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Guidance

RIIO-GD2 Investment Decision Pack guidance

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As part of their RIIO-2 Business Plan submissions, gas distribution network (GDN) companies are required to provide Investment Decision Packs which outline the scope, costs and benefits for major projects or aggregated investment programmes. These packs provide both quantitative and qualitative assessments of the proposed investments and provide an insight into the investment decision-making processes and governance undertaken within each GDN. This document sets out what constitutes an Investment Decision Pack and where they should be submitted, as well as outlining key guidance for the Cost Benefit Analysis (CBA) template.

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1. Introduction

The purpose of this guidance note is to:

(i) Explain the concept of Investment Decision Packs and the interaction between the Engineering Justification Paper and Cost Benefit Analysis (CBA) template;

(ii) Ensure that GDNs adopt a common CBA framework to facilitate cross-GDN comparisons of asset investment plans, and

(iii) Employ a framework consistent with latest thinking on how to conduct CBA in a regulated context.

2. What is an Investment Decision Pack?

Ofgem is seeking to improve the visibility and transparency of the GDN investment decision-making process and assess the justification and viability of these investments through an "Investment Decision Pack". An Investment Decision Pack consists of an Engineering Justification Paper and a CBA template. The purpose and scope of each document is summarised below:

> The Engineering Justification Paper set out frameworks for both major engineering projects and network asset health investments. The Engineering Justification Paper outlines the problem that the investment seeks to solve and sets out the different options that have been considered. The purpose of the paper is to communicate the key factors that have influenced the investment decision and provide summary engineering detail on the options considered. The Engineering Justification Paper guidance document sets out two frameworks: one for major engineering projects and another for network asset health investments.
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> The CBA template is applicable to major engineering project and network asset health investments. The template sets out a quantitative assessment of the main options under consideration and demonstrates the value that each of these options would bring. The template also includes qualitative summaries that allow the GDNs to link proposed investments back to their engineering justification and stakeholder engagement. Our assessment will look to all three elements to substantiate viability and justification of investments in RIIO-2.

The principle of the Investment Decision Packs is to provide a lens through which Ofgem can interrogate the investment decision-making processes and internal governance procedures of the network GDNs. Our expectations for which investments we expect to see Investment Decision Packs for in the July draft Business Plan submission are outlined in more detail below. However, Ofgem and the RIIO-2 Challenge Group reserve the right to ask the GDNs to provide an Investment Decision Pack for a specific investment at relatively short notice (i.e. 2-5 working days) after the July draft Business Plan submission. This approach reflects the assumption that all investments included in the draft Business Plan have been through an internal review process and the information to justify the investment is readily available. We will continue to gather feedback on the CBA template and Engineering Justification frameworks through working groups and other stakeholder engagement channels over the coming months and plan to issue updated versions of these documents in September 2019, ahead of Business Plan submissions in December 2019.

Our latest thinking on the CBA framework for RIIO-GD2 is contained within this guidance note.

The frameworks for the Engineering Justification Paper are set out in the *Engineering Justification Paper Frameworks for RIIO-GD2 and RIIO-GT2* document, published alongside this paper on Ofgem's website.

3. When do we expect to see an Investment Decision Pack?

We expect to see Investment Decision Packs for investments that are financially material and/or require significant engineering and/or economic scrutiny by Ofgem because of the risks associated with the investment.

For each GDN, Ofgem will look to review a number of these Investment Decision Packs as part of the Business Plan assessment process. The sample reviewed will include financially material investments, investments where the requirement or costs are subject to a high degree of uncertainty and a random audit sample across a range of investment types.

3.1. Investment Decision Pack groupings

Broadly, across RIIO-GD2, GDNs may choose to carry out CBA at the following levels:

- Asset category/class
- Project level
- Programme of works

For gas distribution, Investment Decision Packs submitted at an asset category/asset class level (eg one GDN-level pack for governor replacement during RIIO-GD2) are likely to be appropriate, given the relatively high volume, low value nature of the investment work at an individual asset level. In particular, where projects within a particular asset category/class are reasonably homogenous in terms of the costs and benefits involved or where sub-dividing workloads would result in the overall costs for each pack becoming relatively immaterial, we would expect these projects to be considered as part of a single Investment Decision Pack.

In some instances, it may be more appropriate for GDNs to submit packs for a specific programme of works within a particular asset category/asset class. For example, where a certain element of an investment programme has unique costs and/or benefits that differentiate it from the rest of the interventions on that asset class (e.g. CISBOT repairs to larger diameter iron mains). We do not intend to prescribe which programmes of works should be subject to a separate pack and will leave this to the judgement of each GDN. However, where packs are submitted for a specific programme of works, we expect the accompanying commentary to outline why the programme of works has been considered separately from the rest of the asset category/asset class.

Where there are any large, standalone investment projects that form part of the business plan, we expect these to be supported by a separate pack in order to provide investment justification and demonstrate value for money.

We also expect to see packs for anticipatory investment to ensure that the uncertainty of the need has been fully considered. This may be at any of the levels outlined above.

3.2. July draft Business Plan submission

The GDNs are due to submit a draft version of their Business Plans to the RIIO-2 Challenge Group in July 2019. As part of this, it is expected that the GDNs will provide Investment Decision Packs for the following investments:

- Tier 1 mains replacement and associated services – this should reflect the representative modelling process that each GDN undertakes to determine average costs and volumes for Tier 1 repex over the RIIO-GD2 period. Ofgem notes that the primary driver of Tier 1 repex is compliance with HSE regulations, not the outcome of the CBA (eg the NPV of the programme).

- Tier 2, Tier 3, iron mains >30m from a building and elective steel <2" in diameter mains replacement and associated services
- Governors
- PRS
- NTS Offtakes
- LTS pipelines
- Any material, standalone investments (either individual projects or programme of works) included within the draft Business Plan that is specific to RIIO-GD2.

Workloads that are driven and majority paid for by third parties do not require justification through CBA, although Ofgem may still seek Engineering Justification Papers for these at a later date to evaluate the engineering option selected and the cost estimates presented.

As mentioned above, Ofgem and/or the RIIO-2 Challenge Group reserve the right to ask for Investment Decision Packs for other areas of notable investment at short notice following the submission of the draft Business Plan.

Given the draft status of the Business Plan submission in July, it may be the case that some investment decisions are potentially subject to change. In this instance, we expect the GDNs to provide clear commentary in the Investment Decision Pack that highlights where an investment is potentially subject to change, what the drivers for change may be and the level of uncertainty around the investment at the time of submission.

4. CBA-specific guidance

4.1. Identification of options

Consistent with the HM Treasury Green Book[1], GDNs should clearly identify the range of options that were considered to meet the stated aim. This list should, where feasible, include an option that requires a minimal initial investment (the "do minimum option") against which other options can be compared. Additionally, the option of delaying investment must be considered as part of the CBA.

The "do minimum option" or "reference scenario" may represent do nothing or business as usual (e.g. ongoing maintenance and repair). This detail is to be completed within the 'Baseline' sheet. For the GDNs, we consider the "baseline" scenario to be that which involves the minimum level of intervention that would be required to remain compliant with HSE safety regulations. The exception to this is for Tier 1 repex and services, where the baseline should be considered as the costs of ongoing maintenance and repair, with the option showing the costs associated with completing the mandatory replacement programme. The baseline should include the costs associated with maintaining the whole population of the asset class captured within the CBA. For example, if the CBA covers all governors, then the maintenance and repair costs for the whole population of governors should be shown. However, if the CBA specifically covers district governors below a certain capacity, then maintenance and repair costs for this subset of the population should be shown.

For each investment, the GDN should clearly explain, in the supporting commentary boxes in the CBA, what assumption has been used and which regulations the minimum level of intervention relates to. There are no direct benefits (i.e. avoided GDN costs) accrued under the baseline scenario and these cells have been blanked out in the CBA template. Societal benefits should be shown as the total costs associated with leakage, probability of fatality and probability of injury (plus any other costs included in the free form options rows). These costs should also be shown in absolute terms in the Options sheet, ensuring the template captures the relative reductions (i.e. incremental societal benefits) associated with each option. The NPV of each of the options identified within the CBA and the baseline will be calculated in absolute terms. The evaluation of each option will then be made on the basis of comparing the incremental improvements in NPV over the baseline.

We have included a section (the 'Full Opt. Considered' sheet) in the CBA template for GDNs to identify and clearly list the options they have considered for each investment decision. This list of options should include those that have been considered and rejected before full costing (in line with the process outlined in the accompanying Engineering Justification Paper), and the short list of those options that have been considered and costed, with a clear rationale for including/excluding them, which is to be summarised (i.e. a few lines or bullets) in the comment box.

Within the 'Baseline' and each 'Option' sheet in the CBA template, there are summary boxes for the Engineering Justification, Stakeholder Support and GDN View. These summary boxes should provide executive summary style overviews that link back to the key points presented in the Engineering Justification Paper and Business Plan. They should provide enough information to outline the key arguments under each category and allow the evaluator to trace back to the relevant section(s) in the supporting documents (i.e. short paragraphs or bullet points summarising the key justification(s) for the proposed investment).

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[1] HM Treasury - The Green Book; https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/685903/The_Green_Book.pdf

4.2. Valuing the costs and benefits of options

The costs and benefits, and workload volumes of the preferred option should correspond to the financial/market values set out in the GDN's Business Plan (where applicable). For example, the expected reduction in any cost of repairs (a financial benefit) arising from an investment should be broadly consistent with the assumptions on repair costs set out in the plan. Similarly, there should be a clear link between the volumes presented in the CBA template, the BPDTs and the NARM BPDT.

For each option, the expenditure should include both the capex and opex spends associated with this option. This allows a clear comparison of capex and opex trade-offs ensures the correct split is applied between capitalised and expensed expenditure in the RAV calculations in the CBA template.

For distribution mains expenditure, the asset class should be defined as the type of main (in terms of material and diameter band) being decommissioned/abandoned, rather than the main being laid/commissioned.

We expect there to be a clear link between the assumptions used in the CBA template and those used in the Gas Distribution Network Asset Risk Metric (NARM) methodology, where applicable. Hence, where there exists a common assumption within the NARM methodology[2] for a value attributed to a specific node or variable, it is expected that this would also be used as the basis for values presented within the CBA. The assumptions used for societal benefits of greenhouse gas emissions and reduced fatality and injury probability are consistent with the NARM methodology. The Network Asset Health framework for the Engineering Justification Paper sets out how GDNs should outline the key assumptions used for probability of failure and consequence of failure justifying an investment. In some cases, there may be an argument for including benefits that are not captured within the NARM methodology. In such instances, the GDNs should clearly outline the assumptions and data sources used to arrive at the estimate of the financial value of the costs included within the CBA template. The template includes a monetised risk memo line for both the baseline and options. GDNs should enter the monetised risk score (as output from their NARM models) into this line. The memo line allows for a comparison between the benefits identified within the CBA and the output of the NARM model for a given intervention option. The NARM memo line does not link into the CBA calculations and is for reference only.

At the current time, the NARM methodology for RIIO-2 is still being finalised. Therefore, this guidance with respect to how NARM assumptions are incorporated into the CBA remains subject to change ahead of the final publication of the Investment Decision Pack guidance document in the autumn of 2019.

The financial costs and benefits must be in 2018/19 prices, exclude real price effects (RPEs) and be net of expected productivity improvements (i.e. consistent with the data set out in the GDN's Business Plan Data Templates (BPDT)). Fixed price assumptions that are based in a different year (i.e. cost of a fatality) have been uprated to 2018/19 prices using the RPI-CPIH[3] index, adjusted to the financial year. This index is consistent with the 'Universal Data' sheet in the RIIO-GD2 Draft Business Plan Data Template. This index uses RPI data to adjust prices up and including 2020/21. Beyond this point, CPIH is used to inflate prices. Note, at

[2] As outlined in Appendices A-F of the Network Output Measures: Health and Risk Reporting Methodology and Framework Consultation; http://www.energynetworks.org/assets/files/news/publications/Consultation%20Responses/Gas%20Distribution%20Networks%20(GDNs)%20NOMS%20Methodology.pdf

the time of publishing (March 2019), complete monthly inflation data for 2018/19 was not available and an estimate has been used in the CBA template. Final inflation data will be circulated to all GDNs once it becomes available.

Where CBA outcomes are marginal, the GDN should run sensitivities on productivity improvements beyond RIIO-GD2.

4.3. Applying the Spackman approach to gas distribution network investment

The Spackman approach involves the following two-step approach[4]:

- Convert capital costs into annual costs using the company's cost of capital.
- Use the Social Time Preference Rate (STPR) of 3.5% *(less than & equal to 30 years)*; 3% *(greater than 30 years)* to discount all costs and benefits[5], except safety where the Health Discount Rate (HDR)[6] of 1.5% *(less than/equal to 30 years)*; 1.2857% *(greater than 30 years)* should be used.

The capital costs should be converted to equivalent annual costs that are recovered through customers' bills. The CBA spreadsheet model assumes 45-year sum of digits' deprecation in line with our RIIO-GD1 regulatory depreciation policies. The annual capital costs should also be calculated over the assumed economic life of the asset.

To convert capital costs into annual cost recovered through customers' bills, we require GDNs to use a pre-tax weighted average cost of capital (WACC) figure (a simple average of the expected WACC across RIIO-2) which is consistent with their own individual Business Plan submissions.

Due to future uncertainties, we have limited the timeframe of the CBA model to 45 years (from the final year of investment during the RIIO-GD2 period). At the current time, we have also assumed depreciation occurs over 45 years, using the sum of digits method, which is consistent with the approach used in RIIO-GD1. However, both the method used and the depreciation period remain subject to change, in line with RIIO Finance policy for RIIO-GD2.

At the current time, we are not designating a specific payback period cut-off for investments in the gas distribution network. We expect GDNs to take into account uncertainty and risk when presenting their Business Plans for RIIO-GD2. This includes the risk of asset stranding, including the option of deferral, and options for whole system solutions, as outlined in our Sector Specific Methodology Consultation document. The Investment Decision Packs include both quantitative and qualitative components, allowing GDNs to provide commentary that clearly outlines their decision making process, including how they assess potential investment risks. We will take these arguments into account when assessing the business case for each investment.

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[4] Joint Regulators Group (4 October 2011) Discounting for CBAs involving private investment but public benefit. para 3.10; https://www.ofcom.org.uk/__data/assets/pdf_file/0029/37856/jrg_statement.pdf
[5] HM Treasury - The Green Book, Annex A6: Discounting, Table 9; https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/685903/The_Green_Book.pdf
[6] HM Treasury - The Green Book, Annex A6: Discounting, Table 10; https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/685903/The_Green_Book.pdf

4.4. Key assumptions and inputs

For the July draft submissions, the weighted average cost of capital (WACC) input should be GDN-specific and consistent with each GDN's assumed average WACC for RIIO-GD2.

The capitalisation rate should be as follows:

- Repex = 100%
- Capex and opex = GDN-specific assumption consistent with each GDNs expected totex spend profile, excluding repex costs, over RIIO-GD2.

The assumptions for both the WACC and the capitalisation rate are subject to future revisions based on any changes to the methodology of the Business Plan Financial Model (BPFM) ahead of the Business Plan submission in December.

4.5. Society benefits and the treatment of non-marketed goods

GDNs should consider societal benefits (i.e. indirect avoided costs) associated with each option. For consistency we have standardised the assumptions and calculations for the valuation of societal benefits and safety benefits. We have entered default parameters in the CBA template for these non-marketed items; where GDNs amend these assumptions full justification should be supplied to support the move from the default parameters. For the benefits associated with preventing fatalities and injuries, we require GDNs to draw on guidance set out in HM Treasury Green Book[7] and the HSE[8].

We have included input lines for societal benefits resulting from reductions in leakage and shrinkage. The calculation of the value of these benefits is consistent with the NARM methodology, based on the volume of avoided emissions.

There may be further non-marketed items where a fixed assumption or calculation methodology has not been provided in the CBA model. GDNs can include these benefits in the rows provided but should clearly set out in the workings section of the model the assumptions and valuation methodology used.

GDNs should also set out within the wider investment appraisal any non-marketed impacts or factors that cannot easily be monetised.

4.6. Decision rule

The purpose of the CBA template is to enable GDNs to demonstrate the proposals included in their Business Plans provide the optimum solution which demonstrates best value for customers.

We do not expect GDNs to use CBAs mechanistically (i.e. including all schemes with positive NPV and excluding all those with negative NPV). Where a scheme has a marginally positive or negative NPV the GDNs should consider the inclusion/exclusion of such a scheme drawing on sensitivity analysis and the identification of any non-monetised benefits or costs. As an example, such non-monetised costs/benefits might include:

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[7] HM Treasury - The Green Book; https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/685903/The_Green_Book.pdf

[8] http://www.hse.gov.uk/economics/eauappraisal.htm

a. (Non-monetised) engineering judgement on what constitutes an efficient project, as detailed in the required Engineering Justification Paper
b. Evidence of stakeholder support for one option over another (i.e. providing connectivity to vulnerable customers).

We expect GDNs to clearly set out such judgements as part of their Investment Decision Pack, and have, accordingly, provided a section for a brief synopsis for both engineering justification and stakeholder support within the CBA template.

It is the overall position determined across the following three distinct elements which will determine and substantiate the most appropriate solution:

1. Engineering Justification Paper
2. Stakeholder Engagement and Support
3. The quantitative analysis (i.e. CBA).

The Investment Decision Pack will be assessed in its entirety by Ofgem to inform the viability and justification of any proposed investments within the GDN's well-justified Business Plan. Ofgem also intends to utilise this evidence as part of the ongoing monitoring and assessment of delivery throughout the price control period. Where there has been material divergence in the cost, timing and/or nature of the solution from that which was assessed and funded through the Business Plan process, we expect these changes to be subject to the same rigor and assessment that the original proposal was subjected to. We would expect an updated Investment Decision Pack, with the baseline being the original solution, to be available to Ofgem upon request.

4.7. Uncertainty and sensitivity analysis

We expect GDNs to undertake sensitivity analysis consistent with the HM Treasury Green Book guidance[9].

- *"Sensitivity analysis is fundamental to appraisal. It is used to test the vulnerability of options to unavoidable future uncertainties. Spurious accuracy should be avoided, and it is essential to consider how conclusions may alter, given the likely range of values that key variables may take. Therefore, the need for sensitivity analysis should always be considered, and, in practice, dispensed with only in exceptional cases.*

- *The calculation of switching values shows by how much a variable would have to fall (if it is a benefit) or rise (if it is a cost) to make it not worth undertaking an option. This should be considered a crucial input into the decision as to whether a proposal should proceed. It therefore needs to be a prominent part of an appraisal."*

We expect GDNs to consider sensitivity analysis with respect to key parameters, for example:

- Asset performance / health deterioration rates
- Ongoing efficiency assumptions
- Future demand growth
- Future scenarios
- Future utilisation of assets

[9] HM Treasury - The Green Book; https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/685903/The_Green_Book.pdf

In addition, included within the CBA template and Engineering Justification Paper are sections for capturing risks associated with the chosen option. These risks should capture any material risk which may impact the cost and/or timing of the chosen investment. The risk impact should be broadly quantified and the likelihood of occurrence estimated, according to the drop-down menu options. The relevant controls and risk mitigation should also be captured within this section.

4.8. Links to Business Plan

GDNs should clearly show the links between their CBA, Engineering Justification Paper, Business Plan and BPDTs. For example, the GDNs should show how the workload and cost reductions underpinning the CBA and proposed asset investment plans feed through into the overall Business Plan proposals. We have included an area within the template for GDNs to reference which BPDT/Regulatory Reporting Pack table the CBA would fall under.