ENERGY POLICIES OF IEA COUNTRIES

Ireland 2019 Review Executive Summary



International Energy Agency Secure Sustainable Together

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INTERNATIONAL ENERGY AGENCY

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1. Executive summary

Ireland has successfully advanced the transformation of its energy sector since the last International Energy Agency (IEA) in-depth review (IDR) in 2012. It had the third-highest share of wind in electricity generation of all IEA member countries in 2017. Ireland's electricity system is capable of accommodating up to 65% of instantaneous variable generation at any given time. This is a remarkable achievement and proof of the substantial innovation and research capacity of the Irish economy. Ireland has also improved its energy security through a significant increase in domestic gas production, a reduction of the share of oil in energy supply and by strengthening its oil emergency reserves system.

The Irish economy has recovered remarkably well from the economic crisis that started in 2008. It has been the fastest-growing economy among all IEA countries since 2014, when the gross domestic product (GDP) exceeded pre-crisis levels. Energy use has increased with GDP growth, but still remains under the 2006 peak, partly reflecting the structural shift in the economy. The shift towards an economy dominated by the services sector, especially the government's strategy to seek to establish Ireland as a preferred location for the global digital and data hosting industry, will potentially result in increasing electricity demand. This makes fast decarbonisation of the electricity system a necessity.

Ireland is not on course to meet its mandatory emissions reduction and renewable energy targets for 2020, despite the progress made. There are also questions about Ireland's ability to meet the 2030 emissions reduction targets, although the impact of the latest policies announced by the government is not yet reflected in the latest emissions pathway projections.

Transition to a low-carbon energy future

Ireland is committed to a substantial low-carbon transformation of its economy and energy sector. The 2015 White Paper "Ireland's Transition to a Low Carbon Energy Future 2015-2030" formally outlines the government's energy policy framework to 2030. It commits the country to reducing greenhouse gas (GHG) emissions in the energy sector by 80-95% relative to the 1990 level by 2050. A low-carbon energy system will ease security of supply (SoS) concerns resulting from limited indigenous energy resources and the limited direct interconnection with European energy markets due to Ireland's geographical location.

The country is an attractive location for highly skilled professionals, and the government expects the population to grow by 20% from 2016 to 2040. This will put substantial pressure on the support infrastructure and will raise issues of balanced regional development. It will require meeting future energy, housing and transport needs through low-carbon and energy-efficient solutions. The continuous decoupling of energy

consumption from economic growth and advancing a corresponding decoupling of energy consumption from population growth are of utmost importance to the government.

Ireland has made progress towards meeting its target of improving energy efficiency by 20% from 2005 by 2020. The IEA applauds the government for the significant funding increase for energy efficiency since 2016, in line with the economic recovery. This has allowed implementation of additional energy efficiency measures towards meeting the 2020 target. However, exploiting the energy efficiency potential towards 2030 will require a step change in policy efforts. The IEA encourages the government to maintain, if not increase, funding.

Ireland will miss its mandatory 2020 GHG emissions reduction target of 20% below the 2005 level by a large margin. The economic recovery since 2014 revealed energy consumption growth in the residential and transport sectors has not yet sufficiently decoupled from emissions growth. This is compounded by a strong rise in emissions from the agricultural sector that accounted for 33% of total GHG emissions in 2017.

Ireland is also likely to fall short of the 30% emissions reduction target for 2030 below the 2005 level without the urgent implementation of additional measures. This raises questions about the feasibility of meeting the 2050 targets. Ireland has a comprehensive framework of climate policies and plans, but needs to prioritise time-bound implementation of specific measures. Close monitoring of the progress made by setting interim milestones is needed to rectify the emissions trajectory.

Progress towards meeting Ireland's legally binding target of sourcing 16% of its final energy consumption from renewable sources is more encouraging. It is led by the electricity sector. However, the latest projections from Ireland indicate that it could fall short of the target, reaching 12.7-13.9% of renewable energy in final energy consumption by 2020.

Achieving a higher share of renewable fuels in the transport sector is daunting, as in many IEA countries. Ireland projects achieving 90% of its binding target of a 10% share by 2020, predominantly because of double counting according to European Union (EU) regulations. The strong economic recovery has resulted in increased private car ownership, which is the preferred mode of transport in a country with a highly dispersed population and limited public transport options. While some progress has been made in the roll-out of electric vehicles and the required charging infrastructure, this will not be sufficient to result in a significant increase by 2020. However, there is substantial and unexplored scope to facilitate modal shifting and alternative means of transport, and to advance public transport infrastructure, especially in urban areas.

Renewable energy accounted for 29% of Ireland's electricity generation in 2017. This is a significant increase since the last IDR, when renewables accounted for only 10%. There has been an acceleration in renewable generation connected to the grid in recent years. Network operators believe that by 2020, Ireland will achieve or be close to achieving the government's 2020 target of 40% renewable electricity. Delays in obtaining final planning consent approval and in grid building have caused project delays. Recent changes to the grid connection policy should improve the installation of renewable generation.

Stringent measures are required to ensure that Ireland narrows the gap towards its 2020 emissions and renewable energy targets and to put the country on track to achieving its medium and long-term targets to 2030 and 2050. Ireland is one of the few countries

globally that taxes all carbon fuels. However, the rate of the carbon tax has not been increased since 2014. With recovering living standards, the tax may no longer be having the desired effect on customer behaviour. As part of the government's deliberation to increase the tax rate, it could consider introducing an automatic upward adjustment of the tax rate if Ireland falls short of its emissions pathway. The government should also consider earmarking a part, or all, of the additional revenue from the tax increase for energy efficiency measures to provide support for heat decarbonisation in the residential sector, which has proven difficult to achieve (despite its policy not to earmark tax revenues).

Ireland has the highest share of peat in energy supply among IEA countries. The announcement in October 2018 to cease harvesting of peat for electricity generation in 2028 is a positive development and aligns with the government's announcement on ceasing the use of peat for power generation by 2030. The government has already announced the end of burning coal in the Moneypoint plant by 2025, but the IEA urges the government to decide on the form of generation that should replace the plant.

Planning consent and engagement with local communities

There is a large consensus among citizens and stakeholders in Ireland on the importance of transition to a low-carbon economy and the opportunities for Ireland to become a global leader in clean energy transition. However, the construction of critical infrastructure, including renewable generation assets, is experiencing delays. This increases costs, and can also affect the wider energy system and weaken the SoS. The government should take all necessary measures to speed up procedures and improve acceptance.

Greater certainty on timelines, effective cross-departmental and cross-agency co-operation, and collaboration on agreed policy objectives and early engagement by developers with affected communities and other stakeholders could reduce delays in building critical infrastructure. The IEA encourages the government to continue shortening and simplifying the planning permission consent process for energy infrastructure to provide greater clarity to all stakeholders.

Decarbonisation of heat

Ireland has a highly dispersed population reliant on individual oil-fired boilers for heating, which account for 41% of home heating. The government has a comprehensive policy framework and financial incentives to pursue the two ways to decarbonise heating in buildings: improving energy efficiency and switch from fossil fuels to renewable energy sources.

The government's policy principle "fabric first then fuel switching" ensures that the benefits of fuel switching are not compromised by insufficient building fabric standards. Ireland has achieved significant reductions in energy intensity for the residential sector, especially through improved insulation of the existing buildings stock. Ireland links decarbonisation of heat to the multiple benefits of energy efficiency, and is focusing on issues of fuel poverty through several dedicated support programmes.

With the highest share of fossil fuels in residential heating among IEA countries, Ireland is actively promoting fuel switching. The country is unlikely to reach the target of 12% renewable heat by 2020.

As of 1 January 2019, building regulations require that renewable energy systems are installed in all new buildings commencing construction. Strict enforcement of the new building codes is essential, and a solid monitoring system should be put in place. The IEA commends the government's decision to discontinue financial support for the replacement of oil or gas boilers to avoid possible lock-in of high-carbon heating systems and instead to offer support programmes for heat pumps.

A challenge in improving energy efficiency in buildings and promoting the decarbonisation of heat is the principal agent problem in the rental sector, as in most IEA countries. This is important due to the recent shift from owner-occupied to rental properties observed in urban areas. This might require the introduction of better incentives for landlords, because their uptake of available financial support programmes is low. The government should also consider introducing minimum energy efficiency standards in the rental sector. It may be possible to consolidate existing multiple support systems for the residential sector to make them more user friendly and effective in obtaining outcomes.

Options for decarbonisation of heat are constrained by the low population density, which renders a larger roll-out of district heating (DH) solutions and a wider coverage of the population under the natural gas system impracticable. There is potential for localised opportunities, which the government is committed to encouraging. Ireland has a modest amount of untapped potential for DH systems that utilise heat from waste to energy plants. This could be harnessed, especially if there is increasing installation of data centres. However, this will require a conducive regulatory framework to facilitate the necessary investments. The co-generation of heat and power is an efficient use of available resources, and support for renewable heat should be aligned with policies for renewable electricity.

Interconnections

Ireland's only gas and electricity interconnections are with the United Kingdom, due to its peripheral location at the north-west of mainland Europe.

All gas imports reach Ireland through two interconnectors via the single Moffat entry point in Scotland (United Kingdom). Ireland does not have a liquefied natural gas (LNG) facility. Ireland has sharply reduced its import dependency of natural gas since 2016 when domestic production from the Corrib gas field commenced. However, an equally sharp decrease in production from the field is expected by the middle of the 2020s, which can only be compensated through the Moffat entry point. Twinning of the onshore pipeline in Scotland was completed in 2018. Work is also ongoing to build independent compressor systems for the two gas interconnectors; this project is due for completion in 2020. Once completed, this infrastructure development would enhance the SoS of the Moffat entry point.

There is high reliance on a limited amount of gas infrastructure, raising concerns for security of gas supply in Ireland. This is independent of the future relationship between the United Kingdom and the European Union, following the vote of the United Kingdom

to leave the European Union. An option for diversification of gas supply routes would be the construction of an LNG import facility to provide Ireland with direct access to the global LNG market. The construction of an additional gas interconnector with the United Kingdom would allow Ireland to reduce its reliance on a single infrastructure and therefore enhance the SoS. However, it would give rise to other challenges.

Ireland's only cross-border electricity interconnection is with the United Kingdom through two electricity interconnectors. Both countries derive significant benefits from electricity trade. The single electricity market (SEM) on the island of Ireland covers Ireland and Northern Ireland, and involves significant cross-border flows of power between the two jurisdictions in a single bidding zone wholesale market. The new market design of the SEM became operational on 1 October 2018, in line with the requirements of the EU Third Energy Package. Ireland, the European Commission and the United Kingdom have expressed a commitment to maintain the SEM arrangements.

Interconnectors provide much-needed flexibility to electricity markets for the integration of a high share of intermittent renewables. This is particularly important for a small system such as that of Ireland. The government of Ireland recognises the important role of the electricity interconnections for transition to a low-carbon energy future. It published a national policy statement on electricity interconnection in July 2018, and is supporting three new interconnector projects. The first is a second interconnector with Northern Ireland that will reduce curtailment and increase efficiency in the SEM. The second is a merchant interconnector project linking Ireland with Wales, creating a third electricity interconnection with the United Kingdom. The proposed Celtic interconnector with France would ensure continuous direct market coupling with the EU electricity market, when the United Kingdom has exited the European Union.

Energy security

As a small, open economy, Ireland is dependent on international trade and influenced by developments in the global market. Ireland and the United Kingdom are close trading partners, including for energy. The vote of the United Kingdom to leave the European Union poses unique challenges, although the full impact on the energy sector of Ireland cannot yet be determined.

Maintaining beneficial energy relations between Ireland and the United Kingdom is in the interest of both countries. Ireland relies on the United Kingdom for supply of most of its oil product imports and for a significant volume of crude oil. Supply routes and the number of suppliers are increasingly diversified. Ireland consistently holds more oil stocks than required under the IEA stockholding obligation, and has progressively strengthened its stockholding system.

All of Ireland's natural gas imports flow through the existing gas interconnectors with Scotland, even if they are not sourced from the United Kingdom. Power generation is the largest gas-consuming sector. It accounted for 55.2% of the total consumption share in 2016, indicating an aligned correlation between gas and electricity demand. In the electricity sector, Ireland has become a small net exporter to the United Kingdom. The generation adequacy of Ireland exceeds that of Northern Ireland, with whom it shares an SEM.

Ireland is committed to maintaining the beneficial structures and efficiencies of the allisland SEM. Similarly, Ireland is electrically connected to the rest of the European Union via Great Britain. Ireland should try to maintain the most-efficient use of interconnections to facilitate cross-border electricity trade with the United Kingdom and European Union member states.

Key recommendations

The government of Ireland should:

- Prioritise improving the transparency of, and accountability for, meeting its emissions reduction targets. This includes publishing its draft National Energy & Climate Plan, setting trajectories towards meeting renewable and energy efficiency targets including the means of achieving them, and clarifying the contribution of those targets to meeting Ireland's emissions reduction targets under the EU Effort Sharing Regulation.
- □ Implement an automatic upward adjustment of the carbon tax when preset sectoral emissions targets are not met, and earmark a portion (or all) of the increased revenues for energy efficiency improvements and decarbonisation of heat in the residential sector (despite its policy not to earmark tax revenues).
- □ Improve the efficiency of the planning consent regime for energy infrastructure to ensure that decisions are taken on time and with due regard to environmental and other effects. The legal framework for planning permission should ensure that adequate consultation has taken place with all stakeholders and that the needs of local communities have been taken into account, before the consent decision is taken by the relevant authority.
- Develop a time-bound roadmap for decarbonising the heating sector through energy efficiency and fuel switching. The roadmap should establish clear scenarios and milestones for phasing out fossil fuels.
- □ Provide continuity and longer-term certainty in energy policies to avoid, or minimise, interruptions that could undermine investor confidence and the necessary investment to achieve clean energy objectives.

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Typeset and Printed in France by IEA - April 2019 Cover design: IEA; Photo credits: ©GraphicObsession The International Energy Agency (IEA) has conducted in-depth peer reviews of the energy policies of its member countries since 1976. This process supports energy policy development and encourages the exchange of international best practices and experiences. This report on Ireland discusses the challenges faced as well as possible solutions to help the country's energy sector continue towards a secure and sustainable future.

Despite making substantial advances to transform its energy sector, Ireland is not on course to meet its 2020 greenhouse gas emissions reduction target. The decarbonisation of heating in buildings, one focus of this report, is a particular challenge.

In a more positive development, wind power accounted for around one-quarter of total generation in 2017 – the third-highest share of all IEA member countries. Additionally, this report suggests that Ireland has considerable scope to further advance alternative means of transport and public transport infrastructure, especially in urban areas.

In this report, the IEA provides recommendations for further improvements of Ireland's energy policy to help the country continue to transform its energy sectors in order to meet the emissions reduction target for 2030.

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