

Control Room of the Future

Developing the digital control room of the future to meet the UK's net zero energy targets.



Our Vision

To develop a digital replica of the future control room that can be rapidly modified to integrate and test different technologies, assets, and processes.



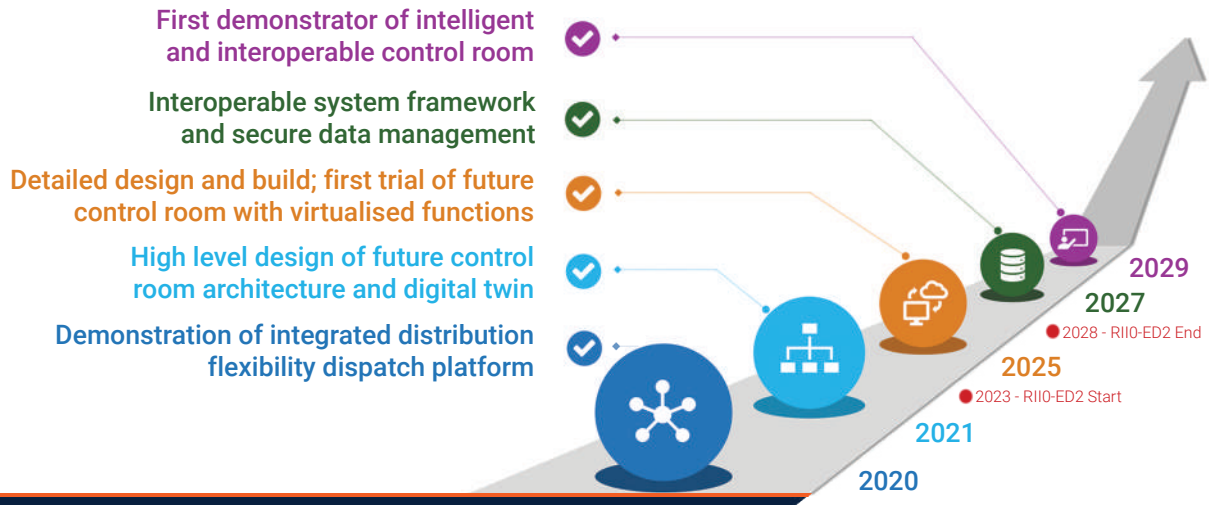
This digital control room will also include data analytics (including machine learning / AI) to help describe, predict and prescribe the behavioural interactions and dynamics of the associated digital assets, systems and processes.

Business Case

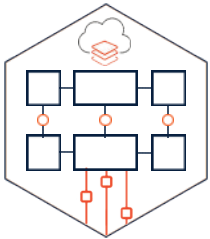
To accommodate the changes that will enable the energy transition, Distribution Network Operators (DNOs) are transitioning to Distribution System Operators (DSOs). In this role they will operate more complex and rapidly changing control room environments containing new interfaces and transactions. DSOs must therefore rapidly start to define control room future requirements and architectures to meet the UK's ambitious net zero targets.

- ✚ Established value of digital replicas in other sectors.
- ✚ Test and drive industry operational efficiencies (e.g. enabling automation and data governance).
- ✚ Improve accuracy of network models (reduce likelihood of operational/planning errors).
- ✚ Integrate transmission & distribution model analysis (maximise integration capacity of renewables).
- ✚ Validate & de-risk future digitised systems (AI/ human interaction, autonomy within local energy systems, avoid/postpone reinforcements).

Control Room of the Future Timeline of Key Outcomes



Why PNDC? ↓



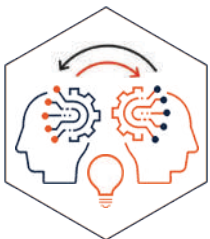
Leveraging existing infrastructure

Specifically this includes the existing control room within PNDC, the 11kV and 400V network infrastructure that's interfaced to our existing control room (including the power hardware in the loop interfaces), the communication test bed (that will be vital for future control room applications), and the fast data acquisition measurement equipment already deployed on the PNDC network.



Expertise within PNDC and the wider University

To develop a control room simulator to de-risk and test some of the future requirements and solutions that will be implemented in the BaU control room of the future.



The collaboration platform PNDC represents

Our member companies include three of the UK DNOs and several SMEs. As part of our core programme we host regular events to work with our members to collaborate, share ideas and engage with the supply chain. This ongoing dialogue and platform for engagement will be essential to identify the control room of the future requirements, shortlisting market solutions for realising the control room, and building on innovation gaps to develop new solutions.

Key Stakeholders:

