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1 Introduction

Gas Networks Ireland (GNI) welcomes the opportunity to respond to the Draft Agriculture, Forest and Seafood Sectoral Climate Change Adaptation Plan published by the Department of Agriculture, Food and the Marine (the Department). GNI would like to highlight the resilience of the gas network to climate change and the importance of integration between mitigation and adaptation measures as mentioned in Section 2 of the consultation document. GNI itself is involved in a number of mitigation initiatives with the development of renewable gas\(^1\) injection infrastructure the most applicable to the agricultural sector.

GNI owns, operates, builds and maintains the gas network in Ireland and ensures the safe and reliable delivery of gas to its customers. The company is responsible for transporting natural gas through 14,172km of pipeline networks. The gas network supplies energy to 700,000 customers, including businesses, domestic users and power stations. GNI believes that gas and the gas network are integral to Ireland’s energy system and future.

2 Climate Change Adaptation

GNI has considered the potential impact of climate change on the gas network and has worked with the Department of Communications, Climate Action & Environment to develop the ‘Climate Change Adaptation Plan for the Electricity and Gas Network Sector’. Ireland’s natural gas network consists of buried pipelines, which are not subject to the vulnerability of storms that can impact the delivery of oil or the transport of electricity through overhead wires. In addition, the routing of the gas network is designed to take account of flood plains, avoiding areas prone to flooding where possible.

Transportation of gas is unobtrusive and particular attention is taken to minimise the impact on local flora and fauna. GNI is committed to biodiversity & archaeology through the minimisation of the environmental impact of any construction and development activities. This involves a partnership approach with environmental and heritage groups on all construction projects, as well as employing engineers and environmental specialists to carry out environmental assessments at the planning and construction phases of developments. GNI returns all land to its original state following construction.

Moving energy through gas pipelines is considered the most efficient method of transporting energy and there is potential for this efficiency to be further exploited by connecting new customers to both the transmission and distribution networks. The existing transmission and distribution networks have spare capacity to accommodate new connections.

3 Renewable Gas - Mitigation Measure

Renewable gas, produced through anaerobic digestion (AD), is a carbon neutral and sustainable source of fuel that can be injected into the gas network and used in the same way as natural gas.

The production of renewable gas through the anaerobic digestion of organic wastes and residues by the agricultural sector will result in a reduction in greenhouse gas emissions within the sector. This reduction can be attributed to the following actions:

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\(^1\) https://www.gasnetworks.ie/corporate/company/our-commitment/environment/renewable-gas/
Avoided methane emissions from slurry: Slurry naturally emits methane, but sending these animal slurries to anaerobic digestion plants results in the capture of this methane, and the production of renewable gas.

Production of digestate (high potency bio-fertiliser): There are carbon emissions associated with the production and transportation of chemical fertiliser products. Replacing chemical fertilisers with digestate (a naturally occurring by-product of the anaerobic digestion process) will result in avoided emissions for the agricultural sector. Additionally, as this digestate is of a high quality, its application to land can result in higher levels of carbon being sequestered into the soil, with the land becoming a carbon sink.

Utilisation of agricultural wastes and catch/rotation cropping: The re-use of agricultural waste streams within the farm and catch cropping during periods of no rotation results in reduced emissions through better resource management and promoting the sequestration of carbon into the soil.

AD plants located in rural areas will provide additional revenue sources for these communities, from the sale of feedstocks for the AD plants, bio-fertiliser and renewable gas. The SEAI estimate that stimulating a renewable gas industry in Ireland could contribute directly to over 5000 jobs during plant construction and over 3000 jobs in plant operations\(^2\). With ongoing uncertainty regarding agricultural exports to the UK, post Brexit supplementary income streams for farming are important.

There are a number of additional benefits to using renewable gas:

- **Carbon neutral fuel source**: As stated above renewable gas is carbon neutral and also supports the circular economy.

- **Least cost method to decarbonise domestic heat**: Ervia (GNI’s parent company) commissioned KPMG to develop and evaluate potential scenarios for the decarbonisation of the one million Irish residential homes currently connected to, or within close proximity to the existing gas network. The study\(^3\) concluded that renewable gas is the lowest cost option to decarbonise the domestic heat sector and avoids the need for deep retrofits to convert properties to a BER rating required for electric heating to work effectively.

- **Utilises existing infrastructure**: The gas network is a significant piece of energy infrastructure, with €2.5bn invested in the network to date. Renewable gas is identical in function to natural gas so the existing network can be used and gas customers do not need to change their boilers or gas powered appliances.

- **Indigenous energy source**: Renewable gas, produced through AD in Ireland, provides both security of supply and diversity of supply benefits. Having an indigenous source of energy reduces the likelihood of disruption to supply due to issues in other countries.

- **Carbon Neutral Transport**: Compressed Natural Gas (CNG) vehicles provide an alternative to diesel vehicles buses and heavy goods vehicles (HGVs). The rollout of a network of CNG refuelling facilities has commenced with 14 fast fill CNG stations being installed across the Core TEN-T road network via a project called the Causeway Study\(^4\). If renewable gas is utilised by CNG vehicles as bio-CNG, carbon neutral transport can be achieved.

- **Carbon neutral power generation**: When renewable gas is used to generate electricity carbon neutral electricity is produced.

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\(^2\) SEAI, 2017 Assessment of Costs and Benefits of Biogas and Biomethane
\(^3\) KPMG, Decarbonising Domestic Heating in Ireland, June 2018
GNI is currently working to develop new renewable gas injection points on the gas network with a target of 20% renewable gas on the network by 2030. Current active projects in the renewable gas area include the GRAZE Gas project which aims to develop a central renewable gas injection point in the Mitchelstown area.

**4 Conclusion**

Transportation of energy through gas pipelines is the most efficient mode to transport energy and Ireland’s gas network has proven its resilience for over 40 years in particular withstanding extreme weather conditions in recent years. GNI asks that the Department considers the role that renewable gas can play in reducing carbon emissions from agriculture along with other significant economic benefits to the sector.

GNI would welcome the opportunity to discuss this response in more detail and can provide further information on any of the topics discussed, if required.

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