Renewable Gas Initiatives

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GNI Innovation Funding Structure (Regulatory)

Current Innovation Funding €17.5m

Gas Innovation Funding €4.67m (+ potential additional €2.5m)

The Causeway Project €12.83m

Research €1m

Strategic Projects €3.17m

Project Management €0.5m

Additional €2.5 Million available subject to CRU approval
Causeway Deliverables

The Causeway Project will deliver by 2019:

- 14 High Capacity Fast Fill Stations along core TEN-T routes
- 1 Renewable Gas injection point in RoI
- Support for up to 35 dedicated Natural Gas Vehicles (NGVs)
- A Report on the findings from the Causeway Study Project

The Causeway Project is co-financed by the European Union’s TEN-T programme
A Strategic Opportunity
- decarbonised gas network by 2050

Ireland’s emissions could be reduced by 17.5 MT in 2050 by further utilising the existing pipe network.

- Fossil fuel generation met by existing CCGTs by 2022
- Gas to renewable gas
- Biomethane production helps reduce Agri Emissions
- 2,000 CNG Heavy Goods Vehicles / Buses
- 2 Gas CSS plants open by 2032 first in 2028
- Industry CSS (300,000 tonnes)
- Increased manure storage & production via wastes
- 70 refuelling stations by 2027
- 2 additional Gas CSS plants
- 300k homes switch from oil to gas
- Potential for negative emissions
- 25,000 bio CNG Heavy Duty Vehicles / Buses
- 1m homes using biomethane for heat
Ireland has already invested in this national asset

- **€147m** capital expenditure
- **688,000** connections
- **Over 2 times** the energy transported by the gas network in Ireland when compared with the electricity network
- **52%** of Ireland’s electricity needs powered by natural gas
- **14,172km** of gas pipeline could wrap around Ireland’s coastline 4 times
- **Biomethane** will be injected into the gas grid from 2018
  - 20% by 2030
  - 50+% by 2050
- **2nd** most profitable semi-state energy company
- **1 in 50** Flexibility to meet the harshest weather events, as seen in 2010 and more recently in 2018
- **100%** Reliability of our gas transmission network, including interconnectors to the UK.
20% Renewable Gas & the opportunity for Ireland
What 20% Renewable Gas can deliver

### EU Targets

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<thead>
<tr>
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<th>2020</th>
<th>2030</th>
<th>2050</th>
</tr>
</thead>
<tbody>
<tr>
<td>RES</td>
<td>16%</td>
<td>32%</td>
<td>TBC</td>
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<tr>
<td>GHG</td>
<td>20%</td>
<td>40%</td>
<td>80 – 95%</td>
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### 20% Renewable Gas means…

#### Emissions

- 3.1 MT CO₂ abatement in Energy
- 1.2 MT CO₂ abatement in Agriculture
  - ~€120m / a avoided fines
  - ~€241m / a carbon reduction

#### Jobs

- 2.5k direct / 4k indirect jobs
- Stimulus for Rural Ireland
  - ~€160m / a
The gas network is crucial for Ireland to meet climate targets

Ireland has committed to reducing CO₂ emissions

By further utilising the current pipe network – Ireland could remove over 17.5 MT of CO₂ from its emissions by 2050

All this can be achieved using the pipe network:

- At lowest cost to consumers & exchequer
- With the least disruption to the end-users, while utilising existing assets
- While enhancing Ireland’s security of supply
- While providing significant jobs to rural Ireland

Part of ervia group
KPMG was commissioned to develop and evaluate a number of scenarios for the decarbonisation of the one million Irish residential homes currently connected, or within close proximity, to the existing gas network.

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**Cost per household (€), total costs (capital investment and fuel) to 2050, discounted, current prices**

- **Gas Decarbonisation (Biomethane)**
  - Low Cost
  - High cost

- **Gas Decarbonisation (Biomethane & Hydrogen)**
  - Low Cost
  - High cost

- **Electrification of Heat**
  - Low Cost
  - High cost
Sources & Security of Supply
(samples from SFI/Evia funded UCC studies)

• Benefits for Agriculture;
  • GHG Mitigation.
  • Improve viability of farming in marginal areas.
  • Protect grass fodder demand / supply while also ensuring strategic reserve available on poor harvest years.
  • Fertilizer.

Part of ervia group.
Grass Silage Scenario’s

- Current yield c.25 million tonnes of grass silage annually (6.5t DM/ha), the vast majority of which is used to feed cattle. With feed supply and demand in equilibrium, there is no surplus produced at present.

- It is estimated that an additional c.13 million tonnes of grass silage (c. 3.3 Mt DM) will be required to produce the targeted 11TW of thermal energy.

- Ireland doesn’t currently maximise its grass production capacity. Significant scope to increase the current average yield from 6.5t DM/ha to 13t DM/ha and under such circumstances Ireland is more than capable of producing the c.13 million tonnes of additional grass silage (c. 3.3 Mt DM) without impacting current and future agricultural production.

- This would involve farmers implementing best practices such as; reseeding the land including applying lime, digestate and cutting the land under a 2 or 3 cut silage system.

- Tillage Land can also yield an additional c15t DM/ha with Catch & Rotation crops (REDII).
Leading Initiatives
Central Grid Injection (CGI)
The Agri-AD Renewable Gas supply chain strategy

Feed-in-tariff for Biomethane grid injection.
Gas market price + Customer Premium + State Subsidy

- ~20 Agri-AD facilities in each CGI catchment area
  - Common design set and O&M contract service
  - New & innovative funding scheme - tba

- Gas Logistics Service
- Rollout of National CGI facilities
CGI Enabling AD Development

- AD development enabled within 50 km of gas network.
- Longer range deployment is viable when market scale is achieved.
Green Gas Certification Scheme for Ireland

Reference: dena BiogasRegister.de

Auditor
issues guarantee of quantity and quality

Producer

Trading Partners
trading, splitting

Consumer
receives guarantee

production
natural gas grid

fuel
heat
power

iERC
DBFZ
dena
MaREI
Gas Networks Ireland
A sustainability certification scheme and registry for Ireland – main elements

The GGCS services & tools will include:

- **Principles and a methodology for GHG accounting for Green Gas**
- **Tools**, documentation and guidelines for GHG accounting in actual auditing/certification processes
- **A set of sustainability criteria for the certification scheme**
- Compilation of requirements and guidelines for an independent auditing of individual GHG mitigation values during the process of sustainability certification
- **A registry system for green gas certificates**
Agri-AD Development & Rollout

**Stage 1**
- Market consultation
- Submission of business plan to Ervia
- Consideration of business plan by Ervia

**Stage 2**
- Government approvals
- Planning and development of pilot AD plants and injection points

**Stage 3**
- Staged roll-out of standardised AD plants

Achievement of 11TWh of energy from Biogas

2018  2019  2020  2030

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