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DCCAE Updated Retrofitting note 25/05/20 [GP]

PDF attached

DCCAE Briefing 22/05/20 [GP]

Programme for Government Briefing Queries – Additional items for the Green Party

19th May 2020

1. *Joint Action – Carbon Price Floor (for Irish electricity installations in the EU Emissions Trading System)*

The EU Emissions Trading System

The EU Emissions Trading System (ETS) is a key element of EU policy on climate change mitigation promoting cost-effective emissions reduction in heavy industry and power-generation. It is the first and largest carbon market and works on the ‘cap and trade’ principle. A cap is set on the total amount of greenhouse gases that can be emitted by installations covered by the system. The cap is reduced over time so that total emissions fall. Within the cap, companies receive (for free) or buy emission allowances which they can trade with one another as needed. The limit on the total number of allowances available ensures that they have a value. After each year a company must surrender enough allowances to cover all its emissions, otherwise fines are imposed.

The ETS operates in 31 countries (all 28 EU countries plus Iceland, Liechtenstein and Norway). It limits emissions from more than 11,000 heavy energy-using installations (power stations and large industrial plants) and airlines operating between these countries, and covers around 45% of the EU's greenhouse gas emissions. Some 102 stationary installations and 15 aircraft operators currently come within the system in Ireland. The ETS plays a lesser role in Ireland than the EU average due to a large agriculture sector and relatively small heavy industry.

The EU ETS was launched in 2005 and is now in its third phase to cover the period 2013-2020. Following agreement reached in late 2017, the revised ETS Directive (EU) 2018/410 sets out the arrangements for Phase IV (2021-2030), where the sectors covered by the ETS must reduce their emissions by 43% by 2030 compared to 2005 levels. The revised Directive is designed to increase the effectiveness of the ETS in helping industries to move towards a low carbon economy. Key elements include a tighter cap on emissions and a strengthening of the mechanism to remove the surplus of allowances from the market. Another element of the ETS reforms allows MS to voluntarily cancel allowances from their auction share in response to the closure of electricity generating capacity.

In negotiations for Phase IV reforms on EU ETS, Ireland supported the strengthening the ETS carbon price signal, the key one being the adjustments to the Market Stability Reserve (MSR) which has now been strengthened in two ways: agreement was reached to significantly tighten its parameters so that it takes more allowances out of circulation each year, while it will also now cancel allowances if the surplus becomes large enough. The view was taken that this would be an effective tool for achieving a higher carbon price in the medium term.

Climate Change Advisory Council

The Climate Change Advisory Council (CCAC) stated position on carbon price floors in their most recent 2019 annual review is that *“The continued use of coal and peat for electricity generation accounts for a significant proportion of Ireland’s greenhouse gas emissions. The Council calls for a detailed implementation plan for the early removal of peat and coal from electricity generation in Ireland. Regulatory action and the implementation of a Carbon Price Floor across the EU are approaches that can deliver on national commitments to decarbonise electricity.”*.

This follows on from two working papers prepared by the CCAC prepared with the support of UCC. The first working [paper](#) considered the issue on a Europe wide basis and concluded that *“from an environmental perspective, a coalition of countries such as the Power Past Coal Alliance that implement the closure of coal power plant provides greater emissions reduction than implementing a carbon price floor in select countries. A carbon price floor is most effective when Germany is included as a participating country.”*.

A further working [paper](#) focussing on Ireland concluded that *“a substantial reduction in Irish emissions could be achieved by the implementation of a carbon price floor strategy or the closure of Moneypoint by regulatory action. If this action is taken on a co-ordinated basis in North-Western Europe it will minimise any negative competitiveness effects from the policy action”*.

ETS Carbon Price Floor

Ireland has taken the position that a carbon price floor is something that could be considered if the carbon price fails to reduce emissions as a result of Phase IV reforms. Furthermore, reflection on the matter would be warranted on this especially if a carbon price floor were to be proposed on co-ordinated basis across Europe as this will minimise negative competitiveness effects. This position has been informed by the following matters:

(i) *Ireland’s Electricity Prices*

Ireland competes for business, trade and foreign direct investment not just with other EU countries, and Ireland’s wholesale electricity prices are in the upper-end of EU prices. A carbon price floor for electricity generators could have competitiveness impacts for those generators impacted in the EU region. Ireland has a higher electricity prices than most EU countries owing to factors including their use of nuclear power, higher interconnection and efficiencies associated with higher population densities. The impacts of a price floor will make the gap between Irish electricity prices and average EU prices larger.

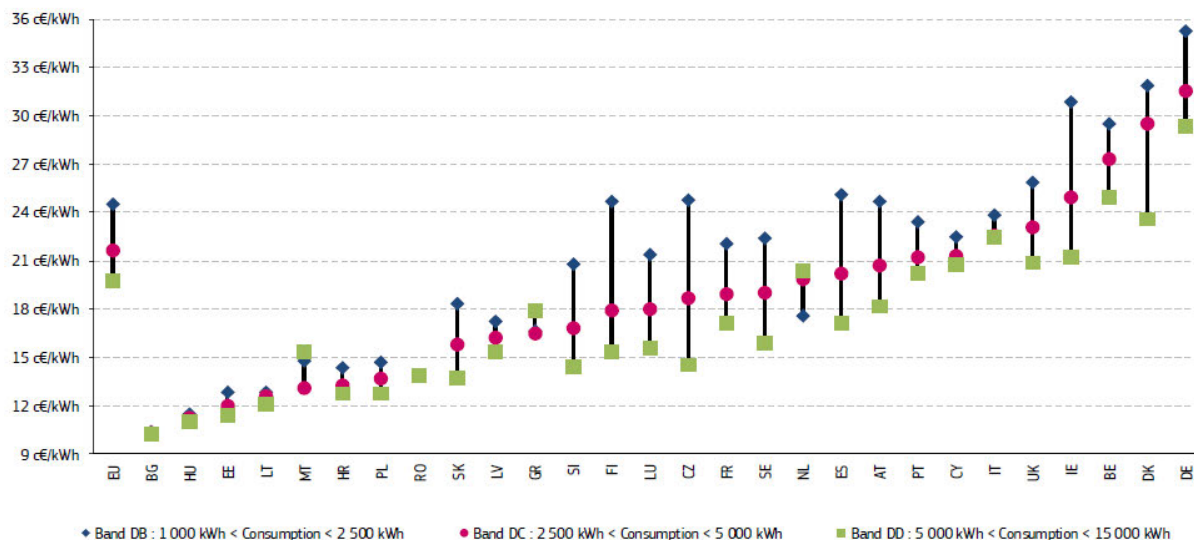


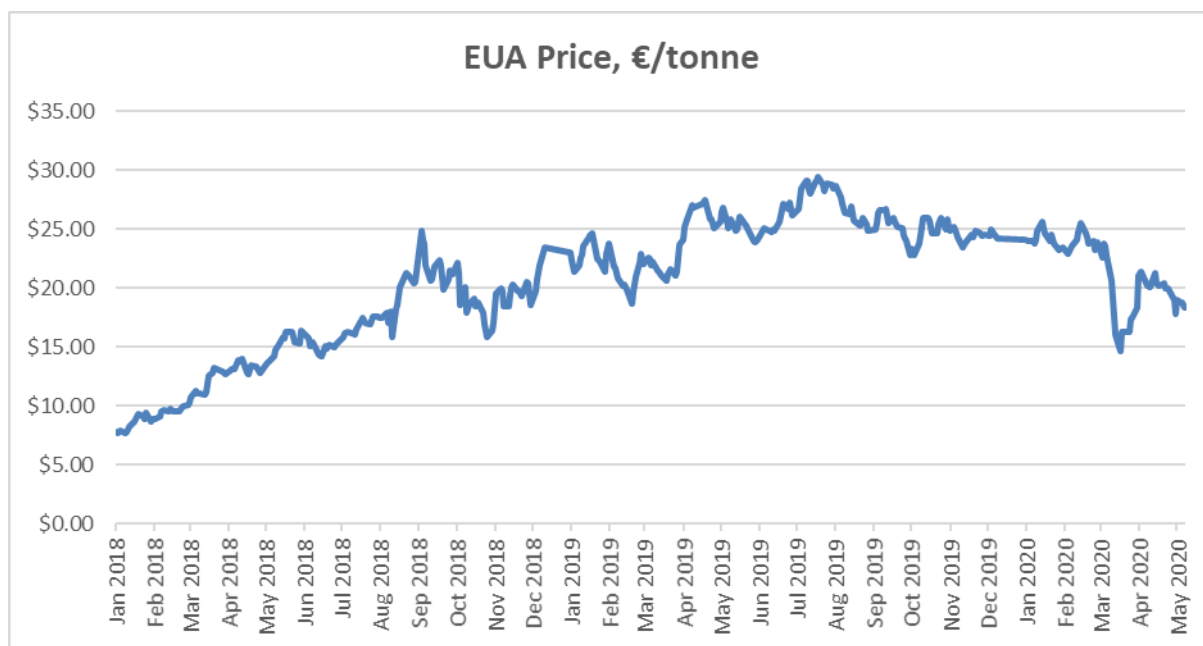
Figure: EU Household Electricity Prices, Q4 2019, incl. Taxes. Source Eurostat / DG Ener

In the second CCAC Working paper referred to above, consumer electricity prices in Ireland rose between 4.4% to 4.6% in the scenarios using carbon price floors, while closure of coal by Regulation resulted in a lower increase of 1.5%. Ireland is committed to closing the Moneypoint power station by 2025 in the Climate Action Plan 2019.

The analysis also covers the impact on a group of North-West European countries in introducing a price cap. Again, the results indicate that electricity price rises would be somewhat lower where coal is closed by Regulation, rather than a price floor.

(ii) Reform of the ETS

Ireland has supported the reforms in Phase IV of the ETS and did not think an intervention was appropriate until these reforms had been given time to take effect. The following graphic shows the development of ETS prices since 2018. Prices have strengthened considerably, albeit there has been a dampening of price since the onset of Covid-19.



In terms of Ireland's recent ETS emissions, the EPA, as the Competent Authority in Ireland for the ETS, published on 22 April 2020 details of greenhouse gas emissions in 2019, for companies in the system. Emissions from Irish power generation and industrial companies in the EU Emission Allowance Trading System fell by 8.7 per cent (1.3 million tonnes) in 2019. This mirrors a decrease of approximately 8.9 % across Europe.

(iii) Economic Distortions

Price floors are generally undesirable as they create economic distortions because the carbon price is set above the equilibrium price. The allocative inefficiency of floors results potentially in a deadweight loss.

(iv) Investor Certainty

It is considered better from an investor certainty perspective, and indeed for the proper functioning of the EU ETS, to have gradual increase in the carbon price rather than a spike brought about by the introduction of a price floor. ETS participants will have their own strategies to address the expected price evolution through their investment plans balanced with forward planning for ETS allowance purchases.

(v) Status of Peat and Coal Plants

There is greater certainty surrounding the status of Ireland's peat and coal plants over the last year. The Climate Action Plan 2019 was introduced in June 2019 that states that to meet the required level of emissions reduction by 2030, Ireland will deliver an early and complete phase-out of coal by 2025 and peat by 2028. ESB subsequently announced on 8 November 2019 that the West Offaly and Lough Ree peat-fired power stations will cease generation of electricity at the end of December 2020.

Finally it is noted that the EU Green Deal will propose an increase the EU's emissions reduction target for 2030 to at least 50% and towards 55% compared with 1990 levels. This will result in an increase, as of yet undefined, in the EU ETS Sector emissions reduction target (expected to be published by the

Commission in June 2021). Such an increase is expected to have a further strengthening impact on ETS prices.

2. Carbon Savings from modal Shift – any work done on this

Analysis undertaken by McKinsey to inform the preparation of the 2019 Climate Action Plan examined the potential emissions savings from modal shift in the Dublin region. Based on an assumed reduction of 20% of total kilometres driven in Dublin (using CSO data for 2017) and replacing these journeys with fully electrified public transport, an estimated annual emissions saving of **100,000 tonnes** could be achieved. This level of modal shift would require an additional 1,200-2,400 buses, assuming that one bus replaces 25-50 cars. Note: the additional public transport investment required to expand the bus fleet by this amount would be in addition to public transport investment already committed to in the National Development Plan and was not included as a commitment in the Climate Action Plan.

Further analysis, currently being prepared to consider potential higher emissions targets beyond those set out in the 2019 Climate Action Plan, has examined the potential emissions savings that could be achieved by increasing the share of journeys using active and public transport modes in the five major cities to 25% of all journeys. This is in line with the modal share levels that have been achieved in cities such as Amsterdam and Paris. This analysis suggests that **500,000 tonnes** of annual abatement could be achieved in addition to the measures included in the Climate Action Plan.

There is limited currently available data on the potential emissions savings that could be achieved from a significant modal shift in rural transport, absent transport infrastructure or changes in settlement patterns, both of which are more likely to take place over a significant period of time.

The Climate Action Plan sets out existing transport policy commitments in relation to modal shift and active transport, including:

- Implementing a major sustainable-mobility projects such as DART Expansion, Metro Link, and the BusConnects Programme. BusConnects targets a 50% increase in bus passenger numbers over the lifetime of the project in our major cities
- Expanding sustainable-travel measures, including a comprehensive cycling and walking network for metropolitan areas of Ireland's cities, with a particular emphasis on safety of cyclists. We shall also expand greenways, and develop over 200km of new cycling network under BusConnects
- Promoting compact growth and greater integration of policies for land use and transport planning, which will reduce the demand for commuter travel and support more efficient patterns of development and travel
- Establishing a Park-and-Ride development office

3. TCOE EV v fossil fuel vehicle. Expectations as to when this is likely to be achieved.

The Climate Action Plan sets out targets for the uptake of electric vehicles over the next decade based on the MACC analysis prepared by McKinsey. The MACC demonstrates that the most cost-effective abatement opportunities for transport are in the electrification of transport. This is due to fast falling battery prices, which are likely to put the overall cost of EVs on par with those of fossil fuel vehicles over the next decade. The MACC therefore proposes the following by 2030:

- Increasing the number of passenger EVs on the road to 840,000 by 2030 (split between 550,000 BEVs and 290,000 PHEVs)
- Reaching 95,000 electric vans and trucks by 2030
- Procuring 1,200 low-emissions buses for public transport in cities

The Plan assumes an overall reduction in passenger car emissions of 2.9 million tonnes by 2030 relative to 2017 levels, while the fleet grows from 2.1 million cars in 2017 to 2.3 million in 2030.

The required ramp-up in EV penetration to achieve the numbers set out above is based on an assessment of when different classes of passenger vehicles reach total cost of ownership parity with internal combustion engine (ICE) vehicles:

- 2022: A/B classes (e.g. Nissan leaf)
- 2026: C/D classes (e.g. Hyundai Ionic)
- 2025: E/F classes (e.g. Tesla)

For light commercial vehicles, the data underpinning the MACC indicates that total cost of ownership is currently at parity with ICE equivalents in urban settings, though there is some variance based on payload and usage patterns. Parity for heavier commercial vehicles (e.g. large vans) in urban settings may be achieved by 2027 but parity for medium and heavy-duty goods vehicles will not be achieved in the next decade.

For buses and coaches, the analysis indicates that the question of total cost of ownership is much more dependant of factors such as the specifications of the procuring authority and factors such as passenger load factors and user charges.

In addition to the required trajectory of EV ownership, the assumed savings also require ongoing efficiency improvements in the remaining ICE fleet, driven by EU standards for new vehicles.

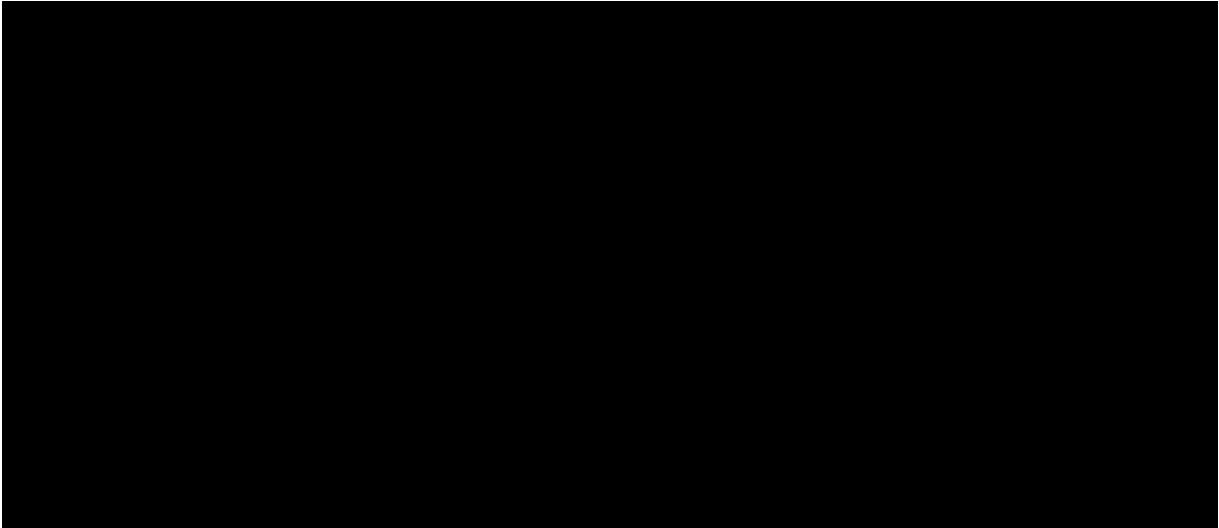
DCCAE Residential Retrofit 18/05/20 [gp]

Residential Retrofit Targets

Context and Climate Action Plan retrofit targets

The Climate Action Plan sets a target of reducing the greenhouse gas emissions from the residential sector from 6Mt CO₂e in 2017 to 3-4Mt CO₂e in 2030. The Plan indicates that this will be achieved by upgrading 500,000 homes to a Building Energy Rating of B2/cost optimal

equivalent or carbon equivalent by 2030, as well as the installation of 400,000 heat pumps to replace older heating systems. As evident from the chart below, this represents a very significant increase in both the number and depth of retrofit delivery, over and above current activity.



Achievement of the targets will be supported by the Project Ireland 2040 financial allocation of €3.7 billion to 2027. While this is clearly a significant level of Exchequer investment, it is generally acknowledged that reliance on Exchequer finance alone will not be sufficient to meet the level of retrofit and heat pump installation required.

Retrofit Taskforce

Delivering on the retrofit targets is a complex programme of work with a wide range of interlinkages and interdependencies. A truly all of government approach with effective collaboration will be required to deliver the programme. A Retrofit Taskforce with cross Departmental and agency membership has been established to oversee the design and development of a new integrated retrofit delivery model and the overall plan for achieving our targets.

Key activity/areas of progress since January include:

- Extensive collaborative working across the Department and SEAI with support from external consultants;
- Workshop with 40 stakeholders from the supply chain and financiers held;

- Series of bilateral meetings held with key stakeholders and Departments;
- Workshop with consumers/homeowners held;
- Review of international experience of retrofit programmes undertaken;
- Meetings of the Taskforce (20 January) and Delivery subgroup (19 February and 3 March) and Finance subgroup (5 March) held;

High level design to deliver on our retrofit target

The Taskforce is assessing a range of potential approaches across the 4 dimensions/pillars that will form the core of the retrofit solution.

- (i) Customer/homeowner propositions to improve awareness and drive demand
 - A network of one-stop-shops that deliver simple customer journeys and coordination with contractors and finance providers as well as minimising hassle;
 - Proactive and targeted marketing campaigns targeted at identified segments;
 - Appropriate regulation.

- (ii) Financial/funding models for each consumer segment/cohort to address high payback periods and ability to pay upfront costs
 - Exchequer funding;
 - Low cost loans (including consideration of a loan guarantee scheme), green mortgages, 'pay as you save' etc;
 - Tax incentives.

- (iii) Supplier scale-up and contracting
 - Drive confidence in long-term attractiveness of retrofit market;
 - Consistency and confidence in one-stop-shop offerings through clear standards and establishment of contractual obligations;
 - Changes to the existing apprenticeship and education programmes and other initiatives to up-skill the existing workforce and bring in new entrants;
 - Foster aggregation and standardisation;
 - Stimulate innovation.

(iv) Programme governance and roadmap

- Appropriate entity with responsibility for driving achievement of our national retrofit targets;
- Performance monitoring and evaluation mechanisms established.

Moneypoint Power Plant Note 18/05/20 [gp]

Moneypoint Power Plant

- Moneypoint has a total generation capacity of c. 900 MW comprising of three separate power plants and is Ireland's largest electricity generation capacity at a single location. Approximately 100 people are employed at the facility.
- In line with Government policy, as reiterated in the Climate Action Plan, the ESB has committed to end coal-fired electricity generation at Moneypoint by 2025.

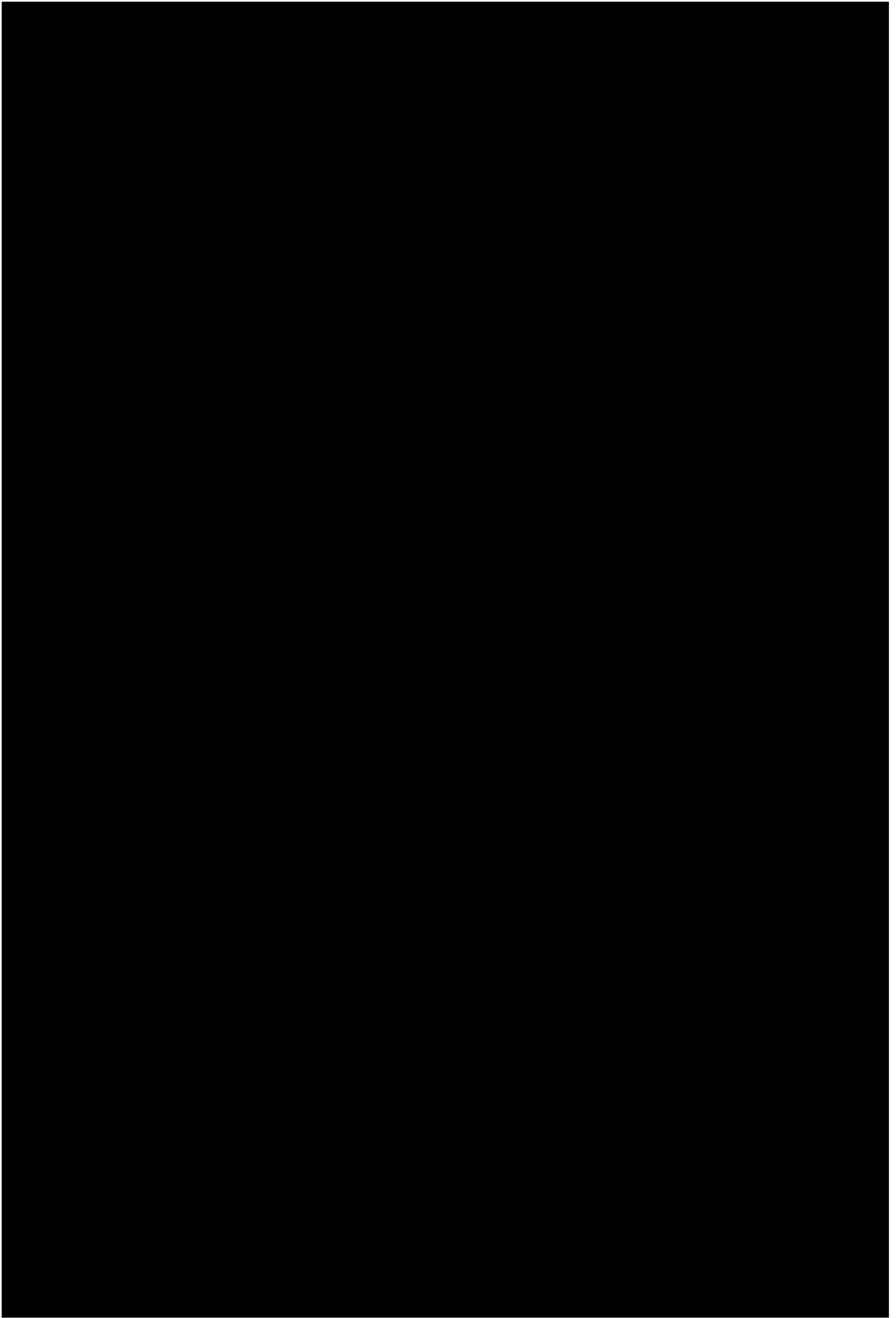
Moneypoint Running Time and Carbon Emissions

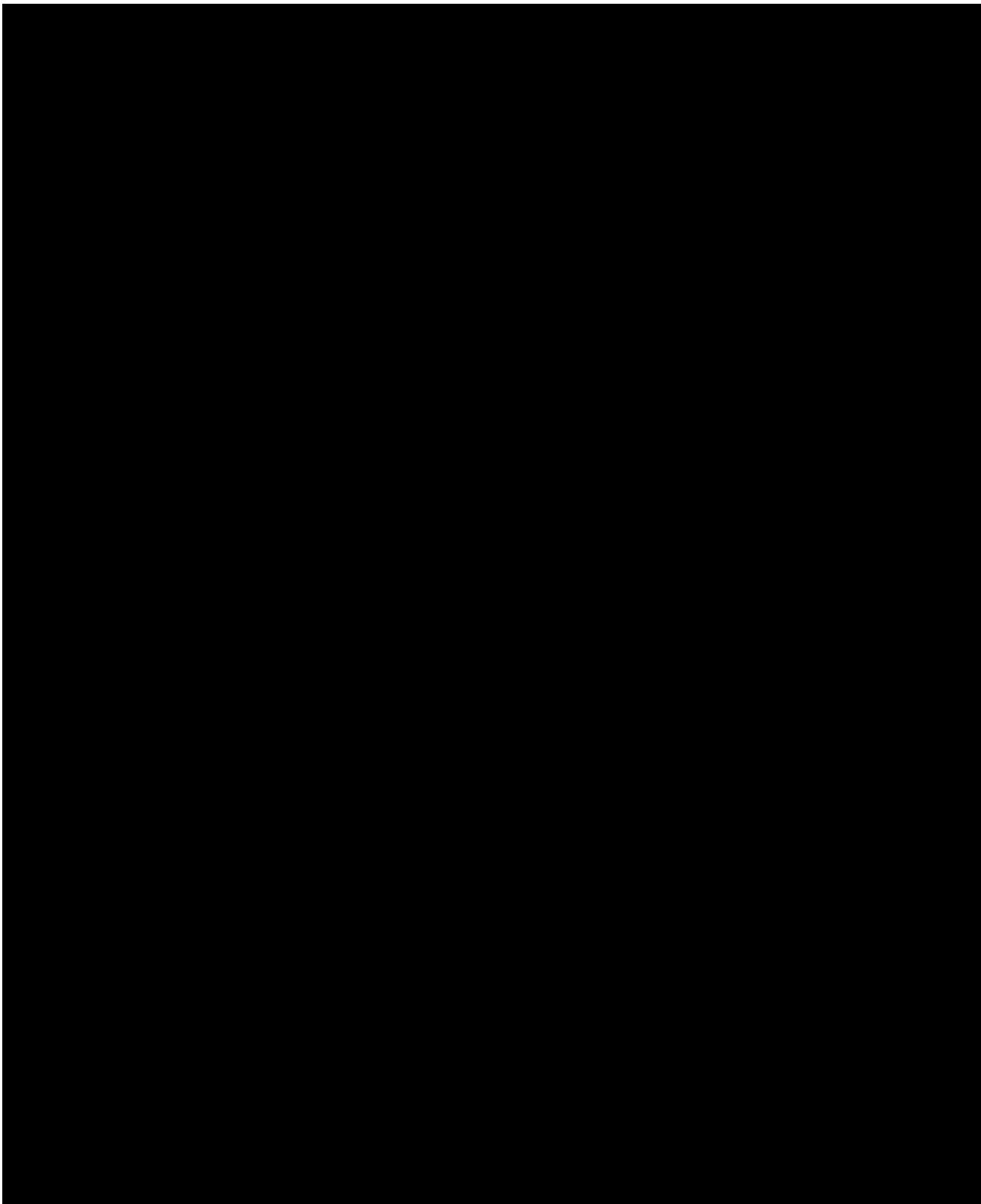
- The percentage of electricity generated from coal is in long-term decline: from 29% in 2000, to 15% in 2017, and to 2% in 2019.
- Moneypoint's carbon emissions are part of the EU-wide Emissions Trading System. A reduction in Moneypoint's carbon emissions does not contribute to Ireland's 2020 or 2030 non-ETS greenhouse gas emissions targets.
- Moneypoint's carbon dioxide emissions have declined from 3.4 million tonnes in 2017 to 0.7 million tonnes in 2019. This is equivalent to about 1% of Ireland's total (ETS + non-ETS) greenhouse gas emissions in 2019.
- To date in 2020, Moneypoint has been running very little. This is because the electricity it generates is too expensive in comparison to other types of available power generation.

	2017	2019	2020 (est)	2021 (est)	2022 (est)
Coal as % of Electricity Generation	15%	2%	≈1%	≈1%	≈1%
CO2 (million Tonnes)	3.4	0.7	≈ 0	≈ 0	≈ 0

Responses to Questions from Sinn Fein 06/05/20 [SF]

Questions for Gov. Departments Arising from Political Party Discussions





Retrofitting:

- ***What will deliver the most significant emissions reductions in the shorter term - data to compare the number of deep retrofits compared to shallow over a period?***
- ***What is known about energy efficiency improvements required for public buildings- has an audit been done? Has there been any prioritisation of work required? What would the level of investment be?***
- ***What level of additional capacity is needed in local authorities to deliver retrofits and new builds?***
- ***What will it cost to deliver 50% emissions reductions in public buildings by 2030?***

The Climate Action Plan sets a target of reducing the greenhouse gas emissions from the residential sector from 6Mt CO₂e in 2017 to 3-4Mt CO₂e in 2030. The plan indicates that this will be achieved by **upgrading 500,000 homes to a Building Energy Rating of B2/cost optimal equivalent or carbon equivalent by 2030 as well as the installation of 400,000 heat pumps to replace older heating systems.**

A Retrofit Taskforce with cross-Departmental and agency membership has been established to oversee the design and development of a new integrated retrofit delivery model and the overall plan for achieving our targets. This work includes the identification of potential approaches across 4 core pillars that will form the core of the retrofit solution – (i) customer/homeowner propositions; (ii) financial/funding models; (iii) supplier scale up and contracting, and (iv) programme governance and roadmap. Work is continuing, in line with the Climate Action Plan target of publishing a report by Q3 2020.

The specific information sought on **EIB funding mechanisms** or on **additional employee capacity needed in local authorities** to deliver retrofits and new builds is not held.

In 2009, the Government set a target for **the public sector** to improve energy efficiency by 33% by 2020. By the end of 2018, the public sector was 27% more energy efficient. The Climate Action Plan includes targets to improve public sector efficiency by 50% by 2030 and to achieve a 30% absolute carbon reduction in the same timescale.

A study has commenced to assess the quantum and condition of the **public sector building stock** so an estimate of the costs to upgrade and reach targets can be made; and interim report is expected mid-2020.

What are the remaining barriers to microgeneration in Ireland?

Action 30 in the Climate Action Plan commits to developing an enabling framework for micro-generation which tackles the existing barriers. As part of the EU Clean Energy package, the Renewable Energy Directive (recast), due for transposition by June 2021, entitles renewable self-consumers to receive remuneration for excess electricity exported to the grid. A Working Group, chaired by DCCAIE, is progressing the delivery of a framework for micro-generation from renewable technologies with a view to commencement of a support scheme by 2021, at the latest, to ensure that people can sell excess electricity they produce back to the grid. On-going work will address key issues for microgeneration in Ireland including resolving market settlement issues for renewable self-consumers exporting to the grid, the planning exemptions for solar panels, determining the appropriate grid connection policy to facilitate micro-generation, and assessing possible support mechanisms for

micro-generation segments whilst ensuring principles of equity, self-consumption and energy efficiency-first are incorporated.

What would the revenue be from 30 gigawatts off shore wind to the State? What is the carbon credit Ireland would get from the EU?

The immediate policy priority is the delivery of 70% renewable electricity by 2030. As indicated in the Climate Action Plan, this is expected to include the delivery of 3.5 GW (minimum) of offshore electricity generated infrastructure in Irish waters, which will be required for domestic electricity consumption to meet the 70% target. In that context, revenue arrangements for post-2030 offshore generation for export or potentially for hydrogen generation have not been put in place yet. There is no direct carbon credit from generating renewable electricity.

What are the ways to ban imported fracked gas? Are there any legal considerations in restricting LNG infrastructure? Are there certification processes or standards used in other countries to grade the gas in terms of the presence of fracked gas?

Banning LNG and/or imported fracked gas would require legislation. Legal advice would be required on such a proposal. Nonetheless, it would appear that a unilateral ban by an EU Member State relating to LNG and/or the importation of fracked gas will likely be problematic both legally and practically in the context of international trade and trading rules.

DCCAIE is aware that some US buyers and sellers of gas have used independent certification to market their gas as responsibly produced and transported, however, these are not legal requirements. Therefore, in the context of a globally traded gas commodity, it is difficult to identify and determine with certainty whether a quantity of imported natural gas or LNG arriving into Ireland would have been entirely produced by conventional or non-conventional (e.g., fracking) processes.

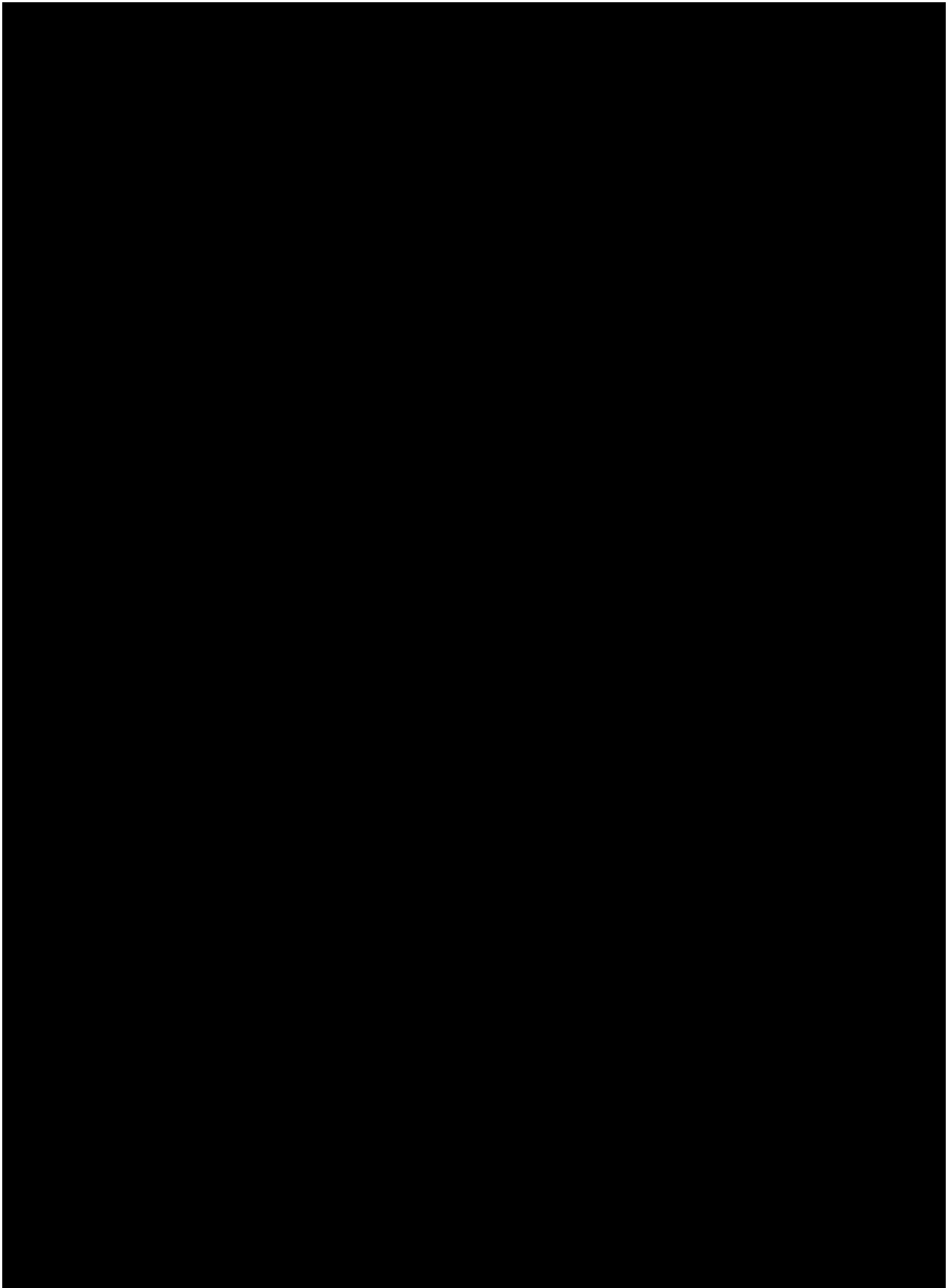
Natural gas provides over 30% of Ireland's energy needs, heating and powering 700,000 homes and businesses and generating over 50% of the electricity we use. Demand for electricity will increase due to the electrification of heat and transport, and data centre demand. The phasing out of electricity generation from peat and coal will increase the dependence of the electricity system on natural gas. Natural gas in Ireland is currently supplied by a combination of domestic production and imports via two pipelines from Scotland. The Kinsale gas fields will cease production in the first half of 2020 and the output from the Corrib gas field is decreasing. In 2018, 39% of our natural gas use was imported from the UK and this will increase to circa 80% by 2025 and well over 90% by 2030.

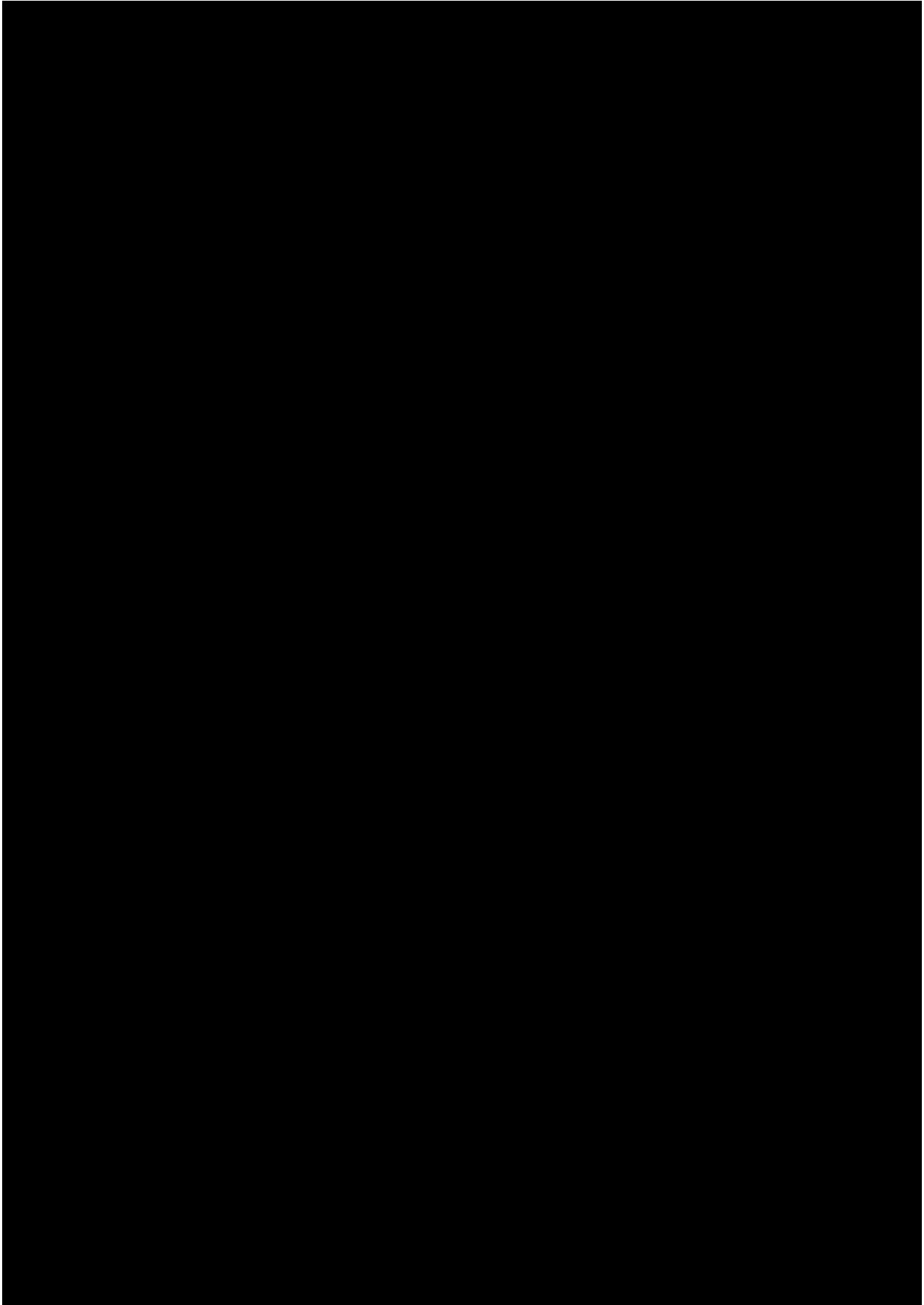
DCCAIE Response to Green Party Filling Station Query 10/03/20

[GP]

we would not have an exact figure to hand but there is a figure on Irish Petroleum Industry Association (IPIA) website which refers to retail sites - the number is 1,789 for 2017. They spoke to a representative of IPIA and they reckon the figure today would still be in and around that – so approx. 1,800.

DCCAE Responses to questions Green Party 09/03/20 [GP] [FF]
Questions for Gov. Departments Arising from Political Party Discussions





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DCCAIE and DCHG note on rewetting bogs 09/03/20 [GP SF]
Questions for Gov. Departments Arising from Political Party Discussions

1. What is the scale of investment needed in rewetting the bogs?

Given the varying nature of bogs in Ireland, and the lack of robust data, further research, data collection and assessment of wetlands in Ireland will need to be undertaken in order to address this

specific query. However, this note provides some context in relation to emissions from Ireland's bogs and outlines some of the ongoing work in this area.

Baseline emissions

Emissions from wetlands fall under the inventory sector of Land Use, Land Use Change and Forestry (LULUCF). Under the UNFCCC methodology, Ireland's emissions from LULUCF were 4.9 MtCO₂ eq. in 2017. Of this, wetlands accounted for 3.2 MtCO₂ eq. These figures are calculated using the global UNFCCC values, which are not specific to Ireland, and present Ireland's LULUCF sector as a net emitter of emissions. However, under the EU Effort Sharing approach, Ireland has been allowed to claim a credit of 2.68 MtCO₂eq. p.a. for the period 2021 to 2030 – a flexibility granted to Member States in recognition of the lower mitigation potential for emissions from the agriculture sector and calculated based on the share of Member States' agricultural emissions. Thus, there is significant uncertainty about Ireland's actual emissions from the LULUCF sector.

Potential mitigation

Despite the uncertainty of emissions from Ireland's LULUCF sector, it is clear that wetlands play a vital role, *inter alia*, in mitigating climate change effects. This is recognised in the 2019 Climate Action Plan, which includes the following supporting measures:

- Undertake further research to assess the potential to sequester, store and reduce emissions of carbon through the management, restoration and rehabilitation of peatlands as outlined in the National Peatlands Strategy
- Upgrade land-use and habitat mapping systems to establish the baseline condition of wetlands and inform the development of best-practice guidelines for wetland management, including the management of degraded sites and peatlands currently exploited for energy peat extraction
- Ensure robust reporting and accounting of the emissions impact to meet relevant international reporting requirements (this will be done under the National Land Cover and Habitat Mapping Programme)
- Develop further measures to help rehabilitate exploited and degraded peatlands, including as part of national land-use planning and the new Common Agricultural Policy, and recognising that strategies may need to differ between regions

Some recent work carried out in relation to the above has seen:

- The Department of Culture, Heritage and the Gaeltacht undertake a 5 year restoration project on 12 raised bog Special Area of Conservation sites with funding provided under the EU LIFE programme.
- The Department of Culture, Heritage and the Gaeltacht undertake restoration measures on land in State ownership within designated raised bog sites. Restoration measures on State owned land have been completed in three raised bog Special Areas of Conservation (SACs) and in one raised bog Natural Heritage Area (NHA).
- Draft rehabilitation plans prepared on a bog by bog basis across the entire State and Bord na Móna is currently engaging with stakeholders to update and further detail those plans.
- An Eddy Covariance (EC) tower set up at Clara Bog raised bog Special Area of Conservation by the Department of Culture, Heritage and the Gaeltacht in collaboration with Trinity College Dublin, enabling long-term monitoring of CO₂ exchange from the bog. An EC tower has also been set up at Lullymore, a former production peat-bog, by University College Cork.

Furthermore, Budget 2020 announced €5m for bog restoration and rehabilitation which will restore bogs to their natural habitat and help to capture carbon. With the injection of this funding, the Department of Culture, Heritage and the Gaeltacht intends to restore over 1,800 hectares of protected raised bog in 2020 and install an additional EC Tower on a bog to observe the exchange of gas, energy and momentum between the ecosystem and the atmosphere.

In terms of potential emissions savings, there is some ongoing work across the Department of Culture, Heritage and the Gaeltacht, Bord na Móna, and Coillte to understand the precise interventions suited to Ireland's peatlands and to assess the potential emissions impact. Although this work is preliminary, high-level estimates suggest potential to reduce wetlands emissions by ~60% to 2050.

In light of the above, there is a clear need to better understand Ireland's LULUCF position in order to more accurately determine the overall sink versus source position in relation to defining a potential emissions reduction pathway and begin to establish associated costs.

DCCAIE Response on Climate 09/03/20 [FF] 28/02/20 [SF]

Under current plans and policies what is the committed annual percentage reduction to carbon emissions for the years 2021, 2022, 2023, 2024 & 2025 and to outline the inter departmental monitoring systems put in place to ensure that this is achieved.

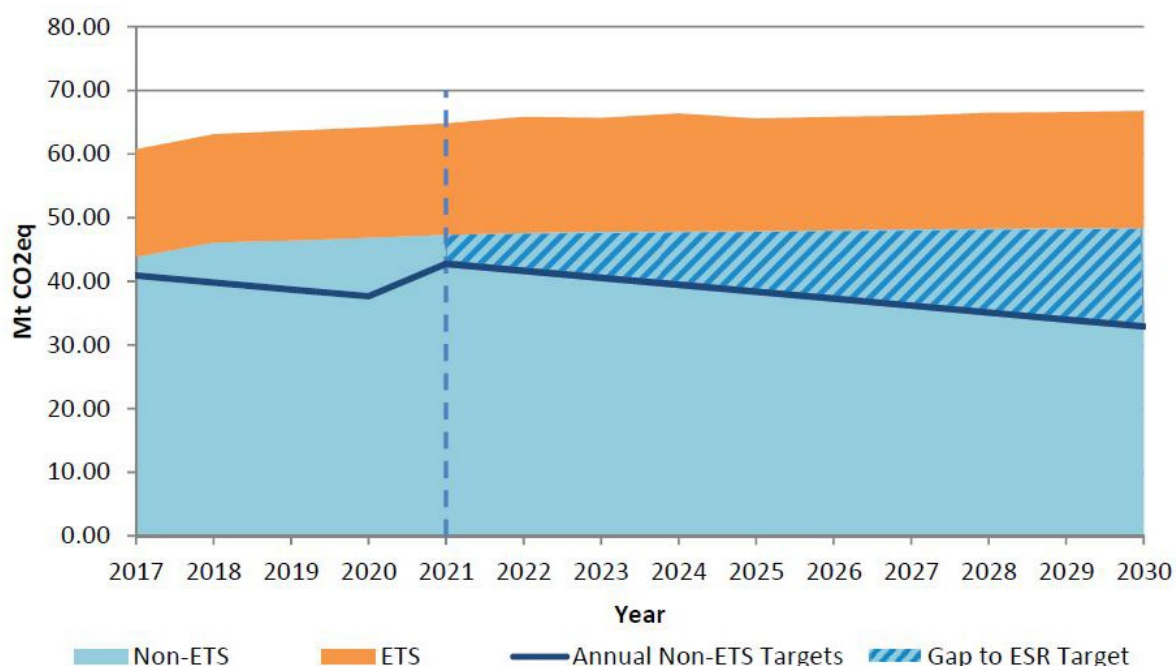
Under the EU Effort Sharing Regulation (ESR), Ireland has a non-Emissions Trading System (non-ETS) legally binding target for emissions reduction of 30% relative to 2005 levels. This target covers emissions from sectors such as transport, buildings, agriculture and waste. For each Member State the 2030 target is the end point of a linear reduction trajectory defining annual emission ceilings for the years 2021-2030 inclusive. This is described in **Figure 1** below.

Ireland’s commitment under the 2019 Climate Action Plan is to achieve our emissions reduction target of 30% relative to 2005 levels by closing the gap to our 2030 target as identified in Figure 1 below.

While the 2019 Climate Action Plan does not set out annual emissions targets for Ireland, the Plan does set out a policy pathway, underpinned by the Marginal Abatement Cost Curve (MACC) analysis, that supports compliance with Ireland’s annual emissions ceilings over the period 2021 to 2030. The cumulative abatement impact of commitments included in the Climate Action Plan will enable Ireland to meet the projected gap to Ireland’s ESR target overall gap described in Figure 1.

This translates to a change in Ireland’s overall emissions trajectory in the order of a 2% decline each year from 2021 to 2030 to meet our EU targets.

Figure 1 Ireland’s Projected ETS and non-ETS Emissions and Annual Targets



Climate Action Plan Governance

The 2019 Climate Action Plan contains over 180 actions, broken down into over 600 individual measures spanning across 13 Government Departments and 40 agencies under the remit of those Departments. The Plan puts strong focus on implementation with clear lines of responsibility, timelines and steps for each action. Delivering such an integrated set of actions and policies requires a deep level of collaboration across Government.

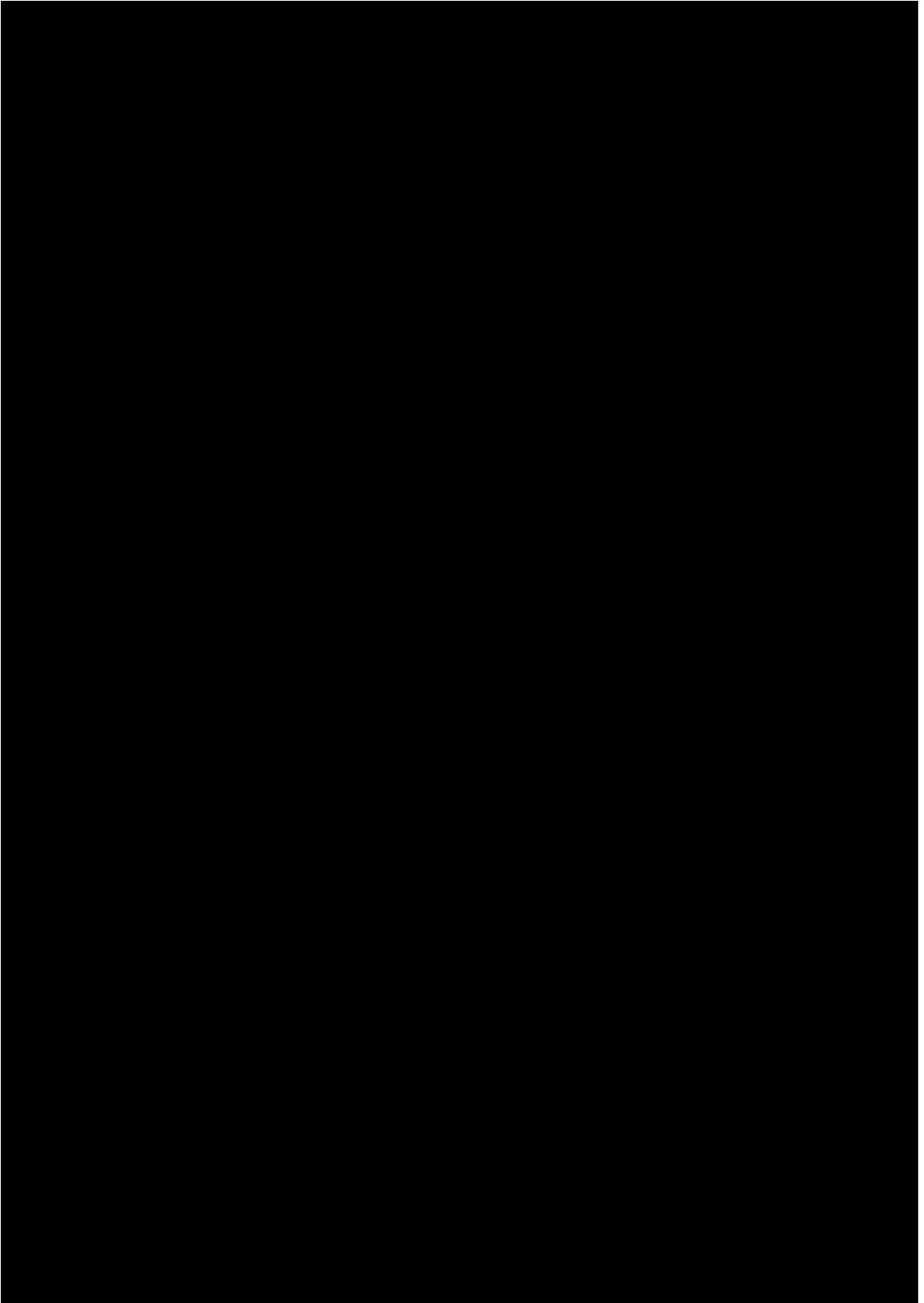
Key governance measures established under the 2019 Climate Action Plan to ensure that, overall, we stay on track to meet our climate commitments, include:

- The establishment of a Climate Action Delivery Board within the Department of An Taoiseach (DoT) to hold designated bodies to account
- The establishment of a new Climate Action Unit in DoT to monitor and drive implementation and assist with the preparation of a quarterly progress report
- Preparation of a quarterly delivery report for the Cabinet Committee and the Cabinet, for subsequent publication
- Annually updating the Climate Action Plan with new actions
- Ongoing consultation and feedback, feeding into each subsequent plan
- Ongoing review of changing costs, changing technology to inform new actions being developed

Furthermore, the 2019 Climate Action Plan commits to bring forward a new Climate Action (Amendment) Bill, which will provide for a strengthened statutory framework for continual long-term planning for the realisation of Ireland's 2050 vision, enforcing climate targets and reporting progress on the way. Some of the key changes provided in the Bill include:

- The establishment of a 2050 emissions reduction target in law
- Requiring the Government to set a decarbonisation target range for each sector, with the Minister with primary responsibility for each sector being accountable for delivery
- Making the adoption of carbon budgets a legal requirement
- Establishing that a Long-Term Climate Strategy, to match the period covered by 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
- Establishing the Climate Action Council as a successor organisation to the Climate Change Advisory Council, with strengthened powers. It will be responsible for providing advice to Government on the setting of carbon budgets and monitoring the progress of the State in reducing emissions.

The Climate Action Plan also proposes that an Oireachtas Committee on Climate Action be established.



DCCAIE Peat Regulations Note 04/03/20 [FG]

Matters Relating to Peat Extraction in Ireland

1. Background

On 25 January 2019, the European Union (Environmental Impact Assessment) (Peat Extraction) Regulations 2019 (S.I. No. 4 of 2019) were signed into law by the Minister for Communications, Climate Action and Environment (MCCAIE). The principal effect of these regulations was to make the Environmental Protection Agency (EPA) the sole Competent Authority for large scale (+30 hectares) peat extraction in Ireland. Environmental impact assessment (EIA) for +30 hectares peat extraction was also made mandatory (when it had previously only been mandatory for +50 hectares).

On the same date, the Minister for Housing, Planning and Local Government (MHPLG) signed the Planning and Development Act 2000 (Exempted Development) Regulations (S.I. No. 12 of 2019). The principal effect of those regulations was to exempt large scale peat extraction (again +30 hectares) from planning permission.

The net effect of the two sets of regulations (together “the 2019 regulations”) was to make the Environmental Protection Agency (EPA) the single competent authority for monitoring large-scale peat extraction through its Integrated Pollution Control (IPC) licencing process.

In April 2019, Friends of the Irish Environment (FIE), an environmental NGO, sought a judicial review of the 2019 Regulations.

The hearing of the substantive case took place in September 2019, before Mr Justice Garrett Simons, and a ruling was delivered, on 20 September, in favour of FIE. Mr Justice Simons set aside both of the 2019 regulations with immediate effect.

The judgement found, *inter alia*, that the 2019 Regulations are incompatible with EU law, on the basis that they provided for no possibility of suspending unauthorised development during the transitional arrangements, and allowed for ‘regularising’ unauthorised development in a manner contrary to requirements set out in EU case law.

It was subsequently decided not to appeal the Judgement; the final date for appeal was 8 November 2019.

2. Impacts

Regulatory Impacts

As a result of the judgment, the regulatory system for large scale peat extraction has reverted to that which applied before the introduction of the 2019 Regulations, namely:

- Peat extraction over 30 hectares is subject to planning permission that requires Environmental Impact Assessment (EIA) (planning permission without mandatory EIA is required for peat extraction over 10 hectares);
- Peat extraction over 50 hectares also requires an EPA IPC license, in addition to planning permission, which is also subject to EIA;

In order to regularise the development status of their activities via the planning system, large scale operators will be required to seek substitute consent from An Bord Pleanála (ABP) under the Planning Acts. ABP may refuse to grant leave to seek substitute consent to any operator, and, even if leave is granted, may require that operations be suspended while the application is under consideration. Therefore the commercial peat extraction sector, or large parts thereof, could potentially be required to cease operations pending regularisation.

Operators would also be required to seek an IPC licence from the EPA in addition to seeking substitute consent from planning, for activity over 50 hectares where an IPC licence has not already been granted.

It should be noted that, in his judgement, Mr Justice Simons did not find that the suspension of operations in cases of unauthorised development is a *mandatory* requirement under EU law. This is significant when assessing the potential impacts of the judgement.

Rather, Mr Justice Simons found (i) that the issue of mandatory suspension was not the one before him, (ii) that he was only required to rule on whether the regime provided for through the 2019 Regulations was defective, and (iii) that, due to the lack of the *possibility* of a suspension, said regime was indeed defective.

Potential Commercial Impacts

Mr Justice Simons' judgement stated that "at its height, the fact that a developer currently holds a license is something which could certainly be weighed in the balance in determining whether or not peat extraction would have to be suspended pending the carrying out of a regularisation procedure.....". Bord na Mona (BnM) is currently the only operator which holds an IPC licence.

Private peat extractors have neither planning permission nor IPC licenses. DCCAE understands that these private operators mainly supply peat to the horticultural sector, both domestically and for export.

However, there can be no guarantee that any operator would ultimately be granted substitute consent and/or IPC licences as required, nor that it would be commercially viable for operators to remain in business while awaiting consent if they are required to suspend operations in the interim.

The Department of Culture, Heritage and the Gaeltacht's (DCHG) in October 2019, separately to the proceedings discussed above, launched a consultation on the use of peat in the horticultural industry, which indicated that the private operators in this space include six medium-sized companies (Bulrush, Clover, Erin Peat, Harte Peat, Klasmann-Deilmann Ireland and Westland), and up to 30 small producers

as well as small semi-agricultural producers that supply both fuel sod peat as well as sod and milled horticultural peat. The paper also states that vast majority (possibly as much as 90%) of peat extracted in Ireland for horticultural use is being exported to markets outside of Ireland.

The DCHG consultation paper notes that Irish commercial horticultural industry has a farm gate value of €437 million in 2018, which is the 4th highest sector in terms of gross agricultural commodity output value after the Beef, Dairy and Pigs sectors respectively. It is further estimated that approximately 50% of the total industry output of €437m uses peat as a growing medium, as follows:

Output	€m
Mushrooms	117
Protected Fruit	38
Protected Vegetables	29
Nursery Stock	36
Protected Ornamental Crops	19
Total Peat Dependent Output	239

The use of peat as a growing medium varies across these subsectors, with mushroom growing having the highest level of dependency. It is understood that while the other peat-using horticultural subsectors (chiefly the soft fruit and horticultural amenity sectors) are exploring and/or have adopted growing media with a reduced reliance on peat, there is still a requirement for a proportion of peat, while no viable alternatives to peat use have been identified within the mushroom sector.

The extent of any commercial impact on the peat-dependent horticulture sector arising from a suspension/cessation of domestic peat extraction would depend on the difficulty in sourcing non-domestic supplies and the additional cost of doing so. Domestic stocks of horticultural peat on hand could be exhausted before alternative supplies were sourced, but it is unlikely that such domestic stocks would account for more than 6 months of demand.

Some limited supply of non-domestic horticultural peat may be available via Northern Ireland and/or Scotland, with the next closest alternative supply being from Baltic and Eastern European states.

3. Next Steps

Substitute Consent Process

DCCAIE understands that BnM has applied to ABP with a view to obtaining substitute consent for its peat harvesting activities, though on a significantly reduced footprint. The first stage in this process involves an application for leave (from ABP) to apply for substitute consent. We are advised by BnM that a decision on this leave to apply is expected from ABP on or around 18 March 2020. As stated above, ABP could refuse to grant leave or could so grant while requiring BnM to suspend their harvesting and associated activities until they have been fully regularised.

DCCAIE is not aware of any additional applications for leave the apply for substitute consent from private operators

Legislative / Regulatory

DHPLG wrote to its respective competent authorities (planning authorities and An Bord Pleanála) following the interim injunction in July quashing SI 12 of 2019, identifying that the SI 12 of 2019 had

been quashed (on an interim basis at that point) and describing the extant legal obligations on the competent authorities, including in respect of planning authorities' powers for enforcement and remediation of unauthorised extraction development where appropriate.

As indicated above, a substitute consent process under the Planning and Development Acts is the first step to be undertaken to address extant cases which do not have planning permission, and the onus is on operators in the first instance to engage with the Planning system in order to regularise their activities.

Separately, DCCAIE understands that DHPLG, in partnership with DCHG, is also working on a future peat extraction regime for smaller scale (sub 30 hectares) peat extraction to replace the present planning regime.

5. Other issues

Separately to the matters discussed above, DCCAIE understands that, on 10 December 2018, the Supreme Court heard proceedings brought by FIE against ABP regarding ABP's dismissal of a 2013 request for a determination regarding the planning status of a large scale peat extraction operation in County Westmeath. It is understood that the request was dismissed, inter alia, due the fact that the owners of the land under extraction could not be identified. The High Court upheld ABP's decision in 2018, and it is this High Court judgement which is now being appealed to the Supreme Court. While these proceedings are not directly related to the judicial review of the 2019 Regulations, they are relevant insofar as they have the potential to increase the scope of competent authorities' obligations to enforce those obligations. The Court has reserved judgment in the appeal.

In addition, DCCAIE understands that the EPA was served with papers on 24th January 2020 in relation to an application to the High Court by Friends of the Irish Environment for a judicial review of the Harte Peat Limited's application for an IPC license under the January 2019 Regulation. The main relief sought by FIE is the quashing of the EPA's to accept the application and prohibit the Agency from further processing it. The case is scheduled to return to the High Court on 10 March 2020.

DCCAIE Responses to Green Party Questions 27/02/20 [GP]

Response to Green Party Questions¹ on climate matters

Department of Communications, Climate Action and Environment

General

Is there an overview document of what reduction in emissions in Mt CO₂e are predicted to result from various actions / policies, based on analysis by TRAM/ UCC etc.

The Department of Communications, Climate Action and Environment commissioned McKinsey to prepare a Marginal Abatement Cost Curve (MACC) to 2030 to inform the 2019 Climate Action Plan by setting out the abatement potential of GHG mitigation measures, and the relative costs associated with each of these measures as a solid analytical foundation on the most cost-effective pathway to reduce greenhouse gas emissions.

¹ This includes certain issues raised at the meeting on 26 February 2020

Using Ireland's 2018 GHG Emission Projections 2017-2035,² associated projections of economic activity, and assessments of over 300 business cases for technology, the analysis identifies the technologies (including fuel switches), and associated levels of adoption, required to meet our 2030 target, of a 30% reduction in non-ETS GHG emissions by 2030 (relative to 2005 levels), in the most economical way.³ Costs in the MACC focus on Total Cost of Ownership (TCO), which captures the merits of change over the lifetime of the technology.⁴ It includes the cost of the initial investment and the costs of operation for the full lifetime of the technology.

The abatement technologies and fuels identified by the MACC are shown in **Figure 1** below. Each column represents a technology or fuel switch. The x-axis (i.e. the width of each column) shows the potential reduction of annual MtCO₂eq. emissions in 2030 from the technology or fuel switch. The y-axis (i.e. the height of each column) shows the associated average cost of abating one tonne of CO₂eq. over the 2021 to 2030 period. The columns are organised from the most economical (left side) to the most expensive technology (right side) in EUR/tCO₂eq. The MACC includes measures across all sectors of the economy⁵.

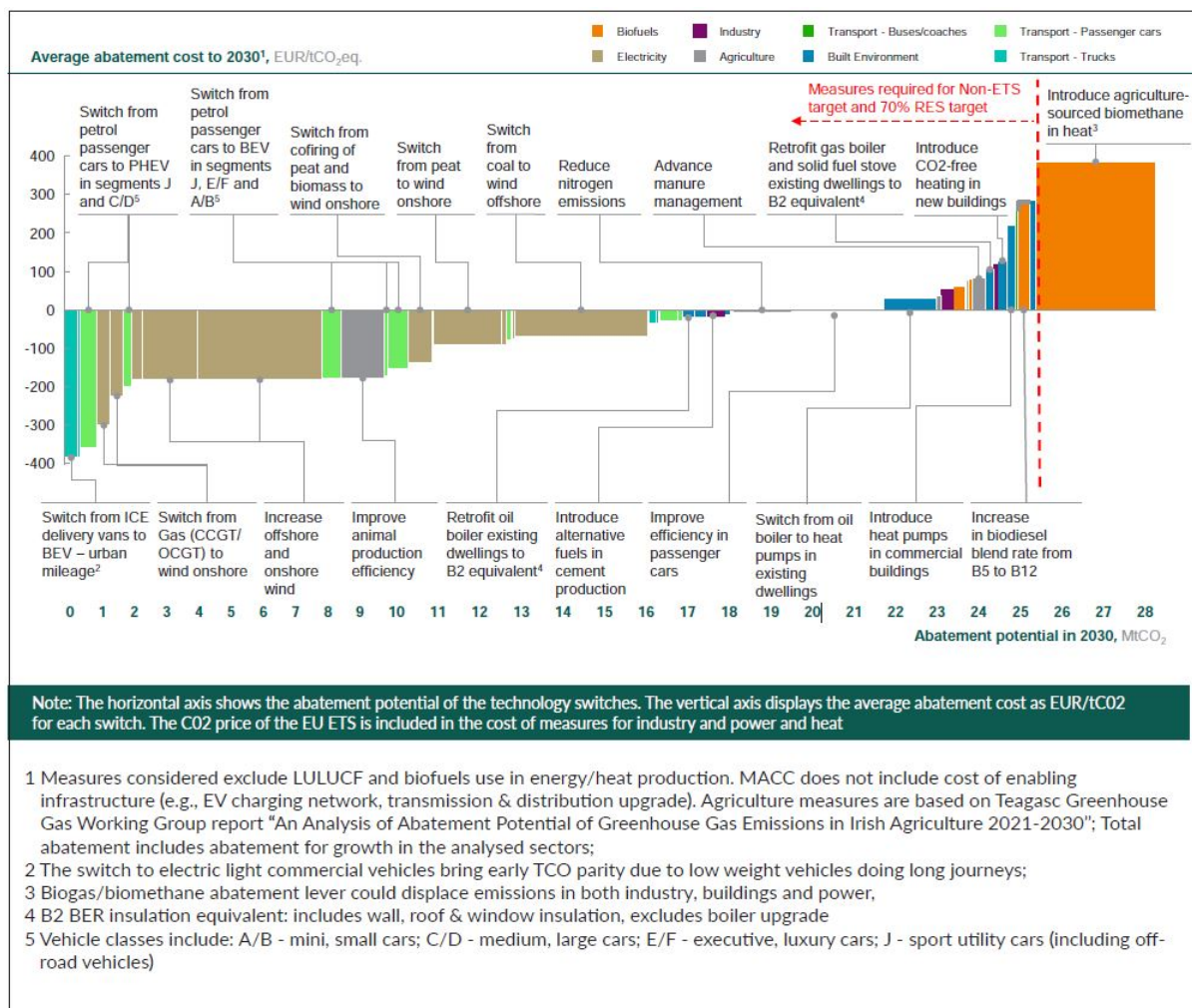
Figure 1: Marginal Abatement Cost curve for Ireland to 2030

² <http://www.epa.ie/pubs/reports/air/airemissions/ghgprojections2017-2035/#d.en.64043>

³ The underpinning technology business cases are based on McKinsey's globally-sourced data on emissions mitigation technologies, which have been localised for Ireland based on extensive engagement with relevant Government departments, and agencies as part of the preparation of this Plan. Each case includes a perspective on technology evolution over the next 10 Years (e.g. on cost and efficiency improvements)

⁴ The MACC excludes all taxes (including fuel taxes) and all subsidies, but takes account of commodity price changes. The weighted average cost of capital is set to 4% across all technologies as it takes a societal perspective. This means that individual sectors, consumers, businesses, etc. may face different cost levels in practice

⁵ The agriculture measures are based on the Teagasc GHG Working Group report An Analysis of Abatement Potential of Greenhouse Gas Emissions in Irish Agriculture 2021–2030



Key measures to achieve the required reduction in emissions in each sector as indicated by the MACC include, but are not limited to:

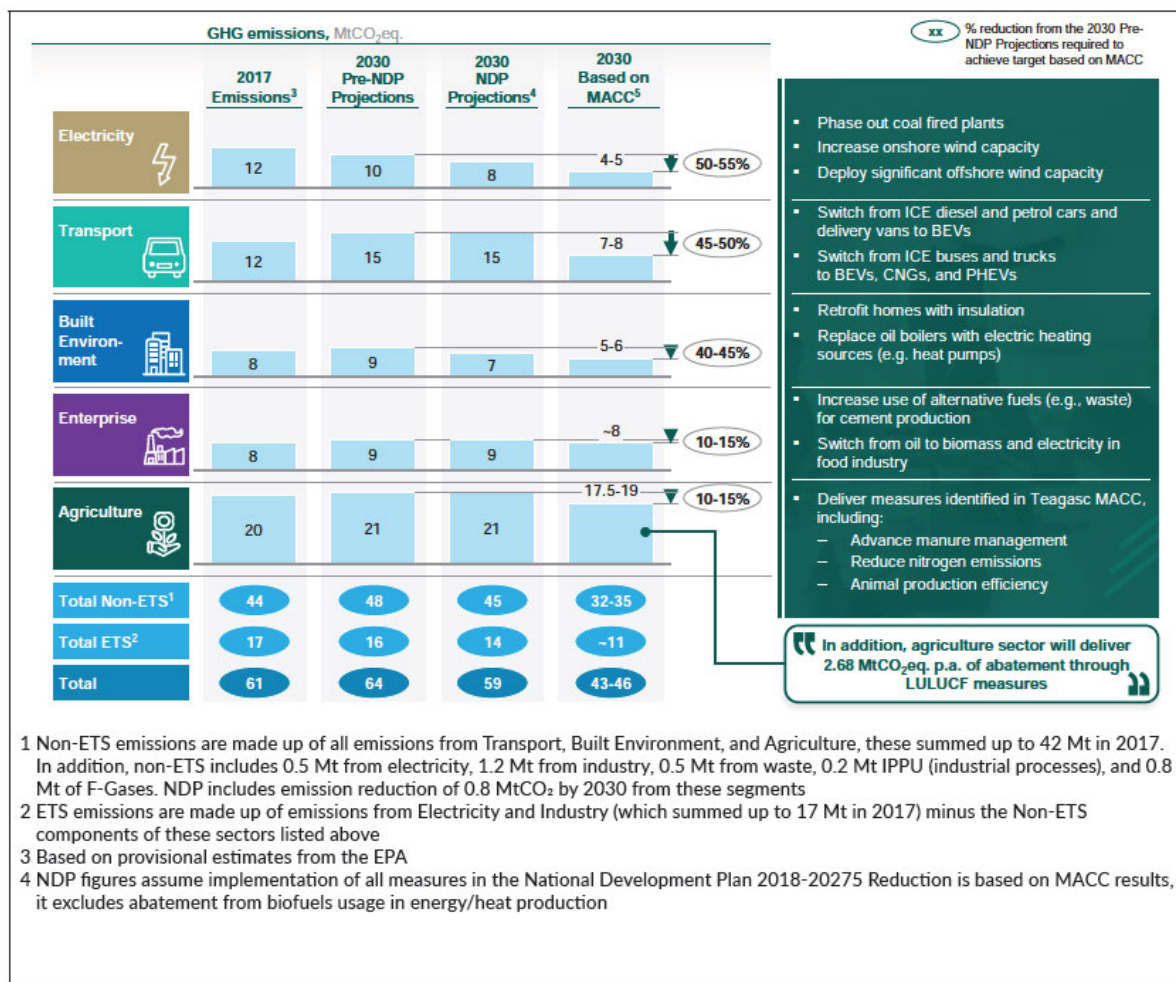
- Switching from Internal Combustion Engine (ICE) vehicles to Battery Electric Vehicles (BEVs)
- Replacing existing coal- and peat-fired plants
- Increasing onshore and offshore wind capacity
- Retrofitting homes with insulation to B2 equivalent Building Energy Rating (BER)
- Replacing oil/solid-fuel boilers with heat pumps
- Introducing zero carbon heating systems in new buildings
- Improving animal production efficiency
- Reducing nitrogen emissions through advanced manure management
- Introducing alternative fuels in key industry sectors

Insights from the MACC are used to indicate the most cost-effective level of emissions reduction per sector to 2030 and indicates a significant 'step-up' in ambition across all sectors, as represented in **Figure 2** below.

A decision to adopt a lower level of ambition in any one area of cost-effective abatement will require finding a more expensive alternative. By articulating an ambition range for each sector, the framework

provided by the 2019 Climate Action Plan will enable each sector to gauge whether the most appropriate policy tools have been identified and are being correctly deployed, or whether there is a need to reconsider the policy and/or the ambition.

Figure 2: Indicative Sectoral Targets for Ireland to 2030



Although the majority of technologies and measures on the curve result in net lifetime cost savings to the economy as a whole, adopting these technologies and measures will still pose a considerable challenge for the whole of society. Even when the total cost of ownership becomes cheaper for a specific technology (e.g. when the lifetime cost of an EV becomes cheaper than that of an ICE vehicle), the upfront cost may still be higher for the Exchequer, for individuals or for companies. Furthermore, while the MACC clarifies the required level of technology adoption to deliver the decarbonisation target, it does not make any assumptions on the type and cost of policies to achieve this adoption. Conversely, a key determinant of the level of actual emissions reductions from specific actions or policies is level of funding available to implement a given policy.

The initial policies and interventions, as well as the accompanying roadmap of actions, required to implement new policies and to accelerate the necessary technological and behavioural shifts are detailed within the 2019 Climate Action Plan.

Additional modelling work would be required to assess the potential emissions impacts of any new proposals that may be brought forward.

What's the potential emissions reduction from an upscaling of the rewetting scheme (€60m) which Bord na Móna mentioned to the Joint Committee on Climate Action in late 2019?

Assessment regarding the potential emissions savings of the proposed rehabilitation scheme for Bord na Mona peatlands previously harvested for fuel used in electricity generation is ongoing. A cost benefit analysis will be undertaken by DCCAIE once Bord na Mona has provided a full and detailed programme of proposed works (due in March), including the nature of proposed works, the size of Bord na Mona landholding to be rehabilitated, and the proposed cost of the scheme. Bord na Mona will also present DCCAIE with an estimate of the carbon savings associated with this rehabilitation scheme. The proposed programme of works, including costs and projected CO₂ savings, will be assessed by DCCAIE and the National Parks and Wildlife Service. Until this has taken place, it is not possible to assess the potential emissions reduction related to any upscaling of this proposed bog rehabilitation scheme.

Energy

H₂ - buses, trains, storage. What is the analysis of H₂ in work by TRAM and / or UCC? What is the potential for the use of the existing infrastructure at Moneypoint for H₂ balancing and storage in the power system?

Research on hydrogen use in Ireland is at a relatively early stage. Hydrogen Mobility Ireland (HMI) is an industry-led group which includes DCCAIE and DTTAS as policy stakeholders. HMI commissioned research to develop a strategy to introduce hydrogen vehicles and related infrastructure (hydrogen production and refuelling sites) into Ireland between 2019 and 2030.

HMI published a report in October 2019 which found that the most cost-effective way of producing hydrogen sustainably is to co-locate the electrolyser with a renewable energy source (e.g. wind, solar, waste to energy). A report by NewERA, in conjunction with a number of commercial State Bodies, similarly found that the lowest cost way to produce hydrogen in Ireland is to connect an electrolyser directly to a wind farm.

The existing wind farm at Moneypoint could therefore provide some scope for hydrogen production. The cost of producing hydrogen with an electrolyser directly connected to the grid infrastructure located at Moneypoint would likely have a higher cost. The potential use of the hydrogen produced should also be considered. For instance, hydrogen could be injected into the natural gas grid or moved by road for use elsewhere. Given Moneypoint is not served by the natural gas grid and its relatively remote location from major population centres and energy demands, it is not clear that this location would have high potential for hydrogen production. In future, should significant additional wind farms be developed (either onshore or offshore) and connected to the electricity grid at Moneypoint, this could increase the potential for hydrogen production.

What stage in Irish and EU energy law/policy is the sale back to the grid by small scale renewable generators at?

As part of the EU Clean Energy package, the Renewable Energy Directive (recast), due for transposition by June 2021, entitles renewable self-consumers to receive remuneration for excess electricity exported to the grid. DCCAE, under Action 30 of the Climate Action Plan, is working on the delivery of a framework for micro-generation from renewable technologies with a view to commencement of a support scheme by 2021, at the latest, to ensure that people can sell excess electricity they produce back to the grid, whilst ensuring principles of equity, self-consumption and energy efficiency first are incorporated.

What is the anticipated future of medium and large scale photovoltaic generation?

The Climate Action Plan targets the delivery of indicative volumes of up to 1.5 GW of grid scale solar by 2030. In order to deliver on the ambition set out in the Climate Action Plan, DCCAE is developing the Renewable Electricity Support Scheme (RESS). The RESS has been designed within a competitive auction-based, cost effective framework. The volume of connected solar in 2030 may well exceed the indicative trajectory if prices continue to fall and solar projects are successful in the RESS auctions. As part of the RESS-1 Auction, DCCAE are providing additional opportunities for solar projects through a dedicated solar technology category. A community-led project category has been provided in RESS-1 to allow for a small volume of medium-scale renewable energy projects, including solar projects.

Analysis of imposing an obligation on big industrial energy users to switch to 100% renewable or CCS by 2030?

Large industrial energy users have a range of needs for energy including electricity, space heating, process heat and transport. Converting the energy use to 100% renewable energy could be achieved in some areas (albeit not without significant cost) through electrification of space heating, electrification of light vehicle transport and movement to 100% renewable electricity (potentially through power purchase agreements with renewable energy suppliers).

Energy for heat use in industrial processes and for heavy duty vehicles is likely to require a replacement for natural gas and diesel that electrification does not currently provide. Moving to 100% renewable energy use is therefore likely to require the use of bioenergy (e.g. biofuels, biomass or biogas).

The production of biogas (produced from municipal and agricultural wastes and grasses) which can be processed and injected (as biomethane) into the natural gas grid provides a practical method of decarbonising industrial processes and heavy duty vehicles. A key challenge in relation to the use of biomethane is the cost which is circa three times the cost of natural gas. Therefore, while it is likely to be technically possible to oblige industrial energy users to move to 100% renewable energy use by 2030, the costs could be substantial.

Any utilisation of CCS technology by energy intensive industry is dependent on the development of CO₂ transport infrastructure, storage infrastructure or CO₂ export facilities. There is some potential over the next decade for the power generation and energy intensive industrial sectors (such as cement manufacturing and refining) to utilise CCS for decarbonisation, particularly where alternative options to decarbonise are limited. However, any utilisation of CCS technology on a large scale is likely to be largely centred around a relatively small number of locations, ideally where there is a co-location of power generation and energy intensive industry, such as at Dublin, Cork and the Shannon Estuary.

The current status of CCS in Ireland/ more widely?

To examine the feasibility of the utilisation of CCS in Ireland and in accordance with Action 33 of the Climate Action Plan, the Department has established an Inter-Departmental Steering Group, including representatives from relevant Departments, Agencies and Ervia. This group will oversee the development of CCS policy and meet the additional requirements specified in the Climate Action Plan of monitoring the progress of CCS 'research' and/or 'proposals for' projects, evaluating investment requirements, where applicable and developing statutory and regulatory provisions, if required.

Ervia are currently undertaking a CCS Feasibility Study involving the investigation of the potential for a large-scale CCS project in Ireland to capture the CO₂ from a number of gas-fired CCGT power plants so that they provide low-carbon electricity and potentially emissions from energy intensive industries. The study is focussed both on potentially utilising the depleted Kinsale Head Gas Field as a carbon reservoir and the potential to transport CO₂ for storage abroad, possibly off the coast of Norway. Initial findings suggest that CCS may be technically and economically viable for Ireland. Ervia will further progress feasibility studies into the suitability of the technology for Ireland, overseen by the Inter-Departmental Steering group.

In November, the Ervia CCS project was awarded Project of Common Interest (PCI) status. A PCI project benefits from a series of advantages, including having access to Connecting Europe Facility (CEF) funding. An application for CEF funding for the project is anticipated in the near future. A new EU fund will open in 2020, the Innovation Fund, circa. €11bn (a portion of this will be earmarked to support the development of CCS in Europe). An application under this fund by Ervia would also be anticipated, subject to the project demonstrating its viability, as overseen by the Steering Group.

Directive 2009/31/EC on the geological storage of CO₂ established a legal framework for CCS to contribute to the fight against climate change within the European Union. In Ireland, CCS utilising geological formations is currently prohibited under S.I. No. 575/2011 - European Communities (Geological Storage of CO₂) Regulations 2011. Further statutory provision would be required to be enacted to provide a legal and regulatory framework for any future large scale utilisation of CCS in Ireland.

In September Ervia signed a Memorandum of Understanding with Norwegian energy company, Equinor (formerly Statoil and majority owned by the Norwegian Government). Ervia will now work with Equinor and the Norwegian Government's wider 'Northern Lights' project (a project to potentially capture CO₂ from point sources at several European locations to be transported and stored in a reservoir off the Norwegian coast), which aims to drive CCS development across Europe.

According to the Global CCS Institute, there are currently 19 large scale commercially operating CCS plants operating globally. There are another 4 under construction with 10 others in advanced engineering design. In addition, there are 39 pilot and demonstration scale CCS facilities (operating or about to be commissioned) and nine CCS technology test centres. Those in operation and construction have the capacity to capture and permanently store around 40 million tonnes of CO₂ every year.

In Norway there are two operational CCS projects operating storing over 1.5 million tonnes of CO₂. The Norwegian Government will also take a Final Investment Decision this summer on the planned 'Northern Lights' project. This project has driven a lot of the CCS progress and support from many different European Countries in recent years. In the United Kingdom a recent report from their Committee on Climate Change stated that to meet a net zero 2050 'CCS is a necessity, not an option'. The UK have recently announced significant funding for potential CCS projects and aim to have the 'first CCUS facility in the UK, operating commercially from the mid-2020s'. The Netherlands are also very active in CCS and have recently had a project awarded PCI status in the Port of Rotterdam which by 2030 aims to store between 2-5 million tonnes of CO₂ every year.

The International Energy Agency and the IPCC have both recently shown the importance of CCS in their energy and emissions modelling. Both have stated that CCS and negative emissions through Bio Energy CCS will be needed if globally we want to get to net-zero and stay below 2 degrees of warming.

Analysis of the role of data centres in the Irish electricity system including as it decarbonises?

While data centres have until recent time accounted for less than 2% of Ireland's total electricity demand, EirGrid, in their Generation Capacity Statement 2019-2028, project that demand from data centres could account for 29% of all demand by 2028. EirGrid, in its capacity as the transmission system operator, continually model and forecast the predicted future growth of electricity demand in their published analysis such as Tomorrow's Energy Scenarios, which is available on their website at www.eirgrid.com

While data centres consume very large amounts of energy they have a flat, predictable demand profile meaning that they use the same amount of electricity day and night and therefore require a range of generation technologies to meet their demand. Significant increases in volumes of generation capacity, including from renewable energy sources, will be required to meet Ireland's electrification objectives and demand from heat pumps, electric vehicles and data centres.

The Climate Action Plan sets out a number of actions to ensure that data centres are accommodated in a sustainable manner, including the publication of a Corporate power purchasing agreements (CPPAs) Policy Paper based on a consultancy study currently taking place and CPPA Advisory Group Recommendations Paper in Q3 of this year. Corporate power purchasing of renewable energy by large energy users that is unsubsidised by the state will also be critical to supplying data centre demand, as will ensuring that large demand connections are regionally balanced to minimise grid reinforcements and the costs to consumers.

The European Commission recently published a communication regarding technology support, including data centres and the European Green Deal, see link below.

https://ec.europa.eu/commission/presscorner/detail/en/qanda_20_264

Analysis of the future of offshore wind on the west coast? Deepwater, floating?

First stage of offshore wind development will be on the East Coast:

- This is where the transition projects are, some of which are already quite advanced in their planning processes.
- It is also where the transmission grid is already the strongest, so it is easier to accept large amounts of renewable power onto the onshore grid.

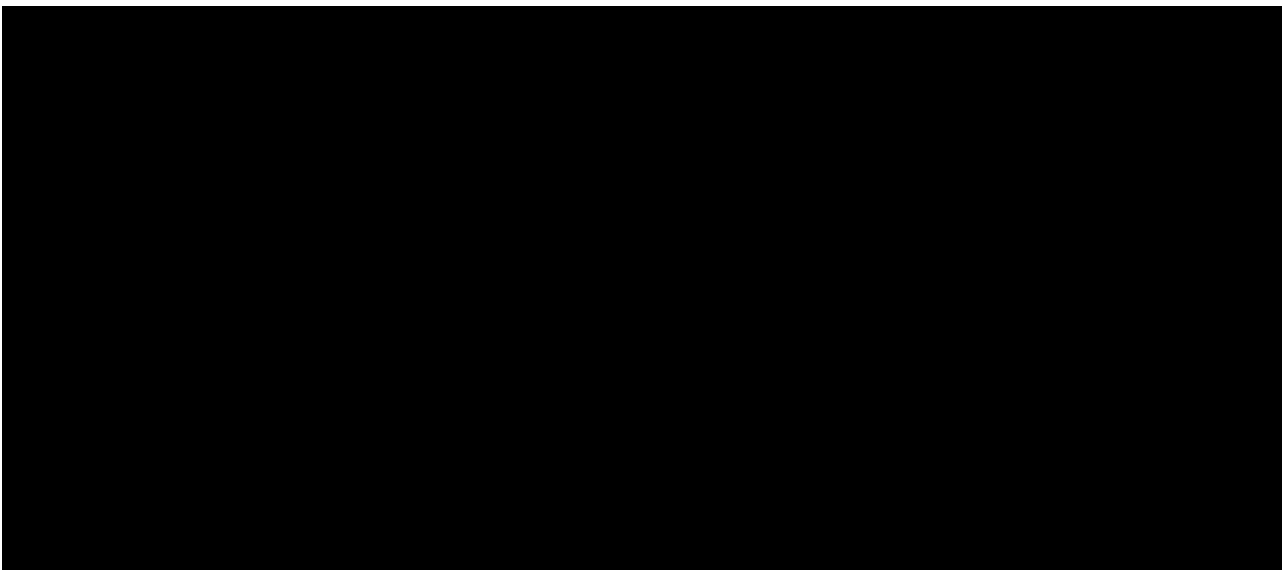
- It is also where the demand growth is, so the power will be delivered close to the centres of increasing demand. This will minimise the need for new cross country transmission lines to move the power from generation site to demand site. This is a big ‘public acceptability’ benefit.
- The existing (fixed pile) turbine technology is readily deployable in water up to 50 metres deep. This is the case in large parts of the East Coast.

The water off the West Coast is typically much deeper than this, in much rougher waters and most of it is not suitable for deploying fixed pile turbines:

- Floating turbines are a newer technology that has been developed to allow development to take place in deeper waters, typically up to 100 meters deep.
- The technology is still at demonstration stage (only 2 sites deployed in Europe to date) and is still reckoned to be 5 or so years away from being deployed at full commercial levels. The existing cost of deployment is far higher than fixed pile technology and none of the main companies are currently in a position to deliver projects using this technology although most of them are looking at its potential for future large projects being planned towards the end of the decade.
- The transmission grid on the West Coast is much weaker and would need major reinforcement in most places to be able to accept the scale of power that offshore windfarms would need to generate.
- In the longer term (2030+), there is the technical potential to generate large quantities of power using floating technologies off the West Coast either for sale to an export market and/or for use in hydrogen generation through electrolysis. Either of these are dependent on technology advances, increased efficiencies and market developments to ensure that they are economically viable and that there is a return available to the State for use of public assets (the seabed).

Residential Retrofit

The Climate Action Plan provides for the upgrading 500,000 homes to a Building Energy Rating of B2/cost optimal equivalent or carbon equivalent by 2030, as well as the installation of 400,000 heat pumps to replace older heating systems. As evident from the chart below, this represents a very significant increase in both the number and depth of retrofit delivery, over and above current activity.



Achievement of the targets will be supported by the Project Ireland 2040 financial allocation of €3.7 billion to 2027. While this is clearly a significant level of Exchequer investment, it is generally acknowledged that reliance on Exchequer finance alone will not be sufficient to meet the level of retrofit and heat pump installation required.

A Retrofit Taskforce with cross Departmental and agency membership has been established and several meetings of the Taskforce/subgroups have taken place. The Taskforce is overseeing the design and development of a new integrated retrofit delivery model and the overall plan for achieving the targets. The Climate Action Plan set a deadline of end-Q3 2020 for publication of the approach/delivery plan. Key areas of progress to date include:

- Several meetings of the Taskforce and Taskforce subgroups have taken place;
- A review of relevant experience in Ireland and other jurisdictions has been completed;
- Stakeholder engagement through bilateral meetings and workshops with representatives of consumers, the supply chain, relevant agencies and financial institutions to further develop insights about barriers and enablers;
- Work to determine the estimated cost of the 500,000 homes to 2030.

The Taskforce is assessing a range of potential approaches across the 4 core dimensions/pillars:

(i) Customer/homeowner propositions to improve awareness and drive demand

- A network of one-stop-shops that deliver simple customer journeys and coordination with contractors and finance providers
- Proactive and targeted marketing campaigns
- Appropriate regulation

(ii) Financial/funding models for each consumer cohort to address payback periods and ability to pay upfront costs

- Exchequer funding
- Low cost loans (including consideration of a loan guarantee scheme), green mortgages, 'pay as you save'
- Tax incentives

(iii) Supplier scale-up and contracting

- Drive confidence in long-term attractiveness of retrofit market
- Consistency and confidence in one-stop-shop offerings through clear standards and establishment of contractual obligations
- Changes to the existing apprenticeship and education programmes and other initiatives to up-skill the existing workforce and bring in new entrants

(iv) Programme governance and roadmap

- Appropriate entity with responsibility for driving achievement of our national retrofit targets.
- Performance monitoring and evaluation mechanisms established

Circular economy

What information is being collected or planned to be collected on the circular economy?

The Circular Economy aims to reduce waste at all stages of the economic cycle and ensure materials are used as efficiently as possible.

Strategies to further transition Europe's economy towards a more circular model play a significant role in the EU Commission's '**European Green Deal**' and a new EU Action Plan on the Circular Economy is scheduled to be released in March.

The **2019 Climate Action Plan** recognises the need to design out waste in a transition to sustainable production and consumption made possible by a Circular Economy. **Action 135:** *Lead the transformation from waste management to circular economy practice through delivery of a new national policy.*

To date, the EPA's [National Waste Prevention Programme](#) (NWPP) has been to the forefront of Ireland's efforts to progress our transition to a Circular Economy. It provides the tools and information to businesses, households and the public sector to influence behavioural change and support sustainable choices. The programme targets:

- Food Waste
- Construction and Demolition Waste
- Plastics
- Agriculture
- Resources and Raw Materials
- Local Waste Prevention.

2020 action points on Circular Economy to be delivered by Waste Prevention and Resource Efficiency (WPRE) Division

1. Establishment of a Circular Economy Advisory and Implementation Group.
2. Continued support for EPA NWPP 'Preventing Waste, Driving the Circular Economy' including design of a new NWPP for 2021-2027.
3. Development of a national CE strategy for Ireland – building on OECD project 'The economics and governance of the circular economy in Ireland' starting in March and involving a targeted consultation with stakeholders across Government, industry and communities.
4. Assessment and implementation of EU new CE Action Plan proposed under Green Deal – due March 2020 with an expected focus on textiles, construction, electronics and plastics.

What analysis has been carried out of potential policies at an Irish level to drive the circular economy (e.g. tax changes to encourage repair and reuse, reporting obligations e.g. on materials use and efficiency, best practice identification and dissemination, marketing/advertising obligations, direct regulation, clearing houses to connect waste outputs with businesses which might use them as inputs, etc.)

Different levels of analysis have been carried out for individual Circular Economy streams. A comprehensive analysis of CE related initiative and policies is contained in the NESC report "Moving Towards the Circular Economy in Ireland". <https://www.nesc.ie/publications/moving-towards-the-circular-economy-irish-case-studies/>

Ireland has been working with EU colleagues on the Circular Economy Legislative Package which will be transposed by 3 July 2020 and also working on the SUP Directive which will be transposed a year

later. The new Green Deal will give more insight when it is published in March this year and we are working on a project with the OECD this year in relation to the Circular Economy. There is also a consultation underway on the development of a new Waste Action Plan for a Circular Economy which has generated almost 300 responses which will be considered as the Circular Economy policy in Ireland develops.

Climate governance

Role of Minister/Department for Climate in sign-off of major expenditure, or other climate proofing mechanisms.

The Department of Communications, Climate Action and Environment has overall responsibility for climate policy and for overseeing the implementation of the Climate Action Plan, within the framework of the new governance arrangements introduced by the Climate Action Plan.

The Department does not, however, have any sign-off role in relation to major expenditure or any formal role in relation to climate proofing of policy commitments, beyond its existing oversight role and the normal arrangements for providing observations on draft Memoranda for Government.

Government Memoranda

Action 3 of the Climate Action Plan included a commitment for the Department of the Taoiseach to update Cabinet procedures to ensure that all Government Memoranda are considered against their carbon impact and mitigation potential. Work on this is ongoing.

Public Spending Code

All Irish public bodies are obliged to treat public funds with care, and to ensure that the best possible value for money is obtained whenever public money is being spent or invested. The Public Spending Code, revised in December 2019, sets out the rules and procedures that ensure that these standards are upheld across the Irish public service. The Code underlines how well-planned, well-executed public capital investment can offer a wide range of social and economic benefits: it enhances well-being and quality of life, underpins better connectivity, improves productivity and enables more environmentally sustainable development. This includes ensuring to the extent possible that a cost-benefit analysis is carried out to assess whether or not the social and economic benefits associated with a proposed project, policy or measure are greater than the social and economic costs.

The revised Code provides public bodies practical assistance in the valuation of the greenhouse gas emissions that might be associated with a project under evaluation. It includes a new methodology that values future greenhouse gas emissions according to a revised shadow price of carbon that is based on the estimated marginal cost that will be faced by society in achieving Ireland's legally binding 2030 greenhouse gas emissions target.

Whether forestry, biodiversity, water and climate should all be in one Department?

This is a policy decision for the Government.

The transfer of functions is a significant administrative overhead and the ability of a new Government to "hit the ground" and address climate action priorities in its Programme for Government would have

to be balanced against decisions taken to restructure Departments and the time required and administrative overhead of achieving this.

The current governance arrangements for climate action are as follows:

- Climate Action Delivery Board co-chaired by the Secretary General to the Government and the Secretary General of the Department of Communications, Climate Action and Environment and comprising the Secretaries General of all relevant Departments;
- Climate Action Unit in the Department of the Taoiseach;
- Cross-Departmental Senior Officials Group;
- Cabinet Committee;
- Quarterly reports published on progress on the Climate Action Plan

DCCAE Clarification on query 21/02/20 [SF]

One clarification has been sought in relation to question on carbon taxes. The €6 increase in Carbon Tax is being brought in two phases (Budget night for motor fuels and 1 May for solid fuels). Are you looking for info on just the solid fuels part due 1 May or the full €6 increase (motor fuels and solid fuels)?

Note on NBP 28/02/20 [SF]

Outline the potential to exit the National Broadband Plan including the steps and potential costs involved

The National Broadband Plan is underpinned by a detailed contract between National Broadband Ireland (NBI) and the Government which was signed on 19 November 2019. The contract includes protections and consequences for either party in the event of a default.

NBI has over the past few months engaged in a significant mobilisation process to put in place its team and organisational structure to ensure it meets the requirements of the contract. This has also involved hiring full time staff, closing contracts with large subcontractors/vendors, placing purchase orders for equipment and materials, and securing a lease for office space. As a result NBI has incurred significant expenditure to date and is contractually committed to further financial expenditure into the future.

In the event that the Minister defaults on the contract, NBI is entitled to compensation. This compensation is, at a minimum, the amount of expenditure incurred to date by NBI's Shareholders plus a rate of return on that investment calculated up to the date of termination.

In addition, given the financial commitments made by NBI under staff contracts, subcontractor and international vendor contracts, lease agreements, etc, there are likely to be significant breakage costs to exit all such third party contracts for which NBI would be entitled to be compensated.

Furthermore, in the event that the State defaults on the contract, it would be necessary to take advice from the Attorney General to establish the legal consequences and likely financial risk to the State. NBI, its shareholders or any other interested third party could take a separate legal action, the nature and likely outcome of which is not possible to quantify absent further detailed consideration by the Office of the Attorney General.

It should also be noted that any abandonment of the contract will require the initiation of a further Broadband Programme to address the clear market failure identified. This process, including a further procurement process, could take a number of years and may cost more than the current programme. This will result in significant delays to the rollout of high speed broadband across rural Ireland and the loss of the significant economic and socio economic benefits that will accrue under the current timelines. The State would also face significant reputational damage where it defaults on the NBP contract which could have a contagion effect on other capital projects where private investment is involved.