Reducing barriers to biomethane injection projects to help NetZero

Alison Cartwright
Senior Project Manager
CNG Services Ltd
alison.cartwright@cngservices.co.uk
www.cngservices.co.uk
07746 812649
CNG Services Ltd

- CNG Services Limited (CSL) provides consultancy, design and build services to the biomethane industry, all focused on reducing Greenhouse Gas (GHG) emissions.

- In the past 10 years our efforts have produced a material impact with an estimated 20 year project life reduction in CO2 emissions of 17,500,000 tonnes through:
  - Biomethane injection into the gas grid
  - Running trucks on Bio-CNG
  - Acting as developer and design and build contractor for the Highlands CNG Project

- Working on a number of Biomethane, H2 and CCUS innovation projects including:
  - Biomethane from manure with CCS
  - Biomethane direct into the NTS
  - Green H2 into the NTS and Hydrogen Business Model Projects
  - Reverse Compression to Create Capacity for Biomethane Injection

- CSL is an ISO 9001, 14001 and 45001 approved company and has also achieved Achilles certification. CSL is GIRS accredited for design and project management and has been certified as a competent design organisation for high pressure UK onshore natural gas works by DNVGL.
Summary

Looked at solutions to the current barriers to entry in terms of time and cost

- Category 1 – Summer 2024
- Category 2 – Immediate
- Category 3 – Reverse compression & blending
Category 1 - Review of Ofgem Injection Rules – Summer 2024?

2011 – EMIB Report

- A biomethane injection point is treated the same as a main entry point into a GDN network
  - GDN network that may supply 1 million customers
  - The design philosophy is that the plant can never stop flow
- For biomethane there is already a robust system to ensure no $\text{H}_2\text{S}$/Wobbe issues
  - Bring CV measurement in as well

2011 adopted existing rules that were not appropriate for low flows and lead to very high CAPEX and OPEX
Review of Ofgem Injection Rules

2015 – Proposals to Reduce costs

- 2015 ENA consultation for low flow (<5,000m³/hr) sites
  - Option 1: No change to current regime
  - Option 2: Modified Letter of Direction
  - Option 3: Removal of the requirement to ‘direct’ low-flow sites

- Re-assess recommendation Option 3 – No letter of direction (no heated room!)
- Reduction in CAPEX by 50% and reduction in ongoing OPEX
Category 2 – Discretionary items that can be done immediately

• Remove need to adopt RTU
  – Is RTU needed?

• Does the ROV need to be adopted?
  – Is ROV required?
  – Diverter valve is key asset

• Risk based and generic design assurance for plants which are substantially the same
  – 140 projects that are producing biomethane with no known out of spec gas injected into the grid in the last 7 years
  – Simpler if no adopted RTU and no ROV (as NGT)
Category 2 – Discretionary items that can be done immediately

- Simplify GQ/8 process for each new plant and reduce lengthy testing regime
  - Has any sample ever failed a test?
- Publication of gas quality data to build confidence
- Introduce flexibility in relation to temperature blips
Category 3 – Support Reverse Compression

- Unlocks capacity for at least 20 projects
- Simple solution for minimum running hours
- Most AD projects lead time c. 18 months
- Low cost off shelf option to reduce O&M costs
- GDN adoption of RC assets feasible if GDNs could accept Bio-CNG Industry specification
- First commercial RC underway at High Bickington in WWU area, 10 months from start to finish, <£1.5 million for 2 compressors
Category 3 - Support Blending to Reduce Propane kWh

- Current restrictions mean only a few sites available for blending with 4 x the injection flow going past the connection point
- Aim to use AI to decide if blending for CV is possible without the need to install instrumentation
- Software modification will help (see Thyson presentation)
- Link to Hydrogen Blending Consultation currently underway
  - Hydrogen into NTS will reduce the FWACV in an LDZ which will reduce the amount of propane required
  - The biomethane industry must respond to this Consultation
Innovation

• How about a mini-innovation competition to reduce CAPEX and OPEX associated with biomethane?
• Replacement of present GEU (more like Netherlands) with reduced asset adoption
• Work with industry to innovate in areas such as:
  – Propane contamination
  – Reduce GEU to £200k for low flows (300m³/hr)
  – LTS exit connection for £50k
  – E-Methane integration
Conclusions

• Funding to support biomethane will be limited so we must reduce cost where we can
• Discretionary Category 2 and 3 items can be done now if the GDNs want to show enhanced support for biomethane
  – Reverse compression is very important
• The Category 1 change is important and valuable, the first stage is to have a look and see what can be done based on 8 years' experience since the last review