



Real-Time Networks Project with SGN: An Update

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Insights on Retrofitting Flow Measurement

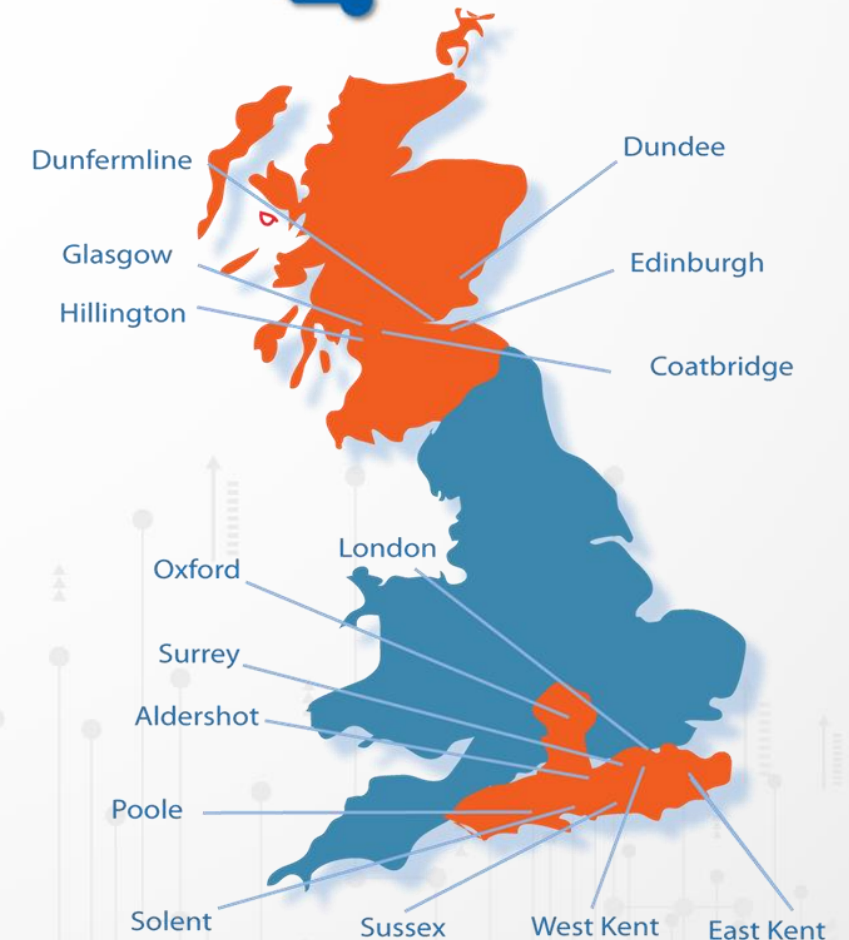
Analysing Gas Flows in the Network

Role of Flow Measurement in Decarbonisation

Impact of Hydrogen

About SGN

- **Assets:** 74,000 km of gas pipes, gas storage and pressure reduction installations
- **Customers:** 5.9m homes and businesses
- **People:** 3816 direct staff + contractors
- . . . the second largest gas distribution company in the UK



Ofgem – Energy Network Regulation

RIIO

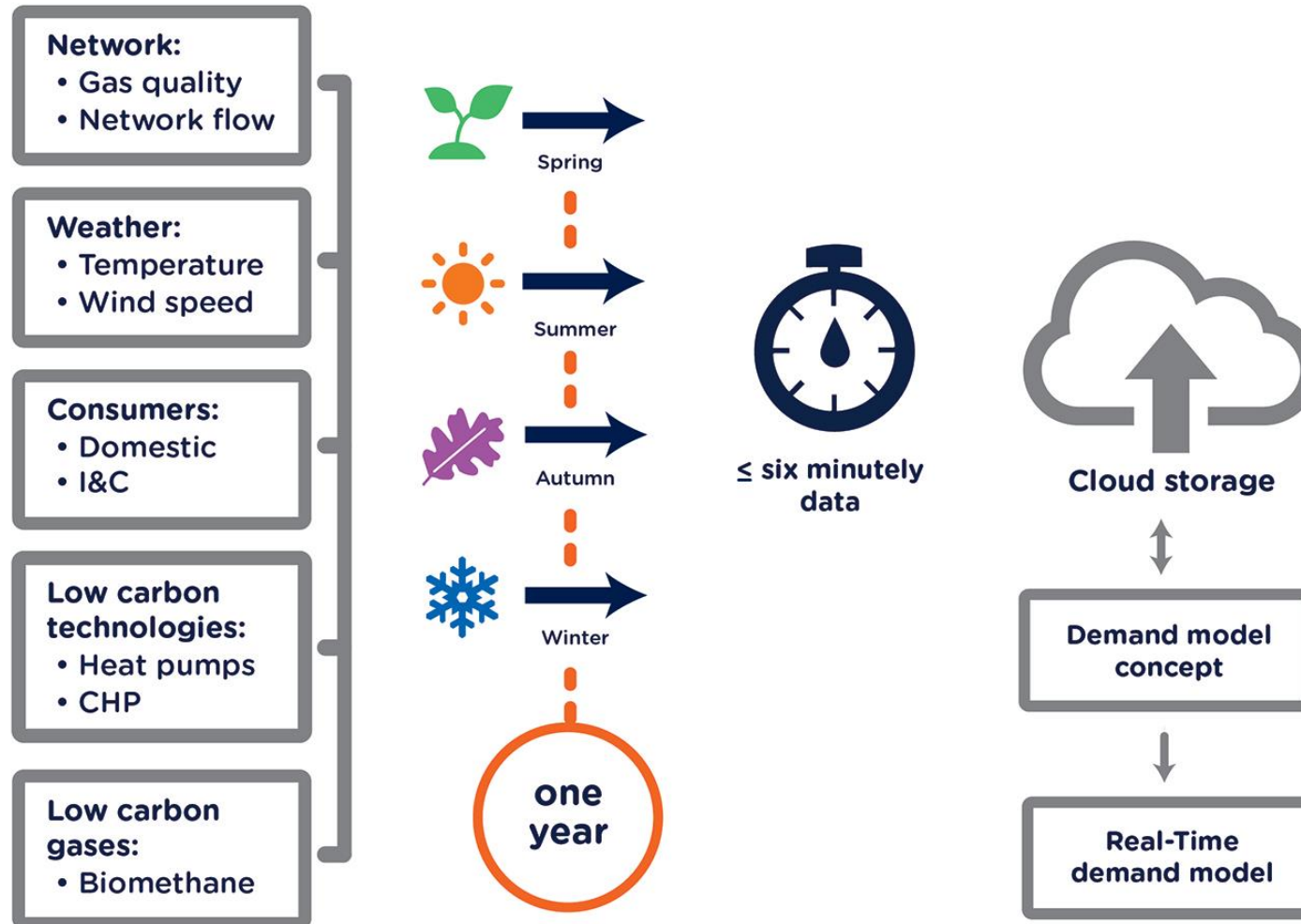
- (Revenue = Incentives + Innovation + Outputs)
- Invest efficiently and innovate to ensure continued safe and reliable service, reduce network costs and work towards a low carbon economy.

Innovation stimulus through NIA and NIC

NIC

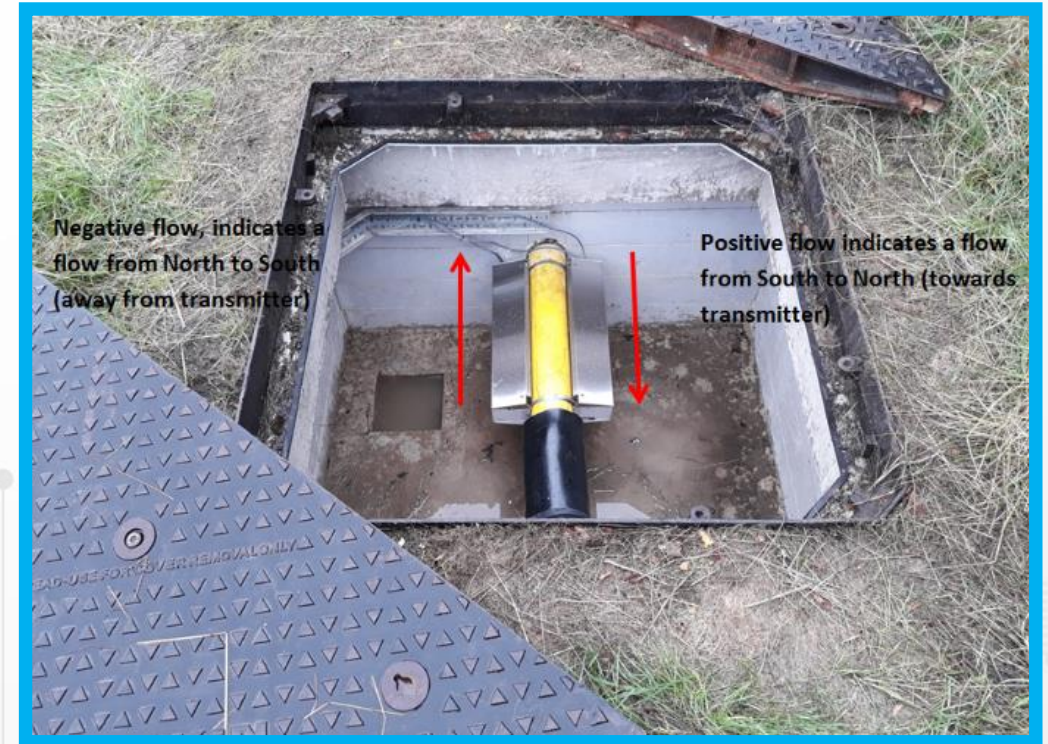
- Energy companies compete for funding for the research, development and demonstration of new technologies, operating and commercial arrangements
- Review and assessment of the projects by independent expert panels

Real-Time Network Solution



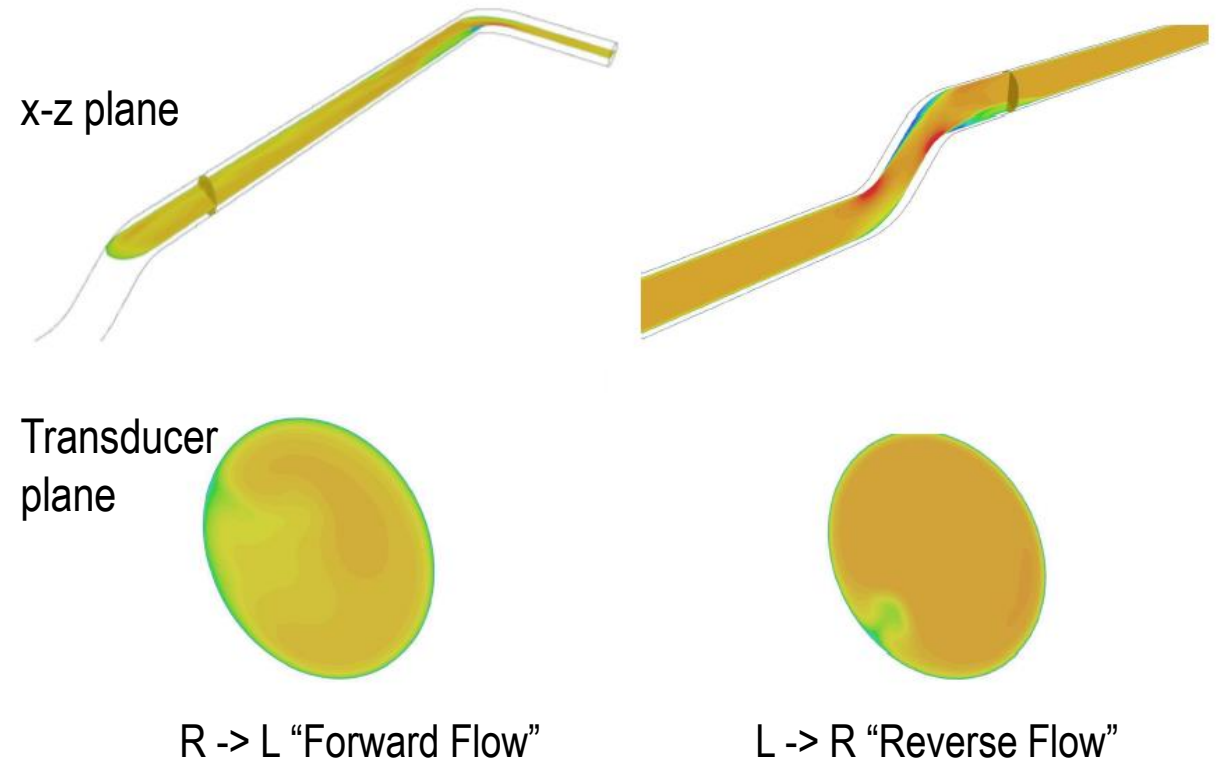
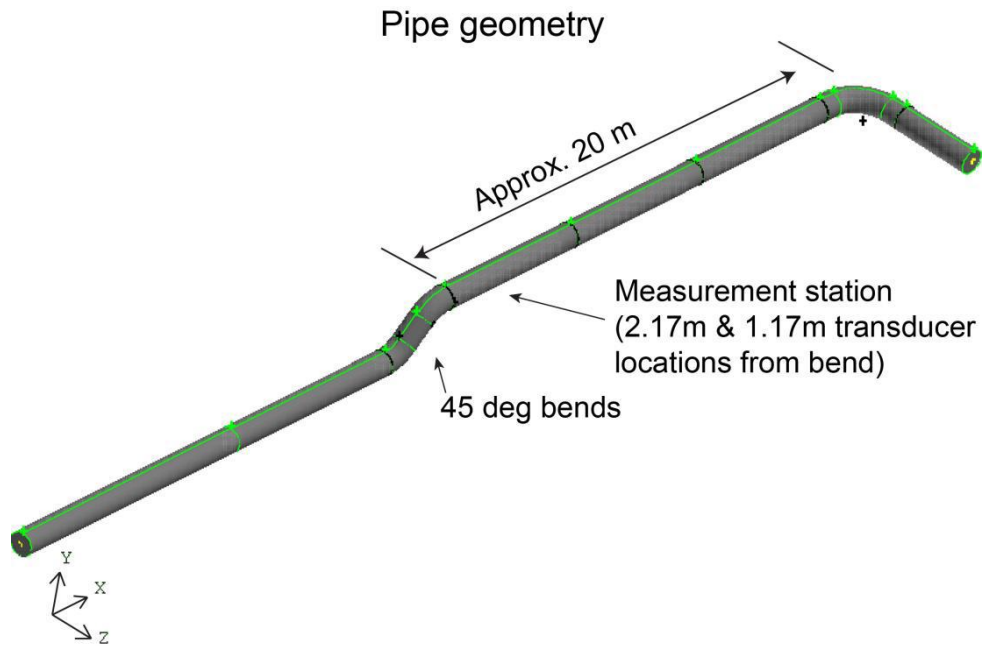
Insights on Retrofitting Flow Measurement

- Preventing Interruption to Gas Supply
 - Ultrasonic meters
 - Surface mounted temperature measurement



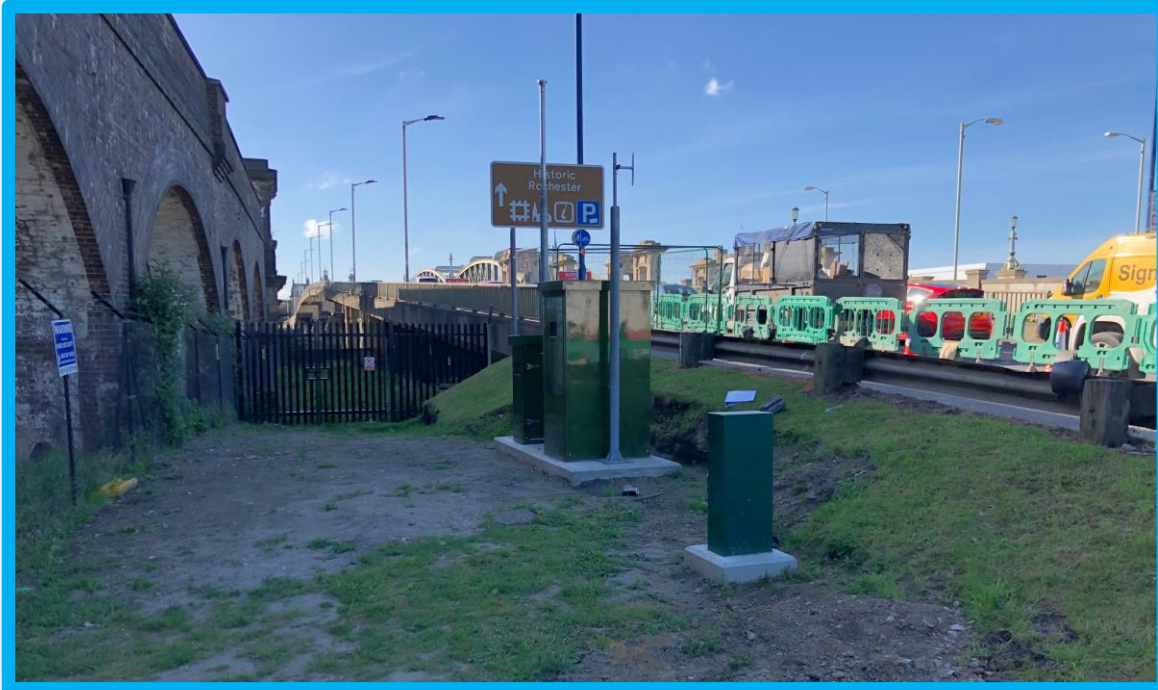
Insights on Retrofitting Flow Measurement

- Lack of Pipe Straight Lengths



Insights on Retrofitting Flow Measurement

- Lack of Space
 - Burying equipment

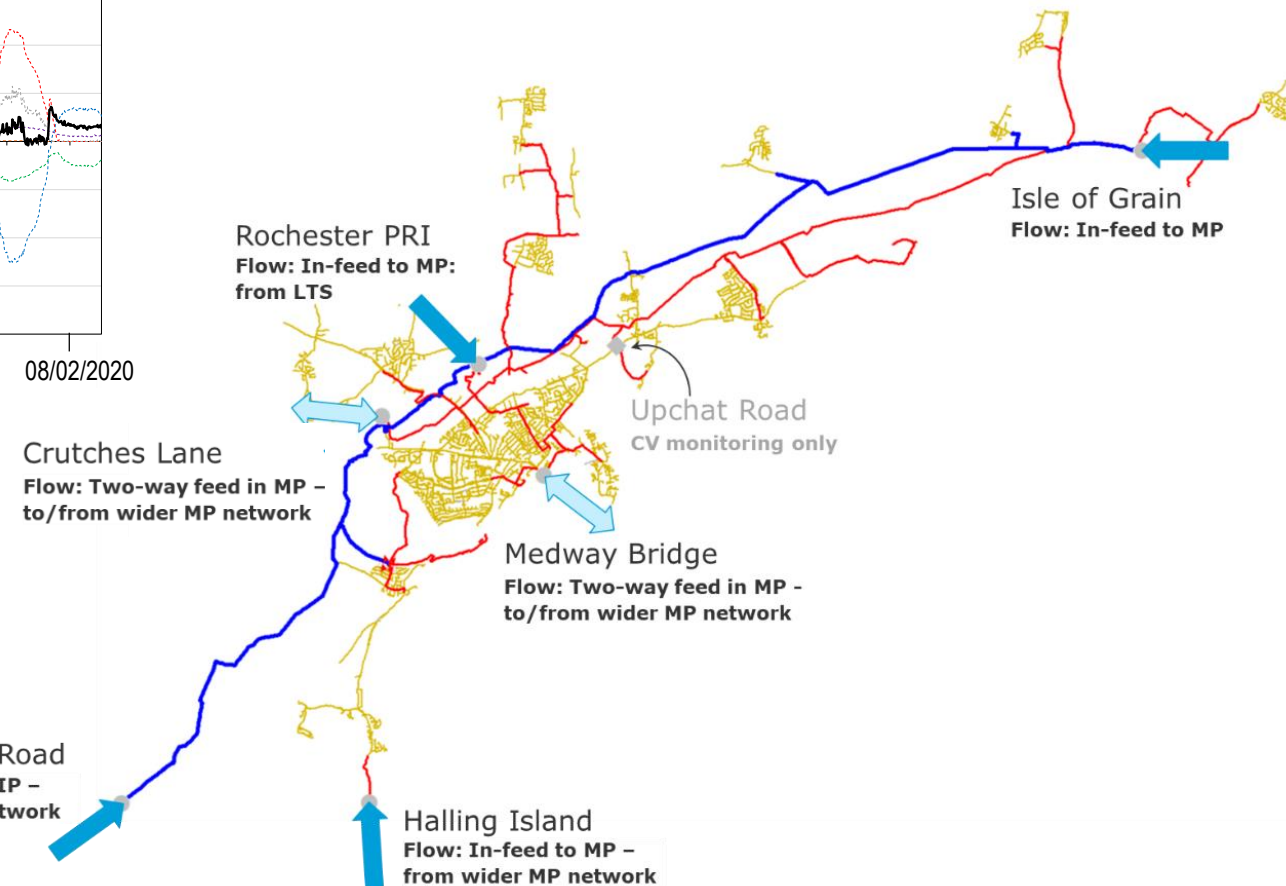
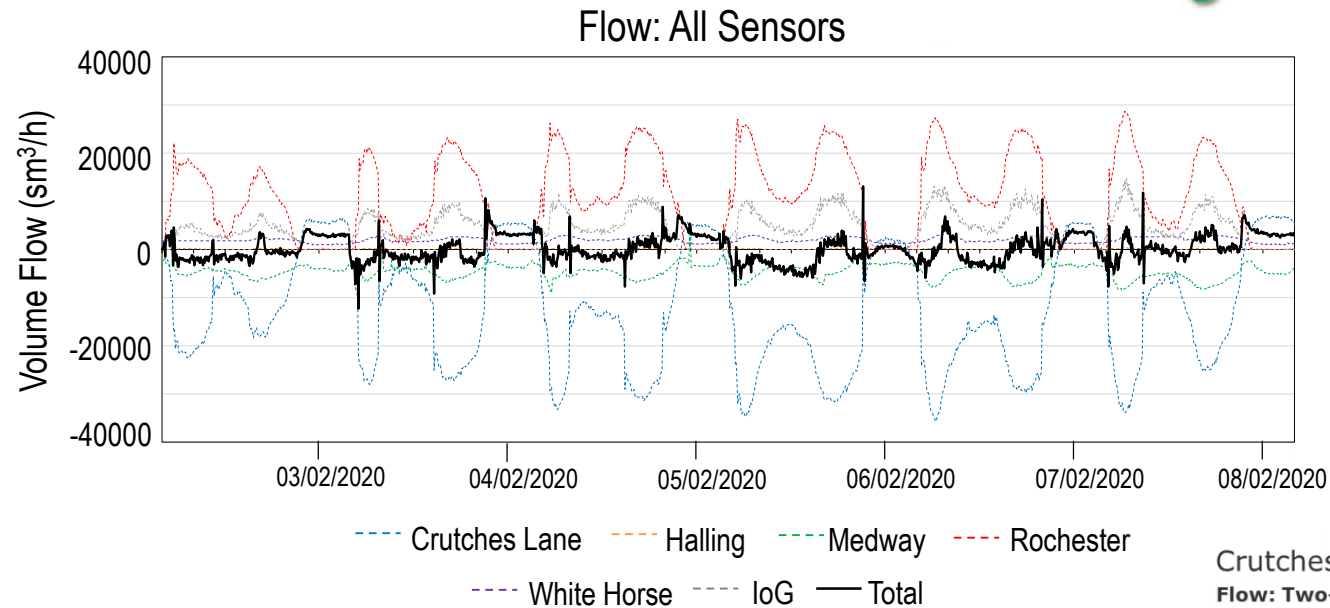


Insights on Retrofitting Flow Measurement

- Remote Locations
 - Electrical Power
 - Gas Quality Measurement
 - Communciations
 - Anti-social behaviour



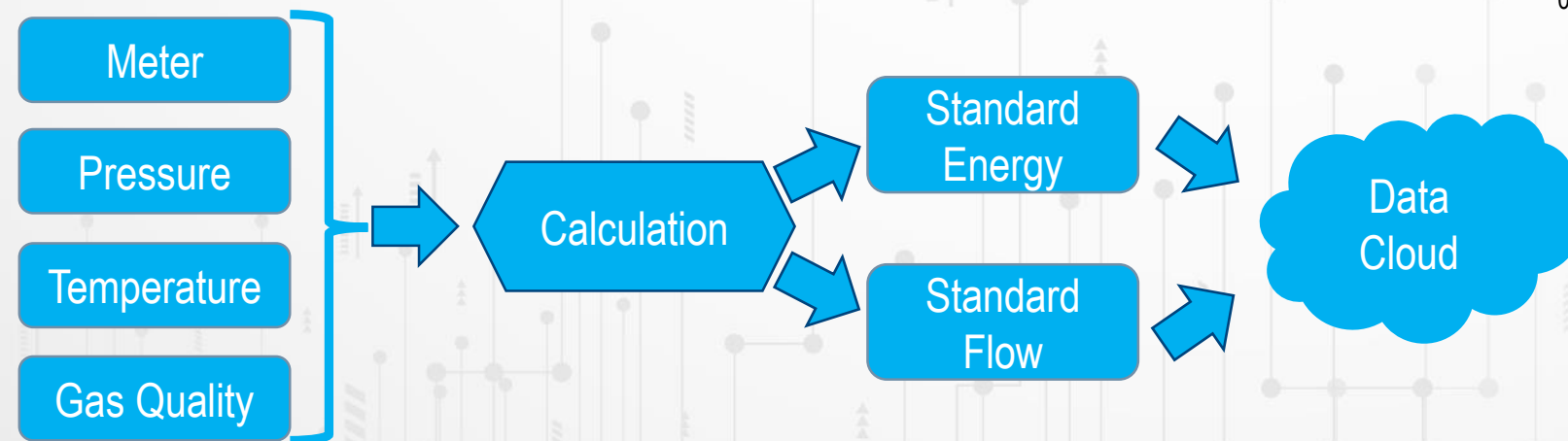
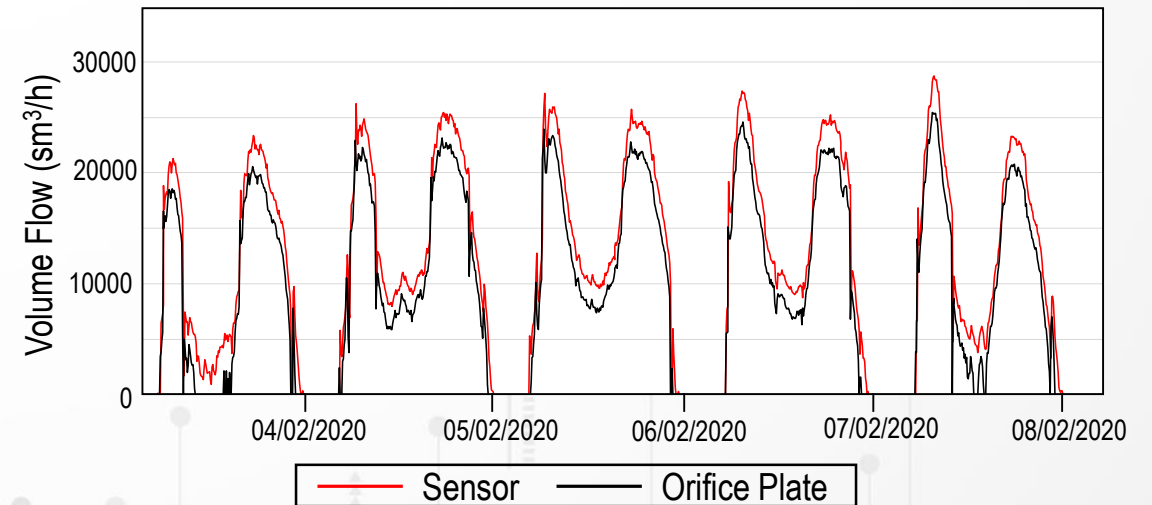
Analysing Gas Flows in the Network



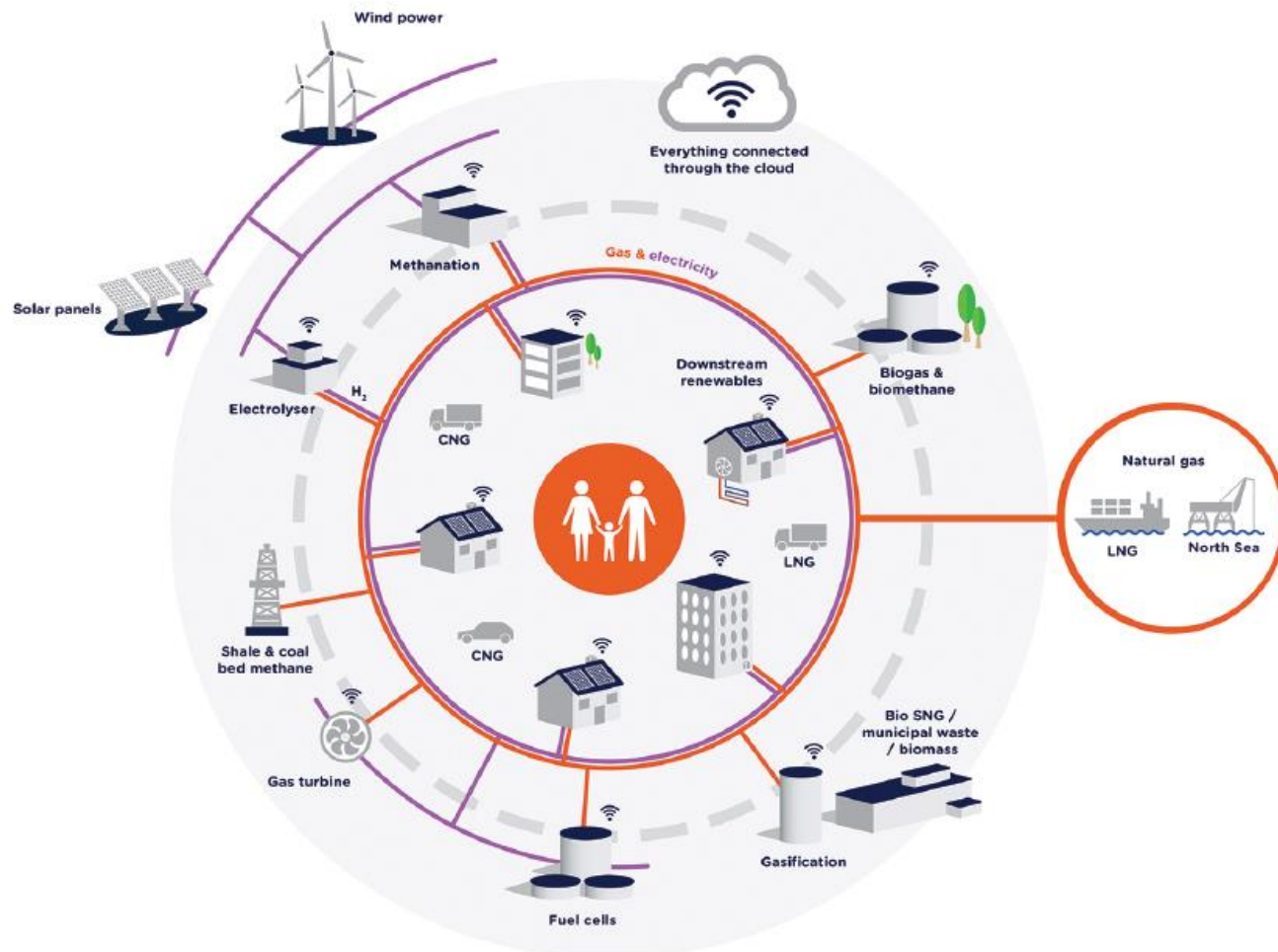
Investigating the Anomaly

- Rochester
 - Independently verified with existing meter
- Crutches Lane
 - Validation checks
- Isle of Grain
 - Custody transfer and SGN PRS

Rochester: Sensor vs Orifice Plate Flow



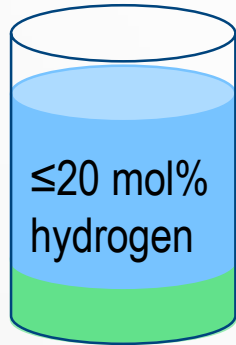
Role of Flow Measurement in Decarbonisation



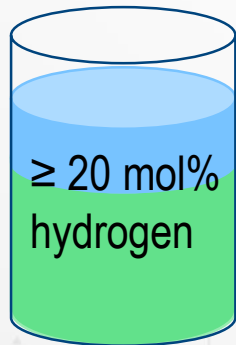
- Be more responsive to demand changes
- Facilitate connection of new low-carbon supplies
- Connect new loads with greater confidence
- Operate flexibly during maintenance, repair and upgrade operations
- Design and size future pipework more accurately
- Accommodate and understand changes in gas quality
- Respond to demand changes caused by changing weather conditions

Impact of Hydrogen

- Flow and Pressure



Behaves like
natural gas



Behaves more like
hydrogen

10/8/2020

- Material Integrity

- Embrittlement, cracking & fatigue
- Leakage
- Low strength steels and PE okay

- Other Challenges

- Gas Quality and flow measurement
- Rheology
- Appliances, I&C customers
- Energy delivery, gas velocities



Contact Us

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