Climate Action Plan 2023 Call for Expert Evidence
Gas Networks Ireland's High-Level Response

Gas Networks Ireland (GNI) operates and maintains Ireland's €2.7bn, 14,664 km national gas network. Over 711,000 Irish homes and businesses utilise Ireland's gas network to provide energy to meet their heating and cooking needs 24 hours a day, 365 days a year.

The gas network is the lynchpin of Ireland's energy system, securely supplying more than 30% of Ireland's total energy, including 40% of all heating and c.50% of the country's electricity generation.[1] GNI believes the gas network can play a key similar role in helping to deliver Ireland's clean energy future, by safely and securely transporting renewable gases, such as green hydrogen and biomethane.

GNI welcomes the opportunity to respond to the Government's Climate Action Plan (CAP) 2023 – Call for Expert Evidence. This short paper summaries the key points from **GNI's more detailed response *(attached)*** to the specific questions posed in this Consultation and outlines specific **gas-related Core Actions** that we propose are included in CAP 2023.

Need for Gas-related Core Actions

In the 2021 CAP, the gas-related actions were included in the category of 'Further' measures. GNI believes that in the context of a fundamentally changed energy landscape in recent months, ambitious renewable gas-related actions must be included in the Climate Action Plan (CAP) 2023 as **'Core'** measures rather than **'Further'** measures. Since CAP 2021 was published, the national and EU energy backdrop has been permanently altered and the scale and speed of proposed changes to improve the security of energy supplies is unprecedented. Europe has swiftly responded to security of energy supply concerns following Russia's invasion of Ukraine with REPowerEU; an ambitious plan to reduce dependence on Russian fossil fuels with increased ambition for renewable gas targets for hydrogen and biomethane. Concurrently, Ireland has responded with the National Energy Security Framework and increased ambition for both green hydrogen and biomethane which is welcomed by GNI, along with energy efficiency and demand reduction measures. GNI firmly believes that these **ambitions, which are key to Ireland's decarbonisation and future energy security, should be translated into specific and targeted 'Core Actions' in CAP 2023**, as a policy priority.

Decarbonisation Challenges

Targets

While Ireland's Programme for Government[2] sets out a legally binding commitment to reduce overall greenhouse gas emissions by 7% p.a. from 2021 to 2030 (a 51% reduction over the decade), with the aim of achieving net-zero emissions by 2050, the latest **report from the EPA[3] finds that Ireland's greenhouse gas emissions increased by 4.7% in 2021 (compared to 2020 figures),** adding that by the end of 2021 almost a quarter of Ireland's Carbon Budget for the 5 year period (2021-2025) has already been used, requiring an 8.4% average emissions reduction from 2022-2025 to stay within budget.

[1] https://www.seai.ie/publications/Energy-in-Ireland-2021_Final.pdf
[2] Programme for Government https://assets.gov.ie/130911/fe93e24e-dfe0-40ff-9934-def2b44b7b52.pdf
[3] https://www.epa.ie/news-releases/news-releases-2022/epa-data-shows-irelands-2021-greenhouse-gas-emissions-above-pre-covid-levels.php#:~:text=The%20Environmental%20Protection%20Agency%20(EPA,a%20significant%20lowering%20of%20emissions

Energy Security and Pricing

The geopolitical events ongoing in Europe have considerably impacted the EU's and Ireland's energy security and driven up energy prices to unprecedented levels. **Across the EU, all three components of the energy trilemma; affordability, security and sustainability, are now at risk and must be addressed with a renewed sense of urgency**. The European Commission has responded with its REPowerEU Plan (including a doubling of ambition for biomethane and quadrupling of targets for green hydrogen), a gas storage Regulation and gas demand reduction proposals. Ireland responded initially with the National Energy Security Framework which recognises the role indigenous renewable gas production can play in enhancing energy security and, more recently, with increased targets for indigenous biomethane and green hydrogen as part of the announcement of the sectoral emissions ceilings.

Decarbonisation Opportunities

Optimising energy system integration between gas and electricity is essential to ensuing Ireland reaches its decarbonisation targets. The current links between the gas and electricity networks should be strengthened to enable the use of as much renewable electricity as possible, while minimising curtailment by converting any excess electricity generation to green hydrogen, and enhance energy security. The gas and electricity networks can work in tandem to ensure that Ireland's natural renewable resources are optimised and a cohesive integrated gas and electricity plan is developed to meet Ireland's energy requirements into the future.

Ireland's sectoral emissions ceilings commit additional resources for solar (more than doubling the target to 5,500 MW), off-shore wind (moving from a target of 5,000 MW to 7,000 MW), green hydrogen (an additional 2 GWs of dedicated offshore wind), increased agri-forestry and anaerobic digestion (up to 5.7 TWh of biomethane), in order to further accelerate the reduction of overall economy-wide emissions. **Displacing natural gas with this volume of green hydrogen produced from offshore wind would remove around one million tonnes of CO_2 equivalent from Ireland's national emissions annually,** which equates to the emissions reduction achieved by removing roughly half a million cars off Irish roads.[4] According to a report from the EPA[5], Ireland's 2021 greenhouse gas emissions amounted to 61.4MtCO_2 equivalent. Green hydrogen will be particularly important to decarbonise **high-heat and hard-to-decarbonise industries.**

GNI strongly believes that **renewable gas-related 'Further' measures' identified in CAP 2021, including deploying zero-emissions gases such as biomethane and green hydrogen, must now be included as 'Core' measures if we are to achieve our 2030 and 2050 emissions' reduction and REPowerEU targets**, while simultaneously addressing our current dependency on imported fossil fuels.

CAP 2021 Action 169. Develop renewable gas in the gas grid

GNI, along with other key stakeholders have been working to deliver a number of sub-actions set out in CAP 2021. These include:

- the **development of biomethane grid infrastructure** through the GRAZE gas project;
- **testing the technical feasibility of safely injecting green hydrogen blends** in the gas grid;
- developing a **policy/regulatory roadmap for green hydrogen use in the natural gas grid**;

[4] Natural gas is responsible for c. 15% (or c. 9MtCO_2 equivalent) of Ireland's emissions.

[5] https://www.epa.ie/news-releases/news-releases-2022/epa-data-shows-irelands-2021-greenhouse-gas-emissions-above-pre-covid-levels.php

- establishing an **official certification scheme for renewable gas** in the gas grid;
- reviewing targets for **the level of biomethane in the gas grid by 2030**; and,
- assessing the potential for **energy system integration between electricity & gas networks**, including the production, storage and use of green hydrogen.

While most of these sub-actions are progressing, others such as the assessment of energy system integration will need to be reinstated in CAP 2023.

Proposed Climate Action Plan 2023 Actions

GNI recommends that CAP 2023 strengthens/updates CAP 2021 **Action 169**: *Develop renewable gases in the gas grid*. GNI propose that **new specific sub-actions are included**, to ensure delivery of the **increased levels of ambition for both green hydrogen and biomethane**, as set out in the National Energy Security Framework and the recently announced sectoral emissions ceilings. In addition, GNI wishes to highlight that hydrogen-ready gas condensing boilers should be considered a key decarbonisation solution for the heating sector, and particularly in the context of oil boiler replacement.[6] It is possible to meet and exceed a B2 BER rating by installing hydrogen-ready gas condensing boilers with shallow retrofit upgrades and installation of solar PV, compared to more expensive deployment of heat pumps and deep retrofits. Furthermore, Combined Heat and Power (CHP) technology can act as a highly efficient source of heat for district heating; a technology which is compatible with low carbon gases, including biomethane and green hydrogen. Support and incentives should be made available for high efficiency CHP technology to support the district heating sector and wider decarbonisation effort.

More broadly, in light of Ireland's potential to produce green hydrogen at scale and the breadth of activities necessary to ensure Ireland can successfully develop and build a hydrogen economy, it may be prudent for CAP 2023 to include a **standalone set of Core Actions for green hydrogen**, which incorporate specific activities and measures necessary to ensure delivery on the ambition alluded to in Ireland's recent Hydrogen Strategy consultation document. Developing a green hydrogen economy will require a co-ordinated and long-term approach to market establishment and development.

Proposed hydrogen-related actions for CAP 2023

Action	Proposed Output	Timeline	Lead	Key Stakeholder
Agree a Hydrogen Roadmap detailing the technical & safety requirements for transporting green hydrogen blends on the gas network	Agreed Roadmap	Q4 2023	GNI	DECC / CRU / HSA
Development of a case for hydrogen safety on the gas network	Interim report on hydrogen safety case development	Q4 2023	GNI	HSA / CRU / GNI / Producers / Industry
Develop hydrogen blending demonstration projects on the gas network which support the development of 100% green hydrogen industrial clusters utilising existing gas assets	a. Blending demonstration project proposal published b. Stakeholder engagement on a cluster opportunity	Q4 2023	GNI	a. DECC / CRU b. DECC / Industry / Local Authority & Community / CRU

[6] Approximately 40% of all homes in Ireland currently use oil for home heating. GNI estimates that up to 200,000 of these homes are located within 30 metres of the gas network. If these 200,000 homes replaced their old boilers with new efficient gas boilers, we estimate that this would result in an emission saving of approximately 300,000tCO_2 per annum using natural gas with potential for further emissions savings using renewable gases, in turn.

Determine optimal quantities and locations for the injection of green hydrogen into the gas network and storage of green hydrogen	Report on the options for green hydrogen storage and injection into the gas network	Q4 2023	GNI	DECC / Eirgrid / Hydrogen Producers / Irish Water

These hydrogen-related actions are required to ensure Ireland is ready to both accept blended hydrogen at the Moffat Interconnection Point by October 31st 2025, in line with proposed EU and UK timelines, and to facilitate the injection of green hydrogen into the gas network. **GNI believes that these are no regrets actions that need to commence as soon as possible**. To this end, as part of GNI's five yearly Price Control (2022-2027), we have set out ambitions plans to the Regulator on delivering these various hydrogen-related actions.

GNI is committed to supporting Ireland's ambition to achieve net-zero emissions no later than 2050. We believe that **Ireland's gas network can and should play a central role in Ireland's future carbon neutral energy and hydrogen economies** and GNI is ready to deliver. In line with CAP 2021 Action 169, GNI are currently working to identify the work required to accept hydrogen blended with natural gas entering the Irish gas network via the Moffat Interconnection Point by 2025 and assessing the potential impacts of injecting green hydrogen at appropriate locations into the gas network. **Further research** is now required across several areas, as follows:

Proposed hydrogen research-related CAP 2023 Actions

Action	Proposed Output	Timeline	Lead	Key Stakeholder
Gap Analysis	Actions required to undertake a complete **Gap Analysis** to identify: a. how much green hydrogen is required to support the decarbonisation of Ireland's energy system; b. the optimum process for converting intermittent wind into green hydrogen (where to produce, store and transport green hydrogen and how to build resilience into the process); c. how much inter seasonal and localised storage is required at various clusters; d. the optimum transport method for getting green hydrogen between clusters and to end-users	Q2 2024	DECC	GNI / SEAI
Hydrogen Roadmap	Ireland's Hydrogen Strategy should set out a series of **'phases' for the development** of Ireland's hydrogen economy, as part of a wider roadmap to net-zero. Action required to develop hydrogen roadmap	Q2 2023	DECC	GNI / All other Hydrogen Stakeholders
Interconnection readiness	Action required to: a. identify the **changes (technical, safety, regulatory) required** to facilitate up to 5% hydrogen / natural gas blends at the Moffat IP by 2025 b. Change implementation	Q4 2023 Q4 2025	GNI	DECC / CRU / National Grid
Customer Impact	a. GNI study into the potential impact of blends on CCGTs b. UCD / GNI study on the ability of various existing gas end user categories to utilise a blend of hydrogen and natural gas	Q4 2023	GNI	UCD Energy Institute

Proposed biomethane-related actions for CAP 2023

Developing biomethane production and Anaerobic Digestion infrastructure has been widely recognised as a key component for decarbonisation in Ireland and supporting the circular economy. A Renewable Heat Obligation Scheme would be a welcome development; however, for Ireland to reach its target of 5.7 TWh and to overcome financial challenges at the early stages of this sectors growth, it is crucial that in addition to the RHO, biomethane producers and Anaerobic Digester developers can avail of appropriate support.

Action	Detail	Timeline	Lead
Renewable Heat Obligation	Deliver the **RHO** with specific targets for indigenous biomethane and green hydrogen production	Q4 2023	DECC
Support Scheme for AD/biomethane	Deliver a new **support scheme** for AD/ biomethane setting out clear timelines and support mechanisms to deliver Ireland's new target of 5.7 TWh	Q2 2024	DECC
EU Funding	Explore **funding opportunities** for biomethane and hydrogen under REPowerEU chapter as part of Ireland's Recovery and Resilience Plan	Q4 2023	DECC / DPER

Proposed CNG / transport-related actions for CAP 2023

CNG/bioCNG vehicles provide a significant avenue to decarbonisation the hard-to-abate transport sector. It is particularly suitable for use in commercial vehicles where electric solutions are not yet a viable option. Developing CNG infrastructure across Ireland to enable the transport sector to reduce emissions and to provide a pathway for renewable gas in transport is essential.

Action	Detail	Timeline	Lead Agency
Policy supports to incentivise bio-CNG for transport	Policy supports including infrastructure and taxation incentives to be implemented for bio-CNG in transport	Ongoing	DECC / DPER

To conclude, GNI wishes to affirm the following key messages, which we believe should be reflected in CAP 2023:

1. Ambitious **renewable gas-related actions** must be included in CAP 2023 as **'Core' measures** rather than 'Further' measures, if we are to achieve our emissions' reduction targets, while addressing our current dependency on imported fossil fuels.
2. **Support for renewable gases** is necessary, to incentivise the develop of indigenous hydrogen and biomethane markets and ensure the increased ambition for renewable gas targets at EU and national levels is achieved.
3. Optimising **energy system integration** between the gas and electricity networks is essential to ensuring that Ireland's natural renewable resources are optimised, and a cohesive integrated gas and electricity plan is developed to meet Ireland's energy requirements into the future.
4. A **holistic review of retrofit programme** for housing stock is needed to determine optimal, cost-effective solutions, in the context of delivering 2030 decarbonisation targets.