



Rialtas na hÉireann  
Government of Ireland

# Annual Transition Statement 2019



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# 1. Introduction

Section 14(1) of the Climate Action and Low Carbon Development Act 2015,<sup>1</sup> (the 2015 Act), provides that an Annual Transition Statement (ATS) must be presented to both Houses of the Oireachtas not later than 12 months after the passing of the Act and not later than each subsequent anniversary of such passing. This is the fourth Annual Transition Statement and is being presented to both Houses in line with the requirements of the 2015 Act.

In accordance with section 14(2) of the 2015 Act, this Statement contains an ‘annual national transition statement’ which includes an overview of climate change mitigation and adaptation policy measures adopted to reduce emissions of greenhouse gases and to adapt to the effects of climate change in order to enable the achievement of the national transition objective; and an annual sectoral mitigation transition statement (chapter 4) and an annual sectoral adaptation transition statement (chapter 5) for each of the sectors currently designated for the purposes of the 2015 Act.

This Statement also contains a record of greenhouse gas emissions set out in the most recent inventory prepared by the Environmental Protection Agency (EPA) (chapter 6) and projections of future emissions, together with a report on compliance with obligations of the State under EU law or an international agreement referred to in section 2 of the 2015 Act (chapter 7).

At the core of the 2015 Act is a statutory recognition of the ‘national transition objective’ – the goal of pursuing a low carbon, climate resilient and environmentally sustainable economy by 2050. In order to facilitate the achievement of the national transition objective, the 2015 Act provides for the development and submission to Government for approval of a series of successive National Mitigation Plans and National Adaptation Frameworks which will lead to the achievement of the national transition objective in 2050. In addition, the 2015 Act also established independent advisory and Oireachtas accountability arrangements of which the Annual Transition Statement forms an important element.<sup>2</sup>

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<sup>1</sup> See <http://www.irishstatutebook.ie/eli/2015/act/46/section/14/enacted/en/html#sec14>

<sup>2</sup> Previous Annual Transition Statements are available online at: [www.dccae.gov.ie](http://www.dccae.gov.ie)

Ireland's first National Mitigation Plan was published on 19 July 2017.<sup>3</sup> The National Mitigation Plan takes a whole-of-Government approach to tackling greenhouse gas emissions; each Minister with responsibility for the largest emitting sectors (agriculture, transport, electricity and the built environment) was requested by Government to develop sectoral mitigation measures for inclusion in the National Mitigation Plan.

The Climate Action Plan 2019 To Tackle Climate Breakdown was published by Government on the 17 June 2019.<sup>4</sup> The Plan contains 183 actions, broken down into 619 individual measures, which Ireland needs to implement to meet our EU 2030 targets and to achieve net zero emissions by 2050. The actions identified will be implemented by 13 Government Departments and 40 agencies under the remit of those Departments, requiring a deep level of collaboration across Government.

The Climate Action Plan anticipates the establishment of strengthened governance arrangements for the implementation of climate policy in Ireland, including the establishment of a Climate Action Delivery Board within the Department of An Taoiseach to hold designated bodies to account; publication of quarterly progress reports on delivery against targets set out in the Plan and proposed legislation to strengthen the Climate Action and Low Carbon Development Act 2015.

The 2015 Act also provides for the making and submission to Government of successive National Adaptation Frameworks which specify the national strategy for the application of adaptation measures in different sectors and by local authorities in order to reduce the vulnerability of the State to the negative effects of climate change and to avail of positive effects that may occur. The first National Adaptation Framework was published by Government on 19 January 2018.<sup>5</sup> Twelve sectoral Adaptation Plans, identifying the key risks faced across the sector and the approach being taken to address these risks and build climate resilience for the future, were subsequently published during the course of 2019.<sup>6</sup>

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<sup>3</sup> See <https://www.dccae.gov.ie/en-ie/climate-action/topics/mitigation-reducing-ireland's-greenhouse-gas-emissions/national-mitigation-plan/Pages/default.aspx>

<sup>4</sup> See <https://dccae.gov.ie/en-ie/climate-action/topics/climate-action-plan/Pages/climate-action.aspx>

<sup>5</sup> See <https://dccae.gov.ie/en-ie/climate-action/topics/adapting-to-climate-change/national-adaptation-framework/Pages/default.aspx>

<sup>6</sup> See <https://dccae.gov.ie/en-ie/climate-action/topics/adapting-to-climate-change/national-adaptation-framework/sectoral-adaptation-planning/Pages/Sectoral.aspx>

## 2. International Policy Developments

Ireland recognises climate change as one of the key challenges of this century and that failure to address it effectively will result in major adverse impacts that will affect all countries. Its scale and complexity demand a coordinated approach at both national and international levels. Reflecting our commitment to addressing this global challenge, Ireland is a party to the United Nations Framework Convention on Climate Change (UNFCCC), the Kyoto Protocol, and the Paris Agreement, which together provide the international legal framework for addressing climate change.<sup>7</sup>

The Paris Agreement, adopted at the twenty-first Conference of the Parties to the UNFCCC (COP 21) in 2015, and which entered into force in November 2016, aims to strengthen the global response to the threat of climate change, including by:

- holding the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognising that this would significantly reduce the risks and impacts of climate change
- increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production
- making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development

The Paris Agreement will achieve its goals through Nationally Determined Contributions submitted by the Parties, which set out the climate actions each Party will take and which, as provided for under the Paris Agreement, must increase in ambition over time.

Ireland is contributing to the Paris Agreement via the Nationally Determined Contribution tabled by the European Union (EU) on behalf of Member States which commits to a 40% reduction in EU-wide emissions by 2030 compared to 1990. This 40% reduction comprises a 43% reduction in emissions from the EU Emissions Trading System (ETS) and a 30% reduction in emissions from other sectors by 2020 compared to 2005 levels.

UNFCCC negotiations since the adoption of the Paris Agreement in 2015 have focused on the design of the rules and structures which will enable the Agreement to achieve its goals.

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<sup>7</sup> See UNFCCC website - [http://unfccc.int/essential\\_background/items/6031.php](http://unfccc.int/essential_background/items/6031.php)

The most recent UN climate summit, COP24, took place in Katowice, Poland in December 2018, and had two main deliverables – the completion of the set of rules which would enable the full and robust implementation of the Paris Agreement, and the culmination of the Talanoa Dialogue, a global participative dialogue, led by the Fijian COP Presidency which took place during the course of 2018, on the adequacy of global climate action and ambition.

COP 24 concluded with Parties agreeing virtually all elements of the Katowice Work Programme, which will allow the Paris Agreement to become fully operational in 2020. Parties were unable to reach agreement on the discussions regarding Article 6 of the Paris Agreement. Negotiations on this topic continued at Bonn in June this year and will be a key focus to bring to a conclusion at COP25.

In advance of COP 25 and in preparation for the envisaged updating of NDCs in 2020 by Parties to the Paris Agreement, the UN Climate Action Summit took place New York on 23 September, convened by the UN Secretary General to build momentum towards enhanced climate ambition by Parties to the Paris Agreement. Parties to the summit were invited to make new commitments under a number of different themes, include climate mitigation; resilience and adaptation; climate finance and carbon pricing; social and political drivers; energy transition; nature-based solutions; infrastructure, cities and local government; industry; and youth engagement and public mobilisation, with Ireland confirming its support for a number of different initiatives under these themes.

### **Ireland's International Climate Commitments**

Ireland also supports climate action in developing countries, in conjunction with developed country partners. As part of the outcome of COP 21 in Paris, developed countries were urged to scale-up their level of support with a concrete roadmap to achieve the goal of mobilising US\$100 billion per year by 2020 for climate action in developing countries.

In line with this goal, Ireland made a commitment in 2015 to provide at least €175 million in public funding on climate action between 2016 and 2020, and reported a total of €194.4 million in such funding in the period covering 2016-2018. The majority of this funding supports adaptation and mitigation action in developing countries through the Official Development Assistance budget of the Department of Foreign Affairs and Trade.

Total funding of €7 million over the period 2016- 2018 provided by the Department of Communications, Climate Action and Environment included support for the Green Climate Fund (GCF), the Adaptation Fund, as well as to support the work of the Intergovernmental Panel on Climate Change (IPCC) and the Nationally Determined Contributions (NDC) Partnership.

Ireland has committed to a doubling of our annual contribution to the GCF in 2020, the principal financial mechanism under the Paris Agreement, from €2 million to €4 million, in line with the Budget 2020 announcement and the allocation of the additional revenues from increasing the rate of carbon tax.

Ireland's new Policy for International Development 'A Better World' places gender equality and climate action as clear interlinked priorities for our international sustainable development cooperation. The policy indicates the necessary step-change to ensure that gender equality and climate action are addressed across multiple decision-making bodies and in a more coherent manner. 'A Better World' also reinforces the Government's commitment to deliver the United Nations target of allocating 0.7% of Gross National Income (GNI) for Official Development Assistance (ODA) by 2030. Ireland's 2019 ODA allocation of €817 million was an increase of 32% on 2014 levels and Government recognise the significant increases that will be required to meet the ODA target by 2030.

The IPCC's landmark Special Report on the impacts of global warming of 1.5°C was published in October 2018, highlighting the urgency of global climate action. In addition to financial contributions, Ireland has supported the IPCC through the hosting of meetings of its various working groups in 2017 and again in 2018 to support the preparation of the Special Report on Climate Change and Land, which was published in August 2019. The final special report in the current IPCC assessment cycle, on the Ocean and Cryosphere in a Changing Climate, was published in September 2019.

### 3. European Union Policy Developments

#### **2030 Climate and Energy Framework**

The 2030 climate and energy framework, as adopted by the European Council in October 2014 and subsequently translated into binding legislation at EU level, includes EU-wide targets and policy objectives for the period from 2021 to 2030, comprising:

- At least 40% cuts in greenhouse gas emissions (from 1990 levels)
- At least 32% share for renewable energy
- At least 32.5% improvement in energy efficiency

The target to cut emissions in the EU by at least 40% below 1990 levels by 2030 will enable the EU to make significant progress towards a low-carbon economy and implement its commitments under the Paris Agreement. This target is to be achieved by:

- EU emissions trading system (ETS) sectors will have to cut emissions by 43% (compared to 2005) – to this end, the ETS has been revised for the period after 2020
- non-ETS sectors will need to cut emissions by 30% (compared to 2005) – this has been translated into individual binding targets for Member States

The remaining outstanding legislation underpinning the EU Climate and Energy Framework for 2030, including the legislation comprising the EU Clean Energy Package, was adopted in 2019.

#### **National Energy and Climate Plan**

EU Regulation (EU) 2018/1999 of the European Parliament and of the Council on the Governance of the Energy Union and Climate Action is a core piece of legislation in the 2030 framework which consolidates and streamlines a large number of existing energy and climate planning and reporting requirements into a National Energy and Climate Plan (NECP) for each Member State, which will replace, or delete, more than 50 different existing sectoral plans and reports with one comprehensive integrated plan.



The NECP will also set out, amongst other things, the proposed approach of the Member State to compliance with their Effort Sharing Regulation targets and the Member State's contributions to EU level 2030 targets on renewable energy and energy efficiency. Ireland submitted its draft NECP to the European Commission at the end of 2018 and the final NECP is due to be finalised by the end of 2019.

## **EU Emissions Trading System**

Directive (EU) 2018/410 of 14 March 2018 provides the legal basis for the operation of the EU ETS in the 2021 – 2030 period. The Directive introduces reforms designed to strengthen the ETS as cornerstone of EU climate change mitigation policy by providing a much stronger price signal to encourage deeper emissions reductions, together with provisions for sectors at risk of carbon leakage, and funding for decarbonisation efforts in less developed Member States.

## **Effort Sharing Regulation**

The specific details of the contribution to be made by each Member State to the EU's climate targets for the period 2021-2030 in respect of the sectors of the economy outside the EU ETS, primarily in agriculture, transport and buildings, are set out in the EU Effort Sharing Regulation (2018/842) which was adopted on 30 May 2018.<sup>8</sup> Ireland's target under the Effort Sharing Regulation is to reduce emissions in these sectors by 30% relative to 2005 by 2030.

## **Long term strategies**

The Paris Agreement invites all Parties to communicate, by 2020, to the UNFCCC, mid-century, long-term low greenhouse gas emission strategies. The European Commission published a Communication 'A Clean Planet for all' in November 2018, which sets out a strategic vision for a prosperous, modern, competitive and climate-neutral economy by 2050. The Commission Communication begins the process of developing an EU long-term strategy.

The strategy does not propose any concrete emissions reduction targets for the EU, for example for 2040 or 2050. It does, however, present options and related scenarios, including for long-term 'climate neutrality' or 'net zero' emissions, with a view to achieving a net reduction of greenhouse gas emissions of between 80% and 100% by 2050.

Since its publication, the Communication has been discussed across a range of relevant Council formations.

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<sup>8</sup> [https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L\\_.2018.156.01.0026.01.ENG](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2018.156.01.0026.01.ENG) .

The European Council has discussed EU climate ambition in regard to a climate-neutral EU at its meeting in June 2019 and is committed to finalising its guidance before the end of 2019 with a view to submitting the EU Long Term Strategy to the UNFCCC in early 2020.

Article 15 of EU Regulation (EU) 2018/1999 of the European Parliament and of the Council on the Governance of the Energy Union and Climate Action requires each Member State to prepare and submit to the Commission a long-term strategy with a perspective of at least 30 years. Member States' long-term strategies are required to follow a general framework as set out in the EU Regulation, and address the following:

- (a) total greenhouse gas emission reductions and enhancements of removals by sinks
- (b) emission reductions and enhancements of removals in individual sectors, including electricity, industry, transport, the heating and cooling and buildings sector (residential and tertiary), agriculture, waste and land use, land-use change and forestry (LULUCF)
- (c) expected progress on transition to a low greenhouse gas emission economy, including greenhouse gas intensity, CO<sub>2</sub> intensity of gross domestic product, related estimates of long-term investment, and strategies for related research, development and innovation
- (d) to the extent feasible, expected socio-economic effect of the decarbonisation measures, including, inter alia, aspects related to macro-economic and social development, health risks and benefits and environmental protection
- (e) links to other national long-term objectives, planning and other policies and measures, and investment

## 4. Annual National Transition Statement

### *4.1 Climate Action Plan 2019*

The Government published its Climate Action Plan on 17 June 2019. For the first time, the Government has set out the measures required to meet our 2030 targets, with the burden shared across all sectors. The Plan will put Ireland on the right trajectory towards net zero emissions by 2050.

The Plan, informed by the work of the Citizens' Assembly and the All Party Committee on Climate Action, has a strong focus on implementation, including actions with specific timelines, clear lines of responsibility, and steps needed for their achievement.

The plan, which will be updated annually and reported on quarterly to Government, also includes actions to ensure that citizens become engaged and mobilised to take climate action, while ensuring that the necessary societal and economic transition we make is both sensible and fair selecting areas which represent the least burden to our society in making the adjustment.

The first progress report of the Board was launched on 31 October 2019 and shows that 85%, or 149 of the actions due for delivery in Quarter 2 and 3 of 2019 have been delivered, with the remaining in progress and due for delivery by the end of the year.

The first progress report records a number of significant milestones reached since publication of the Climate Action Plan:

- New Scheme for 1,200 on-street public charge points for electric vehicles, led by local authorities
- First Luas tram extension delivered
- New requirements to ensure all new homes are Nearly Zero Energy Buildings (NZEB) standard
- New energy efficiency regulations for home renovations over a certain size
- Commitment to support net zero emissions at EU level
- Local Authority Climate Action Charter signed with all 31 local authorities, driving forward meaningful change in their local areas
- €31 million secured in Budget 2020 for new measures to address just transition in Midlands

- New rules for public procurement, meaning €12 billion of state investment each year will be invested sustainably
- A Climate action focussed budget, with a commitment to increase the price of carbon to €80/t in 2030, and ring-fence all the proceeds for climate action, tackling energy poverty and delivering a just transition
- Retrofitting model taskforce established to deliver our new national retrofitting plan which will group homes in the same area together to lower cost, easy pay back models (e.g. through your utility bill), and smart financing
- Secured €530 million from the EU to deliver the Ireland – France Celtic Interconnector, which will link the Irish and French electricity grids and is vital to increasing renewable electricity from 30% to 70%
- Climate Advisory Council advice accepted to ban all new oil exploration off Irish coastal waters
- 8 Town Hall meetings across the country to engage with local communities about climate action

### **Enhanced governance arrangements**

The Climate Action Plan adopted significant new governance arrangements to ensure that climate policy is implemented. These include:

- The establishment of a Climate Action Delivery Board within the Department of the Taoiseach, jointly chaired by the Secretary General to the Government and the Secretary General of the Department of Communications, Climate Action and Environment, with membership comprising Secretaries General from Departments responsible for the actions outlined in the plan
- The publication of quarterly progress reports on implementation of the Plan
- An independent Climate Action Council to be established to recommend carbon budgets for adoption by the Government
- Strong accountability to an Oireachtas climate action committee
- Carbon-proofing all Government decisions and major investments

The Climate Action Delivery Board will ensure co-ordinated, timely and effective implementation of the actions in the plan and hold each Department and public body accountable for its delivery and implementation. The Delivery Board will also discuss and review strategic projects and areas of work in the plan. It will prepare quarterly reports on delivery for the Government, which will be published.

In addition to the above, the Climate Action Plan commits to the preparation of a Climate Action (Amendment) Bill to amend the Climate Action and Low Carbon Development Act 2015. The objective of the Bill is to significantly strengthen the statutory framework for governance of the climate challenge, and ensure delivery of successive Climate Action Plans and Long-term Climate Strategies, supported by a system of carbon budgeting and sectoral targets with appropriate oversight by Government, the Oireachtas and a new Climate Action Council. The Climate Action Plan identifies a number of provisions to be incorporated in the new Bill including:

- Establishing the 2050 target in law
- Making the adoption of carbon budgets a legal requirement
- Requiring the Government to set a decarbonisation target range for each sector, with the Minister with primary responsibility for each sector identified being accountable for delivering the relevant actions to meet the sectoral targets
- Establishing the Climate Action Council as a successor organisation to the Climate Change Advisory Council
- Establishing that the Climate Action Plan shall be updated annually
- Establishing that a Long-Term Climate Strategy, to match the period covered by the three five year carbon budgets, shall be published
- Ensuring that the proposed governance arrangements retain sufficient flexibility to allow necessary reorientation of policy in the light of changing technologies, circumstances, challenges and opportunities over the period to 2030 and beyond

The General Scheme is currently being prepared on the basis of the provisions outlined above with a view to seeking Government approval for the scheme before the end of 2019. This will allow for the publication of the Climate Action (Amendment) Bill in Quarter 1, 2020 as committed to under the Plan.

## **Financing the Low Carbon Transition**

The step-up in ambition in each of the sectors covered by the Plan will require investment across the entire economy. Overall, through the mix of technologies and measures identified, the Plan sets out the pathway that represents the least-cost burden to the economy as a whole. A significant portion of the technologies and measures set out in the plan will result also in net lifetime cost savings to the economy as a whole.

In terms of costs to the Exchequer and other public funding, the plan will be funded through Project Ireland 2040 which provides €30 billion for low carbon and sustainable mobility investments in the period to 2027.

Many of the actions in the plan do not require public funding. The actions contained in this plan fall broadly into four categories:

- public funding provided in the annual estimates process and in Project Ireland 2040
- measures such as setting a long-term trajectory for the carbon tax, in order to change long-term behaviour and decisions to encourage investment in more sustainable choices
- new regulations to end certain practices (e.g. phasing out oil and gas boilers in homes or introducing low emission zones in cities)
- actions to promote public and community engagement and participation in reducing our emissions

Each Government Department must now determine the optimum approach to utilising the funding available to it to support the policies necessary to meet the targets proposed for each sector. The exact costs will be determined from the detailed policy design work which will consist of a mix of regulations, taxes, and subsidies which the Government may choose to deploy to achieve the target abatement range in each sector.

It should also be noted that there would also be a very significant cost to the Exchequer for not implementing any policies to achieve compliance with our 2030 targets, which would also lock Ireland into a high emissions trajectory that would be unsustainable in the long-run.

In addition to the core Project Ireland 2040 allocations for low carbon and sustainable mobility investments, the four Project Ireland 2040 funds, comprising the Climate Action Fund, Disruptive Technologies Innovation Fund, the Urban Regeneration and Development Fund, and the Rural Regeneration and Development Fund, will have a collective budget amounting to an estimated €4 billion over the ten-year period of Project Ireland 2040.

Each of the four funds has been established to pursue distinct objectives, which must also be aligned with the strategic investment priorities and the National Strategic Outcomes of Project Ireland 2040.

Within their mandates, the selection criteria for each of the funds will operate to promote low-carbon investments. The Climate Action Fund will continue to fund initiatives that contribute to the achievement of Ireland's climate and energy targets in a cost-effective manner. It offers the potential for innovative interventions in these sectors which, in the absence of support from the fund, would not otherwise be developed. Seven projects spanning the transport, heat, electricity, and agriculture sectors, with both an urban and rural focus, have been approved for funding of up to €77 million under the first call from this fund. By requiring a minimum leverage for each project, the fund's commitment will leverage a total investment of over €300 million. The next call for applications under the Climate Action Fund will seek to integrate the lessons learned from the first call, will increase the minimum leverage required, and is likely to include an expressions of interest phase with a view to attracting a wider range of public and private projects to apply.

The low-carbon transition will also require significant private investment alongside Exchequer expenditure on a sustained basis over a number of decades. The Plan commits to leveraging the significant volumes of private sector capital that is available for well-structured projects, including wind and solar electricity generation, interconnection, and major transport infrastructure through the commercial State sector and other public bodies. In this context, NewERA will work with the commercial state companies, Ireland Strategic Investment Fund (ISIF), Strategic Banking Corporation of Ireland (SBCI) and other public bodies, to identify priority opportunities in key sectors to mobilise private investment towards assisting in meeting our climate objectives.

In the context of the Climate Action Plan commitment to implement a carbon tax rate of at least €80 per tonne by 2030, Budget 2020 confirmed an initial €6 increase in the price of carbon, all of which will be ring-fenced to support climate action and protect those most vulnerable. Over the next decade this has the potential to raise more than €6 billion to be used in this way.

## **Just Transition**

The Climate Action Plan identifies the need to plan appropriately to ensure that those most affected by our transition to a low-carbon, climate resilient society are supported and equipped to do contribute to this transition.

The Climate Action Plan recognises that the level of change required to decarbonise Ireland's economy cannot be avoided and nor can the taxpayer compensate for all the many actions which will have to be taken. However, it is essential that the burdens borne are seen to be fair and that every group is seen to be making an appropriate and fair level of effort. This will be essential to maintaining the high level of political and civic consensus which has been built through the work of the Citizens' Assembly and in the Oireachtas Committee on Climate Action.

The Government recognises that the accelerated exit from peat-fired power generation in the Midlands Region will have a significant impact on the workers in carbon-intensive sectors, their families, and the Midlands as a whole. The Government has therefore committed to delivering a whole-of-Government approach to addressing this challenge, and to working with local stakeholders, to ensuring that people impacted can be best be supported.

In this context, the Government has prioritised a number of initiatives in the context of Budget 2020 including:

- €6 million for a Just Transition Fund, targeted at the Midlands, to support the retraining and reskilling of workers and to assist local communities and businesses in the Region to adjust to the low carbon transition. In recognition of their longstanding relationship with communities in the Midlands, the ESB has agreed to contribute an additional €5 million to this fund bringing its total value to €11 million
- €5 million for a National Parks and Wildlife Service bog restoration and rehabilitation programme to restore 1,800 hectares of bog to their natural habitat, ensuring the return of these bogs to carbons sinks once again and creating 70 to 100 jobs
- €20 million targeted at the Midlands, to deliver a new model to group housing upgrades, as set out in the Climate Action Plan, which will support an estimated 400 direct and indirect jobs, as well as significantly upgrading the social housing stock in the region

To ensure that the theme of just transition is sustained on a consistent basis, the Climate Action Plan provides for the establishment of a Just Transition Review Group within the National Economic and Social Council (NESC). The objective of this group will be to review the on-going transition and identify specific transition needs among cohorts of workers, enterprises, communities, and specific groups of people.



The Government has also secured the inclusion of the Midlands Region on the EU Platform for Coal Regions in Transition. The aim of the Platform is to provide support for regions heavily involved in fossil fuel industries and provide opportunities for national, regional, and local representatives and EU staff to discuss how these regions can best decarbonise their economies.

Separately the Government is exploring the potential for a support scheme, funded through a Public Service Obligation, for the enhanced rehabilitation of the Bord na Móna bogs over and above what Bord na Móna is obliged to do under its EPA licences. The proposal is to fund a scheme for the enhanced rehabilitation and restoration by Bord na Móna of its peatlands that have been used for harvesting peat for electricity generation. It is expected that about 200 employees will be engaged in this rehabilitation and restoration work.

The Government has also announced, on 8 November, the appointment of Mr Kieran Mulvey as Just Transition Commissioner. The purpose of the Commissioner is to provide a co-ordinated and effective approach to Just Transition for communities and workers affected by the ending of peat harvesting for power generation in the Midlands region.

The terms of reference for the Office of the Just Transition Commissioner have also been published by the Minister for Communications, Climate Action and Environment and the details in relation to the appointment are currently being finalised.

## *4.2 Carbon Pricing and Cross-Cutting Policies*

### **Carbon Pricing**

The Climate Action Plan sets out the Government's commitment to carbon pricing playing a key role to play in the transition to a low-carbon economy.

Carbon pricing has been recognised by the Climate Change Advisory Council as an important tool for Ireland to achieve its decarbonisation objective in a cost-effective manner by 2050.

Ireland is one of a minority of countries globally to have already implemented economy-wide carbon pricing through the EU Emissions Trading System (ETS) and the carbon tax. The Government is committed to carbon pricing as a core element of the suite of policy measures to reduce greenhouse gas emissions in a sustained manner over time. Recent reforms to the EU ETS are working to increase the price signal in that sector, and will complement our initiatives to reduce emissions in the electricity and industry sectors.

Under the Climate Action Plan 2019, the Government is committed to implement a carbon tax rate of at least €80 per tonne by 2030, accompanied by a trajectory of increases over successive annual Budgets. This would raise an additional €6 billion that could be invested in decarbonising the economy while also protecting the most vulnerable from the increases in living costs associated with the carbon tax. This commitment will send a strong signal to householders and firms of the need to invest in low-carbon alternatives, where possible.

Budget 2020 confirmed a €6 increase in the carbon tax for 2020. This is projected to raise €90 million in 2020, all of which will be ring-fenced to support climate action and protect those most vulnerable, as set out in table 1 below.

**Table 1: Disbursement of Additional Carbon Tax Receipts in 2020**

<b>Increased Carbon Tax Spending – 2020</b>	<b>Revenue €m - 2020</b>	<b>Expenditure €m - 2020</b>	<b>Department</b>
<b>Revenue Raised by a €6 carbon tax increase</b>	<b>90</b>		
<b>Protecting the Vulnerable</b>			
1. Fuel Allowance		21	DEASP
2. Energy Poverty Efficiency Upgrades		13	DCCAE
A Just Transition			
3. Aggregated Housing Upgrade Scheme		20	DHPLG
4. Peatlands Rehabilitation		5	DCHG
5. Just Transition Fund		6	DCCAE
<b>Investing in the Low Carbon Transition</b>			
6. Greenways/Urban Cycling		9	DTTAS
7. Continuation of Electric Vehicle Grants		8	DCCAE
8. Further Investment in EV Charging Infrastructure		3	DCCAE/DTTAS
9. ODA - Green Climate Fund		2	DCCAE
10. Green Agricultural Pilots		3	DAFM
<b>Total Expenditure</b>		<b>90</b>	

## **Spatial and Planning Policy**

The long-term spatial planning policy framework, the National Planning Framework (NPF), published as part of Project Ireland 2040 in 2018, sets out clearly-defined National Strategic Outcomes supporting the objectives of the Climate Action Plan, including Transition to a Low-Carbon and Climate Resilient Society, Compact Growth and Sustainable Mobility.

A top priority of the National Planning Framework is for compact and sustainable growth. Ireland's five cities are targeted for 50% of overall growth by 2040, with the four cities Cork, Limerick, Galway and Waterford each targeted to grow by at least 50% within that period. This will mean increasing the proportion of more compact forms of growth in the development of settlements of all sizes, with a focus on urban infill and the re-use of brownfield lands. 'Brownfield' targets are to deliver at least 40% of all new homes nationally within the built-up footprint of existing settlements, comprised of at least 50% of all new homes in the five cities and at least 30% of all new homes in settlements elsewhere.

Changing the pattern of development in this manner will need to be buttressed by new policy tools in the planning system. It will ensure that more people will be living within the existing built-up footprint of cities and towns and will support achieving the objectives of the Climate Action Plan through:

- Reduced travel distances and greater proximity to employment and services, which will enable a greater proportion of journeys by bike or on foot (zero emissions)
- Greater urban density, which when combined with the point above, will ensure more viable public transport (less emissions per person than by individual vehicle)
- Greater sustainable mode share, which will enable cities and towns to densify, as development will not be dependent on road capacity nor car parking requirements, and less land will be required for the latter
- Higher density residential development, which tends to comprise smaller units and therefore require less energy to heat. NPF targets require the proportion of apartments to treble, from 13% in 2019, to 39% by 2030
- Closer proximity of multi-storey and terraced buildings, which will require less energy and make renewables-based systems of energy distribution such as district heating, or area-wide technology upgrades, more feasible

## **Research and Development**

The Climate Action Plan identifies a need to ensure that the best scientific evidence and advice is available to underpin Government policy and support the implementation of actions set out in the plan.

The update to national research priorities for 2018 to 2023 reflects the increased urgency of the need to address climate change, with a new research priority theme focusing on Energy, Climate Action and Sustainability with two priority areas concentrating on decarbonising the energy system and sustainable living.

In addition the cross sectoral and societal nature of climate action and sustainability is reflected in its representation throughout the remaining priority themes including Food, and Manufacturing and Materials in priority areas such as smart and sustainable food production and processing and advanced and smart manufacturing.

Ireland has strategically programmed and built a strong climate research and innovation infrastructure in recent years, with funding provided to Ireland's research-producing organisations to carry out science and policy-relevant research, as well as establishing dedicated Enterprise Ireland Technology Centres and Science Foundation Ireland (SFI) research centres.

As anticipated under the Climate Action Plan, SFI has established a Zero Emissions Challenge programme to support research teams seeking to address significant challenges in achieving net-zero economy-wide greenhouse gas emissions by 2050. In addition, under a partnership between the Department of Foreign Affairs and Trade and SFI, it is planned that additional teams under the Zero Emissions Challenge (or the AI for Societal Good Challenge) will be funded which are focused on delivering impact in countries where Ireland's official development assistance is directed. SFI is also currently developing targeted challenge programmes that will address areas of strategic importance for Ireland and where STEM-led solutions can deliver transformative impact in the area of climate action. The challenge-based approach is likely to feature as a key element in SFI's new strategy for the period to 2025 which is currently under development.

The Environmental Protection Agency's Research Strategy 2014-2020 is framed by the need for Ireland to transition to a carbon-neutral, low-emission and climate-resilient economy and society by 2050, and will become a source of climate change information and solutions.

An interim review of this programme was completed in 2019 and will inform the remainder of the current programme, as well as the development of a new programme for post-2020. The EPA has also established a National Climate Research Coordination Group which will report annually on its activities and provide an assessment and synthesis of key findings from the research programme.

It will also report on wider related research activities every five years. The objectives of the group are to:

- facilitate, support, promote co-ordination, synergies and liaison between relevant funding bodies, public and private to reduce the fragmentation and/or duplication in climate research in Ireland
- facilitate an exchange forum between research funders and key stakeholders, providing an interface for Irish funders of climate research to facilitate the dissemination, sharing and uptake of relevant scientific outputs to policy makers and decision makers and uptake of research outputs for commercialisation
- identify key research needs and emerging policy needs with the aim of informing the research strategy of Irish funders of climate research; review current funding and prepare a roadmap and vision for climate research in Ireland
- provide a national platform for Irish research funders to liaise and/or collaborate with European & international activities related to climate environmental research, such as Joint Programming Initiatives; Technology Platforms, and EU LIFE

The EPA published the first annual report of the National Climate Research Coordination Group in June 2019.<sup>9</sup>

### *4.3 Annual Sectoral Mitigation Transition Statement - Electricity Generation Sector*

#### **Recent Sectoral Developments**

The Energy White Paper, Ireland's Transition to a Low Carbon Energy Future 2015-2030, was launched in December 2015.<sup>10</sup> It sets out a vision and framework to guide Irish energy policy up to 2030. The White Paper restates the three pillars of energy policy – 'sustainability', 'security of supply' and 'competitiveness' - and the actions identified have

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<sup>9</sup> <https://www.epa.ie/researchandeducation/research/nationalcoordination/crcg/>

<sup>10</sup> See <https://www.dcae.gov.ie/en-ie/energy/topics/Energy-Initiatives/energy-policy-framework/white-paper/Pages/White-Paper-on-Energy-Policy-in-Ireland-.aspx>

been informed by the national transition objective. The overall aim of the White Paper is to transition to a low carbon energy system which provides secure supplies of competitive and affordable energy to citizens and businesses.

It recognises that a radical transformation of our energy system is required to meet national, EU and international climate objectives, including greenhouse gas emissions reductions in the energy sector in the range of 80% to 95% compared to 1990 levels by 2050.

Since the publication of the Energy White Paper, significant progress has been made in the implementation of measures, including:

- enactment of the Energy Act 2016<sup>11</sup>
- publication of A Strategy to Combat Energy Poverty in Ireland (February 2016)<sup>12</sup>
- development of new Public Sector Energy Efficiency Action Plan<sup>13</sup>
- publication of a National Policy Framework on Alternative Fuels Infrastructure (May 2017)<sup>14</sup>
- Government approval for the high level design of the new Renewable Electricity Support Scheme for commencement in 2019, subject to State aid approval from the European Commission<sup>15</sup>
- commencement of a Support Scheme for Renewable Heat<sup>16</sup>

## **Renewable Energy Feed-in Tariff (REFIT) Schemes**

The current primary support mechanisms for renewable electricity are the Renewable Energy Feed-in Tariff (REFIT) schemes. The schemes are designed to provide certainty to renewable electricity generators by providing them with a minimum price for each unit of electricity exported to the grid over a 15 year period. The schemes provide support for onshore wind, hydro and biomass technologies.

All REFIT schemes are now closed to new applications with REFIT 2 projects required to be operational and connected to the grid by March 2020 and REFIT 3 projects by September 2019 in order to contribute to Ireland's 2020 Renewable Energy Targets.

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<sup>11</sup> See <http://www.irishstatutebook.ie/eli/2016/act/12/enacted/en/html>

<sup>12</sup> See <https://www.dccae.gov.ie/en-ie/energy/topics/Energy-Efficiency/energy-costs/Pages/Energy-Poverty-Strategy.aspx>

<sup>13</sup> See <https://www.dccae.gov.ie/documents/Public%20Sector%20Energy%20Efficiency%20Strategy.pdf>

<sup>14</sup> See <http://www.dttas.ie/sites/default/files/publications/public-transport/english/alternative-fuels-framework/6186npfalternative-fuels300517.pdf>

<sup>15</sup> See <https://www.dccae.gov.ie/en-ie/energy/topics/Renewable-Energy/electricity/renewable-electricity-supports/ress/Pages/default.aspx> and <https://www.dccae.gov.ie/en-ie/news-and-media/press-releases/Pages/Minister-Denis-Naughten-secures-Cabinet-Approval-for-.aspx>

<sup>16</sup> See <https://www.dccae.gov.ie/en-ie/energy/topics/Renewable-Energy/heat/Pages/Heat.aspx>

## **Renewable Electricity Support Scheme (RESS)**

The Renewable Electricity Support Scheme (RESS) High Level Design paper was approved by Government on 24 July 2018 and the scheme is now going through the EU State Aid Approval process with the RESS qualification process to begin in December 2019. The RESS will provide pathways for delivering on the 2015 Energy White Paper commitment to ensure communities and citizens are at the centre of the future energy transition in Ireland. Communities are effectively being designed into the fabric of the new scheme and a comprehensive set of policies and support measures to increase community ownership from renewable electricity projects have been proposed. The new scheme will also deliver a broad range of policy objectives including broadening the renewable electricity mix and increasing energy security, energy sustainability and ensuring the cost effectiveness of energy policy. The scheme will provide for a renewable electricity (RES-E) ambition of up to a maximum of 70% by 2030.

## **Offshore Renewable Energy Development Plan (OREDPA)**

Action 18 of the National Mitigation Plan committed to an interim review of the Offshore Renewable Energy Development Plan (2014) and following a two phase consultation process (key stakeholders and a public consultation) in 2017 the Interim Review was published in May 2018. The Working Groups under the remit of the Offshore Renewable Energy Steering Group (ORESOG) have agreed revised 2018 work plans that take account of recommendations and actions set out in the Interim Review.

To facilitate the development of onshore wind, the Department of Housing, Planning and Local Government (DHPLG) will commence public consultation on draft Wind Energy Guidelines by the end of 2019. A review of planning guidelines is currently underway in relation to planning guidelines for photovoltaics/solar panels.

To facilitate the development of offshore wind, DHPLG, in consultation with the Department of Communications, Climate Action and the Environment, are working towards finalising the General Scheme of the Marine Planning and Development Management Bill.

The draft National Marine Planning Framework was published for public consultation in November 2019.

## **Interconnection**

Ireland's energy policy emphasises the important role of interconnection in the transition to a low carbon energy future. The Climate Action Plan 2019 also states the importance of developing further interconnection to facilitate Ireland's 2030 target of 70% renewable electricity.

The European Council Conclusions of October 2014 set out that Member States "will take urgent measures in order to ensure the achievement of a minimum target of 10% of electricity interconnections".

There is also a proposed target of 15% for electricity interconnection by 2030. Currently Ireland has 7.4% interconnection but as all current interconnection is with the UK, post-Brexit Ireland will have zero interconnection with another EU Member State. Meeting the objective of the European Council Conclusions will therefore depend on the future relationship between the EU and UK and Ireland's interconnection with the UK being contributing towards meeting the target.

In July 2018, DCCAE published a policy statement on Electricity Interconnection. It outlines the many drivers and benefits of interconnection, as well as the potential impacts electricity interconnection may have on the wider energy market. It helps to guide potential developers in better understanding the range of national policy drivers and the Commission for Regulation of Utilities in determining its regulatory approach to electricity interconnection, by drawing attention to key policy parameters for consideration in its evaluation of interconnection applications from project promoters.

In October 2019, the Government confirmed a €530 million investment in the Celtic Interconnector by the European Commission to link Ireland with Europe's energy grid.<sup>17</sup> The €1 billion Celtic Interconnector will connect Ireland's electricity network to France via an underwater connection. Once built, its 700 megawatts capacity will power 450,000 households, and help Ireland to switch to 70% renewable energy as set out in the Government's Climate Action Plan.

## **Progress on Renewable Energy Targets**

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<sup>17</sup> <https://dcca.gov.ie/en-ie/news-and-media/press-releases/Pages/Press-Release-Government-Secures-%E2%82%AC530m-EU-grant-for-Celtic-Interconnector.aspx>



With regard to Ireland's renewable energy targets, the EU Renewable Energy Directive 2009/28/EC set Ireland a legally binding target of meeting 16% of our energy demand from renewable sources by 2020.

Ireland is committed to achieving this target through meeting 40% of electricity demand, 12% of heat and 10% of transport from renewable sources of energy, with the latter transport target also being legally binding. While good progress has been made to date, with the Sustainable Energy Authority of Ireland (SEAI) advising that 11% of Ireland's overall energy requirements in 2018 were met from renewable sources, meeting the 16% target remains challenging. Details of progress towards the electricity and other sub-targets are set out in table 2 below.

**Table 2 Progress towards Renewable Energy Targets in 2017**

<b>Sector / Sub-sector</b>	<b>2020 target %</b>	<b>2018 achieved % (Provisional Figures)</b>
RES-E (Electricity)	40	33.2
RES-H (Heat)	12	6.5
RES-T (Transport)	10	7.2
<b>RES Overall</b>	<b>16.0</b>	<b>11.0</b>

Looking at renewable energy ambition beyond 2020, in June 2018, the recast Renewable Energy Directive was agreed at EU level which sets a binding renewable energy target for the EU for 2030 of 32%. It takes a fundamentally different approach to the existing Renewable Energy Directive as it does not seek to set individual Member State level targets. Ireland's contribution to these EU-level targets will be confirmed by the end of 2019 and set out in its National Energy and Climate Plan.

### **EU Emissions Trading System (EU ETS)**

The EU Emissions Trading System (ETS) is the main cornerstone of the EU's policy to combat climate change and operates on the "cap and trade" principle, where a cap is set on the total amount of emissions that can be emitted by installations beyond which allowances must be purchased. This cap is reduced over time, incentivising a reduction in emissions.

The ETS covers the CO<sub>2</sub> emissions from power and heat generation and energy-intensive industry and covers just over 100 installations in Ireland, including all power generation installations.

Currently in its third phase since its introduction in 2005, a review was recently undertaken by the Commission to ensure the ETS is fit for purpose in the period 2021-30 (Phase IV). The revised EU ETS Directive, which will apply for Phase IV, will enable the EU to achieve its overall greenhouse gas emissions reduction target for 2030 through a mix of interlinked measures.

## **Transition Away from coal and peat electricity generation**

### **Coal Based Generation**

The Moneypoint electricity generation plant in County Clare is a 900 MW plant, comprising of three 305 MW coal fired units. It is owned by ESB Power Generation. Government policy is that coal-fired electricity generation should cease by 2025. Any final decision to replace coal-fired electricity generation must be consistent with stated Government energy and climate policy.

### **Peat Based Generation**

There are three electricity generating plants in the Midlands – Edenderry, owned and operated by Bord na Mona, and Lough Ree Power and West Offaly Power, owned and operated by ESB. All three have been planning for some time to reduce and eliminate the use of peat at the plants. Bord na Móna currently co-fires Edenderry with 30% biomass.

The decision by the planning authority in July 2019 to refuse permission for co-firing of peat with biomass at the West Offaly Plant has accelerated the timetable for exit from peat for electricity generation.

Details of the Government's response to these developments are set out in section 4.1 on Just Transition.

### *4.3 Annual Sectoral Mitigation Transition Statement - Built Environment Sector*

#### **Progress on Improving Ireland's Energy Efficiency**

Improving energy efficiency is central to our transition to a low carbon economy and is a key theme in the Climate Action Plan. The Climate Action Plan raises the level of ambition for investing in energy efficiency than was previously the case. Higher targets have been set for building renovation with 500,000 homes to be retrofitted to a 'B' Building Energy Efficiency (BER) rating or cost optimal equivalent. A higher level of ambition has also been set for the public sector which now has a new 50% energy efficiency target for 2030.

To support this ambition the level of investment is being scaled up. In 2019, the Department of Communications, Climate Action and Environment is investing €117million in targeted measures to achieve Ireland's energy efficiency objectives in the built environment, in line with national objectives. This will be increased further for 2020 with funding of €146million to be invested in energy efficiency and sustainable energy projects in 24,000 more buildings, saving at least 110,000 tonnes in carbon emissions every year and supporting around 4,000 jobs, while also reducing Ireland's dependence on imported fossil fuels.

In addition to the continuation and expansion of several energy efficiency schemes funded by DCCAE and operated through SEAI to support improved energy efficiency, key developments to improve built environment energy efficiency during 2019 include:

- Establishment of the new Retrofit Task Force
- The development of the new enhanced BER Advisory Report
- Provision of accredited training programmes in the new NZEB buildings standards
- Expansion of the EXEED programme to support more businesses
- Suite of online training modules for SMEs developed
- Options to help improve energy efficiency in rented properties formulated and public consultation launched
- Public Sector energy efficiency continues to improve steadily with 24% improvement achieved by end 2017 and similar progress anticipated for 2018
- Capacity development workshop delivered for all Departmental Energy performance Groups

The Minister for Housing, Planning and Local Government is providing funding of €25 million in 2020 to improve the energy efficiency of local authority homes through the energy efficiency programme. In addition a further €20 million has been allocated to retrofit homes in the Midlands through the Just Transition programme.

### **Support Scheme for Renewable Heat (SSRH)**

The Support Scheme for Renewable Heat will stimulate and support the replacement of fossil fuel heating systems with renewable energy and contribute to meeting Ireland's renewable energy and emission reduction targets. The scheme supports commercial, industrial, agricultural, district heating and other non-domestic heat users in the non-ETS sector. The scheme provides two types of support mechanism:

- (i) An on-going operational support (which will be paid for a period up to 15 years) for new installations or installations that currently use a fossil fuel heating system and convert to using biomass heating systems or anaerobic digestion heating systems
- (ii) A grant (of up to 30%) to support investment in renewable heating systems that use heat pumps.

### **Residential Sector Developments in Energy Efficiency**

The Climate Action Plan also recognises that attaining the objective of a low carbon future will involve radically changing our behaviour as citizens, businesses and public sector bodies requiring us all to become significantly more energy efficient. The Government's energy efficiency schemes have to date upgraded 400,000 homes throughout Ireland.

Energy efficiency upgrades to the fabric of our buildings by, for example, carrying out works such as insulation and airtightness reduces the amount of energy needed for heating and cooling and reduces the CO<sub>2</sub> emissions connected with our energy use in those homes and workplaces. To actually decarbonise our built environment, we need to go further and switch from using fossil fuel as the source for the energy we use in our buildings. The NDP committed to supporting changing out oil fired boilers to heat pumps in 170,000 homes over the lifetime of the NDP. The Climate Action Plan has increased this to a target of 400,000 heat pumps installed in existing homes by 2030.

In the residential sector, work is now progressing to scale up the new levels of ambition to 500,000 homes retrofitted to B2 or cost optimal equivalent by 2030 with 600,000 heat pumps installed in new and existing buildings, and looking at how best to continue the shift towards deeper renovation measures.

A new Retrofit Task Force has been established to drive the achievement of the retrofit objectives. The overarching objective of the Taskforce is to oversee the design and development of a new national retrofit delivery model/programme that will deliver 500,000 retrofits to BER B2/cost optimal or carbon equivalent and 400,000 heat pump installations by 2030. In doing so, the Taskforce will:

- Provide strategic leadership in the design, development and implementation of the new integrated retrofit delivery system
- Provide effective oversight for the programme sub-groups
- Consider the experience of other jurisdictions in determining best practice for retrofit financing and delivery
- Ensure the delivery of relevant Climate Action Plan targets through the identification of appropriate resolution pathways for barriers and constraints
- Provide updates as required to the Climate Action Plan Delivery Board
- Identify measures to be implemented in 2020 that will commence the move to an aggregated, area based approach
- Identify and make recommendations to Government on relevant matters including:
  - the appropriate entity to oversee the roll-out of the new model at the local level
  - the optimal model(s) for the delivery of retrofits in Ireland
  - the best way to transition from the multiple support schemes across different Departments and agencies to the new model
  - the best approaches to financing and funding the retrofit programme (including access to affordable finance when a property is transferred and sold as well as easy pay-back methods)
  - the best approaches to supporting people on lower incomes to participate in the programme
  - the approach to monitoring and evaluating the new integrated delivery system and financing system

€13 million in revenues from the increased carbon price will be used to provide an increased allocation to the Warmer Homes scheme which targets households in energy poverty. This represents a 33% increase in funding, compared with 2019 spending levels and more than a 300% increase compared with spending levels over 2015 – 2017. The total budget for the scheme in 2020 will be approximately €53 million.

The revenues from the increased carbon price will also be used to help to achieve the aggregation of retrofit works called for in the Climate Action Plan. Targeted at the midlands in 2020, €20 million will be provided to upgrade some of the Local Authority housing stock in the area. The scheme will also aim to allow private homeowners in the areas targeted for upgrades to participate in getting their own homes upgraded.

Other important initiatives in the Climate Action Plan include:

- DCCAE are working with SEAI to identify how to increase the number of homes and businesses with BER certificate or Display Energy Certificates
- SEAI are preparing for the new enhanced BER Advisory report to be introduced in early 2020
- Accredited training programmes in the new NZEB buildings standard have been developed and are being rolled out more widely with the support of SOLAS through the ETBs
- SEAI will explore (through piloting) the use of salary incentive schemes to encourage, facilitate and support people in deeply retrofitting their homes
- The increase in the carbon price in Budget 2020 will provide additional resources to support the energy efficiency improvement objectives. It also provides clear signalling of future trajectory which will also help to encourage and motivate more of the behaviour s retrofits needed

### **Commercial Sector Developments in Energy Efficiency / EXEED Programme**

The commercial sector has significant potential to contribute to national energy efficiency and climate change objectives. Businesses (both public and private) who participated in the Excellence in Energy Efficient Design (EXEED) pilot programme achieved an average 28% energy efficiency improvement. This level of efficiency improvement also helps to improve the competitiveness and resilience of Irish businesses.

Based on the success of the pilot the EXEED programme was expanded in 2018 and again in 2019 and is on course to meet the 2019 target of helping 80 businesses or projects improve their energy efficiency. It is envisaged that this number will further increased in 2020. Besides the project efficiencies delivered, embedding of new design thinking skills within participating businesses has the potential to promote wider future efficiencies.

A number of new business-related objectives substantially aimed at delivering new energy efficiency outcomes are identified in the Climate Action Plan. These include:

- Developing more links between businesses and their communities to assist in capacity building and delivering collaborative energy efficiency projects in communities
- SEAI provide a suite of supports for businesses to use Energy Performance Contracting to improve their energy efficiency in affordable ways – including project assistance grants for audits and EPC facilitation and guidance
- SEAI are developing a suite of online training modules for SMEs to help them identify and pursue energy efficiency opportunities scheduled to go live in Beta by end 2019

In addition, solutions to the problem of the split incentive in the rental market (residential as well as commercial) are being explored. An Expert Advisory Group was formed and during 2019, they looked at examples of best international practice and have produced a consultation paper which includes examples of approaches used elsewhere and other options for consideration. This paper supports a public consultation launched in Q4 which will help to inform policy recommendations to be made in early 2020.

## **Public Sector Developments in Energy Efficiency**

The public sector has already made a very significant contribution to national energy efficiency objectives, with efficiency gains of 24% achieved by end 2017, the latest year for which figures have been published. The Public Sector Energy Efficiency Strategy, launched in 2017, provides a new governance framework and enhanced supports to enable public sector bodies improve their energy efficiency and achieve the 33% improvement target by 2020. The strategy is proving effective. One year after its introduction, measurement of progress by SEAI has shown the sector as a whole has shown a 24% improvement in efficiency by end-2017. Preliminary figures indicate this level of progress will be sustained in 2018, with data to be published in December 2019.

With over €1 billion saved (avoided energy spend 2009-17) and 3.56 million tonnes of avoided emissions by end 2017, the public sector have shown what can be achieved. This also places it in a strong position for the higher 50% target for 2030 introduced in the Climate Action Plan. To ensure progress is sustained, DCCAE has continued to provide leadership in 2019. Working with the SEAI and the OPW, DCCAE has delivered a series of capacity development workshop for each Departmental Energy Performance Officer Group.

DCCAE has also continued to co-fund pathfinder partnership projects during 2019. These jointly funded projects focus on retrofit. The schools retrofit is a partnership with Department of Education & Skills. The SEAI & OPW partnership focuses on building retrofits within the OPW building portfolio. In addition to the retrofit improvements for the schools and buildings, a key objective of these projects is to test approaches, build best practice and capacity to develop a scalable retrofit model which can be replicated across all schools and wider public sector once NDP funding becomes available.

### **Near Zero Energy Buildings (NZEB)**

The existing 2018 Energy Performance of Buildings Directive requires that all new buildings (public and private) are Near Zero Energy Buildings (NZEB) by 2020. It also requires that new buildings owned and occupied by public authorities are NZEB after 2018. NZEB is classified as a building that has a very high energy performance and that the nearly zero or very low amount of energy required should be covered to a very significant extent by energy from renewable sources, including energy from renewable sources produced on-site or nearby.

Part L of the Building Regulations for Buildings other than Dwellings was amended in 2017 in order to establish the NZEB performance requirement and this will set a performance level representing an improvement in the order of 60% over current standards. It also includes mandatory renewables on all new buildings and major renovations to a cost optimal level.

Under the previous regulations a typical new dwelling is built to an A3 Building Energy Rating (BER). The NZEB requirements will equate to an A2 BER. To implement NZEB, DHPLG published the European Union (Energy Performance of Buildings) Regulations in April 2019. This represents a 70% improvement in energy efficiency and 70% reduction in CO<sub>2</sub> emissions when compared with 2005 Part L requirements. It also requires 20% renewables as a percentage of total building energy use.



The revised Energy Performance of Buildings Directive was published in May 2018. It promotes the use of smart technology in buildings and streamlines the existing rules. The transposition deadline is March 2020. The most significant implications are the following:

- Installation of Electric Vehicle Charging points for new residential buildings and those undergoing major renovation and for non-residential buildings
- Introduction of Building Automation and Control Systems

Draft legislation to implement these will be published for public consultation before the end of 2019.

### **New EU 2030 Target for Energy Efficiency**

As part of the EU's Clean Energy package revisions to the Energy Efficiency Directive have been agreed at an EU level. This includes a 32.5% headline target for energy efficiency for the EU as a whole in 2030. Ireland will set out its contribution to that target in the first National Energy and Climate Plan.

## ***4.4 Annual Sectoral Mitigation Transition Statement - Transport Sector***

### **Changes in Transport Journeys and Future Investment in Infrastructure**

The transport sector has a critical and challenging role to play in meeting Ireland's national climate policy objectives. It is a sector where fossil fuel use is firmly embedded and travel demand is growing significantly due to our economic recovery and growing population. The scale of transition required is substantial; significant changes in how we travel and the types of fuels we use are needed. In 2017, transport emissions fell (by 2.4%) for the first time in four years. While this decrease is welcome, it is likely driven by fluctuations in fuel tourism activities and so is not a meaningful way to reduce emissions; further measures and additional actions are required to decarbonise the sector.

Central to decarbonising the transport sector is the provision of meaningful alternatives to the private car (which accounted for c.52% of all transport emissions in 2017). A key focus is being placed on supporting modal shift to encourage more passenger car journeys to be replaced by public transport or active travel. Therefore, continued investment in improving sustainable transport capacity and promoting modal shift is a key policy focus.

In 2018, just under €411 million was invested in public and sustainable transport infrastructure of which just over €3 million was spent on greenways; while €19.5 million was allocated to fund the operation of public transport and rural services. There were an additional 18.73 million public transport passenger journeys made in 2018 compared to 2017 nationally and levels of walking and cycling trips are remaining steady within the Dublin area. Under the Climate Action Plan, Ireland has committed to an additional 500,000 public transport and active travel journeys daily by 2035.

Under the National Development Plan (NDP) €8.6 billion has been earmarked for investment in public and sustainable transport measures to 2027. Proposed projects include MetroLink, BusConnects and the DART Expansion Programme. This substantial investment will transform the future public transport network and enable more people to choose sustainable options as their preferred mode of transport.

The NDP also contains a commitment that Ireland will no longer purchase diesel-only buses for the urban public service obligation (PSO) bus fleets after July 2019. Work began in 2018 to help inform future purchasing decisions in light of this commitment in the form of Low Emission Bus Trials. In the immediate term a framework contract for hybrid buses has been initiated; in parallel the size of the Public Service Obligation bus fleet and service provision are increasing. On the Luas network, the first of the extensions to the Luas Green Line has entered service with the remaining 25 extensions entering service on a rolling basis and 8 additional trams have also been ordered as part the Luas Green Line Capacity Enhancement Project. There have also been improvements to on and off peak-time rail services, and the Government has approved the purchase of 41 additional InterCity Railcars. A 10-year procurement framework for electric and battery-electric train units is being established which will greatly expand the fleet. Collectively these measures will increase public transport capacity to help meet the increased demand across the network as well as playing an important role in reducing transport emissions by providing viable alternatives to private car travel.

In terms of cycling and walking infrastructure, under the BusConnects programme over 200km of segregated cycle tracks/lanes will be built or improved in the Greater Dublin Area alone. In addition to this, capital funding for cycling and walking infrastructure in Ireland is set to increase three-fold between 2018 and 2021 with over €110 million allocated for a multi-annual urban cycling and walking infrastructure investment package in our main cities, which will provide safe, alternative, active travel routes to help alleviate congestion by providing viable alternatives and connectivity with existing public transport infrastructure.

## **Ireland's First Public Compressed Natural Gas Facility**

Action 53 in the National Mitigation Plan to deploy a network of 14 Compressed Natural Gas (CNG) refuelling stations and a renewable gas injection facility is being progressed. Ireland's first public Compressed Natural Gas (CNG) re-fuelling station is open in Dublin Port and the remaining stations are in development or being planned.

## **Promotion of Sustainable Transport and Low Emission Alternative Vehicles**

Based on current forecasts, transport emissions are projected to increase further due to a rise in population, economic growth and an increase in the national car fleet. In this context, developing cost-efficient mitigation measures for the transport sector is challenging.

Nevertheless, Budgets 2019 and 2020, as well as the National Development Plan and the Climate Action Plan clearly reflect the Government's determination to address emissions through:

- (i) enhancing the capacity and quality of public transport to ensure that where feasible increased transport demand is met by greener public transport  
(over €400 million was invested in public transport infrastructure in 2018 with a 4 year capital envelope of €2.7 billion)
- (ii) investment of over €100 million is committed to a multi-annual urban cycling and walking programme to support greater uptake of active travel and promote modal shift away from private car use
- (iii) a suite of tax and expenditure measures to promote electric and low emission vehicles or dis-incentivise fossil fuel vehicles, including:
  - VRT relief of up to €5,000 for new battery electric vehicles (BEVs) and up to €2,500 for new plug-in hybrid electric vehicles (PHEVs) to the end of 2020
  - A purchase grant of up to €5,000 for electric vehicles (EVs)
  - A Benefit-in-Kind rate of 0% for BEVs
  - A grant of up to €600 to support the installation of a home charger for purchasers of new and second-hand EVs
  - A 50% toll discount for BEVs and 25% for PHEVs up to a maximum amount of €500 per year with greater reductions off-peak on the M50
  - A grant of up to €7,000 for EVs in the taxi/hackney/limousine sector
  - Accelerated Capital Allowances for EVs and charging infrastructure
  - Low motor tax of €120 for BEVs

- A grant for Local Authorities to support the rollout of up to 2,000 on-street public charge points over the next 5 years. This grant scheme is designed to support residents without access to off-street parking who would like to switch their petrol or diesel car for an EV but lack access to charging infrastructure
- An EV awareness campaign (launched in April 2018 by SEAI) and a dedicated website, [www.DrivingElectric.ie](http://www.DrivingElectric.ie), to act as a repository for consumer information
- An initial 1 per cent surcharge for diesel vehicles across all VRT bands (announced in Budget 2019) and the subsequent introduction of a NOx tax in Budget 2020. Under this taxation measure a charge of €5 per mg will be placed on a vehicle's first 60mg/km of NOx emissions, between 61-80mg/km the charge increases to €15 per mg, and above 81mg/km it rises to €25 per mg. The NOx charge will be capped at a maximum of €4,850 for diesel vehicles and €600 for other vehicles

### **Low Emission Vehicle (LEV) Taskforce**

Following on from a commitment in the Programme for Partnership Government, a Low Emission Vehicle (LEV) Taskforce was established to accelerate the deployment of low carbon transport technologies. The Taskforce is co-chaired by the Department of Communications, Climate Action and Environment and the Department of Transport, Tourism and Sport. The work of the Taskforce was divided into two Phases. The report on Phase 2 of the Taskforce's work, which focussed on other types of low emission vehicles, was published in November 2019.<sup>18</sup>

### **Electric Vehicles**

Phase 1 focused solely on EVs and resulted in the introduction of a package of generous incentives, including the continuation of taxation incentives (VRT relief and motor tax), purchase grants and access to an extensive free recharging network. Furthermore, a number of supplementary incentives were introduced during 2018 including the Electric Vehicle Toll Incentive (EVTI) Scheme, the EV Home Charger Grant, the electric Small Public Service Vehicle (eSPSV) Grant Scheme and funding to support the operation and expansion of the public charging network.

The EVTI Scheme, launched in July 2018, offers 50% and 25% toll reductions BEVs and PHEVs respectively.

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<sup>18</sup> [https://www.dccae.gov.ie/en-ie/news-and-media/publications/Documents/38/Low\\_Emission\\_Vehicle\\_Taskforce-Phase2Report.pdf](https://www.dccae.gov.ie/en-ie/news-and-media/publications/Documents/38/Low_Emission_Vehicle_Taskforce-Phase2Report.pdf)

Greater off-peak rates also apply to the M50 toll. Maximum annual refund caps apply of €500 for private vehicles and €1,000 for goods vehicles. €500,000 was made available in 2018 for this Scheme under the DTTAS Carbon Reduction Programme. The Scheme continued into 2019.

The EV Home Charger Grant was introduced to assist homeowners install an EV charge point on their property. The Scheme was launched in January 2018 and provides a grant up to the value of €600 towards the purchase and installation of a home charger unit. The Scheme applies to both new and second-hand EVs.

The eSPSV Grant Scheme was introduced in February 2018 and provides up to €7,000 towards the purchase of BEV or up to €3,500 towards a PHEV to vehicles in the taxi, hackney and limousine sectors. €500,000 was made available for this programme in 2018 and the Scheme continued in to 2019. With funding allocated in Budget 2020, DTTAS aims to increase the highest level of the eSPSV Grant to €10,000, and a further grant will be made available to convert an eSPSV to make it wheelchair accessible.

Phase 1 of the LEV Taskforce completed its work in 2018 and a progress report was published containing the recommendations made to Government.<sup>19</sup> The work of the Taskforce has contributed to the significant uptake in electric vehicles in Ireland in 2018, with over 7,500 on Irish roads by the end of December – more than double the amount at the same point in 2017. This figure has steadily increased since, with over 14,500 electric vehicles under taxation at the end of October 2019.

### **Other Low Emission Vehicles**

Phase 2 of the Taskforce began in September 2018 and focused on other alternative fuels such as compressed and liquefied Natural Gas (CNG and LNG) and hydrogen. Similarly to Phase 1, a number of recommendations were made to Government ahead of Budget 2020 which has resulted a number of actions in the alternative fuel space, including:

- the extension of the EVTI Scheme to alternatively fuelled heavy duty vehicles (HDVs)
- support for indigenous biomethane (for use in CNG and LNG vehicles) and renewable hydrogen in the transport sector as a core element of the development of the Biofuels Obligation Scheme for the period 2021-2030
- it is anticipated that a purchase grant for alternatively fuelled HDVs will also be introduced in 2020

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<sup>19</sup> <https://www.gov.ie/en/publication/99a2cb-low-emission-vehicle-lev-taskforce-progress-report/>

These new measures, in conjunction with existing measures, such as minimum excise duty on gas and the expansion of the accelerated capital allowances (ACA) scheme to include CNG/LNG-propelled vehicles and refuelling equipment, should help accelerate the deployment of lower emitting alternatives in the HDV sector. In parallel, the roll out of publically accessible CNG refuelling stations continues as well as the welcome introduction of Ireland's first renewable gas injection facility.

### **Biofuels Obligation Scheme**

The Biofuels Obligation Scheme places an obligation on fuel suppliers to include a proportion of biofuels in fuel supplied to the road transport sector. In April 2017, a policy statement on the scheme was published which set out the increases that would be made to the obligation from the current level of 8% to 10% from January 2019 and to 11% from January 2020. The statement also sets out how the Scheme will continue to be developed in line with European energy policy with progressive increases in the level of obligation post 2020. In 2018 it is estimated that biofuel use saved over 517kT of carbon emissions, which equates to a 4.3% transport emission saving. A public consultation on the future of the scheme, post-2020, commenced in September 2019.

## ***4.5 Annual Sectoral Mitigation Transition Statement - Agriculture, Forestry and Land Use Sector***

The Climate Action Plan published in June 2019 sets out over 180 actions to meet Ireland's EU targets for 2030 (i.e. 30% reduction on GHG emissions based on 2005 levels) and sets an ambition of net zero greenhouse gas emissions by 2050 while acknowledging the national policy position of an approach to carbon neutrality within the agriculture and land use sector. For the agriculture, forestry and land use sector there are 34 key actions with over 120 sub-actions.

The Plan sets ambitious targets for the agriculture, forestry and land use sector as follows:

- Emissions from the sector in 2030 to be between 17.5 – 19.0 Mt CO<sub>2</sub> eq by achieving between 16.5 -18.5 Mt CO<sub>2</sub> eq cumulative abatement over the period 2021 – 2030
- Achieve 26.8 Mt CO<sub>2</sub> eq abatement through LULUCF actions
  - 8,000 ha of newly planted forest per annum
  - 40,000 ha per annum of reduced management intensity of grasslands on drained organic soils
- Set a target for the level of energy to be supplied by indigenous biomethane injection in 2030

A key deliverable and identified as one of the top ten impactful actions for 2019 is the development of a draft a National Climate & Air Roadmap for the Agriculture Sector to 2030 and Beyond.

The main policy framework and much of the resources that will enable these abatement measures to happen will flow from the successful design and implementation of the next CAP at EU level, which will operate in the period post -2020. 40% of the overall budget of the new CAP at EU level will contribute to environmental or climate action.

To date the Climate Action Plan, through the Rural Development Programme, has delivered a number of significant climate friendly measures in the agriculture sector such as; GLAS, BDGP and TAMS. Relevant actions in the current GLAS programme include, initiatives such as the provision of support for farmers to use low emission slurry equipment (LESS), support for the planting of new hedgerows and for low input pasture. The Beef Data and Genomics Programme (BDGP) is directly targeted at reducing the GHG emissions of 24,000 beef farmers. The Targeted Agricultural Modernisation Schemes (TAMS) supports investment in low emissions slurry spreading equipment, farm nutrient storage and renewable energy and energy efficiency.

### **‘Ag-Climatise’ – A Draft National Climate & Air Roadmap for the Agriculture Sector to 2030 and Beyond**

The ambitious targets set out in the All-of-Government Climate Action for the agriculture, forest and land use sector will require early adoption and high levels of take up on the actions identified in the Plan to meet this ambition and demonstrate that the sector is willing to play its part in the decarbonisation of Ireland’s economy and society.

‘Ag Climatise’ will take these targets and translate them into a draft sectoral plan for the agriculture sector.

The consultation document, published in November 2019 proposes a number of ambitious and challenging actions and targets which will require not only ongoing concerted effort, but a step-up right across the sector from primary producer through to the processor. The challenge is to change the trajectory of emissions from agriculture so that the absolute emissions count is reducing.

Some of the proposed measures outlined in the consultation document are as follows:

- Enhance soil fertility and nutrient efficiency to reduce nutrient loss to the environment, through new low emissions slurry spreading targets, on-line nutrient management planning, requirement to incorporate clover (and mixed species) in all grass reseeds, and targets for covering external slurry stores
- Promote the use of protected nitrogen products
- Develop enhanced dairy and beef breeding programs, that; (i) increase our rate of genetic gain for key indicators linked to profitability, sustainability and climate efficiency, (ii) promote greater herd and animal performance recording and (iii) help achieve a reduction in our overall GHG output at a national level, within a 6-year timeframe
- Develop a charter with animal feed manufacturers on crude protein content of livestock feeding stuffs to minimise ammonia loss
- Review the National Forestry programme with the aim of delivering 8,000 ha of newly planted forestry, including agroforestry per annum
- Deliver the balance of agriculture commitments under carbon sequestration and through the better management of peatlands and soils

### **The Nitrates Directive and Agricultural Catchments Programme**

The current Nitrates Action Programme (NAP) takes account of pressures on water quality and contains new strengthened water protection measures to break nutrient and transport pathways. The NAP also has a new collaborative approach for improved implementation and a focus on improving soil fertility for better nutrient use efficiency.



In 2019 DAFM undertook a voluntary Nitrates Derogation Review, recommendations were made in relation to how derogation farmers can improve their nutrient use efficiency (NUE) and environmental footprint. Recommendations include:

- compulsory adoption of farm scale liming programmes
- mandatory environmental training
- mandatory use of low emission equipment
- grassland measurement and recording of grass production
- inclusion of clover when reseeded
- exclusion of commonage/rough grazing from derogation
- reducing crude protein in concentrate feeds
- the adoption of biodiversity measure on derogation farms

The measures recommended will be implemented from 1 January 2020 and this will allow farmers sufficient time to plan for 2020 and beyond.

The Agricultural Catchments Programme (ACP), which monitors the effectiveness of measures to protect and review water quality under the implementation of the nitrates regulations and contributes to meeting monitoring requirements in the nitrates derogation, works in partnership with over 300 farmers in six intensively farmed catchments.

The continuation of the Agricultural Catchments Programme (ACP) for a further four year period to 2023 has been announced. Following three successful phases of the ACP, Phase 4 of the programme will now also collect data on greenhouse gases emissions, ammonia emissions and soil carbon sequestration, as well as extending the current baseline monitoring of water quality. These new developments will significantly enhance the monitoring of impacts of agriculture on our environment and aid the Department in achieving our targets under the Climate Action Plan.

### **Code of Good Agricultural Practice to reduce Ammonia Emissions from Agriculture**

Agricultural activities account for over 99% of the national ammonia emissions. A Code of Good Agricultural Practice for reducing Ammonia Emissions from Agriculture was published in 2019. This is a guidance document that outlines the best practice actions to help reduce ammonia emissions associated with agricultural activities. The objective of the Code is to help farmers identify appropriate measures for their individual farm enterprise that will reduce ammonia emissions. The measures in the Code will complement good agricultural practices for the protection of water bodies.

## **Sustainable Energy and the Bioeconomy**

The Agriculture sector has a key role to play in the supply of sustainably sourced bioenergy feedstocks needed to meet a projected growing demand as our energy system decarbonises. These range from biomass in the form of wood products such as forest thinnings and wood fuel, Animal By Products (ABP), or other agri-food by-products such as straw, slurries, and processing waste, e.g. whey from cheese-making. Other sources of biomass include energy crops or grass silage. The production of indigenous biomass has a crucial role to play in helping Ireland meet renewable energy targets. As such, there has been significant improvement in grant and premium rates for the Forestry for Fibre scheme adopted as part of the Forestry Programme mid-term review.

The Department of Agriculture, Food and the Marine supports the improvement of energy efficiency and the adoption of renewable heat technologies at farm level in the form of various TAMS supports such as new dairy equipment which is more energy efficient than older technology, biomass boilers under the Pig and Poultry Investment Scheme (PPIS) and the Young Farmer Capital Investment Scheme (YFCIS). Air-source heat pumps are currently supported under PPIS and YFCIS schemes and they may be used as part of a water heater under the Dairy Equipment Scheme. Grant aid is now also available across all investment schemes for solar panels used for electricity production (photovoltaic) and a €10 million funded was announced in April 2019 to support the installation of solar PV across all farms and use of LED lighting.

## **Forestry related Measures to Reduce Sectoral Emissions**

Forests play an important role in climate change mitigation as they have the potential to sequester and store large amounts of carbon dioxide from the atmosphere which can then be harvested as wood products that continue to store carbon over the long term and employed as a sustainable source of fuel. In this way forests and wood products directly sequester carbon and substitute other materials that are associated with higher levels of emissions, such as steel, concrete and fossil fuels. The Department of Agriculture, Food and the Marine supports the enhancement and protection of forest sinks through the afforestation scheme, regulation of felling and other policies, and supports the development of the forest and wood processing sector, including the promotion of a greater use of wood in the wider economy.

Forests will play an important role in meeting EU emissions reductions targets during the 2021 to 2030 period.

Based on the accounting rules of the LULUCF Regulation agreed in 2018, 2.2 Mt of CO<sub>2</sub> per annum is forecast to be accountable against Ireland's Effort Sharing Regulation targets from afforested land. Ensuring this figure is attained will require ongoing support for sustainable forest management and the protection of Irish forests, avoiding deforestation and continued afforestation efforts. In 2017, 5,536 ha of new forests were planted in Ireland by private landowners under the afforestation scheme. In addition, over 90km of forest roads were grant aided through the forest road scheme. Based on the most recent National Inventory Report to the UNFCCC, forests in Ireland sequestered over 3.6 Mt of CO<sub>2</sub> in 2016 with a further 0.8 Mt of CO<sub>2</sub> being added to the carbon pool of harvested wood products.

As part of the Forestry Programme 2014-2020, €103 million has been made available for forestry measures in 2019. This allocation reflects commitments to an average planting target of 8,000ha per year as contained in the Climate Action Plan. The budget also provides funding for the direct implementation of a number of other actions under the Climate Action Plan including the mobilisation of the private timber resource in Ireland, a substantial investment in forest roads, continued support for Knowledge Transfer groups and the promotion of timber products

The overall target is to expand Ireland's forest estate from 11% to 18% by mid-century. A mid-term review of the Forestry Programme was completed and published in 2018. The review focused on meeting the targets of the programme and a set of recommendations have been agreed and implemented.

These include increases in the rate of financial support across all categories with larger increases for broadleaf planting, an increase in the proportion of broadleaf planting in all applications to 15% and new initiatives to promote alternative silvicultural practices. A change in supports for road building was also made to further assist landowners with the mobilisation of the existing forest estate.

## 5. Annual Sectoral Adaptation Transition Statement

Adaptation is a planned approach for addressing the current and future risks posed by a changing climate. The aim of adaptation is to reduce vulnerability of our environment, society and economy and increase climate resilience. Robust adaptation strategies can also have positive co-benefits through fostering green growth, innovation, jobs, ecosystem enhancement, and improvements in water and air quality.

Section 1 of the Climate Action and Low Carbon Development Act 2015 provides a legal definition for adaptation as follows:

“adaptation” means any adjustment to:

- a) any system designed or operated by human beings, including an economic, agricultural or technological system, or
- b) any naturally occurring system, including an ecosystem, that is intended to counteract the effects (whether actual or anticipated) of climatic stimuli, prevent or moderate environmental damage resulting from climate change, or confer environmental benefits

No matter how successful global efforts to reduce Greenhouse Gas emissions prove to be, the effects of climate change will continue to impact on both our economy and society due to past and current emissions. The need for adaptation to address the current and future risks posed by a changing climate is therefore both urgent and essential to successfully transition to a climate resilient economy and society by 2050.

Adaptation measures are typically categorised as “soft” (e.g. alteration in behaviour, regulation or system of management), “green” (measures that seek to utilise ecological properties to enhance the resilience of human and natural systems to climate change impacts) and “grey” (measures that involve technical or engineering solutions to climate impacts).

Most adaptation measures to date have been reactive in nature, taken in response to extreme weather events such as Storms Brian and Ophelia in 2017 and Storms Desmond and Frank in 2015. Given the increased knowledge of climate change impacts, it is now possible to adopt a planned approach to adaptation so that we are better placed to deal with the inevitable impacts of climate change. By planning for and anticipating climate change risk, it is possible to reduce the cost and maximise the effectiveness of adaptation actions.

Chapter 16 of the Climate Action Plan 2019 covers climate adaptation, primarily in the context of the ongoing implementation of the National Adaptation Framework.

For 2019, the actions in the Plan in relation to adaptation address the development of sectoral adaptation plans and local authority adaptation strategies and the online climate information platform Climate Ireland.<sup>20</sup> A summary of progress made in implementing each of these actions is provided in the next section.

## *5.1. Adaptation Policy Measures*

### **Climate Impacts for Ireland**

The 2018 IPCC Special Report on Global Warming of 1.5°C states that the impacts of human-induced global warming of 1°C are already being felt in the intensity and frequency of some climate and weather extremes. Climate-related risks to health, livelihoods, food security, water supply, human security, and economic growth are projected to increase with global warming of 1.5°C, and will increase further if warming reaches 2°C.

The high level synthesis report prepared for the UN Climate Summit in New York in September 2019 highlighted that the rate of climate change is increasing. 2015-2019 is on track to be the warmest five year period on record, the rate of sea level rise and the rate of ice melt are increasing, and impacts are more severe and occurring earlier than was predicted only one decade ago.

Observations show that Ireland's climate is changing at a scale and rate of change consistent with regional and global trends. The most immediate risks to Ireland are predominantly those associated with changes in extremes, such as floods, precipitation and storms.

No matter whether global efforts to reduce greenhouse gas emissions are successful, the effects of climate change will continue to impact on our economy and society, due to past and current emissions. Adaptation to address the current and future risks posed by a changing climate is therefore urgent, and essential to successfully transition to a climate resilient economy and society by 2050.

In 2017 the EPA published its second 'Summary of the State of Knowledge on Climate Change Impacts for Ireland' report to take account of new data, analyses and knowledge. This report provides a more comprehensive picture of how Ireland might be impacted by climate change.

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<sup>20</sup> <https://www.climateireland.ie/>

While uncertainties remain on the exact scale of the impacts, trends in temperature and precipitation records as well as those relating to sea level measurements and ecosystem decline are a cause for concern, and set to continue. Table 3 provides a summary of the main observed and projected impacts of climate change for Ireland.

Global projections of the impacts of climate change are currently being updated as part of the IPCC's CMIP6 project to support the IPCC's next Assessment Report (AR6), due to be released in 2021. Researchers in Ireland at the Irish Centre for High End Computing (ICHEC), in collaboration with Met Éireann, are contributing to the ongoing CMIP6 project and will also, as part of an [EPA-funded project](#), downscale the CMIP6 projections to provide more detailed climate projections for Ireland. This work will be crucial in updating our current understanding of the observed and future impacts of climate change in Ireland.

**Table 3: Summary of observed and projected climate changes and impacts for Ireland**

Variable	Observed	Projected	Examples of Impacts
<b>Temperature</b>	<p>Average temperatures have increased by 0.8°C since 1900, an average of 0.07°C per decade.</p> <p>The number of warm days (over 20°C) has increased while the number of cold days (below 0°C) has decreased.</p>	<p>Projections indicate an increase in average temperatures across all seasons (0.9-1.7°C).</p> <p>The number of warm days is expected to increase and heat waves are expected to occur more frequently.</p>	<p>Incidences of cold stress are likely to decrease while incidences of heat stress will increase.</p> <p>The duration of the growing season will increase, starting earlier and extending later.</p>
<b>Precipitation</b>	<p>Increase in average annual national rainfall of approximately 60 mm or 5% in the period 1981-2010, compared to the 30-year period 1961-1990.</p> <p>The largest increases are observed over the west of the country.</p>	<p>Significant reductions are expected in average levels of annual, spring and summer rainfall.</p> <p>Projections indicate a substantial increase in the frequency of heavy precipitation events in winter and autumn (approx. 20%).</p>	<p>The increased occurrence of dry spells will result in increased pressure on water supply.</p> <p>An increase in the frequency of extreme precipitation events will result in increased fluvial and pluvial flood risk.</p>

Variable	Observed	Projected	Examples of Impacts
<b>Wind Speed and Storms</b>	<p>No long-term change in average wind speed or direction can be determined with confidence.</p> <p>The number and intensity of storms in the North Atlantic has increased by approx. three storms per decade since 1950.</p>	<p>Projections indicate an overall decrease in wind speed and an increase in extreme wind speeds, particularly during winter.</p> <p>The number of very intense storms is projected to increase over the North Atlantic region. Projections suggest that the winter track of these storms may extend further south and over Ireland more often.</p>	<p>Increases in extreme wind speeds may impact on wind turbines and the continuity of power supply.</p> <p>Infrastructure will be at risk due to the increased occurrence of intense storms e.g. winter 2013/2014.</p>
<b>Sea Level and Sea Surface Temperature</b>	<p>Historically, sea level has not been measured with the necessary accuracy to determine sea level changes around Ireland. However, measurements from Newlyn, in southwest England, show a sea level rise of 1.7 cm per decade since 1916. These measurements are considered to be representative of the situation for the south of Ireland.</p> <p>Sea surface temperatures have increased by 0.85°C since 1950, with 2007 the warmest year in Irish coastal records.</p>	<p>Sea levels will continue to rise for all coastal areas, by up to 0.8 m by 2100. The south of Ireland will likely feel the impacts of these rises first.</p> <p>Sea surface temperatures are projected to continue warming for the coming decade. For the Irish Sea, projections indicate a warming of 1.9°C by the end of the century.</p>	<p>Significant increase in areas at risk of coastal inundation and erosion.</p> <p>Increased risk to coastal aquifers and water supply.</p> <p>Change in distribution of fish species;</p> <p>Implications for fisheries and aquaculture industries.</p>

Source: Table 3, Page 33, National Adaptation Framework

Ireland's first statutory National Adaptation Framework (NAF, 2018)<sup>21</sup> represents Ireland's current national policy response to the challenges posed by the impacts of climate change. The NAF, which was prepared under Section 5 of the Climate Action and Low Carbon Development Act 2015 (the Climate Act) was approved by Government on 19 December 2017 and was subsequently published and laid before both Houses of the Oireachtas on 19 January 2018.<sup>22</sup>

The National Adaptation Framework sets out the national strategy for the application of adaptation measures in different sectors and by local authorities in their administrative areas in order to reduce the vulnerability of the State to the negative effects of climate change and to avail of any positive impacts that may occur.

The NAF identifies 12 priority actions and related supporting objectives that are to be progressed in order to support and advance the implementation of climate adaptation policy at national, regional and local level in Ireland. Table 4 contains a summary of the progress made in on these priority actions since the Framework's publication in January 2018. The current Framework will be reviewed before December 2022.

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<sup>21</sup> <https://dcae.gov.ie/en-ie/climate-action/publications/Pages/National-Adaptation-Framework0118-4235.aspx>

<sup>22</sup> A draft NAF was the subject of a statutory [public consultation](#) held between 15 September and 27 October 2017. The NAF was also the subject of a public consultation held in spring 2016 prior to its development.



**Table 4: Implementation of the National Adaptation Framework**

Action	Timeline	Stakeholders	Progress to date
Government to request Ministers to submit sectoral adaptation plans within a specified period	Within 3 months of laying before Oireachtas	Government, DCCAE, relevant Departments	Completed
Sectoral Ministers to prepare and submit a sectoral adaptation plan to the Government for approval	Within the period specified by Government	Government, DCCAE, National Adaptation Steering Committee, relevant Departments	Completed: plans submitted September 2019
Formally establish a revised Sectoral Adaptation Steering Committee reporting to the Government High Level "Climate Action" Steering Group chaired by the Minister and established under the <i>National Mitigation Plan</i>	2018	DCCAE, Relevant Departments	Completed
Formalise status of <i>Local Authority Adaptation Strategy Development Guidelines</i> to be used in the preparation of Adaptation Strategies at regional or local level	2018	Local Government, DCCAE	Completed: Guidelines were published in December 2018
Each local authority to make and adopt local and/or regional adaptation strategies	Ongoing	Local Government, DCCAE, relevant Departments	Completed: Local Adaptation Strategies have been adopted by all 31 local authorities
Formalise Status of <i>Sectoral Guidelines for Planning for Climate Change Adaptation</i> at sectoral plan level	2018	Local Government, DCCAE, relevant Departments	Completed: Guidelines were published May 2018
Put in place arrangements to ensure <i>Climate Ireland</i> – Ireland's Climate Information Platform – is developed to its full potential as a long term operational support for climate action in Ireland	2018/2019	Local Government, DCCAE, relevant Departments, EPA, Met Éireann, OPW, Marine Institute	Ongoing: Business case for <i>Climate Ireland</i> has been completed; proposal will be submitted to Government for approval before end 2019
Advance proposals to establish regional climate action offices to coordinate Local Authority response to climate change in parallel with Action 9 of the <i>National Mitigation Plan</i>	2018	Local Government, DCCAE, relevant Departments	Completed: four Climate Action Regional Offices (CAROs) have been established following a commitment of funding of €10 million from DCCAE over 5 years

Action	Timeline	Stakeholders	Progress to date
Implement programme of awareness-raising to address climate adaptation and resilience through local and regional level partnership with National Dialogue on Climate Action (NDCA) including promoting better societal response in the context of the increased risk of extreme weather events in a changed climate	Ongoing	Local Government, DCCAE, relevant Departments, EPA, Met Éireann, OPW, Marine Institute	Ongoing: A new work programme is currently being prepared by the EPA for dialogue activities in 2020 and beyond as required under the Climate Action Plan
Integration of climate adaptation within all relevant national policy and legislation (budgetary process, capital investment planning etc.)	Ongoing	Local Government, DCCAE, relevant Departments	Ongoing: under the new National Development Plan (NDP), exchequer funding of €7.6 billion, together with non-exchequer investment of €14.2 billion will ensure a step change in strategic climate action investments. Under the NDP 2018-27 the Government has committed €940 m to flood defences.
Ensure climate proofing considerations are fully integrated into arrangements and reforms arising from the new <i>Ireland 2040 – National Planning Framework</i> including Guidelines, updated guidance on adaptation proofing of SEA and EIA and also in revisions of building standards	Ongoing	Local Government, DCCAE/ DHPLG, relevant Departments, EPA, National Standards Authority of Ireland, Met Éireann	Ongoing: Project Ireland 2040 sets out the Government's ambitions in regard to building a low-carbon and climate resilient society. As set out in the NAF, the implementation of Project Ireland 2040 must ensure that the planning system responds successfully to the challenges of climate change.
Framework to be updated at a minimum of every 5 years and Sectoral Plans as requested by Government	Minimum of every 5 years	Government, DCCAE, relevant Departments	NAF to be reviewed and updated before December 2022

## Sectoral Adaptation Plans

The NAF and Action 181 of the Climate Action Plan 2019 identified 12 key sectors under the remit of seven Government Ministers where sectoral adaptation plans were to be submitted to Government for approval by end Q3 2019. Nine individual sectoral plans covering the 12 sectors were submitted to Government in line with this deadline and were approved by Government in line with section 6 of the Climate Action and Low Carbon Development Act 2015. The plans were developed in line with the “Sectoral Planning Guidelines for Climate Change Adaptation,” which were published in May 2018.<sup>23</sup> These Guidelines ensured that a consistent and coherent process across was followed across all sectors in the development of the sectoral plans. Table 5 sets out the sectors and lead Government Departments that prepared plans under the NAF.

**Table 5: Sectors and lead Departments required to prepare Sectoral Adaptation Plans**

Theme	Sector Level	Lead Department for Sectoral Adaptation Plans
<b>Natural &amp; Cultural Capital</b>	Seafood	Department of Agriculture, Food and the Marine
	Agriculture	
	Forestry	
	Biodiversity	Department of Culture, Heritage and the Gaeltacht
	Built and Archaeological Heritage	
<b>Critical Infrastructure</b>	Transport infrastructure	Department of Transport, Tourism and Sport
	Electricity and Gas Networks	Department of Communications, Climate Action and Environment
	Communications Networks	

<sup>23</sup> <https://dcca.gov.ie/en-ie/climate-action/publications/Pages/Sectoral-Planning-Guidelines-for-Climate-Change-Adaptation.aspx>

Theme	Sector Level	Lead Department for Sectoral Adaptation Plans
<b>Water Resource &amp; Flood Risk Management</b>	Flood Risk Management	Office of Public Works
	Water Quality	Department of Housing, Planning and Local Government
	Water Services Infrastructure	
<b>Public Health</b>	Health	Department of Health

The completed plans describe and assess the extent of the risks presented by climate change to the sector, and present contingency plans to address these risks and ensure climate resilience of the sector. They include actions to mainstream adaptation into policy and administration at the sectoral level. In addition, they include actions to improve cooperation and coherence across other sectors and with the Local Government sector.

The NAF, in addition to identifying the sectors and Government Departments, also highlighted four themes (see Table 8) across the sectors, underlining the importance of operating within a cross-sectoral landscape. During the development of the Sectoral Adaptation Plans, Ministers responsible for plans in each sector consulted with other Ministers preparing plans under the same theme, as well as with other Departments where cross-Departmental inter-linkages were identified.

Ministers also consulted more specifically with the Minister for Communications, Climate Action and Environment, Minister for Finance and Public Expenditure and Reform, Climate Change Advisory Council, and the Environmental Protection Agency as directed by Government in accordance with the Climate Act. Public consultation processes have also been completed with regard to each plan, in line with Section 6(5) of the Climate Act.

In addition to these statutory consultative processes, the wider discussion of cross-sectoral issues has been facilitated through the National Adaptation Steering Committee, which is chaired by DCCAE.

All the sectoral adaptation plans have been published on the website of DCCAE.<sup>24</sup> The following section provides a brief summary of each sectoral plan which has been provided by the parent Department responsible for developing the plan.

## **Summary of sectoral plans**

### **Seafood, Agriculture, and Forestry**

Agriculture, forestry and seafood are very much at the forefront of potential climate impacts. The main impacts will most likely arise from changes in air and ocean temperature, precipitation patterns, extreme events and sea level rise.

Impacts considered a sectoral priority include: plant and animal disease; soil quality issues; slurry storage and land spreading; windthrow in forests; risk of uncontrolled fire; change in pest and disease behaviour; changes to plant growth patterns; heat stress; damage to equipment and infrastructure; changes in fish stock distribution; increases in frequency of harmful algae blooms; reduced or delayed harvests in aquaculture species.

The overarching objectives of the Plan are to:

1. Ensure a joined up approach to adaptation planning in the Department of Agriculture, Food and the Marine
2. Raise awareness of the impacts of climate change in the agriculture, forest and seafood sector
3. Reduce vulnerability of the agriculture, forest and seafood sector to main climate impacts and seek to increase resilience
4. Embed adaptation planning in agriculture, forest and seafood sectoral policies

A range of adaptation actions have been included in the Plan to deliver on the above objectives.

There are a number of interdependencies between the agriculture, forest and seafood sector and all other sectors across all the thematic areas identified. The Department is engaging in cross Departmental fora to address cross-sectoral issues, and participated in a number of specific mechanisms as part of the development of the Adaptation Plan for the Agriculture, Forest and Seafood Sector to consider cross-sectoral adaptation planning issues.

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<sup>24</sup> <https://dccae.gov.ie/en-ie/climate-action/topics/adapting-to-climate-change/national-adaptation-framework/sectoral-adaptation-planning/Pages/Sectoral.aspx>

These ranged from specific workshops, to bilateral communications, to the development of cross-sectoral case studies for inclusion in the 'Adaptation Plan for the Agriculture, Forest and Seafood Sector'. Biodiversity, Water Quality and Infrastructure, Flood Risk Management, and Health are some of the key areas of cross-sectoral interdependency identified to date, with issues concerning both the needs of the agriculture, forestry and seafood sectors and also the impacts these needs may have on those sectors.

## **Biodiversity**

Biodiversity provides us with clean air, water, food, materials, medicines and health benefits. It supports pollination and soil fertility, regulates climate and protects us from extreme weather and other effects of climate change. Biodiversity also has an inherent value in terms of genetic, species, and habitat diversity.

Despite the important role that biodiversity plays in underpinning our economy, health and resilience to climate change, we are losing biodiversity at a rate seen only during previous mass extinctions. By the end of the century, climate change is likely to become the most significant driver of biodiversity loss. Increases in temperature will change the timing of life cycle events and the distribution of species. The physical impact of more intense storms and increased winter/spring rainfall will accelerate the degradation of habitats that are already compromised by unsustainable practices.

The conservation and sustainable use of biodiversity needs to be escalated. Actions are aimed at improving sustainable agriculture and fisheries, better soil and land management and, most urgently, the restoration of natural systems.

The Biodiversity Adaptation Plan emphasises the need to consider biodiversity as an adaptation tool for other sectors. Investing in the restoration of ecosystems will have multiple additional co-benefits including water regulation, water purification and carbon sequestration.

## **Built and Archaeological Heritage**

Ireland's built and archaeological heritage is an irreplaceable resource. It is vulnerable to climate change impacts including flooding, storm damage, coastal erosion, microbiological growth, and wildfire. It is also vulnerable to maladaptation – inadvertent loss or damage to heritage structures and sites during adaptation works by others.

The Sectoral Adaptation Plan has identified five key goals: improve understanding of each heritage resource and its vulnerability to climate change impacts; develop and mainstream sustainable policies and plans for climate change adaptation of built and archaeological heritage; conserve Ireland's heritage for future generations; communicate and transfer knowledge, and exploit the opportunities for built and archaeological heritage to demonstrate value and secure resources.

Among the tasks identified to achieve these goals are to conduct risk and vulnerability assessments and undertake monitoring of climate change impacts on heritage assets and also to integrate heritage issues into national and local policies. Capacity building, disaster risk management and increasing heritage resilience are also key objectives.

Cross-sectoral impacts including in the areas of flood relief, agriculture and energy efficiency measures will be critical to manage in terms of protecting Ireland's heritage assets.

Maladaptation is a risk to be addressed through increased coordination between relevant Departments and Local Authorities.

## **Transport Infrastructure**

Violent weather extremes and changing patterns associated with climate change can cause major infrastructural damage to transport networks as well as disruptions to operations and unsafe travel conditions. As such, the Sectoral Adaptation Plan for Transport Infrastructure sought to identify key vulnerabilities within the sector and promote greater resilience to safeguard the functioning of the transport system. The main climate risks were identified and priority impact assessments were carried out to gauge the thresholds beyond which the system can no longer operate. Areas of indicative risk were highlighted.

Actions in the Sectoral Adaptation Plan for Transport Infrastructure focus on three key objectives: firstly, improving the understanding of climate change impacts on transport infrastructure, including cross-sectoral cascading effects, and closing knowledge gaps; secondly, assisting transport stakeholders in identifying and prioritising climate risks and enabling them to implement adaptation measures; and finally, ensuring that resilience to weather extremes and longer-term adaptation needs are considered in future investment programmes.

The transport sector does not operate in isolation; it is reliant on efficient telecommunications and reliable energy supplies, as well as providing access to critical infrastructure such as hospitals, energy infrastructure, and water supplies. In order to maximise potential synergies from adaptation measures, areas of intersection between transport and other sectors are identified. The Sectoral Adaptation Plan for Transport Infrastructure helps build towards Ireland's long term vision of a low carbon, environmentally sustainable and climate resilient transport sector by 2050.

## **Electricity and Gas Networks**

The energy sector is essential to the functioning of a modern economy and is a key enabler to all other economic activities. Disruptions or reductions in the supply of energy can have significant negative impacts on the economy and the citizen. Adapting and future-proofing the efficient functioning of our energy system, so that we can continue to accrue the many benefits of energy to the economy and Irish society in general, is therefore essential. The objective of this plan is to identify options that will help build resilience against the impacts of climate change, and it will focus on assessing our vulnerability to key climate variables and their likely impacts on our Electricity and Gas networks, based on our current understanding of climate change and its consequences for Ireland.

The Climate Change Adaptation Plan for the Electricity and Gas Networks Sector focusses on the energy networks (electricity and gas), specifically electricity generation, electricity and gas transmission and distribution infrastructures and interconnectors. Future iterations of this plan may also need to consider the resilience of energy resources to climate change impacts as well as the increased resilience required from electricity networks supporting increased electrification of heat and transport. The plan also aims to facilitate the continued discussion of climate adaptation measures with the Electricity and Gas Networks Sector thereby encouraging the mainstreaming of climate adaptation policy into both Government and sectoral policies.



## **Communications Networks**

The communications sector has been categorised as one of the critical infrastructure sectors and the Communications Networks sectoral adaptation plan has therefore focused on the resilience of the infrastructure used by the sector. The plan reports that the most vulnerable sections of the network are service distribution access networks, which can consist of numerous elements, including but not limited to, overhead copper or fibre lines, underground fibre cabling and street cabinets. In addition, the plan notes the increased difficulty that operators can face accessing remote sites during extreme weather events when the site's primary electricity supply has failed. This illustrates the importance of cross-sectoral interdependencies for the communications sector, as failure of an electricity source, often itself due to an extreme weather event, is one of the primary reasons for communications networks failing.

A major aim of the plan is to facilitate the continued discussion of climate adaptation measures with the communications sector and thereby encourage the mainstreaming of climate adaptation policy into both Government and sectoral policies. A key element of this will be the establishment of a critical infrastructure forum to give both policy makers and industry representatives the capacity to discuss issues of common importance.

## **Flood Risk Management**

Ireland has suffered from severe flood events over recent decades. The National Catchment-based Flood Risk Assessment and Management Programme, covering 300 communities that are home to over 3 million people, indicates potentially very significant increases in flood impact and properties and infrastructural assets at risk from flooding due to climate change.

To deliver on the overall goal on climate adaptation for flooding and flood risk management, the OPW identified three adaptation objectives:

- Enhance our knowledge and understanding of the potential impacts of climate change for flooding and flood risk management through research and assessment
- Adapt flood risk management practice to effectively manage the potential impact of climate change on future flood risk
- Align adaptation to the impact of climate change on flood risk and flood risk management across sectors and wider Government policy.

Actions have been identified in flood risk prevention, protection, preparedness and resilience, including further research and capacity building. Priority actions are:

- Including adaptation in future flood relief schemes
- Assessing the adaptation requirements for past schemes
- Considering potential future flood scenarios in the planning and development management process

Flooding can affect all sectors and co-ordination is critical for a coherent Whole of Government approach to climate resilience for flooding and flood risk management.

### **Water Quality and Water Services Infrastructure**

In most cases, climate change will exacerbate already existing negative climate-related impacts in both the Water Quality and Water Services Infrastructure sectors. These include hazards already associated with rising global temperatures such as heatwaves and drought, increases in storm intensity including acute precipitation intensity and increasing chronic sea level rise and acute storm surge.

The key future risks identified included:

Water quality:

- High precipitation – Increased surface and sewer flooding leading to mobilisation of pollutants
- Low precipitation – Reduced dilution of contaminants in water bodies
- High temperatures – Drying of peatland resulting in the reduction of natural filtration of pollutants
- High temperatures – Increased spread and viability of pathogens, such as livestock waste and slurry
- High temperatures – Changes in the distribution and viability of native, non-native and invasive flora and fauna

#### Water services infrastructure:

- Low precipitation – Reduced availability of water resources
- High temperatures – Hot weather-related changes in demand for water
- High precipitation/Increased Storminess – More frequent water/wastewater asset flooding, asset loss and potential for environmental pollution
- High precipitation – Increased drawdown from reservoirs in the autumn/winter for flood capacity, leading to resource issues in the following spring/summer
- Increased Storminess/High precipitation/High temperatures – Business continuity impacts or interruptions for water services providers

To address some of the outcomes identified, the plan outlines the following adaptive measures:

#### Water quality:

- Integrated catchment management
- Improved aeration and circulation
- Ecosystem and habitat restoration
- Communication
- Monitoring programme and research
- Biosecurity measures

#### Water services infrastructure:

- Asset management
- Improved water/wastewater treatment
- Business continuity planning
- Communication
- Monitoring programme and research
- Operation and maintenance improvements
- Operational drought planning
- Flood risk assessments and flood defences

Many of the proposed adaptation actions are already underway and mainstreaming these measures into the operations and policies of all relevant stakeholders will be important to implementing climate action at national level. An example of these measures includes the River Basin Management Plan for Ireland 2018-2021 and Irish Water's forthcoming National Water Resource Plan. This adaptation plan is the beginning of an iterative process and adaptation planning will need to be an ongoing process.

In addition to the interdependencies identified with other sectoral adaptation plans and Government Departments, it is important to note that many other organisations will be involved in the implementation of this Plan, for example the Environmental Protection Agency, Irish Water, the National Federation of Group Water Schemes and the ESB.

## **Health**

This first climate change adaptation plan for the health sector assesses the sector's vulnerabilities and proposes adaptation actions in three main areas:

- The health of the population and changes to service utilisation
- The continuity of the health service during severe weather events
- Resilience of health-care infrastructure

A risk assessment considered the likelihood of different climate scenarios based on observed and projected climate change, and the magnitude of the potential health impact informed by the particular health vulnerabilities in Ireland relating to the geography, environmental influences on health and health behaviours.

The assessment concluded that the most profound health impacts of climate change will arise in relation to (i) severe weather events; (ii) ultraviolet radiation (UVR); and (iii) poor air quality.

Adaptation actions for the coming five years and beyond have been identified. Given the positive impact on the health of Ireland's population of strong climate change action in other sectors, effective cross-sectoral communication and collaboration will be particularly important to the successful implementation of this health sector climate change adaptation plan.

The sectoral adaptation plans represent the first stage in an iterative process of developing, refining, and integrating approaches to develop sectoral resilience to the impacts of climate change. Cross-sectoral challenges still exist, and solutions to developing climate resilience will be further assessed bilaterally and via the National Adaptation Steering Committee as plans are implemented and further developed, in keeping with the whole-of-Government approach adopted in the Climate Action Plan 2019.

## **Local Adaptation Strategies**

The National Adaptation Framework identifies the critical role to be played by local authorities in addressing climate change adaptation. In addition to the sectoral plans outlined earlier, action 5 of the NAF and action 182 of the Climate Action Plan required the development of local adaptation strategies by all 31 local authorities by end Q3 2019. This action was successfully completed in line with this deadline.

All Local Adaptation Strategies were prepared in line with Local Authority Adaptation Strategy Development Guidelines<sup>25</sup>, which were published by the Department of Communications, Climate Action and Environment in December 2018. The Guidelines provide a consistent and coherent process for local authorities in helping them develop local adaptation strategies.

The Local Authority Adaptation Strategy Development Guidelines recommend that a strategy, once approved, should be used by a local authority to assess the adaptation fitness of plans and policies under its remit. The guidelines recommend that the work undertaken to develop a local adaptation strategy should also inform development plans and other statutory plans of the local authority over time. This should help to ensure that climate change adaptation considerations are mainstreamed into the local government system in the medium to long term.

Four Climate Action Regional Offices (CAROs) were established in 2018, with funding provided by DCCAE. The establishment of these offices will enable a more coordinated engagement across the whole of government and will help build on the experience and expertise which exists across the sector. Each regional office is overseen by a lead Local Authority (see Table 6 for CARO structure). The CAROs played a key role during 2019 in supporting the development of the Local Adaptation Strategies by the local authorities.

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<sup>25</sup> <https://dcca.gov.ie/en-ie/climate-action/publications/Pages/Local-Authority-Adaptation-Strategy-Development-Guidelines.aspx>

The CAROs are currently examining how best to facilitate implementation of the local strategies in conjunction with the Department. Completed local adaptation strategies are available from each individual local authority.

**Table 6: Climate Action Regional Office Structure**

Climate Action Region	Local Authority Functional Areas	Lead Authority
Atlantic Seaboard North	Donegal, Sligo, Mayo and Galway City and Galway County	Mayo County Council
Atlantic Seaboard South	Clare, Limerick, Kerry, Cork County and Cork City	Cork County Council
Dublin Metropolitan Region	South Dublin, Fingal, Dun Laoghaire-Rathdown and Dublin City	Dublin City Council
Eastern and Midlands Region	Louth, Meath, Wicklow, Wexford, Kildare, Carlow, Kilkenny, Laois, Offaly, Westmeath, Longford, Leitrim, Tipperary, Cavan, Monaghan, Roscommon and Waterford	Kildare County Council

### ***Climate Ireland***

The provision of accurate and authoritative information and expertise is a crucial element in ensuring that Government, local authorities, communities and the private sector can plan ahead and respond effectively to the challenges of climate change.

Ireland's Climate Information Platform, Climate Ireland, was developed on a phased basis under the EPA Research Programme as a "one-stop shop" of information, data and knowledge to support those preparing for, and adapting to, the consequences of climate change.

The platform provides a central source of climate data for Ireland, combining authoritative information from a variety of sources such as Met Éireann, OPW, EPA, the European Environmental Agency and the Intergovernmental Panel on Climate Change (IPCC) to assist a variety of stakeholders in planning ahead for the likely impacts of climate change.

Climate Ireland is currently managed by a research team in the MaREI Centre in UCC. The platform itself is hosted within ICHEC.

The NAF identifies the critical importance of putting Climate Ireland on a permanent operational basis to continue to inform the relevant national sectors but also in terms of providing a valuable, credible and consistent information resource to civil society and the private sector. Action 183 of the Climate Action Plan 2019 also identifies the need for arrangements to be put in place to ensure Climate Ireland is developed to its full potential as an operational support for climate adaptation and climate action in Ireland.

The project has concluded its final research phase and is currently in receipt of interim funding from the EPA until the end of 2020. In line with requirements of the Climate Action Plan 2019, DCCAE has developed a proposal and business case in relation to the future of Climate Ireland in conjunction with EPA and other stakeholders including Met Éireann, OPW, Geological Survey of Ireland and the Marine Institute. This proposal and business case will be submitted to Government for approval with a view to being fully approved before end 2019.

## 6. EPA Greenhouse Gas Emissions Inventory and Emissions Projections

### Greenhouse Gas Emissions Inventory

The EPA is responsible for compiling the inventories of greenhouse gas emissions for Ireland in accordance with internationally agreed standards and for annual reporting on Ireland's inventories to the EU and the UN. The EPA compiles Ireland's national greenhouse gas emission inventory on an annual basis. This inventory is submitted to the European Commission and UNFCCC each year by 15 January and 15 April respectively. The most recent EPA inventory report (October 2019), contains the provisional estimates of Ireland's greenhouse gas emissions for the years 1990-2018. For 2018, total national greenhouse gas emissions were estimated to be 60.51 million tonnes carbon dioxide equivalent (Mt CO<sub>2</sub>eq). This is 0.2% or 0.14 Mt CO<sub>2</sub> eq lower than emissions in 2017. Headline data from this report includes:

- (i) In 2018, emissions in the European Union's Emissions Trading Sector (ETS) sector decreased by 8.2% and non-ETS emissions (covered by the Effort Sharing Decision - ESD) increased by 2.8%
- (ii) Agriculture emissions increased by 1.9% in 2018. The most significant drivers for the increased emissions in 2018 are higher dairy cow numbers (+2.7%) with an increase in milk production of 4.4%. This reflects national plans to expand milk production under Food Wise 2025 and the removal of the milk quota in 2015
- (iii) Emissions from the Transport sector increased by 1.7% in 2018. This is the fifth year out of the last six with increased emissions in transport. In road transport in 2018, petrol use continued to decrease by 9.2% while diesel use increased by 4.6% and biofuels use decreased by 4.0%
- (iv) Greenhouse gas emissions from the Residential sector increased by 7.9%, largely due to a colder winter. Within the different fuels used in household space and water heating, all fuels showed increases; coal, peat, gasoil, kerosene, natural gas and biomass increased by 4.4%, 4.4%, 9.0%, 10.2%, 8.7% and 3.7% respectively in 2018. There were 7.6% more degree days in 2018, with all 25 weather stations showing more heating days especially during the months January to April 2018



- (v) Emissions from the Industrial Processes sector slightly increased by 2.0% (0.05 Mt CO<sub>2</sub>eq) in 2018 following a 5.6% increase in 2017, mainly from increased cement production. Total process emissions from the mineral products subsector (including cement) increased by 2.7%
- (vi) Sectoral emissions in the Energy Industries sector show a decrease of 11.7% (1.38 Mt CO<sub>2</sub> eq). This is attributable to decreases in consumption of coal and peat by 43.7% and 3.3 % respectively, whilst there were increases in natural gas, oil, biomass and non-renewable wastes of 1.5%, 2.3%, 24.8% and 60.9% respectively for electricity generated. In 2018, electricity generated from wind and hydro increased by 13.6% and 0.4% respectively, reflected in a 13.6% decrease in the emissions intensity of power generation in 2018 (377 g CO<sub>2</sub>/kWh) compared with 2017 (436 g CO<sub>2</sub>/kWh). Renewables now account for 32.6% of electricity generated in 2018 (up from 29.0% in 2017)
- (vii) Emissions from the Waste sector decreased by 2.8% or 0.03 Mt CO<sub>2</sub>eq in 2018
- (viii) Emissions from F-gases decreased by 10.2% (0.12 Mt CO<sub>2</sub>eq) in 2018

## **Greenhouse Gas Emissions Projections**

The most recent projections were published by the EPA in June 2019. This provides an updated assessment of Ireland's progress towards meeting its emission reduction targets set under the 2009 Effort Sharing Decision for the years 2013-2020. Ireland's 2020 target is to achieve a 20% reduction of non- Emissions Trading System sector emissions (i.e. agriculture, transport, residential, commercial, non-energy intensive industry and waste) on 2005 levels with annual binding limits set for each year over the period 2013-2020. The latest projections indicate that Ireland's non-ETS emissions in 2020 could be in the range of 5-6% below 2005 levels under the 'With Existing Measures' and 'With Additional Measures' scenarios respectively.

However, these projections are based on an EU-wide reference scenario for oil prices which are higher than currently observed in the market. Therefore, a sensitivity analysis using lower fuel price projections from the UK Department for Business, Energy and Industrial Strategy (BEIS) was performed to investigate the impact of a more conservative oil price. The results show that a low fuel price scenario indicates an outturn in non-ETS emissions of between 0% and 1% below 2005 levels by 2020.

In terms of 2030 reduction targets the EU Effort Sharing Regulation (ESR) requires that Ireland reduce its non-ETS emissions by 30% on 2005 levels by 2030.

The latest projections indicate that Ireland will exceed the carbon budget over the 2021-2030 period by 52-67 Mt CO<sub>2</sub>-equivalent with the gap potentially narrowing to 7-22 Mt CO<sub>2</sub> equivalent if both the ETS and LULUCF flexibilities described in the Regulation are fully utilised.

Again, the projected gap to the 2021-2030 ESR target is strongly affected by the choice of fuel price projections used. In a low fuel price scenario, Ireland is projected to cumulatively exceed its annual ceilings over the 2021-2030 period by 86–101 Mt CO<sub>2</sub> equivalent or by 40-56 Mt CO<sub>2</sub> with full use of the ETS and LULUCF flexibilities.

The 2019 emissions projections include the impact of new climate mitigation policies and measures that formed part of the National Development Plan, published in early 2018. The impact of these measures was not reflected in the 2018 emissions projections as data was not available at the time of their preparation. The emissions projections in 2019 consequently see a greater impact from policies and measures over the longer term and a greater reduction in emissions, particularly the case in the 'With Additional Measures' scenario.

However, the 2019 emission projections do not yet include the impact of new policies and measures included in the Climate Action Plan. It is anticipated that emission projections prepared to inform the finalisation of Ireland's final National Energy and Climate Plan will include the additional impact of the Climate Action Plan.

Most recent Inventories and Projections Reports:

- [EPA Inventories Latest Report: Ireland's Provisional Greenhouse Gas Emissions 1990-2018 \(October 2019\)](#)
- [EPA Projections Latest Report: Ireland's Greenhouse Gas Emissions Projections 2019-2040 \(June 2019\)](#)

## 7. Compliance with EU and International Obligations

This section sets out a summary report on compliance, by the State, with any existing obligation of the State EU law and international agreements referred to in section 2 of the 2015 Act, where relevant in the context of this Annual Transition Statement.

**Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment – the SEA Directive; and Directive 92/43/EEC on the appropriate assessment to be carried out in accordance with the Habitats Directive.**

A screening for the purpose of determining whether a Strategic Environmental Assessment (SEA) or Appropriate Assessment (AA) was undertaken by all lead Departments responsible for the development of the sectoral adaptation plans described in Chapter 5. All 12 sectoral plans were screened out for the purposes of SEA/AA. Further details in relation these decisions are available from the sectoral Departments responsible for developing the sectoral plans.

***Directive 2003/87/EC relating to a scheme for greenhouse gas emission allowance trading.***

The European Union Emissions Trading System (ETS) is one of the key policy measures in the EU to reduce power generation and industrial greenhouse gas emissions in a cost-effective manner. The ETS includes some 11,000 stationary installations across the EU Member States plus Iceland, Liechtenstein and Norway. In the Irish context, 103 Irish installations fall within the ETS (as of August 2018) including installations in the power generation, dairy, food processing and pharmaceuticals sectors.

Emissions trading is a ‘cap and trade’ scheme whereby an EU- wide limit or cap is set for participating installations. The cap is reduced over time so that total emissions across the EU are reduced. Within that limit, allowances for emissions are auctioned or allocated for free, depending on the sector in which the installation is located. Individual installations must report their CO<sub>2</sub> emissions each year and surrender sufficient allowances to cover their emissions. If emissions exceed available allowances, an installation must purchase allowances. If an installation has succeeded in reducing its emissions, it can sell its leftover surplus allowances or retain these for a later compliance period.

The ETS is designed to bring about reductions in emissions at least cost, while incentivising decarbonisation across major EU industries, and to date has played an increasingly important role in incentivising the European power generation and industry sectors to implement the emissions reductions required to meet the EU objective of achieving a 20% reduction of greenhouse gas emissions on 2005 levels by 2020. The ETS came into being in 2005, with Phase I introduced as a three-year pilot which ran until 2007. Phase II operated between 2008 and 2012, and Phase III from 2013 until 2020.

Significant reforms to Phase IV of the EU ETS, which will run from 2021 to 2030, have been agreed and were adopted on 14 March 2018.<sup>26</sup> This reform of ETS will see a significantly strengthened ETS with higher carbon prices anticipated. It also allows for significant funding to be made available for low-carbon and innovative technologies.

**Decision No. 406/2009/EC (Effort Sharing Decision) on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020.**

Progress, and projected headway, towards compliance with the 2009 Effort Sharing Decision (ESD) targets is measured by the EPA in their annual greenhouse gas inventory and greenhouse gas projections respectively and this is addressed in Chapter 6.

For each year between 2013 and 2020, Ireland has a greenhouse gas emission reduction target under the 2009 ESD. For the year 2020 itself, the target set for Ireland is that emissions should be 20% below their value in 2005. This is jointly the most demanding 2020 reduction target allocated under the ESD and one shared only by Denmark and Luxembourg.

The latest EPA projections of emissions for the period to 2020, published in June 2019, indicate that Ireland's non-ETS emissions in 2020 could be in the range of 5-6% below 2005 levels under the 'With Existing Measures' and 'With Additional Measures' scenarios respectively. It should be noted that these projections are based on an EU-wide reference scenario for oil prices which are higher than currently observed in the market.

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<sup>26</sup> Directive (EU) 2018/410 to enhance cost-effective emission reductions and low-carbon investments ("ETS revision") was published in the Official Journal on 19 March 2018:

L 76 2018 page(s) 3-27

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2018:076:0003:0027:EN:PDF>

Sensitivity analysis using a low fuel price scenario indicates an outturn in non-ETS emissions of between 0% and 1% below 2005 levels by 2020.

To facilitate compliance under the Effort Sharing Decision, any overachievement of the binding emission limit in a particular year can be banked and used towards compliance in a later year.

In Ireland's case, the overachievement against annual limits in the period 2013-2015, has resulted in the banking of surplus allowances for use in later years. On the basis of current projections, Ireland is expected to have insufficient banked allowances for 2019 and 2020 and will need to purchase additional allowances to cover compliance requirements in these years.

### **International Agreements**

The United Nations Framework Convention on Climate Change, its Kyoto Protocol and the Paris Agreement are taken as the relevant international agreements which apply for the purposes of section 14 of the 2015 Act.

As a Party to the UNFCCC, Ireland is required to report regularly on its implementation of the Convention. Ireland submitted its Seventh National Communication in March 2018, which outlined its climate action and emissions over the four year period 2013 to 2017.<sup>27</sup> As a developed country Party, Ireland is also required to provide additional climate information to the UNFCCC by way of a Biennial Report. Ireland's Third Biennial Report was also submitted in March 2018 as an annex to the National Communication. Ireland's national reports are subject to an in-country review process. This in-country review, which took place in November 2018, provided a comprehensive, technical assessment of Ireland's implementation of its reporting commitments under the Convention. Ireland participated in a multilateral assessment on its Seventh National Communication at the UNFCCC subsidiary bodies meetings in Bonn in June 2019. Ireland's Fourth Biennial Report is due to be submitted to the UNFCCC by the end of 2019.

The Kyoto Protocol is an international agreement adopted in 1997 under the UNFCCC, which commits developed country Parties to binding emissions reduction targets. The Kyoto Protocol was amended in 2012 (the Doha Amendment), with new targets for developed countries over the 2013-2020 period. While Ireland and the EU have ratified the Kyoto Protocol and the Doha Amendment and are implementing its goals through the EU Effort Sharing Decision (described above), the Doha Amendment has not yet entered into force.

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<sup>27</sup> See [https://unfccc.int/sites/default/files/resource/63014825\\_Ireland-NC7-BR3-1-Seventh%20National%20Communication%20Ireland.pdf](https://unfccc.int/sites/default/files/resource/63014825_Ireland-NC7-BR3-1-Seventh%20National%20Communication%20Ireland.pdf)

The EU continues to encourage its global partners to ratify the Doha Amendment as a matter of urgency.

The Paris Agreement was adopted in December 2015 and entered into force in November 2016. The Agreement is designed to achieve its objectives through the Nationally Determined Commitments (NDCs) submitted by each Party. These will increase in ambition over time and represent a progression by which the level of global greenhouse gas emissions should reach a peak as soon as possible, and rapid reductions thereafter. Progress made by Parties through their NDCs will be measured on a regular basis through a series of Global Stocktakes, beginning in 2023, which will assess international progress towards achievement of the goals of the Paris Agreement. In advance of the first Global Stocktake in 2023, the Talanoa Dialogue took stock, over the course of 2018, of collective efforts to reduce emissions and build greater resilience, in line with the long-term goals of the Paris Agreement.