Rialtas na hÉireann
Government of Ireland



Energy Security in Ireland to 2030

Energy Security Package

November 2023

Prepared by the Department of the Environment, Climate and Communications
www.decc.gov.ie

Contents

Minister's Foreword iv

Summary: Where can Ireland improve? 1

Section 1: What is required and why? 4

- National Policy Context 5
- European Policy Context 7
- Energy Security Risks for Ireland 8
- Energy Security Analysis 11

Section 2: What will change now? 17

- Strategic Approach 18
- Areas for Action 18
- Reduced and Responsive Demand 20
- A Renewables-led System 29
- More Resilient Systems 37
- Robust Risk Governance 52
- Next Steps 62

Appendices

- Appendix 1: Energy Security in Ireland to 2030: Annex of Actions 64
- Appendix 2: Major Policy Statements 2015-2023 66
- Appendix 3: List of Annexes 70

Minister's Foreword



Ireland is on the path to halving greenhouse gas emissions by 2030 and becoming carbon neutral by 2050. In future, most of our energy needs will be met by renewable energy which will be the anchor of our energy security.

We are already world leaders in onshore wind energy and are actively pursuing our offshore wind, solar, interconnection, hydrogen, biomethane and energy efficiency ambitions with equal vigour. The delivery of this ambition will ensure an energy system that is no longer import-based but grounded in indigenous renewable electricity.

During this transition, we have made and continue to make huge strides in improving our energy security. The **Climate Action Plan** 2023 sets out a pathway for decarbonisation of all sectors of the economy – this is the cornerstone of achieving sustainable, secure, and affordable supplies of energy into the future. In 2022, responding to the energy crisis following the Russian invasion of Ukraine, a **National Energy Security Framework** programme of actions was brought in at extraordinary speed. I brought forward two pieces of legislation to address windfall gains in the energy sector during 2023 based on EU directives. The proceeds from the legislation are being used to benefit energy consumers. We introduced measures such as the Electricity Credits and business support schemes to directly support homes and businesses during this crisis. In Budget 2024, the Government continued its support with three electricity credits for domestic customers.

A range of initiatives are in place and in development to improve energy efficiency and increase demand flexibility, as important enablers of a more secure energy system. The ramp up in renewable energy has continued, with a record number of connections in 2022 and the success of the first ever offshore wind auction this year. Early this year, I secured Oireachtas approval on legislation that strengthens our ability to respond to a severe or prolonged oil emergency, through the **Oil Emergency Contingency and Transfer of Renewable Transport Fuel Functions Act 2023**. The **National Hydrogen Strategy** published in July 2023, and the **National Biomethane Strategy** (in development) sets us on a trajectory to develop new sources of renewable indigenous gas in Ireland. It also complements our work to continue to expand interconnection to Europe as set out in the latest policy published in July 2023.

The breadth of what we are already achieving to decarbonise in Ireland is immense, but the challenges of doing so securely and quickly are ever-present. While we transition, we will need additional measures to ensure a resilient, reliable and secure energy system.

Over the last two years the Department of the Environment, Climate and Communications has undertaken a review of our Energy Security policies, with a particular focus on the Electricity and Gas sectors, published as part of this energy security package. In 2022, I engaged Mr Dermot McCarthy, former Secretary General at the Department of the Taoiseach, to carry out an I**ndependent Review on the Security of Electricity Supply**. I would like to thank Mr McCarthy for his detailed review, which contributed directly to the actions outlined in the package. We received over 450 responses to our consultation on our **Security of Supply of Ireland's Electricity and Natural Gas Systems**, which have played a vital contribution to the preparation of this package, and I would like to thank all those who contributed. This security of supply review will be concluded following the consideration by Government on the optimal approach to deliver a Strategic Gas Emergency Reserve in the first half of 2024. I also hosted a stakeholder summit with the Taoiseach and Tánaiste in July on 'Energy Independence,' which included a session on Energy Security. This package is our response to all of these inputs. It is centred on continuing progress and action. It will strengthen Ireland's approach to risk and resilience, taking an integrated, systemic, medium-term view of where we can do more and how. It is an important contribution to a more secure, sustainable, and affordable energy system for Ireland and I will drive its rapid and comprehensive implementation.

Eamon Ryan TD

Minister for the Environment, Climate and Communications



Summary

Where can Ireland improve?

How can Ireland enhance energy security?

Energy security policy in Ireland is defined by three policy objectives: sustainability, affordability, and security. These objectives are underpinned by a broad range of policy initiatives currently in implementation, as summarised on page 5.

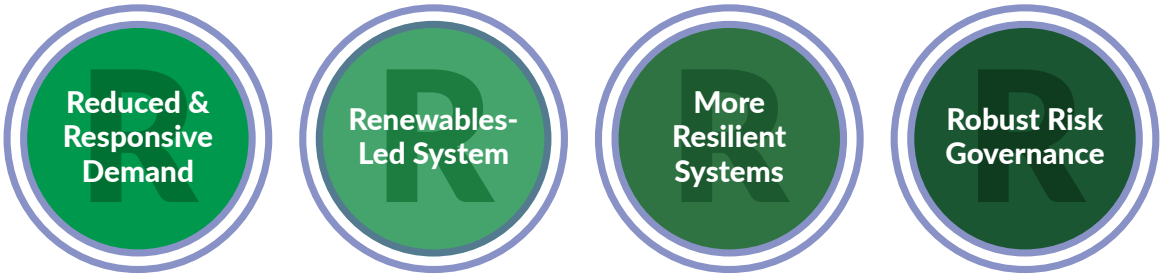
During 2022 and 2023, the Department for the Environment, Climate and Communications (DECC) reviewed a range of our energy security policies. This has included preparedness exercises, a review of Ireland's Electricity and Gas networks with an extensive public consultation, an Independent Review of the Security of Electricity Supply (the McCarthy Report), an energy security response to the invasion of Ukraine through the National Energy Security Framework (NESF), policy analysis on oil security of supply, and a 'Summit on Energy Independence' hosted by the Government in July 2023.

This consultation and analysis highlighted the critical importance of Ireland's renewable energy policy agenda. It also set out key strategic risks for Ireland within a changing European and International context, as summarised on page 7. The following conclusions in relation to Ireland's energy security emerged:

1. Ireland's future energy will be secure by moving from an oil-, peat-, coal- and gas-based energy system to an **electricity-led system** maximising our renewable energy potential, flexibility and being integrated into Europe's energy systems. Using smart grid infrastructure, it will integrate renewable gases, heating/cooling and mobility systems in order to meet the energy needs of our citizens. It will require us to maximise the benefits of energy efficiency and move rapidly to zero-emissions buildings. Meeting our climate, renewable and energy efficiency targets through actions and measures set out in the annually updated Climate Action Plan will deliver this secure energy future.
2. Our plans for the **electricity system**, focused on the addition of renewable generation, demand-side flexibility, new gas-fired generation as flexible back-up, interconnection and storage, are the right ones to secure our electricity supplies. We must focus on delivery and monitor and adjust our plans as we go.
3. Our **natural gas** supplies and infrastructure are adequate to meet our demand projections, but do not have adequate resilience in case of a major disruption to our gas imports. Ireland is an outlier in this regard compared to other EU countries. To lower the reliance on gas imports, we will reduce natural gas demand and increase renewable indigenous gas supply over time. We will establish renewable gas-compatible storage solutions as an enduring energy security need, and introduce a Strategic Gas Emergency Reserve on a transitional basis to address security needs in the medium-term, subject to a final approval of the optimal approach by Government in 2024.
4. We have sufficient **oil** back-up reserves for use in an oil supply emergency, and plans are in place to distribute it as required if needed. Separately, we need to ensure that commercial supplies into the State are robust along with the infrastructure for distribution of refined products at local and national level. In parallel, we need to reduce our oil demand.
5. Good **governance** is a fundamental tenet of energy security. As Ireland continues the transformation of its energy system, it needs a 'best in class' governance structure in place to ensure delivery, robust risk management, and that adequate resources are in place. We need to enhance the response mechanisms currently in place to address energy supply disruptions, strengthen system accountability, and improve information channels. In addition, we will advance specific measures in the electricity sector that seek to minimise the risk of a recurrence of the current security of supply crisis.

6. Delivery of **critical infrastructure** is vital to energy security and requires a strong legal framework and fully resourced State bodies. All opportunities to expedite energy infrastructure must be pursued.
7. The **risks** we face in securing our energy are evolving. We must ensure energy security is prioritised, monitored, and reviewed regularly.

This package includes a range of measures to implement this approach by prioritising 4Rs:



It will be implemented up to 2030, and subsequently reviewed every five years thereafter, reporting to a new Energy Security Group with responsibility for oversight.





Section 1

What is required and why?

National Policy Context

There have been significant changes to Irish energy and climate policy since the **Energy White Paper** in 2015 set out a path to transition Ireland to a low carbon energy future by 2030. The **Climate Action Plan 2019** set out a target of achieving 70% electricity generation from renewable sources by 2030. The ambition in terms of the energy transition increased following the formation of the Government in 2020. This was evidenced by the **Climate Action and Low Carbon Development (Amendment) Act 2021** to establish a legally binding framework with clear targets and commitments set in law, and ensure the necessary structures and processes are embedded on a statutory basis to achieve our national, EU and international climate goals and obligations. It detailed sectoral emissions ceilings in each sector, including a reduction in electricity emissions by 75% or to 3 MtCO2eq. per annum by 2030 (on 2018 baseline). The **Climate Action Plan 2023** increased the ambition in renewables by setting a target to reach 80% electricity generation using renewables by 2030.

In the electricity sector, Ireland operates as part of a **Single Electricity Market**, or SEM, which is the wholesale electricity market on the island, jointly administered and regulated with the Irish and Northern Irish authorities. Following Brexit, the continued operation of the SEM is explicitly provided for in the Withdrawal Agreement, including the Protocol on Ireland/Northern Ireland which entered into force on 1 February 2020 which was negotiated between the European Commission and UK Government. The SEM, including its Market Design, is overseen and administered by a statutory SEM Committee (SEM C) comprising the two energy regulators and independent members. The SEM promotes the interests of consumers by enabling greater competition through cost reflective prices, while also working to secure a diverse, viable and environmentally sustainable long-term energy supply.

The Russian invasion of Ukraine in 2022 had a significant impact on energy prices and supplies around the world. The Government responded to this through a **National Energy Security Framework** (NESF) coordinating work across oil, gas and electricity. The NESF programme of actions was published in April 2022 with 31 actions, most of which are complete. Measures such as the Electricity Credits and business support schemes were introduced to directly support homes and businesses during this crisis. In the same period, the ramp up in renewable energy continued, with a record number of connections in 2022 and the success of the first ever offshore wind auction in 2023.

In Ireland, two pieces of legislation to address windfall gains in the energy sector were introduced in 2023 in response to an EU regulation to address high energy prices EU 2022/1854. The **Energy (Windfall Gains in the Energy Sector)(Temporary Solidarity Contribution) Act 2023** was enacted on the 17th July 2023 in line with European policy. This Act aims to capture the windfall profits of fossil fuel companies operating in the State during 2022 and 2023. The **Energy (Windfall Gains in the Energy Sector)(Cap on Market Revenues) Bill 2023** which, at time of publication, is currently undergoing the legislative process, proposes to implement a cap on the market revenues made by renewable electricity generators such as wind, solar and hydroelectricity during the period of December 2022-June 2023 in line with European policy. The proceeds from these two pieces of legislation are being directed towards measures to benefit final electricity customers.

Numerous initiatives are in place and in development to improve energy efficiency, and to reduce energy consumption, including a **National Retrofit Plan**, which are key enablers of a more secure energy system. At the start of 2023 legislation was commenced that strengthens Ireland's ability to respond to a severe or prolonged oil emergency. The **National Hydrogen Strategy** published in July 2023 and the **National Biomethane Strategy** in development sets us on a trajectory to develop a new source of renewable indigenous gas in Ireland. It also complements our work to continue to expand interconnection to Europe as set out in the latest **Interconnection Policy** published in July 2023.

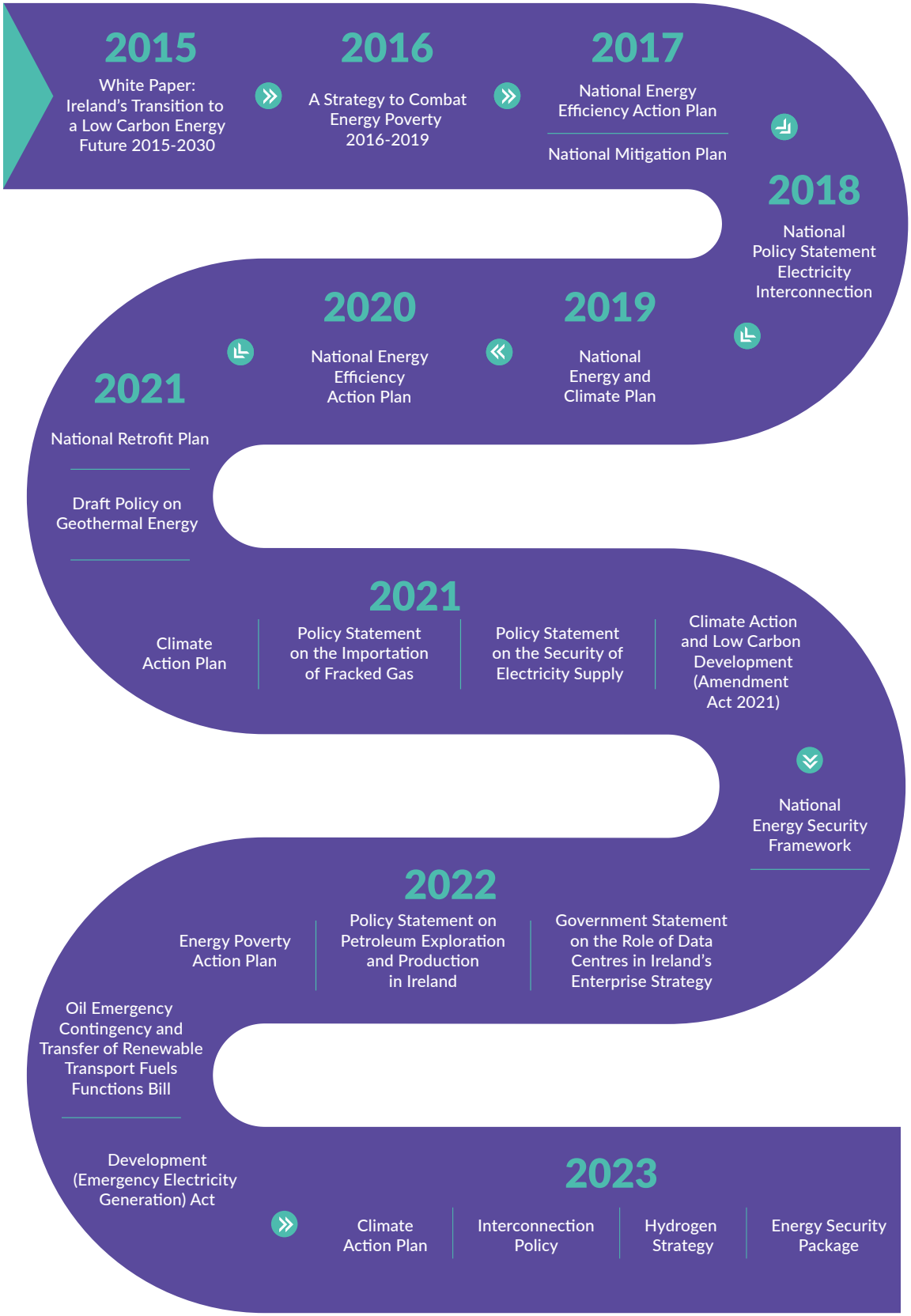


Figure 1: Energy and Climate Policy in Ireland from 2015-2023

European Policy Context

The design of Ireland's gas and electricity markets is established under the EU legislative framework, which provides for open, competitive marketplaces.

For many years, the EU has been cognisant of its energy insecurity due to its declining indigenous oil and gas production and its consequent high energy import dependence. In 2017, the European Commission (EC) published a Regulation to further strengthen gas security (Regulation 2017/1938)[1] including a solidarity principle whereby Member States must help each other to guarantee gas supply to the most vulnerable consumers, even in severe gas supply situations. In addition, as part of the **Clean Energy Package**, the Regulation 2019/941[2] on Risk Preparedness in the electricity sector, laid down rules for cooperation between Member States to prevent, prepare for, and manage electricity crises.

The EU has taken action to mitigate energy insecurity by promoting renewable energy, energy efficiency, and pushing for integrated European gas markets. **The European Green Deal** was launched in December 2019[3] and focused on a number of key principles, including: ensuring a secure and affordable EU energy supply and prioritising energy efficiency, improving the energy performance of our buildings, and developing a power sector based largely on renewable sources. The **EU Fit for 55 package** was published in late 2021 with the aim of reducing EU emissions by at least 55% by 2030 compared to 1990 levels, and making the EU carbon-neutral by 2050. This EU package is a set of proposals to revise all existing EU acts on climate and energy, and increase the EU target for renewables in the overall energy mix from 32% in 2030 to 40%. Negotiations on the **Renewable Energy Directive** have concluded and a higher renewable energy target is expected to be formally adopted later this year.

In July 2021, the EU Commission proposed a revised **Energy Efficiency Directive** (EED) (COM/2021/558). The recast EED, which came into force in October 2023, requires all Member States to reduce their Final Energy Consumption (FEC) demand to a specified figure by 2030. Further modelling to inform the development of a target management strategy for Ireland is currently underway. Member States are required to notify their energy saving target commitment and its trajectory to the Commission in the National Energy and Climate Plan (NECP).

Following the Russian invasion of Ukraine, in May 2022 the EC proposed the **REPowerEU** Plan to make the EU independent from Russian fossil fuels well before 2030, starting with gas.[4] A further Regulation (2022/1369)[5] was published in August 2022, to coordinate demand reduction measures for gas, and implemented rules to address a situation where there are severe difficulties in the supply of gas.

In October 2022, a Regulation (2022/1854)[6] was published on an emergency intervention to address high energy prices. This Regulation includes measures aimed at reducing electricity usage, including through a mandatory cap on market revenues, and the distribution of surplus revenues and surplus congestion income revenues to final electricity customers. It also includes

[1] REGULATION (EU) 2017/ 1938 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL - of 25 October 2017 - concerning measures to safeguard the security of gas supply and repealing Regulation (EU) No 994 / 2010 (europa.eu)

[2] REGULATION (EU) 2019/ 941 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL - of 5 June 2019 - on risk-preparedness in the electricity sector and repealing Directive 2005/ 89/ EC (europa.eu)

[3] Delivering the European Green Deal (europa.eu)

[4] resource.html (europa.eu) and resource.html (europa.eu)

[5] Publications Office (europa.eu) Regulation 2022/1369 on coordinated demand-reduction measures for gas.

[6] Publications Office (europa.eu) Regulation 2022/1854 on an emergency intervention to address high energy prices.

a mandatory temporary solidarity contribution from EU companies with activities in the crude petroleum, natural gas, coal and refinery sectors to contribute to the affordability of energy for households and companies. The EU is shortly expected to conclude negotiations on its gas package, which will shape how gas is used as we transition to the use of renewable gases.

The European Commission published a suite of legislative proposals in March 2023 looking to reform the **Electricity Market Design** (EMD). These legislative proposals followed a public consultation to better protect consumers from excessive price volatility, support their access to secure energy from clean sources, and make the market more resilient[7]. Council agreed a general approach on EMD at the Energy Council meeting on 17 October 2023 after extensive negotiations by Member States. EMD commenced EU Trilogue negotiations on 19 October 2023. The Presidency aims to close the file before the end of the Presidency.

Alongside the EMD proposals, the Commission also published proposals for **Regulation on wholesale energy market integrity and transparency** (REMIT). These proposals will provide stronger protection against market manipulation in energy trading, enhancing confidence and integrity in relation to REMIT.

Energy Security Risks for Ireland

According to the International Energy Agency, energy security has many aspects: long-term energy security mainly deals with timely investments to supply energy in line with economic developments and environmental needs. On the other hand, short-term energy security focuses on the ability of the energy system to react promptly to sudden changes in the supply-demand balance.

Ireland's current energy system presents several risks in ensuring uninterrupted availability of energy sources. These risks will evolve as we transition to our renewables-based energy system and will not remain static. The risks our energy security faces are often inter-related and are set out below:

Supply-side Risks

Supply-side risks usually occur where there is the loss of supply from production or infrastructure facilities. Potential disruptions to supply can be caused by (i) infrastructure or technical risks such as an outage of network infrastructure facilities, (ii) market risks such as expected imports being diverted to other markets due to sudden events and price responsiveness (this includes price risk rather than loss of physical supplies), and (iii) geopolitical risks such as when a key supply source becomes unavailable or significantly reduced due to global geopolitical events and/or natural disasters. As one of the most energy import dependent countries in the EU with limited diversity of supply, Ireland is exposed to this risk. In 2022, 82% of Ireland's energy needs came from imports. 48% of energy used in 2022 was from imported oil and nearly 31% from natural gas. 74% of Ireland's natural gas came from imports through two interconnectors from the UK.

[7] European Commission public consultation on reform of electricity market to support a clean and affordable energy transition, February 2023 https://www.gov.ie/en/publication/9d196-european-commission-public-consultation-on-reform-of-electricity-market-to-support-a-clean-and-affordable-energy-transition/

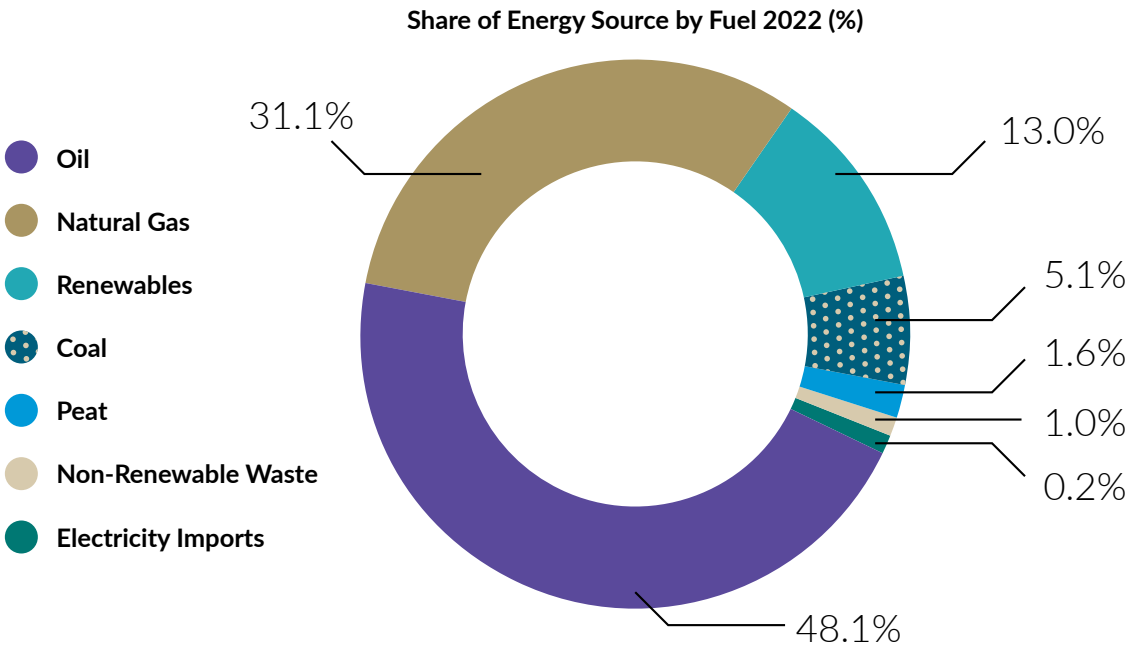


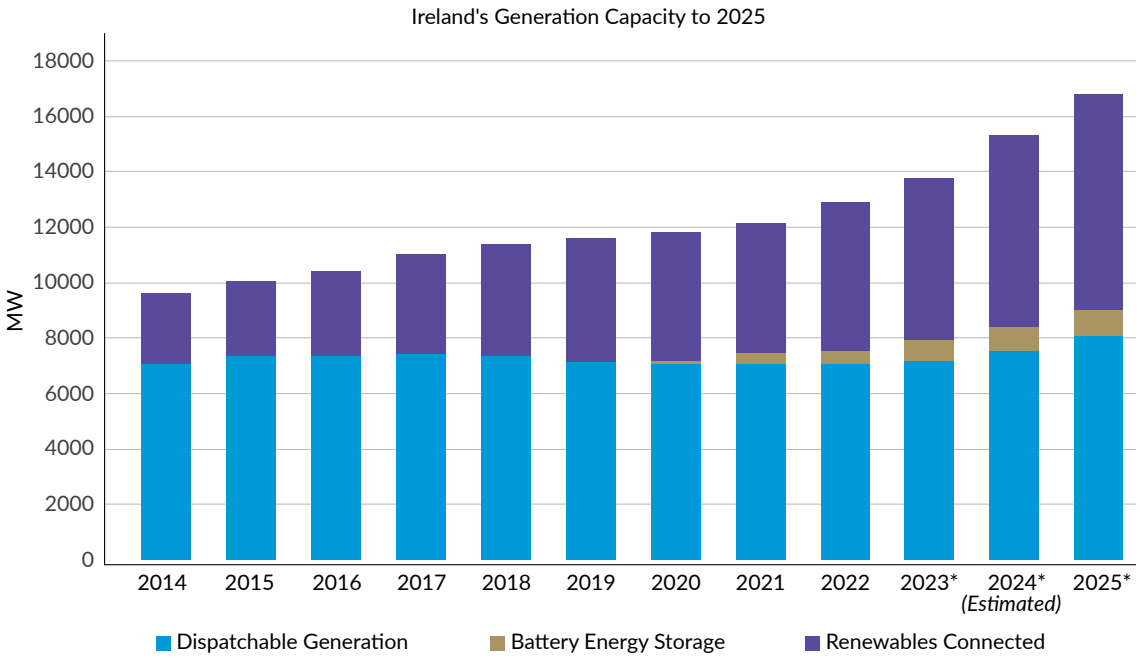
Figure 2: Ireland's dependence on fossil fuel imports

Demand-side Risks

A demand-side risk can occur where there is the possibility of sudden increases in energy demand over a relatively short period of time that cannot be met by corresponding increases in supply. Demand-side risks are generally caused by weather-related events such as cold snaps or periods of low wind or a combination of these events. Ireland's supply-side risks will reduce as it increases its renewable energy generation. However, these demand-side risks will increase as we transition away from fossil fuels such as coal and oil, and weather events impact on the availability of renewables such as wind and solar power. The dependence of the electricity system on natural gas is expected to increase in the short- to medium-term, particularly at times of very low wind. In addition, the peak day demand for natural gas is expected to increase. This means the electricity system will continue to rely on natural gas as a fuel source as it transitions to a majority-renewables system and phases out natural gas in the medium-term.

Delivery Risks

The delivery of Ireland's Climate Action Plan (CAP) targets for renewables, power system flexibility, energy efficiency, and the heat sector are central to the mitigation of energy security risks. Renewables reduce geopolitical security risks and reduce the impact of supply shocks in fossil fuels. Nevertheless, there are some geopolitical supply chain risks for renewables components, which the **EU Net Zero Industry Act** and the **Critical Minerals Act** are seeking to counteract. Achieving the CAP23 targets will help to deliver capacity in the electricity system as the electrification of heat and transport increases demand. In addition, achieving the CAP23 targets will help Ireland meet requirements under the EU EED, which puts a limit on final energy use. If the CAP23 targets are not met it will make adhering to the EED extremely challenging. Ireland has made good progress in certain areas of delivery of CAP23 targets and less in others. With an ambitious programme of measures in place, under-delivery of these measures is a risk to Ireland's energy security.



Source: ESB Networks

Figure 3: Electricity Generation Mix to 2025

The uncertainty around timelines for planning and licencing decisions is a key risk factor for projects. In addition, to build the infrastructure necessary, many skilled workers will be required. As we transition to renewables, we will be less dependent on imported fossil fuels but will require imports of key materials and minerals. Ireland will continue to face these risks throughout the energy transition.

Sabotage, Attack and Cyber Security Risks

A coordinated physical or cyber-attack could result in a failure of parts of our energy system. Attacks on the Nordstream gas pipelines have highlighted that critical energy infrastructure is a clear target for attacks. Furthermore, the digitisation of the systems used to control and monitor energy systems presents a larger 'attack surface' for cyber-attacks. Ireland like other countries faces this risk to its energy security. Ireland is implementing the **Critical Entities Resilience** directive to ensure that the resilience of essential services for the maintenance of vital societal functions including supply of energy are enhanced. In addition, Ireland is implementing the **NIS2** directive to ensure that Ireland is better prepared to defend and be resilient to cyber attacks.

Effects of Climate Change Risks

The effects of climate change, such as droughts, flooding and extreme temperatures, can negatively affect energy security. The impacts and risks of climate change are becoming more complex and increasingly difficult to manage. Although Ireland has not experienced the same extremes of weather events as in other countries to date, its import dependency for energy means its risks are linked to many other jurisdictions.

Investment Risks

The energy transition will require major investment across how we produce, store and transport our energy. Energy projects are typically capital intensive with long lead-in times. The companies

that supply these investments require a stable stream of expenditure to build their capacity. Furthermore, they also require consistent and stable energy and climate policy as we decarbonise the energy system.

Energy Security Analysis

Six strands of analysis underpin the actions set out in this package:

- The Review of the Energy Security of Ireland's Electricity and Gas networks, the studies by Cambridge Economic Policy Associates (CEPA) to support this, and the 450+ consultation responses to this analysis.
- The Independent Review of the Security of Electricity Supply (the McCarthy Report).
- The conclusion of National Energy Security Framework (NESF).
- The Climate Action Plans (CAP).
- The 'Summit on Energy Independence: Realising the Opportunities for Ireland', which was hosted by the Government in July 2023.
- Ongoing policy analysis on oil security of supply.

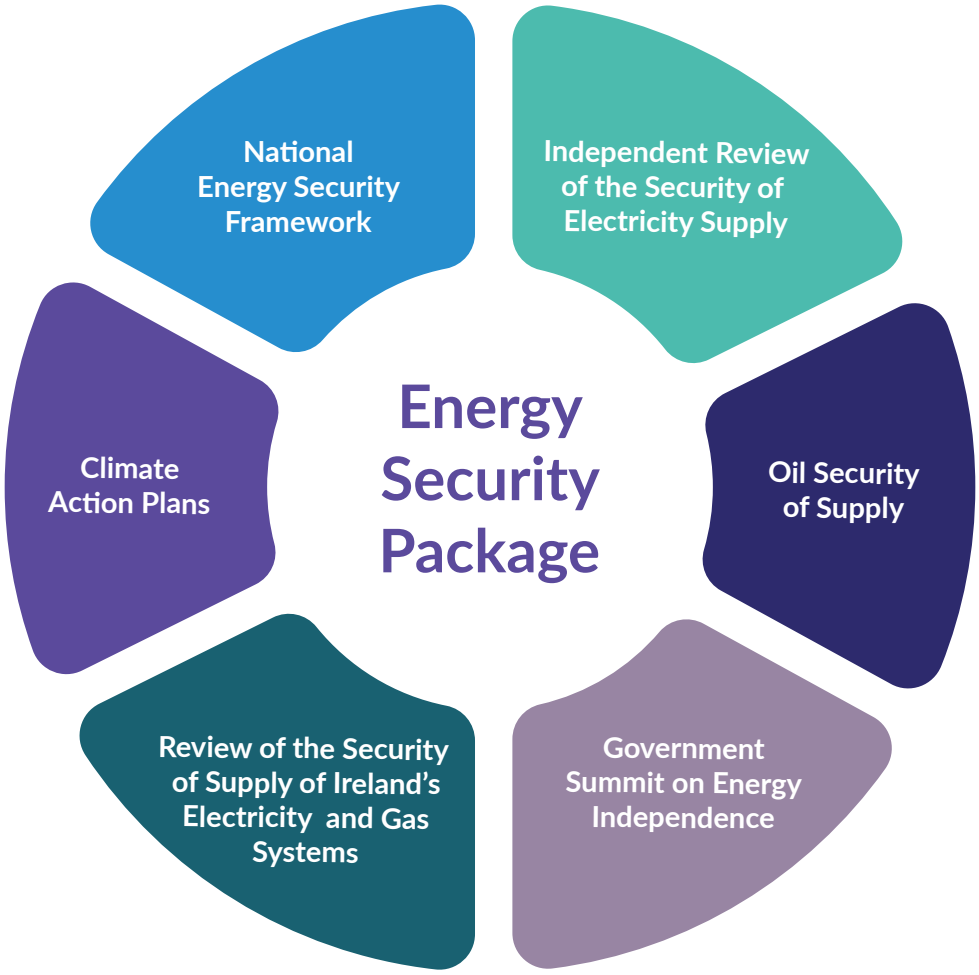


Figure 4: Energy Security Package Inputs

These inputs were finalised in the course of 2022 and 2023, are strongly interdependent, and provide a basis for Government to take integrated and comprehensive action to strengthen Ireland's energy security. Relevant reports are published separately and in full alongside the Package to allow all stakeholders to engage with the contents and conclusions of each. A short summary of each input is also provided below.

Following the conclusion of each report, DECC committed to extensive engagement with stakeholders in 2023 to support the development of the actions presented here. This has included engagement with relevant Government Departments, the energy regulator (CRU), the Transmission System Operators (GNI and EirGrid) industry, project developers, non-governmental organisations, academics, the European Commission, the IEA and neighbouring jurisdictions.

In addition, in the Spring of 2023 the International Energy Agency (IEA) carried out an in-depth in-person review of Ireland's energy policies. While the IEA are finalising their findings and report, they provided their preliminary draft recommendations immediately following their Review. It provides valuable advice for Ireland in terms of Energy Security. The key preliminary recommendations are that Ireland should:

- Streamline and shorten the planning and consenting regime so that the investments needed for the energy transition are delivered on time.
- Focus on implementation, particularly around renewable and energy efficiency measures.
- Consider the option of a Floating Storage and Regasification Unit (FSRU) as a strategic gas storage asset and a potential back-up for renewable energy.
- In electricity, increase interconnections and review risk metrics like the reliability standard.

DECC is already considering how to apply some of these preliminary recommendations. The IEA's review will be completed towards the end of 2023 and will be published shortly after.

Summary: Review of the Security of Energy Supply of Ireland's Electricity and Gas Systems

DECC carried out a Review of the Security of Energy Supply of Ireland's Electricity and Gas Systems. This review has focused on the period to 2030, but in the context of ensuring a sustainable transition to renewable energy by 2050. The review considered the risks to both gas and electricity supplies, and a range of measures including the need for additional capacity of indigenous renewable energy; importing energy; energy storage; and fuel diversification and renewable gases (such as hydrogen). The review included detailed research, including a technical analysis conducted by CEPA and a public consultation run by DECC.

Ireland faces many challenges as it transforms its energy system to transition to a carbon neutral future, and detailed research has been carried out to inform this review. The technical analysis that accompanied the publication of the consultation consisted of three different stages of work:

- The identification and examination of risks.
- The identification of options to address these risks.
- The appraisal of these options.

The risks to Ireland's energy security of supply vary by probability and impact. These risks can be characterised by their likelihood, their severity, and their duration. The likelihood of these potential risks materialising and how to use the resources available to mitigate against the likely impacts on citizens and businesses has been considered.

DECC received a broad range of submissions from individuals and organisations, and a summary of responses is contained in Annex 3. The consultation responses were reviewed and analysed, and they provided important insights on a number of aspects such as risks, mitigation options, and policy measures. A high-level summary of the responses has been compiled and is published alongside this package. Following the review of the consultation responses, an additional piece of analysis was completed by CEPA to assess the different approaches to delivering gas security of supply under the headings of security, sustainability and affordability to help inform the policy recommendations. The report on this supplementary analysis, along with the original technical analysis from CEPA that accompanied the consultation, is also published in full.

These inputs and analyses have been central to the development of the actions in this package, and for the Government's future decisions regarding energy security policy.

Summary: National Energy Security Framework

The NESF was published in April 2022 in response to the Russian invasion of Ukraine and its impact on energy price and supply. The Framework provided a single overarching and initial response to address Ireland's energy security needs in the context of the war in Ukraine. It coordinated work connected to energy security across the electricity, gas and oil sectors and sets out a 'whole-of-Government' response to the challenges posed to energy security and energy affordability.

The Framework set out the structures in place for emergency management in the energy sector and introduced an Energy Security Emergency Group (ESEG) to assist the development and implementation of the Framework. The ESEG has coordinated and provided oversight for DECC's response to the crisis with support from other departments and Government agencies. As of Q3 2023, the majority of the actions in the NESF have been completed or are close to completion. A report on the implementation of the NESF is published in full in Annex 4 of the Energy Security Package.

Under the umbrella of the NESF a significant programme of actions was carried out through the course of 2022 and 2023 to date to secure our energy supplies:

- CRU led the work on the electricity security of supply programme, supported by DECC, EirGrid and industry.
- Emergency plans for oil, gas and electricity were checked, revised and tested.
- SEMC enhanced investment signals, volumes requirements, and through the TSOs EirGrid and SONI, ran further electricity capacity auctions.
- Significant improvements have been implemented to demand-side response in electricity.
- Record numbers of renewable generation projects were connected, driven by DECC's RESS auction programme and an 80% increase in home energy upgrades in 2022.
- New legislation was introduced on oil security of supply to strengthen the statutory provisions available to Government to respond to a severe or prolonged oil emergency, thereby ensuring adequate supplies for the emergency and critical services.
- A range of supports were introduced to help homes and businesses in response to the record high energy prices.
- The Minister issued a general policy directive under Section 79 of the Environmental Protection Agency (EPA) Act 1992 to the EPA to prioritise the consideration of applications which impact on the State's energy security of supply for the purposes of protecting the environment as a whole.



Summary: Report on Independent Review on the Security of Electricity Supply (McCarthy Report)

The Minister for the Environment, Climate and Communications commissioned an Independent Review prepared by Dermot McCarthy to understand the factors contributing to the shortfall in electricity capacity and to identify lessons learned. The Review provides an analysis of developments in the electricity sector in Ireland and the significant strides Ireland has made in decarbonising its electricity system. It also underlines the unprecedented scale of ambition that Ireland is pursuing with its journey to reduce electricity emissions by 75% or 3 MtCO2eq. per annum by 2030 (on 2018 baseline).

In assessing the security of supply crisis, the Review suggests that:

- The crisis in the way that it unfolded could not have been anticipated.
- The actors and agencies responsible for the electricity system acted with diligence, integrity, and professionalism before and after the crisis emerged.
- It was the combination of concurrent events – foreseen and unforeseen – in the same period which gave rise to the crisis.
- The ambition to decarbonise has not been matched by sufficient management of the project delivery risks, with evidence of an underestimation of risk in the sector.
- The Capacity Remuneration Market has not yet delivered the required generation capacity recently but that a review *"process initiated by the Single Electricity Market Committee (SEMC) is an important initiative in building confidence in [...] the market mechanisms to secure the necessary outcomes."*
- The problem of delays encountered by major infrastructure projects, including in the electricity system, due to planning and environmental consent issues was evident. They had been commented upon by the International Energy Agency in its 2019 review of Ireland which named planning delays as the principal challenge to delivery of policy for the sector.
- The new conditions for Data Centre connection to the grid which were introduced in 2021 could have been put in place at the time of the Government Statement on the Role

of Data Centres in 2018. Had the new conditions been implemented in 2018 they would have more effectively reflected the plan-led approach to the development of data centres envisaged in the Government Statement.

- There are a range of opportunities to strengthen Ireland's approach to electricity security in the future, including strengthening the whole-of-government approach to these projects and programmes.

The actions set out in this Package address this external assessment, published in Annex 4.

Summary: Recent Oil Security of Supply Measures

Strategic stocks are the cornerstone of oil security of supply and provide a robust buffer against an oil emergency. The **Oil Stocks Directive** (Council Directive 2009/119/EC) provides for Member States to maintain minimum levels of oil stocks which shall at all times be available and physically accessible. The National Oil Reserves Agency (NORA) is responsible for the management of Ireland's obligation to hold oil stocks equivalent to at least 90 days of consumption, as a contingency against an interruption in supply. NORA currently holds stocks of diesel, jet kerosene, gasoline, kerosene and gasoil, balanced according to market demand. Although NORA has developed some of its own storage facilities, including in Dublin, NORA's stocks are mainly held in tanks under storage contract with third parties, secured on a value for money basis. These stocks are held in a number of facilities across the country, with the ability to supply stocks directly to the market, as required. While NORA currently holds stocks abroad, in excess of 72 percent of NORA's stocks are held in Ireland.

Key learnings that emerged from the Oil Emergency Planning Exercise held in May 2022 were the need to place Oil Emergency Planning on a statutory basis and to focus on the compilation and regular update of oil consumption data, as an aid to decision making during a prolonged emergency. In response, the **Oil Emergency Contingency and Transfer of Renewable Transport Fuel Functions Act 2023** (the 2023 Act) completed its passage through the Oireachtas in February 2023. The Act strengthens the statutory provisions available to Government to respond to a severe or prolonged oil emergency, thereby ensuring adequate supplies for the emergency and critical services, including the use of oil to generate electricity, if necessary, in the event of a major gas shortage.

To ensure that oil stocks can be used as secondary fuel to generate electricity, the Act also amends the **Fuels (Control of Supplies) Act 1971** to provide for the Minister by order, where there is a fuel emergency, to issue directions to the oil companies to prioritise the supply of oil to power plants. DECC officials will continue to progress oil emergency planning during 2023, to include the establishment of the Petroleum Register, and further work, with stakeholders, on the Oil Data Pack, which collates key supply and consumption data provided by a number of stakeholders, including the Central Statistics Office, Sustainable Energy Authority of Ireland (SEAI), the International Energy Agency (IEA), NORA, and the Revenue Commissioners, to aid contingency planning and decision making during an oil emergency. The finalisation of the plan to supply gas power plants with secondary fuel is also being undertaken as a priority.

Summary: 'Summit on Energy Independence: Realising the Opportunities for Ireland'

The Taoiseach, Tánaiste and Minister for Environment, Climate and Communications convened an **Energy Summit** at Government Buildings on 6 July 2023. The Summit brought together representatives from the private, public, and voluntary sectors to discuss Ireland's decarbonisation of its energy systems. The summit provided an opportunity for participants, whose combined efforts will be vital to delivering Ireland's climate and energy policies, to discuss how best to position Ireland to ensure the environmental, economic, and social benefits of moving away from fossil fuels and towards indigenous, renewable energy sources. The summit had three breakout sessions with one focused on Energy Security and Resilience.

Several recurring themes featured in the discussion on Energy Security and Resilience. These themes included: the increasing economic and social importance of the reliability of electricity as more sectors like heat and transport electrify; the importance of storage to the success of renewable energy; the need to support the use of bioenergy and hydrogen; and the need for continued investment in our infrastructure including an adequately resourced planning system, long-term economic and spatial planning, progress on the North-South Interconnector; and demand management. The topics raised at this event on Energy Security inform actions in the Package.



Section 2

What will change now?

Strategic Approach

Ireland is currently one of the most energy import dependent countries in the EU, having imported 77% of its energy supply in 2021,[8] and 82% in 2022. By reducing our import dependency through our energy efficiency measures and our investment in a diverse number of renewable energy sources, Ireland will reduce its dependence on imported fossil fuels and dramatically reduce its vulnerability to energy shocks.[9]

The breadth of current policy is a significant asset. As visualised in Figure 5 below, Ireland is concurrently implementing change and improvement to drive forward energy sustainability, affordability, and security of supply.

Ireland's future energy will be secure by moving from an oil- and gas-based energy system to an electricity-led one maximising our renewable energy potential, flexibility and being integrated into Europe's energy systems. Using smart grid infrastructure, it will integrate renewable gases, heating/cooling and mobility systems in order to meet the energy needs of our citizens. It will require us to maximise the benefits of energy efficiency and move rapidly to zero-emissions buildings. Meeting our climate, renewable, and energy efficiency targets through actions and measures set out in the annually updated Climate Action Plan will deliver this secure energy future.

Until then, this document sets out a strategic approach to ensure a secure transition to 2030, learning in particular from the disruption to European energy supplies following the invasion of Ukraine and the domestic capacity shortfall experienced in the electricity sector mid-transition.

The Energy Security Package sets out actions for the short- and medium-term by prioritising:

1. Reduced and Responsive Demand.
2. Renewables-Led System.
3. More Resilient Systems.
4. Robust Risk Governance

This approach integrates energy, climate, enterprise and digitalisation policy ambitions so that Ireland's energy future is clear and certain.

It will also ensure a secure transition.

Areas for Action

There are four high-level areas where action is required to strengthen Ireland's Energy Security. These are underpinned by more granular, often sector-specific actions to ensure that policy ambition is translated into policy action.

In an effort not to duplicate existing measures (for example CAP23 or the 2023 Hydrogen Strategy actions) the Actions listed are limited to those which are new or additional.

[8] https://www.seai.ie/data-and-insights/seai-statistics/key-publications/national-energy-balance/#comp00006023933e000000bbbe3751

[9] IEA (2022) World Energy Outlook 2022 https://iea.blob.core.windows.net/assets/830fe099-5530-48f2-a7c1-11f35d510983/WorldEnergyOutlook2022.pdf

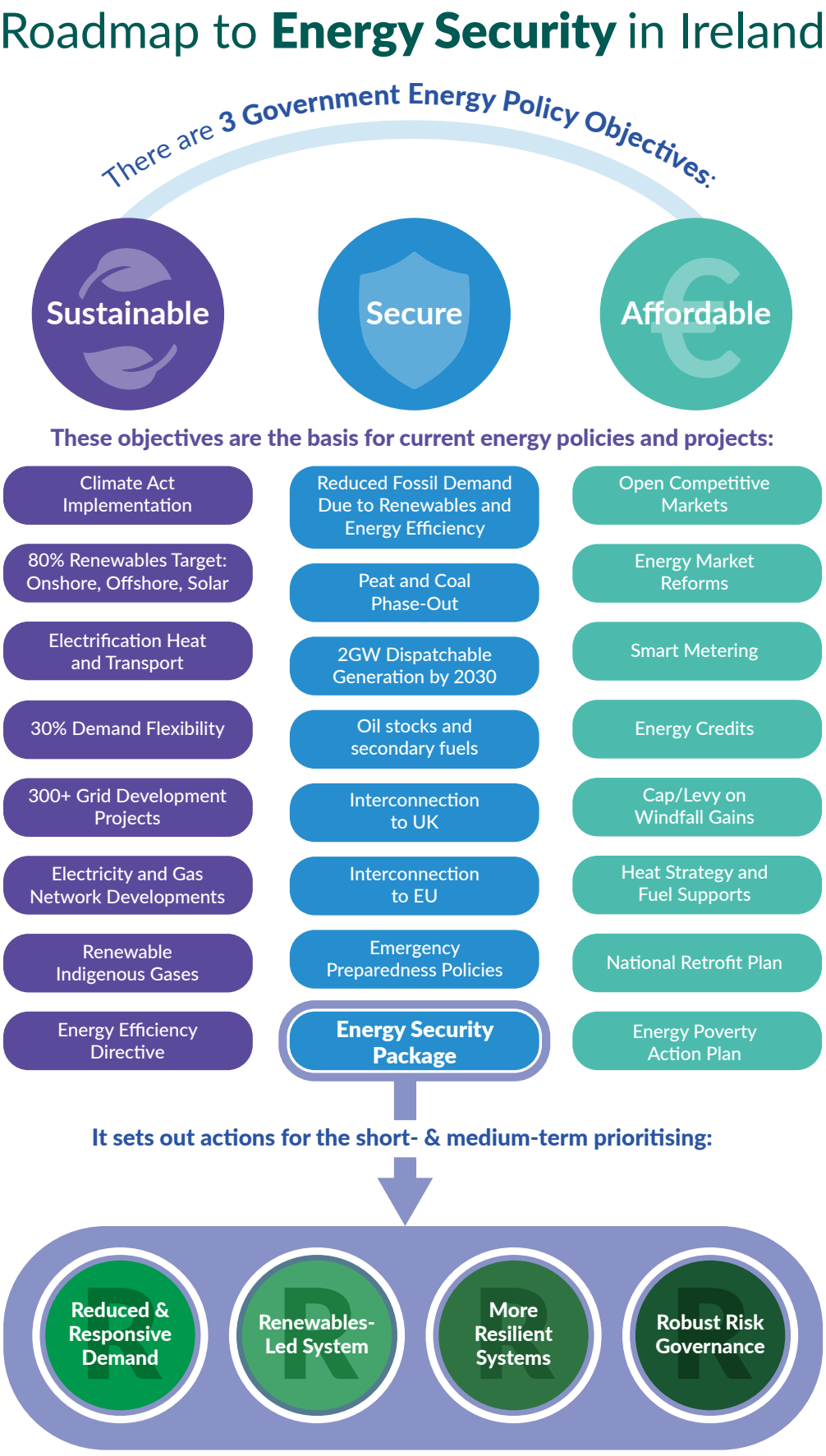


Figure 5: Roadmap of actions contributing to energy security, as outlined in the Energy Security Package

Reduced and Responsive Demand

Why is this important?

Ireland will not achieve its carbon targets or energy security without reducing its reliance on imported fossil fuels. This is an accepted driver for a range of policy measures to decarbonise and grow the renewable base of the energy system.

However, we also know that the most reliably secure energy we have is the energy we conserve. Energy efficiency, reduction in fossil fuels, and demand flexibility measures are also critical components of energy security. Demand flexibility where energy consumption aligns with renewable availability is a positive way of driving secure, sustainable, and affordable energy in Ireland. Energy efficiency and responsive demand are now core components of EU policy development and regulation. In addition, actions around energy efficiency and retrofitting contribute to affordability for households.

With a growing population and a growing economy, Government policy aims to achieve the 'twin transitions' of economic growth and decarbonisation of our economy and society. These transitions can – and must be – complementary. It is also important to note that not all energy demand is the same. Reducing our demand for fossil fuels is the priority.

What are we already doing?

There are many policies to reduce demand already underway in Ireland as outlined in the **CAP23**. For example, in the residential sector, the Plan commits to retrofit by 2030 the equivalent of 500,000 homes to a BER B2/cost optimal and install 400,000 heat pumps in existing homes to replace older, less efficient heating systems. This equates to approximately 30% of the existing housing stock.

The **National Retrofit Plan** sets out how the Government will deliver on these targets. The NRP is designed to address barriers to retrofit across four key pillars: driving demand and activity; financing and funding; supply chain, skills and standards; and governance. The NRP sets out a total Exchequer investment of €8 billion to support residential retrofit to 2030. This includes a ring-fenced amount of €5 billion from additional carbon tax revenues.

Ireland has implemented standards for energy performance in buildings including:

- Requirements for Nearly Zero Energy Buildings (NZEB) were introduced for Buildings other than Dwellings in 2017 and Dwellings in 2019. As a result of these NZEB performance requirements, heat pumps are installed in 88% of new dwellings and it is expected that all fossil fuel boilers will be fully phased out of new dwellings by the end of 2024.
- There is a requirement that Electric Vehicle Charging Infrastructure be installed in all new dwellings with a car parking space within the curtilage, new buildings or buildings undergoing major renovation with more than 10 parking spaces in 2021, and in certain existing non-residential buildings from 2025.
- Regulations have been introduced that allow efficient district heating systems using unavoidable waste heat to fulfil the renewable requirements of Part L of the Building Regulations.

At an EU level, there are proposals for a review of the Energy Performance of Buildings Directive, which will strengthen standards further. Ireland will support these efforts as it aligns with the Climate Action Plan and Housing for All strategy. It is planned to adopt the new Directive by the end of 2023, with measures taking effect from 2024 onwards.

Increasing the energy efficiency of our homes not only works towards achieving our climate and energy security goals but also improves our standard of living by providing warmer and more comfortable homes, lower energy costs, and improved health and well-being. A record circa €360 million in funding has been allocated to SEAI for residential and community retrofit in 2023 with a further €87 million allocated for retrofit of social housing. Importantly, over half of the total Exchequer budget is allocated to upgrades for households at risk of energy poverty, including those on lower incomes and those in social housing. Furthermore, under the CAP23, the Government has committed to developing a suite of market incentives to **match electricity demand with renewable energy**. For example, measures to facilitate dynamic 'green electricity tariffs' are under development. These tariffs would enable consumers to avail of low-cost power at times of high wind and solar output that would otherwise be lost through constraint or curtailment.

On the road to a carbon neutral 2050, **reducing fossil fuel demand** is a critical priority for the State. Significant progress has been achieved in driving energy efficiency and retrofit policies which are key elements in decreasing demand and will in turn reduce the use of fossil fuels – this progress will be monitored closely and progressed through the climate action planning process. In tandem with this, Ireland is overhauling its heating policy by phasing out fossil fuel use in the heating sector and transitioning to a renewable-led system. Under annual climate action planning processes, the Government will continue to drive policies that reduce Ireland's dependency on fossil fuels, including natural gas for heat generation, and this in turn will be a significant contributor to greater energy security on the Island.



In the **energy sector**, several important milestones will highlight our progress in reducing fossil fuel demand:

- An increasing share of renewable energy
- Roadmap to phase out fossil fuel boilers
- Biomethane strategy
- National Heat Policy Statement
- District Heating Steering Group Report
- Renewable Heat Obligation

The **Heat and Built Environment Delivery Taskforce**, established in 2023, has a critical role to play in coordinating and driving delivery across these areas.

The **transport sector** also has a focus on reducing fossil fuel use in conjunction with promoting sustainable transport modes. The CAP23 has committed to a reduction of 20% in total vehicle kilometres driven and a reduction in transport fuel usage of 50% by 2030. While the transition to electric vehicles (EV) and an increase in biofuel blends in the fuel mix is expected to achieve the majority of transport emissions reductions over this period, it won't be enough to achieve the aforementioned targets. To bridge the gap there will be a renewed focus on reducing private car usage in favour of sustainable transport modes and a key action for supporting this behavioural change is a commitment from the Department of Transport to develop a new **National Demand Management Strategy (NDMS)**.

Government has also recently implemented[10] specific electricity **demand reduction measures** during Winter 2022/2023 as part of its obligations under Council Regulation (EU) 2022/1854 on an emergency intervention to address high energy prices. The Regulation included a mandatory target for Member States to reduce peak electricity consumption in the period December 2022 to March 2023 by 5%, which Ireland was successful in achieving. Measures put forth included a ramping up of several existing demand reduction projects including ESB-Networks' (ESB-N) **Beat the Peak** schemes, ESB-N's Conservation Voltage Reductions Pilot scheme, the introduction of peak tariffs by the CRU, SEAI's Public Sector campaign and the Government's '**Reduce Your Use**[11]' campaign in addition to other initiatives. The 'Reduce Your Use' campaign provided practical and evidenced-based advice, detailing what actions people can take to help save the most money and energy. In addition, survey data carried out on a fortnightly basis informed campaign messaging, targeting and channel selection as well as supporting stakeholders and partners, where appropriate. These programmes are starting to show real and meaningful results as people all across the island have started to change behaviours to be responsive to system stress at peak times and the variability of a renewables-led system. Building on this is a really important lever in addressing Ireland's energy security challenges.

Throughout 2021 and 2022 EirGrid has operated a **Demand Side Unit (DSU) initiative** for medium to large electricity users as part of their Demand Side Management programme. This initiative utilises large energy users ability to reduce demand during periods of system constraint helping to relieve pressure on the grid. This initiative is complemented by the **Mandatory Demand Curtailment** process where EirGrid and ESB-Networks have collaborated with extra-large energy users (often Data Centres) to achieve significant demand reduction to reduce system stress. The CRU are implementing measures to **improve the availability and responsiveness of DSUs** which is critical in releasing the potential of this important building block to manage electricity demand.

[10] More detail is available on gov.ie at the following link gov.ie - Electricity Demand Reduction Measures (www.gov.ie)
[11] Reduce Your Use (Gov.ie) https://www.gov.ie/en/campaigns/6ca43-reduce-your-use/.



Under the CAP23, the Government has committed to a new **Demand Side Strategy for Electricity** and **Gas** being put in place. The CRU has commenced work in this area by publishing a call for evidence and consultation paper in June 2023.[12] The Demand Side Strategy will be delivered in 2024, with the aim of 20 to 30% of electricity demand to be flexible by 2030 (15-20% flexibility by 2025), facilitating active participation by citizens and businesses in the energy market.

The CRU is also conducting a review of the gas and electricity connection policies for new LEUs to ensure that any new connections are not causing energy security challenges, and are in line with our sectoral emission ceilings.

The Government Statement on Data Centres signals the Government's clear preference for data centre developments that are associated with strong economic activity and employment, make efficient use of our electricity grid, and deliver renewable energy.

It sets out the principles for sustainable Data Centre Development as consideration of the following:

- Economic impact.
- Grid capacity and efficiency.
- Renewables additionality.
- Co-location or proximity with future-proof energy supply.
- Decarbonised data centres by design.
- SME access and community benefits.

For households and businesses, the roll-out of smart metering is important to sustain efficiency in energy demand. A smart meter measures energy usage without the need for estimated meter readings so customers no longer need to submit readings or have someone come to their home to read their meter. **The National Smart Metering Programme** will replace over 2.4 million electricity meters by end of 2024. Over 1,400,000 smart meters have been installed nationwide to date, with approximately 10,000 meters being exchanged each week. Smart

[12] Energy Demand Strategy | CRU.ie

meter customers are now able to avail of new Time-of-Use (ToU) tariffs and smart services being made available from electricity suppliers. The CRU has set out the **Code of Practice on Smart Services in the Electricity and Gas Suppliers' Handbook 2022**.[13]

Finally, the **Energy Poverty Action Plan** published in 2022 has a demand focus in terms of energy poverty. The actions focus on two overarching categories – near-term, where the emphasis was on supporting people to get through winter 2022/23, and medium-term with the focus on using energy efficiency upgrades to help tackle the root causes of energy poverty and ensure an inclusive and just transition to a sustainable energy system.

What further action does the Package propose?

This Package proposes a number of things:

- It includes an action to transpose the Recast EED, and work across Government to manage the energy savings target.
- It outlines an approach to standardise the methodology used to evaluate the affordability of new and existing policy initiatives on consumers.
- It works to improve how homes and businesses can manage their own energy use by providing an evidence-based programme of communications activity and augments the rapid roll-out of smart meters by strengthening the link between Smart Metering and Smart Energy Services.
- It requires a review of our gas connection policy to ensure it meets both our energy security and climate objectives.
- It enhances the successful introduction of demand flexibility measures in the electricity sector by seeking opportunities to extend these into the gas sector.
- It builds on the recent partnerships between the enterprise and energy sectors by prioritising innovative approaches to managing large energy demand users within the power system.



[13] CRU202249 Electricity and Gas Suppliers' Handbook 2022 - Commission for Regulation of Utilities

Action 1: To transpose the European Energy Efficiency Directive

Ireland's ambitious energy efficiency policies and measures are set out in the CAP23 and include one of the most ambitious home retrofit targets worldwide. The Recast Energy Efficiency Directive (EED), which came into force in October 2023, requires each Member State to achieve significant additional energy savings by 2030. Ireland is required to transpose this directive within two years of it coming into force.

Member States are required to notify their energy saving target commitment and its trajectory to the Commission in the National Energy and Climate Plan (NECP). This increased energy saving requirement goes beyond what would be delivered by existing policies.

Further modelling to inform the development of a target management strategy is currently underway. **As an action to follow this report, we will establish a new cross departmental energy savings target management group** to work across sectors and manage delivery of the EED energy savings target.

Action 2: To standardise the approach used to evaluate the affordability of new and existing policy initiatives on consumers

The Department of Environment, Climate and Communications is committed to ensuring that policies that have an impact on consumers are evidence-based, costs minimised as far as possible, and assessed according to the policy objectives of sustainability, security, and affordability. Working closely with the Irish Government Economic and Evaluation Service, the Department will carry out a review in 2024 to standardise the approach and ensure that all current and future policy proposals made by the Department are underpinned by:

- A robust economic analysis.
- An analysis of the distributional burden and benefits.
- A standardised model of good practice to ensure consistency of approach across Energy Divisions in assessing the affordability of each project with a particular focus on customer value.
- An evaluation of various alternatives.
- Careful consideration of impact on the customer.
- A specific risk assessment, including any risk to security of supply, for those living in or at risk of energy poverty.

Arising from the above analysis, should specific policy measures pose a risk to vulnerable customers, recommendations to mitigate these risks will be made to the inter-departmental and inter-agency Energy Poverty Steering Group for inclusion in the Energy Poverty Action Plan. The Department will work closely with the CRU to ensure that their customer protection remit and subsequent role in the evaluation of costs to be borne by customers is preserved.

Action 3: To improve the ways that homes and businesses can manage their energy use by providing an evidence-based programme of communications activity and supporting 'active consumers' through smart metering and smart energy services

In 2022/23, the Government ran public information campaigns entitled "Reduce Your Use/ Stay Warm and Well"[14] that supported Government objectives of an affordable, sustainable, and secure energy system in Ireland. Drawing on research insights into this work, the Government will continue to develop its communications activity for energy customers. This evidence-based communications campaign will continue to inform consumers and businesses about actions they can take to reduce their energy demand, lower their bills, and access supports. Short-term, seasonal objectives of this communications campaign will be aligned with medium to long-term opportunities to encourage energy efficiency measures.

To support this, an Energy Security Communications Subgroup will continue to operate under the remit of the new Energy Security Group outlined under action 28. It will engage and collaborate on messaging, research, data and supplementary communications activity. This is to ensure alignment and amplification of communications across the energy sector and government.

Another way the Government can support customers to manage their energy use is through smart meters. Smart metering is an important tool that can allow customers access to their energy usage data and when coupled with appropriate incentives, such as Time-of-Use (ToU) tariffs, it can support behavioural change. This behavioural change can be very powerful in terms of optimising our energy resources and can contribute to energy security – a view shared by many of the consultation respondents.

There are opportunities to further support this behaviour change through empowerment of citizens and communities so that they can benefit from new ways to engage in the energy transition. Unlocking the benefits of smart energy management systems, solar PV, battery storage, smart Electric Vehicle charging, smart heating controls and heat pumps; that have standard flexibility readiness; is a core area of focus for further development, built on the back of the successful smart metering rollout. A Smart Energy Services working group has been established and will publish a work plan of deliverables to ensure these benefits by the end of 2023. Planned deliverables in 2024 will include:

- Developing a Smart Energy Users Portal for educating, encouraging and empowering active consumers to engage in demand flexibility activities.
- Conducting Behavioural Insights Research regarding smart energy services.
- Undertaking a review of energy grant schemes to assess level of flexibility and smart-ready technology opportunities.
- Identifying Smart Energy pilot schemes and skills training options, to assess potential for smart energy and technology integration solutions in homes and communities.

[14] Reduce Your Use (Gov.ie) https://www.gov.ie/en/campaigns/6ca43-reduce-your-use/. More detail is available on SEAI's website https://www.seai.ie/reduceyouruse/public-bodies/energy-efficiency-campaig/ Energy Efficiency Campaign | Reduce Your Use | SEAI

Action 4: To amend gas connection policy and introduce gas demand flexibility measures

Ireland's gas connection policy is currently designed in line with the EU Directive 2009/73/EC and in particular the requirements to provide non-discriminatory access. This Directive is currently being recast and the revised Directive is expected to include provisions that Member States connection policy and disconnection policy can be adjusted to be in line with the EU's climate neutrality objective. The transposition of this Directive provides the opportunity to review the gas connection policy in Ireland to ensure that it is in line with our climate ambitions. The Department will **consult on the transposition of the Directive and in particular the revisions to legislation pertaining to gas connection policy with a view to alignment with national climate policy**.

The data shows that annual gas demand will soon start to decrease but that peak demand will increase. Demand-side management mechanisms are in place in the electricity sector whereby demand-side units reduce their demand in response to times of system stress and are compensated for their actions. **Similar demand-side mechanisms will be developed in the gas sector**, particularly for times of peak demand. This will not only reduce system stress when needed, but it can also ensure Ireland is efficiently using its gas infrastructure – an important component of meeting our emissions ambitions.

Action 5: To identify and support new, innovative approaches to integrating large-scale demand sustainably into Ireland's energy systems that align with the overriding objective to decarbonise

As a small, open economy, Ireland has been hugely successful in attracting eight of the global top 10 information technology companies to establish a significant presence here.[15] Ireland is the second largest exporter of computer and IT services in the world.[16] Our digital infrastructure is key to Ireland's position as a strategic international location for IT services and plays a critical role in supporting many sectors in the Irish economy in addition to supporting employment and foreign direct investment. Ireland is experiencing significantly higher electricity demand growth rates by comparison to other European jurisdictions. As a result Ireland has identified that accommodating the rate of growth and demand scale of this part of our industrial base is unique and presents risks to energy security.[17, 18] This is acutely true for Ireland as it pro-actively manages a programme to mitigate adequacy concerns in the electricity system.

As Ireland decarbonises the electricity system, the potential to utilise green, clean power for all sectors of the economy will increase. Extra Large Energy Users (often Data Centres) can lead and contribute to this transition by innovating to reduce fossil fuel demand, shifting energy demand away from peak times or at times of system stress and moving demand to times of high renewable generation. This will increase the resilience of Ireland's energy sectors and also improves our sustainability profile by significantly reducing cumulative emissions.

We will strengthen the energy sector implementation of the Government Statement on Data Centres which sets out how the Government's policy of the 'twin transitions' of digitalisation and decarbonisation of our economy and society can be achieved with specific reference to data centres.

---

[15] Information & Communications Technology (ICT) sector profile - Enterprise Ireland (enterprise-ireland.com)
[16] Information & Communications Technology (ICT) sector profile - Enterprise Ireland (enterprise-ireland.com)
[17] Generation Capacity Statement, EirGrid, October 2022
[18] Data Centres Metered Electricity Consumption 2022 - CSO - Central Statistics Office

The Data Centre Statement particularly highlights the risks of 'islanded' Data Centres, which are not connected to the electricity grid and are powered mainly by on-site fossil fuel generation, stating that these are not in line with national policy. DECC will work with DETE and DHLGH to fully and consistently incorporate Government policy in this area into the planning process.

The Data Centre Statement also highlights the necessity for flexibility of Data Centre demand to match renewable energy generation. We will continuously seek opportunities to support decarbonisation to ensure alignment with the sectoral emissions ceilings; and continue to collaborate with industry partners to achieve measurable 'demand flexibility' in the sector.

While there are current and real constraints as Ireland manages a secure transition pathway, there is also a unique **opportunity to strengthen collaboration between industry, system operators, regulators and Government** to work together to meet these challenges into the medium term.

Innovative partnerships that can deliver demand flexibility (for example time shifting), system-level solutions (for example district heating initiatives), and/or the introduction of new technologies (for example long duration energy storage), all have potential to manage this risk more effectively. Accelerating the delivery of initiatives such as the **co-location of generation and demand** (for example Green Energy Parks) are also important enablers of a more resilient and secure system.

Reduced and Responsive Demand key actions	
Existing Policy Initiatives	• Implementation of Citizen Engagement Campaigns: Reduce Your Use. • Implementation of the Energy Poverty Action Plan. • Roll-out of smart metering and active customers. • Roll-out of the suite of energy efficiency incentives and scheme. • Implementation of the National Retrofit Plan. • Implementation of EU Demand Regulations. • Finalisation of the CRU Demand Strategy. • Supporting DETE to implement the Government Statement on Data Centres.
Additional Measures	• To transpose the European Energy Efficiency Directive. • To standardise the approach used to evaluate the affordability of new and existing policy initiatives on consumers. • To improve the ways that homes and businesses can manage their own energy use by providing an evidence-based programme of communications activity and supporting 'active consumers' through smart metering and smart energy services. • To review gas connection policy and introduce gas demand flexibility measures. • To identify and support new approaches to integrating large-scale demand sustainably into Ireland's energy systems that align with the security requirements to reduce fossil fuel demand.

A Renewables-led System

Why is this important?

A major programme of acceleration and upscaling in the permitting, construction and connection of wind and solar energy is being overseen by Government in order to support the carbon budget programme and help decarbonise the wider economy. Delivering on our renewable energy targets as set out in the annual Climate Action Plan is integral to Ireland's energy security and it forms a foundational pillar of this energy security package. Through the carbon budget programme, Ireland must reduce electricity emissions by 75% by 2030 (on a 2018 baseline).



A major finding of the technical analysis undertaken to inform this package is that energy security is systemically linked and dependent upon the twin pillars of harnessing our indigenous renewable energy resources at speed and at scale and the rapid electrification of energy demand. This aligns with the first pillar of the International Energy Agency's landmark Report on Pathways to 1.5°C[19]. As such, the course set out in the Climate Action Plan to decarbonise the power sector and deliver 22 GW of renewable energy generation by 2030 dovetails with the objective of our safeguarding our energy security. Higher levels of renewables reduce geopolitical security risks and reduce the impact of volatility in the price of fossil fuels through supply diversification. This is particularly evident following Russia's invasion of Ukraine in 2022, which has led to significant energy price spikes. The risks associated with renewables are different from those of fossil fuel supply risks, and renewables can reduce the variability of generation costs and consumer prices[20].

The importance of renewables in safeguarding security of supply is now established policy at both EU and national level. Substituting fossil fuels and accelerating Europe's clean energy transition through a massive scale-up in renewable energy power generation technologies is

[19] https://www.iea.org/reports/credible-pathways-to-150c

[20] IEA (2007) "Contribution of Renewables to Energy Security Information Note" https://www.iea.org/reports/contribution-of-renewables-to-energy-security

at the core of the EU Commissions' REPowerEU plan. REPowerEU seeks to support this rapid expansion of onshore renewable infrastructure by strengthening supply chains associated with renewables and streamlining the permitting processes for wind and solar projects, including enabling widespread repowering of existing legacy wind energy infrastructure. The National Energy Security Framework sets out how the State will speed up the shift to increased energy indigenous renewable energy systems, specifically, to 'align all elements of the planning system to fully support accelerated renewable energy development'.

The REPowerEU plan seeks to support this rapid expansion of renewable infrastructure by strengthening supply chains associated with renewables and streamlining the permitting processes for wind and solar projects, including enabling widespread repowering of existing renewable projects. This will be given effect to through the recast Renewable Energy Directive, which requires Member States to identify "renewables acceleration areas", which are suitable for fast-track permitting.

What are we already doing?

Ireland is already a world leader in renewable energy. Currently Ireland is in the top three countries worldwide for onshore wind deployment per capita with approximately 4.5 GW of onshore wind connected. With an expected 1 GW of solar energy due to be connected by the end of 2023, this technology is rapidly catching up and providing diversification and security of supply benefits during periods of low wind which was not possible in previous years.

The share of electricity from renewable energy increased fivefold between 2005 and 2020 and there was a sevenfold increase in the annual quantity of renewable electricity generated. With 2022 being a record year for renewables globally and in Ireland and an expected 6 GW of renewable generation expected to be operational by year end the security benefits of increasing wind and solar energy roll-out are being realised.

A rapid programme of solar delivery in underway which is having a real impact on supply security and meeting electricity demand particularly over the summer months during periods of network/generation outages and maintenance and low wind output. Through the RESS auction programme, microgeneration supports, the new Small Scale Renewable Electricity Support Scheme to be launched in 2024, it is expected that solar energy will reach existing levels of onshore wind by mid-late decade (and 8 GW by 2030) and act to complement the continued delivery of onshore and offshore wind.

A Government-led comprehensive renewable electricity programme is underway to build on this success by delivering 80% of our electricity demand from renewables by 2030. Two cross Government and Agency Task Forces have been established to support his programme, for offshore wind delivery and for onshore renewables and supporting flexibility.

The **CAP23** was launched in December 2022 and builds on previous climate action plans[21]. It is the framework through which the Government intends to meet the legally-binding, economy-wide carbon budgets and sectoral ceilings agreed in July 2022.

[21] gov.ie - Climate Action Plan 2023 (www.gov.ie)

CAP23 details actions across a number of areas, including six vital, high-impact sectors:



This CAP23 highlights the importance of harnessing "our massive untapped, renewable natural resources" to provide "greater energy security, stable prices, more jobs, and regional development". It also emphasises that increasing our "renewable energy generation, along with supporting flexibility and demand management measures, is necessary for our future energy security".

Accelerating Renewables is one of the six vital high impact sectors in the CAP23 for delivering a significant reduction in emissions. CAP23 is about facilitating large-scale deployment of renewables, which is essential for decarbonising the power sector as well as enabling the electrification of other technologies.

The CAP23 also highlights that the development of Ireland's offshore wind energy potential can help to improve the sustainability of our energy sector and will improve our security of supply and energy affordability. Some of the actions in this area are:

- Accelerating delivery of renewables to reduce electricity emissions by 75% or 3 $MtCO_2eq.$ per annum by 2030 (on 2018 baseline) is in line with carbon budgets. Delivery of 9 GW onshore wind, 8 GW solar, and at least 5 GW of offshore wind by 2030 (with an additional 2 GW earmarked for non-grid use, including green hydrogen production).
- Supporting at least 500 MW of local community-based renewable energy projects and increased levels of new micro-generation and small-scale generation.
- Development of new dynamic Green Electricity Tariffs by 2025, to incentivise people to use lower cost renewable electricity at times of high wind and solar generation.

The CAP23 also commits to achieving at least 5GW of installed offshore wind capacity by 2030 with an additional 2GW earmarked for the production of green hydrogen and other non-grid uses. It also includes a suite of actions to realise Ireland's offshore renewable energy (ORE) potential.

Government is overseeing a phased approach to Offshore wind, **The Offshore Wind Delivery Taskforce**[22] has been established to drive delivery and capture the wider and longer-term economic and business opportunities associated with the development of offshore renewables in Ireland.

[22] https://www.gov.ie/en/publication/c8749-offshore-wind-delivery-taskforce/

For onshore renewables, it is intended that the forthcoming Renewable Electricity Spatial Policy Framework will be the national policy position for onshore renewable electricity and will inform the distribution of onshore wind and solar PV generation. This will be underpinned through the forthcoming revision to the National Planning Framework and the implementation of the recast **Renewable Energy Directive** including the mapping of Renewable Acceleration Areas. Greater alignment between local plans and renewable energy targets to support investment in and delivery of onshore wind and solar renewable energy is also critical in this context.

To deliver on the roadmap for renewables set out in CAP23, the **Accelerating Renewable Electricity Taskforce** has been established to coordinate the fast-track and increased deployment and output of renewable electricity generation and supporting technologies in the near-term.

In relation to renewable heating, CAP23 commits to delivery of up to 0.8TWH of **district heating** by 2025 and, having established a group in 2022 to examine the roll-out of district heating in Ireland, a report with recommendations for the development of the district heating sector underpinned by an appropriate policy and regulatory environment was approved in July 2023[23].



The delivery of district heating will, among other things, be overseen by a **Heat and Built Environment Taskforce**, which has been established to accelerate and drive delivery in relation to retrofitting, renewable heat, district heat and decarbonisation of the building stock. The overarching aim of the Taskforce is to identify work on the critical path to key targets under each area, ensure alignment in the development of polices and activities underway across Government Departments, and proactively manage risks to ensure targets are achieved.

The **National Retrofit Plan** sets out how the Government will deliver on the Climate Action Plan targets of retrofitting the equivalent of 500,000 homes to a BER of B2/cost-optimal and installing 400,000 heat pumps in existing homes to replace older, less efficient heating systems by the end of 2030. This will deliver an increasingly efficient housing stock with renewable heating systems in the years to come.

[23] District Heating Steering Group Report 2023, Gov.ie, https://www.gov.ie/en/publication/3f132-district-heating-steering-group/)

CAP23 also contains a range of other actions to deliver renewable heat and progress is being made on the development of a **National Biomethane Strategy**, examination of a roadmap for the phase out of fossil fuel boilers, design of a Renewable Heat Obligation and the adjustment of existing support schemes such as the SSRH to incentivise greater levels of renewable heat.

Through the **Micro-generation Support Scheme (MSS)**, which was launched on 21 December 2021, the Government committed to support the installation of 380MW of new micro-generation capacity by 2030. The MSS provides support to domestic and non-domestic applicants for renewable electricity installations through SEAI grant schemes. Through the Clean Export Guarantee (CEG) tariff, micro and small-scale generators receive payment from their electricity supplier for all excess renewable electricity they export to the grid, reflective of the market value of the electricity.

The first phase of the MSS brought the introduction of the domestic solar PV grant on 16th February 2022, where domestic applicants can apply to the SEAI for a grant towards the cost of installing solar PV panels. More than over 10,000 applicants had been supported by the end of 2022, with an installed capacity of 46.5MW. It is expected that more than double the number of households will be supported by the end of 2023. The second phase of the MSS commenced on 22nd September 2022, when the SEAI extended the solar PV grant scheme to the non-domestic sector, including schools, businesses, small farms, and community enterprises.

As well as strong cooperation with our fellow EU Member States on renewable energy, Ireland is working closely with other international partners to cooperate on the transition to a renewable electricity-led system and supporting cross border infrastructure. The British and Irish governments agreed a **Memorandum of Understanding** in September of 2023. This MOU aims to Increase high level cooperation and information sharing between Ireland and the UK, focused on the energy transition and deployment of onshore and offshore renewable energy, including renewable/low carbon hydrogen. In addition, it also aims to increase cooperation specifically focused on exploring opportunities for further interconnection between the island of Ireland and Great Britain, including offshore hybrid asset projects, which can comprise offshore windfarms, offshore energy islands and hybrid/multi-purpose electricity interconnection.

What does the Package propose?

This Package:

- Reinforces the importance of developing indigenous renewables to Ireland's energy security both as a short-term and long-term measure. The detailed plans for the roll-out and targets for renewables are set out in the CAP23 and will be updated in annual revisions of the Climate Action Plan. The delivery of Ireland's CAP23 targets for renewables is critical to minimising energy security risks and diversifying supply through a complementary drive to rapidly boost wind and solar energy at scale. Renewables from wind and solar provide significant diversification of energy sources and therefore augment energy security. The renewable electricity programme is being delivered through two cross Government and cross agency taskforces – the Offshore Wind Delivery Taskforce and the Accelerating (Onshore) Renewables Taskforce, and the renewable heat programme is being delivered through the Heat and Built Environment Taskforce.
- This package reaffirms the objectives of the taskforces from a security of supply perspective and underlines the importance of alignment of all elements of the planning system and relevant consenting processes to fully support accelerated indigenous

renewable energy development, supporting grid and flexibility infrastructure and driving the increase in the use renewable heat in our built environment.

- This package supports the objectives and swift implementation of the soon to be finalised recast Renewable Energy Directive to support the delivery of renewable energy targets.
- This package calls for the urgent and critical need for greater alignment between local plans and renewable energy targets to support investment in and delivery of wind and solar energy projects.

Action 6: To utilise the National Energy and Climate Plan to ensure all policy incentives are aligned on a regular basis

The policy and project landscape in the energy sector is changing rapidly as Ireland works to keep pace with European and international developments and securely embed its ambitions as we transition our energy system to meet our sectoral emissions ceilings. This requires Ireland to transform its entire electricity sector with radical reforms occurring in a very short space of time. This transition has been impacted following the Russian invasion of Ukraine. The McCarthy Review highlights the importance of a strategic, integrated whole-of-government approach to the development and implementation of our energy policy goals.

The regular production of a **National Energy and Climate Plan** for submission to the EU provides the basis to set out integrated policy objectives. It is also appropriate to align each carbon budget cycle with a statement of policy intent for the next cycle so that energy and climate policy remains integrated but also iterative as projects are developed and implemented. The regular review process proposed in Action 21 will also support this. It will also be important that there is whole of government clarity in relation to *how* policy goals are to be achieved through integrated implementation planning and collective consideration of how actions can be sequenced to achieve the most critical components of the transformation journey.



Action 7: To work within the updated European Electricity Market Design to continue to reduce emissions associated with Ireland's conventional capacity over the medium-term

In March 2023, the European Commission (EC) published a suite of legislative proposals looking to reform the Electricity Market Design (EMD). These legislative proposals followed a public consultation that was initiated in order to better protect consumers from excessive price volatility, support their access to secure energy from clean sources, and make the market more resilient. Broadly, Ireland welcomed the proposals and supported the objective to optimise the market to ensure best value for consumers who have been materially impacted by recent price shocks. Ireland advocated during the process that delivering the benefit of renewable electricity to consumers should be a guiding principle in all measures considered by the EC in the electricity market design process.

Ireland is pioneering the integration of large volumes of variable renewables into the power system and is instructive for de-carbonising economies all over the world. It shows the great potential Europe has to lead this agenda. However, it also highlights the importance of market signals and incentives that enable investment in modern, low-emitting, renewable-gas ready conventional generation and other enabling low carbon technologies.

Ireland like many European countries is strongly supportive of the **Capacity Mechanism** provided for in the European framework and has learned the strategic importance of this policy lever in achieving a secure transition and successfully operating a majority renewable power system. In recent years Ireland has seen the critical importance of this "back-up" capacity – in particular in ensuring uninterrupted supplies of electricity to homes and businesses on low-sun, low-wind "dunkelflaute" days. This is an important component of energy security but also an important measure in building confidence in Ireland's ability to securely transition to a majority renewable system. Other European countries are likely to soon face similar experiences and Ireland believes **all efforts should be made to streamline and reduce or remove barriers to efficient capacity mechanisms at the earliest stage possible**. The measures proposed as part of the Electricity Market Design package in Europe are important steps forward in this regard. Greater **State aid flexibility to enable a streamlined Capacity Mechanism** could also encourage de-carbonisation and facilitate innovative market solutions. Ireland will continue to explore these and other ideas with European colleagues using its insights as a variable-renewable electricity leader to shape and inform the policy debate.

During the recent Electricity Market Design (EMD) negotiations, Ireland along with some other Member States successfully argued for a more flexible and simplified process for assessing capacity mechanisms from a state aid perspective. It was agreed that the Commission will come forward with proposals with a view to streamlining and simplifying the process for assessing capacity mechanisms shortly after entry into force of the EMD Regulation. This commitment is very welcome and will be monitored closely as EMD progresses.

The state aid decision on Ireland's capacity mechanism is due to expire in 2028. The Single Electricity Market including Ireland will be required to apply for a new decision from the European Commission. In preparation for this application, the Department will engage with key stakeholders across the SEM to develop a shared vision for how to ensure optimum operation of the CRM in the period to 2038 against the backdrop of the energy transition.

Flexibility, storage, renewable gases as outlined throughout this report make an important contribution to de-carbonising how conventional generation is used. Utilising open competitive market mechanisms to seek all **opportunities to decarbonise** through fuels, technologies, and operations will all be important to achieve a secure transition.

A **working group was established in summer 2023** to utilise the insights from the Security of Supply Programme to look creatively at how Ireland can could further decarbonise the "non-renewable" components of the power system. The Department, EirGrid, CRU and UCC are working in partnership to identify ideas that can support this goal and are due to conclude their work by year end, and DECC will brief the Security of Supply Steering Group with their findings.

A Renewables-led System key actions	
Existing Policy Initiatives	• Accelerating the delivery of onshore wind, offshore wind, and solar through the Offshore and Onshore Taskforces. • Small-scale generation and community-based renewable energy projects and micro-generation. • Phasing out coal and peat in electricity generation. • Phasing out of fossil fuel boilers. • Renewable Heat Obligation. • Support Scheme for Renewable Heat. • Hydrogen Strategy. • Electricity Storage Strategy. • Biomethane Strategy. • Transposition of Renewable Energy Directives.
Additional Measures	• To utilise the National Energy and Climate Plan update required under European level to ensure all policy incentives are aligned to achieve a secure energy transition. • To work within the European Electricity Market Design to continue to reduce emissions associated with Ireland's conventional capacity over the medium-term.

More Resilient Systems

Why is this important?

Reliability is the watchword of the energy sector and the anchor for existing policies and initiatives. Developing the resilience of Ireland's energy system is also important to mitigate the extent, severity, duration, and impact of any system disruption.

Ireland's import dependency ratio for energy is 80%, which is one of the highest dependency ratios in the EU. The higher this ratio, the more a country depends on the import of energy from outside its borders, and the more exposed that country is to international price shocks and supply shortages[24]. As geopolitical risks evolve, taking steps to strengthen the resilience of gas, electricity and oil sectors is vital. Rather than existing in isolation, the following measures are underpinned by the long-term strategy as set out in pillars 1 and 4 to manage demand and to accelerate the use of renewables.

What are we already doing?

At an operational level there is **ongoing monitoring of reliability and resilience, and continuous improvement of systems in all sectors**. Long-term integrated planning is essential to identify the long-term infrastructure needs to deliver an integrated energy system to meet our sectoral emissions ceilings. The **National Hydrogen Strategy** confirms the important role renewable hydrogen will have in our future energy system. Hydrogen pipelines are envisioned to become the dominant transportation option, repurposing the existing natural gas pipeline infrastructure. GNI are undertaking a programme of materials testing to operate the gas network with hydrogen blends in the future. Work to date has shown promising results in terms of the technical capability of the gas network to transport hydrogen blends up to 100%. A National Biomethane Strategy is currently being developed which will further support and promote the use of this renewable gas in our future energy system.

Furthermore, resilience of the system is a key factor in the transition to a power system that meets our sectoral emissions ceilings. Renewable dispatchable generation will still be required to maintain system reliability with a recent report from the IEA estimating that approximately 5-15% of electricity needs will come from zero carbon dispatchable generation in a sustainable and secure power system. The National Hydrogen Strategy published in July 2023, has set out a commitment to complete a roadmap for bringing carbon neutral dispatchable power solutions to market. This roadmap will help to determine the system needs of a sustainable and secure power system. EirGrid published a call for evidence on Long Duration Energy Storage (LDES) in October 2023. LDES is a key element in ensuring the resilience of a decarbonised system.

This is supplemented by regular emergency exercises, which test those systems and identify further improvements. The NESF report covers this work in detail. The NESF coordinated work connected to energy security across the electricity, gas and oil sectors and detailed 31 Policy Responses which were focused across three themes:

1. Managing the impact on consumers and businesses.
2. Ensuring security of energy supply in the near-term.
3. Reducing dependency on imported fossil fuels in the context of the phasing-out of Russian energy imports across the EU.

[24] Page 19 and 20 SEAI (2022) Energy In Ireland | Key Publications | SEAI

What does the Package propose?

Following the analysis of the review and the consultation responses which examined this question in detail, this Package does a number of things:

- Enhances the resilience of the gas sector through the introduction of new measures including offsetting the risk of a significant disruption to supply.
- Increases reliability in the electricity sector through focused implementation of key solutions identified in the analysis.
- Builds resilience in the oil sector through updated analysis of long-term requirements.

The Electricity Sector

The reliability of the electricity system can be considered in two parts – adequacy and resilience:

- Adequacy is about having enough generation to meet demand.
- Resilience is about being able to mitigate and respond to system disruptions.

Reliability standards in the electricity sector are a calculation of the 'value of lost load' and the cost of new plant to meet that load. The reliability standard across fifteen countries in the EU averages at three hours, the reliability standard in Ireland is eight hours. Ireland's reliability standard of eight hours implies that eight hours of lost load is the appropriate balance between the cost of not being able to serve all demand and the additional cost of meeting that new demand. This is addressed in Area for Action 3.

EirGrid publishes adequacy assessments which enable them to calculate a Loss of Load Expectation (LOLE). The LOLE indicates the expected number of hours in a year during which electricity generation may be insufficient to meet the total demand. In 2022 Ireland's LOLE was calculated by EirGrid to be 52 hours, far in excess of the eight-hours that is judged to be appropriate. This is the consequence of the capacity shortfall in the electricity sector – the focus of the CRU Security of Supply Programme. The Winter Outlook 2023/24 shows an improved picture from 2022/23, with a LOLE of 21 hours.



The actions set out below aim to ensure that all of the required policy enablers are in place for a secure transition to a renewables-led electricity sector, building on the Government Statement on Electricity Security of Supply in 2021.

Action 8: To complete implementation of the CRU Security of Electricity Supply Programme

Following the declaration of a capacity crisis in the electricity sector in 2021, the CRU has led a programme of work to mitigate the risks of an identified shortfall in generation capacity in the electricity sector. This programme is supported by EirGrid and DECC and all three organisations have worked urgently to identify and pursue all available mitigations to ensure resilience in the electricity sector until winter of 2025/26 and until sufficient enduring capacity is anticipated to deliver. An update on this programme was published in the autumn of 2023 and is available on the CRU website.

The CRU-led Security of Supply programme actions include:

- The procurement of at least 2GW of new, flexible, enduring, capacity through market mechanisms.
- Enhanced monitoring of projects successful at auction to ensure successful delivery of this capacity.
- The procurement of Temporary Emergency Generation capacity to ensure there are units of last resort available to the State in an emergency.
- The retention of older generating units on a temporary basis until new, enduring capacity is delivered.
- Measures to improve the performance and availability of existing generators and demand-side units, and the development of additional demand-side responses.
- Appropriate oversight and reporting arrangements to ensure the successful delivery of this programme.

Winter 2022/23 concluded without any system alerts. This means there were no periods when the risk of disruption to power supply for businesses or households as a result of the adequacy gap in the power system was sufficiently high as to merit issuing an alert as a warning to the system. The CRU has reported positive implementation progress on the above measures which signals confidence in the actions and ongoing roll-out of the programme. This confidence has been further reinforced with the publication of EirGrid's winter outlook for 2023/24 showing an improved status from last winter with a reduction in the risks on the system.

The McCarthy Review was commissioned in response to the capacity issues in the electricity sector and to highlight what lessons could be learned. In his analysis McCarthy noted the CRU Security of Supply programme as an important area of continued focus in response to the crisis declared in the electricity sector. Beyond these short-term mitigation measures, the McCarthy report suggests a range of areas for improvement, which are addressed throughout this report.[25]

[25] The McCarthy findings are summarised on page 14 and published in full as part of this package.



Action 9: To increase resilience by implementing an updated, risk-based, evidence-based reliability standard in the electricity sector

Analysis shows that Ireland's eight-hour reliability standard in the electricity sector has led to a higher risk appetite than many European counterparts display in managing electricity security of supply. Given Ireland's strategy for transitioning to a green economy is accelerated and electricity-led it is critical that any risks of this approach are minimised for the State.

In reviewing the assumptions that underpin electricity sector planning, CRU have applied the ACER methodology with a view to determining what the appropriate Reliability Standard should be to enable Ireland's secure transition. The Minister has subsequently arrived at a decision to implement a tighter Reliability Standard for Ireland. This decision is informed by:

- An assessment of the criticality of an electricity-led transition in Ireland which will increase the dependence of other sectors of the economy on capacity in the electricity sector.
- The analysis completed by McCarthy in assessing the causes of the capacity crisis which highlights the recent impact of applying an eight-hour reliability standard.
- A recommendation from CRU to tighten the reliability standard beyond the figure arising from the ACER methodology, and supported by Transmission System Operator EirGrid.
- A multi-factoral assessment of the national "value of lost-load"[26] informed not only by the ACER methodology and the surveys conducted in 2022 but also considering the known investment authorised by the Oireachtas to implement short-term, emergency mitigations in response to the capacity crisis.
- Cognisant of cost of living, an assessment of the incremental costs to consumers that might arise in future auctions if capacity is procured to reach a tighter reliability standard which CRU have estimated to be low and sustainable (depending on final standard approximately €2 or lower per annum per average household bill).
- The importance strategically of bringing Ireland in line with the European risk-appetite which is substantially lower than that previously adopted by Ireland and averages at a three-hour reliability standard.

[26] The Value of Lost Load (VOLL) is an indicator expressing the value that customers place on electricity through how much they would pay to avoid a loss of electricity supply.



These factors when weighed together point to utilising a tighter Reliability Standard which reduces the risk profile of Ireland. The Department is now engaging with the SEM-C and the European Commission to take steps to implement this and update Ireland's State Aid framework. This will complement the work Ireland will progress in tandem as part of implementing the new National Resource Adequacy Assessment (NRAA) – see Action 22 – which will also bring greater European consistency.

Action 10: To implement consenting reforms and align to planning reforms to provide greater certainty to the sector

Planning system reform and ensuring that all elements of the planning system are aligned and resourced to fully support accelerated renewable energy development were common themes raised by stakeholders to the public consultation on the Review of Electricity and Gas Security of Supply. The prioritisation of energy infrastructure, like grid strengthening and dispatchable capacity for security of supply purposes, was also highlighted. Planning was also a key theme in the McCarthy Review of the Security of Electricity Supply.

Ensuring prioritisation of renewable projects is in line with the requirements of the recast Renewable Energy Directive and the European Commission's REPowerEU action statement. The Commission has also called on Member States to ensure that renewable energy generation projects and associated infrastructure (for example grid) are considered in the overriding public interest, and the interest of public safety, which Ireland fully supports as expressed in the NESF.

During the past two years, there has been considerable focus on ensuring the appropriate legal and policy framework to support the delivery of Government strategies including the Climate Action Plan, the National Development Plan and respond to the urgency required to deal with the energy crisis. This response has had a particular focus on activating potential offshore wind development to meet the 2030 targets. Similarly, there is considerable supporting work required to deliver the designation and management of Marine Protected Areas, Special Areas of Conservation and Special Protection Areas (both onshore and offshore) and the associated underpinning conservation plans, all to be completed on a prioritised basis, as well as the necessary guidance and regulations.

This will require significant additional and appropriate resources across the planning system, at An Bord Pleanála and Local Authority level, and the network of related agencies (such as the MARA, the EPA, the NPWS) to ensure that not only do they have the level of personnel required to support the climate transition, but also the range of skills required to support appropriate and robust plan-making and decision-making across the system.

The Department of Housing, Local Government and Heritage is undertaking a review and consolidation of the Planning and Development Act 2000. The main focus of the review has been putting plan-making at the centre of the planning system and bringing greater clarity, consistency and certainty to how planning decisions are made. It is intended to make the planning system more coherent and user-friendly for the public and planning practitioners. Public participation, which is a hallmark of the current planning system, will remain a central component. These changes will enable appropriate development to be planned and executed with a degree of confidence and certainty about how and when a planning consent decision will be made. In order to support the overarching goals of this review, it is essential that the planning service is properly resourced to allow for a fully functioning planning process – this was also identified in the NESF as critical in the roll-out of renewable electricity.

In January 2023, the Department of Housing, Local Government and Heritage published a draft of the Planning and Development Bill 2022, which is expected to be finalised by the end of 2023. If introduced as proposed, there are a range of changes in this legislation which will support and enhance the delivery of energy infrastructure including:

- Strengthening the link between national and local planning policy, including specific requirements for strategic priorities for energy infrastructure at national and regional level, and more appropriately incorporating climate action obligations.
- Strengthened legal status for Ministerial guidelines, which will include guidelines for renewable energy infrastructure and are to be approved by Government. Ministerial guidelines and policy directives will be upgraded to 'National Planning Statements' and will include 'National Planning Policies and Measures' and 'National Planning Policy Guidance'. These will be approved by Government. Alignment of all other planning documents with these will be mandatory whilst the guidance will be discretionary.
- Statutory mandatory timelines for all consent processes, including An Bord Pleanála (ABP) decisions, to bring certainty to the planning consent process.
- A re-structuring of An Bord Pleanála (to be re-named An Coimisiún Pleanála) to separate operational governance and decision-making functions and free up the Planning Commissioners to make decisions in line with the new timelines.
- Changes to processes around Judicial Reviews (JR) of planning decisions to introduce timelines for various steps in the processes. A cost protection scheme will also be introduced to afford applicants for review a greater degree of certainty about their own costs before taking a JR.
- Increased clarity on the scope and role of environmental assessments and their relationship with the plan making and consenting process. This will bring a greater degree of certainty to the decision-making process and align with recent developments in case law.

Environmental licences and authorisations are a requirement for many economic, industrial and waste activities, including power generation involving thermal combustion. DECC is **developing legislation which will seek to streamline the environmental licensing regime operated by the EPA**. A statutorily binding timeframe of 26 weeks is being proposed for the issuing of decisions on licences and consents in a number of areas, including Industrial Emissions licences required for the combustion of fuels in installations with a total rated thermal input of 50 MW or more.

Meeting the objective of issuing licence decisions within 26 weeks will require a significant change to the legislation governing licensing as set out in the Environmental Protection Agency Act 1992 and associated regulations; and a significant increase in resources for the Agency.

The goal of the proposed legislation is to benefit the environment and the economy. Environmental permitting is a key instrument for reducing industry's environmental impacts, facilitating its compliance with environmental requirements and promoting technological innovation. Ensuring shorter and binding timeframes for licence decisions will bring many environmental and economic benefits. In terms of the energy generation projects required for the transition of our energy system in line with our climate ceilings, it would hugely assist the State's energy security of supply.



Action 11: To ensure a fit-for-purpose electricity grid that supports Ireland's energy and climate ambition

Arguably, the most important component of our electricity infrastructure is our electricity grid and network. It is essential to energy security that all new electricity generation, both renewable and conventional, is able to connect to the electricity grid as soon as the generation is available. This requires an efficient system for allocating and delivering these connections at both Transmission System and Distribution System levels. In parallel, the grid reinforcement developments necessary to transfer electricity are constructed and brought online efficiently.

It is also crucial that industry have long-term clarity over grid connections policy. In 2023 the Commission on Regulation of Utilities (CRU) worked with sector stakeholders to develop a replacement for the **Enduring Connection Policy** for electricity generation. The CRU is also working on facilitating **hybrid projects** allowing for the sharing of a single connection point on a site by multiple legal entities, with this work to also be completed in 2023. The CRU, in conjunction with System Operators also plan to launch a pilot project for **renewable hubs** in Q4 2023. Renewable hubs will see the anticipatory building of substations based upon the known pipeline of renewable projects.

Extensive reinforcement and expansion of the whole electricity transmission and distribution network will be critical to meeting our objective to decarbonise the economy through greater

electrification. EirGrid has identified over 350 grid reinforcement projects which would be needed by 2030 to meet our ambitious renewable targets, and to increase energy security with growing demand on the grid, and this includes projects identified as part of the recently published **'Shaping our Electricity Future Roadmap Version 1.1.'** A whole of system approach will be required across project conception, project initiation, consenting and delivery in order to provide the networks which will reduce constraints and costs to consumers and allow for rapid decarbonisation. CRU are currently engaged in a review, with EirGrid and ESB Networks, of how the pace of delivery of grid can be accelerated in order to facilitate our low carbon transition.

The European Commission's proposal for a Regulation on establishing a framework of measures for strengthening Europe's carbon neutral technology products manufacturing ecosystem, otherwise known as the carbon neutral Industry Act (NZIA), is designed to support the scaling up of the EU's carbon neutral manufacturing capacities and products. It aims to create a regulatory environment which will assist the achievement of Europe's climate neutrality goals, create green jobs and maintain the EU's competitiveness. It will support deployment of eight strategic carbon neutral technologies:

1. Solar photovoltaic and solar thermal technologies.
2. Onshore wind and offshore renewable technologies.
3. Batteries/storage technologies.
4. Heat pumps and geothermal energy technologies.
5. Electrolysers and fuel cells.
6. Sustainable biogas/biomethane technologies.
7. Carbon capture and storage (CCS) technologies.
8. Grid technologies.

Harnessing the opportunity of this framework nationally could be a key enabler of the accelerated implementation of grid development specifically and energy projects more generally.

Action 12: To accelerate delivery of power system flexibility

Embedding flexibility in the power system can change how Ireland utilises conventional capacity and contribute to a secure transition. Ireland has seen tremendous progress in terms of the deployment of electricity storage in Ireland. In Winter 2022, on a low wind day the available battery power was linked ('daisy-chaining') and utilised for 90 minutes at peak hours to avoid an alert on the power system – this provides significant proof of concept for the role for storage as one of several interventions that can support energy security into the future.

Several strands of work can further enable this:

- The **implementation of recently published 'Shaping Our Electricity Future 1.1**', EirGrid's update of its plans for grid development and reinforcement.
- The development of a new **Electricity Storage Policy Framework** by DECC, in early 2024. This policy, once published, will further support the deployment of electricity storage in Ireland. The System Operators are investigating ways to add grid connected storage in advance of the final policy.
- The introduction of a framework for the **competitive procurement of system services** to replace regulated tariffs.
- The procurement and utilisation of longer-term and **pre-day ahead system services** as provided for by SEM-22-012[27].
- The procurement of **low carbon inertia services**, expected for the first time in 2023.

Moreover, the **Accelerating Renewables Taskforce** will provide critical leadership to advance implementation of these and related initiatives.

[27] System Services Future Arrangements High Level Design Decision Paper.pdf (semcommittee.com)

Action 13: To successfully complete and integrate additional electricity interconnections

Ireland is geographically isolated with limited interconnection to its European neighbours. Ireland's interconnection capacity currently stands at 500 MW in a single connection to Great Britain. Facilitated by the 2018 policy statement on interconnection, capacity is set to more than treble in the coming years to 1,700 MW including the first post Brexit direct connection to the EU, the 700MW Celtic Interconnector with France. More connectivity will be needed to realise Ireland's energy ambitions and increase its energy security.

Increased interconnection helps balance electricity supply and demand between countries and provide a valuable backup power supply for when the Irish electricity system has reduced capacity. This would allow for increased imports in the case of an adverse shock such as extreme weather or the failure of a major power plant. The role of interconnection will increase in importance as more variable renewables are developed and come onto the Irish system.

In addition to benefits for Energy Security, Ireland's offshore energy potential makes it central to Europe's shared energy future. Increased connectivity is a key enabler of realising Ireland's energy ambition as it transitions to a net energy exporter.

Ireland's new **Electricity Interconnection Policy** was updated in 2023 in line with the Climate Action Plan 2023 and has committed to:

- Increasing Ireland's electricity interconnection capacity.
- Maintaining the existing approach to interconnection pending the transition to a more structured forward planning approach aligned with renewable energy development and strategic need.
- Specifically supporting a further connection to Great Britain by 2030 beyond the completion of the Greenlink interconnector.
- Establishing further interconnection needs with specific consideration to be given to a further project with France beyond Celtic, a connection to Spain, a further connection to Great Britain beyond 2030 and a connection to Belgium or the Netherlands.
- Developing an Offshore Transmission Strategy and exploring the potential for multipurpose interconnectors in order to maximise export opportunities and facilitate ORE development.
- Further exploring the potential for multipurpose or hybrid interconnectors to maximise export opportunities and reduce development intensity.

The **Offshore Transmission Strategy**, set out in the policy statement, will be published in Q1 2024. This strategy will set out the optimal amount of interconnection to be delivered and will take an integrated forward planning approach with regard to grid and offshore renewable energy development.

The Gas Sector

Ireland imports approximately three quarters of its gas from the UK and this is expected to increase as indigenous supply from the Corrib gas field declines. Demand for gas is expected to temporarily increase in the coming years as Ireland ceases its use of coal and peat for power generation. The peak day demand for gas is expected to rise, as gas plays a back-up role to an electricity system with increased demand, dominated by variable renewable generation. As increased renewables are brought onto the grid, late in the decade and through the next decade, overall gas demand is expected to fall again.

The technical analysis shows that the existing infrastructure and supply sources are largely able to meet Ireland's gas demand requirements in the medium- to long-term. It also shows, however, that a disruption of gas supplies from the UK, for whatever reason, would have a very significant impact on Ireland's economic and social well-being.

This Package contains a range of measures to establish security of supply in a future Ireland with significantly reduced gas demand and increased supply of renewable gases. It also includes measures to secure our natural gas supplies as we make that transition. The Package is supported by an Annex "Securing Ireland's Gas Supplies", which sets out in more detail the long-term approach to secure our gas security of supply, in addition to assessing the current risks presented, the potential mitigation measures to address them and a recommended policy approach.

In considering future changes to Ireland's natural gas demand, supply and infrastructure it lends itself towards a two-part approach with 'permanent' and 'temporary' measures required to address risks to unmet demand should a disruption to supplies occur. 'Permanent' measures, consistent with developing an integrated carbon neutral energy system will take longer to develop and implement to full effect. These, however, will ultimately ensure the long-term security of Ireland's energy system and needs. All policy measures will be implemented concurrently to support Ireland's immediate and future energy security requirements, effectively closing any gap in risks to unmet demand. The long-term approach to securing Ireland's gas supplies will:

- Close the gap: decreasing the demand for natural gas, both average and peak and increasing the production of renewable gas.
- Develop long-term gas storage solutions which can store renewable gas, in particular hydrogen.
- Ensure a fit-for-purpose gas grid, that supports Ireland's energy and climate ambition.

In the intervening period, it is proposed to introduce temporary measure to address any unmet demand should a significant disruption occur to Ireland's largest gas infrastructure and ensure Ireland complies with EU legislative requirements on gas security of supply.

Action 14: To finalise studies to inform the development of long-term gas storage solutions which can store renewable gas, in particular hydrogen

Gas storage is used as a means of providing security of supply in many countries as it delivers an additional reserve of gas to meet occasions when there is strong demand or supply disruptions. Ireland currently has no operating gas storage facilities. By **establishing large scale renewable compatible gas storage, it can offer an enduring solution to satisfy security of supply to Ireland's energy system**. The South-West Kinsale (SWK) reservoir, a satellite of the Kinsale gas field has previously been used for seasonal storage and could potentially offer a solution for renewable compatible gas storage. Other emerging geological storage solutions also offer potential as large energy storage mechanisms. These include salt caverns, lined rock formations or in the form of hydrogen derivatives. Work is already underway on assessing the hydrogen storage potential within manmade salt caverns off the coast of Ireland as part of the National Hydrogen Strategy.

The storage capacity of the SWK reservoir could most likely be increased from the previous levels used and offer effective security measure when gas demand has dropped, and significantly greater levels of renewable gas are available replacing the temporary measure envisaged. At the outset, it is important to understand the reservoir's potential capacity and compatibility to store hydrogen and natural gas (including biomethane), so an investment is not made in permanent

infrastructure, which is not future-proofed. **Research will be carried out, led by Geological Survey Ireland, and involving engagement with industry and interested parties on potential sites for hydrogen storage, including consideration of the Kinsale gas fields future capacity**. This will complement the suite of actions set out in the National Hydrogen Strategy.

Action 15: To secure the existing onshore 'inch gas pipeline' for wider strategic uses

Kinsale gas field ceased production in July 2020 and the operator of the gas field, PSE Kinsale Energy Ltd., are now in the final stages of decommissioning the gas fields infrastructure. There is an onshore pipeline which connects the shoreline to the national gas transmission system (1.20km in length), referred to as the 'Inch pipeline' which is proposed to be decommissioned as part of the project. However, **recognising the potential strategic value of this pipeline, as it can be difficult to build infrastructure connecting to the shoreline, it is proposed to facilitate its transfer from the current owner to GNI**. This will allow this infrastructure to potentially be used in future for a variety of purposes, such as hydrogen production or storage or for telecommunication cables. This is considered a no-regrets option. The offshore pipeline will be decommissioned as planned.

Action 16: To ensure a fit-for-purpose gas grid, that supports Ireland's energy and climate ambition

To support Ireland's objective towards a renewables-led energy system, it is proposed to undertake a Network Transition Plan for Ireland's natural gas network to determine and support its long-term planning, usage and investment requirements in view of our energy system in line with our sectoral emissions ceilings. It will consider how such infrastructure can be used to transport zero carbon generation in the future and determine the long-term infrastructure investments needed to support this. In contrast to electricity, the role of natural gas will decrease so the review will look to identify where the gas network can be repurposed, or decommissioned, promoting cost effective energy system integration where possible in achieving our decarbonisation and security objectives. To kick-off this project, **GNI having consulted with CRU and with agreement from the Department, are requested to develop a series of scenarios on the future role of the gas network**, as an initial step to support the delivery of a network transition plan as proposed under the National Hydrogen Strategy.

Action 17: To create a Strategic Gas Emergency Reserve to protect Ireland in the event of a gas supply disruption as Ireland makes a secure transition to majority renewable energy

The analysis shows that Ireland needs to enhance its resilience in the event of a disruption to the country's natural gas supplies. A disruption to Ireland's supplies of gas is considered to be an unlikely, but high impact event. Without implementing new additional resilience measures, a disruption would lead to unacceptably high economic and social costs. Action 17 seeks to address this through implementation of a Strategic Gas Emergency Reserve. In line with the Government decision to develop a state-led Strategic Gas Emergency Reserve, and as a final part of the review of Ireland's energy security, the Department of Environment, Climate and Communications, in consultation with the gas transmission system operator (GNI), will complete a detailed examination of the optimal approach to deliver the emergency gas reserve. The Minister will return to Government for a final decision in Q2 of 2024. State-led means commissioned by the State via GNI within a regulatory framework overseen by CRU. This does not preclude a public-private partnership nor the involvement of private firms contracted to provide, build, or operate the necessary infrastructure.

The analysis also shows that this is required to minimise risks to Ireland, but only as a transitional measure. Gas will play a key role to support the secure transition to an energy system based on electrification and greatly increased renewables penetration. Currently, 30% of Ireland's primary energy needs are met from gas of which 40% is used for heating and almost 50% for electricity generation. A quarter of Ireland's gas supplies come from indigenous sources. However, output from the Corrib gas field, Ireland's remaining indigenous natural gas supply, is projected to decline over the course of this decade. The remainder of Ireland's gas supply comes from two subsea interconnectors from Great Britain. Overall gas demand is forecast to reduce between 2021/22 and 2030/31. However, peak day demand is predicted to grow as natural gas will play a greater role in electricity during the transition to a renewables-led system particularly, to support the grid in times of low renewable output. By 2030, as Ireland continues its transition to renewable gases and renewable energy, Ireland's natural gas supplies are expected to be almost entirely supplied by UK imports. Should there be an interruption to gas supply from Ireland's largest gas infrastructure (one of the subsea interconnectors from Great Britain) on a day of peak gas demand due to low availability of renewable sources, there is potential for up to 35% of gas demand being unmet.

Reducing gas demand and increasing renewable gas production will reduce Ireland's risk significantly, but the risks are expected to remain for at least a decade. The existing policy on natural gas is not adequate to address these risks - as set out in detail in the Annex to this report "Securing Ireland's Gas Supplies".

Ireland's energy security will be significantly improved and risks greatly reduced if Ireland implements measures to meet the EU N-1 infrastructure standard[28]. This action will enable the implementation of **a Strategic Gas Emergency Reserve on a transitional basis** for use in the event of a disruption to gas supplies. This is a similar approach to the energy security measure in place for Oil Security, through NORA. It will also act as a bridge to **Action 14 for Ireland's long-term strategy to develop and maintain greater gas security and resilience**.

The Department will engage with GNI as the independent Gas Transmission System Operator (TSO) to prepare a detailed proposal to introduce a reserve on this basis in line with criteria and requirements determined by the Department which will include:

- A proposal which can be implemented quickly
- A proposal which does not inadvertently increase gas demand by increasing the supply available on the market
- A cost-effective proposal at the appropriate scale which provides sufficient resilience if a disruption to gas supply occurs
- A proposal which is compatible with the Climate Action and Low Carbon Development Act 2015-2021.

Based on preliminary analysis of the Department, it is anticipated that a floating reserve (FSRU) will best meet these criteria, a solution preferred by a range of EU Member States. However, **this will be examined in detail by GNI with a substantive proposal by Q2 2024**. The optimum solution to deliver this strategic reserve project will be subject to final approval by Government.

The Department will also continue to liaise with CRU and the European Commission to ensure appropriate regulatory compliance.

[28] Regulation (EU) 2017/1938 sets out key security of supply standards including N-1 infrastructure standard which requires that EU Member States should be capable of meeting exceptionally high gas demand in the event of a loss of the single largest gas infrastructure. The criteria under the N-1 assessment requires that the technical capacity of the remaining infrastructure must satisfy gas demand during a day of exceptionally high gas demand occurring within a statistical probability of once in 20 years.

The Origins and Evolution of NORA (National Oil Reserves Agency) – the Agency tasked with the Acquisition, Financing & Managing of the State's Strategic Reserves of Oil

- NORA was established in 1995 as part of an EU-wide initiative at that time for each Member State to build up a strategic reserve equivalent to 90 days of consumption for use in an emergency.
- Initially the Agency was a subsidiary of INPC (Irish National Petroleum Corporation) which was the State's vehicle for ownership of Whitegate refinery.
- Government later deemed that NORA should be established on a statutory, stand-alone basis and this was done in the NORA Act of 2007.
- From 1995 to 2007, NORA met its obligation though a relatively even split between a combination of owning physical stocks and holding *compulsory stock options*. These options provided the Agency with the right to purchase oil from third parties but were only exercisable in the event of a declared emergency.
- NORA is currently in possession of stocks with a value of approximately €1bn and has annual storage costs that are approximately €40m per annum. From time-to-time NORA does have to replenish its reserves as oil quality can deteriorate over time. As a consequence, it effectively trades some stock in the course of the year and reports the profit/loss on such trades in the annual accounts.
- NORA's stock broadly matches the profile of oil products in use in the market (petrol, diesel, kerosene etc.) Approximately 72% of the Agency's stock is held on the island of Ireland with the remainder held at sites in the EU.

The Oil Sector

Ireland is a member of both the EU and the IEA and therefore has commitments to keep strategic oil stocks. The EU Directive 2009/119 obliges Member States to maintain minimum oil stocks corresponding to at least a 90-day supply. The Directive also requires Member States to have procedures in place to release emergency stocks, quickly, effectively and transparently in the event of a major supply disruption and to allocate product to certain users on a priority basis. Member States must also have contingency plans that can be implemented in the event of a major supply disruption. The IEA's International Energy Programme (the treaty that IEA members sign on becoming members) requires member countries to also hold at least a 90-day supply and have a programme of oil demand restraint measures in place, enabling it to reduce its rate of oil consumption in an oil emergency. NORA is responsible for managing Ireland's oil stocks, on behalf of the Minister for Environment, Climate and Communications.

Action 18: To strengthen the supply chain of secondary fuels for gas-fired power generation

The CRU issued a decision paper on Secondary Fuel Obligations on Licensed Generation Capacity in the Republic of Ireland in 2009 that required gas generators with a capacity greater than 10 MW to have the capability of running on a secondary fuel, and to hold set quantities of fuel stocks. Secondary fuels are an important tool to mitigate against the impact of supply shocks on electricity customers. If there is a gas supply shock, then secondary fuels can be employed to continue generating electricity so that electricity customers are unaffected or that any effects are reduced. The storage available for the secondary fuelling measure will not on its own address a

longer-term gas supply shock. The technical analysis considered increased secondary fuel storage as a mitigation option and found that it provides relatively high additional capacity that is readily deployable compared to some of the other mitigation options.

Exercise Dara in September 2022, which simulated a joint oil/gas/electricity emergency, confirmed the importance of oil as a back-up fuel in maintaining power generation during a prolonged gas emergency. To provide for this contingency, EirGrid is collaborating with NORA and DECC to produce a **plan for an Agreed Approach to Re-Supplying Fuel to Power Generation sites through the leveraging of NORA's strategic reserves**. There are two elements to this workstream:

- EirGrid's identification of priority sites for Re-Supply, which will be largely dependent on the nature of the gas emergency and the conditions or constraints that may apply at that time. The capability of sites to switch to fuel, the duration for which they can operate and the associated efficiencies in terms of the overall grid are relevant here. This may also highlight immediate priorities for investment at certain sites in the context of robust emergency planning.
- The logistics of moving strategic reserves from NORA sites to the identified power generation sites in an emergency. This requires the assistance of the oil industry, consequently DECC has engaged with Fuels for Ireland, the oil industry representative body, to ensure the necessary logistical capacity can be provided and to help model the scale of oil movements that may be required depending on the level of gas disruption.

For a longer-term view of oil as a secondary fuel, **an assessment will be carried out to consider whether further enhancements can be made to strengthen the secondary fuelling capability in Ireland**, whether through additional infrastructure or further enhancements to operational arrangements. The assessment will consider the environmental, safety, economic and technical aspects of increasing secondary fuels for power generation and will take into account the role of biofuels. This assessment will involve engagement with industry on the opportunities and potential impacts of increased secondary fuel capability.

Action 19: To resolve long-term sourcing issues for improved oil security

Ireland relies heavily on imports to meet its oil requirements as it does not produce crude oil and is a net-importer of refined products. However, Ireland does have one oil refinery which meets around 35% of annual demand. The oil refinery, which is in private ownership, is located at Whitegate in Cork and has a production capacity of 75,000 barrels per day. In 2011, the Government carried out a study on the role of the refinery for security of oil supply and found that the refinery provides additional flexibility to security of oil product supply. However, the study also noted that a domestic refinery is not necessary for the secure and stable supply of petroleum products to Ireland.

In light of the war in Ukraine and the subsequent ban on Russian oil imports into the EU, oil security of supply became a real concern for Member States during 2022 and these fears were reflected in price volatility. Global flows of oil appeared to have adjusted on foot of the consequences of the conflict in Ukraine and this has led to a more stable supply outlook. However, the presence of a refinery in the State does, to some extent, lessen a potential supply risk in the event that conflict continues or escalates.

Aside from the geo-political factors that can impact both the pricing and supply of oil, it is clear that the oil industry is undergoing a radical change as globally there is a push for more sustainable energy sources reflected in climate targets.

Given the above, the Department is **commissioning a refresh of the 2011 Study** taking account of ongoing developments with respect to the importance of maintaining a security of supply but with an acknowledgement that the sector is undergoing radical change with a renewed emphasis on activity that is aligned with delivery of Ireland's climate targets, e.g., biofuels. The scope for the sector to pivot in a manner that can assist climate policies will be explored in this Study. While the refinery is privately owned, any substantive commercial decision in the future may have significant policy implications and it is appropriate that DECC gives this careful consideration in advance of any such eventuality. While many small refineries across the EU have closed in recent years, others have pivoted to more sustainable activity such as more intensive involvement in biofuels, or forged links with new offshore developments, or the sites on which refineries have been located have essentially become import terminals. The Study will look at the experience in other jurisdictions. The Study is timely given that the Canada-based owners of Whitegate Refinery announced in June a strategic review of their global assets.

Resilient Systems key actions	
Existing Policy Initiatives	• Electricity Security of Supply Programme led by CRU. • Operational collaboration with EU and UK. • Adaptation plans for energy infrastructure. • Developing district heating sector and networks. • National Security initiatives. • Hydrogen Strategy. • Biomethane Strategy. • Interconnection Policy.
Additional Measures Electricity	• To complete implementation of the CRU Security of Electricity Supply Programme. • To increase resilience by implementing an updated, risk-based, evidence-based reliability standard in the electricity sector. • To implement Planning and Consenting System Reforms and provide greater certainty to the sector. • To ensure a fit-for-purpose electricity grid that supports Ireland's energy and climate ambition. • To accelerate delivery of power system flexibility. • To successfully complete and integrate additional Electricity Interconnections.
Additional Measures Gas	• To finalise studies to inform the development of long-term gas storage solutions that can store renewable gas, in particular hydrogen. • To secure the existing onshore 'inch gas pipeline' for wider strategic uses. • To implement State-led Temporary Gas Security of Supply Mitigation • To create a Strategic Gas Emergency Reserve to protect Ireland in the event of a gas supply disruption as Ireland makes a secure transition to majority renewable energy.
Additional Measures Oil	• To assess long-term sourcing issues regarding oil security. • To strengthen supply chain of secondary fuels for gas-fired power generation.

Robust Risk Governance

Why is this important?

As described in Section 1, the 'known' challenges and risks as Ireland transitions to a renewable energy system are immense. Added to this, there is a persistent threat of future 'unknown' challenges materialising. This necessitates best-in-class risk awareness and risk management.

There is no perfect way to anticipate the future. However, good data and foresight, scenario planning and scrutiny of our assumptions can play a key role when underpinned by a strong accountability framework. As we see regularly across different sectors getting this mix of measures right can lay a foundation for early warning, risk mitigation and action. The converse is also true.

The analysis underpinning this report suggests that a robust energy governance model which is focussed on delivery and implementation is the key to the successful transition to meet our sectoral emissions ceilings. The areas for action identified in this section aim to enhance and strengthen the existing framework. This will be an area under regular review as we manage a secure energy transition.

Particular focus is given in this section to the Electricity Sector. It is vitally important that Ireland learns and applies the lessons of the recent capacity gap and the mitigations that have been required to close this gap. The McCarthy Review is instructive in how Ireland can act in response to recent events and the conclusions of the review form the basis of several of the actions in this section of the report.

What are we already doing?

A strong governance framework is already in place in the energy sector in Ireland. It is based on:

- Independent regulation.
- Open competition and market-led approaches.
- Market monitoring and transparency.
- Research, evidence and public participation mechanisms.
- Compliance with the Code of Practice for the Governance of State Bodies.
- Established emergency preparedness, protocols and procedures.
- Cyber security risk management processes backed by statutory powers, and NCSC risk assessment and threat intelligence provision.
- Ministerial and Government approval of policy and oversight of delivery.
- Parliamentary debate and scrutiny.

Significant progress has been made in terms of enhancing risk governance in recent years. Ireland holds regular **emergency exercises** and preparedness exercises and has well tested emergency plans in place for electricity, gas and oil emergencies and this package sets out measures to build on these. The electricity and gas Transmission System Operators carry out **annual forecasting** exercises where they set out supply and demand assessments for the next ten years. This is a key measure in terms of anticipating risks in the sectors and procuring future capacity.

The National Cyber Security Centre (NCSC) is the competent authority **overseeing cyber security in the energy sector. The National Cyber Security Strategy 2019-2024**, published in 2019, is a five-year whole-of-Government strategy aimed at enhancing the security and resilience of government systems and critical national infrastructure[29]. Under the strategy, a National Cyber Risk Assessment was performed to identify systemic risks to critical national infrastructure and services, including the energy sector.

The Cyber Risk Assessment made three recommendations to Government: to establish a central register of essential service providers, to strengthen legislative provisions to ensure implementation of cyber risk mitigation measures, and to develop a framework to manage strategic supply chain dependency risks for critical and sensitive services. These recommendations will be implemented through the **Mid-Term Review of the National Cyber Security Strategy** published in June 2023[30].

The NCSC has also put in place a **National Cyber Emergency Plan (NCEP)** to ensure the State mounts a coordinated and effective response to a national cyber emergency and that key stakeholders understand their roles and responsibilities during a national cyber emergency. The NCSC organised an exercise on 23rd November 2022 to test the NCEP. The exercise simulated a cyber-attack on the energy sector and included participants from across government, State agencies and the energy industry[31].

At EU level, the **Network and Information Security Directive** (EU 2016/2248) created a regulatory framework for cyber security risk management in critical infrastructure including energy, specifically supply and transmission of electricity, gas, and oil. The NCSC acts as National Competent Authority for the Directive and its NIS Compliance Team engages closely with designated Operators of Essential Services in the energy sectors including carrying out security assessments to monitor compliance and identify remedial actions. The European regulatory framework will be expanded significantly by the revised **Network and Information Security Directive (NIS 2)** (EU 2022/2555) and **the Critical Entities' Resilience (CER) Directive (EU 2022/2557)** which address cyber and physical security risk management in critical infrastructure.

The EU is developing new legislative measures to support operators of critical infrastructure in the energy sector to mitigate cyber threats to their systems which will impact on energy systems. The development of an EU cyber security certification framework for is ongoing and will assist in procuring ICT products, services and processes. The **Cyber Resilience Act** proposal also represents a significant step to shift the balance of cyber security risks in ICT products from the end-user to the supplier, requiring them to provide greater support for end-users including disclosure and patching of exploited vulnerabilities. And the proposed **Cyber Solidarity Act** includes new structures to enhance the resilience of vital services to cyber threats at national and Union-levels, including the Cyber Emergency Mechanism and EU Cyber Reserve.

In terms of anticipating and responding to issues in energy policy, following an external review, DECC has **significantly expanded its energy function**. This expansion included the creation of an Assistant Secretary focused on Energy Security for the first time. Staffing at all levels and in a range of expert areas has increased in the organisation and is mirrored in energy agencies and bodies. The actions in this section seek to build on these developments.

[29] gov.ie - National Cyber Security Strategy (www.gov.ie)

[30] Gov.ie – Mid-Term Review

[31] National Cyber Security Centre conducts successful emergency exercise simulating cyberattack on the energy sector

In the electricity sector, the SEM-Committee published a review of the Capacity Remuneration Market[32] for electricity in 2022 and are in the process of implementing actions to improve and strengthen this important part of the energy system. The rate and breadth of the decisions taken by SEM-C in 2022 and 2023 illustrate the commitment to continuously improving market processes in Ireland. For example, the SEMC are in the process of establishing a panel of technical experts to increase transparency and provide independent advice to the SEMC on its volume setting process for auctions.



In considering the electricity sector, the McCarthy Review identifies an optimism-bias in energy policy broadly which has led to systemic under-estimation of risk. The conclusions suggest the need to take action in a number of governance related areas:

- Strengthening the policy and accountability framework.
- Expanding resources and capability in key areas to enable policy and project delivery.
- Updating the core assumptions that underpin energy sector planning.

This section responds to this analysis and the wider analysis of the Review of Energy Security and consultation responses to ensure that all efforts are made to learn from the recent experience in the electricity sector and apply that learning to our approach to securely transitioning to a majority renewable power system. Moreover, the analysis underpinning this energy security package demonstrates that many of McCarthy's findings in relation to risk governance in the electricity sector are applicable to the energy sector as a whole.

Measures for the mitigation of risks to energy infrastructure in other domains, including sub sea infrastructure, are in train through other processes, including the work of the Department of Defence in implementing the report of the **Commission on the Defence Forces**. The State has also recently joined the Hybrid Centre of Excellence, based in Helsinki, and is working with that centre to ensure that national measures to deal with hybrid type issues evolve as appropriate.

[32] https://www.semcommittee.com/news-centre/call-comments-ey-review-performance-sem-capacity-remuneration-mechanism

What does the Package propose?

Anchored in what already works well, this Package seeks to:

- Enhance the response mechanisms currently in place to address energy supply disruptions, strengthening system accountability and improving information channels.
- Advance specific measures that apply learning from the electricity sector to strengthen the energy policy governance framework and approach.

Action 20: To expand the energy expertise and capacity available to Government and representing Ireland Internationally

Since 2017, the Government has significantly scaled up its ambitions in energy and climate by setting legally binding ceilings for emissions in 2022 and substantially increasing the planned expansion of renewables. This has resulted in a significant expansion of functions in DECC. The McCarthy Review highlights this challenge, affirming the importance of DECC continuing to expand its capacity to match the growing scale of policy complexity in the energy sector.

Since 2021 and the completion of a Mazars review into the organisational structure of the Energy divisions, the Department has scaled-up rapidly to meet the demands of its significant portfolio of work. In line with the recommendations from this review and given the priority and urgency attaching to national energy requirements, DECC increased its Energy Areas from one to three, with each area being led by an Assistant Secretary. The number of energy Principal Officers increased from eight to fourteen and the number of Assistant Principal Officers increased from twenty-three to thirty-four. Overall, in Energy, DECC has increased its total headcount from 62 at the end of 2021, to 131 by the end of July 2023, an increase of 111%.

However, there remains a case for DECC to continue to develop its technical capacity, both internally and through external advisory resources. In addition to the expansion of the Energy area, DECC is creating a new Division and position of **Chief Technical Advisor in Energy** to ensure the provision of energy technical advice. **Similarly, DECC launched a specialist entry graduate scheme** this year which generated significant volumes of applications. Consideration will be given to how to build on the success of this initiative. In 2023, DECC will significantly invest in senior presence in Brussels through the creation of a new **Counsellor (Principal Officer) assignment to Brussels** and will continue to look at options to increase participation in relevant European agencies, organisations and projects as well as strengthening links to the UK. Moreover, DECC has ongoing **external partnerships** to support its work, including with the ESRI, SEAI, and UCC.

Evidence underpinning the Energy Security Package points to the need to significantly expand the analytical functions in DECC. A priority development is **the expansion of energy system modelling**. A stronger analytical function can improve policy foresight while also strengthening the evidence base for policy decision making. This is important in the context of increasing complexity of achieving a secure transition to renewable energy. This action is directly supported by McCarthy's analysis.

Action 21: To regularly review the scope, functions and resourcing of the delivery organisations that are driving the energy transition

This growth in departmental functions is mirrored in the expansion of delivery organisations that work with DECC on energy, such as the SEAI, the EPA, An Bord Pleanála, the Commission for the Regulation of Utilities (CRU) and EirGrid. The McCarthy Review also highlights the

importance of this and DECC continues to work with its key agencies to ensure that they are appropriately resourced. For example, in 2022, it sanctioned 74 new posts in the regulator in consultation with DPENDR which represents an increase of 61%. EirGrid will also need to keep its resourcing under review over the next few years in the context of the significant energy transition and to deliver on its core remit, and the Department will monitor its progress. The SEAI has also recently undertaken an organisational review and has restructured to align with emerging priorities.

In the same way the Department and SEAI have reviewed both the resources and structures required to support a secure transition, it will be important for energy agencies and bodies to review and scrutinise these aspects of their organisations. In line with the McCarthy conclusions to review the architecture of the electricity system, the Minister for the Environment, Climate and Communications will drive forward **time-limited external reviews** of the scope and functions of CRU in 2023 and EirGrid in 2024. The process to **review the scope and structure** of the Energy Regulator CRU will take into consideration the extensive work, and an Organisational Design Review by external consultants, that CRU have carried out over the summer of 2023, in response to a request from the Minister and Departmental officials, to review and re-organise their organisational design and resources, which has led to a request for sanction for additional staff and consideration of the leadership structures. The review will be completed jointly with the regulator following the strong commitment of the leadership team to rapidly conclude and implement the outcomes of the review. CRU intend to utilise this process to redesign decision-making structures of the Commission in anticipation of the organisational requirements of leading a secure transition in the energy sector. Additionally, and to support this process, the Department will continue to work with DPENDR to ensure that the regulator has the flexibility to rapidly scale resources as required. In parallel, the Department will complete an examination **of the electricity regulation legislation, including Ministerial powers** to ensure this is sufficiently clear to support the accelerated delivery of a secure transition to renewable energy.

Beyond DECC and its agencies, it is evident that the energy transition will require a significant expansion in those employed in the energy workforce and will require commensurate skills. In November 2021, the Expert Group on Future Skills Needs Report[33] forecasted that in order to deliver on the CAP23 targets, employment in wind and solar energy generation will have to quickly increase to 8,000 (from a 3,000 baseline) within a number of years, and ultimately stand at 9,000 by 2030, while the workforce engaged in residential retrofit and heat pump installation will similarly have to ramp up quickly and increase more than fourfold (from c.4,000) to stand at over 17,000 by the middle of the decade. In that Report, 30 recommendations were made to ensure we can deliver on renewable energy, built environment and energy efficiency priorities, among others, out to 2030.

Action 22: To integrate the forecasting framework for the electricity and gas sectors

The increasing penetration of variable renewable energy sources requires a whole of energy system response. Through the analysis underpinning this report it is clear that our energy systems need to be better integrated, our energy infrastructure needs to more connected and flexible, and our energy system planning needs to be based on a more holistic and inclusive approach.

[33] http://www.egfsn.ie/all-publications/2021/5119-dete-egfsn-skills-for-zero-carbon-web_.pdf

Each year EirGrid and GNI are required to prepare electricity and gas supply and demand assessments for a ten-year period. These are currently prepared separately with EirGrid producing a Generation Capacity Statement (soon to transfer to the European National Resource Adequacy Assessment (NRAA) framework) and GNI preparing a Network Development Plan. These analyses are key in terms of expectation-setting for policymakers, prospective and existing generators, and sectors/industries seeking additional capacity. However, there are significant interdependencies between the gas and electricity networks. As the level of renewables and renewable gases increase in the energy system, these interdependencies will become important.

In order to strengthen the annual forecasting process, in addition to sectoral forecasts, the forecasts from the transmission and distribution network operators for gas and electricity must also be informed by a joint scenarios framework that appropriately reflects integration between energy sectors. This is also in line with the forthcoming draft EU Directive on common rules for the internal markets in renewable and natural gases and in hydrogen34. In addition, the draft Directive also sets out that the joint scenarios should be aligned with national energy and climate policy.

Another aspect to strengthen the annual forecasting framework is the intention to introduce an independent and objective technical expert group to provide greater oversight in line with Regulation (EU) (2022/869). There are examples of this type of oversight both at an EU level and in the UK, illustrating its effectiveness. In the UK, there is an independent advisory group that are appointed by government to advise on technical aspects of Electricity Market Reform. This Panel of Experts have a particular focus on providing scrutiny of the analysis in National Grid's annual Electricity Capacity Report (ECR), which provides a recommendation on the target capacity for capacity market auctions. They publish a report with their findings and recommendations on an annual basis.



[34] (COM(2021) 803) Proposal for a Directive of the European Parliament and of the Council on common rules for the internal markets in renewable and natural gases and in hydrogen. resource.html (europa.eu)

Action 23: To extend International Energy Agreements to support energy security

Ireland receives the majority of its natural gas from the UK and this reliance will increase as the Corrib gas field declines. There is close cooperation with the UK at Departmental, Regulator and Transmission System Operator level on gas emergency planning and testing. Ireland continues to work closely with the UK on energy matters and the manner in which it works has evolved following the exit of the UK from the European Union.

Gas Networks Ireland (GNI) and National Gas, which operates the gas transmission system in Great Britain, have a Joint Protocol for Load Shedding at the Moffat Interconnection Point in gas supply emergencies. This protocol sets out that, in the event of a shortage of natural gas supply in the UK which could affect supplies in Ireland, the overriding principal of proportionality will be applied. This seeks to ensure that, in the event of a disruption to gas supplies, any reductions would be on a proportional basis across the UK and Ireland.

The British and Irish Governments have agreed, and will begin to **implement a Memorandum of Understanding (MoU) to strengthen existing arrangements in the event of a gas supply shock**. The MoU details how both States will cooperate on gas security of supply and it supports the principle of natural gas supplies to Ireland and Northern Ireland being reduced equitably along with the four Distribution Network companies in Great Britain.

DECC will also continue to work collaboratively with the European Commission on the implementation of arrangements for energy security under the Trade and Cooperation Agreement between the European Union and the UK.

There is a UK and Ireland Security and Supply Gas Forum, which meets every six months. The purpose of this group is to discuss emergency planning and security of supply. The meetings are organised by the Government Departments from Ireland, Northern Ireland and Great Britain and is attended by the regulators and network operators from the different jurisdictions. The group has previously focused on gas but will now be broadened to **include electricity in the UK and Ireland Security and Supply forum** to allow for a more holistic approach to security of supply.

Action 24: To continue to regularly review energy emergency exercises and preparedness

Ireland holds regular emergency exercises and preparedness exercises and has well tested emergency plans in place for electricity, gas and oil emergencies, which can be activated, if necessary. Emergency training exercises have been carried out over many years, as part of regular and ongoing contingency planning with hypothetical scenarios being considered during these exercises. The established Strategic Emergency Management Framework structures are also in place and tested regularly through major emergency exercises to ensure an effective 'whole of Government' response. There are also UK and Irish protocols in place.

GNI is the lead body on gas-related exercises, while EirGrid leads on electricity-related exercises. The CRU oversees the overarching emergency plans and works in conjunction with DECC. GNI and EirGrid - the latter working in conjunction with ESB-Networks - have robust procedures in place with regard to gas and electricity supplies, and regularly participate in simulation exercises to test a range of potential scenarios. The role played by these bodies is critical in ensuring a coordinated response to major incidents in the rare event that they might occur. Ireland's

procedures for responding to an oil emergency are contained in the Oil Emergency Response Plan (OERP) which emphasises the importance of DECC co-operating closely with NORA and maintaining close contacts within the oil industry at an early stage of any emerging issues domestically. Events which may trigger the activation of measures contained within the OERP include a significant shortage of product emerging in European or global markets and a prolonged severe weather preventing tankers from berthing at terminals.

Ireland's **Risk Preparedness Plan**[35], prepared by the CRU in consultation with the European Commission, for an electricity crisis was updated in 2023 and outlines a range of risk scenarios and the plans in place to prevent, prepare for and manage events that may result in a loss of electricity supply to customers. Ireland also has a **National Gas Supply Emergency Plan 2023-2027**.

Action 25: To update the approach to Industry and Stakeholder Engagement in policy deliberation

An open, competitive energy market that attracts new entrants and sustains a diverse range of energy producers and suppliers is the cornerstone of energy policy in Ireland. DECC policy teams regularly meet with industry and stakeholders on energy matters usually on a bilateral basis. As part of the energy transition, in the interests of a thriving market environment it is important to continue an open and two-way discussion with stakeholders across industries and interests in addition to existing bilateral discussions. **DECC will establish more regular policy dialogue on strategic energy issues with industry and stakeholders** to allow for more in-depth two-way communication. This engagement can also allow DECC identify potential risks and opportunities in the market.

Action 26: To enhance energy sector oversight and governance

Developing the anticipatory capacity of the energy sector in Ireland to identify and respond to risk is an important component of managing a securing transition. Actions 20, 21, 22, 23, 24, and 25 all contribute significantly to this objective and strengthen the expertise and analysis available to Government on these issues.

Recognising the criticality of the energy regulator CRU as a leader in the energy transition and its role in regard to other key organisations in the sector, the Department will leverage the oversight agreement and arrangements in place with CRU to develop and enhance the informal and formal channels available to the Department to engage on policy and regulatory issues of interest, while upholding the independence of particular CRU functions. In **evolving the arrangements** in place the Department will:

- Examine the benefit of utilising the provisions for Ministerial Direction set out in legislation to enable greater policy clarity by routinely setting out policy priorities; and
- Facilitate regular whole-of-Government engagement on intersecting policy/regulatory matters.

These arrangements are regularly reviewed and will be re-assessed following the completion of the examination of legislation outlined in Action 21.

[35] "Electricity Crises: A Risk Preparedness Plan for Ireland." Commission for the Regulation of Utilities, May 2023 https://cruie-live-96ca64acab2247eca8a850a7e54b-5b34f62.divio-media.com/documents/CRU_202346_Risk_Preparedness_Plan_May_2023.PDF

The Department will also seek to leverage the Project Ireland governance and oversight framework through the **National Implementation Office in DPENDR to monitor and support grid and network development** so that this keeps pace with developments across sectors and stated policy objectives throughout the transition.

The McCarthy Review into electricity security of supply highlights the importance of reviewing the architecture of the electricity sector overall. This report seeks to apply these lessons as they relate to Ireland, in the context of the Single Electricity Market and the European Electricity Market rules. While it is likely that any progress achieved through implementation would be to the benefit of the all-island electricity market and its consumers there are **no changes to the SEM or SEM-C framework** proposed in this package as this is a matter for both jurisdictions to progress jointly. The role and activity of the Joint Steering Group is also noted, which provides for policy oversight and alignment for the SEM. This Steering Group is co-chaired by the Department for the Economy of Northern Ireland and the Department of the Environment, Climate and Communications, and is attended by the SEM Regulators.

With reference to physical and cyber security, once determined, the Government **will ensure the relevant public body tasked with supervision of cyber and physical security risk management in the energy sectors is equipped with the legal authority, resources, and skillsets necessary to fulfil its vital functions**. The Government will continue to give a focus to the energy sectors when conducting national cyber risk assessments and stress tests. The Government will participate fully in EU-level risk assessments to develop our shared understanding of these threats and inform the development of new legislative proposals and funding streams in response. The NCSC will also work with relevant public bodies and industry stakeholders to conduct a risk assessment on supply chain risks in energy and other critical infrastructure and make recommendations for Government on appropriate policy responses.

Action 27: To establish Annual Energy Security Reporting and Regular Energy Security Reviews

There was broad support in the responses to the public consultation for information on energy security to be produced more regularly e.g., on an annual basis. The SEAI will present key **performance indicators for energy security** each year. Having a regular energy security publication will help to keep energy security on the agenda and this information can feed into regular energy security of supply reviews. As the energy system becomes more interdependent, it is important that the security of supply of electricity, gas and oil are all considered as well as taking a holistic view of energy security i.e., not just energy supply but energy demand too.

Furthermore, the process in producing this **Energy Security Review** has been invaluable in providing insights and increasing engagement across the Energy Sector. A further review will be completed in 2030, and **every five years** thereafter to ensure energy security continues to get the focus it warrants.

Action 28: To establish a permanent Energy Security Group

The Energy Security Emergency Group (ESEG) was set up in early 2022 to address the crisis situation created by the Russian invasion of Ukraine is being replaced by a permanent **Energy Security Group** (ESG) to examine energy security issues on a long-term basis. Part of the remit of this Group will be to provide oversight for the implementation of the Energy Security Package Actions and lead the delivery of specific actions. The ESG will be made up of officials from DECC, CRU and Ireland's energy agencies, as well as some additional Government Departments and other relevant organisations as required. This Group will provide a forum for discussion about the

implementation of the actions, it will allow for information sharing and will be tasked with creating an environment for removing barriers to implementation that may arise.

The Energy Security Package contains 28 actions. A full list of the actions with timelines for completion and owners can be found in Annex 1 at the end of the document. In future, the ESG will meet on a regular basis to assess the progress being made on the Package Actions. Bi-annual implementation reports on the progress of the implementation of the actions will be presented to the group by its secretariat.

Robust Risk Governance key actions	
Existing Policy Initiatives	• Accountability framework with all energy agencies and bodies. • Independent Regulatory regime for energy. • Open markets and competition. • Protection of critical infrastructure from the full spectrum of threats. • National Cyber Security Centre and strategy. • Defence Forces.
Additional Measures	• To expand the energy expertise and capacity available to Government and representing Ireland Internationally. • To regularly review the scope, functions and resourcing of the delivery organisations that are driving the energy transition. • To enhance energy sector oversight and governance. • To integrate the forecasting framework for the electricity and gas sectors. • To extend International Energy Agreements to support energy security. • To continue to regularly Review Emergency Exercises and Preparedness. • To update the approach to Industry and Stakeholder Engagement in policy deliberation. • To establish Annual Energy Security Reporting and Regular Energy Security Reviews. • To update the approach to Industry and Stakeholder Engagement in policy deliberation. • To establish a permanent Energy Security Group.



Next Steps

DECC's review of energy security policies took place over 2022 and 2023. The review included emergency preparedness exercises, a review of the security of supply of Ireland's Electricity and Gas systems with an extensive public consultation that received over 450 responses, an Independent Review of the Security of Electricity Supply (the McCarthy Report) an energy security response to the invasion of Ukraine through the National Energy Security Framework (NESF), policy analysis on oil security of supply and a summit on 'Energy Independence' hosted by Government in July 2023.

This package is the response to the Energy Security Review and the public consultation. It is focused on continuing progress and action. It will strengthen Ireland's approach to risk and resilience, taking an integrated, systemic, medium-term view of where we can do more. It is an important contribution to a more secure, sustainable, and affordable energy system for Ireland.

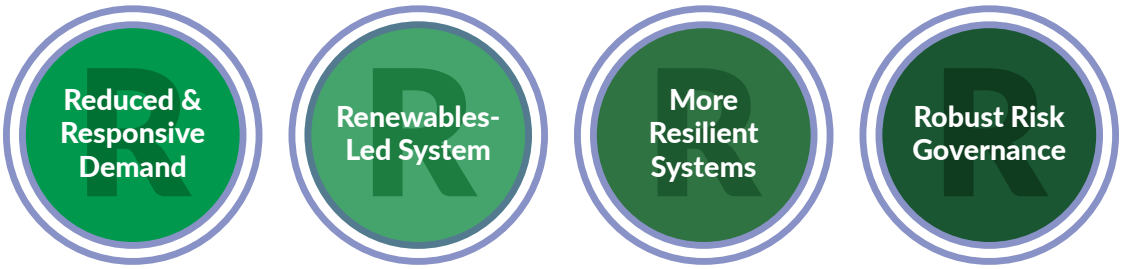
The actions in this Energy Security Package will be overseen by the Energy Security Group (ESG). The ESG has been established to examine energy security issues on a more long-term basis. The ESG will be made up of officials from DECC, CRU, Ireland's energy agencies, as well as some additional Government Departments and other relevant organisations as required. The ESG will meet on a regular basis to assess the progress being made on the Package actions. Bi-annual implementation reports on the progress of the implementation of the actions will be presented to the group by its secretariat.

The process in producing this Energy Security Review has been invaluable in providing insights and increasing engagement across the Energy Sector. This Package has actions that will increase energy security in Ireland, and they extend over the next five years. Therefore, the Package has committed to a further review in 2030, and every five years thereafter to ensure energy security continues to get the focus it warrants.



Appendices

Appendix 1: Energy Security in Ireland to 2030: Annex of Actions



The below actions will be overseen by the Energy Security Group. The below actions were informed by a review of Ireland's Electricity and Gas networks with an extensive public consultation, an Independent Review of the Security of Electricity Supply (the McCarthy Report), an energy security response to the invasion of Ukraine through the National Energy Security Framework (NESF), policy analysis on oil security of supply, and a 'Summit on Energy Independence' hosted by the Government in July 2023.

Reduced and Responsive Demand key actions			
No.	**Actions**	**Lead**	**Timeline**
1	To transpose the European Energy Efficiency Directive	Cross-Government/ DECC	2025
2	To standardise the approach used to evaluate the affordability of new and existing policy initiatives on consumers	DECC	2024
3	To improve the ways that homes and businesses can manage their energy use by providing an evidence-based programme of communications activity and by supporting 'active consumers' through smart metering and smart energy services	DECC	2025
4	To review gas connection policy and introduce gas demand flexibility measures	DECC	2025
5	To identify and support new, innovative approaches to integrating large-scale demand sustainably into Ireland's energy systems that align with the overriding objective to decarbonise	DECC/DETE	2023-2030
A Renewables-led System key actions			
6	To utilise the National Energy and Climate Plan to ensure all policy incentives are aligned on a regular basis	DECC	2024
7	To work within the updated European Electricity Market Design to continue to reduce emissions associated with Ireland's conventional capacity over the medium-term	DECC	2023-2030
Resilience key actions: Electricity			
8	To complete implementation of the CRU Security of Electricity Supply Programme	CRU/DECC/EirGrid	2027
9	To increase resilience by implementing an updated, risk-based, evidence-based reliability standard in the electricity sector	DECC	2024

continued

No.	Actions	Lead	Timeline
10	To implement consenting reforms and align to planning reforms to provide greater certainty to the sector	DECC/DHLGH	2023-2030
11	To ensure a fit for purpose electricity grid that supports Ireland's energy and climate ambition	DECC/EirGrid	2023-2030
12	To accelerate delivery of power system flexibility	DECC/CRU /EirGrid	2023-2030
13	To successfully complete and integrate additional Electricity Interconnections	DECC/CRU/EirGrid	2023-2030
Resilience key actions: Gas			
14	To finalise studies to inform the development of long-term gas storage solutions which can store renewable gas, in particular hydrogen	DECC	2025
15	To secure the existing onshore 'Inch gas pipeline' for wider strategic uses	DECC	2024
16	To ensure a fit for purpose gas grid, that supports Ireland's energy and climate ambition	DECC	2024-2025
17	To create a Strategic Gas Emergency Reserve to protect Ireland in the event of a gas supply disruption as Ireland makes a secure transition to majority renewable energy	DECC/CRU/GNI	Accelerated implementation
Resilience key actions: Oil			
18	To strengthen supply chain of secondary fuels for Gas-fired power generation	EirGrid/NORA/ DECC/FFI	2024
19	To resolve Long-Term Sourcing Issues for improved Oil Security	DECC	2024
Robust Risk Governance key actions			
20	To expand the energy expertise and capacity available to Government and representing Ireland Internationally	DECC	2024-2025
21	To regularly review the scope, functions and resourcing of the delivery organisations that are driving the energy transition	DECC	2023-2026
22	To integrate the forecasting framework for the electricity and gas sectors	DECC/GNI/EirGrid	2027
23	To extend International Energy Agreements to support energy security	DECC	2023-2024
24	To continue to regularly Review Energy Emergency Exercises and Preparedness	DECC/NORA/CRU/ GNI/EirGrid	2023-2030
25	To update the approach to Industry and Stakeholder Engagement in policy deliberation	DECC	2024
26	To enhance energy sector oversight and governance	DECC	2023-2026
27	To establish Annual Energy Security Reporting and Regular Energy Security Reviews	SEAI/DECC	2023-2030
28	To establish a permanent Energy Security Group	DECC	2024

Appendix 2: Major Policy Statements 2015-2023

National Policy Developments

There have been significant changes to Irish energy and climate policy since the Programme for Government was published in 2020. The Programme for Government committed Ireland to a 51% reduction in total emissions by 2030, relative to 2018 levels, and to become carbon neutral by 2050. These objectives are the core drivers for our energy policy.

Further details on current Energy and Climate Policy in Ireland from 2020-2023 are summarised below.

Major Policy Statements 2015-2023	
2015 Energy White Paper: Ireland's Transition to a Low Carbon Energy Future	• The White Paper 'Ireland's Transition to a Low Carbon Energy Future 2015-2030' was a complete energy policy update. • It set out a framework to guide policy and the actions that Government intended to take in the energy sector from 2015 up to 2030. • The paper took into account European and International climate change objectives and agreements, as well as Irish social, economic and employment priorities.
A Strategy to Combat Energy Poverty 2016-2019	• This strategy expanded the reach of existing energy efficiency schemes and committed the government to developing and piloting new measures to find more effective ways to focus energy efficiency efforts on those most at risk of energy poverty.
National Mitigation Plan 2017	• Published in July 2017, the National Mitigation Plan represented an initial step in transitioning Ireland to a low carbon, climate resilient and environmentally sustainable economy by 2050.
National Energy Efficiency Action Plan	• Four plans were published outlining Ireland's plans to make progress towards the target of improving energy efficiency by 20% by 2020. The plans detail the progress made towards the target, measures in place to ensure the targets are met, and the specific strategies and policies in place across residential, commercial, transport, and public sectors.
National Policy Statement on Electricity Interconnection	• This policy statement sets out the official overall perspective on electricity interconnection in Ireland and is designed to provide high-level policy guidance to all stakeholders, in particular to the Commission for Regulation of Utilities (CRU) as it considers applications from project promoters
National Energy and Climate Plan	• The National Energy and Climate Plans (NECPs) were introduced by the Regulation on the Governance of the Energy Union and Climate Action (EU)2018/1999, agreed as part of the Clean energy for all Europeans package, adopted in 2019. The final version of NECP was submitted in 2019.
National Retrofit Plan	• The National Retrofit Plan, which was published as part of Ireland's Climate Action Plan 2021, sets out how the Government will deliver on national retrofit targets. • The Plan is designed to address barriers to retrofit across four key pillars: driving demand and activity; financing and funding; supply chain, skills and standards; and governance.

continued

Major Policy Statements 2015-2023	
2021 Policy Statement on the Importation of Fracked Gas[36]	• This Policy Statement was published pending the outcome of the review of the security of energy supply of Ireland's electricity and natural gas systems. • It stated that it would not be appropriate to permit or proceed with the development of any LNG terminals in Ireland. • It also highlighted that in the context of European Union treaties and the laws governing the internal energy market, it is considered that a legal ban on the importation of fracked gas could not be put in place. • The Government committed to working with like-minded European states to promote and support changes to European energy laws in order to allow the importation of fracked gas to be restricted and working with international partners to promote the phasing out of fracking at an international level within the wider context of the phasing out of fossil fuel extraction.
2021 Policy Statement on the Security of Electricity Supply[37]	• This Statement was developed following the CRU declaration of an electricity security of supply crisis. • It stated that the development of new conventional generation (including gas-fired and gas/oil/distillate-fired generation) is a national priority and should be permitted and supported to ensure security of electricity supply and support the growth of renewable electricity generation. • It supported the retention of existing conventional electricity generation capacity until the new conventional electricity generation capacity is developed to ensure security of supply. • It stipulated that the connection of large energy users to the electricity grid should take into account the potential impact on security of electricity supply and on the need to decarbonise the electricity grid.
Climate Action and Low Carbon Development (Amendment) Act 2021[38]	• This Act made Ireland's target of becoming carbon neutral by no later than 2050 legally-binding. • It placed the cessation of new oil and gas exploration licences on a statutory footing. • It embedded the process of five-year carbon budgets into law, including medium-term sectoral targets. • It detailed sectoral emissions ceilings in each sector specifying a sectoral ceiling to reduce electricity emissions by 75% or 3 MtCO2eq. per annum by 2030 (on 2018 baseline).
2022 NESF[39]	• This Framework provided a response to Ireland's energy security needs in the context of the war in Ukraine. • It focused on how to support households and businesses, in particular those most at risk of fuel poverty, and how to accelerate the country's shift to increased energy efficiency and indigenous renewable energy systems. Furthermore, it called for the planning system to support the increased roll-out of renewables. • The Framework also prioritised the completion of the review of Ireland's electricity and natural gas security of supply.

continued

[36] gov.ie - Policy Statement on the Importation of Fracked Gas (www.gov.ie)
[37] gov.ie - Policy Statement on Security of Electricity Supply (www.gov.ie)
[38] Climate Action and Low Carbon Development (Amendment) Act 2021, Section 15 (irishstatutebook.ie)
[39] gov.ie - National Energy Security Framework (www.gov.ie)

Major Policy Statements 2015-2023	
2022 Government Statement on the Role of Data Centres in Ireland's Enterprise Strategy[40]	• This Statement seeks to enable the twin transitions of decarbonisation and digitalisation of Ireland's society and economy. • It stated that 'islanded' data centre developments, that are not connected to the electricity grid and are powered mainly by on-site fossil fuel generation, would not be in line with national policy. • It also highlighted that growth in 'Islanded' data centres could result in a security of supply risk being transferred from electricity to gas supply, which would be a significant challenge given Ireland's reliance on imported gas.
2022 Policy Statement on Petroleum Exploration and Production in Ireland[41]	• This Policy Statement confirmed that while no new authorisations for new petroleum exploration will be granted, existing authorisations are not affected by this change. • Holders of existing authorisations can continue to apply to progress through the standard licensing lifecycle stages towards a natural conclusion, which may include expiry, relinquishment, or production. • Any applications for follow-on authorisations or applications to undertake offshore activities under an authorisation are subject to Ministerial consent and must continue to meet environmental, technical, and financial criteria as appropriate.
Climate Action Plan 2023[42]	• The CAP23 committed to increase the proportion of renewable electricity to reduce electricity sector emissions by 75% through 9 GW onshore wind, 8 GW solar, and at least 5 GW of offshore wind by 2030. • The Plan outlined interim targets to 2025 for 'building better' such as ramping up retrofitting to achieve the carbon equivalent of 120,000 dwellings to BER B2 by 2025, putting heat pumps into 45,000 existing and 170,000 new dwellings by 2025, and generating up to 0.8 TWh of district heating by 2025. • The Plan also included an expansion of the indigenous biomethane sector through anaerobic digestion, reaching up to 5.7TWh of biomethane by 2030.
Oil Emergency Contingency and Transfer of Renewable Transport Fuel Functions Act 2023[43]	• The Act amends the National Oil Reserves Agency Act 2007, to place a statutory requirement on the Minister to produce an oil emergency contingency plan. • The Act provides for the establishment a 'Petroleum Register', which would allow for any necessary Ministerial Orders and Directions issued during a severe oil emergency to be quickly communicated to stakeholders. • In addition, the Act also provides for the transfer of excise information relating to the disposal by sale of mineral oil within the State from the Revenue Commissioners to the Minister to assist across a range of oil emergency contingency planning activities.

continued

[40] government-statement-on-the-role-of-data-centres-in-irelands-enterprise-strategy.pdf
[41] gov.ie - Policy Statement on Petroleum Exploration and Production in Ireland (www.gov.ie)
[42] gov.ie - Climate Action Plan 2023 (www.gov.ie)
[43] Oil Emergency Contingency and Transfer of Renewable Transport Fuels Functions Act 2023 (irishstatutebook.ie)

Major Policy Statements 2015-2023	
National Policy Statement on Electricity Interconnection	• Ireland's 2023 policy statement on electricity interconnection commits to increasing Ireland's interconnection capacity and specifically supports a further connection to Great Britain by 2030 beyond the completion of the Greenlink Interconnector. • The policy also commits to a move to a more State-directed approach with a proposed Offshore Transmission Strategy which will set out Ireland's interconnector needs and set future developments in the context of integrated forward planning.
National Hydrogen Strategy	• The National Hydrogen Strategy sets out the strategic vision on the role that hydrogen will play in Ireland's energy system, looking to its long-term role as a key component of a zero-carbon economy, and the short-term actions that need to be delivered over the coming years to enable the development of the hydrogen sector in Ireland. • The Strategy considers the needs of the entire hydrogen value chain including production, end-uses, transportation and storage, safety, regulation, markets, innovation, and skills. • The strategy outlines Ireland's plan to focus on production of renewable "green" hydrogen using Ireland's significant renewable energy resources in order to support decarbonisation and strengthen energy security.
Energy Poverty Action Plan	• The 2022 Plan builds on the 2016 Strategy to Combat Energy Poverty, and outlines near- and medium-term measures with income, social protection and consumer protection supports, as well as increased funding for energy efficiency upgrades in 2023 and beyond to tackle the root causes of energy poverty. • The Plan aims to provide a source of clear information for consumers and stakeholders, establish a €10 million fund to provide a further safeguard for people struggling to pay their energy bills, and legislate to expand the definition of vulnerable customer to include financial vulnerability, which will extend the protection against disconnection for non-payment of account for a longer period over the winter months.

Appendix 3: List of Annexes

Annex 1 – Energy Security Package Actions

Complete list of Energy Security Package Actions with timelines and owners.

Annex 2 – Securing Ireland's Gas Supplies

This document supports and informs the recommendations in the Energy Security Package with regard to securing Ireland's gas supplies.

Annex 3 – Summary of Consultation Responses

Summary of Responses to the Consultation on the Review of the Security of Energy Supply of Ireland's Electricity and Gas Systems.

Annex 4 – Technical Analysis

CEPA Technical Analysis and CEPA Supplementary Technical Analysis of the physical security of supply of Ireland's electricity and natural gas systems.

Annex 5 – Independent Review on the Security of Electricity Supply (McCarthy Report)

Report on Independent Review on the Security of Electricity Supply.

Annex 6 – NESF Report

National Energy Security Framework Close Out Report.



www.gov.ie