLICY

The large economic entities (e.g. the US) reviewed in this report are inclined to utilise all sorts of policy instruments to realize their policy objectives. This can be supported by their ample resources and positions in the international communities. However, for a relatively small economy, efficiency of policy instruments seems more important. Efficiency can be achieved by instrument selection and flexible implementation.

COLLABORATIVE PARTNERSHIP

Germany provides a good example in utilising collaborative partnership. The aim of this instrument is to provide political backing to projects of German investors and importers in order to secure energy supply. The partnerships also serve to improve the opportunities of German firms to export energy products and technologies. Germany focuses on the major energy consumers and suppliers. Similarly, Denmark also pays importance to growing economies, such as China, Vietnam and Mexico to promote the Danish energy products and solutions.
A similar strategy can be recommended for the Netherlands. Taking into account geopolitical considerations and the existing partnership, the ministry can select a portfolio of countries that are important for energy security and export of energy technologies.

PARTICIPATION IN INTERNATIONAL ORGANISATIONS

Active participation in major international organisations and forums is important to contribute to the global energy community and markets. Larger economic entities tend to exert more influence in these organisations. A method for middle-sized economic entities to enhance impact in international dialogue is to play leading roles in selected multilateral initiatives that are align with policy objectives. For instance, the government of Denmark (together with China, Kenya, Korea, Mexico, Qatar and Ethiopia) has launched the Global Green Growth Forum to realize the potential for long-term global, inclusive green growth. This initiative is in line with the policy priorities of Denmark. In this relatively small and selective multilateral cooperation, the focus is on supplying Danish input to the international agenda based on Danish strongholds and Danish priorities.

In the case of the Netherlands, a trade-off needs to be made between visibility and commitment. If visibility in international organisations does not have priority according to the policy objectives, then broad participation in multilateral organisations to ensure the country’s interests in energy is essential. For instance, the country has been rather influential in the IEA. This established role can be leveraged to facilitate other international energy strategies.

DEVELOPMENT PROGRAMMES

Two key factors for effective development programmes converged from the analyses of five foreign countries: consistency with the policy priorities and a leading role in the programme (or flagship programme). The development programmes of both Denmark and Norway are designed to facilitate their policy objectives (i.e. exporting the expertise and technology of the country). The flagship programme (OfD Program) of Norway highlights and strengthens the country’s leading position in petroleum management.

In the absence of flagship programmes, the Netherlands can start with joint partnerships with other countries. For instance, the government of Sweden cooperates with the US on the Power Africa initiative. It is an efficient way to build partnerships with the participating countries. The experiences and expertise acquired from these programmes can be leveraged to establish the flagship programme of the Netherlands.

PROMOTION OF FOREIGN TRADE AND INVESTMENT

Except for the UK, it is evident that all other countries have established platforms to support foreign trade and investment. The German government took initiatives to establish information
infrastructure to support export of energy products and technologies. Norway and Denmark set up platforms to foster relations with international stakeholders. The US government went one step further by providing financing, political risk insurance and support for private equity investment funds.

SUMMARY

As summarised in Figure 3, delineating definite and consistent policy objectives is the indispensable first step to set up the energy policy framework of the Netherlands. The Ministry of Economic Affairs can take the major responsibilities in the process, supported by other ministries such as the Ministry of Foreign Affairs. Policy implementation can be carried out by agencies. With respect to policy instruments, we discussed selective the collaborative partnership and the international programme, flagship development programmes, and different tools to promote foreign trade and investment.

Figure 3: A General Scheme of the Energy Policy Framework

In several foreign countries reviewed in this report, the government plays a leading role in formulating and implementing the energy policy framework. This approach may not be effective in the Netherlands, given the existing governance structure in the country. Nevertheless, consistent long-term orientation policy objectives need to be in place, because short-term priorities of changing government coalitions can lead to stagnation in energy policy implementation. This clear and consistent energy orientation is essential to ensure the
efficiency and effectiveness of the formulation and implementation of international energy policy, which is rooted in and interacts with the general energy policy framework.

In guiding consistent policy objectives, the Netherlands can apply relatively flexible approaches to policy implementation, since the country has a strong tradition in taking a consensus-driven approach when setting energy policy actions. For instance, it can be efficient to take part in existing large-scale development programmes, instead of establishing flagship programmes. Utilising existing channels and platforms ensures efficiency in policy implementation. The same flexible principle can also be applied in activities in international organisations.