

# North South Inter-Parliamentary Association

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**Third meeting**

## Energy Security

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## Key points

Responsibility for energy policy in Ireland is assigned to the Department of Communications, Energy and Natural Resources (DCENR) and is enshrined in the Government White Paper on Energy, *Delivering a sustainable energy future for Ireland – the energy policy framework 2007-2020*. This encompasses the security of supply, sustainability of energy and competitiveness of energy supplies.

Energy policy is devolved to Northern Ireland, with the Department of Enterprise, Trade and Investment (DETI) taking lead responsibility. The principal driver of Northern Ireland's energy policy is the Strategic Energy Framework which was published in 2010 and sets out the region's energy goals until 2020. It is focussed upon four interlinked goals:

- Building competitive markets;
- Ensuring security of supply;
- Enhancing sustainability (including affordability); and
- Developing the region's energy infrastructure.

The policy framework for energy and energy security is also influenced by supra-national developments at EU level. This includes high level targets that the EU has set for itself and the Member States (the "20-20-20" targets) as part of the EU's Climate and Energy Package adopted in 2008.

Energy policy in Northern Ireland is sometimes influenced by developments in Westminster. Most recently a legislative consent motion was passed to apply certain aspects (e.g. Feed-in tariffs with contracts for difference) of the UK Energy Bill 2012 to apply to Northern Ireland.

Since 1996, there have been a number of legislative packages aimed at liberalising gas and electricity markets in the EU. Completing the internal energy market was one of the priorities identified at the EU Energy Summit in May 2013.

The East-West interconnector runs between Deeside in north Wales and Woodland, County Meath in Ireland and has been operational since 2012. Eirgrid<sup>1</sup> are expected to re-apply for planning permission for the North-South interconnector in late 2013 or early 2014. The System Operator for Northern Ireland and the Northern Ireland Utility Regulator have both stressed the importance of delivering the North-South interconnector as key to resolving the electricity security of supply risks post 2016.

Ireland has a target of 16% of total final energy consumption from renewable sources by 2020. This target will be made up of contributions from renewables in electricity (40%), transport (10%) and heat (12%) by 2020. Achieving this will likely be challenging given the current contribution of renewable energy. Northern Ireland has a target of sourcing 40% of electricity consumption and 10% of heat consumption from renewable resources by 2020.

The issues of affordability, energy security and renewable energy are inter-linked. Policy-makers have embarked upon various policy initiatives and commitments over recent years

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<sup>1</sup> EirGrid plc operates Ireland's national electricity grid (also called the 'Transmission System'). EirGrid was created in July 2006 when the operations of the national grid were passed to it from the Electricity Supply Board (ESB). EirGrid is an independent, state-owned company.

aimed at addressing these issues including the *Strategy for Renewable Energy 2012-2020* and *Warmer Homes: A Strategy for Affordable Energy in Ireland*.

In examining linkages between **renewable energy** and **security of supply**, it is notable that the island of Ireland is highly dependent on imported energy and this presents specific challenges.

Integrating renewable energy on to the electricity system may present energy security issues. The intermittency of renewable energy and wind in particular, poses some challenges to system operators. It is estimated that the all-island system can currently facilitate 50% of electricity supplied by wind at any one time. Work is underway, through the Delivering a Secure Sustainable Electricity System project, to increase this to 75%. This work is being carried out on an all-island basis.

Climate change policy is intrinsically linked with energy policy. Reducing our dependence on fossil fuels and increasing the role of indigenous renewables will help Ireland achieve our Greenhouse Gas (GHG) emissions targets and improve energy security.

Both regulators on the island are committed to working together to establish All -Island common arrangements for gas whereby all stakeholders can buy, sell, transport, operate, develop and plan the natural gas market north and south of the border effectively on an all-island basis.

Policy makers have started to turn their attentions to what the climate change and energy regime will look like in the post-2020 period. In this context, the European Commission has published relevant policy documents such as the Green Paper entitled *A 2030 Framework for Climate and Energy Policies* and the *Energy 2050 Roadmap*.

A number of challenges arise in relation to the post-2020 agenda including what kind of target regime is appropriate to 2030 and how to balance the national and EU dimensions.

Enhancing all-island energy security can be achieved through diversification of our fuel mix, greater interconnection, increasing use of renewables and improving energy efficiency across sectors.

## 1. Introduction

This section both explains the purpose and the format of this paper, in addition to defining energy security for the purpose of this paper.

### 1.1 The purpose and format of this paper

This background briefing paper is presented to inform Members of the North/South Inter-Parliamentary Association (N/SI-PA) on the topic of energy security in advance of the third meeting of the N/SI-PA in October 2013.

The outline for the paper is as follows:

1. Definition of energy security in the context of the joint research paper
2. Current framework / policy context (including key statistics, targets and drivers of policy)
  - a. Ireland
  - b. Northern Ireland
  - c. European Union (EU)
3. Key challenges / potential areas for cooperation.

### 1.2 Defining energy security

According to the International Energy Agency (IEA 2013), “energy security refers to the uninterrupted availability of energy sources at an affordable price”<sup>2</sup>. Energy security covers security of supplies and of power generation.

The Sustainable Energy Authority of Ireland (SEAI) identifies four dimensions to energy security: availability, accessibility, affordability and acceptability<sup>3</sup>. SEAI go on to state that:

*“Energy security is a varied and complex concept that relates to import dependency, fuel diversity, the capacity and integrity of the supply and distribution infrastructure as well as energy prices, physical risks, emergency and physical disruptions (storms, natural disasters, etc). Energy security is highly context dependent, differing across energy markets and energy market stakeholders, and has a temporal dimension (Chester, 2010). Security of supply is not maximising energy self-sufficiency or minimising dependence but aims to balance the risks linked to such dependence (European Union, 2000).”<sup>4</sup>*

Due to our high dependence on foreign fuel (88% dependence on oil and gas imports in the South in 2009 and 100% dependence on gas imports in the North), all-island Ireland is highly vulnerable in terms of energy security. The majority of our imports come from within EU and Organisation for Economic Co-operation and Development (OECD) countries. This helps to

<sup>2</sup> International Energy Agency (IEA), 2013. *Energy security* [online]. Available at: <http://www.iea.org/topics/energysecurity/> [accessed on 5 September 2013]

<sup>3</sup> Kryut et al, 2009 cited in Sustainable Energy Authority of Ireland (SEAI), 2011. *Energy security in Ireland, a statistical overview, 2011 report* [online]. Available at: [http://www.seai.ie/Publications/Statistics\\_Publications/EPSSU\\_Publications/Energy\\_Security\\_in\\_Ireland/Energy\\_Security\\_in\\_Ireland\\_A\\_Statistical\\_Overview.pdf](http://www.seai.ie/Publications/Statistics_Publications/EPSSU_Publications/Energy_Security_in_Ireland/Energy_Security_in_Ireland_A_Statistical_Overview.pdf) [accessed on 5 September 2013]

<sup>4</sup> *Ibid*, pg. 8

reduce our energy security exposure. However, our vulnerability is increasing as EU and OECD sources of fossil fuels diminish<sup>5</sup>.

Cross-border collaboration in terms of energy policy and infrastructure is on-going. The all-island Single Electricity Market (SEM) has been in operation since 2007 and progress continues on the Common Arrangements for Gas project across the Republic and Northern Ireland. The proposed North/South interconnector, when it proceeds, will improve all-island energy security as will the coming on stream of the Corrib gas field (offshore Co. Mayo).

## 2. Current policy framework

This section presents the current policy framework in Ireland, Northern Ireland and the EU respectively.

### 2.1 Ireland

#### *White paper on energy*

Energy policy in Ireland is enshrined in the 2007 Government White Paper on Energy, [Delivering a sustainable energy future for Ireland – the energy policy framework 2007-2020](#). This policy framework is set firmly in a European and global context and is designed to steer Ireland to a new and sustainable energy future. In order to achieve this, the framework identifies three Strategic Goals, each with a set of actions. The three Strategic Goals and their associated actions include:

1. Security of Supply:
  - a. Ensure that electricity supply constantly meets demand;
  - b. Ensure physical security and reliability of gas and oil supplies to Ireland;
  - c. Enhance fuel diversity;
  - d. Ensure consistent energy supply to consumers over robust networks;
  - e. Provide a stable attractive environment for oil and gas exploration; and
  - f. Be prepared for energy supply disruptions.
  
2. Sustainability of Energy:
  - a. Address climate change by reducing energy related greenhouse gas emissions;
  - b. Accelerate the growth of renewable energies;
  - c. Promote the sustainable use of energy in transport;
  - d. Delivery an integrated approach to sustainable development and bioenergy resources;
  - e. Maximise energy efficiency and energy savings across the economy; and
  - f. Accelerate energy research development and innovation programmes in support of sustainable energy goals.

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<sup>5</sup> *Ibid*

3. Competitiveness on Energy Supply:
  - a. Deliver competition and consumer price in the energy market;
  - b. Delivery the All-Island Energy Market Framework;
  - c. Ensure the regulatory framework meets the evolving challenges;
  - d. Ensure a sustainable future for semi-state energy enterprises;
  - e. Provide affordable energy to everyone; and
  - f. Create jobs, growth and innovation in the energy sector.

### *National Development Plan*

The National Development Plan 2007-2013 also identified the importance of a secure, competitive and sustainable energy supply for Ireland. Under the NDP, investment was made in renewable energy, energy efficiency and integration & innovation measures.

### *Renewable energy*

Reaching Ireland's renewable energy targets is an integral part of our energy framework. Wind energy is pivotal in achieving our renewable energy targets and in 2011 wind energy accounted for over 13% of all electricity generation while hydro accounted for 2.6% and bioenergy for 2%<sup>6</sup>. Further commitment to reaching our renewable energy targets can be seen in the [Strategy for renewable energy: 2012-2020](#) published by the Department of Communications, Energy and Natural Resources (DCENR) in May 2012. More detail on our renewable energy targets is provided in Section 3.2, *Affordability, energy security and renewable energy*, of this paper.

### *Energy efficiency*

Ireland's [second National Energy Efficiency Action Plan](#) was launched in February 2013 and provides a progress report on delivery of the national energy savings targets implemented under current EU requirements as well as energy efficiency policy priorities between now and 2020. The second Action Plan reaffirms Ireland's national commitment to a 20% energy savings target in 2020 and public sector specific commitment of 33% energy savings in 2020<sup>7</sup>.

### *Climate Change*

Ireland's energy policy is also intrinsically linked to climate change. The Department of the Environment, Heritage and Local Government (DEHLG) published the National Climate Change Strategy 2007-2012 shortly after the White Paper on Energy. More detail on this is provided in Section 3.3, *Climate Change* of this paper.

## **2.2 Northern Ireland**

Energy policy is devolved to Northern Ireland, with the Department of Enterprise, Trade and Investment taking lead responsibility. Electricity and Gas are regulated industries. The Northern Ireland Utility Regulator is responsible for the regulation of transmission, distribution

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<sup>6</sup> SEAI, 2012. *Renewable energy in Ireland 2011* [online]. Available at: [http://www.seai.ie/Publications/Statistics\\_Publications/Renewable\\_Energy\\_in\\_Ireland\\_2011.pdf](http://www.seai.ie/Publications/Statistics_Publications/Renewable_Energy_in_Ireland_2011.pdf) [accessed on 10.09.2013]

<sup>7</sup> Savings achieved by the public sector by end 2010 represented 20% of their target

and supply aspects of both industries (note: only the incumbent supply companies are directly regulated). The oil market is not regulated.

Northern Ireland is part of an all-island wholesale electricity market known as the Single Electricity Market (SEM). SEM is regulated by the SEM-Committee which consists of representatives of the two regulators on the island. The governments of Northern Ireland and the Republic of Ireland are in the process of developing common arrangements for gas, which will see all-island cooperation on gas markets.

The Strategic Energy Framework (SEF), published by the Department of Enterprise, Trade and Investment (DETI) in 2010, outlines Northern Ireland's energy goals to 2020. The publication sets out four, interlinked goals:

- Building a competitive market;
- Ensuring security of supply;
- Enhancing sustainability (including affordability); and
- Developing the region's energy infrastructure.<sup>8</sup>

Policy actions in these four areas interact with each other. For example, the two renewable targets outlined in the Framework – to ensure 40% electricity consumption and 10% of heat consumption is from renewable resources by 2020 – have implications for energy security and affordability. By increasing renewable resources Northern Ireland may reduce its reliance on imported fuels therefore enhancing security of supply. On the other hand, increasing renewable electricity is likely to increase household electricity bills by between £49 and £83 per annum depending on mix of technology chosen. Similarly, steps to enhance energy security by developing energy storage may have a positive impact on affordability by allowing the region to better protect price spikes. Energy storage may also enhance sustainability by improving the way intermittent renewable electricity generation is managed on the system.

There are 35 key actions listed in the SEF. Those relating directly or indirectly to energy security include:

- Promote the longer term integration of the Single Electricity Market within a British Isles and European wholesale electricity market;
- Put in place legislation to establish arrangements for efficient cross border regulation and management of transmission and trading of gas;
- Support the development of a range of renewable technologies to ensure the most cost-effective and reliable mix of generation which maximises Northern Ireland's sustainable energy resources;
- Secure 40% of electricity consumption and 10% of heat consumption from renewable sources by 2020;
- Work with other NI Departments, and partners in DECC and the Scottish and Irish Governments to achieve an efficient and coordinated regional approach to planning for electricity, gas and oil emergencies;

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<sup>8</sup> DETI *Strategic Energy Framework* (2010) [http://www.detini.gov.uk/strategic\\_energy\\_framework\\_sef\\_2010\\_-\\_3.pdf](http://www.detini.gov.uk/strategic_energy_framework_sef_2010_-_3.pdf)



- Stimulate and encourage investment in research for underground energy storage, including natural gas storage;
- Work with NIAUR to encourage investment in an appropriate level of conventional power generation to support higher levels of renewable electricity generation;
- Work with NIAUR, NIE and SONI to encourage provision of up to 300MW of biomass power generation;
- Ensure that support mechanisms for renewable electricity are tailored and appropriate to Northern Ireland's needs, within the context of the wider wholesale electricity market;
- Implement the Offshore Renewable Energy Strategic Action Plan 2010-2020;
- Work with other relevant departments in the implementation of the first Bioenergy Action Plan over the period to 2015;
- Ensure that electricity grid development plans are future proofed to facilitate a more decarbonised energy mix beyond 2020; and
- Support construction and commissioning of the new North-South electricity interconnector by 2013-14.<sup>9</sup>

The above outlines some of the out-workings of the SEF. These take a number of forms, including complimentary action plans – Offshore Renewable Energy Action Plan and the Bioenergy Action Plan.

It is also evident from the list of actions that the EU steers the direction of Northern Ireland policy. For example, the European Commission Renewable Energy Directive has led to the adoption of the 40% electricity consumption and 10% heat consumption by 2020 targets. Similarly, European Wholesale Market integration, driven by the EU Third Package is likely to result in a redesign of the Single Electricity Market.

Although Energy is a devolved matter, UK government policy does have an impact on Northern Ireland. A recent example of this is the Energy Bill 2012/13 (currently working its way through parliament) which will introduce electricity market reform. This will reform the way renewable energy is incentivised throughout the UK, with Renewable Obligation Certificates being replaced by a Feed-in Tariff with Contract for Difference by 2016.<sup>10</sup> A legislative consent motion was passed by the Northern Ireland Assembly on the 11 February 2013 to allow for elements on the Energy Bill 2012 to apply to Northern Ireland.<sup>11</sup>

In the latter part of 2013 the Northern Ireland executive is expected to publish its own Energy Bill. The Bill will legislate in areas directly and indirectly related to energy security, namely:

- Energy Efficiency Obligation;
- Small-Scale Feed-In Tariff Powers;
- Duties and Obligations of DETI and NIAUR in Respect of Sustainability;
- Transfer/Assignment of Licences; and
- Gas Storage.

<sup>9</sup> *Ibid*

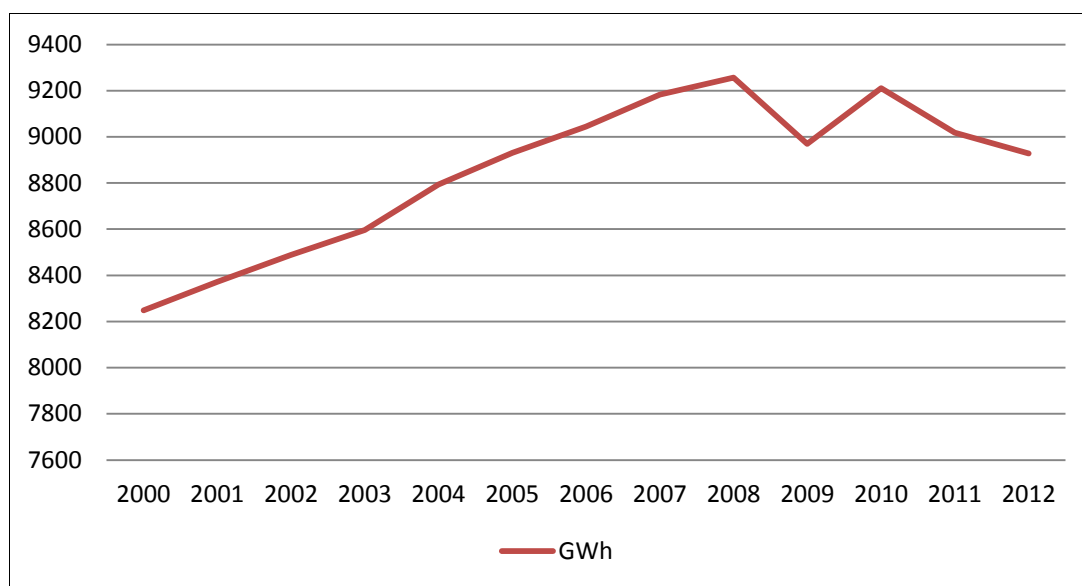
<sup>10</sup> DETI *Electricity Market Reform* (accessed 28/08/13) [http://www.detini.gov.uk/deti-energy-index/deti-energy-sustainable/electricity\\_market\\_reform.htm](http://www.detini.gov.uk/deti-energy-index/deti-energy-sustainable/electricity_market_reform.htm)

<sup>11</sup> <http://www.niassembly.gov.uk/Assembly-Business/Official-Report/Reports-12-13/11-February-2013/#12>

### Northern Ireland - Electricity Data

Historic NI electricity consumption is plotted in Figure 1, which shows yearly consumption (in GWh) from 2000 to 2012. Over this period consumption has increased by 8.24%. Consumption saw steady growth of approximately 1.5% per annum between 2000 and 2007. Growth began to slow in 2008 (0.8% on the previous years) and consumption contracted for three of the four years that followed (2009, 2011 and 2012). This contraction resulted from recessionary conditions which suppressed energy usage.

**Figure 1: Northern Ireland electricity consumption 2000 to 2012<sup>12</sup>**



**Source: SONI**

Figure 2 shows estimated total electricity demand for Northern Ireland for the period 2013 to 2022. Total electricity demand measures the energy sent from generators to meet demand and self-consumption, which is energy produced and used by consumers onsite. Three scenarios are presented – low, medium and high. These scenarios consider future economic and temperature conditions. Economic conditions are the main differentiating factor between the scenarios, with the low, median and high estimates corresponding to pessimistic, realistic and optimistic views of the economic outlook. SONI, who are responsible for these estimates, believe that the medium forecast is the *'best estimate of what might happen in the future'*.<sup>13</sup>

That forecast predicts that electricity consumption will continue to contract in 2013 (by 0.1% on the previous year) before returning to growth from 2014 onwards. SONI's medium estimate indicates that demand will not return to pre-recession levels until 2015. The medium forecast predicts total growth of 15% from 2013 to 2022.<sup>14</sup>

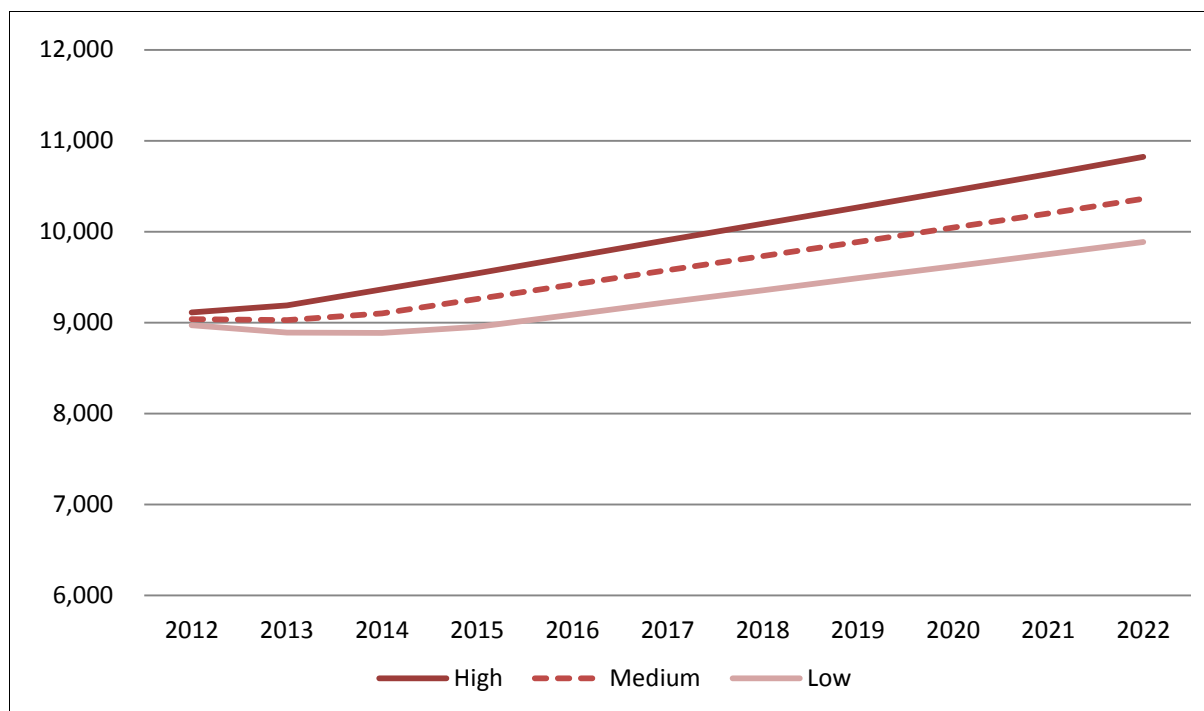
<sup>12</sup> Data provided by SONI 25 July 2013

<sup>13</sup> SONI & EirGrid *All-Island generation capacity statement 2013-2022* (January 2013)

[http://www.eirgrid.com/media/All-Island\\_GCS\\_2013-2022.pdf](http://www.eirgrid.com/media/All-Island_GCS_2013-2022.pdf)

<sup>14</sup> *Ibid*

**Figure 2: Northern Ireland total electricity demand forecast 2013 to 2022 – low, median and high scenarios<sup>15</sup>**



Source: SONI

### 2.3 European Union

The policy framework for energy and energy security is also influenced by supra-national developments at EU level. Energy is a ‘shared competence’ meaning that it is one of a number of competencies that are shared between the EU and its Member States (Article 4 TFEU<sup>16</sup>).<sup>17</sup> The Lisbon Treaty creates a clear legal basis for energy by inserting a new energy title (Title XXI TFEU), making it possible to explain and clarify EU action in this area. According to the Lisbon Treaty, the main aim of the EU’s energy policy is to ensure the functioning of the energy market; ensure security of energy supply in the Union; promote energy efficiency and energy saving and the development of new and renewable forms of energy; and promote the interconnection of energy networks.<sup>18</sup>

It is in this context that the EU has set policy commitments for itself and the Member States. The EU’s Climate and Energy Package, adopted in 2008, is a set of binding legislation which aims to ensure that the EU meets its ambitious climate and energy targets for 2020. These high-level targets, known as the "20-20-20" targets, set three key objectives for 2020:

<sup>15</sup> *Ibid*

<sup>16</sup> The consolidated version of the Treaty on the Functioning of the European Union is available online at: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2010:083:0047:0200:en:PDF>

<sup>17</sup> ‘Shared competence’ means that both the EU and Member States may adopt legally binding acts in the area concerned but the latter can only do so where the EU has not exercised its competence or has explicitly ceased to do so.

<sup>18</sup> Treaty of Lisbon amending the Treaty on European Union and the Treaty establishing the European Community, signed at Lisbon, 13 December 2007. Available at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2007:306:FULL:EN:PDF> The latter has been renamed the Treaty on the Functioning of the European Union (TFEU).

- A reduction of at least 20% in greenhouse gas emissions compared to 1990 levels.<sup>19</sup>
- An increase to 20% of the share of renewable energies in the energy consumption.
- An improvement of energy efficiency by 20%.

The Climate and Energy Package comprises four pieces of complementary legislation which are intended to deliver on the 20-20-20 targets:

1. Reform of the EU Emissions Trading System (EU ETS).
2. National targets for non-EU ETS emissions.
3. National renewable energy targets.
4. Carbon capture and storage.

**Text Box 1: Ireland's current 2020 target (for the 2013-20 period)**

- Reduce emissions covered by EU-ETS by 21% compared to 2005.
- Reduce other (non-ETS) emissions by 20%.
- Ensure that at least 16% of all energy consumed in the State is from renewable sources, with a sub-target of 10% in the transport sector.

In 2007, the Commission published its Communication *An Energy Policy for Europe*, in which it put forward strategic objectives for energy policy. The *Second Strategic Energy Review*, issued in November 2008, is a follow-up to this and proposed to complement the measures tabled so far through an EU Energy Security and Solidarity Action Plan in five points:

1. Promoting infrastructure essential to the EU's energy needs.
2. Strengthening external energy relations.
3. Improving oil and gas stocks and crisis response mechanisms.
4. Boosting energy efficiency.
5. Making the best use of the EU's indigenous energy resources (including renewables).

Over the years, the Commission has published a number of Green Papers and White Papers on energy policy intended to stimulate and promote debate on energy policy proposals and objectives.

Most recently, in March 2013, the Commission adopted a Green Paper on *A 2030 framework for climate and energy policies*.<sup>20</sup> It is envisaged that the 2030 framework will build on the experience and lessons learnt from the 2020 framework and will identify where improvements can be made.<sup>21</sup>

<sup>19</sup> This is distributed between EU Emissions Trading System (ETS) and non-ETS sectors. The term "tradable sector" refers to sectors covered by the EU ETS. Member States have two obligations; European targets relating to the ETS and national targets relating to the domestic non-traded sector. All Member States received the same target of -21% for the tradable sector, whilst individual targets in the non-tradable sector vary across a range of -20% to +20%.

<sup>20</sup> The related public consultation on the content of the 2030 framework ran from 28/03/2013 to 02/07/2013.

<sup>21</sup> See [http://ec.europa.eu/energy/green\\_paper\\_2030\\_en.htm](http://ec.europa.eu/energy/green_paper_2030_en.htm)

In addition, it will take into account the longer term perspective set out by the Commission in various policy documents published in 2011 - the *Roadmap for moving to a competitive low carbon economy in 2050*, the *Energy Roadmap 2050* and the transport White Paper.

Since 1996, there have also been a number of legislative packages aimed at liberalising gas and electricity markets in the EU. Completing the internal energy market was one of the priorities identified at the EU Energy Summit in May 2013.<sup>22</sup>

### 3. Key challenges / potential areas for N/S co-operation

This section explores a number of topics which could be considered as potential areas for North/South cooperation.

#### 3.1 Interconnection

##### *East-West Interconnector (EWIC)*

According to a briefing provided to the Oireachtas Library & Research Service in August by the Department of Communications, Energy and Natural Resources (DCENR)<sup>23</sup>:

*“One physical manifestation of the benefit of cross-border cooperation is shown by the East/West Electricity Interconnector (EWIC). The Interconnector is a strategically vital energy project for the island of Ireland, a hugely significant step in delivering electricity connectivity between Ireland and Britain and also a step towards lessening our isolation as an energy market. It connects the national transmission grid systems of Ireland and Britain and is a strategically vital energy project for the island of Ireland. The project was financially supported under the European Energy Programme for Recovery. The EWIC has enhanced the security of the national energy supply and will increase energy market competition and facilitate the progressive development of renewable energy.”*

As the licensed electricity Transmission System Operator (TSO) in Ireland, Eirgrid is the owner and operator of the EWIC. Operational since autumn 2012, the EWIC has a capacity of 500MW, enough to supply power to 300,000 households. It connects Ireland’s electricity grid to the UK through underground and undersea cables via Rush beach in north Dublin, under the Irish Sea to Barkby beach in north Wales. The EWIC will facilitate the integration of renewable generation on the Irish electricity system.

##### *North-South Interconnector (NSIC)*

Eirgrid and Northern Ireland Electricity (NIE) are jointly proposing a new cross-border 400kv high capacity electricity interconnector, the North-South interconnector (NSIC) using overhead cables. Although there is an existing North-South interconnector in place,

<sup>22</sup> See [http://ec.europa.eu/energy/council/2013\\_en.htm](http://ec.europa.eu/energy/council/2013_en.htm)

<sup>23</sup> DCENR, 2013. *Briefing note for the North/South Inter-Parliamentary Association - Irish Energy Policy*. Dublin. DCENR.

transmission capacity is relatively low and the existing North-South interconnector would have difficulties coping if and when the wind generation potential in Ireland is realised.

The new NSIC project was launched in autumn 2007 and Eirgrid applied to An Bord Pleanála for planning permission in December 2009. However, this application was subsequently withdrawn in July 2010. Since then Eirgrid have been conducting a comprehensive re-evaluation of the project. In May 2011, Eirgrid published its interim findings as set out in a Preliminary Re-evaluation Report which was subject to consultation. A separate review was undertaken by the Department of Communications, Energy and Natural Resources to review the cost implications of undergrounding the NSIC.

Following a period of consultation, a Government Policy Statement on the Strategic Importance of Transmission and Other Energy Infrastructure was published in July 2012.

Eirgrid have completed their re-evaluation and the final report was published in April 2013 with a further report, the *Preferred Project Solution Report* published in July 2013. The preferred solution is a 400kV overhead power line. The Environmental Impact Statement (EIS) was due to start this summer with a view to re-applying for planning permission late 2013 / early 2014. Construction of the interconnector will take approximately four years after planning permission is granted<sup>24</sup>.

### *Benefits*

#### EWIC

The principal goal in commissioning the EWIC was to improve electricity security for Ireland and to enable us to export any excess electricity overseas. As the UK is connected with the continent, Ireland now has direct access to UK and European energy markets. Without the EWIC the Irish grid would struggle to cope with the growing amount of variable renewables such as wind coming on stream.

While the main benefits of the interconnector are energy security and access to European electricity markets, other benefits relate to competition as connecting to the UK and European grid system will promote competition in the electricity sector and may help reduce prices for consumers. Interconnectors enable Irish companies to sell electricity to the UK and across Europe when there is a surplus here and to buy electricity in during times of deficit.

#### NSIC

According to the DCENR :

*“The new interconnector will increase the capacity, and the reliability, of interconnection between the two networks. This will allow the two independent networks to operate together as if they were one system for the mutual benefit of residents and businesses in both jurisdictions. The increase in interconnection capacity will effectively eliminate current restrictions in cross border support in the event of a shortage of electricity in one jurisdiction, thus enhancing the security of electricity supply throughout the island of Ireland. Operating the two networks as if they were one system will bring cost savings for all electricity consumers as larger electricity systems can be operated more*

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<sup>24</sup> *Ibid*

*efficiently than smaller ones. The increase in interconnection capacity will also facilitate further and greater connection of wind generation in both parts of the island which will help achieve Ireland's renewable energy targets.”<sup>25</sup>*

### 3.2 Affordability, energy security and renewable energy

#### *Ireland*

The DCENR identifies the security, sustainability and competitiveness of energy supply for the economy and society as being the fundamental objectives of energy policy in Ireland.<sup>26</sup> These objectives are set in the context of wider developments which include Ireland's mandatory EU targets for renewable energy 2020. As the DCENR notes, energy policy objectives are profoundly interlinked with security, sustainability and competitiveness of supply mutually reinforcing, impacting and interacting with each other.<sup>27</sup> For example, the development of renewable energy is central to overall energy policy in Ireland particularly in the context of its role in reducing dependence on fossil fuels, improving security of supply, and reducing greenhouse gas emissions.

Ireland's target is to achieve 16% of all energy consumption (electricity, heat and transport sectors) from renewable sources by 2020 under the 2009 Renewable Energy Directive 2009/28/EC. The contribution of renewable energy to overall energy demand rose from 2.3% to 5.6% between 1990 and 2010, and provisional 2011 data puts the renewable energy contribution at 6.45%.<sup>28</sup> On this basis, meeting the 16% target in the next 7 years is likely to be challenging. Ireland intends to achieve the renewable energy target through 40% renewable electricity, 12% renewable heat and 10% renewable energy in transport by 2020.

There are a number of relevant strategies and policies aimed at the issues of affordability, energy security and renewable energy. The *Strategy for Renewable Energy 2012-2020*, launched in May 2012, confirms the determination that Ireland's 2020 renewables targets will be met.<sup>29</sup> The document outlines the following strategic goals and 36 specific actions so as to maximise the economic potential of renewables: increasing on and offshore wind, building a sustainable bio energy sector, fostering R&D in renewables such as wave & tidal, growing sustainable transport and building out robust and efficient smart energy networks.

Fuel or energy poverty is also an issue that has received attention from policy-makers in Ireland. The current Programme for Government (p.51) includes a commitment to “complete and publish a strategy to tackle fuel-poverty”. Accordingly, the Affordable Energy Strategy was developed by the Inter-Departmental/Agency Group on Affordable Energy (IDGAE), which was established by the Department of Communications, Energy and Natural Resources with the Department of Social Protection in the summer of 2008. It comprises a number of other departments as well as the Commission for Energy Regulation (CER), Sustainable Energy Authority of Ireland (SEAI), ESB and Bord Gáis.

<sup>25</sup> *Ibid*

<sup>26</sup> See DCENR website at <http://www.dcenr.gov.ie/Corporate+Units/Minister/Ministers+Brief/Energy.htm>

<sup>27</sup> *Ibid*.

<sup>28</sup> SEAI (2012) *Renewable Energy in Ireland 2011*. Available at <http://www.seai.ie/Publications/Statistics+Publications/Renewable+Energy+in+Ireland+2011.pdf>

<sup>29</sup> This is available at [http://www.dcenr.gov.ie/NR/rdoonlyres/C0498ADB-362B-449C-B381-0099B552EBD1/0/RenewableEnergyStrategy2012\\_2020.pdf](http://www.dcenr.gov.ie/NR/rdoonlyres/C0498ADB-362B-449C-B381-0099B552EBD1/0/RenewableEnergyStrategy2012_2020.pdf)



The IDGAE's strategy, *Warmer Homes: A Strategy for Affordable Energy in Ireland*, was published in November 2011 by the Minister for Communications, Energy and Natural Resources, Mr. Pat Rabbitte TD.<sup>30</sup> The strategy is considered vital in protecting the most vulnerable in Irish society who may be at risk of energy poverty and providing a framework for building on existing measures.

The strategy includes 48 actions that will be implemented over the life of the report (3 years) with responsibility shared between a number of actors including the DCENR, SEAI and CER. Key highlights include:

- The introduction of minimum thermal efficiency standards for all properties offered for rent;
- Reviewing the National Fuel and Household Benefits Schemes to see how we can target cash supports effectively and prioritise colder homes; and
- Achieving economies and harnessing community effort by the introduction of an area-based approach to mitigating energy poverty.

Looking at linkages between renewable energy and security of supply, it is notable that Ireland relies heavily on fossil fuels (95% of total primary energy requirement) and is highly dependent on imported energy. The country had an import dependency of 89% in 2008 and 88% in 2009 compared to an EU average of 55% in 2008.<sup>31</sup> A number of factors have contributed to this high level of import dependency since 2001, including the decline in natural gas production at Kinsale since 1995.

Diminishing supplies of oil and gas in the EU and OECD will impact on Irish energy security. The SEAI (2011) suggests that, given Ireland's lack of significant finds of indigenous sources of oil and gas to date, there is a requirement to diversify the fuel mix which in its view, enhances energy security by reducing demand for imported fossil fuels and also the exposure to their variations in price. It further notes that:

*“Other ways to enhance energy security include improving existing energy infrastructure, for example introducing more gas storage facilities and electricity grid upgrades and interconnection. The contribution from renewables and wastes is the only increasing indigenous energy source and was the most significant indigenous energy source in 2009. Transport energy is the least secure energy sector with almost exclusive dependence on imported oil products” (SEAI, 2011, p. 3).*

95% of Ireland's gas demand is met by gas imported from Scotland and around 60% of electricity on the island is generated from gas. As such, the nature of the supply of gas to Ireland would appear to present somewhat of a risk at present. As the Irish Academy of Engineering puts it, “Ireland is vulnerable to disruption in gas supply. Security of supply

<sup>30</sup> The report is available at <http://www.dcenr.gov.ie/NR/rdonlyres/53F3AC25-22F8-4E94-AB73-352F417971D7/0/AffordableEnergyStrategyFINAL.pdf>

For the purposes of the report, energy poverty is defined as follows: “a household is considered to be energy poor if it is unable to attain an acceptable standard of warmth and energy services in the home at an affordable cost”.

<sup>31</sup> SEAI (2011) Energy Security in Ireland: A Statistical Overview 2011 report. Available at [http://www.seai.ie/Publications/Statistics\\_Publications/EPSSU\\_Publications/Energy\\_Security\\_in\\_Ireland/Energy\\_Security\\_in\\_Ireland\\_A\\_Statistical\\_Overview.pdf](http://www.seai.ie/Publications/Statistics_Publications/EPSSU_Publications/Energy_Security_in_Ireland/Energy_Security_in_Ireland_A_Statistical_Overview.pdf)



needs to be ensured and a diversity of supply sources and entry points to Ireland is essential”.<sup>32</sup>

In light of the critical importance of a secure reliable energy supply to attract investment and create jobs, utilising indigenous energy sources, such as wind, is central to the energy future for the island of Ireland. In this way, increasing integration of existing and developing renewable energy technologies also holds the prospect of reducing the impact of volatile international fossil fuel prices on consumers in both Ireland and Northern Ireland.

Finally, it should be noted that an indigenous and significant source of **onshore gas** may, potentially, exist but would require extraction by the use of the controversial technology of hydraulic fracturing or ‘fracking’. In a speech this year the Minister for Communications, Energy and Natural Resources set out the background to the current position in Ireland.<sup>33</sup>

*“...in February 2011, following an open competition, the previous Government awarded two-year onshore Petroleum Licensing Options to two companies over parts of the Lough Allen Basin and one in the Clare Basin ... Such Licensing Options are designed to allow companies assess the natural gas potential of the area, largely based on desktop studies of existing data from previous petroleum exploration activity. Licensing Options do permit some shallow geological sampling but exploration drilling, including drilling that would involve hydraulic fracturing, is excluded under these Options.”*

The Minister of State at the Department of Communications, Energy and Natural Resources (Deputy Fergus O'Dowd) set out the next steps in a written answer to an Oireachtas parliamentary question in July of this year.<sup>34</sup>

*“Earlier this year the Environmental Protection Agency (EPA), announced the draft terms of reference for the more extensive second stage of its research into the use of hydraulic fracturing, the final results of which are expected in early 2015. The key questions to be addressed by this research are,*

*-To establish if shale gas exploration and extraction involving the use of the fracking technique can be carried out in a manner that will not cause significant environmental pollution.*

*-To identify all possible environmental risks associated with the fracking technique and to ascertain if these risks are manageable; and,*

*-To identify best practice with respect to environmental protection for the use of the hydraulic fracturing technique for the exploration and extraction of shale gas.*

*The proposed terms of reference were the subject of a Public Consultation and I understand that in excess of 1,300 submissions were received. These are currently*

<sup>32</sup> Irish Academy of Engineering (2013) *The Future of Oil and Gas in Ireland*.

<sup>33</sup> Speech by the Minister given at the Royal Irish Academy on the 17<sup>th</sup> April 2013 available online at: <http://www.dcenr.gov.ie/Corporate+Units/Press+Room/Speeches/2013/Ministers+speech+at+the+Information+Session+on+Fracking+at+Royal+Irish+Academy+in+Dublin.htm>

<sup>34</sup> Available online at: <http://oireachtasdebates.oireachtas.ie/debates%20authoring/DebatesWebPack.nsf/takes/dail2013071700073#N24>

*being assessed by the Steering Group established by the EPA to oversee the appointment of the appropriate experts to carry out in-depth scientific research into the potential environmental impacts of hydraulic fracking. It is expected that a call for tender will issue in this regard shortly.”*

The EPA initially commissioned preliminary desk research on fracking which was published in May 2012. Since then, as detailed above, the Steering Committee<sup>35</sup> has launched its terms of reference and received submissions. Due to the volume of submissions received, the EPA expects to commission the programme of research by the end of 2013<sup>36</sup>. It is intended to publish a number of interim reports while the programme is underway. It is likely that the research programme will take two years to complete.

## **Northern Ireland - Electricity security of supply Issues**

### **Northern Ireland - Electricity deficit post 2016**

Amongst the most pressing issues facing the Northern Ireland electricity market is the risk to security of supply from 2016 identified by the System Operator for Northern Ireland (SONI) in their Generation Capacity Statement 2013-2022. SONI's licence obligations require it to “track the generation capacity that is available... in Northern Ireland and on the island to ensure [there is] sufficient generation capacity to meet demand in the future”.

The Operator's most recent statement, published January 2013, found that, given present conditions, Northern Ireland's security of supply would be at risk from 2016 and in deficit from 2021. This is illustrated in Figure 3 (over). There are three reasons for this deficit:

- Despite the Republic of Ireland experiencing a surplus of generation, limitations in interconnection between the two jurisdictions restrict the amount of generation that can be transferred to Northern Ireland. The delay in the North-South Interconnector is a barrier to resolving this issue. A planning application for the Northern Ireland element of the interconnector was submitted in December 2009 and resubmitted in April 2013.
- EU Emissions Directive<sup>37</sup> will, from 2016, result in the reduction in generation capacity from the Ballylumford plant, and restrict generation at the Kilroot plant.
- Faults on the Moyle Interconnector, which connects Northern Ireland and Scotland, have halved its capacity. Full restoration of this capacity is not likely to be complete until 2017.<sup>38</sup>

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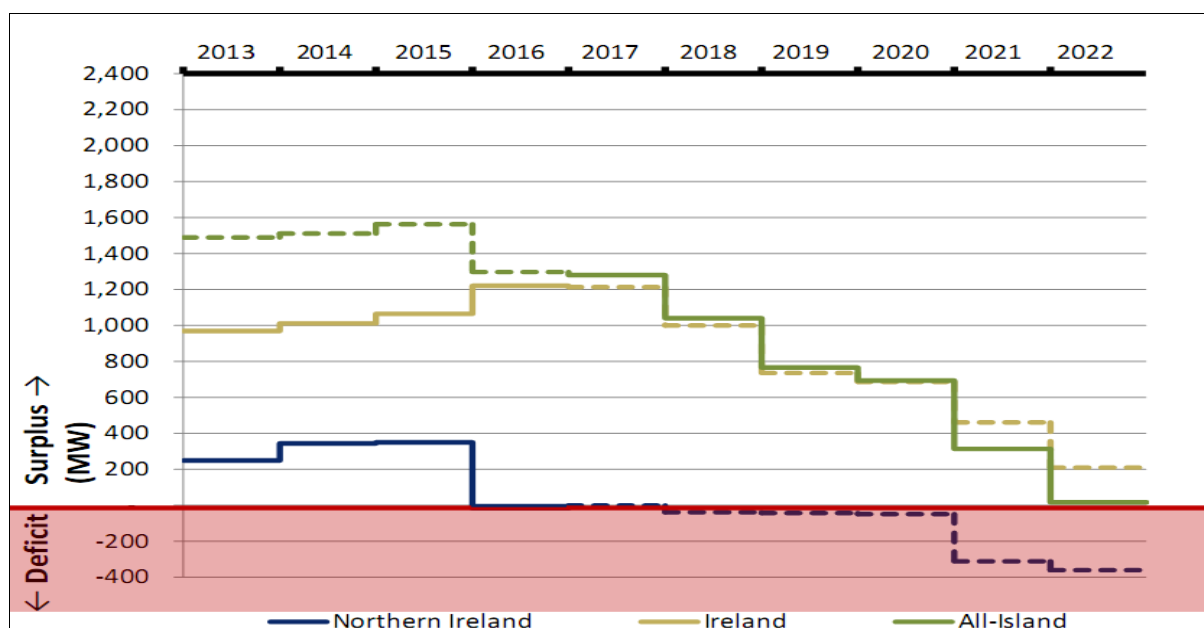
<sup>35</sup> The Steering Committee comprises the EPA, Department of Environment, Community & Local Government, Department of Communications, Energy and Natural Resources, the Geological Survey of Ireland, Commission for Energy Regulation, An Bord Pleanála, Northern Ireland Environment Agency and the Geological Society of Northern Ireland.

<sup>36</sup> Pers comms with the EPA, 23<sup>rd</sup> September 2013

<sup>37</sup> The Large Combustion Plant Directive and Industrial Emissions Directive

<sup>38</sup> Northern Ireland Utility Regulator *Security of Supply in Northern Ireland Information Paper* (12 June 2013) [http://www.uregni.gov.uk/uploads/publications/20130612\\_Electricity\\_security\\_of\\_supply\\_paper.pdf](http://www.uregni.gov.uk/uploads/publications/20130612_Electricity_security_of_supply_paper.pdf)

**Figure 3: Security of supply in Northern Ireland to 2022<sup>39</sup>**



Source: SONI

SONI and the Northern Ireland Utility Regulator (the Regulator) have both stressed the importance of increasing interconnection between the two jurisdictions as a way to mitigate security of supply risks. The Regulator has explicitly said that it is “imperative that the second North/South Interconnector is progressed and delivered as soon as possible”.<sup>40</sup>

SONI provide more detail on this:

*“The Northern Ireland generating adequacy margin will be tight until the commissioning of the second North/South tie line. We bring that to the fore because, in the absence of any proposals on the table or any discussion that anyone is having with us about conventional generation, we are obviously aware of the North/South interconnector — it is the only means we have at our disposal to consider how the adequacy position will change. Once the North/South interconnector comes along, the energy that is available in Ireland can be exported to Northern Ireland and we can close this deficit. **So, we are making the point quite clearly that, in the absence of any other local proposals, the North/South interconnector is the only single proposal that we are aware of that would change the situation.**” (Emphasis added).<sup>41</sup>*

Uncertainty surrounds the interconnector’s future, however. As noted above, the original planning application was submitted in December 2009. This application was referred to the Planning Appeals Commission and subject to a public inquiry, which was subsequently suspended in 2012. Since then Northern Ireland Electricity (NIE) has submitted a second

<sup>39</sup> SONI & EirGrid *All-Island generation capacity statement 2013-2022* (January 2013) [http://www.eirgrid.com/media/All-Island\\_GCS\\_2013-2022.pdf](http://www.eirgrid.com/media/All-Island_GCS_2013-2022.pdf)

<sup>40</sup> Northern Ireland Utility Regulator *Security of Supply in Northern Ireland Information Paper* (12 June 2013) [http://www.uregni.gov.uk/uploads/publications/20130612\\_Electricity\\_security\\_of\\_supply\\_paper.pdf](http://www.uregni.gov.uk/uploads/publications/20130612_Electricity_security_of_supply_paper.pdf)

<sup>41</sup> Northern Ireland Assembly Committee for Enterprise, Trade and Investment, *Minutes of Evidence Electricity Supply — SONI Generation Adequacy Report: Security of Supply Post-2015* (27 June 2013) <http://www.niassembly.gov.uk/Assembly-Business/Official-Report/Committee-Minutes-of-Evidence/Session-2012-2013/June-2013/Electricity-Supply--SONI-Generation-Adequacy-Report--Security-of-Supply-Post-2015/>

application (April 2013) for the NI element of the interconnector. Considerable uncertainty surrounds the granting and timing of planning permission on both sides of the border. SONI and the Regulator anticipate that 2017 is the earliest date for delivery. However, SONI note that:

*“For the North/South interconnector, we have date of 2017, but we cannot stand over that. The planning application has been made by NIE, but we have not got a date for the Planning Appeals Commission hearing yet. That has to go through due process and you have to come out the other end. You also have to build the line, which has to be done in conjunction with a project in the South of Ireland. So there are a number of risks with the delivery of that project by 2017.”<sup>42</sup>*

The estimated cost of the Northern Ireland element of the North-South Interconnector is £90m.<sup>43</sup>

A number of other possible remedies and mitigating factors exist. The most immediate is the restoration of the Moyle Interconnector to full capacity. Mutual Energy, who owns the interconnector, is investigating an interim repair solution. It is anticipated that this could lead to a short-term fix by 2016, adding a further c250MW of generation into the market, leading to a surplus of c450MW.<sup>44</sup>

The Regulator has noted, however, that given “the more recent history of faults on the Moyle Interconnector” Mutual Energy is investigating a long-term solution to restore it to its previous capacity and reliability. It is anticipated that such a solution would take four to five years, with a commission date of 2017 viewed as realistic. The cost of such a project would be in the region of £60m, although Mutual Energy notes a degree of certainty with this figure at present.<sup>45</sup>

Commenting on the Moyle Interconnector during written evidence to the Enterprise, Trade and Investment Committee in June 2013 SONI stated:

*“There has been some progress with the restoration of the Moyle interconnector. Correspondence between Mutual Energy and the regulator has been published on that and there has been some indication of the costs. However, from [SONI’s] perspective, there is no Gantt chart or contract that says that [they] are going to deliver x by date y, which is what we need in order to be sure that we are addressing the problem. The Moyle interconnector will only ever contribute to a solution; it will not be the solution to the security-of-supply issue.”<sup>46</sup>*

Developing additional generation capacity is another possible remedy to Northern Ireland’s security of supply issues. However, as noted in the SONI quote above, there are no proposals to develop additional capacity. The Regulator confirms that no additional

<sup>42</sup> Northern Ireland Utility Regulator *Security of Supply in Northern Ireland Information Paper* (12 June 2013) [http://www.uregni.gov.uk/uploads/publications/20130612\\_Electricity\\_security\\_of\\_supply\\_paper.pdf](http://www.uregni.gov.uk/uploads/publications/20130612_Electricity_security_of_supply_paper.pdf)

<sup>43</sup> *Ibid*

<sup>44</sup> *Ibid*

<sup>45</sup> *Ibid*

<sup>46</sup> Northern Ireland Assembly Committee for Enterprise, Trade and Investment, Minutes of Evidence *Electricity Supply — SONI Generation Adequacy Report: Security of Supply Post-2015* (27 June 2013) <http://www.niassembly.gov.uk/Assembly-Business/Official-Report/Committee-Minutes-of-Evidence/Session-2012-2013/June-2013/Electricity-Supply--SONI-Generation-Adequacy-Report--Security-of-Supply-Post-2015/>

conventional generating capacity is in the pipeline, but notes that additional renewable energy is expected to come on stream. This is not, however, viewed as an adequate solution to security of supply risks. On this the Regulator notes that the anticipated level of renewable generation required to meet the 40% target is incorporated into SONI's capacity report. Furthermore, they add:

*“Additionally, the intermittency and disparate nature of connections of wind generation do not make such generation a reliable source for addressing a security of supply issue arising from a large generation outage from 2016. Other renewable generation options are unlikely to be available until 2016.”<sup>47</sup>*

These issues are explored in a separate section below.

DETI do have the power to direct the Regulator to invite tenders (or invite tenders itself) for additional generation capacity (conventional) or demand side efficiency solutions. Additional capacity could be secured by upgrading current generation plants to meet EU Emission Directive requirements, or by developing a new generation plant. Either option would ultimately be paid for by the consumer and according to the Regulator, both they and the Department are:

*“...mindful that provision of increased interconnection in due course could obviate the need for significant investment in long term generation in Northern Ireland and therefore avoid unnecessary additional consumer costs.”<sup>48</sup>*

Northern Ireland may also be able to seek derogation from the Emission Directive which will remove a substantial amount of generation capacity (510MW) from the system from January 2016. The Regulator has stated that any ‘scope to extend the deadline for compliance will be tested’. They concede, however, that “while the Directives have provision for potential derogations, discussions to date with the Department of the Environment on the possibility of an appropriate derogation for the current generating plant at Ballylumford is not considered a realisable option given the formal undertaking to close”. In their discussions with the ETI Committee, SONI had the following to say about a potential derogation:

*“...it will take a huge political effort to get a derogation. I know that Northern Ireland has a bit of a track record of looking for derogations, and this is another one. This is a short-term fix for a problem that we are aware of in advance. That is one possibility. It is possible to go out to the market to look for other generator solutions. There is a cost to what needs to be done at Ballylumford to make it compliant. So if we do not get a derogation and we were to make the Ballylumford plant compliant, a business case could be looked at and there may be other commercial opportunities that other generating companies could bring to the table if that was afforded to them.”<sup>49</sup>*

The development of energy storage may also alleviate the anticipated post-2016 security of supply risks. This is explored in more detail below.

<sup>47</sup> Northern Ireland Utility Regulator *Security of Supply in Northern Ireland Information Paper* (12 June 2013) [http://www.uregni.gov.uk/uploads/publications/20130612\\_Electricity\\_security\\_of\\_supply\\_paper.pdf](http://www.uregni.gov.uk/uploads/publications/20130612_Electricity_security_of_supply_paper.pdf)

<sup>48</sup> *Ibid*

<sup>49</sup> Northern Ireland Assembly Committee for Enterprise, Trade and Investment, Minutes of Evidence *Electricity Supply — SONI Generation Adequacy Report: Security of Supply Post-2015* (27 June 2013) <http://www.niassembly.gov.uk/Assembly-Business/Official-Report/Committee-Minutes-of-Evidence/Session-2012-2013/June-2013/Electricity-Supply--SONI-Generation-Adequacy-Report--Security-of-Supply-Post-2015/>



## Integration of renewable energy

Northern Ireland has set a target of ensuring 40% of electricity consumption is provided by renewable resource by 2020. In the year ended 31 March 2013, the annual average percentage of electricity generated from renewable sources was 13.7%.<sup>50</sup>

Wind energy is expected to make the largest contribution towards meeting this target. SONI estimates that an installed capacity of 1275MW of wind generation (of which 968MW will be large scale onshore generation and 116MW of onshore small scale generation and 191MW of offshore generation) will be sufficient to achieve the 40% target.<sup>51</sup>

Renewable energy sources are to some extent intermittent. This varies by source. Tidal energy, for example, is intermittent, but is predictable. Wind energy, by contrast, is intermittent and less predictable. Furthermore, peaks in wind supply do not always coincide with peaks in demand.

This intermittency poses some challenges. As noted in the *Annual Renewable Report 2012*:

*“The integration of more variable renewable forms of generation on the power system means TSOs must consider an increasingly complex range of demand and supply issues such as the operational challenges of switching to sustainable but more variable non-synchronous power sources, security of supply in terms of managing an increasing variety of generation technology types and protection from cyber-attack, and ‘smart meters’ which can regulate electricity usage at the point of consumption.”*<sup>52</sup>

Work is on-going through the Delivering a Secure Sustainable Electricity System (DS3) to manage the variability of new generation whilst maintaining system stability and security. One of the key aspects of this work is increasing the amount of wind that can be on the system. The current limit is 50% electricity supplied by wind at any one time, but work is being done to increase this to 75% by 2020 to derive greater benefit from the available wind. In addition, work is underway to ensure that conventional generation on the system is flexible and can accommodate increased wind penetration. The work being carried out through DS3 is being conducted on an all-island basis.<sup>53</sup>

Whilst increasing renewable electricity penetration may present challenges it should be noted that renewable generation reduces reliance on imported fossil fuels. In addition to the Strategic Energy Framework Northern Ireland has produced three strategic plans in the area of renewable electricity development:

- The Sustainable Energy Action Plan 2012-2015 and beyond which is a cross-departmental action plan that draws together action points from existing policy and combines these with the outworking of the Sustainable Energy Interdepartmental Working Group;<sup>54</sup>

<sup>50</sup> DETI *Strategic Energy Framework* (2010) [http://www.detini.gov.uk/strategic\\_energy\\_framework\\_sef\\_2010\\_-\\_3.pdf](http://www.detini.gov.uk/strategic_energy_framework_sef_2010_-_3.pdf)

<sup>51</sup> SONI & EirGrid *All-Island generation capacity statement 2013-2022* (January 2013) [http://www.eirgrid.com/media/All-Island\\_GCS\\_2013-2022.pdf](http://www.eirgrid.com/media/All-Island_GCS_2013-2022.pdf)

<sup>52</sup> EirGrid Group *Annual Renewable Report 2012 – Towards a smart, sustainable energy future* <http://www.eirgrid.com/media/Annual%20Renewable%20Report%202012.pdf>

<sup>53</sup> EirGrid Group *The DS3 Programme – delivering a secure, sustainable electricity system* <http://www.eirgrid.com/media/DS3%20Programme%20Brochure.pdf>

<sup>54</sup> DETI *Sustainable Energy Action Plan 2012-2015* (May 2012) <http://www.detini.gov.uk/03may.pdf>

- The Onshore Renewable Action Plan which examines the potential impact of market led renewable generation mixes up to 2020. This plan aims to optimise the level of renewable electricity on the system in order to balance complimentary aims, namely: enhancing diversity and security of supply; reduce emissions; contribute to 40% renewable electricity target; and develop business and employment opportunities for Northern Ireland companies.<sup>55</sup> A scoping report and consultation exercise has been carried out. A final version of the Action Plan is due to be published in the 2013/14 legislative period;<sup>56</sup> and
- The Offshore Renewable Action Plan which aims to ensure the optimal penetration of offshore energy in order to enhance diversity and security of supply; reduce emissions; contribute to 40% renewable electricity target (and beyond); and develop business and employment opportunities for Northern Ireland companies. It estimates that there is a development opportunity for up to 900MW of offshore wind and 300MW of tidal energy up to 2020. Licencing of prospective projects is timetabled for the 2012-15 period.<sup>57</sup>

Renewable electricity is currently supported by the Northern Ireland Renewable Obligation scheme. This is due to be replaced by Feed-in Tariff for small-scale generation (to be legislated for in the Energy Bill (Northern Ireland) due in 2013/14 legislative period) and a Feed-in tariff with contracts for difference which will be applicable to larger generation (this is being introduced at Westminster level through the Energy Bill 2012/13 currently working its way through parliament).

### Energy Storage

Compressed Air Energy Storage (CAES) may enhance electricity system management by allowing energy generated from renewables in off-peak hours to be stored and dispatched during peak times. The technology can help to minimise the challenges associated with balancing intermittent wind energy and has the potential to minimise Northern Ireland's reliance on fossil fuels.

Studies have been carried out by the British Geological Society and Geological Survey NI on the suitability of Northern Ireland's geology for energy storage techniques.<sup>58</sup>

Gaelectric Gas Storage Ltd is proposing a CAES project in Larne which could potentially see a plant with between 140MW and 300MW capacity being introduced.<sup>59</sup> Larne has been chosen as it is home to salt deposits that are potentially suitable. The company was granted a 'Consent to Drill' Licence by the Department of Enterprise, Trade and Innovation (DETI) in July 2013. Exploration drilling began in August 2013 and is set to take approximately 12 weeks. The work currently underway will confirm the depth and thickness of the salt deposits, to take core samples and will allow the company to map the area. Should exploration and

<sup>55</sup> *Ibid*

<sup>56</sup> DETI *Operating Plan 2013-14* (June 2013) [http://www.detini.gov.uk/microsoft\\_word\\_-\\_deti\\_operating\\_plan\\_2013\\_14\\_-\\_deti\\_operating\\_plan\\_2013\\_14.pdf](http://www.detini.gov.uk/microsoft_word_-_deti_operating_plan_2013_14_-_deti_operating_plan_2013_14.pdf)

<sup>57</sup> DETI *Offshore Renewable Electricity Plan* (March 2012)

[http://www.detini.gov.uk/ni\\_offshore\\_renewable\\_energy\\_strategic\\_action\\_plan\\_2012-2020\\_march\\_2012\\_.pdf](http://www.detini.gov.uk/ni_offshore_renewable_energy_strategic_action_plan_2012-2020_march_2012_.pdf)

<sup>58</sup> Geological Survey NI *Energy Storage* <http://www.bgs.ac.uk/gsni/energy/storage/>

<sup>59</sup> Gaelectric <http://www.gaelectric.ie/index.php/energy-storage/>

subsequent work go to plan, the company intends to develop a fully operational plant by 2017.<sup>60</sup>

In a letter to DETI's energy division with regard to the post-2016 security of supply risks, Gaelectric offered their support to the development of additional North/South Interconnection as '*a means of reducing costs to the consumer, integrating renewables and alleviating security of supply concerns*', yet expressed concern that the '*North-South Interconnector and increased interconnector capacity are viewed as the ultimate solution*'. To this end the company argued that:

*"Whilst interconnectors will provide cost reflective and adequate quality electricity, it has been shown over recent years that they cannot guarantee long term physical availability given the recent experience of outages on the Moyle Interconnector.*

*As an example should the North-South interconnector become unavailable, Northern Ireland will not have physical access to adequate capacity in its jurisdiction. This by definition cannot therefore be deemed as long term security of supply, and it should be considered that Northern Ireland, despite the development of two interconnections, will remain capacity inadequate. Moreover, transmission interconnection cannot be valued as equivalent to a portfolio of indigenous generation for either the predictability of cost or reliability to deliver a secure and sustainable electricity supply."<sup>61</sup>*

The developer concludes that additional interconnection and the restoration of capacity at Moyle should be accompanied by development of CAES to "ensure that the long term stability of the electricity system in Northern Ireland is maintained and the integration of renewables is further encouraged".<sup>62</sup>

### **Northern Ireland – Gas Data**

Figure 4, sourced from the '*Joint gas capacity statement 2012*', plots Northern Ireland gas demand between 2002/03 and 2010/11. Three categories are shown: distribution, which refers to the supply networks of Phoenix Natural Gas (Phoenix was bought over by Airtricity Gas NI Ltd in April 2012) and Firmus Supply; power, which refers to gas use to fire Ballylumford and Coolkeeragh power stations; and total. Over the period covered by the figure total gas demand has increased by 39.6%, equivalent to a 3.3% increase per annum. However, total gas demand fell each year during the period 2007/08 to 2009/10; the following year saw an increase of 3%.<sup>63</sup>

Gas demand has increased steadily year-on-year in the distribution sector (8.3% per annum), experiencing growth of 75% across the whole period. This is due to the '*steady growth*' of the two regional suppliers. According to the joint capacity statement in the Phoenix Gas licensed area of Greater Belfast;

<sup>60</sup> <http://www.gaelectric.ie/index.php/energy-storage/larne/project-update-2/>

<sup>61</sup> Letter from Gaelectric to DETI, provided by Gaelectric 04 September 2013

<sup>62</sup> *Ibid*

<sup>63</sup> Commission for Energy Regulation & The Northern Ireland Utility Regulator *Joint Gas Capacity Statement 2012* <http://www.cer.ie/GetAttachment.aspx?id=20f857a2-d117-4d74-b0db-3a7ade040061>

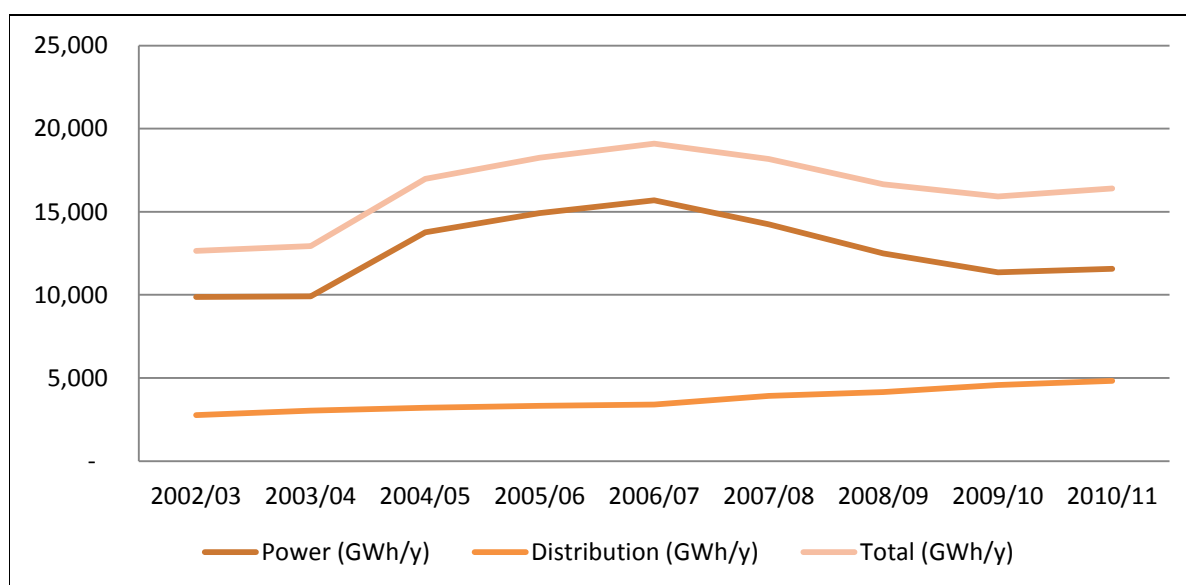


“The distributed gas volume ... has grown by 25.0%, averaging 3.1% p.a. over the period 2003/04 to 2010/11. The increase has been driven by a growing customer base, the majority of whom are domestic customers.”<sup>64</sup>

Firmus began supplying gas along the North West Pipeline in 2005, since which the company has experienced increasing sales in the industrial and commercial sector. More recently the company has focussed upon the SME and domestic sectors. It also began operating in the Greater Belfast area in 2009.<sup>65</sup>

Overall the power sector gas demand increased by 1.9% per annum between 2002/03 and 2010/11. Demand peaked in 2007/08 and contracted by 26.3% over the next three years. This contraction was due to a lower dispatch order at Ballylumford, the use of more efficient generation in the Republic and the increased use of wind power. The upturn in power sector demand experienced in 2010/11 was due to the outage of the Moyle Interconnector.<sup>66</sup>

**Figure 4: Northern Ireland - Gas demand 2002/03 to 2010/11<sup>67</sup>**



**Source:** CER and NIAUR

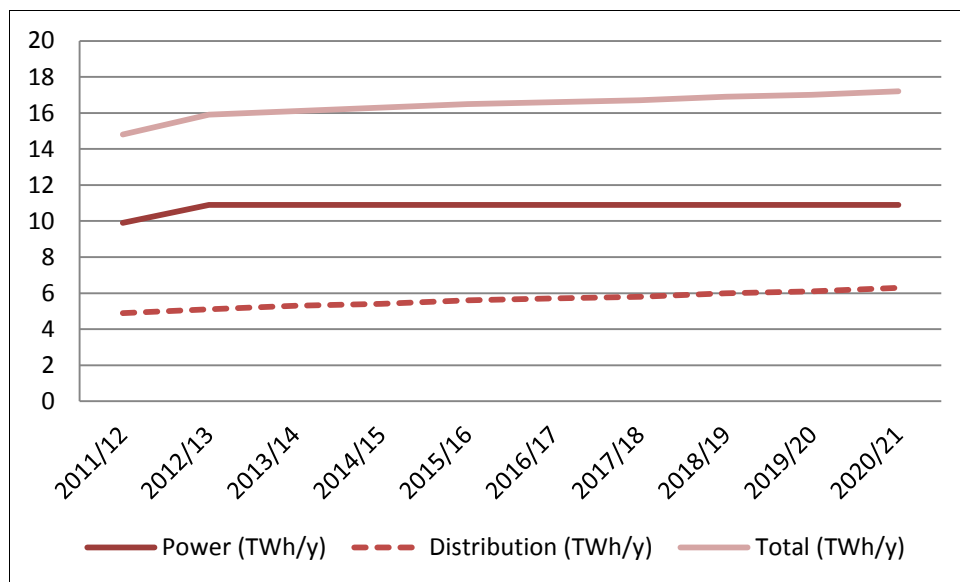
Estimated future gas demand is plotted in Figure 5. Once again distribution, power sector and total demand are outlined. Overall demand is predicted to grow by an average of 1.6% per annum between 2011/12 and 2020/21. This suggests slower demand growth than in the previous period (2002/03 to 2010/11).<sup>68</sup>

Gas demand in the power sector is predicted to increase from 9.9TWh/y in 2011/12 to 10.9TWh/y in 2011/13 and remain relatively stable thereafter. This first year increase is attributed to an increase from forecasts from Ballylumford (4.3 Twh/y in 2011/12 to 5.3 Twh/y in 2012/13).<sup>69</sup>

<sup>64</sup> *Ibid*  
<sup>65</sup> *Ibid*  
<sup>66</sup> *Ibid*  
<sup>67</sup> *Ibid*  
<sup>68</sup> *Ibid*  
<sup>69</sup> *Ibid*

Demand in the Northern Ireland distribution market is forecast to grow at an annual rate of 2.8% per annum over the period. This reflects expected growth rates of distributors in domestic and non-domestic sectors. Economic growth expectations and anticipated energy efficiency improvements have also been factored into these estimated.<sup>70</sup>

**Figure 5: Estimated gas demand - Northern Ireland 2011/12 to 2012/13<sup>71</sup>**



Source: CER and NIAUR

**Gas security of supply issues**

Northern Ireland is entirely reliant on imports to meet its gas needs. Gas fuels the majority of Northern Ireland’s conventional electricity generation, with two out of the three power plants being gas powered. DETI estimate that Northern Ireland will be reliant upon gas generation until 2030.<sup>72</sup> Electricity power generation currently utilises around 65 per cent of all gas imported to Northern Ireland, with the remainder used for business and domestic consumers.<sup>73</sup> This reliance on imports leaves the region exposed to fluctuations on the European and international gas markets. This impacts the retail price of gas and electricity.

A number of policy options are being explored which may mitigate this reliance upon imported gas.

As is the case with electricity, developing energy storage, in this case gas storage, could potentially enhance Northern Ireland’s ability to manage its gas supply. The Island Magee gas storage project received planning permission in December 2012. The project, which will allow for the storage of 500 million cubic metres of gas – enough to provide for Northern Ireland’s peak demand for sixty days. It also enables gas to be purchased from the wholesale market at times when it is at a lower price and to be saved for use during price spikes. The construction of a well pad, which began in May 2013, has been completed. The

<sup>70</sup> *ibid*

<sup>71</sup> *ibid*

<sup>72</sup> DETI A Strategic Energy Framework for Northern Ireland (2010)

<sup>73</sup> The Consumer Council for Northern Ireland Gas (accessed 23/08/13)

<http://www.consumerCouncil.org.uk/energy/gas/>

company, Islandmagee Storage Limited, is currently negotiating with the Environment Agency with regard the discharge of brine and intends to begin drilling by the end of 2013. Project completion is expected in 2018, but this is dependent upon the development of a regulatory framework and upon the granting of a Crown Estate lease. Once complete the storage plant will operate within the gas wholesale market and will service Great Britain, Northern Ireland, and Ireland. The project cost is estimated to be £400m.<sup>74</sup>

The Northern Ireland Renewable Heat Incentive (RHI) offers financial incentives to those who wish to install a renewable heat generator. The scheme intention is to increase the uptake of renewable heat with a view to contributing to the renewable heat target – ensuring 10% of heat consumption from renewable sources by 2020. While the scheme is not a security of supply measure directly, it does have benefits in this area. By encouraging alternative forms of heat production, the scheme reduces dependence on imported gas and oil. The incentive is currently available of non-domestic generation, but will be open to domestic consumers during 2013.<sup>75</sup> In the interim, domestic consumers can avail of the Renewable Heat Premium Payment Scheme, which provides a voucher to contribute towards the installation costs of renewable heat generators. Like the RHI, the level of support offered through the premium payment varies according to technology type.<sup>76</sup>

The use of hydraulic fracturing (fracking) to access unconventional gas offers a potential source of indigenous gas to Northern Ireland. Tamboran, which has been awarded an exploratory licence to ‘search and bore for and get petroleum’ in Co. Fermanagh, has estimated that the gas potentially available within the licence area is sufficient to *‘increase energy security until at least 2050 and completely eliminate Northern Ireland’s dependence on imported/foreign natural gas supplies for over 20 years’*. The resource and the method used to extract that are controversial, however, as recent protests in England demonstrate. A number of concerns have been raised about hydraulic fracturing, specifically:

- A definitive answer to the question ‘can hydraulic fracturing impact drinking water resources?’ has not been established;
- A full understanding of the level of water consumed is dependent on a specific location. The impact of increased consumption is also likely to be location dependent;
- The question of what proportion of waste water returns to the surface remains unresolved. Policy makers and industry will also have to address how this waste water is treated;
- Concerns exist around greenhouse gas emissions. The evidence suggests a robust lifecycle analysis of emissions levels remains outstanding;
- Policy makers are recommended, by the IEA amongst others, to ensure robust regulations on well design, construction, cementing and testing;
- A better understanding of local geology should help to improve methods of fracture control and identify areas where the potential for induced seismic activity exists.
- How the development of fracking will impact the develop of renewable energy; and
- The extent of the technically recoverable resource available.<sup>77</sup>

<sup>74</sup> Islandmagee Storage Limited *Islandmagee Storage Status* (27 April 2013)

[http://www.islandmageestorage.com/images/stories/Presentations/imsl\\_2\\_islandmageestoragestatus.pdf](http://www.islandmageestorage.com/images/stories/Presentations/imsl_2_islandmageestoragestatus.pdf)

<sup>75</sup> DETI *Renewable Heat Incentive* (accessed 27/08/13) <http://www.detini.gov.uk/deti-energy-index/deti-energy-template-menu-5.htm>

<sup>76</sup> NI Direct *Renewable Heat Premium Payment* (accessed 27/08/13) <http://www.nidirect.gov.uk/renewable-heat-premium-payment-rhpp.htm>

<sup>77</sup> Northern Ireland Research and Information *Service Shale gas and hydraulic fracture – an overview of existing research* (September 2012) [http://www.niassembly.gov.uk/Documents/RaISe/Publications/2012/enterprise\\_trade\\_investment/13812.pdf](http://www.niassembly.gov.uk/Documents/RaISe/Publications/2012/enterprise_trade_investment/13812.pdf)

## Oil security of supply – Ireland/Northern Ireland

As already stated, Ireland is heavily dependent on imported fossil fuels. In 2011 oil represented 59% of final energy consumption in Ireland, all of which is imported. 70-75% is imported in the form of final petroleum products while the rest is imported as crude and refined at Ireland's refinery in Whitegate, Cork. Oil dependence is expected to continue at similar levels into the future as it is the predominant transport fuel and it is also the main heating fuel outside of Dublin.<sup>78</sup>

As a member of the International Energy Agency (IEA), Ireland is required to maintain minimum levels of strategic oil supplies in case of disruption to supply. This is also required under EU legislation. Ireland is required to hold 90 days of net imports in strategic oil stocks. The National Oil Reserve Agency (NORA), which has been established as a non-commercial state agency holds the bulk of these. In the past, NORA held a significant proportion of its stocks in the form of "stock tickets" which were not physical stocks but short-term contracts to deliver oil in a crisis. NORA also held large quantities of our strategic stocks abroad.<sup>79</sup>

The IEA and the EU have been encouraging members to reduce their dependency on stock tickets and to store strategic supplies at home as much as possible. The 2007 Government White Paper on Energy set out our policy to repatriate as much stock as possible held abroad to increase our security of supply. Since then NORA has been rebalancing stock and currently all of NORA's strategic stock for Ireland is held in the form of physical oil with 73% of it held on the island of Ireland. This is a significant improvement and greatly increases our security of supply.<sup>80</sup>

The DCENR has responsibility for oil security policy and planning. A recently published (partially redacted) report, commissioned by the DCENR, "*Study of the Strategic case for oil refining requirements on the island of Ireland*" was considered by the Government and found that it was highly desirable to ensure the continued operation of the Whitegate refinery on a commercial basis. The study also found that the existing oil import facilities on the island of Ireland taken as a whole offer a robust infrastructure that would provide comfortable alternatives in the event of a serious disruption to oil supplies.<sup>81</sup> Security of oil supply continues to be of major economic importance to Ireland.

Northern Ireland does not hold strategic oil stocks on the island therefore in the event of an oil supply disruption, it is likely that there would be some impact on the rest of the island. Officials from the DCENR have commenced work with officials from DETI to understand the interdependencies and identify possible areas for cross border cooperation.<sup>82</sup>

In Northern Ireland 68% of homes use oil as their heating source, this rises to 82% in rural areas.<sup>83</sup> The home heating oil industry in Northern Ireland is unregulated. A 2011

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<sup>78</sup> DCENR 2013

<sup>79</sup> *Ibid*

<sup>80</sup> *Ibid*

<sup>81</sup> *Ibid*

<sup>82</sup> *Ibid*

<sup>83</sup> The Consumer Council for Northern Ireland Home Heating Oil Briefing (February 2012) available online at: <http://www.consumercouncil.org.uk/publications/?id=819>

investigation into the industry by the Office of Fair Trading found no grounds to regulate the industry.<sup>84</sup>

DETI and the Regulator have initiated a project to extend the gas network in Northern Ireland. The intention is to extend the network to seven additional towns - Dungannon, Coalisland, Cookstown, Magherafelt, Omagh, Enniskillen/Derrylin and Strabane. A business case and economic appraisal for this project were completed in September 2012. It is anticipated that the licence will be awarded in 2014 and that construction of a new transmission pipeline will begin in 2015. The project has a number of aims, one of which is to decrease the region's dependence on oil as a heating source.<sup>85</sup>

### 3.3 Climate change

#### 3.3.1 Ireland

Ireland is a signatory to the Kyoto Protocol, an international agreement linked to the United Nations Framework Convention on Climate Change (UNFCCC). The major feature of the Kyoto Protocol is that it sets binding targets for 37 industrialized countries and the European Community for reducing GHG emissions to an average of 5% against 1990 levels over the five-year period 2008-2012. Specifically, Ireland had to reduce GHG emissions to 13% above their 1990 levels for this period.<sup>86</sup>

The EPA is responsible for compiling inventories of Ireland's GHG emissions and submitting them to the European Commission and the UNFCCC. The EPA submits the estimates on an annual basis and has published estimates from 1990-2011. [Key highlights for GHG emissions in 2011](#) (published in April 2013) indicate that Ireland should meet our 2008-2012 targets under the Kyoto Protocol.

The second commitment period covers the years 2013-2020. The EU Climate and Energy package provides the legislative foundation for this period. This package is a set of legally binding targets known as the 20-20-20 targets to ensure Europe meets their ambitious energy and GHG emissions targets. Under the package Ireland is committed to, *inter alia*, a 20% reduction in non-ETS emissions compared to 2005 levels. The Economic and Social Research Institute (ESRI) project we will substantially exceed this target without significant policy intervention.<sup>87</sup>

The [National Climate Change Strategy 2007-2012](#) sets out a range of measures, building on those already in place under the first National Climate Change Strategy (2000) to ensure Ireland reaches its target under the Kyoto Protocol. The Strategy provides a framework for action to reduce Ireland's GHG emissions.

The Department of Environment, Heritage and Local Government undertook a review of the Strategy, the 2011 [Review of National Climate Policy](#), which suggested that Ireland must

<sup>84</sup> Office of Fair Trading Off-grid energy – An OFT Market Study (October 2011) available online at: [http://www.oft.gov.uk/shared\\_of/market-studies/off-grid/OFT1380.pdf](http://www.oft.gov.uk/shared_of/market-studies/off-grid/OFT1380.pdf)

<sup>85</sup> Northern Ireland Assembly Hansard Committee for Enterprise, Trade and Investment – Gas Network Extension: DETI/Utility Regulator Briefing (May 2013) <http://www.niassembly.gov.uk/Assembly-Business/Official-Report/Committee-Minutes-of-Evidence/Session-2012-2013/May-2013/Gas-Network-Extension--DETIUtility-Regulator-Briefing/>

<sup>86</sup> [http://www.epa.ie/pubs/reports/air/airemissions/GHG\\_1990\\_2011\\_October\\_Final.pdf](http://www.epa.ie/pubs/reports/air/airemissions/GHG_1990_2011_October_Final.pdf)

<sup>87</sup> [http://www.esri.ie/news\\_events/latest\\_press\\_releases/environment\\_review\\_2012/index.xml](http://www.esri.ie/news_events/latest_press_releases/environment_review_2012/index.xml)

move beyond a compliance-centric approach. More recently, the Minister for Environment, Community and Local Government commissioned National Economic and Social Council (NESCC) to undertake analysis to inform the development of Irish climate change policy. Their final report, [Ireland and the climate change challenge: connecting 'how much' with 'how to'](#), was published in December 2012. The report proposes the development of potential policies and measures to reduce GHG emissions across sectors with the goal of becoming a carbon neutral economy and society by 2050.

The legislative Programme for Government released on 18<sup>th</sup> September 2013 makes provision for a *Climate Action and Low Carbon Development Bill*. The Bill intends underpinning Government policy on climate change mitigation and adaptation. It is not possible to indicate a publication date at this time.

#### *Link with energy policy*

One of the strategic goals of Ireland's national energy policy is to promote the sustainability of our energy supply. Ways to achieve this include reducing our energy-related GHG emissions, accelerating the growth in renewables and maximising energy efficiency.

Energy efficiency measures and schemes such as the Better Energy Homes Scheme and the Warmer Homes Scheme help to improve our energy efficiency thereby reducing our energy consumption and subsequently reducing our GHG emissions.

### **3.3.2 Northern Ireland**

All government Departments bear a collective responsibility in achieving the Northern Ireland Executive's Programme for Government target to continue to work towards a reduction in GHG emissions by at least 35% on 1990 levels by 2025.<sup>88</sup>

In 2011, the Executive approved the Northern Ireland Greenhouse Gas Emissions Reduction Action Plan which was delivered by the Cross Departmental Working Group (CDWG) which is under the auspices of the Department of Environment. The Action Plan highlights the steps currently being taken and recommends the areas where commitments need to be stepped up to 2025.<sup>89</sup>

In a report by the Committee on Climate Change (CCC)<sup>90</sup>, commissioned by the then Environment Minister Mr Alex Attwood, it was advised that Northern Ireland could benefit from the development of legislative targets to help deliver emission reductions.<sup>91</sup> According to Cross Departmental Working Group's First Annual Report (2012), the Minister proposed

<sup>88</sup> PfG 2011-2015 <http://www.northernireland.gov.uk/pfg> (p.9)

<sup>89</sup> DOE, NI Action Plan

[http://www.doeni.gov.uk/northern\\_ireland\\_action\\_plan\\_on\\_greenhouse\\_gas\\_emissions\\_reductions.pdf](http://www.doeni.gov.uk/northern_ireland_action_plan_on_greenhouse_gas_emissions_reductions.pdf)

<sup>90</sup> The Committee on Climate Change (CCC) is an independent statutory body established under the 2008 Climate Change Act to advise the UK Government on setting carbon budgets, and to report to Parliament on the progress made in reducing greenhouse gas emissions: <http://www.theccc.org.uk/>

<sup>91</sup> CCC (2011) *The Appropriateness of a Northern Ireland Climate Change Act – Northern Ireland Report* <http://www.theccc.org.uk/publication/the-appropriateness-of-a-northern-ireland-climate-change-act-northern-ireland-report/>



the development of policy proposals for a Bill, and that subject to Executive approval, the introduction of a Climate Change Bill could be expected in the 2013/14 Assembly session.<sup>92</sup>

The latest emission figures available for Northern Ireland are set out in the GHG Inventories for England, Scotland, Wales and Northern Ireland: 1990 – 2010. This estimates that in 2010 Northern Ireland emissions measured 20,460 kilo-tonnes (kt) of carbon dioxide equivalent (kt CO<sub>2</sub>e); with 26% from agriculture, 21% from transport, 19% from energy supply and 19% from the residential sector. This represents a reduction of 14.7% since the base year, although in 2010 emissions are up approximately 4% on the 2009 figure. This increase is attributable to consecutive cold winters and an increase in fossil fuel use as a consequence. The majority of sectors have seen a decrease since the base year with power generation experiencing a 26% reduction in emissions, whilst emissions from the residential sector decreased 13%. This has mainly been due to the increased use of gas in power stations and in homes in Northern Ireland.<sup>93</sup>

### 3.4 Target setting to 2030

The EU's "20-20-20" targets have been outlined in section 2.3 of this paper. As that target date approaches, policy makers have already started to turn their attentions to what the climate change and energy regime will look like in the post-2020 period. In this context, the European Commission launched a consultative Green Paper on *A 2030 Framework for Climate and Energy Policies* in March 2013.<sup>94</sup> The green paper provides indications of the Commission's initial thinking on its 2030 approach.

The European Commission's *Energy 2050 Roadmap* is also of relevance to the post-2020 agenda. In the *Energy Roadmap 2050*, the Commission explores the challenges posed by delivering the EU's decarbonisation objective while at the same time ensuring security of energy supply and competitiveness. It identifies a series of "no regrets" future scenarios using decarbonising options including extensive investments in energy efficiency and renewable energy. The analysis identifies a strong growth in renewable energy and very significant savings in energy consumption in all "no regrets" scenarios.

The Commission has commenced the process of preparing future policy options and milestones for 2030 all with the aim of reducing GHG emissions and making progress towards achieving a competitive low carbon economy in 2050. The Commission has estimated in its Green Paper that GHG emissions will need to be reduced by 40% in the EU by 2030 if the required reductions of 80-95% compared to 1990 levels are to be achieved by 2050. The European Commission's communication *Renewable Energy: a major player in the European energy market* identifies a number of options for a framework to reduce the cost of renewables, improve opportunities for innovation and investment in the sector. It has also reaffirmed its position that a strong growth in renewables is the "no regrets" option in the context of the 2050 roadmap.

<sup>92</sup> CDWG First Annual Report (2012). Available at [http://www.doeni.gov.uk/index/protect\\_the\\_environment/climate\\_change.htm](http://www.doeni.gov.uk/index/protect_the_environment/climate_change.htm) (P.11)

<sup>93</sup> Department of the Environment *Cross-departmental working group on climate change – annual progress report* (May 2013) [http://www.doeni.gov.uk/cdwgccc\\_second\\_annual\\_progress\\_report.pdf](http://www.doeni.gov.uk/cdwgccc_second_annual_progress_report.pdf)

<sup>94</sup> The consultation on which ran between March and July 2013.

In target setting to 2030, challenges arise which include the nature of the regime:

*“The first and perhaps most contested issue under discussion is what kind of target regime is appropriate to 2030 – how many targets should Europe have and at what level should they be applied?”<sup>95</sup>*

Other challenges facing EU policy makers as identified by IIEA (2013) include the following:

1. Balancing the national and the European dimensions;
2. Getting the best outcome from a competitiveness point of view;
3. Enhancing energy security;
4. Preparing the EU position for a 2015 global deal;
5. Enhancing policy coherence and bolstering the ETS; and
6. Getting the politics right.

## Ireland

It is intended that the new Energy Policy Framework 2012-2030 will reflect national, EU and international developments in the energy sphere. It will be informed by consultation and by the outcome of the policy review currently being finalised by the International Energy Agency.<sup>96</sup> The relevant Minister intends, in that Framework, to set out the challenges and highlight the opportunities for Ireland in charting our own Roadmap to a sustainable energy future in the interests of the economy and society.<sup>97</sup>

### Northern Ireland - Renewable energy targets post 2020

Northern Ireland is included in the UK Department for Energy and Climate Change’s 2050 pathways analysis. This work led to the publication of the Carbon Plan in 2011. The document estimates that 40-70GW of new large scale low carbon capacity will be required during the period 2020 to 2030. This will include renewables, nuclear energy and carbon capture and storage. The renewable electricity generation capacity required is estimated to be 35-50GW.

With regard to renewable heat the Plan estimates the delivery of 83-165TWh of low carbon heat by 2030, with an additional 10-38TWh supplied by heating networks.

Whilst Northern Ireland has been factored into the analysis that produced these figures, the Sustainable Energy Action Plan notes that:

*“Northern Ireland’s energy system may need to differ in some ways from the UK macro-picture, for example to take account of our land border with another member state. This is why we will undertake work to establish a long term vision, to 2050, for energy in Northern Ireland. This will focus on electricity and heat, but will also cover interactions with transport.”<sup>98</sup>*

<sup>95</sup> Institute of International and European Affairs (IIEA) (2013) *A New Wave of European Climate and Energy Policy: Towards a 2030 Framework*. Available at [http://www.iiea.com/ftp/environmentnexus%20papers/new-wave\\_european\\_climate-policy\\_energy-iiea\\_gina\\_hanrahan.pdf](http://www.iiea.com/ftp/environmentnexus%20papers/new-wave_european_climate-policy_energy-iiea_gina_hanrahan.pdf)

<sup>96</sup> See DCENR website at <http://www.dcenr.gov.ie/Corporate+Units/Press+Room/Speeches/2012/Energy+Ireland+Conference.htm>

<sup>97</sup> Ibid.

<sup>98</sup> DETI *Sustainable Energy Action Plan 2012-2015* (May 2012) <http://www.detini.gov.uk/03may.pdf>



### 3.5 Common Arrangements for Gas (CAG) project

In April 2008, the two regulators on the island (Ireland's Commission for Energy Regulation (CER) and the Northern Ireland Authority for Utility Regulation (NIAUR)) jointly published a Memorandum of Understanding to work together to consider the merits of establishing common arrangements for gas on the island. The Common Arrangements for Gas (CAG) project envisages the establishment of gas market arrangements whereby the gas transmission systems in Ireland and Northern Ireland would operate on a single all-island network basis. A cost benefit analysis by the two regulators confirmed the introduction of CAG was justified based on the benefits that could arise from the project.<sup>99</sup>

The rationale for this project is explained on the website of the All-Island Project, a joint initiative run by the CER and the NIAUR which aims to create a single market for natural gas and electricity on the island of Ireland.<sup>100</sup> They outline that establishing all-island CAG would enable stakeholders to buy, sell, transport, operate, develop and plan the natural gas market north and south of the border effectively on an all-island basis. This means that variations in the price and conditions on which gas is bought and sold will be determined by market conditions and economics, not by variations in regulatory arrangements.

#### *Ireland*

It is projected that oil and natural gas will continue to provide 77.7% of Ireland's energy in 2020 (oil and natural gas provided 80.6% of primary energy supply in 2010 – see Figure 6 overleaf). Although there is a lack of energy supply and demand projections beyond 2020, it is likely that Ireland's dependence on oil and gas for most of the country's energy needs will continue "for many decades to come".<sup>101</sup> From Ireland's perspective, this makes policies and investment decisions which focus on oil and gas of key significance. Given that natural gas is cheaper than oil and has the lowest CO<sub>2</sub> emissions of all fossil fuels, natural gas clearly has a vital role to play in Ireland's future energy mix.

Gas supply in Ireland is delivered via a network of approximately 13,150km of pipelines (see Figure 7 over). The integrated supply network is sub-divided into 2,380km of high pressure sub-sea and cross-country transmission pipe, and approximately 10,750km of lower pressure distribution pipe connecting customers to the system.<sup>102</sup>

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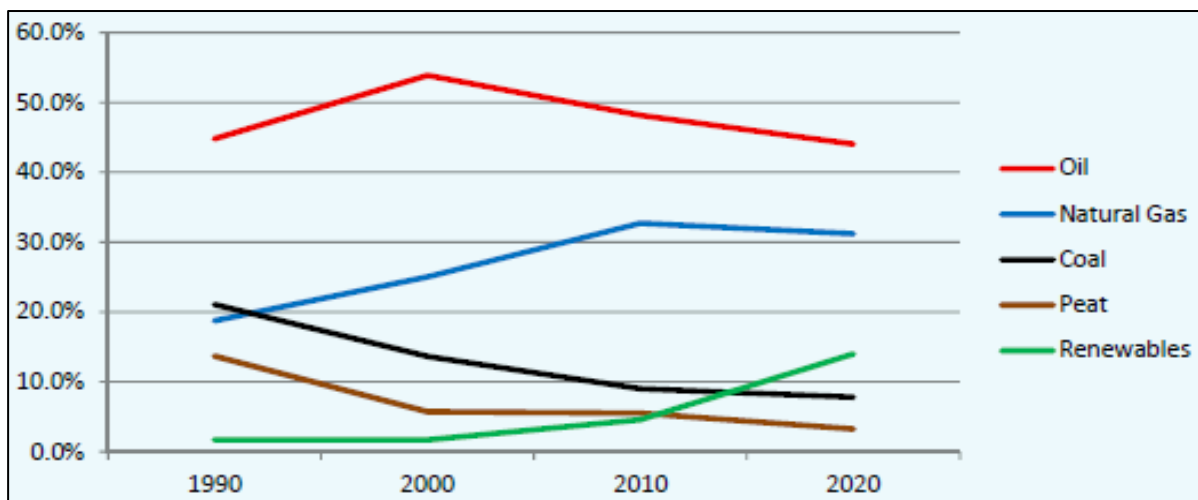
<sup>99</sup> See [http://www.allislandproject.org/en/cba\\_2.aspx](http://www.allislandproject.org/en/cba_2.aspx)

<sup>100</sup> See CAG Overview which is available online at [http://www.allislandproject.org/en/cag\\_overview.aspx](http://www.allislandproject.org/en/cag_overview.aspx)

<sup>101</sup> Irish Academy of Engineering (2013) *The Future of Oil and Gas in Ireland*. Available at [http://www.iae.ie/site\\_media/pressroom/documents/2013/Feb/26/IAE\\_-\\_Policy\\_Advisory\\_on\\_Oil\\_and\\_Gas\\_February\\_2013.pdf](http://www.iae.ie/site_media/pressroom/documents/2013/Feb/26/IAE_-_Policy_Advisory_on_Oil_and_Gas_February_2013.pdf)

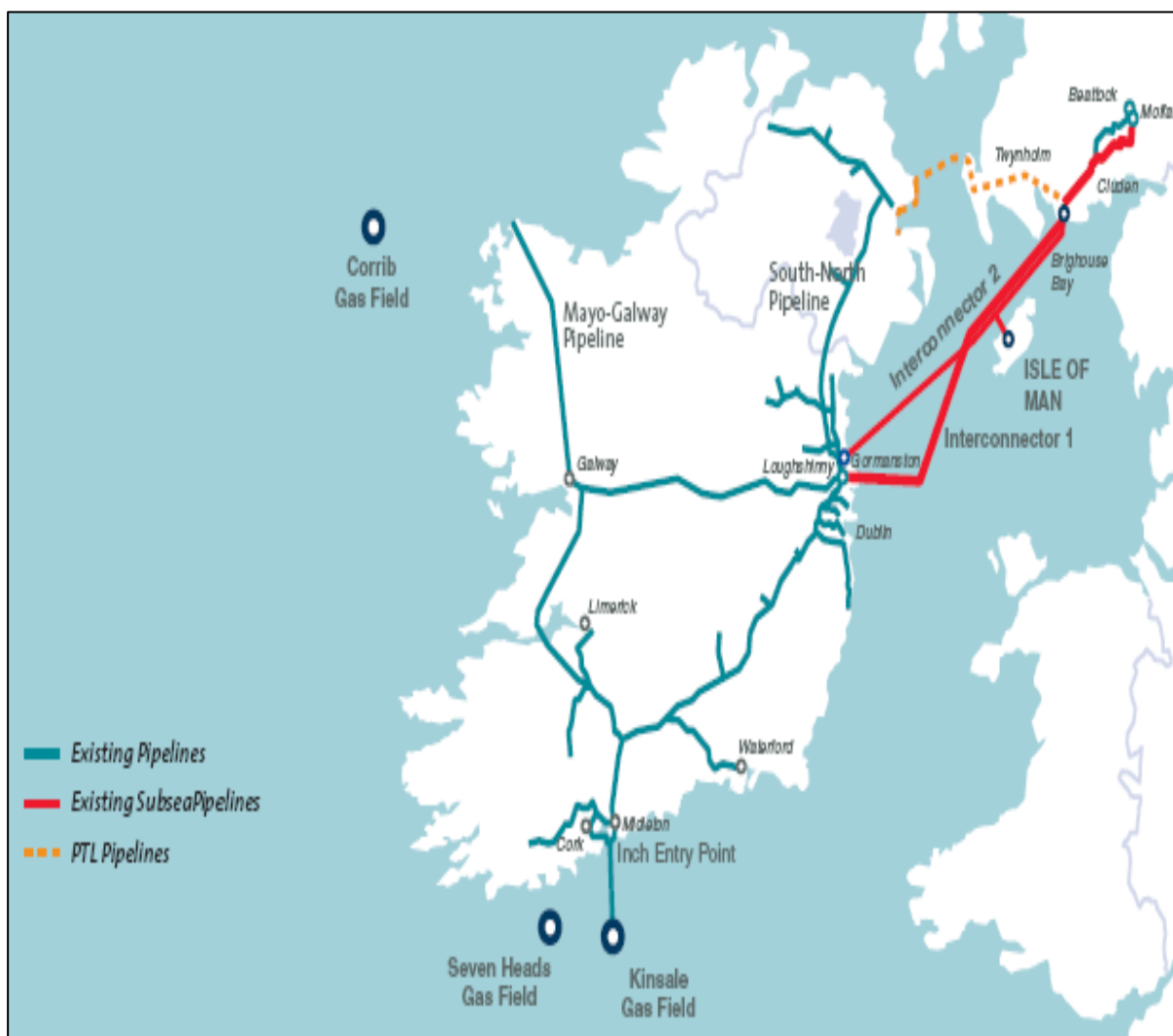
<sup>102</sup> CER (2012) *National Preventive Action Plan - Gas*. Available at <http://www.cer.ie/en/gas-storage-current-consultations.aspx?article=2e2b751b-592d-41d7-a7bf-d4f0d5572b86>

**Figure 6: Ireland's primary energy supply**



Source: Irish Academy of Engineering (2013) p.2

**Figure 7: Gas network**



Source: DCENR briefing to the Oireachtas L&RS.

In an energy policy advisory, published in February 2013, the Irish Academy of Engineering (which itself is an all-Ireland body) highlighted insufficient gas storage in Ireland as one of three areas of concern in relation to securing natural gas supply needs.

It notes that Ireland has limited gas storage capacity compared with other countries in Western Europe. The latter had an average of 50 days of gas supply in storage in May 2012 compared with about 17 days' supply in Ireland (the UK is one of the lowest with around 16 days' supply).

**Table 1: Gas storage in selected EU countries**

Country	Working volume (million m <sup>3</sup> )	Working capacity (million m <sup>3</sup> / day)	Annual consumption (billion m <sup>3</sup> )	Days' supply
Belgium	700	15	17.2	15
Denmark	1025	18	4.5	83
France	12700	337	43.1	107
Germany	20455	491	77.9	97
Ireland	230	2.6	4.9	17
Italy	11306	284	73.0	57
Netherlands	5258	215	40.2	48
Portugal	171	7	4.9	13
Spain	4629	179	33.8	50
UK	3778	84	87.0	16

**Source:** Irish Academy of Engineering (2013) p.17

**Notes:** 1. Working (Gas) Volumes and Working Capacity data from Gas Infrastructure Europe ([www.gie.eu.com](http://www.gie.eu.com)). Storage includes depleted fields, salt caverns and LNG peak shaving.  
2. Annual consumption for last 3 years (2009-2011) from BP 2011 Review.

According to the Irish Academy of Engineering, Ireland is reliant on a single source of supply and single entry point for most of the country's gas supply.<sup>103</sup> The majority of the gas demand in Ireland and all gas demand in Northern Ireland are currently supplied with UK gas imports through the Moffat Entry Point, with the remainder being supplied from the Inch Entry Point with Kinsale production and storage gas.<sup>104</sup> The CER projects that, in the short to medium term, between 92% and 95% of the island's demand will continue to be met from UK imports (through the Moffat Entry Point).<sup>105</sup> In its view, this supply outlook may change

<sup>103</sup> In terms of obtaining gas supplies, the Irish gas system conveys gas from two Entry Points, namely Moffat (Western Scotland); and Inch (county Cork).

<sup>104</sup> CER and NIAUR (2012) *Joint Gas Capacity Statement 2012*. Available at <http://www.cer.ie/en/gas-security-of-supply.aspx>

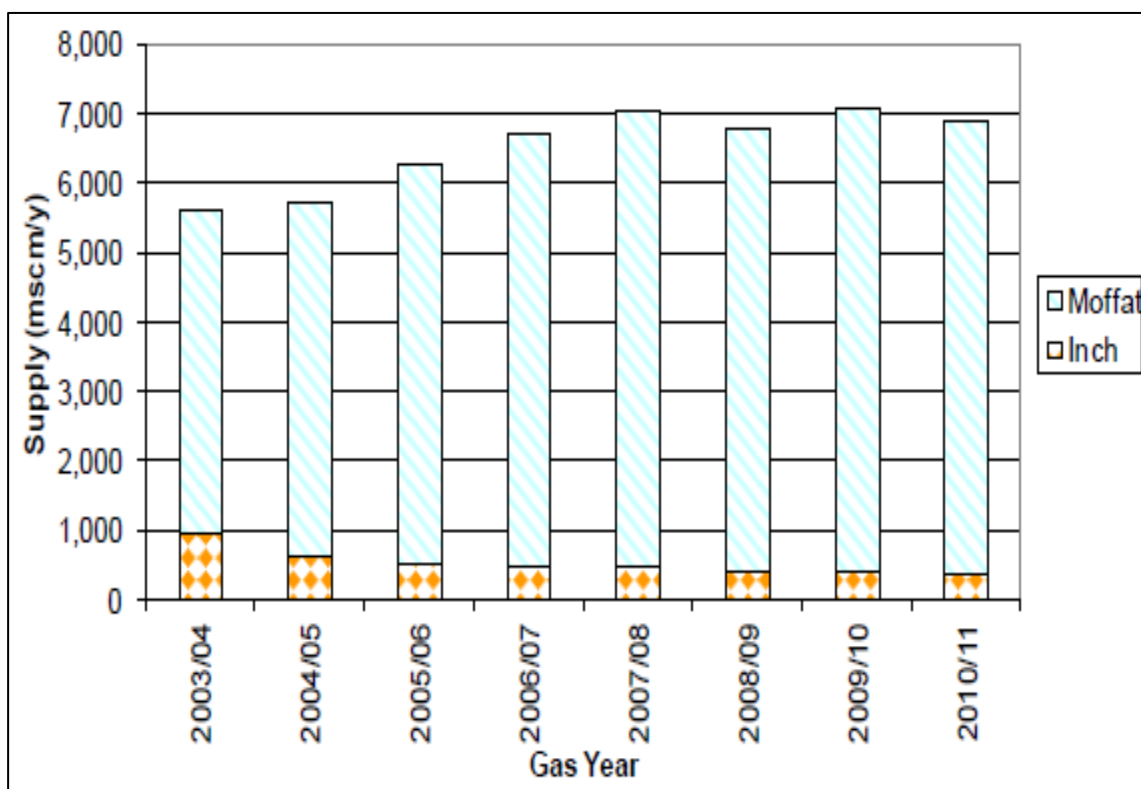
<sup>105</sup> Ibid.

significantly from 2015/16 and again from 2017/18 if a number of new supply projects come online.

The Irish Academy of Engineering (2013, p. 6) believes that “dependence on a single source of supply and a system with anticipated capacity constraints for most of Ireland’s gas supply and a third of Ireland’s total energy supply poses an unacceptable risk”. In this context, it makes the following recommendation (on page 8 of its energy policy advisory):

*“Ireland is vulnerable to disruption in gas supply. Security of supply needs to be ensured and a diversity of supply sources and entry points to Ireland is essential. Reliance on a single pipeline in Scotland with known capacity constraints for the country’s gas supply is unacceptable. The Academy believes that Government should ensure that a comprehensive risk assessment is carried out on all existing and planned gas supply and storage options. Based on the conclusions of this risk assessment, Government should develop a long-term strategy to ensure both the security and diversity of Ireland’s natural gas supply. The Academy considers that this issue needs urgent attention in view of the long lead times associated with large gas infrastructure developments”.*

**Figure 8: Historical all-island sources of supply**



**Source:** CER and NIAUR (2012) *Joint Gas Capacity Statement 2012*, p.49

At present, Ireland has one offshore commercial gas storage facility off Kinsale, Co. Cork – known as South West Kinsale. At present, approximately 230 million cubic metres of gas can be stored in Kinsale, which equates to about 17 days’ supply based on Ireland’s annual consumption of 5 billion cubic metres (average over last 3 years) but only 10 days of peak or

winter demand.<sup>106</sup> Working capacity (or withdrawal rate) of 2.6 million cubic metres/day would meet around 20% of Ireland's average demand in the event of a major interruption in supply from the UK.<sup>107</sup>

The DCENR has overriding responsibility for energy policy including security of supply of gas, electricity and oil. In December 2012, the CER published Ireland's National Preventive Action Plan - Gas and National Gas Supply Emergency Plan, as required under Regulation 994 (Gas Security of Supply). Additionally, the CER has published a response paper in relation to comments received from stakeholders regarding Ireland's draft Preventive Action Plan and Emergency Plan.

The *Common Arrangements for Gas Bill 2013* will provide for enabling legislation to allow the putting in place of arrangements to facilitate all-island gas market arrangements. The Bill will likely be introduced in the Oireachtas in tandem with parallel legislation to be introduced to the Northern Ireland Assembly.

### **3.6 Enhancing energy security**

As already stated, energy security relates to the affordability, accessibility, acceptability and availability of energy supplies.

Various ways of enhancing energy security have been identified throughout this paper and these include:

- Diversification of the fuel mix and diversity in our energy supply sources, i.e. where both jurisdictions source energy from;
- Continued development of indigenous sources of renewable energy;
- Promotion of energy efficiency such as through the SEAI Better Energy Homes Scheme;
- Improving existing energy infrastructure such as increasing the access to and number of storage facilities for gas;
- Upgrading the electricity network;
- The Single Energy Market promotes North/South co-operation as it operates on an All-Island basis;
- The Common Arrangements for Gas project under progress;
- The use of local sources of gas will enhance Ireland's energy security. Domestic security of supply means that the Corrib gas field should be brought into production as soon as possible. This will help reduce reliance on imported gas, if only in the short-term as gas supplies from the Kinsale field are in decline;
- For Ireland, the commissioning of the East-West interconnector enhances energy security by enabling connection to a wider market, providing an outlet for surplus energy and a direct connection with the wider European market (through the UK distribution network). The proposed North-South interconnector, when it becomes operational, will also improve energy security for Ireland;

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<sup>106</sup> Irish Academy of Engineering (2013).

<sup>107</sup> Ibid.

- From a Northern Ireland perspective, delivery of the North-South interconnector has been cited as the most appropriate way of mitigating electricity security of supply risks post-2016; and
- Although controversial, unconventional onshore gas resources could (should developer estimations of available resources prove correct) provide the island with a further source of indigenous gas. A number of concerns have been raised about the resource and its proposed extraction method – hydraulic fracturing. How these concerns are addressed will likely determine the impact the resource will have on energy markets on the island.