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Network Codes Best Practice Forum CO2 monitoring,metering and measuring users perspective

HyNet Users| Iain Walpole

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HyNet Users

- The HyNet Users below all participated in the ‘DESNZ sprint’ to develop the CO2 specification and quality monitoring procedure
  - EETH - Hydrogen Production
  - Encyclis –Energy from Waste
  - Heidelberg Materials – Cement
  - Viridor – Energy from Waste

Timeline – Code and procedure development

- HyNet specification developed before users started feasibility and FEED studies so knowledge was limited on if/how achievable compliance
- Code consultation response focused on other issues that were barriers to investment such as nomination process, deviations in flow and metering accuracy requirements
- Lack of clarity in the code about the scope of the CO2 specification eg F 2.6c

  "*the pressure, temperature and water content should be measured continuously, together with other impurities where an exceedance may result in an imminent downstream impact. This may include oxygen NOx, SOx, H2S, ammonia…*"
- Work on fully understanding the measurement and monitoring requirements only really started in September 2024

The Users main concerns

- Accuracy of CO2 flow measurement could it meet the +/-1% required by the code
- Availability of continuous monitoring equipment
- Accuracy and response times of continuous measurement
- Requirements for off line sampling the necessity of some “health based” limits and inconsistent approach to derivation of limit values
- Absence of sampling and analysis standards for impurities in the CO2 rich stream
- The process for resuming flow after an out of specification event was unclear
- Mismatch between T&S short compliance intervals and how emitters plants operate
- The desire for high accuracy and fast response isn’t achievable in the same instrument

Users Reflections

- The measurement techniques and standards are still immature
- Many instrument vendors offered solutions that didn’t actual meet the requirements
- Designing a CCS plant, agreeing the ICC contract, code annexes and local requirements all at the same time as added complexity
- meeting a tight composition standard and ensuring metering integrity has added to project capex costs
- Instrument OEMs were still working on what’s possible today
- Knowledge gained in early operation should translate to future refinement of the specification and monitoring requirements reducing risk and operating costs

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