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Enabling Decarbonisation: A Study of Energy Sector Governance in Ireland

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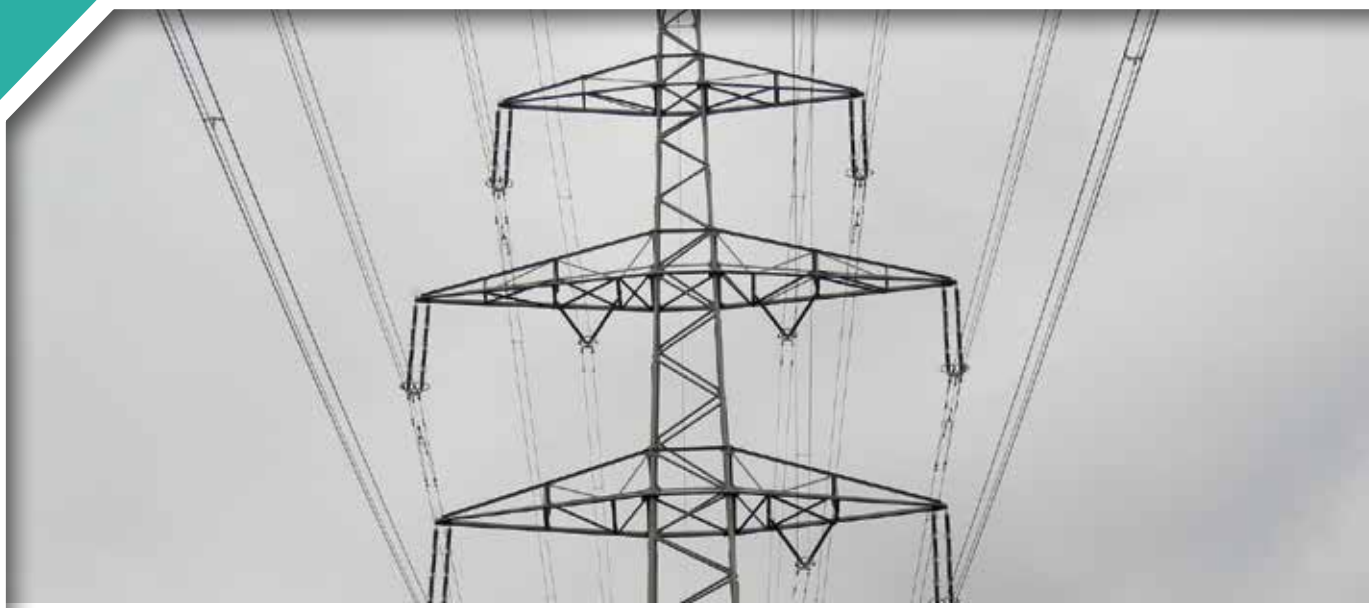

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Rialtas na hÉireann
Government of Ireland

ENVIRONMENTAL PROTECTION AGENCY

The Environmental Protection Agency (EPA) is responsible for protecting and improving the environment as a valuable asset for the people of Ireland. We are committed to protecting people and the environment from the harmful effects of radiation and pollution.

The work of the EPA can be divided into three main areas:

Regulation: *We implement effective regulation and environmental compliance systems to deliver good environmental outcomes and target those who don't comply.*

Knowledge: *We provide high quality, targeted and timely environmental data, information and assessment to inform decision making at all levels.*

Advocacy: *We work with others to advocate for a clean, productive and well protected environment and for sustainable environmental behaviour.*

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- large scale industrial activities (*e.g. pharmaceutical, cement manufacturing, power plants)*;
- intensive agriculture *(e.g. pigs, poultry)*;
- the contained use and controlled release of Genetically Modified Organisms *(GMOs)*;
- sources of ionising radiation *(e.g. x-ray and radiotherapy equipment, industrial sources)*;
- large petrol storage facilities;
- waste water discharges;
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- Generating greater environmental awareness and influencing positive behavioural change by supporting businesses, communities and householders to become more resource efficient.
- Promoting radon testing in homes and workplaces and encouraging remediation where necessary.

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The EPA is managed by a full time Board, consisting of a Director General and five Directors. The work is carried out across five Offices:

- Office of Environmental Sustainability
- Office of Environmental Enforcement
- Office of Evidence and Assessment
- Office of Radiation Protection and Environmental Monitoring
- Office of Communications and Corporate Services

The EPA is assisted by an Advisory Committee of twelve members who meet regularly to discuss issues of concern and provide advice to the Board.

EPA RESEARCH PROGRAMME 2014–2020

Enabling Decarbonisation: A Study of Energy Sector Governance in Ireland

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EPA Research Report

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by

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DISCLAIMER

The EPA Research Programme addresses the need for research in Ireland to inform policymakers and other stakeholders on a range of questions in relation to environmental protection. These reports are intended as contributions to the necessary debate on the protection of the environment.

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Executive Summary

This study examines how existing governance structures in Ireland can better facilitate the transition to a low-carbon economy and society by 2050, with a focus on decarbonising electricity generation. It analyses the roles of a number of relevant governance institutions and makes the following recommendations for strengthening governance to enable decarbonisation.

A Stronger and More Positive Decarbonisation Narrative

Low-carbon transition is a profoundly political and societal challenge. A more positive economic and social narrative that highlights not only challenges but also opportunities is required. This narrative must be about more than just compliance with externally imposed targets, and it must take seriously the need to protect those who will lose out as a result of the transition. It will also have an important spatial dimension that should be integrated with the new National Planning Framework. The National Dialogue on Climate Action and the Citizens' Assembly are a start, but much more needs to be done to secure buy-in.

Stronger Direction and New Thinking from Government

The National Policy Position on climate change and Energy White Paper provide long-term vision. While the National Mitigation Plan, Support Scheme for Renewable Heat and anticipated Renewable Electricity Support Scheme are welcome, more needs to be done to translate long-term vision into shorter term policies. Achieving low-carbon transition will require new thinking and systemic change across government, including consideration of whether standard cost–benefit analysis is an appropriate instrument for policy evaluation. In the absence of a meaningful price on carbon being delivered through the EU Emissions Trading Scheme, a stronger policy signal from government may be needed to shift to lower carbon fuels in electricity generation.

Better Structures to Ensure Implementation

The National Mitigation Plan sets out structures to enable implementation, but these ought to be strengthened further. Secretaries-General in sectoral departments could be required to report on progress on a periodic basis. Consideration should also be given to establishing a special Oireachtas Joint Committee to focus specifically on "decarbonisation", "low-carbon transition" or similar. This committee should be well resourced in terms of specialist staff and expertise to enable proper political scrutiny of the transition process.

A Strengthened Governance Architecture

More joined-up governance is needed to facilitate decarbonisation, including a feedback loop from governance agencies to central government. A network of energy and climate governance agencies could be established to allow for ongoing periodic exchange of information between relevant bodies. Such a network could also be embedded within a wider network (possibly in conjunction with the UK or within an EU or Organisation for Economic Co-operation and Development – OECD – framework) to facilitate the sharing of experiences between jurisdictions.

Review of Regulators' Roles and Mandates

Consideration should be given to rebalancing the mandate of the Commission for Regulation of Utilities (CRU) to give greater emphasis to decarbonisation by refocusing the existing environmental mandate towards a specific decarbonisation mandate. This should not displace CRU's existing focus on cost minimisation and consumer protection, but a wider definition of "cost" may help to rebalance existing objectives. Consideration should also be given to addressing potential unintended negative consequences of the Environmental Protection Agency (EPA)'s regulation of industrial emissions for regulation of greenhouse gas emissions.

A Better Framework for Funding and Delivering Transformational Societal Change

To capture the transformational potential of community engagement on sustainable energy, a stronger framework is needed to aggregate and disseminate lessons from on-the-ground experimentation. This would enhance the two-way flow of information between local communities, national policymakers and other stakeholders. Relevant governance institutions (including the Department of Communications, Climate Action and Environment – DCCAE, Sustainable Energy Authority of Ireland – SEAI, and the EPA) could better coordinate their outreach and engagement activities to give greater coherence, impact and visibility to their individual activities. Consideration should also be given to increasing the scope of joint funding initiatives between relevant agencies, including SEAI and EPA.

Further, More Fine-grained Comparative Research on Governance of Decarbonisation

Further research on governance of decarbonisation is needed in at least three areas. First, individual aspects of energy governance ought to be analysed in more depth, such as the innovation system and regulatory governance architecture. Second, analysis should be extended to other sectors relevant to the national transition objective. Third, comparative cross-national research is required to benchmark Ireland against international experience and identify best practice. It would also be beneficial to have closer collaboration on research activities between those public bodies (DCCAE, EPA, SEAI, National Economic Social Council – NESC) commissioning research.

1 Introduction

This study examines how existing governance structures in Ireland can better facilitate transition to a low-carbon economy and society by 2050. Ireland has committed to a decarbonisation target of 80%, relative to 1990 levels, by 2050 across electricity generation, the built environment and transport, and to an approach to carbon neutrality in the agriculture and land use sector (Government of Ireland, 2014). The 2015 Energy White Paper also commits to long-term decarbonisation (DCENR, 2015). Recent research indicates that this scale of decarbonisation is significantly more challenging than lower levels of ambition (50–70% decarbonisation) (Jenkins and Thernstrom, 2017). Thus, there is a pressing need for early and sustained action to avoid costly lock-in of high-carbon assets (EEA, 2016).

Recent evidence, however, points in the opposite direction. Emissions in the energy industries in Ireland increased by 5.4% in 2015 compared with the previous year, driven by an increase in the use of coal and peat for electricity generation. Strikingly, coal use for electricity increased by 19.1% in one year, with gas declining by 5.5% (EEA, 2016). While deployment of renewable energy generation, principally wind, has increased significantly in recent years, the "with additional measures" projection by the Environmental Protection Agency (EPA) and the Sustainable Energy Authority of Ireland (SEAI) for greenhouse gas (GHG) emissions now works on the assumption that the renewable electricity target of 40% by 2020 will not be met.[1] Failure to meet the EU's binding obligations for 2020 will result in significant compliance costs.

Previous research has examined the feasibility and potential cost of transition pathways to 2050 in Ireland (Chiodi *et al*., 2013). However, this analysis looked at the technical feasibility of transition and did not consider the policies and institutions that would be necessary to translate these transition pathways into reality. As the *First Report of the Climate Change Advisory Council* noted, transitioning to a carbon-neutral economy and society represents a more difficult task than any other area of public policy (Climate Change Advisory Council, 2016).

This study is concerned with which governance institutions could enable the transition to a low-carbon economy and society in line with the national transition objective. It analyses the roles and mandates of a number of state institutions, both within central government and beyond, that are involved in governance of the energy sector. Building on this analysis, the study makes a number of recommendations for how governance arrangements could be strengthened to better facilitate decarbonisation.

The scope of the study is potentially very wide. In order to provide greater focus, the report focuses specifically on the electricity sector. As well as making the study more manageable, this focus is also justified on the basis that, over the medium term, it is anticipated that significant other elements of the energy sector (heating and transport) will be electrified. For this reason, facilitating decarbonisation of electricity generation takes on additional importance. The study focuses on the roles of six state institutions involved in the energy sector, namely the Department of Communications, Climate Action and Environment (DCCAE), the EPA, the Commission for Regulation of Utilities (CRU), SEAI, EirGrid and An Bord Pleanála (ABP). This set is not comprehensive, and future research could go beyond these bodies to consider the wider set of state institutions involved in decarbonising the electricity sector, including commercial semi-state bodies, and could also go beyond the electricity sector.

The findings of this report are based on desk-based research and interviews with key stakeholders in the institutions studied as part of this project. A small number of additional interviews were undertaken with individuals outside those organisations who have significant knowledge and expertise related to energy governance in Ireland. Anonymity was promised in all

1 The "with additional measures" scenario now works on the assumption that Ireland will reach 37.3% of renewables in electricity generation by 2020 rather than the target of 40% (EPA 2017: p 6).

cases to facilitate open discussion. A draft of this report was presented to relevant stakeholders for discussion in early May 2017. Feedback from the stakeholder meeting has informed this final report. The findings of this report represent the analysis and views of the author alone and should not be attributed to any of the institutions discussed below.

2 Governance of Energy Transitions

The task of decarbonising the electricity sector is multi-faceted. It involves progressively increasing the share of electricity generated from renewable sources, as well as shifting away from higher carbon fossil fuels, for example from coal and peat to gas. In the longer term, even lower carbon intensity fossil fuels will need to be eliminated from electricity generation. Another part of the challenge is to build and manage an electricity grid that can handle progressively larger shares of intermittent, non-synchronous electricity generated from renewable sources. The innovation system has an important role to play in facilitating low-carbon transition because of the need to develop and deploy new as well as existing technologies. A further critical aspect of energy transition involves securing societal buy-in, connecting top-down objectives with bottom-up initiatives at community level.

Governance institutions are key to delivering on all of these tasks. The National Economic Social Council (NESC) report, *Ireland and the Climate Change Challenge*, identified the importance of an effective enabling institutional and policy framework to drive and measure progress on addressing climate change at a national level (NESC, 2012). This observation links to broader research on the institutional underpinnings of sustainable energy transitions. Much of this literature emphasises in particular how institutions can often constrain transitions to sustainability. Research on "carbon lock-in", for example, emphasises how "techno-institutional complexes" create inter-locking path dependencies in both technologies and governance systems that are resistant to change (Unruh, 2000, 2002).

Other perspectives, meanwhile, emphasise the ability of government to steer economy and society towards sustainability. For example, the literature on transition management suggests that governments can do so by providing a long-term vision for the direction of transition. However, this approach underestimates the need for political legitimacy for transition and the role of politics (Andrews-Speed, 2016). It also downplays the power of incumbent interests and veto players (Kuzemko *et al*., 2016). Furthermore, it paints a picture of energy as a technical system that is detached from society. By contrast, the idea of a "socio-technical regime" captures the notion that technology and society are not separate spheres of activity but rather are highly interdependent (Andrews-Speed, 2016). Viewing institutional roles and mandates in narrow technocratic terms risks missing out on vital parts of the larger societal and political picture.

Institutionalist research on sustainable energy transitions distinguishes between different levels of institutions (Andrews-Speed, 2016). At the first level are embedded institutions such as norms, beliefs and ideas. This links to the notion of policy paradigms – i.e. particular ways of thinking about policy problems that inhibit actors from considering alternatives (Kuzemko *et al*., 2016). The second level is the institutional environment, including the broader political, economic and legal systems, electoral, parliamentary and government structures, and so on. At the third level are the specific institutions that govern transactions, namely government agencies, policies, laws and markets that are specific to the energy sector. This perspective emphasises the nested nature of governance institutions and the ways in which specific institutions in energy governance are contingent on deeper levels of institutions. While this report focuses principally on the third level of institutions, it must not be forgotten that these specific institutions are nested within a broader set of institutions, norms, beliefs and ideas that can themselves constrain or enable decarbonisation.

In recent decades, most developed countries have increasingly delegated governance functions to agencies. This "agencification" of public administration, as part of what has been termed "New Public Management", has led to fragmentation of policymaking capacity. In the case of Ireland, it has been argued that agencies have been created in Ireland in a relatively ad hoc fashion, with a wide variety of accountability and reporting relationships with central government (MacCarthaigh, 2011). The creation of the Irish regulatory state – through delegation to arm's length regulators – has been a relatively recent development in comparison with other countries, with many regulatory agencies created in

a short space of time (Hardiman and Scott, 2010; MacCarthaigh, 2011). Where powers have been delegated to independent regulators, this effectively introduces new veto players over which central government has relatively little control (Lockwood *et al*., 2017). However, other research suggests that, in contrast to expectations of unaccountable regulators acting contrary to the wishes of central government, oftentimes the relationship between central government and regulatory agencies is characterised by "principal drift", whereby agencies in fact seek greater rather than less guidance from their line ministries (Schillemans and Busuioc, 2014).

The primary task of this study is to review the roles and mandates of a range of governance institutions in the energy sector in Ireland, as well as the relationships, if any, between them. However, doing so in a narrow manner would risk missing the inescapable connections between governance institutions on the one hand and the political and societal sphere on the other.

3 National and European Policy Context

Ireland is committed to significant decarbonisation by mid-century. In 2014, the government agreed a National Policy Position that commits to a long-term vision of low-carbon transition based on an aggregate reduction in CO_2 emissions from electricity generation, the built environment and transport of at least of 80% by 2050, relative to 1990 levels, and an approach to carbon neutrality in the agriculture and land use sector, including forestry, that does not compromise capacity for sustainable food production (Government of Ireland, 2014).

The Energy White Paper, published in December 2015, commits to transforming Ireland's energy sector into a clean, low-carbon system by 2050, stating that "eventually, we will have to generate 100% of all our energy needs – not just electricity – from clean sources" (DCENR, 2015). The White Paper puts citizens at the centre of the energy transition as active participants. On the other hand, the White Paper contains less in terms of short-term policy measures to ensure delivery of this vision. Current and planned measures – including the Support Scheme for Renewable Heat and the anticipated Renewable Electricity Support Scheme – are welcome, but more will be required to put Ireland on a pathway to deep decarbonisation.

Ireland's climate change law, the Climate Action and Low Carbon Development Act, was enacted in December 2015. It established a planning and reporting framework for climate change policy. Under the Act, the government is required to publish a National Mitigation Plan and a National Adaptation Framework once every 5 years. The first National Mitigation Plan was published by the Minister for Communications, Climate Action and Environment in July 2017 (DCCAE, 2017). Under the Act, the Minister is required to make an "Annual Transition Statement" to the Dáil and Seanad each year. The Act also established an independent Climate Change Advisory Council, which has a remit to provide advice to government and assess progress in achieving national policy goals. The Council is chaired by Professor John FitzGerald.

Ireland's energy and climate policies exist within a broader policymaking context, often with competing priorities and fractured policy agendas. Indeed, one of the challenges in delivering decarbonisation is a disconnection between the decarbonisation imperative and some of the deeper, embedded institutions, including a reliance on standard cost–benefit analysis, which is poorly equipped to deal with uncertainties associated with climate change (Bullock *et al*., 2015). Delivering decarbonisation will require some of these deeper institutions and norms to be challenged.

EU membership also provides a crucial policy context. The EU's 2020 climate and energy package set a target of a 20% reduction in GHGs, a 20% share of energy from renewables and a 20% increase in energy efficiency. Fossil fuel electricity generation (as well as large industrial energy users) is covered by the EU Emissions Trading Scheme (EU ETS) with an EU-wide reduction target of 21%, relative to 2005. However, the price of carbon within the EU ETS has been consistently below €10/tCO_2 for the past 5 years as a result of structural design issues. Ireland has a binding renewable energy target of 16% by 2020. This is broken down into component targets for electricity (40%), heat (12%) and transport (10%) (Government of Ireland, 2010). Hence, (aspects of) Ireland's electricity generation sector are covered by both the EU ETS for emissions reduction and a renewables target.

As part of its climate and energy policy framework for the period 2020–2030, the EU has set a GHG reduction target of 40%, relative to 1990 levels, a 27% target for renewable energy and a 27% target for energy efficiency. Under the Energy Union legislative framework – some of which is still the subject of ongoing negotiations – the EU ETS is being revised in order to strengthen the system, building on existing reforms (back-loading and the market stability reserve). Member States still have binding GHG emissions targets for the non-ETS sector under a revised Effort Sharing Decision, but targets for renewable energy and energy efficiency will be binding only at EU level – Member States will not have binding

targets in these areas. However, Member States' renewable energy targets for 2020 would become minimum baselines from 2021 onwards (EC, 2016a).

As part of the Energy Union legislative package, the Commission has proposed a new framework for governance of the Energy Union in the "Clean Energy for All Europeans" package published in November 2016 (EC, 2016b). Under this proposal, Member States will be required to formulate and submit "national energy and climate plans" to the Commission covering the period 2020–2030. These plans will set out national energy and climate objectives, including their contribution to the EU's GHG emissions, renewable energy, energy efficiency and electricity interconnection targets. Following submission of draft plans by Member States, the Commission would then assess all national plans, including whether they collectively meet the EU's aggregate targets, and would issue recommendations to Member States. Following this consultation, final national plans would be submitted to the Commission. Furthermore, from 2021 onwards, Member States would be required to submit progress reports, which would be assessed by the Commission.

Under the Commission's proposal, if Member States are not making sufficient progress towards the EU's 2030 goals, the Commission can take measures to ensure that targets will be met. With respect to renewable energy targets, this could include requiring Member States to make financial contributions to a financial instrument managed by the Commission (EC, 2016a: p 3). In other words, while Member States will not have binding renewable energy targets from 2021 onwards, under the Energy Union governance proposals the Commission would still have a significant "stick" with which to induce compliance with renewable energy targets.

This EU framework is subject to uncertainty created by the UK's vote to leave the EU in June 2016. It is so far unclear what impacts Brexit will have on the EU's climate and energy policies, although questions have been raised over implications for the EU's GHG targets and the EU ETS, among other things, in a post-Brexit EU.

4 Governance of Decarbonisation in Ireland

There has been a progressive "agencification" of the Irish state over recent decades. Comparative research has found that, across sectors, regulatory agencies overall in Ireland enjoy the highest level of formal independence across 17 Western European countries (Gilardi, 2005). The array of institutions responsible for governance of the energy sector – and thus charged with decarbonising electricity generation – includes aspects of the regulatory state, the developmental state, and the adjudicatory state (Hardiman and Scott, 2010). This complex ecosystem of institutions is reviewed below to highlight the respective roles of each organisation.

4.1 Department of Communications, Climate Action and Environment

The Department of Communications, Climate Action and Environment (DCCAE) assumed its current form in July 2016 following the transfer of functions relating to climate action and environment from the (then) Department of Environment, Community and Local Government to the Department of Communications, Energy and Natural Resources (DCENR).[2] DCCAE is the parent department for 17 bodies, including four of the five institutions listed below, as well as the Electricity Supply Board (ESB) and Bord na Móna. It has separate divisions for climate action and environment and for energy. It also has a natural resources division, a significant focus of which is domestic hydrocarbons resources and extraction. Over the longer term, continued extraction of hydrocarbons is clearly in tension with the goal of decarbonisation.

The department has a range of roles with respect to decarbonisation of electricity and wider climate change policy. It has responsibility under the Climate Action and Low Carbon Development Act 2015 for preparation of the National Mitigation Plan (NMP), and is the department responsible for the "electricity generation" sector within that process. Under the Act, "relevant bodies", such as ESB, CRU and EirGrid, must "have regard to" the NMP in the performance of their functions. The NMP sets out provisions for implementation, including a "National Mitigation Plan High Level Steering Group", which is to meet at least once every quarter and reports to the relevant cabinet committee (DCCAE, 2017). This is a welcome start, but it ought to be strengthened. The mechanisms associated with delivery of the Action Plan for Jobs provide a possible template, whereby Secretaries-General of relevant sectoral ministries are required to account for progress on implementation on a 6-monthly basis.

The department is also responsible for formulation of policies related to the electricity sector, including renewables support and the Public Service Obligation (PSO). In its Statement of Strategy 2016–2019, the department committed to a new renewable electricity support scheme and a new framework for renewable electricity development (DCCAE, 2016). A draft *Strategic Environmental Assessment Scoping Report for a Draft Renewable Electricity Policy and Development Framework* was published by the (then) DCENR (DCENR, 2016). A design consultation for a Renewable Electricity Support Scheme was launched by the department in September 2017, and a final scheme is awaited. Such policies form a basis on which independent agencies such as CRU, EPA and ABP make decisions. The need for clear guidance in the form of policy from government is an imperative for such bodies and should be delivered as soon as possible. DCCAE is also responsible for the National Dialogue on Climate Action.

In an EU context, the department and its Minister represent Ireland in the Council of Ministers (Transport, communications and energy, and environment configurations). Ongoing negotiations on legislation to give effect to the Energy Union and the 2030 Climate and Energy Framework are particularly important. Under the Commission's proposals for Energy Union governance, the department would be responsible for formulation of the national energy

2 S.I. No. 393/2016 – Climate Action and Environment (Transfer of Departmental Administration and Ministerial Functions) Order 2016.

and climate plan, and biennial reporting thereunder. DCCAE participates in cross-government coordination bodies relevant to decarbonisation, including Cabinet Committee D (Infrastructure) and its related senior officials' group, which are chaired by the Taoiseach and the Department of the Taoiseach, respectively. A technical, research and modelling group was established in 2015, which reports to the senior officials' group.

4.2 Environmental Protection Agency

The EPA was established in 1993 under the 1992 Environmental Protection Act, replacing the previous Environmental Research Unit. In comparative European terms, the EPA enjoys a high level of independence (Gilardi, 2008). The role of the EPA has grown over time,[3] but its functions as set out in Sections 52(1) and (2) of the 1992 Act, as amended, have not expanded to include climate change or decarbonisation explicitly.

The EPA has responsibility for providing national GHG emissions projections and inventories under the EU Monitoring Mechanism Regulation.[4] It produces GHG inventories and is required to submit these annually to the European Commission and the United Nations Framework Convention on Climate Change. It also produces projections of future GHG emissions in cooperation with other relevant bodies (including SEAI, Teagasc, the Department of Agriculture, Food and the Marine, the Economic and Social Research Institute – ESRI, and University College Cork – UCC) and is required to submit these biennially to the European Commission. The EPA's work in this area is bound by rules and methodologies agreed at EU and UN levels, leaving little room for discretion. However, options for continued development and improvement of reporting and accounting systems are allowed and encouraged in moving to country-specific data and analysis. The EPA is also the national competent authority for EU ETS. However, because the Union Registry replaced National Registries at the beginning of Phase II of the EU ETS, the EPA's role is less significant in this respect.

The EPA is also responsible for industrial emissions and integrated pollution control licensing. These licensing regimes apply, inter alia, to energy and fossil fuel installations. While there are often co-benefits between regulating air pollutants and GHGs, there are also circumstances in which compliance with industrial emissions licensing requirements can have unintended negative consequences for the regulation of GHG emissions, as highlighted by a recent European Environment Agency report on the power sector (EEA, 2016). The EPA has a related role in relation to the Environmental Impact Assessment and Strategic Environmental Assessment processes. Finally, the EPA has a role in undertaking and commissioning research, and has an active climate change research programme with annual review and evaluation as well as calls for proposals.

4.3 Commission for Regulation of Utilities

The CRU, formerly the Commission for Energy Regulation, was established under the Electricity Regulation Act 1999 as the independent economic regulator for the electricity sector. Since then, its functions have expanded significantly to include regulation of the gas sector, safety, regulation of the Single Electricity Market (SEM), and regulation of public water and waste water services.[5] Its current mandate encompasses 17 objectives, and recent research has advocated narrowing and hierarchically ordering its existing objectives (Harrington, 2016). Decarbonisation is not included among the six strategic goals in its Strategic Plan 2014–2018.[6]

3 The role of the EPA has been expanded by, inter alia, the Waste Management Act 1996, the Protection of the Environment Act 2003 and the Radiological Protection (Miscellaneous Provisions) Act 2014.

4 Regulation (EU) No. 525/2013 of the European Parliament and of the Council of 21 May 2013 on a mechanism for monitoring and reporting greenhouse gas emissions and for reporting other information at national and Union level relevant to climate change and repealing Decision No. 280/2004/EC.

5 CRU's functions were expanded, inter alia, by the Gas (Interim) Regulation Act 2002, the Energy (Miscellaneous Provisions) Act 2006, the Electricity Regulation Amendment (SEM) Act 2007, the Petroleum (Exploration & Extraction) Safety Act 2010 and the Water Services Act 2013.

6 These six goals relate to safety, security of electricity and gas supplies, water supply and waste water treatment, fair prices, and best practice regulation (CER, 2014).

However, the Strategic Plan recognises the need to fulfil Ireland's international commitments, such as renewable energy targets. Its approach to decarbonisation – as well as ensuring security of supply – is to deliver these goals at least cost to consumers.

The CRU is jointly responsible for designing and regulating the all-island wholesale market for electricity – the SEM – along with the Northern Ireland Utility Regulator through the SEM Committee. The design of the SEM is being changed considerably to take account of the requirements of the European Network Codes and the Target Model. The new design is referred to as I-SEM (integrated SEM) and is scheduled to be operational in 2018. CRU's regulation of electricity retail prices to domestic consumers ended in 2011, and electricity prices in the retail electricity market are fully deregulated for all consumers.

In regulating the SEM, CRU does not have regard to the carbon content of fossil fuels. It ensures that the full marginal cost of carbon (via the EU ETS) is included in electricity prices, but does not intervene to ensure a particular balance between coal, peat and gas. CRU does, on the other hand, play an active role in relation to promoting integration of renewable energy generation into the electricity system through grid connection policies and priority dispatch for renewable generation. It is also seeking to enable higher levels of renewable energy generation on the system and lower levels of curtailment of renewables by providing incentives to conventional generators to be more flexible, stimulating demand-side participation and efficient use of interconnectors (CER, 2014).

The CRU is responsible for calculating the annual level of the PSO, which is the support mechanism for peat generation, for certain conventional generation constructed for security of supply purposes, and for the development of renewable electricity. However, CRU has no discretion in this role and is mandated solely to calculate the level of the PSO in accordance with government policy. It also has a role in funding research and pilot projects, such as electric vehicle charging infrastructure and use of compressed natural gas in vehicles. At the European level, CRU cooperates with other Member State energy regulators through the Agency for the Cooperation of Energy Regulators, an EU agency created in 2011 under the Third Energy Package.

The overall goals of Irish and EU energy policy have evolved significantly since the 1990s, when Member States moved from an era of monopoly providers to deregulation of electricity and gas markets. With the significant challenges posed by transition to a low-carbon energy system, consideration could be given to rebalancing CRU's mandate to give greater emphasis to decarbonisation by refocusing the existing environmental mandate towards a specific decarbonisation mandate. This should not displace CRU's existing focus on cost minimisation and consumer protection, but a wider definition of "cost" may help to provide an appropriate balance between different objectives. In this regard, the ongoing review by the OECD of the CRU's mandate may provide an opportunity to consider such a change.

4.4 Sustainable Energy Authority of Ireland

SEAI was established under the Sustainable Energy Act 2002. It is the national energy authority, with associated statutory functions across energy efficiency, energy technology and innovation, and decarbonisation of energy supply, including renewables. SEAI is a key delivery agency for government in terms of allocating in excess of €100 million of capital funding annually to support energy efficiency and renewable energy.

SEAI has a lead role in compiling and publishing statistics on energy production and consumption as well as future projections related to EU energy targets. It does so in collaboration with ESRI and UCC, and it feeds into the EPA's reporting on and projections of Ireland's GHG emissions. It also provides advice to DCCAE on the development of policy, for example on plans for a new renewable electricity support scheme. SEAI has in-house analytical and modelling capacity to deliver this advice to government and set up a behavioural economics unit to strengthen this capacity.

SEAI supports research, development and deployment of sustainable energy technologies including bioenergy and combined heat and power, ocean energy and electric vehicles. SEAI is also responsible for delivery of large-scale public programmes. Several of these include significant community engagement, including the Better Energy Communities and Sustainable Energy Communities programmes. These focus on both energy efficiency and renewable energy at

community level. Given the central role of "energy citizens" in the 2015 Energy White Paper, this role is of increasing importance, and consideration could be given to strengthening the SEAI's role as the channel between energy citizens/communities and the state. In particular, its role in disseminating lessons from individual community innovations, and increasing the broader transformational role of its programmes, could be enhanced. Furthermore, SEAI and other relevant governance institutions (including DCCAE and EPA) could coordinate their outreach and engagement activities to provide greater coherence, impact and visibility to their individual activities.

4.5 EirGrid

In 2006, EirGrid assumed the role of transmission system operator and market operator for the electricity system in Ireland, licensed by CRU. With the establishment of the SEM in 2007, EirGrid, together with SONI, the market operator in Northern Ireland, operate the wholesale electricity market in Ireland through the SEM Operator, a joint venture between EirGrid and SONI. EirGrid is a state-owned company. Since 2009, EirGrid Group, the parent company of EirGrid, has also owned SONI. In Ireland, the electricity transmission system is operated by EirGrid but owned by ESB. ESB Networks is responsible for maintenance, repairs and construction on the grid, while EirGrid is responsible for the future planning of the development of the grid. The electricity distribution system is owned by ESB and operated by ESB Networks.

In 2008, EirGrid published its Grid25 strategy, which was premised on pre-crash projections for growth in electricity demand. Since then, it has revised its plans for grid development, including in the face of increased opposition from local communities. EirGrid's revised grid development strategy, published in early 2017, committed to using new and emerging technologies to enhance the capacity of existing grid infrastructure (EirGrid, 2017). EirGrid's DS3 Programme, "Delivering a Secure, Sustainable Electricity System", aims to address the challenges associated with managing a grid with increasing levels of non-synchronous renewable electricity, in the context of meeting Ireland's EU 2020 renewable electricity target of 40%. Ireland aims to achieve unprecedented levels of integration of intermittent and non-synchronous electricity into the grid. The challenges associated with this will not be faced by larger electricity systems for some time. In this context, consideration ought to be given to providing greater scope for EirGrid to focus on innovation, including through approval by CRU of increased levels of funding.

Community engagement will remain a challenge. In recent years, EirGrid has developed its capacity for community engagement, including by opening a number of offices and information centres in regions in which new grid infrastructure is planned. Future decarbonisation of the electricity system, including in time through deployment of greater amounts of offshore wind and, eventually, ocean energy will inevitably require construction of new grid infrastructure. Further engagement, including building a new narrative around energy transition, will be required in order to achieve this.

4.6 An Bord Pleanála

ABP is something of an outlier in this set of institutions because it is under the aegis of the Department of Housing, Planning and Local Government rather than DCCAE. It was originally established in 1977 under the Local Government (Planning and Development) Act 1976 and is responsible for the determination of appeals under the Planning and Development Act 2000, as amended. Of particular relevance, ABP is responsible for determining applications for strategic infrastructure development under the Planning and Development (Strategic Infrastructure) Act 2006, including large electricity generation and electricity grid infrastructure. Under EU Regulation 347/2013, it is also the designated competent authority for cross-border large-scale energy infrastructure projects that aim to deliver the EU's energy policy goals, known as "Projects of Common Interest".

While ABP does not have a specific mandate with respect to decarbonisation, it is guided by government policy in the performance of its duties. For this reason, greater government clarity on decarbonisation policy would assist ABP in adjudicating on energy infrastructure applications. In particular, broad visions such as those contained in the 2015 Energy

White Paper give little guidance on the spatial dimension of renewable energy deployment, i.e. in which regions wind and solar energy ought to be deployed. The planned Renewable Electricity Policy and Development Framework, which is intended to have a time horizon of 2030 and to include a spatial dimension, will assist ABP in this regard. However, to date, only a Draft Strategic Environmental Assessment Scoping Report has been published by the (then) DCENR (DCENR, 2016).

5 Recommendations to Enable Decarbonisation

The challenge of decarbonising the electricity sector in Ireland, along with the broader transition to a low-carbon economy and society, is partly technical, but it is also a profoundly societal and political challenge. It is important to put in place an appropriate enabling institutional architecture, but focusing solely on institutional questions would risk missing critical pieces of the jigsaw. The following recommendations reflect proposed changes to both the institutional framework and connections between energy governance, the wider policy and political process, and broader society.

5.1 A Stronger and More Positive Decarbonisation Narrative

All the institutional tinkering in the world will not deliver decarbonisation without support from society. A more positive economic and social narrative is required that highlights not only the challenges but also the opportunities of the transition. The business sector could play a stronger role, such as the Confederation of British Industry has done in the UK (CBI, 2017). The transition narrative must be about more than compliance with externally imposed targets, and it must take seriously the need to protect those who will lose as a result of the transition. The transition will also have an important spatial dimension, which should be linked to ongoing work on a new National Planning Framework. The challenge of decarbonisation should also be connected with the need to address other pressing societal challenges, including strengthening the social model and the democratic system (European Economic and Social Committee, 2017). The National Dialogue on Climate Action and the Citizens' Assembly are a start, but much more needs to be done.

5.2 Stronger Direction and New Thinking from Government

The National Policy Position and Energy White Paper provide long-term vision. More needs to be done to translate these into short- and medium-term policy, including through the anticipated *Renewable Electricity Policy and Development Framework*. Current and planned policies and measures – including the National Mitigation Plan, Support Scheme for Renewable Heat and anticipated Renewable Electricity Support Scheme – are welcome, but more will be required to put Ireland on a pathway to decarbonisation. Achieving low-carbon transition will require new thinking across government and systemic change in governance, including consideration of whether standard cost–benefit analysis provides an appropriate instrument for policy evaluation. Furthermore, in the absence of a meaningful price on carbon being delivered through the EU ETS, a stronger policy signal from government may be needed to shift to lower carbon fuels in electricity generation.

5.3 Better Structures to Ensure Implementation

The National Mitigation Plan, published in July 2017, sets out provisions for implementation, including a "National Mitigation Plan High Level Steering Group", which is to meet at least once every quarter and which reports to the relevant cabinet committee (DCCAE, 2017). This is a welcome start, but it ought to be strengthened in a number of ways. The reporting structures associated with the Action Plan for Jobs provides a template, with Secretaries-General in sectoral ministries required to report on a periodic (perhaps 6-monthly) basis on implementation. To engage better with the political system, consideration should also be given to establishing a special Oireachtas Joint Committee, separate from the existing Joint Committee on Communications, Climate Action and Environment, that would focus specifically on "decarbonisation," "low carbon transition" or similar. This committee should be well resourced in terms of specialist staff and expertise to enable proper political scrutiny of the transition process.

5.4 A Strengthened Governance Architecture

At present, there is ad hoc contact between the governance agencies discussed above. More joined-up governance is needed to facilitate decarbonisation, including a feedback loop from governance agencies to central government. A

network of energy and climate governance agencies could be established to allow for ongoing periodic exchange of information between relevant bodies. This would need to take account of particular bilateral relationships, including between CRU and EirGrid and between EirGrid and ABP. Such a network could also be embedded within a wider network (possibly in conjunction with the UK or within an EU or OECD framework) to facilitate the sharing of experiences between jurisdictions.

5.5 Review of Regulators' Roles and Mandates

Because significant challenges are posed by transition to a low-carbon energy system, consideration should be given to rebalancing CRU's mandate to give greater emphasis to decarbonisation by refocusing the existing environmental mandate towards a specific decarbonisation mandate. This should not displace CRU's existing focus on cost minimisation and consumer protection, but a wider definition of "cost" may help to provide an appropriate balance between different objectives. In this regard, the ongoing review by the OECD of the CRU's mandate may provide an opportunity to consider such a change. Similarly, there are circumstances in which the EPA's regulatory functions related to industrial emissions can generate unintended consequences for the regulation of GHGs. Consideration should be given to addressing such unintended consequences.

5.6 A Better Framework for Funding and Delivering Transformational Societal Change

SEAI and others have developed excellent programmes working with communities to deliver energy efficiency and renewable energy projects, including through the Better Energy Communities and Sustainable Energy Communities programmes. To capture the transformational potential of community engagement on sustainable energy, a stronger framework is needed to aggregate and disseminate lessons from on-the-ground experimentation. This would enhance the two-way flow of information between local communities, national policymakers and other stakeholders. Relevant governance institutions (including DCCAE, SEAI and the EPA) could better coordinate their outreach and engagement activities to provide greater coherence, impact and visibility to their individual activities. Consideration should also be given to increasing the scope of joint funding initiatives between relevant agencies, including SEAI and the EPA.

5.7 Further, More Fine-grained Comparative Research on Governance of Decarbonisation

This study has provided a broad-brush overview of how to enable decarbonisation of electricity generation by providing an enabling governance system. It has only scratched the surface and further research is needed in three areas. First, individual aspects of energy governance ought to be analysed in more depth, such as the innovation system and regulatory governance architecture. Second, analysis should be extended to other sectors relevant to the national transition objective. Third, comparative cross-national research is required to benchmark Ireland against international experience and identify best practice. It would also be beneficial to have closer collaboration on research activities between those public bodies (DCCAE, EPA, SEAI, NESC) commissioning research.

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Abbreviations

ABP	An Bord Pleanála
CRU	Commission for Regulation of Utilities
DAFM	Department of Agriculture, Food and the Marine
DCCAE	Department of Communications, Climate Action and Environment
DCENR	Department of Communications, Energy and Natural Resources
EPA	Environmental Protection Agency
ESB	Electricity Supply Board
ESRI	Economic and Social Research Institute
ETS	Emissions Trading Scheme
GHG	Greenhouse gas
NESC	National Economic Social Council
NMP	National Mitigation Plan
OECD	Organisation for Economic Co-operation and Development
PSO	Public Service Obligation
SEAI	Sustainable Energy Authority of Ireland
SEM	Single Electricity Market
UCC	University College Cork

AN GHNÍOMHAIREACHT UM CHAOMHNÚ COMHSHAOIL
Tá an Ghníomhaireacht um Chaomhnú Comhshaoil (GCC) freagrach as an gcomhshaol a chaomhnú agus a fheabhsú mar shócmhainn luachmhar do mhuintir na hÉireann. Táimid tiomanta do dhaoine agus don chomhshaol a chosaint ó éifeachtaí díobhálacha na radaíochta agus an truaillithe.

Is féidir obair na Gníomhaireachta a roinnt ina trí phríomhréimse:

Rialú: *Déanaimid córais éifeachtacha rialaithe agus comhlíonta comhshaoil a chur i bhfeidhm chun torthaí maithe comhshaoil a sholáthar agus chun díriú orthu siúd nach gcloíonn leis na córais sin.*

Eolas: *Soláthraímid sonraí, faisnéis agus measúnú comhshaoil atá ar ardchaighdeán, spriocdhírithe agus tráthúil chun bonn eolais a chur faoin gcinnteoireacht ar gach leibhéal.*

Tacaíocht: *Bímid ag saothrú i gcomhar le grúpaí eile chun tacú le comhshaol atá glan, táirgiúil agus cosanta go maith, agus le hiompar a chuirfidh le comhshaol inbhuanaithe.*

Ár bhFreagrachtaí

Ceadúnú
Déanaimid na gníomhaíochtaí seo a leanas a rialú ionas nach ndéanann siad dochar do shláinte an phobail ná don chomhshaol:
- saoráidí dramhaíola *(m.sh. láithreáin líonta talún, loisceoirí, stáisiúin aistrithe dramhaíola)*;
- gníomhaíochtaí tionsclaíocha ar scála mór *(m.sh. déantúsaíocht cógaisíochta, déantúsaíocht stroighne, stáisiúin chumhachta)*;
- an diantalmhaíocht *(m.sh. muca, éanlaith)*;
- úsáid shrianta agus scaoileadh rialaithe Orgánach Géinmhodhnaithe *(OGM)*;
- foinsí radaíochta ianúcháin *(m.sh. trealamh x-gha agus radaiteiripe, foinsí tionsclaíocha)*;
- áiseanna móra stórála peitril;
- scardadh dramhuisce;
- gníomhaíochtaí dumpála ar farraige.

Forfheidhmiú Náisiúnta i leith Cúrsaí Comhshaoil
- Clár náisiúnta iniúchtaí agus cigireachtaí a dhéanamh gach bliain ar shaoráidí a bhfuil ceadúnas ón nGníomhaireacht acu.
- Maoirseacht a dhéanamh ar fhreagrachtaí cosanta comhshaoil na n-údarás áitiúil.
- Caighdeán an uisce óil, arna sholáthar ag soláthraithe uisce phoiblí, a mhaoirsiú.
- Obair le húdaráis áitiúla agus le gníomhaireachtaí eile chun dul i ngleic le coireanna comhshaoil trí chomhordú a dhéanamh ar líonra forfheidhmiúcháin náisiúnta, trí dhíriú ar chiontóirí, agus trí mhaoirsiú a dhéanamh ar leasúchán.
- Cur i bhfeidhm rialachán ar nós na Rialachán um Dhramhthrealamh Leictreach agus Leictreonach (DTLL), um Shrian ar Shubstaintí Guaiseacha agus na Rialachán um rialú ar shubstaintí a ídíonn an ciseal ózóin.
- An dlí a chur orthu siúd a bhriseann dlí an chomhshaoil agus a dhéanann dochar don chomhshaol.

Bainistíocht Uisce
- Monatóireacht agus tuairisciú a dhéanamh ar cháilíocht aibhneacha, lochanna, uiscí idirchriosacha agus cósta na hÉireann, agus screamhuiscí; leibhéil uisce agus sruthanna aibhneacha a thomhas.
- Comhordú náisiúnta agus maoirsiú a dhéanamh ar an gCreat-Treoir Uisce.
- Monatóireacht agus tuairisciú a dhéanamh ar Cháilíocht an Uisce Snámha.

Monatóireacht, Anailís agus Tuairisciú ar an gComhshaol
- Monatóireacht a dhéanamh ar cháilíocht an aeir agus Treoir an AE maidir le hAer Glan don Eoraip (CAFÉ) a chur chun feidhme.
- Tuairisciú neamhspleách le cabhrú le cinnteoireacht an rialtais náisiúnta agus na n-údarás áitiúil *(m.sh. tuairisciú tréimhsiúil ar staid Chomhshaol na hÉireann agus Tuarascálacha ar Tháscairí)*.

Rialú Astaíochtaí na nGás Ceaptha Teasa in Éirinn
- Fardail agus réamh-mheastacháin na hÉireann maidir le gáis cheaptha teasa a ullmhú.
- An Treoir maidir le Trádáil Astaíochtaí a chur chun feidhme i gcomhair breis agus 100 de na táirgeoirí dé-ocsaíde carbóin is mó in Éirinn.

Taighde agus Forbairt Comhshaoil
- Taighde comhshaoil a chistiú chun brúnna a shainaithint, bonn eolais a chur faoi bheartais, agus réitigh a sholáthar i réimsí na haeráide, an uisce agus na hinbhuanaitheachta.

Measúnacht Straitéiseach Timpeallachta
- Measúnacht a dhéanamh ar thionchar pleananna agus clár beartaithe ar an gcomhshaol in Éirinn *(m.sh. mórphleananna forbartha)*.

Cosaint Raideolaíoch
- Monatóireacht a dhéanamh ar leibhéil radaíochta, measúnacht a dhéanamh ar nochtadh mhuintir na hÉireann don radaíocht ianúcháin.
- Cabhrú le pleananna náisiúnta a fhorbairt le haghaidh éigeandálaí ag eascairt as taismí núicléacha.
- Monatóireacht a dhéanamh ar fhorbairtí thar lear a bhaineann le saoráidí núicléacha agus leis an tsábháilteacht raideolaíochta.
- Sainseirbhísí cosanta ar an radaíocht a sholáthar, nó maoirsiú a dhéanamh ar sholáthar na seirbhísí sin.

Treoir, Faisnéis Inrochtana agus Oideachas
- Comhairle agus treoir a chur ar fáil d'earnáil na tionsclaíochta agus don phobal maidir le hábhair a bhaineann le caomhnú an chomhshaoil agus leis an gcosaint raideolaíoch.
- Faisnéis thráthúil ar an gcomhshaol ar a bhfuil fáil éasca a chur ar fáil chun rannpháirtíocht an phobail a spreagadh sa chinnteoireacht i ndáil leis an gcomhshaol *(m.sh. Timpeall an Tí, léarscáileanna radóin)*.
- Comhairle a chur ar fáil don Rialtas maidir le hábhair a bhaineann leis an tsábháilteacht raideolaíoch agus le cúrsaí práinnfhreagartha.
- Plean Náisiúnta Bainistíochta Dramhaíola Guaisí a fhorbairt chun dramhaíl ghuaiseach a chosc agus a bhainistiú.

Múscailt Feasachta agus Athrú Iompraíochta
- Feasacht chomhshaoil níos fearr a ghiniúint agus dul i bhfeidhm ar athrú iompraíochta dearfach trí thacú le gnóthais, le pobail agus le teaghlaigh a bheith níos éifeachtúla ar acmhainní.
- Tástáil le haghaidh radóin a chur chun cinn i dtithe agus in ionaid oibre, agus gníomhartha leasúcháin a spreagadh nuair is gá.

Bainistíocht agus struchtúr na Gníomhaireachta um Chaomhnú Comhshaoil
Tá an ghníomhaíocht á bainistiú ag Bord lánaimseartha, ar a bhfuil Ard-Stiúrthóir agus cúigear Stiúrthóirí. Déantar an obair ar fud cúig cinn d'Oifigí:
- An Oifig um Inmharthanacht Comhshaoil
- An Oifig Forfheidhmithe i leith cúrsaí Comhshaoil
- An Oifig um Fianaise is Measúnú
- Oifig um Chosaint Radaíochta agus Monatóireachta Comhshaoil
- An Oifig Cumarsáide agus Seirbhísí Corparáideacha

Tá Coiste Comhairleach ag an nGníomhaireacht le cabhrú léi. Tá dáréag comhaltaí air agus tagann siad le chéile go rialta le plé a dhéanamh ar ábhair imní agus le comhairle a chur ar an mBord.

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Enabling Decarbonisation: A Study of Energy Sector Governance in Ireland

Author: Diarmuid Torney

Identifying Pressures

Low-carbon transition is a profoundly political and societal challenge. This study examines how existing governance structures in Ireland can better facilitate the transition to a low-carbon economy and society by 2050, with a focus on decarbonising electricity generation.

Informing Policy

By analysing the roles of a number of relevant governance institutions, the study seeks to inform policy through high-level recommendations for strengthening governance of the electricity generation sector to enable decarbonisation.

Developing Solutions

The study argues that Ireland needs (1) a stronger and more positive decarbonisation narrative; (2) stronger direction and new thinking from government; (3) better structures to ensure policy implementation; (4) a strengthened governance architecture; (5) a review of regulators' roles and mandates; (6) a better framework for funding and delivering transformational societal change; and (7) further, more fine-grained comparative research on the governance of decarbonisation.

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