

Gas Network Innovation Competition Full Submission

Supplementary Answer Form

Project: CLOCC

Tick if this answer has been provided verbally: ☐

Project code	NGGTGN03	Question Number	30
Question date	29/09/2015	Answer date	02/10/2015
Submission section question relates to	Reference: issues to note from second project bilateral		
Topic			
Question	Please can you set out an example of the types of technology that (subject to the technology watch) may be used in the project and their associated benefits?		
Notes on question			
Answer	<p>The Project CLOCC benefits case is equally dependant on reducing both Cost and Time for a customer connection. The duration of a connection project from inception to delivery is an extremely significant contributor to overall project costs. Therefore the project CLOCC concept is to minimise below ground on site construction and move to an above ground offsite production solution for NTS customer connections. The upfront assembly of an above ground skid unit will allow the vast majority of work to be done offsite and we would anticipate being able to undertake the physical site work within days rather than months i.e. a plug and play system. The key benefits of this approach are¹:</p> <ul style="list-style-type: none"> • Shorter build times; minimal requirement for civils work onsite • Improved quality; Controlled build environment with all snagging and testing done offsite. • Reduced environmental impacts; minimising excavations, landtake and risk of pollution. Waste will also be controlled offsite including hydrostatic (pressure) test water. • Less noise and local disruption 		

- Fewer operatives, machines and construction equipment onsite
- Reduced project costs
- Reduced health and safety risks by minimising work on site

Overall though this innovative technique, we would target at least a 50% reduction in the mains works contractor costs, in addition to the other associated benefits described above.

The full benefits of the offsite construction method will only be realised by installing technologies on skid systems that are compatible with the plug and play philosophy i.e. those which reduce time and civils work on site and are compact and transportable.

Specific equipment that we have identified through the initial global tech watch are as follows:

- **Wireless Field Instrumentation / Telemetry:** This technology enables the quick and easy installation of instrumentation, reducing civil infrastructure costs by eliminating the need to install instrumentation and electrical ducting across sites. Examples include the Emerson Smart Wireless and WirelessHART technology range which provide a suite of field instrumentation equipment which can be installed wirelessly, without the need for cabling and associated civil infrastructure and ducting. As a result of its wireless characteristic, this technology also provides the flexibility and scalability to expand or reduce the system to meet customer needs.
- **Solar powered valve actuation:** Paladon's range of solar powered valve actuator systems provide a self-contained actuation (power) solutions which include solar panels and battery backup to meet individual valve actuation requirements even with a period of up to 7 days without sunlight. Renewable power sources for valve actuation eliminates costs in the region of £40k for electrical grid connections and also reduces civil infrastructure costs by around £10k by eliminating the need to install electrical ducting and draw pits across sites.
- **Gas Quality:** The initial global tech watch identified a number of innovative solutions. The Emerson Cascade CT5800 utilises laser technology to detect up to 20 gases and is a compact gas chromatograph which requires no reference or utility gas. This technology provides gas analysis within seconds as opposed to the industry standard 4minutes. The Gas PT from Orbital is a small compact device which can be mounted directly to a sample probe and can be installed and operated quickly and easily, with no additional infrastructure or civil works. The Siemens SITRANS CV gas chromatograph has been specifically designed for natural gas and bio-gas and has been developed to cope with extreme locations such as off-shore platforms where it can be mounted directly on to pipework. Conventional gas analyser (with all ancillary equipment) costs cost up to £250k, whereas for novel solutions identified in the GTW, such as the Gas PT and Cascade 5200, we would anticipate costs in the region of £50k.

	<p>As part of the Project CLoCC full technology watch / best practice review we will be further exploring the following areas identified in the initial GTW and focussing on innovative solutions for the following:</p> <ul style="list-style-type: none"> • Underpressure Connections (Hot Tap) • Flow monitoring / measurement • Gas Quality / Composition Analysis • Other treatments e.g. gas conditioning / clean up and compression. • Hub technologies e.g. solutions supplementary to those listed above that are suitable for centralised processing and connection facilities where a number of gas suppliers utilise a single facility to share the cost of expensive equipment or a connection. <p>The Visual Online Portal will also offer significant savings. Typically, based on an average connection we expect this to realise savings in the region of £150k. Specific areas that will deliver benefits include:</p> <ul style="list-style-type: none"> • Feasibility and connection offer costs: Minimising feasibility design costs through the parametric designs available for the customer to access through the portal at the initial stage and use of generic designs at the detailed design stage. • Network Analysis: Reducing the need for bespoke network analysis for each individual connection. <p>¹Reference: <i>Offsite Production in the UK Construction Industry – prepared by HSE</i>, http://www.buildoffsite.com/content/uploads/2015/04/HSE-off-site_production_june09.pdf</p>
Attachments	