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Dear Andy,

Network Innovation Competition ('NIC') consent to spend NIC funding associated with Work Packs 2, 3 and 4 for Cadent's Future Billing Methodology Project ('Project')

Background

The NIC funds a number of large-scale innovation projects and was set up to encourage network companies to innovate in the design, development, and operation of their networks.

Future Billing Methodology was awarded funding as part of the 2016 NIC . The Project is a 'proof of concept' project proposed by Cadent¹ to explore options for a fair and equitable billing methodology for the gas industry which will be fit-for-purpose in a lower-carbon future. The aims of the project are to:

- Help open up the gas network to greater low carbon and other unconventional gas sources, by reducing the need for expensive and carbon intensive processing.
- Recommend a revised billing methodology which will minimise cross-subsidy between consumers where gases of differing qualities are injected into the network.
- Support the roll-out of other low carbon gas innovation projects.

On 16 December 2016 we issued a Project Direction² to Cadent. The Project Direction explains the conditions under which funding is provided. Condition 2 of the Project Direction requires that Cadent must not proceed beyond the initial industry engagement phase of the Project ('Work Pack 1') until it has received consent from us. This is to ensure that evidence gathering stages of the Project are required before committing customers' money to carry out this work.

Condition 2 of the Project Direction required Cadent to provide a report which included the following:

- a) Industry's current views on the desire for change to the current approach.
- b) Industry's current views on:

¹ Cadent were called National Grid Gas Distribution at the beginning of the Project

² https://www.ofgem.gov.uk/system/files/docs/2017/02/fbm_project_direction_-_final_-_signed.pdf

- i) What level of modelling validation is seen as required; and
 - ii) What regulatory (or other) changes are required to support the continuation of the Project beyond Work Pack 1.
- c) Initial Cost Benefit Analysis of the three scenarios (noting that this will be finalised under Work Pack 4) to demonstrate that, following industry engagement, there remains a strong case to proceed with the Project.
- d) Based on a, b, and c, Cadent's assessment of the best way to proceed with this Project.

On 10 August 2017, Cadent submitted a Report to us setting out its industry engagement activities against the requirements above.

Desire to change the current approach

Cadent asked industry whether the use of a Flow Weighted Average ('FWA')³ cap in Lower Distribution Zones ('LDZ') was a barrier to a low carbon gas future and whether the Project would be able to address this issue.

Of the 16 responses received, 13 were supportive, two opposed the proposal and one respondent was neutral.⁴

Some of the representations against changing the regime are set out below.

- The existing FWA methodology (with propane blending of low carbon gas) works in practice, and low carbon gas injection costs could be socialised without removing the FWA cap.
- The FWA cap should be removed without biomethane producers being required to enrich injected gas and any difference in gas quality would be evenly distributed across the network.
- Concerns that a new billing methodology would lead to increased data requirements and increased customer engagement.
- Different options for utilising the network should be explored further such as hydrogen blending and electrification.

Cadent has addressed the issues raised by industry directly with respondents and within its report to Ofgem. We also note that Cadent is engaging with Xoserve to discuss possible options for the implementation of zone based billing to help address the concerns raised about increased data requirements.

Based on the terms of reference and responses, we note that there is a majority of respondents which support:

- the need for change to the billing regime, and
- Cadent's proposed solution through its Project.

Therefore considering the analysis above, we consider that there is sufficient industry appetite for the Project.

³ FWA cap is the mechanism in the LDZ that prevents low carbon gas being injected in to the network without being blended with Propane first.

⁴The 13 supportive responses were from GDNs, Industry Bodies, Producers and technical/academic. The two that were opposed were both suppliers and the neutral response was from a shipper.

Level of modelling validation required

Cadent also asked industry whether respondents agreed that the proposed measurement and validation field trials could provide an understanding of the zones of influence of low carbon gas that is injected into the LDZ.

Of the 16 respondents 13 agreed, two had no comment and one disagreed that the proposed measurement and validation could provide an understanding of zones of influence.⁵

The respondent that disagreed raised concerns that the zones of influence of the gas would be distributed unevenly across the network depending on parameters such as gas mix and demand variations.

We understand that changing variables may affect the ability for Cadent to observe trends in the field measurements. However, as a proof of concept project, these kinds of issues would be addressed in the planning and execution of the field trials. We also note that Cadent views the field trials as essential learning in regards to how gas is distributed across the network. Cadent has had further dialogue with this respondent regarding the concerns raised.

Regulatory (or other) changes required to continue

There was a general agreement between respondents and Cadent that no regulatory changes are required to implement Work Packs 2, 3 and 4. Cadent owns and operates the distribution networks on which the field trials will be conducted, and subject to engagement with Local Authorities, Cadent has relevant powers under the Gas Act 1986 to carry out field trials.

Respondents also noted the relevant regulations that would need to be changed if a new billing methodology were to be implemented.⁶ Cadent agrees that these changes would be required during implementation of the proposed new billing regime and Cadent will outline these as a part of the Project. However as the changes fall outwith Work Packs 2, 3 and 4, these changes will not be explored in detail during the Project. We agree with this response and welcome Cadent's plan to highlight the scope of regulatory changes required as a part of the Project.

Initial Cost Benefit Analysis ('CBA')

Cadent also provided an initial CBA for the Project. The relevant costs and benefits calculated by Cadent are as follows.

- The cost of the NIC Project (i.e. the funding).
- The capital and operating costs of implementing the proposed new billing regime should this be taken forward in future.
- Benefits associated with:
 - Cost saving for low-carbon gas producers that will no longer be required to add propane to their gas mix,
 - Environmental benefit of less carbon intensive gas in the network due to there not being a requirement to blend propane.

⁵ The 13 supportive responses were from GDNs, Industry Bodies, Producers, Shippers, suppliers and technical/academic. The two that were neutral were a Producer and technical body. The one opposition was from an academic body.

⁶ Some of the possible regulatory changes noted by respondents were: Supplier licences, Smart Energy Code, Gas Safety (Management) Regulations, Gas (Calculation of Thermal Energy) Regulations and Uniform Network Code.

These costs and benefits are calculated in respect to the carbon levels predicted in National Grid's Future Energy Scenarios ('FES') Document.⁷ This, combined with other assumed factors allow Cadent to provide a Net Present Value ('NPV') for carrying out the project.

Way Forward

It is Cadent's view that based on industry feedback and the NPV figures given in the CBA that there is still a strong case for the Project with no changes to the Project being required other than continued engagement with relevant parties.

Based on scope of the Project, the industry responses and the results of the CBA, we agree that work should continue to Work Packs 2, 3 and 4.

Decision

Considering the information above, and having regard to the project direction our duties under section 7B(5) (Licences: General) of the Gas Act 1986, we consent to Cadent spending NIC funding associated with Work Packs 2, 3 and 4.

Yours sincerely,



Geoffrey Randall,
Associate Partner, Networks
For and on behalf of the Authority

⁷ <http://www2.nationalgrid.com/uk/industry-information/future-of-energy/future-energy-scenarios/>