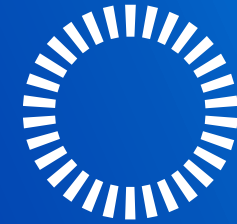


Renewable gas and the Mitchelstown Central Grid Injection facility



Gas
Networks
Ireland

Teagasc Signpost Series

Ian Kilgallon – Business Development & Innovation Manager

Niamh Gillen – Innovation Engineer

Part of **ervia** group

Decarbonising the Gas Network

Climate Change and Net Zero 2050



We are committed to “net zero carbon” by 2050. A decarbonised gas network will reduce emissions and secure Ireland’s energy security with low disruption. Gas and electricity networks will be coupled to deliver clean energy.

Ireland’s energy system



Natural Gas produces over half of Ireland’s electricity and 30% of Ireland’s primary energy playing a critical role in energy storage and energy system resilience complementing renewable electricity.

Renewable Gas



Biomethane is created from food waste, agricultural waste and other feedstocks. Biomethane can help decarbonise Irish transport, agriculture, heating and support a circular economy.

Policy Context



Our vision aligns with recent European policies such as The Green Deal (and farm to fork strategy) and Energy System Integration Strategy and we welcome the NECP target of 1.6TWh of biomethane.

European Policy Context

EU Green Deal *(December 2019)*

Objectives – reduction in chemical pesticides, chemical fertiliser, soil nutrient loss – increase in organic farming - soil fertility improvement - lands used to sequester soil carbon

Biomethane production by AD, improved land management, application of digestate derived organic soil improvers one of few viable ways to ensure targets can be met

Renewable Energy Directive *(December 2019)*

RED II supports use of sustainable biomethane

Upcoming revision of RED in June 2021 will present opportunities to accelerate development of market for biogas

Energy System Integration Strategy *(July 2020)*

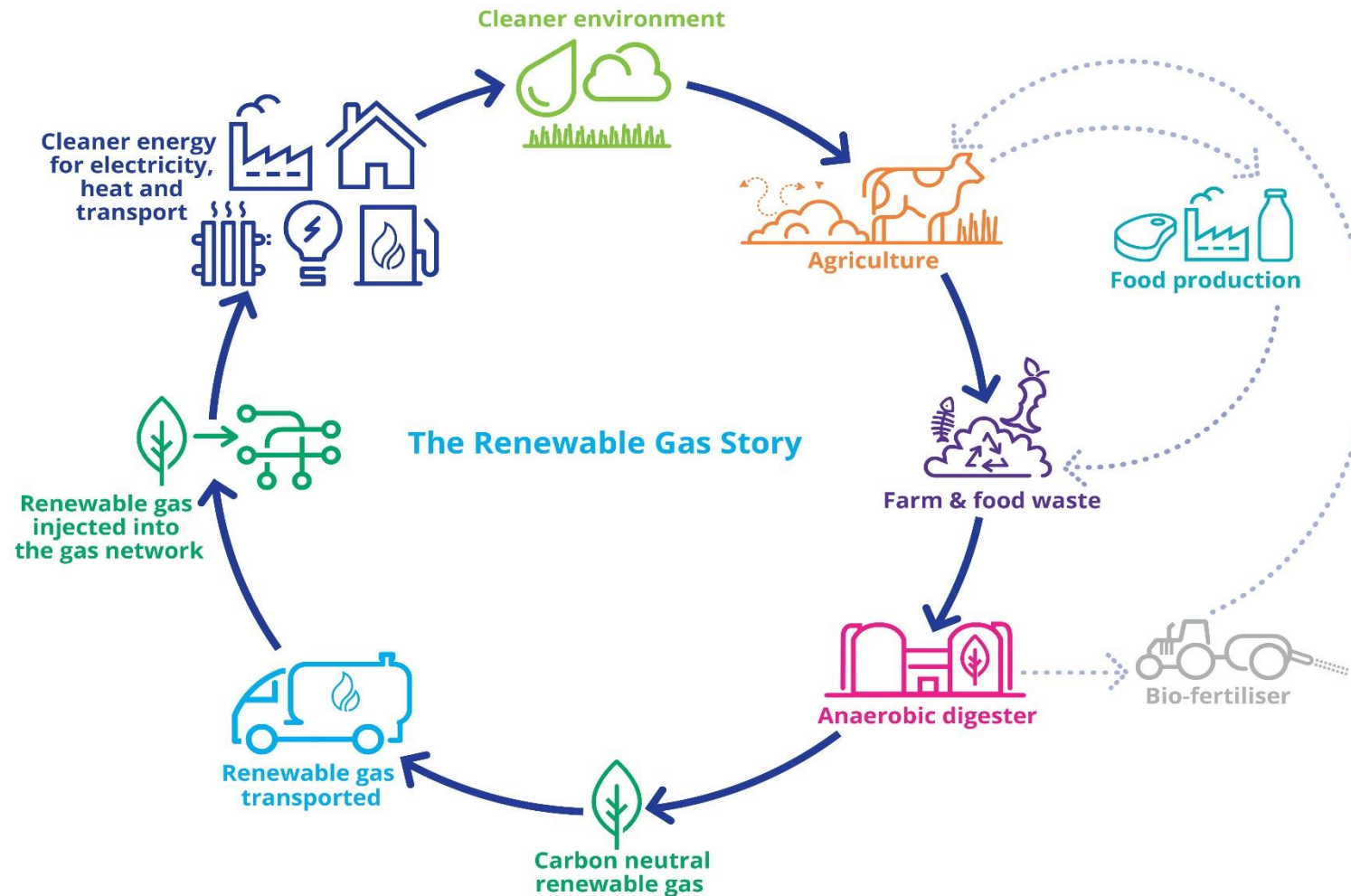
EC to re-examine gas market regulatory framework to facilitate uptake of renewable gases

EU Methane Strategy *(October 2020)*

Recognises the potential of biogas and biomethane to reduce methane emissions



Renewable Gas – Turning Waste to Energy



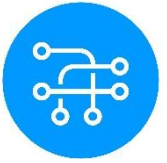
“Ireland has the highest potential for biogas production per capita within the EU by 2030.”

European Commission

How can I connect an AD facility to the network?



A biomethane plant benefit from being located close to feedstock with good road access.



In some instances, an AD facility may also prove to be close to the existing gas network.



For these instances it may be possible to construct a pipeline extension between your site and the network.



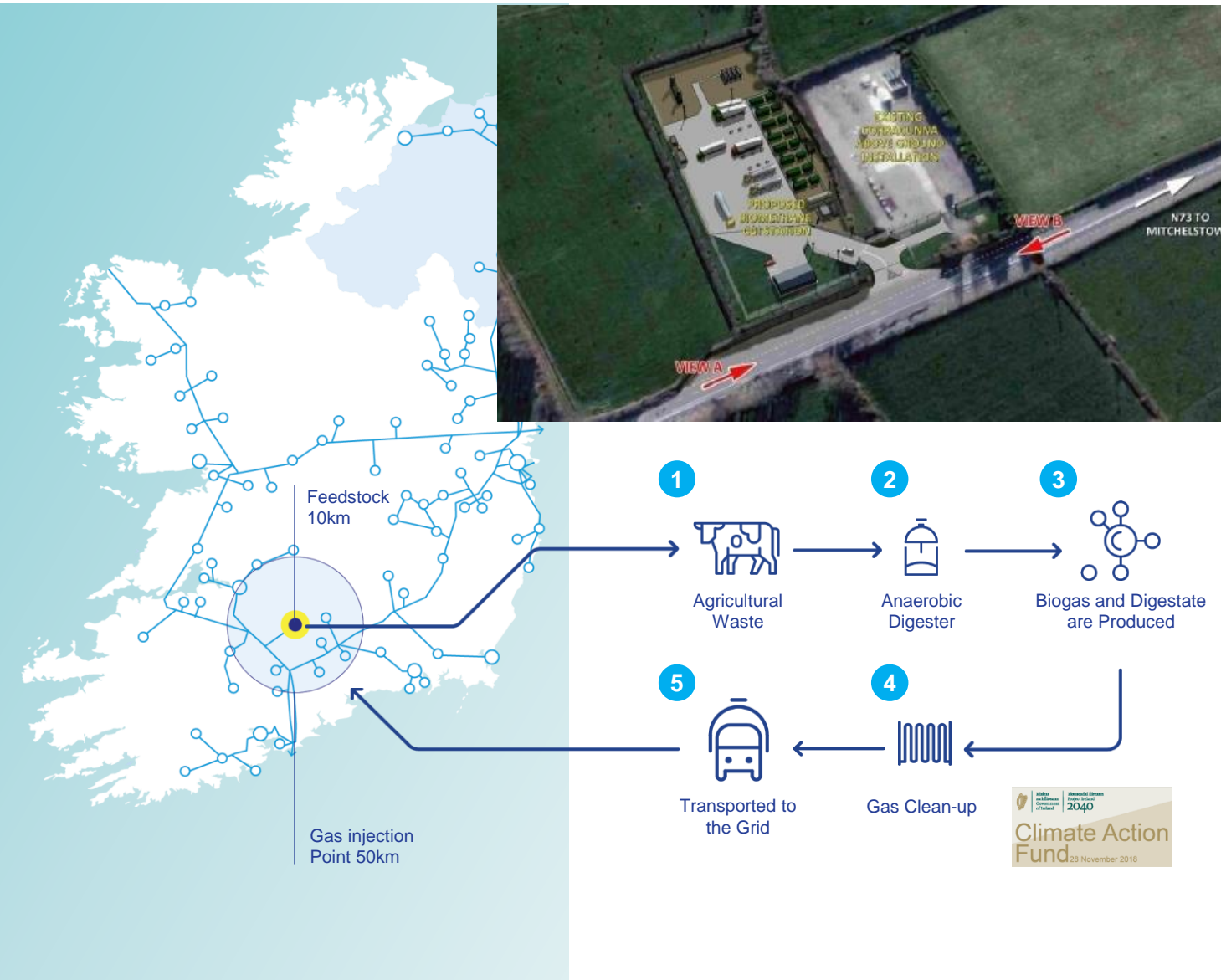
The costs of these extensions can vary significantly depending on distance from the network, connecting pressure and if network reinforcements are required.



Where an extension is not viable, the option of tankering biomethane to an injection point offers a viable alternative.

Mitchelstown Central Grid Inject (CGI)

Green Renewable Agricultural Zero Emission



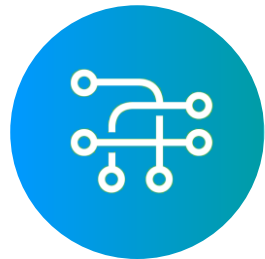
- ✓ Large catchment area, parties in area expressed interest in AD
- ✓ No gas network capacity constraints, adjacent to gas network, good road access
- ✓ Designed to be able to inject biomethane from 20+ Anaerobic Digester (AD) facilities (approx. 20 – 40 GWh each)
- ✓ Annual injection of up to 700 GWh of biomethane - enough to heat 64,000 homes
- ✓ Land secured and planning permission secured
- ✓ Design underway
- ✓ Support for Biomethane production

Overview of the Graze Project

Green, Renewable, Agricultural, Zero Emissions Gas



x1 CGI



CGI

Full-scale Central Grid
Injection Facility (CGI)
at Mitchelstown



x 6 cabs
x 36 trailers



Logistics

Transportation of the
Renewable Gas from
ADs to CGI

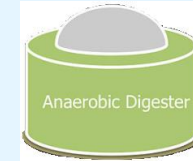


x 2 stations



Bio-CNG

Compressed Gas
(Bio-CNG) Stations



x 74 vehicle grants



Vehicles

Vehicle Fund to
support low
emission HGVs

Graze Project remains
shortlisted for Climate
Action Fund support

Progress To-Date

Summary of Renewable Gas Injection and Gas in Transport Progress

Cush Central Injection Point Declared a Gas Entry Point
Renewable Gas has flowed commercially into the gas network since May '20 proving injection into the network



GNI Renewable Gas Registry Launched
Certificates of origin are being issued by Gas Networks Ireland



Gas in Transport

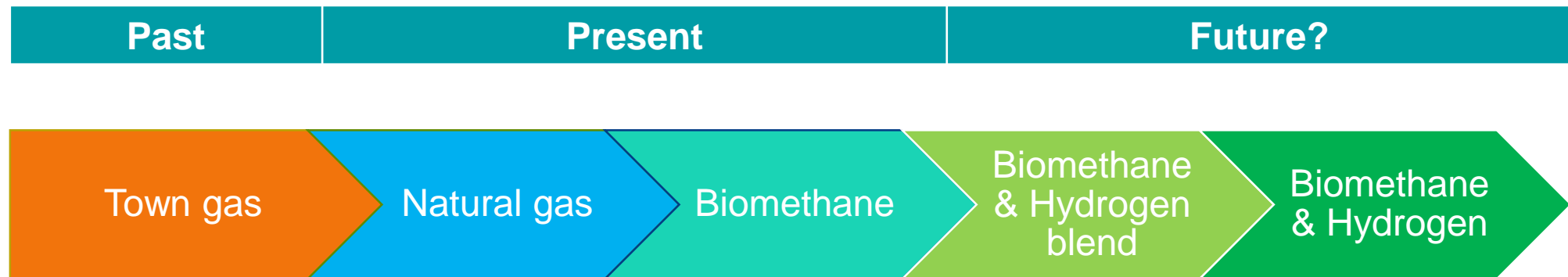
Summary of Renewable Gas Injection and Gas in Transport Progress

Gas in Transport

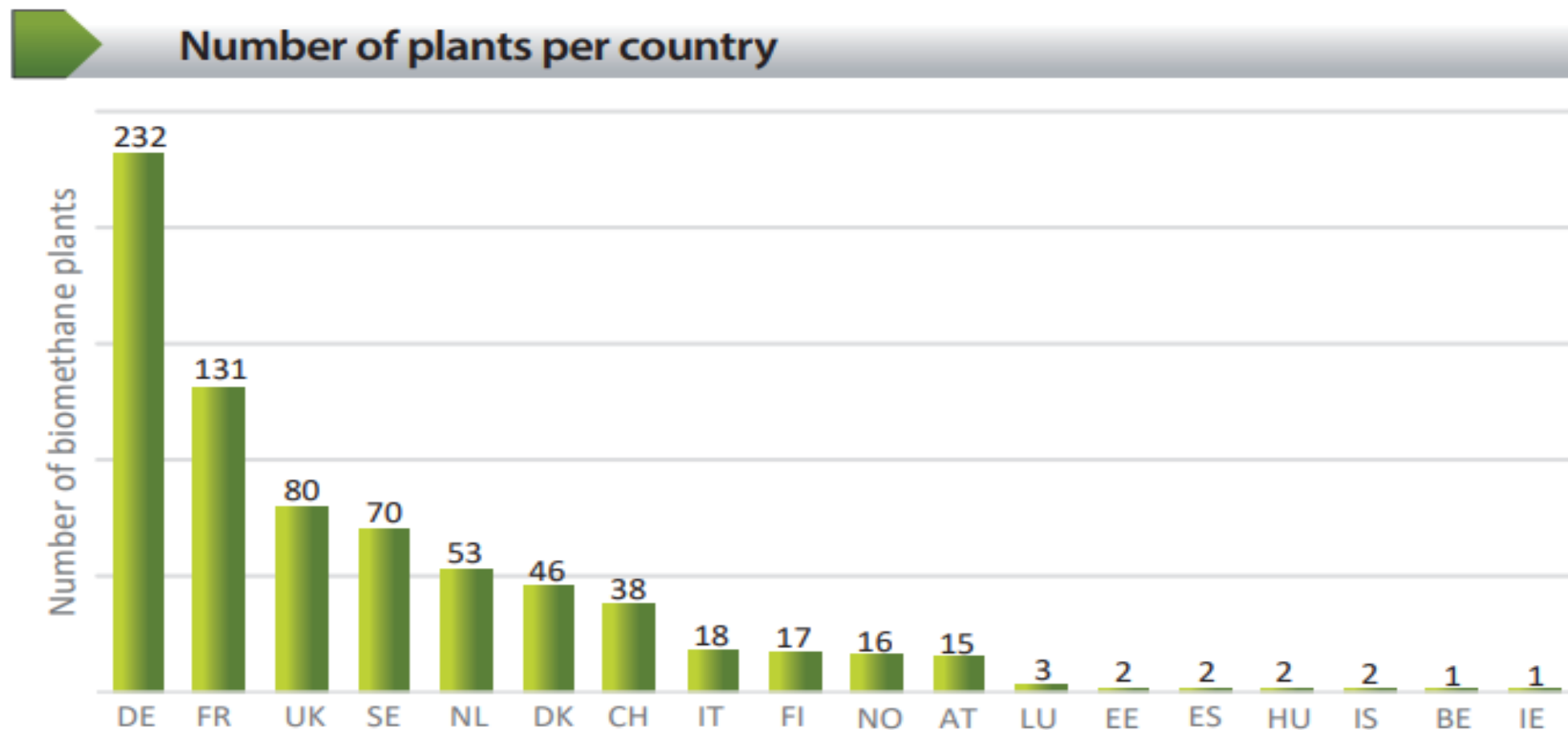
2 public CNG stations operational with 2 more constructed and ready to commission; a further 8 public stations contracted; 3 private stations operational; 8 GWh of gas used in transport year to date



The gas network is not inherently a fossil fuel network

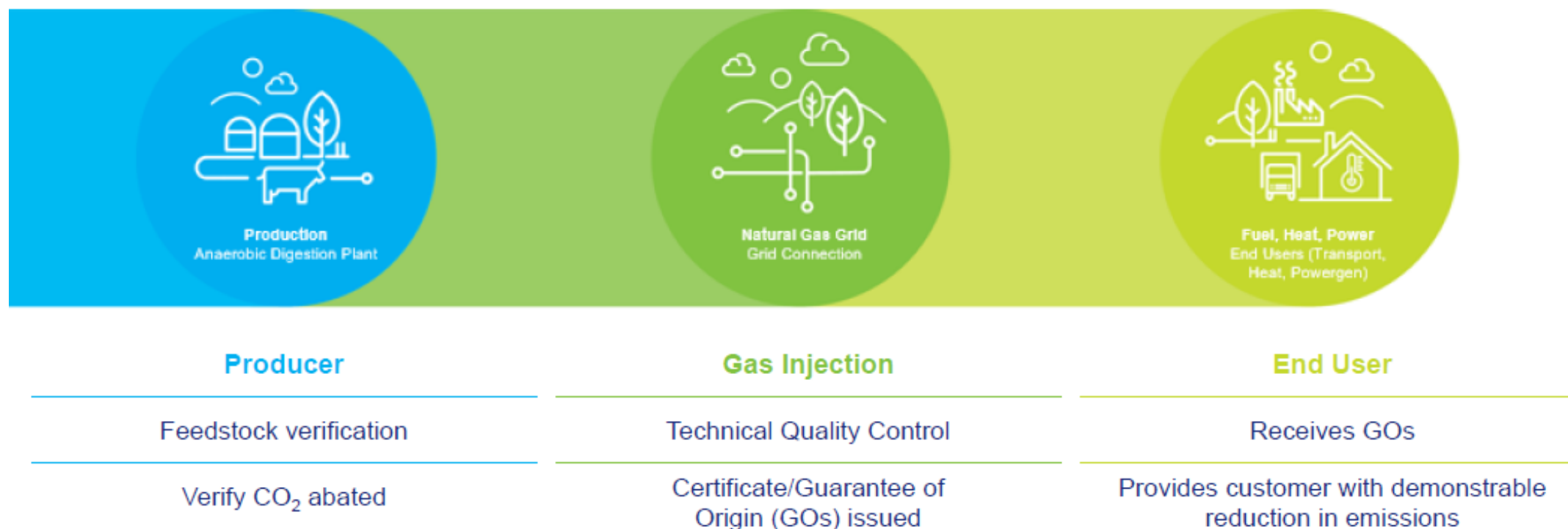


European Biomethane Industry (2019)



GNI Renewable Gas Registry

- The Renewable Gas Registry is a key function for the development of a renewable gas industry in Ireland.
- <https://www.gasnetworks.ie/business/renewable-gas/registry/index.xml>



Sustainability

Governance, scale, land use and management associated with Mitchelstown CGI facility



Approximately 3% of current grass silage volumes in the catchment area would be required by AD operators for the maximum CGI capacity. This can be delivered with better land management practices and increasing outputs without any requirement for additional land use.



At least 5% of slurry currently stored in the catchment area would be required by AD operators for the maximum CGI capacity.



Pasteurised Digestate, a product of the agri-AD process, can be used as an organic fertiliser, replacing energy intensive chemical fertilisers and spreading of slurry, lowering the risk of water contamination. Grass yields from digestate application are up to 18% higher than raw slurry and 10% higher than chemical fertiliser.

Sustainability Report

Developed by academic personnel from the Devenish Dowth research farm and KPMG



Sustainable

Evidence AD can be both environmentally and economically sustainable



RED II

Evidence renewable gas can meet sustainability criteria under RED II



Land-use

Address land-use challenge of locating in areas close to both biomass and slurry



Multi-species Swards

Assess impact of multi-species swards on biogas yield and biodiversity



AD Rulebook

Create AD rulebook e.g. excludes areas considered high in biodiversity, safeguards hedgerows, protects against unintended consequences

Farmer Opportunity

- Feedstock Income
- Lease Income
- Operator Salary
- Digestate
- Carbon Sequestration
- Economic Ownership
- Dividends



- Biomethane supports EU Green Deal/Farm to Fork objectives
- Biomethane production supports energy security of supply
- Ireland has a unique opportunity to produce indigenous biomethane having one of the highest per capita potentials in Europe
- Biomethane injected into gas network is an efficient use of a precious resource - can be targeted towards hard to decarbonise sectors across energy and agriculture
- AD can play a key role in developing a more sustainable agricultural system
- Biomethane can support circular economy through production of renewable gas and bio-fertiliser
- Grass silage used to support the production of biomethane must comply with strict sustainability criteria
- Digestate bio-fertiliser offers many environmental and productivity benefits over chemical fertilisers and raw slurry
- AD can provide rural jobs and diversified income for the farming sector



Renewable Gas
The key to a cleaner
energy future

Thank You

renewablegas@gasnetworks.ie



Gas
Networks
Ireland