


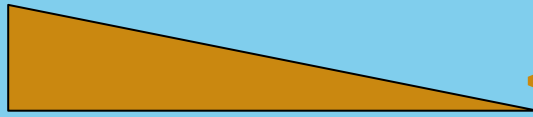
Project CLoCC – Customer Low Cost Connections

Project CLoCC aims to minimise the cost and time of connections to the National Transmission System (NTS), with particular focus on unconventional gas connections

Initial Enquiry → **“Gas On”**
3 Years → **< 1 Year**

A blue rounded rectangle containing the text 'Initial Enquiry' and '3 Years' on the left, and 'Gas On' and '< 1 Year' on the right. A black arrow points from the left text to the right text. A brown triangle is positioned below the arrow, tapering from left to right to represent the reduction in time.

Cost →
£2M → **< £1M**

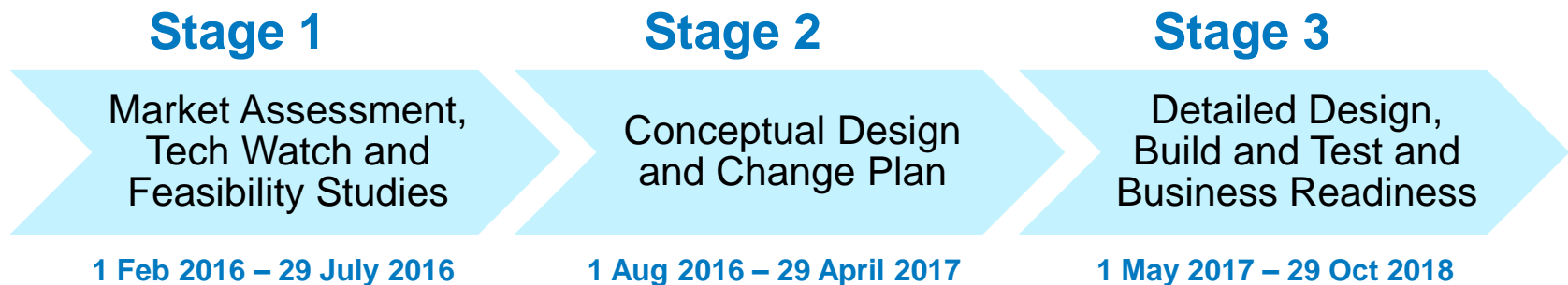
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Web-based connections portal



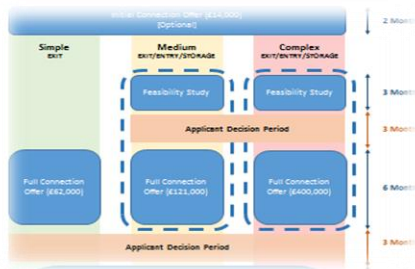
Project CLoCC – Funding

- £4.8m funding awarded for the project by Ofgem via the 2015 Network Innovation Competition (NIC)
- £500K contribution made by National Grid
- Three project stages, currently in Stage 1

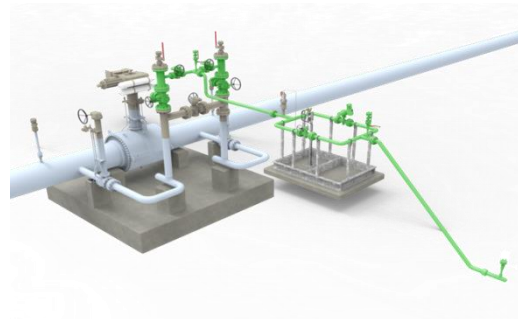


Project CLoCC – Customer Low Cost Connections

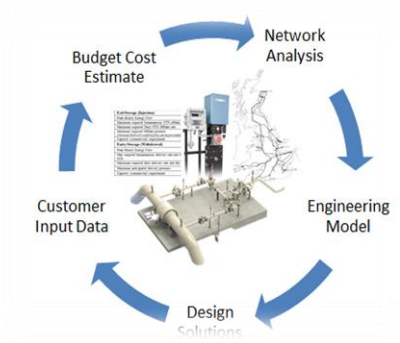
The project has three main work streams:



Optimised Commercial Processes



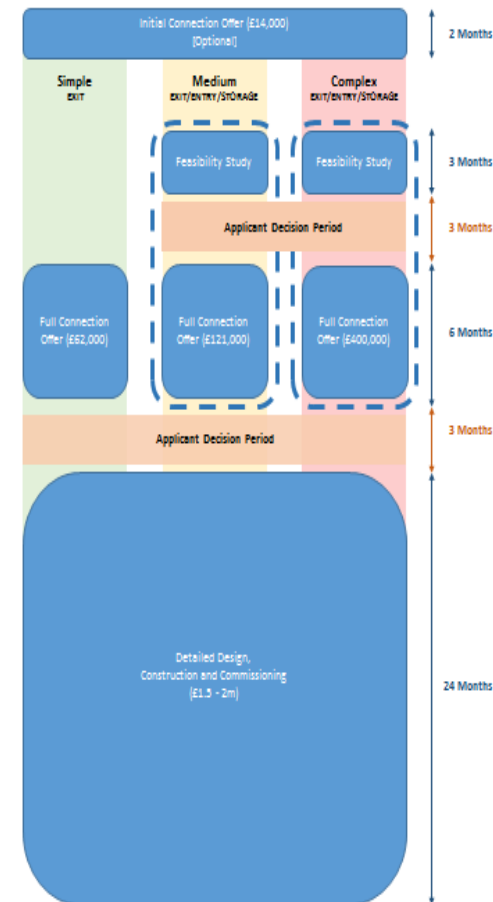
Innovative Connection Solutions



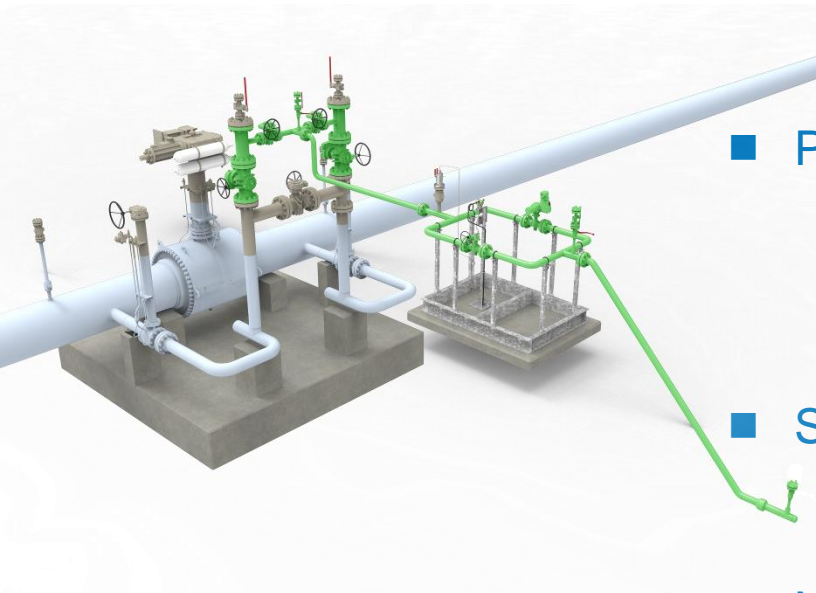
Web-based Connections Platform

Optimised Commercial Processes

- Ensure legal and contractual framework and policies:
 - Support delivery of new technical solution
 - Support new customer online portal
- Challenge the “as-is”:
 - Develop commercial options appropriate for unconventional gas customers
- New processes:
 - Developed and deployed sensitive to customers’ needs
- Commercial arrangements:
 - Potential to challenge industry standards where appropriate



Innovative Technical Solutions



- Deliver:
 - Transportable, Pre-fabricated, above ground solution

- Assess existing assets:
 - Block valves, conventional hot tap connections, enhanced NTS hub solutions

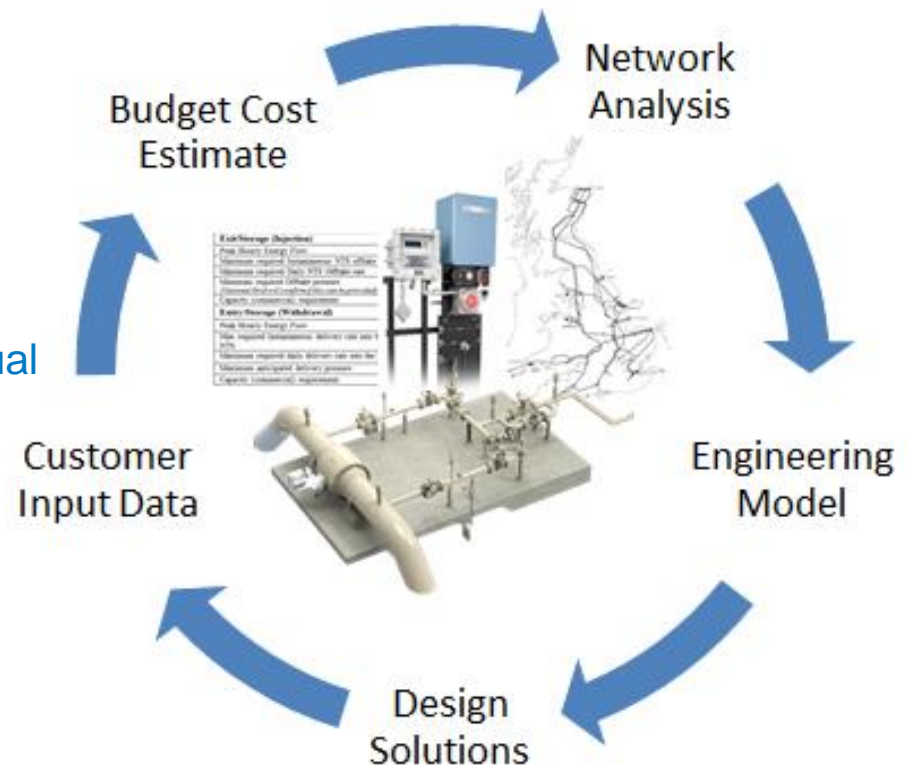
- Plug and Play principle to deploy new technology:
 - Solar powered valve actuation and telemetry, wireless metering, alternative gas quality monitoring equipment

- Solutions build and testing:
 - Industry standards

- New approach for high pressure network:
 - Enabler for time and cost saving to be delivered combined with other work streams

Web-based Connections Platform

- New web-based platform:
 - User friendly interface which will improve the customers' connection experience
- Automate elements of the connections process:
 - Including - feasibility study, conceptual design and network analysis
- Tool will provide:
 - List of viable connection options
 - Customer interface throughout the project lifecycle tracking progress
- Industry wide customer connections tool

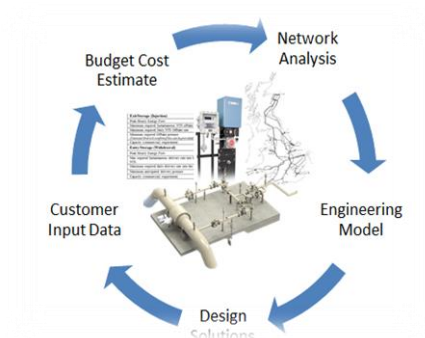


Customer Feedback to date

- Costs:
 - Cost of connection is of prime importance
 - Level of cost outlay to be provided up-front very important as the connection process could be undertaken before all planning permission is received
 - General interest in the concept of leasing the connection
- Time:
 - Welcomed reduction in time to connect, but certainty over timing is key
- Web portal:
 - Wide interest in the functionality of the web portal. Especially the potential to:
 - Simplify connections process
 - Perform 'what-if' type analysis
 - View capacity availability on NTS via 'traffic light' system

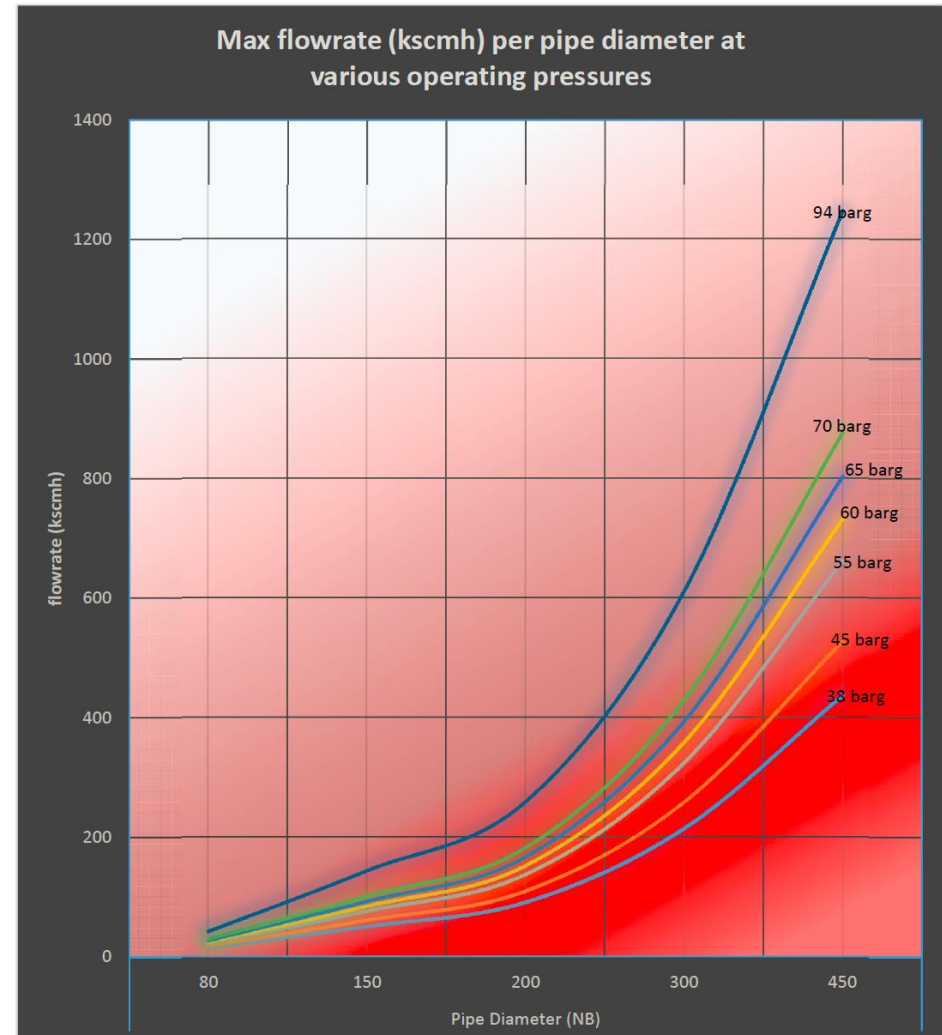


Cost and Time to Connect



Project CLoCC – Potential flow rates?

- Project is considering platforms with connection sizes of between 80mm to 300 mm
- At NTS lowest operating pressure of 38 barg a 80mm connection can accommodate around 14,500 scm/hr (approx. 130,000 th/d or 3.8 GWh/d). This could support:
 - Biomethane sites
 - Up to 50 MW gas engines
- At NTS lowest operating pressure of 38 barg a 300mm connection can accommodate around 230,500 scm/hr (approx. 2 m th/d or 60.8 GWh/d)



Project CLoCC – Project Partners



Provide engineering, consultancy and design management services



Engineering consultancy with experience of engineering projects from feasibility stage through to detailed design and build



Responsible for developing the web based engineering platform

Project CLoCC – Contact Details



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