# Control Centre Hydrogen Readiness

Innovation Summit
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WALES&WEST
UTILITIES

# Control Room Systems – Impact Assessment (Future requirements)

- Summary
- Background
- Purpose of the project
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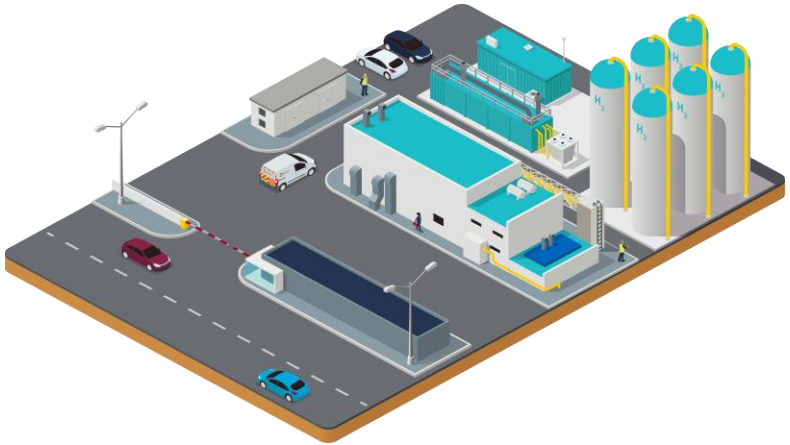

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# Summary

## Project summary

**FUNDING LICENCEE(S):**

- National Grid - Gas Transmission (GB wide)
- NGN - North East

**FUNDING MECHANISM:**

- NIA_RIIO-2

**TECHNOLOGY:**

- Control Systems

**EXPENDITURE:**

£311,737

# Overview of System Ops in WWU

## 24/7

Managing demand and supply
Operate the network
Maintenance & Site Liaison
Interface with NTS and customers
Manage alarms and faults
Manage real time gas quality
Incident management
Manage settlement data

## Longer term

Support + configure control room systems
Review and approve maintenance impacting the control room
Lead longer term projects for areas impacting the control room
Develop operating strategies e.g. seasonal operating plans
Maintain System Operation policies and procedures
Emergency procedures and annual exercises
Liaise with wider stakeholders – interface between control room and wider WWU
Roll out new processes, procedures and systems
Engagement with strategic / large customers
Represent System Operation / WWU externally
Reporting and analysis
Issue resolution / Incident investigation
Best practice sharing

Consistent across GDN

## Additional Areas - WWU

Elements of Future of Energy
Elements of regulation and commercial
Gas quality
Fiscal Metering
Some connections processes
Network Entry / Exit Agreements
Green gas and flexible generation
Long term demand forecasting
Long term network planning
> 7 bar planning
< 7 bar planning for strategic sites
Capacity management
CNI Site monitoring

May differ across GDN

## Net Zero Future Areas - WWU

Additional roles and new skills to develop and then implement new processes for Blending, 100% Hydrogen and decommissioning
Development of new systems to support process delivery

Net Zero

# Scope

- Processes and systems supporting the following activity areas:

**24/7**

Managing demand and supply
Operate the network
Maintenance & Site Liaison
Interface with NTS and customers
Manage alarms and faults
Manage real time gas quality
Incident management
Manage settlement data

**Longer term**

Support + configure control room systems

# Objectives

- Assess impacts of a range of scenarios on existing processes and functionality
- Assess implications of system changes on resources
- Assess implications of future phases of the project on resources
- Provide recommendation on phase 2 approach
- Ensure we are able to respond to customers' new requirements

# Approach

# Scenarios considered

The following scenarios were considered with a view that we will need to manage multiple scenarios concurrently across our network

| ID | Scenario |
|---|---|
| S0 | 100% Natural Gas and Biomethane |
| S1 | Blended gas up to 5% H2 |
| S2 | Blended gas up to 20% H2 |
| S3 | 100% H2 |
| S4 | Decommission parts of the network |
| S5 | Operate industrial clusters running 100% H2 |

# Project outcomes - Net zero transition impacts

High Impact
Medium Impact
Low Impact

The Control Room faces challenges of sustained change for 10-15 years, the management of multiple scenarios in parallel and simultaneous transition and BAU activities.

| | Near-Term<br>Self sustained clusters and disconnection will continue as per BAU processes. Transition prep work | Mid-Term<br>Reserve off-taker/ DN Entry, 5% & 20% H2 Blending | Long-Term<br>100% H2 and Decommissioning |
|---|---|---|---|
| Process | • No substantive process change is anticipated<br>• System Operations as a Service can be taken up as new revenue opportunity if it fits into the current operating model. | • Working principle change from volume to energy<br>• Major change in CV strategy & calculations<br>• Major change in day-to-day strategy processes<br>• Change in Linepack/storage calculations<br>• Major change in long-term strategy and emergency related processes | • Further changes in strategic processes and network operations owing to supply dynamics of hydrogen<br>• Change to publishing of data to providers<br>• New process to support decommissioning |
| Technology | • Technology evaluation of key existing systems such as Business Applications, Forecaster.<br>• Implementation of the NRO flag functionality in SCADA.<br>• All systems secure to NIS requirements | • Substantial change in Business Apps (BA)<br>• Major quantitative and qual. changes in SCADA<br>• Major data con. and calibration in Forecaster<br>• Need for new, secure system and integration capabilities in the areas of open data and analytics<br>• Support Realtime settlement & online analysis | • Major change to BA, SCADA and Forecaster<br>• System changes to support new supply emergency and long-term strategy |
| People | • Need to prepare control room for multi scenario operation, hydrogen management, new methods, etc.<br>• Effort required to prepare the safety case, templated procedures, processes systems | • Changed toolsets, processes, methods, etc.<br>• More complex work e.g., modelling, forecasting, ecosystem, liaison<br>• Unfamiliar with H2 mgmt., ecosystem, etc.<br>• Increased assurance & supervision required | • Further modified / new toolsets, methods, etc<br>• Changes to Op Model e.g., NRO engineering support, dedicated H2 shift team, etc.<br>• New capabilities e.g. H2 awareness, emergency handling, commercial, etc.<br>• Increased assurance & supervision<br>• Significant ongoing network development |

# Next Steps

- Situational awareness – internal HMI (Human Machine Interface) group questions:
  - What units you will want to see?
  - Assuming we can't historically correct everything, what are the data items that it would be most important to have in both energy and volume?
  - What new dashboards may be useful for managing hydrogen injection sites particularly during blending – noting the interactions between blending sites?
  - When parts of the network are methane, blend, full hydrogen what dashboards, labelling might be useful for OE awareness?
- Tender launched for an external Situational Awareness project
- Consideration of target areas for future phases and areas with remaining unknowns

# Any Questions?