

UNC 0808 Reverse Compression workgroup Smart Pressure Control

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July 2022



The Issue

- Bio plants largely connected to **fixed** pressure distribution networks with only a few connected to high pressure.
- Distribution networks supply mainly domestic demand and have large diurnal and seasonal swing.
- This creates **demand constraints** for entry wanting to inject at a constant rate.

Doing All We Can:

- Over 20 pressure adjustments to WWU sites
- Re-negotiated CSEP pressures
- Combined & re-configured low & medium pressure systems

Not Enough!...Something else is needed to facilitate green gas and changing exit demands

All actions taken have resulted in more demand for bio plants but higher system pressures in some cases affecting shrinkage & lower system pressure in others which could impact gas exit.



Intro

Purpose

The purpose of this project is to prove the concept of a network solution that can be replicated in capacity-restricted areas

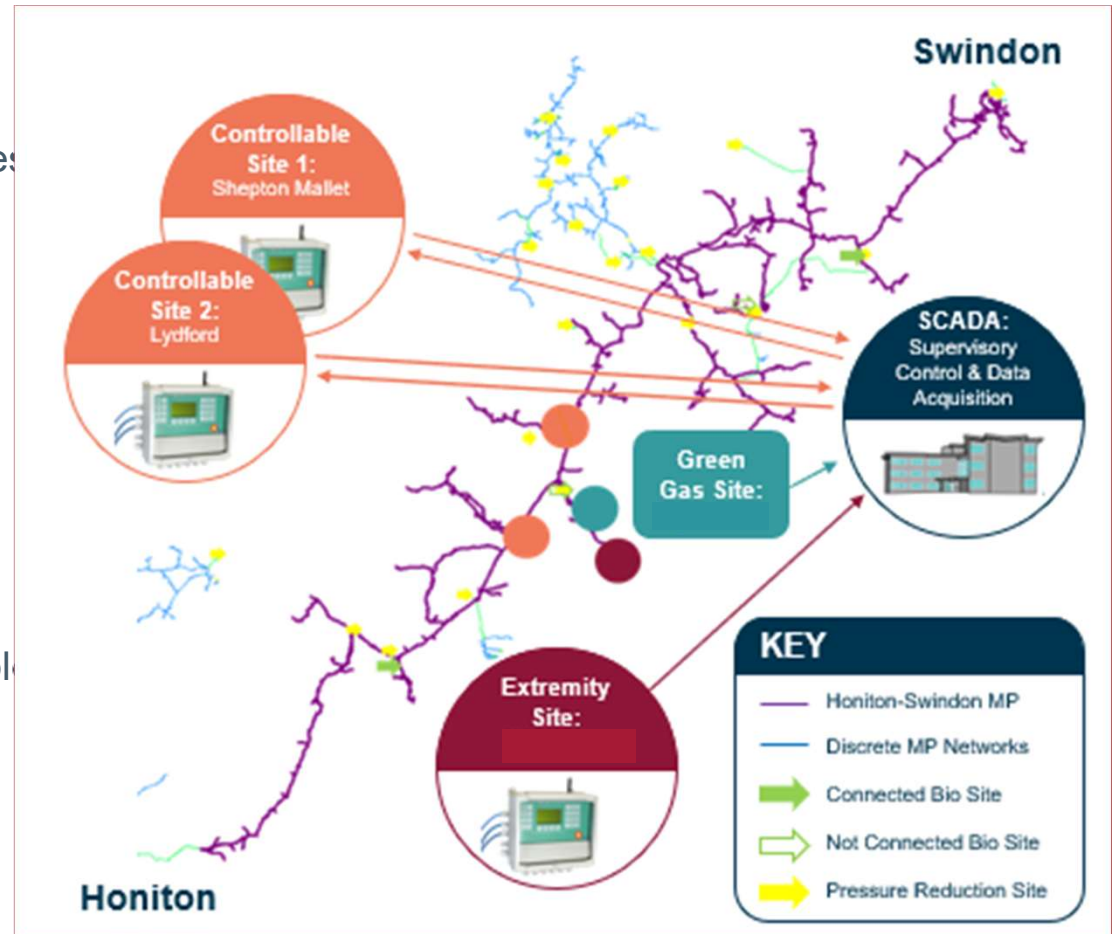
We are exploring ways to optimise the gas network's supply and demand through the following applications:

1. **Smart Pressure Control - Field Trial** - to maximise existing demand in distribution networks whilst maintaining security of supply – led by WWU
2. **In Grid Compression – Field Trial** - to create additional capacity on the distribution network – led by Cadent
3. **Exploring the feasibility of storage solutions** at times of low demand – delivered by Imperial College and Passiv



Smart Pressure Control Trial Overview

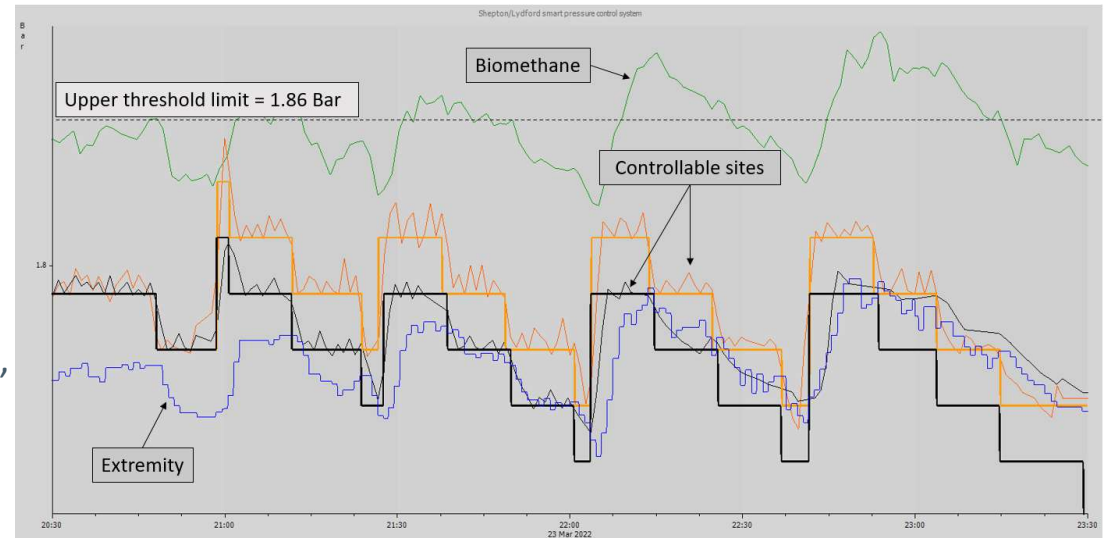
- **Equipment**
 - Loggers & control kit installed at 2 sites
 - Logger installed at extremity
 - Existing telemetry at green gas site
- **Monitoring & Control**
 - Automated control via SCADA logic
 - Manual overrides
- **Control Example**
 - High pressure at green gas site, unable to inject, extremity ok = controllable site pressure reduces



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Bio Site breaching upper limit

- The trend shows the biomethane site breaching the upper threshold on numerous occasions.
- The smart pressure control logic switches to a Biomethane 'High' state, this change in state initiates control commands to the two controllable governors to decrease pressure.
- As a result of the stepdown decrease commands, pressure in the system was successfully brought back below the upper threshold.



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