

Guidance

RIIO-GT2 Investment Decision Pack guidance

Publication date: 16/08/2019

Contact: Kiran Turner

Team: Gas Transmission Cost Assessment

Tel: 020 7263 9867

Email: Kiran.Turner@ofgem.gov.uk

As part of their RIIO-2 Business Plan submissions, network companies are required to provide Investment Decision Packs which outline the needs case, 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 NGGT. 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 template.

© Crown copyright 2019

The text of this document may be reproduced (excluding logos) under and in accordance with the terms of the [Open Government Licence](#).

Without prejudice to the generality of the terms of the Open Government Licence the material that is reproduced must be acknowledged as Crown copyright and the document title of this document must be specified in that acknowledgement.

Any enquiries related to the text of this publication should be sent to Ofgem at:
10 South Colonnade, Canary Wharf, London, E14 4PU. Alternatively, please call Ofgem on 0207 901 7000.

This publication is available at www.ofgem.gov.uk. Any enquiries regarding the use and re-use of this information resource should be sent to: psi@nationalarchives.gsi.gov.uk

Contents

1. Introduction	4
2. What is an Investment Decisions Pack?	5
3. When do we expect to see an Investment Decision Pack?	6
3.1 Investment Decision Pack groupings.....	6
4. CBA-specific guidance	7
4.1 Identification of options.....	7
4.2 Valuing the costs and benefits of options.....	7
4.3 Applying the Spackman approach to gas transmission network investment.....	9
4.4 Societal benefits and the treatment of non-marketed goods.....	9
4.5 Uncertainty and sensitivity analysis	10
4.6 Decision Rule.....	11
4.7 Links to Business Plan.....	11

1. Introduction

The purpose of this guidance note is to:

- (i) Explain the concept of Investment Decision Packs (IDPs) and the interaction between the Engineering Justification Paper (EJP) and Cost Benefit Analysis (CBA) template;
- (ii) Ensure that NGGT adopt a common CBA framework to facilitate assessment of asset investment plans, and
- (iii) Employ a framework consistent with latest thinking on how to conduct CBA in a regulated context.

The frameworks for the EJPs are set out separately within the *Engineering Justification Paper Frameworks for RIIO-GD2 and RIIO-GT2* document, published alongside this paper.

2. What is an Investment Decisions Pack (IDP)?

Ofgem is seeking to improve the visibility and transparency of NGGT's investment decision-making process and assess the justification and viability of these investments through an IDP. An IDP consists of an EJP and a CBA template. The purpose and scope of each document is summarised below:

EJP: sets out frameworks for both major engineering projects and ongoing network asset health investments. The EJP 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 EJP guidance document sets out two frameworks: one for major engineering projects and another for network asset health investments.

CBA template: is applicable to both major engineering projects and ongoing 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 main purpose of the CBA is to demonstrate the relative value of the preferred investment option, clearly articulating any assumptions and key economic drivers underpinning the investment decision. The template also includes qualitative summaries that allow NGGT to link proposed investments back to their engineering justification and stakeholder engagement. Our assessment will look to all these elements to substantiate viability and justification of investments in RIIO-2.

The IDP documents are designed to be consistent with the HM Treasury Green Book¹ approach to appraising and evaluating major investment projects. The principle of the IDP is to provide the information necessary to allow Ofgem to understand and interrogate the investment decision-making processes and internal governance procedures of NGGT. Our expectations on which investments we expect to see IDP submissions in support of Business plans are outlined in more detail below. In addition, Ofgem and the RIIO-2 Challenge Group reserve the right to ask the NGGT to provide an IDP for a specific investment at relatively short notice (i.e. 2-5 working days) after the October revised draft Business Plan and December final Business Plan submission deadlines where deemed necessary. This approach reflects the assumption that all investments included in the revised draft and final Business Plan submissions have been through an internal review process and the information to justify the investment is readily available. We plan to issue updated versions of the IDP guidance and CBA template documents in September 2019, ahead of the final Business Plan submissions in December 2019. Given this timeline, our expectation is that the IDP documents we publish in September will be integrated into the final December Business Plan Submission. For the October revised draft Business Plan Submission, we will also accept the EJP guidance and CBA guidance and template published in March 2019 published in May 2019 being used. However, we encourage the use of the latest template where possible.

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

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

Ofgem expects to see IDPs for investments that are financially material and/or require significant scrutiny by Ofgem because of the risks associated with the investment. In practice, this means that the majority of the capex spend should be supported by IDPs. Although it remains at the discretion of NGGT to consider the appropriate level of aggregation for these submissions.

For NGGT, Ofgem will look to review a number of these IDPs 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, including around the future use of the network. In addition a random audit sample across a range of investment types may also be completed to ensure consistency.

3.1. Investment Decision Pack groupings

Broadly, across RIIO-GT2, NGGT may choose to carry out CBA at the following levels:

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

At the asset category/class level it may be useful to group CBA analysis where same/similar characteristics are displayed i.e. Programme of Works. Where projects within expenditure categories are homogenous in terms of the costs and benefits involved, we expect these projects to be considered as part of one IDP. Schemes where costs and benefits are specific to the scheme or project being proposed may require consideration under a separate IDP.

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 NGGT. 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, such as those for compressor emissions, we expect we expect these to be supported by a separate IDP in order to provide investment justification and demonstrate value for money for customers.

4. CBA-specific guidance

4.1. Identification of options

Consistent with the HM Treasury Green Book², NGGT 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). This detail is to be completed within the ‘Baseline’ sheet. For each investment, NGGT 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 costs) accrued under the baseline scenario and these cells have been blanked out in the CBA template. Societal benefits will still be accrued under the baseline scenario and these are taken into account when calculating the baseline NPV. The NPV of each of the options identified within the CBA will be compared against the Baseline NPV, rather than against a zero value.

We have included a section (the ‘Full Opt. Considered’ sheet) in the CBA template for NGGT to identify and clearly list the long list 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 EJP), as well as the short list of those options that have been considered and costed. A clear and unambiguous rationale should be provided for the inclusion / exclusion of each option on the long list and quantified appropriately (in a few lines or bullets) in the comments box provided. For example, reference to relevant legislation which result in the option being discounted or a quantification of specific costs that preclude the option being economically viable.

Within the ‘Baseline’ and each ‘Option’ sheet in the CBA template, there are summary boxes for the Engineering Justification, Stakeholder Support and NGGT View. These summary boxes should provide executive summary style overviews that link back to the key points presented in the EJP 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).

4.2. Valuing the costs and benefits of options

The financial costs and benefits, and workload volumes of the preferred option should correspond to the financial/market values set out in the Business Plan (where applicable). For example, the expected reduction in any cost of repairs (a financial benefit) arising from an investment should be 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 Business Plan Data Templates (BPDTs) and the Network Asset Resilience Measure (NARM) BPDT.

² HM Treasury - The Green Book;
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/685903/The_Green_Book.pdf

We expect there to be a clear link between the assumptions used in the CBA template and those used in the Gas Transmission NARM methodology, where applicable. Hence, where there exists a common assumption within the NARM methodology³ 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 EJP sets out how NGGT 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, NGGT 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.

Where assumptions are common across the suite of CBAs (for example the calculation of constraint costs) NGGT should consider providing a supplementary annex (in MS Excel format) detailing the calculations and valuation methodology used to estimate the financial values input into the CBA model. Where these assumptions are specific to the individual project or programme of works to which the CBA relates, they should be detailed in the workings tab of the CBA model itself.

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 NGGT's 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 CPIH⁴ index, adjusted to the financial year.

Where CBA outcomes are marginal NGGT should run sensitivities on productivity improvements beyond RIIIO-GT2. NGGT must also include replacement costs for assets which may need to be replaced during the 45-year horizon. This should include assumed failure rates of assets and must set out their view and explain their assumptions.

4.3. Applying the Spackman approach to gas transmission network investment

The Spackman approach involves the following two-step approach⁵:

- 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 benefits⁶, except safety where

³ 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](http://www.energynetworks.org/assets/files/news/publications/Consultation%20Responses/Gas%20Distribution%20Networks%20(GDNs)%20NOMS%20Methodology.pdf)

⁴ "CPIH Index 00: ALL ITEMS 2005=100". Available at:
<https://www.ons.gov.uk/economy/inflationandpriceindices/timeseries/l522/mm23>

⁵ 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

⁶ 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

the Health Discount Rate (HDR)⁷ 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 a straight line depreciation in line with our RIIO-GT2 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 NGGT 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.

4.4. Societal benefits and the treatment of non-marketed goods

NGGT 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 NGGT 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 NGGT to draw on guidance set out in HM Treasury Green Book⁸ and the HSE⁹.

Ofgem have provided input lines for societal benefits resulting from direct CO₂, methane¹⁰ and NO_x¹¹ emissions and provided benefit calculations using recognised figures.

There may be further non-marketed items where a fixed assumption or calculation methodology has not been provided in the CBA model. NGGT 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.

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

4.5. Uncertainty and sensitivity analysis

We expect NGGT to undertake sensitivity analysis consistent with the HM Treasury Green Book guidance¹².

⁷ 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

⁸ HM Treasury - The Green Book;
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/685903/The_Green_Book.pdf

⁹ <http://www.hse.gov.uk/economics/eauappraisal.htm>

¹⁰ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/650244/2017_methodology_paper_FINAL_MASTER.pdf

¹¹ Department for Environment, Food & Rural Affairs - Air quality damage cost guidance 2019;
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/770576/air-quality-damage-cost-guidance.pdf

¹² HM Treasury - The Green Book;
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/685903/The_Green_Book.pdf

- *"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 NGGT to consider sensitivity analysis with respect to key parameters for example:

- Asset performance / deterioration rates
- Ongoing efficiency assumptions
- Demand variation
- Energy scenarios
- Asset utilisation

In addition, included within the CBA template and EJP 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.

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-GT2 period). At the current time, we have also assumed depreciation occurs over 45 years, which is consistent with the approach used in RIIO-GT1.

At the current time, we are not designating a specific payback period cut-off for investments in the gas transmission network. We expect NGGT to take into account uncertainty and risk when presenting their Business Plans for RIIO-GT2. 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 Decision document. The Investment Decision Pack includes both quantitative and qualitative components, allowing NGGT 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.

4.6. Decision rule

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

We do not expect NGGT 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, NGGT 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:

- a. (Non-monetised) engineering judgement on what constitutes an efficient project, as detailed in the required EJP.
- b. Evidence of stakeholder support for one option over another.

We expect NGGT to clearly set out such judgements as part of their IDP, and have, accordingly, provided a section for a brief synopsis for both EJP 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 & Support
3. The quantitative analysis (i.e. CBA).

The IDP will be assessed in its entirety by Ofgem to inform the viability and justification of any proposed investments within NGGT's well-justified Business Plan. Ofgem also intend 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 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 IDP, with the baseline being the original solution, to be available to Ofgem upon request.

4.7. Links to Business Plan

NGGT should clearly show the links between their CBA, EJP, Business Plan and BPDts. For example, NGGT 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 to reference which BPDt/Regulatory Reporting Pack table the CBA would fall under.