

In-Line Robotic Inspection of High Pressure Installations

ISP Questions and Answers

1. In the proforma, under the value for money for gas consumers (p5), you state that the benefits you have described relate to the NTS but that you would expect to see similar, if not greater, benefits on the gas distribution networks. Can you explain how these benefits will be additional to the benefits expected from the Robotics project, funded through the Gas NIC last year?

The SGN robotics project proposes to develop a tethered robotic system capable of vertically launching into live gas pipes within tiers 2 and 3 with pressures up to 29psi (approx. 2 bar). In their project submission it is stated that high pressure transmission systems are out of scope. The robotic inspection tool we propose developing will be for applications up to 100 bar or approximately 1500 psi. This should also therefore be appropriate for Gas Distribution activities at higher pressure tiers, particularly Above Ground Installations. As a minimum, there are at least 200 offtakes from the National Transmission System where the Distribution Companies would be able to benefit from the use of this tool. The challenges of operating, inserting and retrieving a robotic tool at these higher pressures are distinctly different from the SGN project. In addition our project is seeking to develop a robotic tool that can navigate the complex pipework geometries and configurations within an operational Above Ground Installation, which is not covered within the SGN project.

2. Can you clarify which parts of the method will apply to above ground components and which will apply to below ground components of the AGIs?

The project is wholly focussed on the below ground pipe work of Above Ground Installations, we have other inspection techniques that are able to effectively inspect the above ground infrastructure. On a large entry terminal such as St Fergus, there are many miles of underground pipework that cannot currently be inspected without significant excavation and/or temporary construction works.

It should be noted however that the robotic tool will be able to be used on the above ground pipework, but this is not the driver for the project.

3. Why does this project require additional funding, when the benefits accrued could be used to outperform RIIO-T1 allowances for maintaining transmission assets?

The project is due to complete in November 2019, at which point, if successful we will begin to roll out the technology for inspecting below ground pipework of Above Ground Installations. Realistically this would mean we would only be able to accrue one year's worth of savings against the RIIO-T1 allowances. Therefore the majority of the benefits will be achieved in RIIO-T2 and beyond. In addition the project has a number of technical challenges to overcome, as outlined in the ISP, which mean that this is not a business as usual activity. Hence we believe that additional funding is required to provide an appropriate risk / reward balance between consumers and National Grid Gas Transmission.

In addition the benefits are not solely related to the Gas Transmission network, as stated above we would expect to see significant benefits within the Distribution Companies, which this funding will facilitate.

4. Is the benefit of avoiding venting gas part of any other incentive and how is this captured in the financial calculations of this project?

The release of gas as a result of an asset failure is not covered within any of National Grid Gas Transmission's financial incentives. Currently the Green House Gas incentive only includes gas vented from the compressors on the system and does not include other parts of the system where gas can be vented such as compressor block valves. However even in the case of compressors the incentive is intended to measure the gas vented during normal operations rather than a failure. It should also be noted that although, this incentive is currently being consulted upon, there has been no indication that its scope would be extended to cover uncontrolled gas releases.