

# Network Output Measures (NOMs) Incentive Methodology

Version 2.0

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# Contents

1	NOMs Incentive Methodology .....	3
1.1	Introduction.....	3
1.2	What are Network Output Measures? .....	3
1.3	How have NOMs been set out in licences? .....	4
1.4	Methodology scope .....	5
1.5	Issues to be resolved later .....	5
1.5.1	Rebasing licence targets.....	5
1.5.2	Use of a materiality threshold (deadband) around target performance .....	7
2	General principles for the NOMs incentive methodology .....	8
3	The NOMs incentive assessment process .....	9
3.1	Background.....	9
3.2	Stage 1: Licensees submit relevant risk changes and impact on performance against targets.....	11
3.3	Stage 2: Licensees submit RIIO-1 performance report .....	12
3.4	Stage 3: Ofgem assess relevant risk changes & review of performance report.....	13
3.5	Stage 4: Ofgem assess delivery against monetised risk target.....	14
3.6	Stage 5: Licensees provide justification of over/under-delivery .....	14
3.7	Stage 6: Ofgem assess justification of over/under-delivery .....	16
3.8	Stage 7: Ofgem determines value of incentive for over/under-delivery..	17
4	Interaction with other licence mechanisms .....	22
5	Timeline for evaluation exercise.....	23
	Appendix 1 - Performance Report – further detail of requirement for each stage of licensees’ submission .....	25
	Appendix 2 – Worked Examples.....	29
	Appendix 3 - Summary of key parameters for cost-benefit analysis submissions	

32

# 1 NOMs Incentive Methodology

## 1.1 Introduction

In October 2010, Ofgem announced a change in the way it regulates the GB onshore network companies and introduced the RIIO (Revenue = Incentives + Innovation + Outputs) framework<sup>1</sup>. The overriding objective of the RIIO framework is to drive real benefits for consumers by providing energy network companies with strong incentives to meet the challenges of delivering a low carbon economy and a sustainable energy sector at a lower cost than would have been the case under the previous RPI-X approach to setting price controls.

RIIO is an outputs-led framework. It is important that throughout the RIIO-1 period the network companies understand what they are expected to deliver, and are held to account for delivery. One of the key areas in this respect are the Network Output Measures<sup>2</sup> (NOMs).

This document sets out the common methodology for implementing close out of the RIIO-1 incentive arrangements relating to NOMs (referred to in this document here onwards as 'the NOMs incentive methodology') for the electricity transmission sector and the gas transmission and distribution~~all the four network~~ sectors. A updated version for the electricity distribution companies will be consulted on separately ahead of the DNOs' RIIO-ED1 performance report submission.

## 1.2 What are Network Output Measures?

NOMs are mechanisms that provide a means to monitor and assess the network management outcomes that network companies deliver. They represent the service delivery resulting from companies' asset interventions, and can be considered as a forward-looking indicator of network performance. -In RIIO-1, these cover specified asset replacement/refurbishment activities; for some sectors, they also cover network capacity related activities. This document focuses on the aspects related to asset management activities only.

We have set out the arrangements related to NOMs in the licences for all gas and electricity networks. As part of this, Licensees have been set delivery targets. -Licensees are obliged to deliver these targets (or an equivalent) taking into account risk trade-offs. Material deviation from these targets is subject to financial adjustments under a NOMs incentive mechanism. -The Licensees are therefore incentivised to deliver the targets, but have the flexibility to amend work programmes and to make appropriate asset management decisions that are both based on the latest information and in the interest of consumers.

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<sup>1</sup> RIIO: A new way to regulate energy networks: Final decision – October 2010  
<http://www.ofgem.gov.uk/Networks/rpix20/ConsultDocs/Documents1/Decision%20doc.pdf>

<sup>2</sup> These are referred to as Network Asset Secondary Deliverables in the Electricity Distribution licences. For the sake of simplicity, we will use the terminology NOMs throughout the document.

### 1.3 How have NOMs been set out in licences?

NOMs policy and its implementation has been in development between Ofgem and the Licensees for a number of years and has evolved and matured during this time. Due to the differing stages of industry practice and timings of the price controls for the network sectors, NOMs has been set out in different ways in the sectoral licences<sup>3</sup>.

- For the Electricity Transmission sector, the licence specifies **Network Replacement Outputs** relating to the position at the end of the price control period. This constitutes a matrix specifying the target number of units, per asset category, that fall within a replacement priority<sup>4</sup> group remaining on the system at the end of the price control, taking account of load-related asset changes by excluding them.
- For the Gas Transmission sector, the licence specifies **Network Replacement Outputs** relating to the position at the end of the price control period. This constitutes a matrix specifying the target number of units, per asset category, that fall within a replacement priority group remaining on the system at the end of the price control.
- For the Gas Distribution sector, the licence specifies **Network Outputs** relating to the position at the end of the price control period with and without interventions. These are specified in a Workbook and are related to achieving a target level of risk mitigation. This change in total risk, or risk delta, is confined to investment in certain asset categories. Mechanisms outside of NOMs will set minimum investment levels for some assets, such as for the gas mains replacement programme.
- ~~For each of the sectors a rebasing exercise has taken place to translate Electricity Distribution sector, the NOMs targets as set out in Final Proposals for each licence specifies **Network Asset Secondary Deliverables** relating to the sectors into a monetised risk target<sup>5</sup> for position at the end of the price control. All period with and without relevant interventions. These are specified in separate Network Asset Workbooks. They were also translated into levels of monetised risk reduction by the Licensees based on their individual methodologies. This change in total risk, or risk delta, is limited to investment in specified asset replacement or refurbishment activity or relevant High Value Projects.~~

~~However, despite the different framing of NOMs in the licences, the common expectation is that all Licensees will be assessed against these a monetised risk target<sup>6</sup> at the end of the price control.~~

<sup>3</sup> The NOMs requirements are defined within the following license conditions for each sector:

- Electricity Distribution (ED): SLC 51 & CRC 5D
- Gas Distribution (GD): SpC 4G & 4H
- Electricity Transmission (ET): SpC 2L & 2M
- Gas Transmission (GT): SpC 7D & 7E

<sup>4</sup> Replacement Priority is the lists of assets, grouped by equipment type and voltage/pressure, that prioritise replacement based on the Asset Health Index and Criticality

<sup>5</sup> Monetised risk is an utility function that creates a 'common currency' across different asset classes so that comparisons can be made using monetary values for asset risk.

<sup>6</sup> Monetised risk is an utility function that creates a 'common currency' across different asset classes so that comparisons can be made using monetary values for asset risk.

The transmission sectors will be assessed against an absolute level of network monetised risk, while the distribution sectors will be assessed against a defined level of monetised risk reduction. For transmission, the NOMs incentive mechanism will reward justified delivery of a lower absolute risk compared to target, and penalise unjustified delivery of a higher absolute risk compared to target. For gas distribution, the NOMs incentive mechanism will remunerate justified over-delivery of risk reduction and penalise unjustified under-delivery of risk reduction.

The NOMs targets are derived from a range of activities. It is recognised that circumstances can change, and to reflect this Licensees can trade off monetised risk between types of intervention and asset categories in order to deliver an equivalent or better outcome to the NOMs target. If the overall outcome results in a material variation from the monetised risk target, it is for Licensees to justify why they have deviated from the target, and how the overall delivery equates to an equivalent or better deal for consumers.

## 1.4 Methodology scope

This document of the NOMs incentive methodology sets out the basis on which Ofgem will consider performance under the NOMs incentive mechanism and quantify any associated incentive adjustments to RIIO-2 revenues<sup>7</sup>. This methodology is limited to the risk reduction through asset replacement and refurbishment interventions. ~~The overall common methodology set out here applies to all the four network sectors. More sector-specific details will be further developed in line with this methodology.~~

## ~~1.5 Issues to be resolved later~~

~~Although this version of the NOMs incentive methodology aims to be as comprehensive as possible, there are a number of elements that remain outstanding and will require revisiting at a later date. We aim to agree on principles around these issues now, so that the methodology can be readily revised in reflection of the development. These issues are discussed below.~~

### ~~1.5.1 Rebasing licence targets~~

~~As explained in section 1.3 earlier, when RIIO-1 price controls were set, NOMs targets were specified in different ways across the sectoral licences. The implementation of this NOMs incentive methodology is based on the expectation of the existence of appropriate monetised risk targets across all sectors by the end of the RIIO1 control period(s). Therefore, the current position of each sector should be noted:~~

- ~~• *Electricity distribution (ED)* had NOMs targets originally translated from the Network Asset Workbook network specific monetised risk reduction targets based on Licensee' individual NOMs methodologies. After the common NOMs methodology for ED sector was approved by Ofgem<sup>8</sup>, the original network specific~~

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<sup>7</sup> The NOMs incentive mechanism will adjust RIIO-2 allowed revenues (as necessary) to account for performance against delivery of NOMs monetised risk targets during the RIIO-1 price control period

<sup>8</sup> ~~<https://www.ofgem.gov.uk/publications-and-updates/decision-dno-common-network-asset-indices-methodology>~~

monetised risk reduction targets have been translated to this common methodology<sup>9</sup> (this exercise is known as “rebasings” their targets).

- *Gas distribution* (GD) has completed the development of a common methodology for assessment of risk, which has been approved by Ofgem<sup>10</sup>. This methodology will be used by Licensees to rebase their price control targets into a network-specific monetised risk reduction measure. GD Licensees have also jointly proposed an approach for Ofgem to review the results of this rebasing exercise to ensure their targets remain equally challenging. They have supplied their individual rebased data as part of the annual reporting cycle in 2017<sup>11</sup>. Currently discussion between Ofgem and GD Licensees is ongoing regarding the assessment of these data. The expectation is that this assessment process will be completed with agreed targets rebased in monetised risks by April 2019<sup>12</sup>.
- *Electricity transmission* (ET) is working on further development of a common methodology for the sector<sup>13</sup>. Once this development concludes, the sector will need to translate its current targets (specified in their licences as replacement priority profiles for individual asset categories) into network-specific monetised risk measures using the common methodology for the sector. The expectation is that the Licensees will submit their rebased targets for approval in early 2019.
- *Gas transmission* (GT) is working on the development of a methodology for the sector. Once the methodology is in place, it will need to translate its current targets (specified in its license as replacement priority profiles) into a network-specific monetised risk measure. The expectation is that this process will be completed by April 2019.

Given that at the time of writing three of the four sectors do not yet have monetised risk targets agreed with Ofgem, there is uncertainty about the practical application of the methodology set out in this document to those sectors. Ofgem will undertake a review of the applicability of this methodology with each of these sectors once their monetised risk targets are finalised, and will subsequently consult on any resultant sector-specific amendments.

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<sup>9</sup> <https://www.ofgem.gov.uk/publications-and-updates/network-asset-secondary-deliverables-rebasing-consultation>

<sup>10</sup> <https://www.ofgem.gov.uk/publications-and-updates/notice-intention-not-reject-modified-gas-distribution-network-output-measures-noms-methodology>

<sup>11</sup> As required by Gas Distribution (GD) SpC 4H.13.

<sup>12</sup> We published the ‘Consultation on the alignment of the Gas Distribution Networks’ (GDNs’) Workbooks to Final Proposal decisions’ on the 27<sup>th</sup> of November 2018. This consultation explains the timeline for completion of the GD rebasing exercise (Link: <https://www.ofgem.gov.uk/publications-and-updates/consultation-alignment-gas-distribution-networks-gdns-workbooks-final-proposal-decisions>).

<sup>13</sup> <https://www.ofgem.gov.uk/publications-and-updates/further-instructions-electricity-transmission-licensees-modifications-their-network-output-measures-methodology>

## 1.6 1.5 Use of a materiality threshold (deadband) around target performance

This methodology specifies that upper and lower materiality thresholds should be used when assessing compliance with the overall network target.

The materiality thresholds will be applied to the different types of target that each network sector has (i.e. absolute or relative), and will be applied at the network level to facilitate monetised risk trading across asset categories/types of intervention. As a consequence, the materiality thresholds will apply to the total target, not to individual asset categories.

If a Licensee's performance falls outside the thresholds, then the quantum under consideration in respect to the application of the NOMs incentive mechanism will be the deviation from the threshold level rather than the deviation from the target level.

The level of the threshold needs to reflect the quality of data and information supporting the Licensees' outputs. We consider that the decision on the level of the materiality threshold should be left open at this stage for all sectors, until we have a better understanding of the degree of robustness of the data that will support Licensees' performance on NOMs outputs.

We will examine the robustness of input data, the range of uncertainty around this data, its dependency on assumptions and the extent to which any numerical value of outputs over the entire RII0-1 period reflects the Licensees' effort to deliver consumer value [following the Licensees' stage 1 and 2 NOMs submissions on 31 July 2021](#). As the relevant factors discussed above are likely to affect individual sectors differently, we do not consider that the materiality threshold has to be uniform across sectors.

[Ofgem will notify each licensee of the materiality threshold that will apply to its delivery by the 16 September 2021, where possible, or by such later date that it considers appropriate, where it has concerns regarding the quality of the Licensees' information.](#)

## 1.6 Calculation of costs associated with over-delivery and under-delivery

[An important part of determining the revenue adjustments associated with over-delivery and under-delivery is assessing the associated levels of costs. The licensees will be required to submit a proposed methodology for the calculation of these costs as part of their stage 1 and 2 submissions. Ofgem will then review this and make a decision on the appropriate methodology for calculation of these costs for the later stages in the process.](#)

## 2 General principles for the NOMs incentive methodology

The proposed common governing principles for the NOMs incentive methodology are:

1. A licensee's asset management decisions should be in the interest of consumers.
2. A licensee should be appropriately incentivised to deliver the agreed NOMs risk target, including:
  - a. A reward when it justifies material over-delivery against agreed targets.
  - b. A penalty when it fails to justify material under-delivery against agreed targets.
3. A licensee should not be constrained to adhere to its initial RIIO-1 business plan, and should have discretion to revise its intervention plan to appropriately reflect most up-to-date information.
4. The assessment of companies' delivery shall be measured with reference to agreed rebased monetised risk targets.

These principles have been reflected in the process that is set out in the next chapter.



## 3 The NOMs incentive assessment process

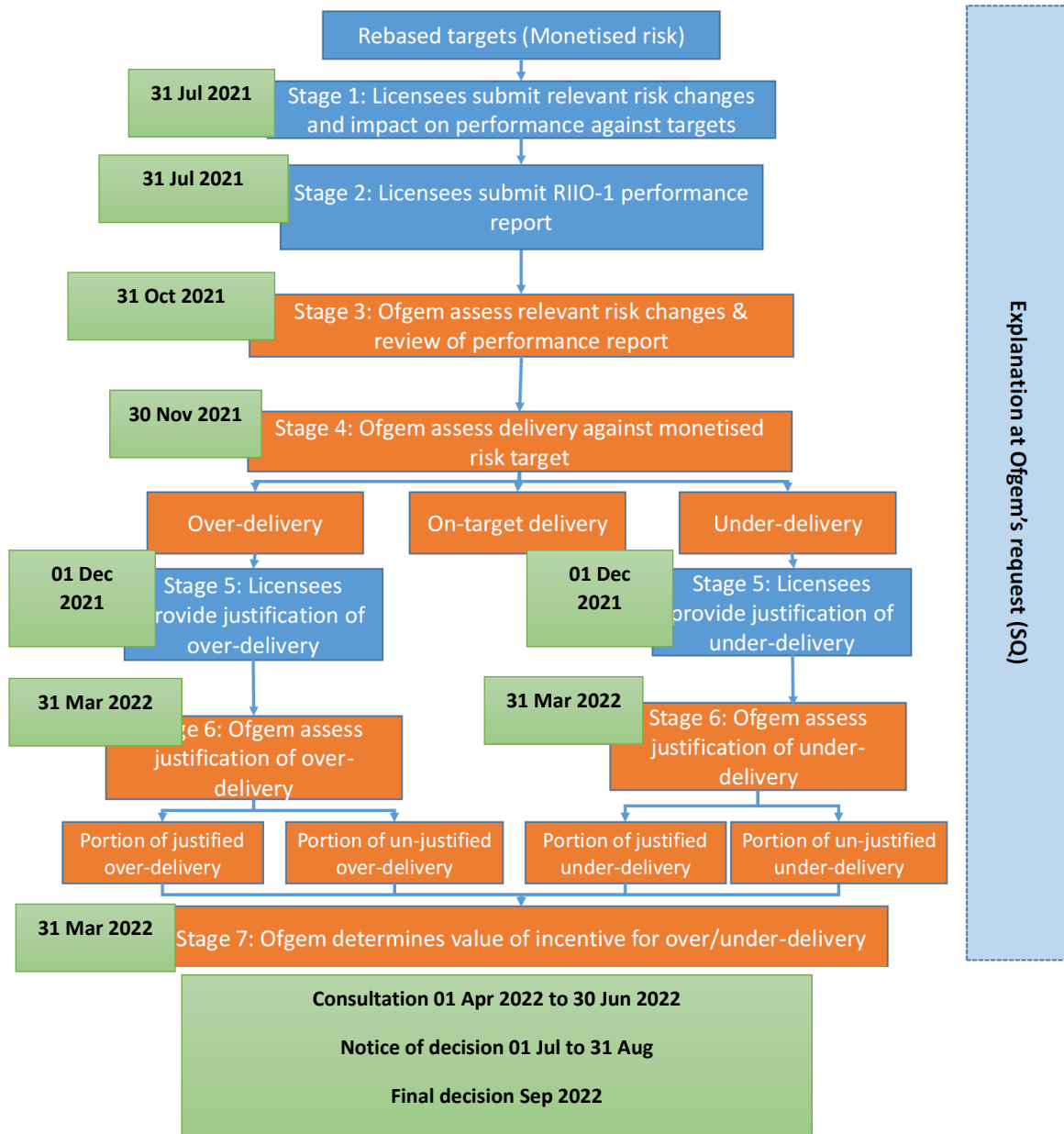
### 3.1 Background

The assessment process for the NOMs incentive follows the same common process across ~~the three~~~~all four~~ sectors. At a high level, it comprises:

- An initial submission by a Licensee by 31 July 2021 including out-turn risk positions, relevant risk changes, and a proposed methodology for determining costs associated with an over-delivery and under-delivery. Cost data and justification is not required as this stage. The narrative should be focused on out-turn performance and an explanation of relevant risk changes including why they have been applied, and how values have been derived.~~A submission by a Licensee indicating its performance against its delivery target and any supporting information~~
- A review of this submission by Ofgem to arrive at agreed positions on the value of over-delivery and under-delivery once relevant risk changes have been appropriately applied and to agree the methodology for calculating associated costs:
  - (a) If Ofgem finds that the Licensee has met the delivery target within the defined materiality threshold (i.e. it is within the deadband), then there is no incentive adjustment and the assessment process terminates.
  - (b) If Ofgem determines that the Licensee has either materially over- or under-delivered against target (i.e. it sits outside the deadband), then ~~it will consider to what extent the~~ assessment process continues~~deviation is justified or unjustified. The incentive adjustment will be calculated accordingly.~~
- A further submission by a Licensee on 01 December 2021 including agreed delivery positions as well as associated cost data. Licensees will provide justification cases for over-delivery and under-delivery
- A review of this submission by Ofgem to determine the proportion of the over-delivery or under-delivery that is justified and the associated cost and incentive adjustments.

Licensees are required to submit the data by completing the RIIO-1 NOMs Closeout Data Template (Appendix 5) in accordance with the RIIO-NOMs Closeout Data Guidance (Appendix 6).

A flow diagram for the process is shown below. The remainder of this document details the practicalities of how each stage should work and how it will result in a valuation of the RIIO-1 NOMs incentive mechanism for each of the Licensees.



Explanation at Ofgem's request (SQ)

*Figure 1: Process flow diagram for the NOMs incentive mechanism*

In respect of all submissions as part this assessment process, Ofgem expects data assurance processes to be followed and is likely to perform checks to ensure that data integrity has not been affected during the reporting process and template formulae are working as expected.

### 3.2 Stage 1: Licensees submit relevant risk changes and impact on performance against targets

The original licence targets were set and quantified on the basis of the asset risk data available at that time and reflected only the expected impact of Licensees' asset intervention. Subsequently, there may be changes to data or other works outside NOMs-related asset intervention that would have impacted the quantitative value of risks<sup>14</sup>.

Relevant risk changes include non-intervention movements in risk value and can be positive or negative with respect to the current and/or forecast levels of asset risk. -In

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<sup>14</sup> Note that these changes to asset risk data are different to those that happen due to the application of relevant sector common methodologies which could lead to different views of risks and would be reflected during the process to rebase risk targets.

addition, relevant risk changes include changes to risk caused by non NOMs-related interventions.

These relevant risk changes may lead to a Licensee altering its work plan. They could impact which NOMs-related interventions are carried out or affect delivery against an absolute or relative target.

The Licensee should submit notice to Ofgem of any such changes the Licensee considers are likely to impact on the nature of the work required to achieve its monetised risk target, along with evidence of how these risk changes have arisen. For non-intervention risk changes we would expect this to include material ~~changes in~~ items such as:

- Data cleansing
- NOMs Methodology changes which have not triggered a rebasing of targets
- Consequence of failure changes
- ~~Differences in asset deterioration risk data (as compared with assumptions in the rebased targets)~~
- ~~Differences in asset degradation profiles (as compared with forecast deterioration underpinning degradation in the rebased targets)~~
- Pre-RIIO-1 work changes where these have not already been addressed through rebasing, and
- Load-related (network growth) asset additions
- Changes covered by other mechanisms.

~~Licensees are required to identify relevant risk changes through annual Regulatory Instructions and Guidance (RIGs) submissions, thereby enabling Ofgem to respond to the data ahead of the end of the price control period.~~

Ofgem will consider the impact of any such changes on the ability of the Licensee to deliver its targets as part of stage 3 and decide whether any adjustments are needed to the Licensee's NOMs performance. Where appropriate, it will also be part of the assessment of justification in stage 6 ~~and the valuation of the over/under delivery in stage 7.~~

Ofgem will give reasonable consideration to other related information or data when considering relevant risk changes, e.g. the use of system operator demand forecasts to support changes to asset criticality assessments.

### 3.3 Stage 2: Licensees submit RIIO-1 performance report

The different licence conditions across the sectors require varying levels of information provision for the NOMs incentive mechanism. However, all sectors have the requirement to submit a performance report by 31 July 2021, at the end of the price control period. The report should cover performance against targets and the impact of relevant risk changes; we ~~would~~ also expect the Licensee to provide a narrative to explain the rationale and justification for the actions it has taken during the RIIO-1 price control. The extent of the narrative ~~In support of its performance, a Licensee may also provide additional analysis in order to demonstrate the benefit of the actions taken by the Licensee. The extent of additional material~~ provided should be proportionate to the magnitude and complexity of changes implemented within the period. The Further

~~information could be provided at later stages, as necessary. Where a Licensee's performance is outside of the threshold levels, the report must also set out the licensee's proposed methodology for calculating the costs associated with over-will inform Ofgem's assessment of delivery and under-delivery including relevant worked examples. justification (see Stage 6).~~

~~Appendix 1 sets out the requirements for the performance report. Licensees may augment these as they see fit.~~

### 3.4 Stage 3: Ofgem assess relevant risk changes & review of performance report

Ofgem will:

- (a) Review any relevant risk changes.
- ~~(b)~~ Review the performance reports.
- ~~(b)~~(c) Review the proposed methodology for assessing costs associated with over-delivery or under-delivery,

Ofgem will engage with the Licensee through the Supplementary Question (SQ) process if there are ambiguities in the information provided or areas where further clarification is required. Where the SQs lead to a revised view of the impact of relevant risk changes or performance, this may result in the Licensee having to make resubmissions under stages 1 & 2. For example, if the outcome of Ofgem's questioning changes a Licensee's view of whether or not it has delivered on target, then it should have the opportunity to present further information to facilitate any subsequent process stages.

At this stage, Ofgem will adjust the Licensee's monetised risk targets to remove Licensee performance to strip out any non-intervention risk changes that were not explicitly identified as being at the Licensee's risk. For example, if data cleansing reduced level of risk, Ofgem would apply an appropriate decrease in the absolute monetised risk target or risk reduction target. Where such adjustments are not being made, non-intervention risk changes will be taken into account in the valuation of over/under-delivery at stage 7. The outcome from this stage should be a dataset that clearly identifies the Licensee's targets, the impact of relevant risk changes, and performance against targets to allow Ofgem to undertake a definitive assessment of the Licensee's delivery performance against its monetised risk target.

At this stage, Ofgem will also make a decision on the Licensee's methodology for assessing costs associated with over-delivery and under-delivery which may include accepting the methodology as proposed, making revisions to the methodology, or asking the Licensee to resubmit a methodology.

Having considered the quality of the submissions and other relevant factors, Ofgem will at this stage:

1. notify each licensee of the materiality threshold that will apply to its delivery by the 16 September 2021, where possible, or by such later date that it considers appropriate,
2. decide whether it is necessary to extend the deadline for Stage 5 submission for any licensees, by issuing a direction under paragraph 7.10.4 of the electricity

[transmission and gas transmission special licence conditions or paragraph 7.6.4 of the gas distribution special licence conditions.](#)

### 3.5 Stage 4: Ofgem assess delivery against monetised risk target

Once Ofgem, through Stage 3, has accepted any necessary resubmissions and made adjustments for non-intervention risk changes, a comparison will be made between the Licensee's performance and the monetised risk target. If the Licensee's performance on a network-wide basis is assessed as being within the thresholds around the target, then Ofgem will conclude that the Licensee has achieved its NOMs target and there will be no NOMs incentive mechanism revenue adjustment.

If the Licensee's performance is outside of the materiality thresholds around the target, then the assessment will proceed to the next stage.

Stage 4 will be a definitive process, basing the assessment of delivery on the performance report supplemented by data submitted through the annual regulatory reporting process and in response to SQs. Where necessary, Ofgem may request licensees to provide supplementary data in an agreed template format.

### 3.6 Stage 5: Licensees provide justification of over/under-delivery

If the Licensee's performance is judged by Ofgem to sit outside a materiality threshold, then it must provide [a further submission its rationale and evidence to Ofgem by 01 December 2021. This will include justify why it is in consumers' interests to do so.](#)

~~If a Licensee considers that it has materially over/under delivered against its target and the agreed delivery position from stages 1 to 4 as well as associated cost data This cost data will be derived in accordance with the methodology agreed during stages 1 to 4. Licensees will also provide justification cases for their over-delivery and/or under-delivery details required under stage 5 are readily available at the time of submitting the performance report, they should provide this as part of the performance report supplied at Stage 2, but they will be given the opportunity to supplement the original submission with further justification once stage 4 is concluded.~~

The extent and nature of the justification and evidence is not prescribed. However, Ofgem expects licensees to justify the delivered level of NOMs compared to the NOMs targets, supported with an appropriate level of detail relating to where the material over/under delivery has occurred, namely:

- Rationale for the high-level strategic asset management decision to materially over/under-deliver including a high-level CBA/lifetime costing, where appropriate, to justify that this is an efficient outcome/delivers better value to consumers;
- Appropriate and proportionate supporting evidence and justification that explains the principal changes that have made up the material over/under-delivery including changes within asset categories, schemes or types of intervention.

Ofgem expects that Licensees would consider the following types of justification:

- Cost Benefit Analysis (CBA) on an intervention lifetime basis including relevant TOTEX changes and benefits as captured by the NOMs methodologies and relevant benefits beyond this;
- Changes driven by other requirements. E.g. HSE repex, ESQCR etc.;
- Qualitative information on type faults, obsolescence, major safety concerns etc.; and
- Ensuring work is carried out in a coordinated/efficient manner.

The above list is not exhaustive, and Licensees may provide other information that they consider justifies their approach. To ensure that CBAs are conducted in a consistent manner, Ofgem has included initial guidance on how key parameters should be treated in Appendix 43. This uses parts of the the RIIO-2 [Investment Decision Pack](#) ED1 CBA guidance<sup>15</sup> that are relevant to this assessment process.

[Further guidance on the Stage 5 submission is set out in Appendix 2.](#)

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<sup>15</sup> <https://www.ofgem.gov.uk/publications-and-updates/riio-2-final-data-templates-and-associated-instructions-and-guidance-RIIO-ED1-CBA-guidance-note-17-Jan-2014>

### 3.7 Stage 6: Ofgem assess justification of over/under-delivery

In the event that the Licensee is assessed as having over/under-delivered, Ofgem will conduct an assessment of the justification. The assessment can be either qualitative and/or quantitative. It will determine the proportion of any over/under-delivery outwith the threshold level that is deemed to be justified or unjustified. The form of the review will depend on the nature and extent of the evidence provided, but one of Ofgem's primary considerations will be the extent to which the Licensee is able to demonstrate that the over or under-delivery was in the interest of consumers.

#### *(a) qualitative assessment*

The qualitative assessment relates to the review of the licensee's narrative justification of its material over/under-delivery including both evidence at a network level and supporting explanation and justification of the principal changes that make up the over/under delivery. The assessment will include whether the work is shown to be equally or more beneficial than the original plan, and whether there are other factors that deliver benefits for consumers (current and future) that drive the differing delivery of NOMs. It will also consider consequential impacts that affect the opportunity to deliver the target performance.

#### *(b) quantitative assessment*

The quantitative assessment will be based on a combination of Ofgem-led analysis of data returns and review of data provided by Licensees as part of the justification.

As part of the qualitative and quantitative assessments of justification Ofgem will determine:

1. Whether the licensee has provided adequate cost-benefit analysis (CBA) or equivalent analysis which justifies that the delivery outcome was a better outcome for consumers than:
  - a) delivering the NOMs target; and
  - b) lower levels of over/under-delivery.

Ofgem will review and test the validity and internal consistency of any CBAs or equivalent analysis.

2. Whether the Licensee has provided appropriate supporting evidence and justification at a more disaggregated level that that explains the principal changes that have made up the material under/over delivery including changes in asset categories, schemes and types of intervention.
3. Whether the Licensee has provided alternative evidence supporting changes in delivery (such as new legislative requirements), where it is not possible to justify these based on CBAs or equivalent analysis.
4. Whether the Licensee has provided evidence that appropriate sense checks have been taken to ensure there is a balance between asset risks at an overall network level and risks that arise at a more disaggregated level such as within a particular asset class.



5. Ofgem will take points 1-4 into account in determining how much of the material over/under-delivery is justified.

It should be noted that Ofgem may determine that only part of an over delivery is unjustified or that only part of an under-delivery is justified. In these cases, the valuation of the relevant incentive will be treated accordingly.

### 3.8 Stage 7: Ofgem determines value of incentive for over/under-delivery

In the event that Ofgem decides that a Licensee has materially over/under-delivered against their NOMs targets and the extent to which the over/under-delivery is justified or not, the Licensee's revenue will be subject to adjustment under the NOMs incentive mechanism.

The sectoral licence conditions specify the intent of how the incentive mechanism will reward or penalise Licensees depending on whether they have over/under-delivered, and whether this is deemed as justified or unjustified. The following graphic outlines the differing outcomes arising from these scenarios for GD, GT and ET:<sup>16</sup>

Incentives	Justified	Unjustified
Material over-delivery	<p>Cost of over-delivery shall be included in the second price control period allowances.</p> <p>The financing cost incurred by the licensee in advancing the investment shall be reimbursed</p> <p>Reward of 2.5 percent of the additional costs associated with the material over-delivery</p>	<p>Cost of over-delivery shall be included in the second price control period allowances</p> <p>The licensee shall incur the financing cost of earlier investment.</p>
Material Under-delivery	<p>Cost of under-delivery shall be excluded from the second price control period allowances</p> <p>The licensee shall benefit from the financing cost of delayed investment</p>	<p>Cost of under-delivery shall be excluded from the second price control period allowances</p> <p>The benefit arising to the licensee from the financing cost of delayed investment shall be clawed back.</p> <p>Penalty of 2.5 percent of the additional costs</p>

<sup>16</sup>The tables here are an outline of the mechanisms in the respective sector licences, but the licence text takes precedence where there are any differences.

		associated with the material under-delivery
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The following table outlines the adjustments for ED (as specified in licence condition CRC 5D).

	Justified	Unjustified
Over-delivery	<p>The cost of that over-delivery will be provided for through the Licensee's revenue allowance for the Next Price Control Period;</p> <p>The Licensee will receive, by means of a positive adjustment of its revenue allowance for the Next Price Control Period, a reward of 2.5 per cent (post tax) of the incremental costs associated with the over-delivery</p> <p>In making any adjustments the Authority will make an adjustment equivalent to the cost of the over-delivery, less any proportion of that cost that has already been provided for via adjustments to revenue included in MOD<sub>t</sub></p>	No adjustment
Under-delivery	No adjustment	<p>The incremental cost of delivering to the Network Asset Secondary Deliverables will not be provided for in the Licensee's revenue allowance for the Next Price Control Period</p> <p>A negative adjustment of 2.5 per cent (post tax) of the avoided costs associated with the under-delivery will be made to the Licensee's revenue allowance for the Next Price Control Period</p> <p>In making any adjustments the Authority will make an adjustment to revenues in the Next Price Control Period to reverse any proportion of revenues included in MOD<sub>t</sub> associated with outperformance of allowances included in Opening Base</p>

		Revenues for the Network Asset Secondary Deliverables
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The incentive revenue adjustment comprises three elements:

1. The **associated costs** of the over/under delivery – to be provided/excluded from RIIO-2 allowance;
2. The **financing costs** of the associated costs of the over/under delivery – where 1 takes place there may be a related adjustment to compensate for the later/earlier timing of the allowances; and
3. A **reward or penalty** of 2.5% of the associated costs of the over/under delivery.

For all licensees, adjustments for justified over-deliveries and unjustified under-deliveries will include elements 1,2 and 3 above. However, adjustments for unjustified over-deliveries and justified under-deliveries ~~for GD, ET and GD licensees~~ will only include element 1. ~~There will be no NOMs incentive adjustments for ED in the event of either unjustified over-delivery/justified under-delivery.~~

When considering the associated costs for justified over/under delivery, Ofgem will undertake the following ~~two-stage~~ process:

- a. all risk reductions delivered through data cleansing or through non-intervention asset health improvement, which have not been stripped out of actual performance at stage 3, will be assigned a zero associated cost, and the risk benefit will be netted off the delivered risk;
- b. if the remaining delivered risk is outside of the threshold range, then:
  - i. The associated cost of over-delivery will be based on Ofgem's view of efficient costs for the over-delivery element. This may be different to allowed efficient costs used when RIIO-1 allowances were set ex-ante, and may be informed by an ex-post efficiency review. Such a review would use similar techniques to those used at the RIIO-1 price control reviews, for each of the sectors including but not limited to assessment of asset unit costs and scheme costs. These costs will be set at values that balance an updated view of efficient costs with maintaining (albeit at a reduced level) efficiency incentives for Licensees.
  - ii. The associated cost of under-delivery will be based on the RIIO-1 allowed efficient costs. Where under-delivery includes activities which were not assessed when setting the RIIO-1 price controls, the associated costs will be determined in line with the over-delivery process as described above.

In the case of a justified over-delivery or unjustified under-delivery, once the associated costs of over/under delivery of NOMs are valued, Ofgem will profile the total across the price control period using the following method:

1. Where the exact timing of specific ~~over-delivery or /under~~ delivery of NOMs can be identified, in line with the actual timing of the expenditure/avoided expenditure; and
2. Where the exact timing cannot be identified, in line with the Licensee's total NOMs-related expenditure profile.

These profiled adjustments will be added to the original NOMs-related capex allowances for the purpose of calculating the amount of revenue adjustment that will be required for RIIO-2. This will consider the revenues that have already been obtained during the RIIO-1 price control using the original allowances and the application of the totex mechanism and compare these against the revenue that would have been obtained had the additional costs of the over/under-delivery had been added/removed.

In the case of a unjustified over-delivery or justified under-delivery for GD, ET or GT it will also be necessary to make an assumption on the timing with which costs will be or would have been incurred in RIIO-2.

A stylised version of how the calculation would work ~~in the ED sector~~ for a range of scenarios is given in Appendix 2 - "Worked Examples" section of this methodology. ~~It is anticipated that a similar exercises would be undertaken by the other sectors once they have gone through the rebasing process.~~

This approach will consider the revenues associated with fast pot money, slow pot money, including depreciation of the RAV and return on the RAV. It will also consider the impact on tax. Note that the valuation for the associated costs of the material over/under delivery of NOMs is independent of any associated totex incentive mechanism amounts arising from over/under spend against allowances. However, as indicated above, the impact on revenues has to consider the interaction with the totex incentive mechanism and other financial calculations such as tax calculations used to determine revenues.

Note that any adjustment of the revenue in RIIO-2 to achieve the intended effect of elements 1 and/or 2 above needs to take into account the operation of the totex incentive mechanism across both price controls to ensure that there is no double-counting of cost adjustments associated with over/under-deliveries. The calculation of such adjustments will either be carried out in the price control financial model (PCFM) or in a separate workbook accompanying the financial handbooks for each sector that ultimately feed into the PCFM.

## 4 Interaction with other licence mechanisms

Price control output requirements and incentive mechanisms may interact with each other. For example, in the RIIO-GD1 control, there are Health and Safety Executive, repex requirements and NOMs incentives all applying to the gas mains replacement programme, so there is potential for interaction between obligations and associated incentives to cause unintended outcomes, for example, doubly rewarding or penalising Licensees. [In the RIIO-T1 price controls there are interactions with load-related work.](#)

Accordingly, if we determine that there are any such interactions (through either our own workings or those of a Licensee/third party), we reserve the right to make correcting adjustments such that the policy intent of the relevant Licence condition and final proposal/determinations is maintained. In particular, we note that a number of licence reopeners have yet to be determined, and the outcome of these may affect the ability or necessity of Licensees to undertake NOMs-related interventions.

## 5 Timeline for evaluation exercise

All sectors' licence conditions require that the stage 1 and stage 2 relevant risk changes and performance reports are submitted by 31st at the end of July 2021. Where following the end of the RIIO-1 price controls. As a consequence, there are justified over-deliveries or underdeliveries, the licensee will then need insufficient time to provide a process the analysis and allow licensees to submit further submission by 1 December 2021 including their agreed delivery position, associated costs, and their justification case to implement the results within the first year of the RIIO-2 price controls.

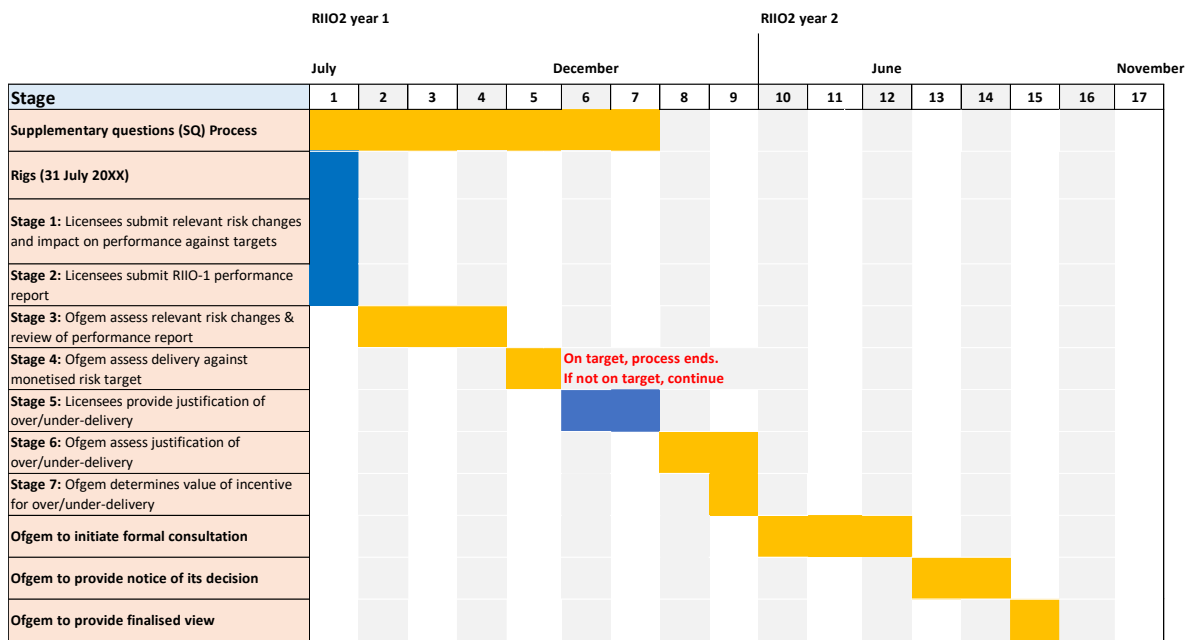
It is therefore proposed that the timeline for the implementation of the NOMs incentive mechanism will feed into the second year's Annual Iteration Process in the RIIO-2 price controls.

The following generic timeline sets out the timings proposed maximum durations for each stage of the RIIO-1 NOMs close out process.

**Timeline – NOMs** stages described in the main text of the methodology. Ofgem and Licensees will work to these, on a reasonable endeavours basis, to facilitate a resolution of **incentive mechanism close out** outcome in time for the second annual iteration process in RIIO-2.

Stage/Task/Milestone	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	
<b>Pre-submission stage</b>																				
Consultation on revision of NOMs Incentive Methodology • including data template, guidance, and narrative templates																				
Dry run on populating data template																				
Decision on revision of NOMs Incentive Methodology					*															
<b>Stages 1-4</b>																				
Agreement of methodologies for deriving associated costs								*												
Stage 1/2 submission (delivery and relevant risk changes)					*															
Ofgem assessment (SQs, bilaterals, etc.)																				
<b>Stage 5-7</b>																				
Stage 5 submission (justification and associated costs)										*										
Ofgem assessment of justification and associated costs																				
Consultation on incentive values (PCFM input values)																				
Financial Handbook (FH) modification development																				
Notice of decision on incentive values including FH mods																	*			
Final decision on incentive value																				*
<b>Parallel/supporting tasks</b>																				
Development of methodologies for deriving associated costs • including allowance allocation																				
Finalise approach for interaction with other mechanisms • ETOs LR/NLR interaction																				
• GDNs interaction with iron mains repex																				
Development of incentive model (PCFM input values)																				

# Timeline - NOMs incentive mechanism process





## Appendix 1 – Stage 1 and 2- Performance Report – further detail of requirements ~~requirement~~ for each ~~stage of licensees’ submission~~

Each licensee is required under their licence obligations to provide a performance report at the end of the RIIO-1 price control. This report ~~must~~should cover off the requirements of stage 1 and stage 2 of the NOMs Incentive Methodology~~incentive methodology~~ as set out in this document. ~~If a Licensee considers that it has materially over/under delivered against its target and the justification details required under stage 5 are readily available at the time of submitting the report, these must also be included.~~ This appendix gives more detail ~~on~~as to the extent and type of information we expect to see in this report ~~in relation to each of these three parts.~~

Paragraph 7.10.3 of Special Condition 7.10 of the electricity transmission and gas transmission licences and paragraph 7.6.3 of Special Condition 7.6 of the gas distribution licences requires the licensee’s performance report to set out why it considers~~it is expected that~~ it has delivered:

- (a) any RIIO-1 Network Output in accordance with the relevant specifications; and
- (b) any RIIO-1 Materially Equivalent Outputs.

Licensees will be considered to have complied with the requirements of these paragraphs of the condition provided the performance report they submit is accurate and adheres to the requirements set out below.

~~The~~the length and detail of the performance report and the quantity of data to support the performance report ~~must~~shall be proportionate to the magnitude of difference between actual delivery and targets.

Licensees are required to submit Stage 1 and Stage 2 data by completing the relevant worksheets of the RIIO-1 NOMs Closeout Data Template (Appendix 5) in accordance with the RIIO-1 NOMs Closeout Data Guidance (Appendix 6).

### Stage 1 - Relevant Risk Changes and Impact on Performance against Targets

The original licence targets were set and quantified on the basis of the asset risk data available at that time and reflected only the expected impact of licensees’ asset intervention. Subsequently, there may be changes to data or processes outside NOMs-related asset intervention that would have impacted the quantitative value of risks

Relevant risk changes relate to non-intervention risk changes subdivided into the following~~three~~ categories:

- Data cleansing
- NOMs Methodology changes which have not triggered a rebasing of targets
- Consequence of failure changes
- Differences in asset deterioration~~risk data~~ (as compared with forecast deterioration underpinning the rebased targets~~assumptions at target setting~~)
- Pre-RIIO-1 work changes where these have not already been addressed through rebasing, and
- Load related (network growth) asset additions

- Changes covered by other mechanisms.
- ~~Differences in asset degradation profiles (as compared with assumptions at target setting)~~

Ofgem will adjust Licensee performance to strip out any non-intervention risk changes that were not explicitly identified as being at the Licensee's risk.

~~Where~~ It is therefore expected that where relevant risk changes have a material impact on the ability of a licensee to deliver its targets, the type of risk change is identified and its impact described.

For example ~~deterioration~~ degradation being higher than expected has different impacts depending on whether the licensee has an absolute or a relative target. For a licensee with an absolute target, higher ~~deterioration~~ degradation will lead to an overall higher network risk, which may not be possible to be addressed within the scope of the NOMs allowances, leading to an under-delivery. However higher ~~deterioration~~ degradation for a licensee with a relative target, means that there are more higher risk assets to address, potentially making it more appropriate for the licensee to carry out risk trading and address more of the asset type with the higher ~~deterioration~~ degradation.

#### Stage 2 - Performance against targets

The licensee ~~must~~ should (where relevant) submit information that includes but is not be limited to:

- (i) a completed template setting out actual NOMs performance;
- (ii) a narrative describing the licensee's overall asset risk performance during RIIO-1, explaining whether the licensee has delivered its target of monetised network risk;
- (iii) a narrative explaining how trade-offs between different asset categories/schemes have impacted the overall asset risk performance;
- (iv) a narrative explaining how trade-offs between different types of intervention have impacted the overall asset risk performance (for example: how the licensee has traded off between asset replacement and refurbishment work);
- (v) a narrative of the specific schemes that have either not been delivered or have been delivered in addition to the original programme to show how they have impacted the overall asset risk performance; and
- (vi) a narrative of activities on other non-NOMs intervention activities (such as Legal and Safety in ED or HSE-driven gas mains replacement in GD) that have impacted the overall asset risk performance.

#### Proposed methodology for calculating costs associated with over- or under-delivery

The licensee must submit a proposed methodology for calculating the costs associated with over or under-delivery. This must include:

- (i) a proposed step-by-step process for calculating the costs associated with over-delivery or under-delivery
- (ii) worked examples demonstrating how this process works.

|

## Appendix 2 - Stage 5 Submission - Justification of over/under-delivery

~~The~~Where available at the time of submitting the performance report, the licensee ~~must~~ provide (where relevant) the following:

- (i) ~~its~~ its agreed performance relative to the monetised risk target
- (ii) ~~the~~ the costs associated with over-delivery or under-delivery using the methodology agreed at stages 1-4
- ~~(i)~~(iii) ~~if~~ if the licensee has under-delivered against the monetised risk target, the licensee ~~must~~ provide a justification of why this was appropriate;
- ~~(ii)~~(iv) ~~if~~ if the licensee has over delivered against the monetised risk target that was agreed at RIIO-1, the licensee ~~must~~ provide a justification of why this was appropriate.

Justification~~This~~ should incorporate:

- an explanation of the drivers of the licensee's interventions and the supporting rationale for those interventions undertaken during the RIIO-1 Price Control;
- Rationale for the high-level strategic asset management decisions to materially over/under-deliver;
- Appropriate and proportionate supporting evidence and justification that explains the principal changes that have made up the material over/under-delivery including changes within asset categories, schemes or types of intervention.

Ofgem expects that the justification would be supported by the following types of data:

- Cost Benefit Analysis (CBA) on an intervention lifetime basis including relevant TOTEX changes and benefits as captured by the NOMs methodologies and relevant benefits beyond this;
- Changes driven by other requirements, e.g. HSE repex, ESQCR etc;
- Qualitative information on type faults, obsolescence, major safety concerns etc; and,
- Evidence that the work was carried out in a coordinated/efficient manner.

Licensees are required to submit Stage 5 data by completing the relevant worksheets of the RIIO-1 NOMs Closeout Data Template (Appendix 5) in accordance with the RIIO-1 NOMs Closeout Data Guidance (Appendix 6).

## Appendix 32 – Worked Examples

The following examples demonstrate how associated costs for over- /under-delivery could be valued for the purposes of the NOMs incentive. In this example, we have used R£ to denote monetised risk, avoiding confusion between monetised risk and the cost of over/under-delivery.

These examples are based on a hypothetical example where ~~aan-ED~~ Licensee has a target to deliver a R£10m risk point reduction and assumes a plus/minus 5% materiality threshold around the target. The following pages show details of how the calculations are set out.

~~In this example, we have used risk points as a proxy for monetised risk to simplify the explanation, avoiding confusion between monetised risk and the cost of over/under-delivery.~~

In the first example, the Licensee delivers a R£12m risk point reduction (a R£2m excess over the R£10m target), at a total cost of £200m. The amount spent is the same as allowed values, so the delivery represents a more efficient £16.7 per R£risk point compared to the allowed £20 per R£risk point. The Ofgem assessment considers that 500k of the excess delivery was unjustified, but the remainder is justified and so the amount above the materiality threshold will attract an incentive payment. The materiality threshold is 5% of 10m (i.e. 500k). The amount attracting the incentive payment is (delivered value above target – unjustified quantity – materiality threshold), which equates to  $(£R2m(2m - 500k - 500k) = 1m$ . This will be rewarded at the lower of the delivered £16.7 per R£risk point (where this is deemed to be an ex-post efficient value) or the allowed £20 per R£risk point. Valuing R£1m extra points at the £16.7 -per R£risk point rate means that the Licensee would be deemed to have merited a notional additional £16.7m in allowances at the start of the control period. This additional amount would be input to the Price Control Financial Model (PCFM), profiled across the RIIO-1 period in line with actual spend, to derive a revenue and Regulatory Asset Value adjustment that would apply to RIIO-2 allowances. The example also shows the calculation of the 2.5% reward in respect of the associated cost of delivery.

In the second example, the Licensee under-delivers against its target by R£2m points. The Ofgem assessment considers that 600k of this under-delivery is justified, but the remainder is unjustified so the amount outside the lower materiality threshold attracts a penalty payment. This amount is (under-delivery – justified quantity – materiality threshold), which equates to  $(2m - 600k - 500k) = 900k$ . This will be penalised at the allowed £20 per R£risk point. Valuing R£900k points at the allowed £20 per R£risk point rate means that the Licensee would be deemed to have a deduction of £18m from its RIIO-1 allowance. Again, this additional amount would be input to the Price Control Financial Model (PCFM), profiled across the RIIO-1 period in line with actual spend, to derive a revenue and regulated asset value adjustment that would apply to RIIO-2 allowances. The example also shows the calculation of the 2.5% penalty in respect of the associated cost of delivery.

<b>OVER-DELIVERY</b>							Select Sector	ED
							Select Model	Over/(Under)-delivery
<i>All financial values are £m unless otherwise stated</i>								
<b>NOMS OVER/UNDER DELIVERY VALUATION</b>								
			Valuation Rate	NOMs Adjustment Value		Reward/Penalty Value		
NOMs Target (Relative Delta)		10,000,000						
Materiality Threshold (%age)		5%						
Materiality Threshold (+/- risk points)		500,000						
							<b>Derivation of Incentive Rates (£/risk point)</b>	
							<i>Over Delivery (based upon incurred costs)</i>	
Delivered Risk Points (as per stage 4)		12,000,000					Total Actual Expenditure	200
Justified over delivery (as per stage 6)		1,000,000					Total Risk Points Delivered	12,000,000
Justified under delivery (as per stage 6)							Incentive rate	16.7
							<i>Under Delivery (based upon allowed costs)</i>	
<b>Unjustified</b> risks points above upper materiality threshold		500,000	-	-	0%	-	Total Allowed Expenditure	200
<b>Justified</b> risks points above upper materiality threshold		1,000,000	16.7	16.7	2.5%	0.4	Total Risk Points Target	10,000,000
Risk points above target but within upper materiality threshold		500,000	-	-	0%	-	Incentive rate	20.0
Risk points below target but within lower materiality threshold		-	-	-	0%	-		
<b>Unjustified</b> Risk points below lower materiality threshold		-	20.0	-	2.5%	-		
<b>Justified</b> Risk points below lower materiality threshold		-	-	-	0%	-		
				Total		16.7		0.4

<b>UNDER-DELIVERY</b>							Select Sector	ED
							Select Model	Over/(Under)-delivery
<i>All financial values are £m unless otherwise stated</i>								
<b>NOMS OVER/UNDER DELIVERY VALUATION</b>								
			Valuation Rate	NOMS Adjustment Value		Reward/ Penalty Value		
NOMs Target (Relative Delta)	10,000,000							
Materiality Threshold (%age)	5%							
Materiality Threshold (+/- risk points)	500,000							
							<b>Derivation of Incentive Rates (£/risk point)</b>	
							<i>Over Delivery (based upon incurred costs)</i>	
Delivered Risk Points (as per stage 4)	8,000,000						Total Actual Expenditure	200
Justified over delivery (as per stage 6)							Total Risk Points Delivered	8,000,000
Justified under delivery (as per stage 6)	600,000						Incentive rate	20.0
							<i>Under Delivery (based upon allowed costs)</i>	
<b>Unjustified</b> risks points above upper materiality threshold	-		-	-	0%	-	Total Allowed Expenditure	200
<b>Justified</b> risks points above upper materiality threshold	-		20.0	-	2.5%	-	Total Risk Points Target	10,000,000
Risk points above target but within upper materiality threshold	-		-	-	0%	-	Incentive rate	20.0
Risk points below target but within lower materiality threshold	(500,000)		-	-	0%	-		
<b>Unjustified</b> Risk points below lower materiality threshold	(900,000)		20.0	(18.0)	2.5%	(0.5)		
<b>Justified</b> Risk points below lower materiality threshold	(600,000)		-	-	0%	-		
				Total		(18.0)		(0.5)

## Appendix 43 - Summary of key parameters for cost-benefit analysis submissions

This guidance is only for the purposes of justifying material over/under-delivery in the NOMs and therefore draws on parts of the RIIO-2~~ED~~ CBA guidance that are relevant in this context.

Ofgem expects Licensees to use CBAs or similar methodologies in most cases as decision-support tools for the wider justification of material over/under delivery. Their use should be proportionate to the level of over/under delivery requiring explanation.

Ofgem would expect the analysis to be at one or more of the following levels:

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

We have included guidance on key aspects to be considered in any such submissions.

### Identification of options

Consistent with the HM Treasury Green Book<sup>17</sup>, Licensees should clearly identify the range of options that were considered to meet the stated aim.

The counterfactual should be based on the target outputs with variations to demonstrate that the Licensee's actual delivery position is appropriate.

### Costs and benefits

The financial costs and benefits should be in the price base used in RIIO-1 licences ~~(e.g. in ED this is 2012/13 prices)~~. Costs and benefits to be considered in the analysis are those that would occur over and above or below the counterfactual. These additional or reduced costs and benefits represent the marginal or incremental costs or benefits of the option being considered.

Ofgem would expect the quantitative analysis to take account of all relevant costs and benefits associated with the NOMs and, where appropriate, relevant benefits beyond this (for example, wider network benefits). It should be well evidenced with explanations supporting any assumptions and clear linkages to relevant RIGs or NOMs reporting tables. The underlying sources of cost information used should transparent, where possible cross-referring to the annual RIGs reporting tables. Benefits should be quantified consistently with the sector NOMs methodologies.

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<sup>17</sup> [HM Treasury - The Green Book](#);

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/685903/The\\_Green\\_Book\\_22\\_0541/green\\_book\\_complete.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/685903/The_Green_Book_22_0541/green_book_complete.pdf)



Licensees should classify all negative impacts of an option as costs and all positive impacts as benefits. The financial costs and benefits should correspond to the view, at the time of the costs and benefits of the interventions in future years.

Licensees should also include additional costs for asset interventions which may need to occur during the assumed lifespan of the main intervention.

## Applying the Spackman approach to network investment

~~The Joint Regulators group (the predecessor of the UKRN) carried out joint work on best practice for carrying out CBAs in a regulated context involving private investment but public benefit. This resulted in the recommendation of the Spackman approach to discounting which was adopted as part of the RIIO-GD1 and RIIO-ED1 price control review CBA guidance.~~

The Spackman approach involves the following two-step approach<sup>18</sup>:

- Convert capital costs into annual costs using the company's RIIO-1 cost of capital (use a pre-tax weighted average cost of capital (WACC)). This gives a stream of financing costs which are used as part of the of the cost side of the cost-benefit analysis.
- 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<sup>19</sup>, except safety where the Health Discount Rate (HDR)~~pure time preference rate (PTRP)~~<sup>20</sup> of 1.5% should be used.

Costs and benefits should be extended to cover the period, from the start of investment, which represents the useful economic lives of the interventions and is consistent with asset life assumptions. Licensees should also set out any non-marketed impacts or factors that cannot be monetised within the wider investment appraisal.

## Uncertainty and sensitivity analysis

We expect Licensees to undertake sensitivity analysis consistent with the HM Treasury Green Book guidance<sup>21</sup>. Appropriate variations around actual delivery should be included in the CBA analysis to demonstrate that the Licensee's actual delivery position is appropriate.

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<sup>18</sup> <https://www.ofgem.gov.uk/sites/default/files/docs/2011/10/discounting-for-cost-benefit-analysis-involving-private-investment-but-public-benefit.pdf>,  
[https://www.ofcom.org.uk/\\_\\_data/assets/pdf\\_file/0029/37856/jrg\\_statement.pdf](https://www.ofcom.org.uk/__data/assets/pdf_file/0029/37856/jrg_statement.pdf)

<sup>19</sup> 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](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/685903/The_Green_Book.pdf)  
Social time preference rate (STPR) of 3.5% to discount all costs and benefits

<sup>20</sup> 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](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/685903/The_Green_Book.pdf)  
[http://orr.gov.uk/\\_\\_data/assets/pdf\\_file/0003/3828/cnsltrep\\_NERA\\_disc\\_rates.pdf](http://orr.gov.uk/__data/assets/pdf_file/0003/3828/cnsltrep_NERA_disc_rates.pdf)

<sup>21</sup> HM Treasury - The Green Book;  
[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/685903/The\\_Green\\_Book.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/685903/The_Green_Book.pdf)  
publications/the-green-book-appraisal-and-evaluation-in-central-government

## Links to RIGs

Licensees should clearly show the links between their CBAs and their RIGs tables. For example, the Licensees should show how the workload and cost reductions underpinning a CBA relate to the data reported in its RIGs tables.

## Appendix 5 – RIIO-1 NOMs Closeout Data Template

Please see separate Excel file published alongside this document:

## Appendix 6 – RIIO-1 NOMs Closeout Data Guidance

Please see separate pdf file published alongside this document:

## Appendix 7 – NOMs Glossary

**Table 1 – NOMs General Definitions**

<u>Term</u>	<u>Definition</u>
<u>Addition</u>	<u>The addition of an asset to the network of load related work, not including additions carried out as part of a replacement or refurbishment activity.</u>
<u>Asset Category</u>	<p><u>The asset grouping that is relevant for NARM reporting purposes for each sector:</u></p> <ul style="list-style-type: none"> <li>• <u>Electricity transmission: seven categories at each of the three voltage levels (132 kV, 275 kV, 400 kV) making 21 asset categories in total</u></li> <li>• <u>Gas transmission: 37 secondary asset categories</u></li> <li>• <u>Gas distribution: 18 secondary asset classes</u></li> </ul>
<u>Asset Family</u>	<u>A subdivision of an Asset Category where differentiation within an Asset Category is required due to differences in deterioration characteristics, expected asset life, or methodological approach to deriving Monetised Risk.</u>
<u>Consequence of Failure (CoF) Change</u>	<u>Any change in the licensee’s views of the CoF based on engineering judgement to account for factors not directly covered by the NOMs Methodology e.g. to account for a type issue identified during the year; application of a CoF modifier parameter, and etc.</u>
<u>Cost-Benefit Analysis</u>	<u>Any analysis that considers, as appropriate, both the tangible costs (for example, the cost of replacement) and intangible costs (for example, costs associated with injury or loss of life) associated with, and benefits delivered by, an investment option or range of options.</u>
<u>Covered by Other Mechanisms</u>	<u>Relevant Risk Changes due to Other Mechanisms in RIIO-1.</u>
<u>Data Cleanse</u>	<p><u>The activity of detecting and correcting missing or inaccurate records where correction results in a change to the Asset Register volumes, condition, or criticality data.</u></p> <p><u>Data Cleanse includes:</u></p> <ul style="list-style-type: none"> <li>• <u>changes in asset volumes due to a measurement, survey or transcription error.</u></li> <li>• <u>changes in previously reported data due to an error or omission in a previously assessed condition score or other NARM input variable.</u></li> <li>• <u>transcription errors.</u></li> <li>• <u>removal of duplicate asset entries.</u></li> </ul>

<u>Term</u>	<u>Definition</u>
	<p><u>Data Cleanse excludes:</u></p> <ul style="list-style-type: none"> <li>• <u>updated asset condition or criticality information as part of a new inspection or survey;</u></li> <li>• <u>faster or slower deterioration of assets than previously assumed;</u></li> <li>• <u>installation of new assets or disposals of assets; or</u></li> <li>• <u>any other change based on new information that was not available at the time the previous assessment was made.</u></li> </ul>
<u>Disposal</u>	<u>See Removal</u>
<u>Electricity Transmission (ET)</u>	<p><u>Transmission Network owners;</u></p> <ul style="list-style-type: none"> <li>• <u>National Grid Electricity Transmission Plc (NGET)</u></li> <li>• <u>Scottish Hydro Electric Transmission Plc (SHET)</u></li> <li>• <u>SP Transmission Ltd (SPT)</u></li> </ul>
<u>Electricity Distribution (ED)</u>	<p><u>Distribution Network owners;</u></p> <ul style="list-style-type: none"> <li>• <u>Electricity North West Ltd</u></li> <li>• <u>Northern Powergrid</u></li> <li>• <u>Scottish and Southern Energy</u></li> <li>• <u>Scottish Power Energy Networks</u></li> <li>• <u>UK Power Networks</u></li> <li>• <u>Western Power Distribution</u></li> </ul>
<u>Gas Distribution (GD)</u>	<p><u>Distribution Network owners;</u></p> <ul style="list-style-type: none"> <li>• <u>Cadent Gas Ltd</u></li> <li>• <u>Northern Gas Networks Ltd (NGN)</u></li> <li>• <u>Scotland &amp; Southern Gas Networks Plc (SGN)</u></li> <li>• <u>Wales and West Utilities Ltd (WWU)</u></li> </ul>
<u>Gas Transmission (GT)</u>	<p><u>Transmission Network owner;</u></p> <ul style="list-style-type: none"> <li>• <u>National Grid Gas plc (NGGT)</u></li> </ul>
<u>Indirect Intervention</u>	<p><u>Any intervention on a network asset, or other infrastructure asset (i.e Asset A), that modifies the probability of failure, or consequence of failure of another network asset (i.e. Asset B).</u></p> <p><u>So it is an indirect intervention from Asset B's perspective, and it is designed for the specific purpose of reducing risk on specific assets, for example:</u></p>

<u>Term</u>	<u>Definition</u>
	<p><u>Installation or removal of physical infrastructure designed to prevent damage to adjacent assets in the event of an asset failure (e.g. installation of a blast wall).</u></p> <p><u>If Asset A is a load related addition or disposal then we would expect that the risk related to Asset A itself would be recorded on the addition or disposal line and the impact on Asset B (excluding the ripple effect in the adjacent assets) would be recorded on the indirect intervention line.</u></p>
<u>Load-related (network growth) additions</u>	<u>Changes in monetised risk resulting from load-related intervention which result in additional assets on the system.</u>
<u>Maintenance &amp; Repair</u>	<u>Any activity required or assumed to be necessary to achieve the expected life of an asset. Maintenance &amp; Repair activities, if carried out as assumed to be necessary, do not impact the Monetised Risk of an asset.</u>
<u>Methodology Change</u>	<u>Changes in risk due to changes in NOMs Methodology, where the changes have an impact on the licensee's performance relative to the NOMs targets. The treatment of consequence of failure methodology changes should be grouped with other consequence of failure (CoF) changes.</u>
<u>Monetised Risk (MR)</u>	<u>The risk value associated with an asset(s) as derived in accordance with the relevant licensee's Network Output Measures (NOMs) methodology. Unless otherwise stated, reference to 'Risk' means 'Monetised Risk'.</u>
<u>Monetised Risk Output</u>	<u>The risk benefit delivered or expected to be delivered by an asset intervention. The difference between without intervention and with intervention Monetised Risk. Can be measured over one year or over a longer period of time.</u>
<u>NOMs Assets</u>	<u>Assets where, by applying the relevant sector/company NOMs Methodology, the Monetised Risk of the asset can be estimated.</u>
<u>NOMs Incentive Mechanism</u>	<u>The RIIO-1 mechanism for adjusting a network company's RIIO-1 funding dependent on its delivery of its NOMs Targets and for applying a reward or penalty in certain delivery scenarios.</u>
<u>NOMs Methodology</u>	<u>The methodology each network company has to determine Monetised Risk.</u>
<u>NOMs Target</u>	<u>The required outputs related to relevant asset management work for each network company in RIIO-1.</u>

<b>Term</b>	<b>Definition</b>
<u>Refurbishment</u>	<u>A one-off activity undertaken on an asset that is deemed to be close to end of life or is otherwise requiring intervention that extends the life of that asset or restores its functionality. This activity does not result in the recording of a new or disposed asset in the Asset Register, but may improve the health indicator (or probability of failure) of the asset. Refurbishment can include the replacement or reconditioning of components of an asset.</u>
<u>Relevant Risk Changes</u>	<u>See ‘Section 3.2 - Stage 1: Licensees submit relevant risk changes and impact on performance against targets’</u>
<u>Removal</u>	<u>The permanent removal of an asset from the network of load related work, not including removals carried out as part of a replacement or refurbishment activity.</u>
<u>Replacement</u>	<p><u>Asset replacement (including like-for-like replacement and non-like-for-like replacement) is an activity undertaken by a network company to remove an existing asset(s) and install a new asset. The asset replacement activity includes:</u></p> <ul style="list-style-type: none"> <li><u>• the dismantlement of existing assets where the dismantlement is undertaken as part of the asset replacement works (i.e. ‘replacement removal’).</u></li> <li><u>• the installation of replacement assets (i.e. ‘replacement addition’).</u></li> </ul> <p><u>For the asset volume input in a non-like-for-like replacement case under same asset category, e.g. replace 50 OHL fittings with 70 OHL fittings in ET sector:</u></p> <ul style="list-style-type: none"> <li><u>• Input ‘replacement removal’ as –ve numbers (e.g. -50 in R10 band) in the corresponding replacement driver row;</u></li> <li><u>• Input ‘replacement addition’ as +ve numbers (e.g. +70 in R2 band) in same row but different risk band;</u></li> <li><u>• Input Volume Impacted as the ‘replacement addition’ numbers (e.g. +70 in Column T in N3.xx tab).</u></li> </ul> <p><u>For the asset volume input in a non-like-for-like replacement case under adfferent asset category, e.g. replace 5km Iron Mains with 5km PE Mains in GD sector:</u></p> <ul style="list-style-type: none"> <li><u>• Input ‘replacement removal’ as –ve numbers (e.g. -5 in R10 band) in the corresponding replacement driver row in Iron Main tab;</u></li> <li><u>• Input ‘replacement addition’ as +ve numbers (e.g. +5 in R2 band) in same row but different risk band in PE Mains tab;</u></li> </ul>



<u>Term</u>	<u>Definition</u>
	<ul style="list-style-type: none"> <li>• <u>Input Volume Impacted for the removed asset as the absolute value of 'replacement removal' numbers (e.g. 5 in Column T in Iron Mains tab);</u></li> <li>• <u>Input Volume Impacted for the added asset as the 'replacement addition' numbers (e.g. +5 in Column T in PE Mains tab).</u></li> </ul> <p><u>So that the variation in asset populations should, in most cases at least, be visible where non-like-for-like replacements have taken place.</u></p>
<u>Risk Pound (R£)</u>	<u>The unit used to denote Monetised Risk values. R£ is used to differentiate from financial monetary values.</u>
<u>Slower / Fast Deterioration</u>	<u>Deviation in actual deterioration of asset assuming no intervention from the forecast deterioration rate underpinning the rebased NOMs targets.</u>