

# Developing strategies to facilitate integration of biogas into the existing gas infrastructure

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## Available Resources for a Virtual Biomethane Pipeline

### Security of Supply - Agri-waste Potential

- > 56 million tonnes /annum of cattle slurry on Irish farms
- > 2.3 million tonnes of pig slurry
- > 20,699,000 m<sup>3</sup>/annum of dairy and cattle manure stored on farms

#### Benefits

- 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

### Biogas Production

- Small scale farm ADs ( < 100 m<sup>3</sup> )
- Low pressure biogas storage on site is required (32-48 h)
- Distance between plants < 40 km

### Mobile Solution (Virtual Pipeline)

- Conditioning & Upgrading Unit**
  - Membrane /PSA technology 50- 250 Nm<sup>3</sup>/h
  - Mobile 20 ft container
  - Integrated Compressor
- Biomethane storage**
  - Composite vessels 20 ft Container
  - Transport pressure 220-250 bar
  - Total capacity 5200 Nm<sup>3</sup>/truck

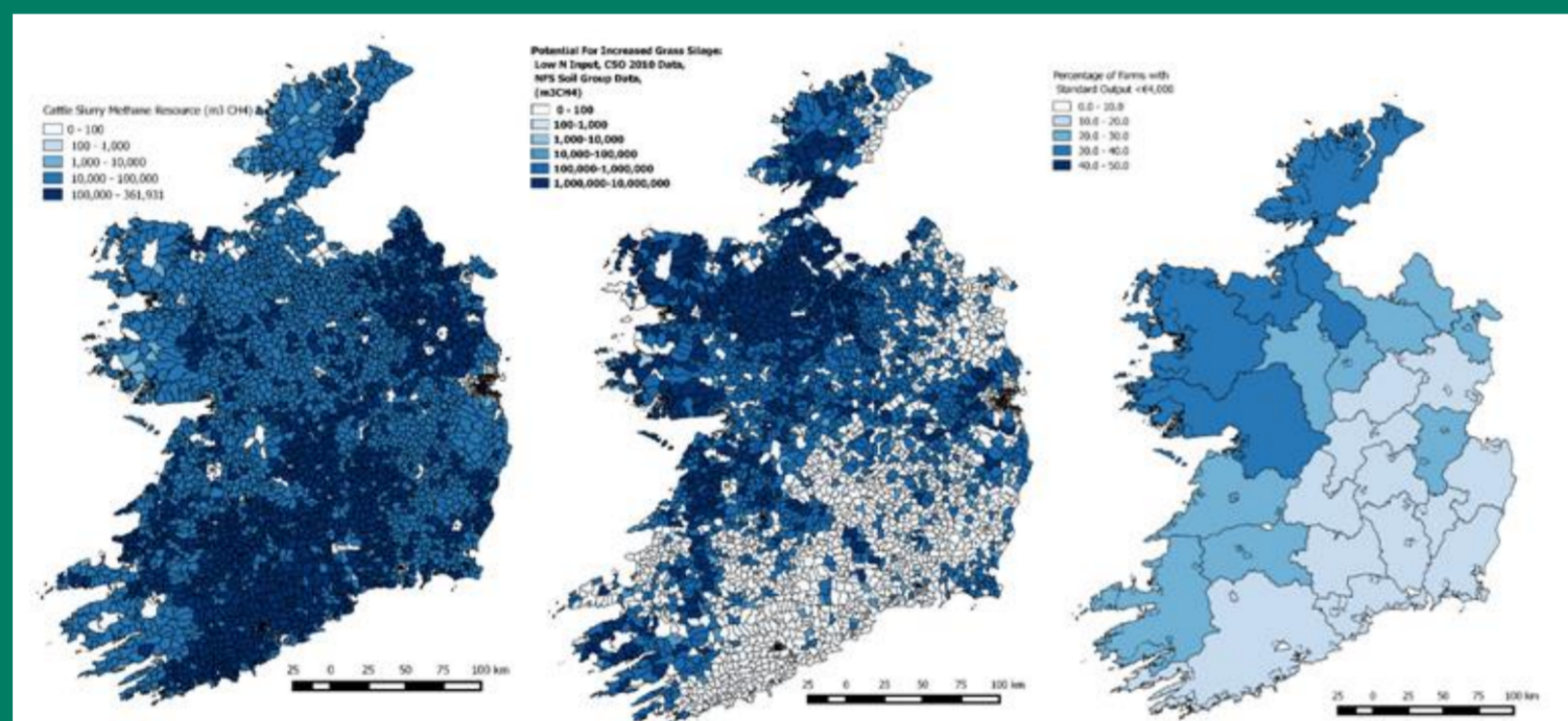
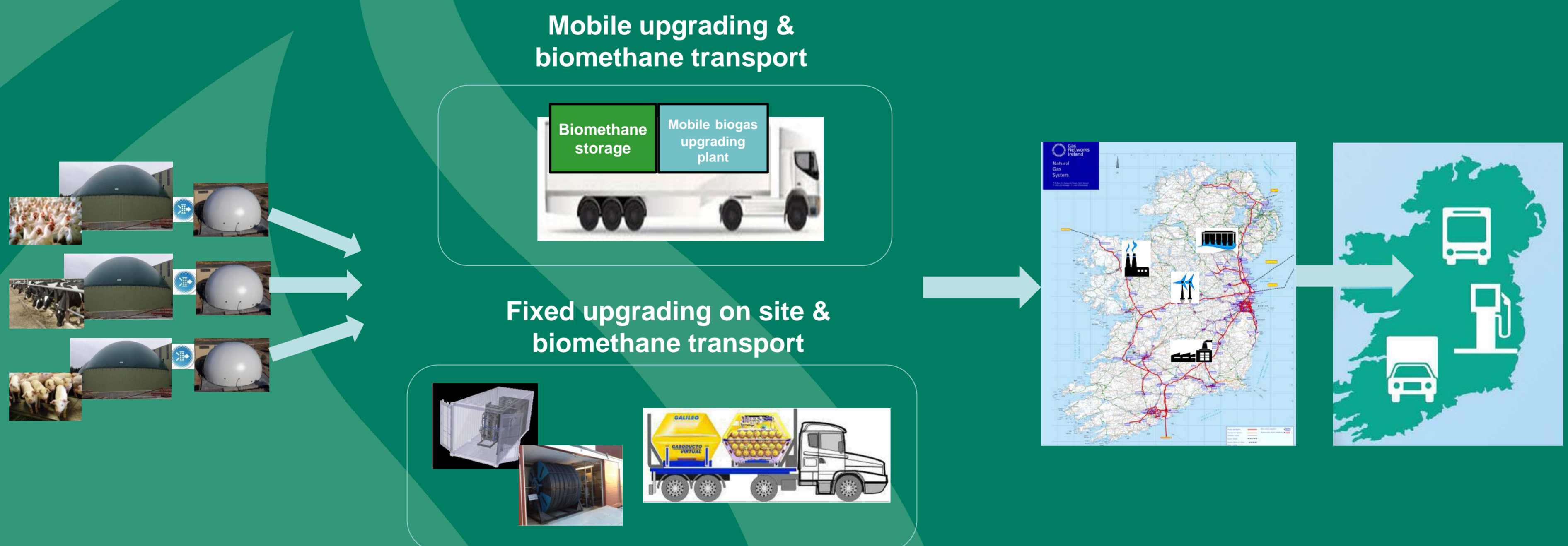


Figure 1 . A) Cattle slurry methane resource. B) Potential for increased grass silage. C) Percentage of farms with standard output < €4,000. (samples from SFI/GNI studies)

**Centralized Injection Facility**  
 Injection into the Transmission network  
 Open third party access  
 Open competitive market

**CBG filling station**  
 Open third party access  
 Open competitive market  
 Networks of filling stations

## Virtual biomethane pipeline concept



## Direct Green Gas Grid Injection - Specification for design and operation

- Biogas from 3 Anaerobic Digesters
- Sludge from WWTP and Food/Drinks Industry
- Transmission Grid Injection
- Transport and commercial CHP demand – market industry process development



#### GNI Function :

- Monitor gas quality and reject gas that does not meet connection agreement requirements
- Add propane if required to meet minimum Cv
- Odorise and meter the gas
- Compress the gas to Tx Network pressure