Decision

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SGN LTS Futures Project Decision

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The Net Zero Pre-Construction Work and Small Project (NZASP) Re-opener enables the funding of small value, but high impact, Net Zero work by gas distribution and gas transmission network companies. In October 2021, we received an application from Scotland Gas Networks (SGN) for its LTS Futures project which will assess the suitability of local transmission system (LTS) pipes for transporting hydrogen. Following stakeholder consultation, we have decided to fund this project under the NZASP re-opener. Our reasons for this decision are set out in this document.

Contents

1. Introduction

1.1 In October 2021, SGN submitted a re-opener application for its LTS Futures project, in accordance with Special Condition 3.9 (Net Zero Pre-construction and Small Projects Re-opener) of its licence. The project is designed to demonstrate whether the Local Transmission System (LTS) can be repurposed to transport hydrogen. The application requested that we approve this project and provide funding under the Net Zero Pre-construction and Small Project Re-opener (NZASP).

1.2 The NZASP is a re-opener mechanism under the RIIO-2 price controls designed to allow gas distribution and gas transmission network companies to undertake early design, development, general pre-construction work, and net zero facilitation capital projects that will enable the achievement of Net Zero Carbon Targets[1].

1.3 On 5 January 2022 we published our consultation on our minded-to position to approve funding for the project[2]. The consultation closed on 2 February 2022 and we received 15 responses.

1.4 This document sets out our decision to fund the project, and response to stakeholders' feedback. Separately, we are also publishing for consultation our proposed directions to give effect to this decision, in accordance with Part C of Special Condition 3.9 and 6.1. of SGN's and NGGT's licences, respectively. The link to this consultation is in the footnote.[3] Representations on the proposed directions may be made until 24 March 2022. We will then send SGN a final version of the direction containing any revisions, and SGN should indicate in writing that it will comply with the conditions. We'll then publish the final text of the directions.

1.5 All figures are in nominal values except where otherwise stated.

[1] As defined in paragraph 1.1.16 of SGN's licence.
[2] Available at https://www.ofgem.gov.uk/publications/sgn-local-transmission-system-lts-futures-project
[3] https://www.ofgem.gov.uk/publications/proposed-directions-fund-sgns-lts-futures-project

2. Consultation responses and our decisions

General

2.1 We received 15 responses to the consultation, including five from gas transporter companies (GTs), two from local councils, five from engineering and energy-related professional associations, one from an academic, one from a hydrogen producer and one from a contractor, who asked to remain anonymous. We are publishing all of these alongside this decision.

2.2 We have summarised below our consultation positions, and our final decisions on each issue, taking into account the responses that we received.

2.3 Our decision is to approve the following amounts for the project:

	£ (000s)
Total project value	29,935.7
Source of funding	
SGN contribution (10% of total project value)*	2,993.6
NZASP funding	26,942.2
***This is a combination of benefits of kind and private sector contributions.**	

Our Consultation position, summary of the responses and our final decisions

Needs case

Consultation position

2.4 In the Consultation, we agreed with the needs case set out by SGN, noting that the requirements laid out by the Department for Business, Energy & Industrial Strategy (BEIS) and the Health & Safety Executive (HSE) under their hydrogen research programme establish a clear need for research and live trials to be carried out on the LTS. We asked SGN to provide clarity on the list of 31 HSE-defined knowledge gaps that the project would address.

Decision

2.5 Having considered the above responses, we have decided to maintain our consultation position that the project has a strong needs case. All but one of the responses strongly supported the needs case for the project. The remaining response agreed with the principle of the project, but questioned whether more cost-effective options were available, such as testing sections of LTS pipe at a research centre rather than reactivating the full length of pipe.

2.6 We note that the existing plan includes a substantial element of offsite testing, and we think that as much work as possible should be done in this way, but many of the project learnings will require use of the full pipe in situ, in part to fully understand the behaviour of the material but also to assess the impact of environmental factors such as road, river and rail crossings.

2.7 We are satisfied that SGN have provided the necessary information on the HSE knowledge gaps to be addressed by the project. They confirmed that following review with the HSE, the project will be able to fully address 32 evidence gaps rather than 31, and partially address a further 13.

Project plan

Consultation position

2.8 In the Consultation, we considered that SGN's project plan and stakeholder engagement plan were broadly satisfactory but could be strengthened with more detail. We asked SGN to provide a critical path plan and revised stakeholder engagement plan with more clarity on timings and dependencies as part of its response.

Decision

2.9 We are satisfied that the revised plans submitted by SGN in its response met the requirements we set out. Following our review of the other consultation responses, however, we have identified further enhancements we would like them to make to the stakeholder engagement plan.

2.10 Respondents broadly supported SGN's plans, although an Energy Institute member considered that the list of stakeholders could be more diverse and include groups beyond the gas market in the UK. They noted there were no academic

institutions in the stakeholder group and thought the project would benefit from academic support and interaction.

2.11 We agree with these points and think that the diversity of respondents to the consultation has underlined the interest in this project among a wide variety of stakeholders. SGN should consider how to engage with other interested parties, including those who have responded to this consultation, and also whether there would be value in consulting with an academic institution. Following this, we have decided that SGN should submit a revised stakeholder engagement plan to reflect any changes. In our separate consultation on the draft direction, we have set a proposed deadline of 30 June 2022 for this plan.[4]

Project deliverables

Consultation position

2.12 We said that we thought the deliverables proposed by SGN were broadly satisfactory and set out how we expected them to demonstrate successful delivery of them. This included agreement from the HSE that the evidence gaps had been satisfactorily addressed. We proposed that SGN should report to us on their completion at the end of the project, and that in the event of underdelivery we would consider the return of a portion of the funding to consumers.

Decision

2.13 We have decided to accept SGN's proposed list of deliverables, subject to the amendments set out in our separate consultation on the proposed directions to give effect to this decision.[5] In their consultation response, SGN suggested that confirmation on closing the evidence gaps should be amended to the HSE not objecting to the evidence provided, as this would be in line with the normal approach for the HSE. Having considered this, we have changed the associated project deliverable to reflect this, but we expect SGN to work with the HSE to reach agreement on what form the evidence provided to the latter should take.

[4] The consultation can be found here: https://www.ofgem.gov.uk/publications/proposed-directions-fund-sgns-lts-futures-project
[5] The consultation can be found here: https://www.ofgem.gov.uk/publications/proposed-directions-fund-sgns-lts-futures-project

2.14 Most other respondents agreed with our proposals, although a number of queries were raised about the detail of what the project would deliver. A contractor raised several points in relation to the project's technical specifications and deliverables. Their recommendations were to:

i. Test the pipes at higher pressures than 17 barg;

ii. Test impact fatigue that would result from the greater pressure cycling range required for diurnal storage;

iii. Investigate the potential for reinforced thermoplastic pipes to increase capacity levels, through the installation of new pipelines.

iv. Assess the impact of dust on pipes given the higher velocities required for hydrogen.

v. Carry out similar testing at the end of the project as carried out at the start in order to identify the impacts of hydrogen service.

vi. Supply at least one customer as part of the demonstration, and find an enduring use for the new 3" hydrogen supply pipeline that will be laid.

2.15 We have considered the suggested technical changes to the project scope suggested by the contractor, and discussed these with SGN. Our views are as follows:

i. We have previously raised the issue of pressure levels with SGN. SGN confirmed that the current maximum operating pressure of the pipeline is 17.5barg, but the project will conduct full-scale tests at a range of pressures consistent with the operating pressures in the network. If testing is successful in demonstrating the potential for safe uprating of the pipe, SGN will aim to increase the operating pressure accordingly. We are satisfied with this response.

ii. SGN have confirmed that the project will consider the effect of the increased pressure range when transporting hydrogen and the impact of this on pipeline fatigue. This will be done in the laboratory to allow accelerated stress cycles to be undertaken. We accept this response and would also note that it is not part of the scope of this project to answer

wider questions about what role LTS pipes would play in providing system capacity. This is also the case for investigating options for new pipeline materials.

iii. SGN have stated that dust is primarily an issue for the medium pressure part of their network and has little impact on the LTS due to the effectiveness of the filtration systems to remove it. The project will monitor the levels of the dust being removed by the filtration systems to confirm that this will continue to have minimal impact when using hydrogen. We are satisfied with this point.

iv. The supply of hydrogen to customers does not form part of the scope of this project, as it is covered by other projects that are currently either in progress or in development.

2.16 A member of the Energy Institute felt that the deliverables should include elements relating to the sharing of information with the other gas distribution networks (GDNs), to ensure this was done as effectively as possible. They also thought that more than two academic papers should be produced through the project.

2.17 We agree with this. SGN should develop a knowledge sharing plan that sets out when and how they will be sharing the learnings resulting from the project with different stakeholders. They should develop this in tandem with the revised stakeholder engagement plan described in paragraph 2.11 and submit it to us at the same time. As part of the academic engagement mentioned in paragraph 2.10, SGN should consider the content and appropriate number of academic papers to be produced.

2.18 An academic questioned an apparent error in the consultation document stating that the results of the project would be valid for higher grades of steel[6]. They commented that they expected the findings would be applied to lower grades, not higher. We accept that this was an error, though this was on Ofgem's part not SGN's, so no action is required.

[6] SGN LTS Futures Project Consultation, paragraph 2.8

Efficient costs, funding value and funding mechanism

Consultation position

2.19 We said we were satisfied with SGN's assessment of efficient costs for the project and proposed to fund it, with all project costs being socialised across all GB customers. We further proposed that the funding would be recovered by NGGT through their transmission charges, in the same years as the costs were incurred, and passed through to SGN.

Decision

2.20 We have decided to maintain our consultation position and are approving a total of £29.93m. This includes the value of the benefits in kind to be contributed by SGN. All respondents either agreed with, or did not object to, our assessment of costs and our proposal to socialise all of the project costs. There were more mixed views on the timing of this recovery. Two GTs argued that the money should be recovered over a longer period, by adding the costs to SGN's regulated asset value (RAV), as this would spread out the bill impact. Another GT, along with SGN itself, agreed that for this particular project the money should be recovered over the same period as it is spent, accepting our point that the RAV should only include assets with certain and lasting value to consumers.

2.21 As we stated in our consultation document, we think that RAV funding is only appropriate where there is more certainty over the lasting value of assets to the consumers paying for them. While this may increase costs in the short term, the value of this project is not high enough to make a significant impact on consumer bills.

2.22 All four GTs felt that the decision for this project should not necessarily set a precedent for future NZASP submissions. They noted that aspects of hydrogen policy will become more certain over time, and that some of the other projects likely to be brought forward under the NZASP will be larger and more focused on asset spend. They also argued that the funding mechanisms for this, and other re-openers, need more flexibility in order to be able to reflect the characteristics of a variety of projects.

2.23 We note the points raised around the need for flexibility, and the fact that both the nature of NZASP project submissions and the hydrogen policy environment will change over time. This decision is based on the specific characteristics of the project in question and the current state of hydrogen policy. While the issues we have identified will continue to be relevant to future decisions, our decision on LTS Futures does not

necessarily indicate what we will do for other NZASP projects, as each project will be considered based on its own merits and characteristics. We have already noted within our revisions to the NZASP Governance Document[7] that we may consider whether further licence changes are needed to provide additional flexibility in the RIIO-2 regulatory funding mechanisms, and we expect to confirm our position later this year.

Contribution level

Consultation position

2.24 In the Consultation, we proposed that SGN should provide a higher level of cost contribution than the 5.3% of total project costs proposed in their submission. We suggested that this could include benefits in kind, but asked them to reconsider the valuation of two pressure reduction stations (PRSs) that were being contributed by other GDNs.

Decision

2.25 We have decided that our approval of funding for this project is dependent on SGN making a contribution of 10% of the total project costs. This contribution can include benefits in kind. We have accepted SGN's revised valuation of the PRSs at 50% of their replacement cost. Taking these decisions into account, the project funding to be recovered from consumers is £26.94m, in nominal terms. The remaining £2.99m of the total costs will be covered by SGN's contribution, comprising a mixture of benefits in kind and private sector funds.

2.26 We received 8 responses in relation to SGN's level of contribution. Two industry associations agreed with our assessment, while another industry association and all 5 GTs disagreed with it. Respondents raised the following concerns:

i. Network contributions were not flagged as part of the NZASP arrangements at Final Determinations, and therefore should be consulted on before being made part of the mechanism.

[7] Available at https://www.ofgem.gov.uk/publications/net-zero-pre-construction-and-small-net-zero-projects-re-opener

ii. The NZASP forms part of a suite of Net Zero mechanisms for RIIO-2. The other two elements (the Net Zero and re-opener development use-it-or-lose-it allowance, and the Net Zero re-opener) do not involve a compulsory contribution, resulting in an inconsistent approach and an unintended incentive not to use the NZASP.

iii. LTS Futures is not an innovation project, as its specification was determined by the need to provide evidence towards the research framework defined by BEIS to support their future decisions on hydrogen. Therefore the same rules on contributions, as for innovation projects funded under RIIO's innovation schemes should not apply.

iv. The project's primary benefit will be to GB consumers, while network benefits will only arise if a cost-effective hydrogen pathway is established and approved.

v. Classing all LTS Futures costs as innovation results in a double disadvantage to SGN, since it increases both their level of compulsory contribution, and their level of project risk, given that none of it will be subject to cost-sharing through the Totex Incentive Mechanism (TIM).

vi. Ofgem's justification for the contribution rests in part on the current state of policy development, and since this will change over time, any decision on this project should not be taken as setting a precedent for future projects.

2.27 In our RIIO-GD2 Final Determinations, we said that the detailed arrangements for the NZASP would be set out in a future governance document. In line with our statutory duties, we consulted on the revised NZASP Governance Document including the principle of network contributions[8]. That consultation process gave all stakeholders the appropriate notice and sufficient opportunity to provide their feedback on this general principle. In addition, our consultation on the LTS Futures project proposed that SGN should provide a higher level of cost contribution than proposed in their application, and set out our reasons for this. We have therefore consulted on both the general principles

[8] Available at https://www.ofgem.gov.uk/publications/net-zero-pre-construction-and-small-net-zero-projects-re-opener

outlined in the revised Governance Document and the specific proposal for network contributions in this project. Through these consultations, we feel we have given GTs adequate notice and sufficient opportunity to provide their feedback.

2.28 We accept that LTS Futures has certain differences from innovation projects that are being funded through Ofgem's innovation schemes (such as the Strategic Innovation Fund (SIF)[9]). However, there are important similarities. The SIF has been designed to fund strategic projects that will help to deliver the system transformation necessary for net zero, with the focus for these being set in co-ordination with government policy. LTS Futures is similarly designed to help define the pathway for a potential future hydrogen transition, in accordance with the research requirements that have been defined by BEIS and the HSE.

2.29 In addition, a characteristic of innovation projects is that the benefits are potentially significant, but uncertain. This is equally true of LTS Futures, in that while network benefits from the project are not certain, a government decision in favour of hydrogen for heat would lead to very substantial network benefits. We therefore think that in this case, requiring a similar level of contribution to our innovation schemes is appropriate.

2.30 There is also a clear difference between this project, and what projects we would expect to be funded through the Net Zero re-opener (Special Condition 3.6). We recently clarified our expectations of the latter as being "designed to fund a wide range of NZ investments when there is clear change within RIIO-2 on particular areas such as changes in government policy, the successful trial of new technologies or other technological advances, changes in the pace or nature of the uptake of low carbon technologies and new investment arising from the agreement of a Local Area Energy Plan"[10]. We noted that in these cases there would be limited uncertainty around the investment need and network consumer benefit, meaning that there is good reason to

[9] Further information on the SIF can be found in the SIF Governance document, available here: https://www.ofgem.gov.uk/publications/sif-governance-document

[10] See Ofgem Response on Issue 53 of "GD Sector Licences" tab in the Consolidated Issues Logs relating to the Decision on the proposed modifications to the RIIO-2 Transmission, Gas Distribution and Electricity System Operator licence conditions. Available at https://www.ofgem.gov.uk/publications/decision-proposed-modifications-riio-2-transmission-gas-distribution-and-electricity-system-operator-licence-conditions-1-april-2022

apply a different approach on contributions, as well as on other elements of the funding mechanism.

2.31 We agree that the state of policy development will change over time and that this should be taken into account in future decisions around contribution levels. As noted above, our decision on LTS Futures does not necessarily indicate what we will decide for other NZASP projects – each project will be assessed separately, according to its specific characteristics and in line with the criteria we have set out in our Governance Document.

2.32 Since LTS Futures shares many characteristics of an innovation project, we think it is also appropriate that like such projects it is not subject to cost sharing through the TIM. However, we noted in the NZASP Governance document that cost sharing is one of the issues where we may consider if further licence changes are needed, as noted in paragraph 2.23 above.

Inflation adjustments

Consultation position

2.33 We noted that we would work with SGN on restating the project costs in nominal terms, and as part of this would consider whether to include adjustments for Real Price Effects (RPEs).

Decision

2.34 We have decided not include RPE adjustments for the project costs. The implemented approach across the RIIO-2 price controls is that re-openers should not take account of RPEs, and we do not think there is any particular justification to adopt a different method for LTS Futures.

2.35 Three GTs (including SGN) and an industry association argued for the inclusion of RPEs, noting that this would create consistency with the approach used for totex in RIIO-2. They highlighted the volatility of prices following Brexit and the Covid-19 pandemic, and the likelihood that project costs would change at a different rate to the CPIH measure that will be included in the funding.

2.36 We think there are two important points to make in relation to the consistency of RPE treatment between totex and re-openers:

i. Business plan totex forecasts had to be produced 18 – 24 months before the start of RIIO-2, and extended for 5 years beyond that. By contrast, LTS Futures will commence next month, with around 50% of spending occurring in the first year, and only last for a further two years beyond that. The level of forecasting risk is therefore significantly lower, even taking into account recent inflation volatility.

ii. RIIO-2 totex allowances were subject to other adjustments, in particular for ongoing efficiency (OE) assumptions, which do not apply to this project. We do not think it is right to consider RPEs in isolation from these.

2.37 We accept that inflation has increased by more than expected over the past year, but we think that SGN has had sufficient opportunity to take account of this in its cost forecasts. We also do not think it is right to pass all of this price risk on to consumers.

Hydrogen ownership

2.38 In their response, and in recent discussions with us, SGN have noted that their licence may prevent them from owning the hydrogen that will be used in the live trial. They have set out three potential options to address this. We plan to continue working with them on this issue, and they should submit their final proposed option alongside the revised stakeholder engagement plan and knowledge sharing plan. We will then confirm our decision on this.

Next Steps

2.39 Separately to this decision document, we are also publishing for consultation our proposed directions to give effect to this decision, in accordance with Special Condition 3.9.10.[11] Representations on the proposed directions may be made until 24 March 2022. We'll then publish the final text of the directions.

[11] The consultation can be found here: https://www.ofgem.gov.uk/publications/proposed-directions-fund-sgns-lts-futures-project