

Guidance

RIIO-2 Business Plan Data Template (BPDT) Guidance for Network Asset Risk Metric (NARM) Tables – for Electricity Transmission, Gas Transmission, and Gas Distribution (Version 3.1)

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This document provides instructions and guidance to the electricity transmission, gas transmission, and gas distribution network licensees. Its purpose is to enable them to complete the Network Asset Risk Measure (NARM) elements of their Business Plan Data Templates (BPDT) for the RIIO-2 price controls from 1 April 2021 to 31 March 2026^{1,2,3}. The guidance does not apply to electricity distribution licensees whose price control cycle is on a two-year lag and is due to commence on 1 April 2023.

This document is for people who are filling out the Business Plan data templates and want to know general and specific guidance for reporting Business Plan data. It explains the scope of the Business Plan data templates, what to consider when completing them, and where to find more information.

¹ RIIO-ET2 – relates to the three electricity transmission owners (ETO): National Grid Electricity Transmission plc (NGET), SP Transmission plc (SPT), Scottish Hydro Electric Transmission plc (SHET)

² RIIO-GT2 – relates to the gas transmission owner (GTO): National Grid Gas Transmission (NGGT)

³ RIIO-GD2 – relates to the eight gas distribution network operators (GDN): Cadent – East of England (EoE), Cadent – London (Lon), Cadent – North West (NW), Cadent – West Midlands (WM), Northern Gas Networks (NGN), SGN – Scotland Gas Networks (Sc), SGN – Southern Gas Networks (So), Wales and West Utilities (WWU)

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1. Introduction

Chapter Summary

This chapter sets out the purpose and structure of the NARM (NARM) Business Plan Data Templates (BPDTs) which will apply to the electricity transmission, gas transmission, and gas distribution network companies for RIIO-2.

Background

1.1. RIIO-2 is the second iteration of price controls to be conducted under the RIIO (Revenue = Incentives + Innovation + Outputs) model. This will apply to electricity and gas transmission network companies and to gas distribution companies from 1 April 2021 to 31 March 2026.

1.2. Network Asset Risk Metrics are an evolution from RIIO-1 Network Output Measures and relate to the risk of asset failure (derived from the probabilities and expected consequences of asset failure). Through their asset management activities, such as replacement or refurbishment, network companies should ensure that the risk to consumers is maintained within reasonable bounds. This is an important part of the price controls, because it contributes to a significant proportion of the network companies totex and consumers could suffer significant detriment if the pursuit of short-term profit leads to unmanageable levels of degradation in the condition of network assets and ultimately to unacceptable levels of network asset failures.

1.3. Network companies will therefore be set clearly defined outputs that require and encourage them to take more long-term view of their network asset risk.

1.4. As part of our regulatory oversight of the network companies, we collect a wide variety of both qualitative and quantitative information. In preparation for RIIO-T2, companies submit business plans in advance of the period to enable us to understand the requirements of their networks and inform our decisions on setting the economic and efficient allowances for the RIIO-2 period. The NARM BPDTs will help us to ensure we set appropriate outputs for the relevant activities and to hold network companies to account for their actual investment decisions in RIIO-2.

1.5. The Business Plan Data Templates (BPDTs) provide a framework which enables Ofgem to collect quantitative data from the network companies on their proposed operations and investment plans during the RIIO-2 period.

1.6. The BPDTs will ultimately form part of a more extensive regulatory reporting and monitoring pack, which will:

- allow us to collect data on provisional total expenditure (Totex) for use in the annual iteration process (AIP) and the calculation of the MOD term (see glossary for definition); and
- provide a database of network company performance which we draw on to set cost proposals at subsequent review periods.

1.7. These instructions are limited to ensuring clarity on reporting requirements for the NARM BPDTs. They do not set out the process for when drafts and final Business Plans should be submitted or provide guidance on the costs, outputs, or workloads etc. that should be

included in Business Plans. These instructions should be read alongside the relevant sector RIIO-2 data templates and associated instructions and guidance as well as the RIIO-2 Business Plan Guidance Document and the Priorities and Work Plan of the RIIO-2 Challenge Group. In populating the NARM BPTDs licensees are required to comply with the relevant sector RIIO-2 business plan guidance unless explicitly stated otherwise in this document.

1.8. These instructions do not change any definitions or obligations contained within the electricity transmission or gas transporter licences applicable to each network company, and in the event of any conflict the licence conditions will always take precedence.

Use of the NARM BPDTs

1.9. The NARM BPDTs are one of a suite of BPDT templates (in MS Office Excel format) for each sector. The BPDTs will be completed by network companies and used to report their business plan data. They are one element of the wider suite of information provided to Ofgem to enable informed price control allowances to be set. Other elements include:

- instructions and guidance on how to complete the associated workbooks and report the data.
- templates for providing commentaries against the data
- an engineering justification template, which should provide a technical and stakeholder justification for the work proposed to be undertaken (on a project level)
- a Cost Benefit Analysis (CBA) template, which should provide the quantitative economic data underpinning each proposed project.

1.10. The NARM BPDTs will be used in conjunction with the cost and workload data provided in other BPDTs to help us set allowances and outputs for each network company and will also form the basis of the templates that will be developed for ongoing regulatory reporting in RIIO-2.

1.11. The NARM BPDTs are not intended to contain any financial 'cost'.

NARM BPDTs

1.12. The NARM BPDTs have been designed to act as a means of recording the basis of the RIIO-2 price controls and enabling their subsequent monitoring and reporting. Their content has built on the learning from the Regulatory Instructions and Guidance (RIGs) used to monitor the regulatory settlement throughout RIIO-1 period and on the Network Output Measures (NOMs) developments that has taken place across all sectors over RIIO-1.

1.13. These guidance relate to the NARM BPDT versions listed below and to any subsequent version of the NARM BPDTs unless superseded by subsequent guidance:

- BPDT_N_NARM_3.0

1.14. The key points to note in completing the BPDT templates are listed below (NARM BPDT specific points are shown in **bold** text). These apply unless otherwise stated on a specific table or in the guidance below:

- The Licensee must take all reasonable steps to ensure the quality of its data. This will in all material respects be accurate, complete and fairly presented.

- Where a table contains multiple years of data (historical and/or forecast) that was reported in a previous RIGs template, the licensees should report, unless otherwise stated in the specific table guidance, data for all years that is to the best of its knowledge up to date and accurate. Licensees are required to explain any material data revisions in their accompanying narrative.
- The Licensee must notify Ofgem of the likelihood of any significant revisions to improve data quality, e.g. if data is provisional due to cost uncertainty.
- Some of the workbooks in the BPDTs have been designed to link to other workbooks. These links must be retained by the licensees in the completed versions submitted to Ofgem.
- The NARM BPDT tables are colour coded to reflect the action required. The colour key is as below:**

Colour Key

Non-editable cell	abc
Ofgem input cell	
Company input cell	12.3
Calculation cell (sub-total)	12.3
Calculation cell (total)	12.3
Link from other sheet in workbook	12.3
Link from other workbook	12.3
Input not relevant	

Licensees should enter or amend data only in 'Company input cells' and should not insert or delete rows or columns unless otherwise indicated as permitted on a specific table or in the guidance below, or unless otherwise agreed with Ofgem.

- Actual financial values should be provided in £ million to a minimum of three decimal place, with historical financial values reconciling with the audited regulatory accounts. However, TOs are required to provide all actual financial data to the highest reasonable level of accuracy available from their source systems, and commensurate with the purpose for which such data is intended taking into consideration the appropriate allocations that are necessary to complete the tables.
- Workload units and outputs should be reported commensurate with the purpose for which such data is intended, taking into consideration the appropriate allocations that are necessary to complete the tables. Workload and outputs should be entered in the unit of measurement set out in this guidance or in the template.
- Unless otherwise indicated in the guidance or templates financial values should be input as positive values.
- Where a reportable value is zero or not applicable to a licensee then a zero must be input rather than the cell being left blank.
- Unless a licensee has an explicit agreement to the contrary with Ofgem, then risk values are to be derived in accordance its most recently approved NOMs Methodology. Where such an explicit agreement exists then the licensee should provide an explanation in its associated narrative document.**
- In order to differentiate from financial values, Monetised Risk values have the unit R£ when relating to annual risks, and LR£ when referring to longer term risks.**
- Monetised Risk values should be entered in millions (R£m or LR£m) shown to one decimal place.**
- Probabilities should be entered to three decimal places.**
- Workload volumes should be entered to one decimal place.**

Instructions and guidance

1.15. The purpose of this document is to provide instructions and guidance to enable the licensees to complete the associated workbooks. This document provides information on:

- the systems, processes, procedures, recording and provision of the required data
- reporting units
- levels of accuracy (including rounding)
- the methodology for calculating or deriving required numbers
- the provision of the data to the Ofgem (format, frequency etc.)
- reasons for the data requirement
- a glossary of terms used in the workbooks.

Provision of Monetised Risk data

1.15. All Monetised Risk values and consequences of failure should be reported in 2018/19 prices.

1.16. In cases where licensees are required to provide historical, current, or forecast view of Monetised Risk. Forecasts shall represent the licensees best view following its best endeavours to take account of all relevant internal and external factors.

1.17. Unless a licensee has an explicit agreement to the contrary with Ofgem, then risk values are to be derived in accordance its most recently approved NOMs Methodology. Where such an explicit agreement exists then the licensee should provide an explanation in its associated narrative document.

1.18. Unless stated that lifetime or longer term risk then all risks to be reported are annual. Lifetime or longer term risks should be reported in accordance with a methodology to be agreed by each licensee with Ofgem ahead of submission. The licensees accompanying narrative document should provide and explanation of the methodology used.

Form of submission

1.17. Licensees should submit their NARM BPDT in accordance with instructions given from Ofgem on the overall business plan and business plan data templates.

Structure of this document

1.19. This document is divided into sections reflecting the different component parts of the BPDTs workbooks. These are as follows:

- Chapter 2 provides instructions for the completion of the 'N1 Output Delivery' Worksheets.

- Chapter 3 provides instructions for the completion of the 'N2 Network Risk' worksheets.
- Chapter 4 provides instructions for the completion of the 'N3 Asset Category Risk' worksheets.

Publication

1.20. Ofgem is bound by the requirements of section 105 of the Utilities Act 2000 relating to the disclosure of information.

1.21. Ofgem recognises the value of improving transparency of information in regulating natural monopolies and we intend to continue to review to what extent to publish further disaggregated data and analysis alongside the Business Plans.

2. N0 Cover Worksheets

Purpose

2.1. These worksheets contain general administrative information including details of the licensee making the submission, the template and submission version, and relationship of the NARM BPDT to other BPDTs submitted by the licensee etc.

Overview of worksheets

2.2. The worksheets included within this chapter are:

Electricity Transmission	Gas Transmission	Gas Distribution
<ul style="list-style-type: none"> • N0 Cover • N0.1 Contents • N0.2 Submission Version History • N0.3 Template Version History • N0.4 Workbook Links • N0.5 Data Constants • N0.6 Lookup References 	Same for all sectors	Same for all sectors

N0 Cover

Purpose and use by Ofgem	This worksheet helps facilitate version control and efficient analysis of data.
General guidance on completing this worksheet	<p>Licensee must select company (licensee) name from dropdown list in cell B13 and enter submission version number and submission date in cells B15 and B16 respectively.</p> <p>Licensees are required to assign a unique submission version number for each submission and re-submission.</p> <p>Submitted files must be given the filename indicated in cell B17 and saved as a Excel Binary Workbook (.xlsb)</p>

Sector specific guidance

Electricity Transmission	N/A
Gas Transmission	N/A
Gas Distribution	N/A

Specific definitions for this worksheet

None	
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N0.1 Contents

Purpose and use by Ofgem	Lists all worksheets in workbook. Checks for Error flags on individual worksheets.
General guidance on completing this worksheet	<p>No licensee input required.</p> <p>Licensees should ensure that Data Error Check column does not return 'Error' flag for any worksheets before submission.</p>

Sector specific guidance

Electricity Transmission	N/A
Gas Transmission	N/A
Gas Distribution	N/A

Specific definitions for this worksheet

None	
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N0.2 Submission Version

Purpose and use by Ofgem	Will be used to help track changes between licensee's submissions.
General guidance on completing this worksheet	<p>Licensees are required to provide as much detail as is practical on changes between submission versions.</p> <p>Details of the overall submission should be entered in the green cells, with table specific detail entered in yellow cells. Licensees may add or insert as many green or yellow rows as required.</p>

Sector specific guidance

Electricity Transmission	N/A
Gas Transmission	N/A

Gas Distribution	N/A
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Specific definitions for this worksheet

None	
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N0.3 Template Version

Purpose and use by Ofgem	Contains details of changes to the template.
General guidance on completing this worksheet	Licensees should not make changes to the template and therefore licensees are not required to input this table unless instructed to make changes by Ofgem.

Sector specific guidance

Electricity Transmission	N/A
Gas Transmission	N/A
Gas Distribution	N/A

Specific definitions for this worksheet

None	
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N0.4 Related Workbooks

Purpose and use by Ofgem	To ensure maintenance and alignment between related workbook submissions.
General guidance on completing this worksheet	<p>This workbook contains two sections:</p> <ul style="list-style-type: none"> • 'Linked To' (top section): Licensees should enter details of any workbooks that links to the NARM workbook, e.g. if link to project listing in the main BPDt pack. • 'Linked From' (bottom section): Licensees should enter details of any workbooks that NARM links to the NARM workbook or workbook that data from the NARM workbook. <p>Licensees may add rows to either of the sections as required.</p>

Sector specific guidance

Electricity Transmission	N/A
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Gas Transmission	N/A
Gas Distribution	N/A

Specific definitions for this worksheet

None	
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N0.5 Data Constants

Purpose and use by Ofgem	This table gives details of any constants used by licensee in populating the template. This will be used where appropriate to check consistency across the entire business plan.
General guidance on completing this worksheet	Licensees should enter details of data constants used of assumed in deriving the data contained in the NARM BPDT submission.

Sector specific guidance

Electricity Transmission	N/A
Gas Transmission	N/A
Gas Distribution	N/A

Specific definitions for this worksheet

None	
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N0.6 Lookup References

Purpose and use by Ofgem	Contains data for use in dropdown lists and other lookup values used in the template.
General guidance on completing this worksheet	This worksheet is auto populated and therefore no licensee input is required.

Sector specific guidance

Electricity Transmission	<p>Clarifications on ET NARM asset reporting:</p> <ul style="list-style-type: none"> • 132kV circuit breaker does not include circuit switchers • Exclude non-lead asset category SVCs; • 132 kV wood poles: volumes should be reported under 132kV Tower, risk of wood poles is not
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	<p>currently monetised under the ET NOMs methodology and therefore should be excluded</p> <ul style="list-style-type: none"> • 132 kV wood pole tops: should be reported under fittings.
Gas Transmission	N/A
Gas Distribution	N/A

Specific definitions for this worksheet

None	
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3. N1 Output Delivery Worksheets

Purpose

3.1. Provides relevant detail on type of interventions and intervention options for Monetised Risk Output delivery as well as details of projects or schemes for delivering outputs.

Overview of worksheets

3.2. The worksheets included within this chapter are:

Electricity Transmission	Gas Transmission	Gas Distribution
<ul style="list-style-type: none"> • N1.1 Intervention Definitions • N1.2 Intervention Listing • N1.3 Project Listing 	Same for all sectors	Same for all sectors

N1.0 Intervention Summary

Purpose and use by Ofgem	Provides summary view of volume of interventions where business plan assumes interventions of a given type.
General guidance on completing this worksheet	This worksheet is auto populated and requires no input from licensees.

Sector specific guidance

Electricity Transmission	N/A
Gas Transmission	N/A
Gas Distribution	N/A

Specific definitions for this worksheet

None	
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N1.1 Intervention Definitions

Purpose and use by Ofgem	Provides general and asset specific definitions for the six broad classes of intervention activity that can deliver asset risk movements.
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General guidance on completing this worksheet	<p>Licensees should not change the general definitions given on this table and should classify all of their interventions into the six intervention classes according to the definitions provided:</p> <ul style="list-style-type: none"> • Replacement • Refurbishment • Maintenance & Repair • Removal • Addition • Removal • Indirect Intervention <p>Licensees may add additional detail on application of individual asset categories where necessary to provide additional clarity.</p> <p>Additional rows may be added as required.</p>
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Sector specific guidance

Electricity Transmission	N/A
Gas Transmission	N/A
Gas Distribution	N/A

Specific definitions for this worksheet

None	
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N1.2 Intervention Listing

Purpose and use by Ofgem	To understand the means by which licensees can deliver Monetised Risk benefits and the assumptions underlying a licensee's business plan proposals. This data will be used as part of Ofgem's RIIO-2 business plan assessment and throughout RIIO-2 to monitor and understand how outturn compares to business plan assumptions as well as the impact and implications of any differences from what was assumed.
General guidance on completing this worksheet	Licensees are required to provide details of all interventions that could potentially impact Monetised Risk,

	<p>and volume of interventions where business plan assumes interventions of a given type.</p> <p>Licensees should provide details of any intervention options with potential Monetised Risk impact regardless of whether interventions of that type are proposed in its business plan.</p>
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Sector specific guidance

Electricity Transmission	Asset voltage should be entered in column A where relevant
Gas Transmission	N/A
Gas Distribution	N/A

Specific definitions for this worksheet

Asset Category	<p>The asset grouping that is relevant for NARM reporting purposes for each sector:</p> <ul style="list-style-type: none"> Electricity transmission: seven categories at each of the three voltage levels (132 kV, 275 kV, 400 kV) making 21 asset categories in total Gas transmission: 37 secondary asset categories Gas distribution: 18 secondary asset classes
Asset Family	<p>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. Please define to lowest level possible.</p> <p>Examples:</p> <p>[xxkV*]Transformer [manufacturer*][rating*][year*]</p> <p>[xxkV*]Circuit Breaker [manufacturer*][insulation type*][mech type*][CB Type*][year*]</p> <p>*please provide/ignore as required</p>

Item/sub-component	<p>Where known the specific asset component(s) replaced or refurbished or otherwise intervened on through a given intervention, if not the complete asset.</p> <p>Examples:</p> <p>Transformer – [Main Tank*][Selector*][Tap Change*][Divertor*][Selector*][Bushing*][Ancillary Plant*]</p> <p>Circuit Breaker – [Drive Mech*][Pressure Vessel*][Main Tank*][Bushing*][Ancillary Plant*]</p> <p>*please provide/ignore as required</p>
Intervention	Description of the listed intervention
Expected Life of Intervention (yrs)	<p>This is a free text field. Licensees are required to provide explanation of number of years they expect, on average, from the date of a given intervention type before a subsequent intervention will be required in order to address the failure modes that the the original intervention was planned to address. This may be given as a range of years to reflect uncertainty and the distribution across an asset population.</p>
Assumed volume of interventions in plan	<p>The intervention volumes should be listed in the year that they are proposed to be undertaken. These volumes should reconcile with the volumes reported in the main RIIO-2 business plan data templates.</p>

N1.3 Project Listing

Purpose and use by Ofgem	<p>To understand the projects planned to deliver a licensee's Monetised Risk Outputs. This data will be used as part of Ofgem's RIIO-2 business plan assessment and throughout RIIO-2 to monitor and understand how outturn compares</p>
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	to business plan assumptions as well as the impact and implications of any differences from what was assumed.
General guidance on completing this worksheet	<p>Licensees are required to report schemes/projects/generic work programmes as set out in the sector specific sections below.</p> <p>Project/Scheme Reference – Should be reported where relevant. The Project/Scheme reference should be consistent and align with the referencing used for the Cost and Volumes BPDs. Licensees should agree any referencing convention with Ofgem ahead of submission. Where a project/scheme delivers Monetised Risk Outputs in multiple Asset Categories, then each Asset Category should be recorded as a separate line item with unique reference number.</p> <p>Assets can be classed into two high level categories:</p> <ul style="list-style-type: none"> A. NARM Assets – assets where, by applying the relevant sector/company NOMs Methodology, the Monetised Risk of the asset can be estimated. B. Non NARM Assets – assets where the monetised risk cannot currently be estimated by applying the relevant sector/company NOMs Methodology. <p>For Category A (NARM Assets), some will be subject to NARM funding and incentive mechanisms and others may not be. Category A assets can therefore be further assigned to three sub-categories:</p> <ul style="list-style-type: none"> • A1 – NARM Funding Mechanism • A2 – Funding Under Separate Mechanism • A3 – Ring-fenced Project/Activity <p>Licensees are required to indicate in the 'Proposed Funding Category' column the category (A1, A2, or A3) that they</p>

	<p>propose the project, scheme, or generic work programme should fall in to.</p> <p>For long term benefit output calculation:</p> <ol style="list-style-type: none"> 1. Benefits shall be calculated by applying the assumption that all interventions take place at the end of RIIO-2 2. Only the benefits of the interventions proposed for delivery in RIIO-2 are to be included for the purpose of calculating RIIO-2 outputs. The benefit of any subsequent interventions assumed for other purposes, such as for CBA, shall be discounted for this purpose. Each sector shall agree the precise methodologies to be applied for determining the time-horizon over which RIIO-2 outputs shall be calculated. 3. Outputs should be discounted using the same discount factors as per CBA guidance, unless otherwise agreed with Ofgem in advance of submission.
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Sector specific guidance

Electricity Transmission	All projects or schemes that deliver Monetised Risk Outputs must be listed.
Gas Transmission	All projects that are separately identified within the business plan and deliver a Monetised Risk Output must be listed individually. In order to reconcile with other BPDT tables, licensee may group generic work programmes together to report as projects on this table.
Gas Distribution	All projects that are separately identified within the business plan and deliver a Monetised Risk Output must be listed individually. In order to reconcile with other BPDT tables, licensee may group generic work programmes together to report as projects on this table.

Specific definitions for this worksheet

NARM Assets (Category A)	Assets where, by applying the relevant sector/company NOMs Methodology, the Monetised Risk of the asset can be estimated.
A1 – NARM Funding Mechanism	Work with asset risk management as the primary driver, e.g. asset replacement or refurbishment required to

	reduce risk. Some other work, where risk management is not the primary driver may be included here but only where it delivers risk reduction benefits and the work is not covered by another funding mechanism and PCD.
A2 – Funding Under Separate Mechanism	Assets where the primary driver is not asset risk management, but where the work delivers asset risk impact, e.g. load related work that involves some asset replacement, work required to comply with legal obligations.
A3 – Ring-fenced Project/Activity	Ring-fenced Project/Activity – projects or activities that due to the nature of the driver or materiality should be excluded from risk trading and therefore should be excluded from NARM Funding Mechanisms and be subject to separate Price Control Deliverables (PCDs) and allowances.
Non NARM Assets (Category B)	Assets where the monetised risk cannot currently be estimated by applying the relevant sector/company NOMs Methodology.
Pre Interv	Pre Inter' is the forecasted monetised risk position without intervention at End of 2025/26 (i.e. snapshot view) for associated asset category under reported project/scheme.
Post Interv	Post Inter' is the forecasted monetised risk position with intervention at End of 2025/26 (i.e. snapshot view) for associated asset category under reported project/scheme
Long Term Benefit	The long term benefit resulting from replacements and refurbishments forecast to be delivered over RIIO-2.

4. N2 Network Risk Worksheets

Purpose

4.1. The purpose of these worksheets is to enable understanding of the total monetised risk on the network at both the start and end of RIIO-2, including the distribution of Monetised Risk, and impact on risk and risk movements of individual asset categories, risk factor components, and interventions.

Overview of worksheets

4.2. The worksheets included within this chapter are:

Electricity Transmission	Gas Transmission	Gas Distribution
<ul style="list-style-type: none"> • N2.1 Network Risk Summary • N2.2 Risk Bandings • N2.3.1 Total Risk Forecast 2020/21 • N2.3.2 Total Risk Without Intervention 2025/26 • N2.3.3 Total Risk With Intervention • N2.4.1 Risk Components Without Intervention 2020/21 • N2.4.2 Risk Components Without Intervention • N2.4.3 Risk Components With Intervention 2025/26 	Same for all sectors	Same for all sectors

N2.1 Network Risk Summary

Purpose and use by Ofgem	Provides summary view of Monetised Risk on a network at start and end of RIIO-2 disaggregated by Asset Category.
General guidance on completing this worksheet	This worksheet is auto populated and requires no input from licensees.

Sector specific guidance

Electricity Transmission	N/A
Gas Transmission	N/A
Gas Distribution	N/A

Specific definitions for this worksheet

None	
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N2.2 Risk Banding

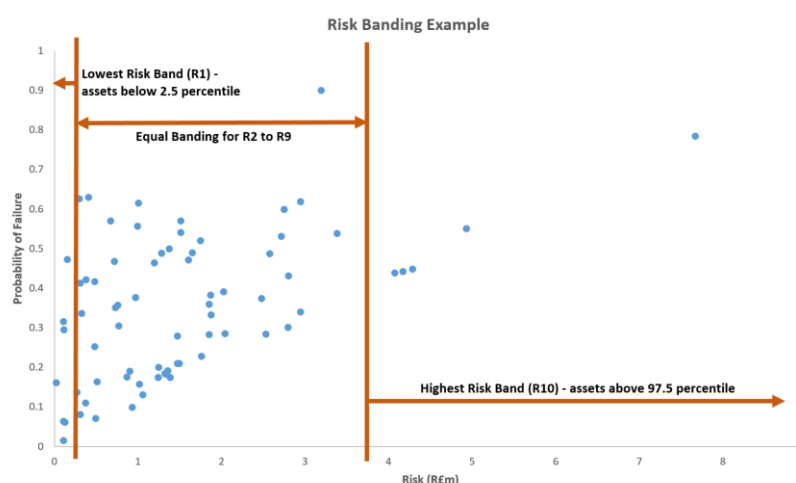
Purpose and use by Ofgem	Defines the risk banding that each licensee will utilise for reporting purposes.
General guidance on completing this worksheet	<p>Licensees are required to report the minimum and maximum points of the Risk and Probability of Failure (PoF) bands that will be utilised for reporting throughout the NARM BPDT. A licensee may utilise an alternative Health Indicator measure as a proxy for PoF provided it receives Ofgem's prior agreement to do so. Licensees should explain in their accompanying narrative document the PoF/Health Indicator measure that has been used.</p> <p>Licensees may use different banding values for different asset categories. However, the approach the approach to determining the banding approach should be consistent for all Asset Categories.</p> <p>In defining bands licensees should ensure that the bands:</p> <ol style="list-style-type: none"> 1. sufficiently differentiate asset populations – we expect 2. are not skewed by outliers in the population 3. will be enduring – the intention is that the same bandings will be used throughout RIIO-2 implementation. Therefore, licensees should take account of the expected deterioration of assets and risk of any new assets likely to be installed on the network. <p>Licensees within the same company group should utilise the same bandings.</p> <p>For linear asset the banding should be based on the per kilometre risk, e.g. a 10km pipeline with total risk of R£m should be assigned to the same risk band as a 1km pipeline with a total risk of R£1m.</p>

For non-linear assets the banding should be based on the individual asset risk, e.g. a 400 kV Transformer with a risk

Licensees should explain in their supporting narrative the approach that the banding approach they have applied.

Equal banding may not necessarily be appropriate. Licensees should choose their banding approach to adhere to the three criteria listed above. In the illustrative example below, the risk banding has been designed so that 95% of the asset population is contained in risk bands R2-R9 in order to avoid outliers skewing the banding.

Risk banding – Illustrative Example



Sector specific guidance

Electricity Transmission	N/A
Gas Transmission	N/A
Gas Distribution	N/A

Specific definitions for this worksheet

None	
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N2.3.1 – N2.3.3 Network Risk Summary

Purpose and use by Ofgem	Provides summary view of distribution profile of Monetised Risk on a network at start and end of RIIO-2 disaggregated by Asset Category.
General guidance on completing this worksheet	<p>Licensees are required to their view on these three worksheet on the following:</p> <ul style="list-style-type: none"> • Total Risk Forecast – End of 2020/21 (N2.3.1) – this view should be based on the assumption that any work planned at the time of submission will be carried out and deliver the currently assumed risk benefits. • Total Risk Without Intervention – End of 2025/26 (N2.3.2) – this view should be based on the assumption that no additional work (above work assumed for N2.3.1) will take place to the end of 2025/26 • Total Risk With Intervention – End of 2025/26 (N2.3.3) – this view should be based on the assumption of interventions reported on tables N1.2 and N1.3 being delivered in the year planned. This should include the impact of replacement and refurbishment work delivered through load related (or growth) projects. Licensees are not required at this stage to report the monetised risk of new assets added through load related work. Estimates of the full impact of load related work may be required at a later stage. <p>Licensees are required to report Risk, PoF, and Volumes for total population of each NARM Asset Category on each worksheet.</p>

Sector specific guidance

Electricity Transmission	N/A
Gas Transmission	N/A
Gas Distribution	N/A

Specific definitions for this worksheet

None	
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N2.4.1 – N2.4.3 Network Risk Summary

Purpose and use by Ofgem	Provides summary view of distribution profile of Monetised Risk on a network at start and end of RIIO-2 disaggregated by Asset Category and by component elements of risk (i.e. Environmental Risk, Safety Risk, System Risk, Financial Risk).
General guidance on completing this worksheet	<p>Licensees are required to their view on these three worksheet on the following:</p> <ul style="list-style-type: none"> • Risk Component Without Intervention – End of 2020/21 (N2.4.1) – this view should be based on the assumption that any work planned at the time of submission will be carried out and deliver the currently assumed risk benefits. • Risk Component Without Intervention – End of 2025/26 (N2.4.2) – this view should be based on the assumption that no additional work (above work assumed for N2.4.1) will take place to the end of 2025/26 • Risk Component With Intervention – End of 2025/26 (N2.4.3) – this view should be based on the assumption that RIIO-2 baseline workload proposed in the business plan will take place (as well as work assumed for N2.4.1). <p>Total Risk and Volumes are auto populated from tables N2.3.1 – N2.3.3. Licensees are required to report breakdown of Total Risk into Environment Risk, Safety Risk, System Risk, and Financial Risk for total population of each NARM Asset Category on each worksheet.</p> <p>Environmental, Safety, System, and Financial risks should be reported utilising the same banding as for Total Risk, i.e. each component risk value should sum up to the total risk values in each band.</p>

Sector specific guidance

Electricity Transmission	N/A
Gas Transmission	N/A
Gas Distribution	N/A

Specific definitions for this worksheet

None	
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5. N3 Asset Category Risk Worksheets

Purpose

5.1. The purpose of these worksheets are to provide details, for each Asset Category, of the factors forecast to contribute to the risk movements over two time steps (i.e. remaining two years of RIIO-1 and five years of RIIO-2), and to provide view of the long term benefit forecast to be delivered by a licensee's replacement and refurbishment activities over RIIO-2.

Overview of worksheets

5.2. The worksheets included within this chapter are:

Electricity Transmission	Gas Transmission	Gas Distribution
<ul style="list-style-type: none"> • N3.00 Asset Category Risk Summary • N3.99 Long Term Risk Benefit Summary • N3.01 132kV Circuit Breaker • N3.02 132kV Transformer • N3.03 132kV Reactor • N3.04 132kV Underground Cable • N3.05 132kV OHL Conductor • N3.06 132kV OHL Fittings • N3.13 132kV OHL Tower • N3.14 275kV Circuit Breaker • N3.15 275kV Transformer • N3.16 275kV Reactor • N3.17 275kV Underground Cable • N3.18 275kV OHL Conductor • N3.19 275kV OHL Fittings • N3.20 275kV OHL Tower • N3.21 400kV Circuit Breaker • N3.22 400kV Transformer • N3.23 400kV Reactor • N3.27 400kV Underground Cable 	<ul style="list-style-type: none"> • N3.00 Asset Category Risk Summary • N3.99 Long Term Risk Benefit Summary • N3.01 Cladding • N3.02 After coolers • N3.03 Air Intake • N3.04 Exhausts • N3.05 Boundary Controllers • N3.06 Cab ventilation • N3.13 Fuel tanks & bunds • N3.14 Compressor • N3.15 Cathodic Protection • N3.16 Electrical - including standby generators • N3.17 Electrical - safe shutdown • N3.18 Filters and Scrubbers (incl. Condensate Tanks) • N3.19 Fire and gas detection • N3.20 Fire Suppression • N3.21 Flow or pressure regulator • N3.22 Gas analyser • N3.23 Gas Generator • N3.27 Metering • N3.28 Fuel gas metering • N3.29 Network control and instrumentation • N3.30 Odourisation Plant • N3.31 Pig Trap 	<ul style="list-style-type: none"> • N3.00 Asset Category Risk Summary • N3.99 Long Term Risk Benefit Summary • N3.01 LTS Pipelines (Piggable) • N3.02 LTS Pipelines (Non Piggable) • N3.03 Iron Mains • N3.04 PE Mains • N3.05 Steel Mains • N3.06 Other Mains • N3.13 Services • N3.14 Risers • N3.15 Offtake Filters • N3.16 PRS Filters • N3.17 Offtake Slamshut/Regulators • N3.18 PRS Slamshut/Regulators • N3.19 Offtake Pre-heating • N3.20 PRS Pre-heating • N3.21 Odourisation & Metering • N3.22 District Governors • N3.23 I&C Governors • N3.27 Service Governors

<ul style="list-style-type: none"> • N3.28 400kV OHL Conductor • N3.29 400kV OHL Fittings • N3.47 400kV OHL Tower 	<ul style="list-style-type: none"> • N3.32 Above Ground Pipe and Coating • N3.33 Below Ground Pipe and Coating • N3.34 Power turbine • N3.35 Preheaters • N3.36 Station process control system • N3.37 Unit Control System • N3.38 AntiSurge System • N3.40 Starter motor • N3.41 Vent System • N3.42 Electrical variable speed drive • N3.43 Locally actuated valves • N3.44 Non Return Valve • N3.45 Remote Isolation Valves • N3.46 Process valves • N3.47 Slam shut 	
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N3.00 Asset Category Risk Summary

Purpose and use by Ofgem	Provides summary view, by Asset Category, of the factors forecast to contribute to the risk movements over two time steps (i.e. remaining three years of RIIO-1 and five years of RIIO-2). This data will be used as part of Ofgem's RIIO-2 business plan assessment and throughout RIIO-2 to monitor and understand how outturn compares to business plan assumptions as well as the impact and implications of any differences from what was assumed.
General guidance on completing this worksheet	This worksheet is auto populated and therefore no licensee input is required.

Sector specific guidance

Electricity Transmission	N/A
Gas Transmission	N/A
Gas Distribution	N/A

Specific definitions for this worksheet

None	
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N3.99 Long Term Risk Benefit Summary

Purpose and use by Ofgem	Provides summary view, by Asset Category, of the long term benefit forecast to be delivered by a licensee's replacement and refurbishment activities over RIIO-2.
General guidance on completing this worksheet	This worksheet is auto populated and therefore no licensee input is required.

Sector specific guidance

Electricity Transmission	N/A
Gas Transmission	N/A
Gas Distribution	N/A

Specific definitions for this worksheet

None	
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**N3.01 – 3.30 Asset Category Worksheet for Electricity Transmission
(21 Worksheets)****N3.01 – 3.47 Asset Category Worksheets for Gas Transmission
(37 Worksheets)****N3.01 – 3.27 Asset Category Worksheets for Gas Distribution
(18 Worksheets)**

Purpose and use by Ofgem	Provides detailed view, for each Asset Category, of the factors forecast to contribute to the risk movements over two time steps (i.e. remaining three years of RIIO-1 and five years of RIIO-2). This data will be used as part of Ofgem's RIIO-2 business plan assessment and throughout RIIO-2 to monitor and understand how outturn compares to business plan assumptions as well as the impact and implications of any differences from what was assumed.
General guidance on completing this worksheet	Licensees are required to report their view of the impact on monetised risk, and distribution of assets in Risk and PoF, due to the following factors likely to contribute to risk movements: <ol style="list-style-type: none"> 1. Asset Additions (not part of replace or refurb) 2. Asset Disposals (not part of replace or refurb)

	<ol style="list-style-type: none"> 3. Deterioration 4. Manual Over-ride on PoF or CoF 5. Extension of Expected Asset Life (not required for business plan submission) 6. Asset Replacement (PoF driven) 7. Asset Replacement (CoF driven) 8. Asset Replacement (Other Driven) 9. Asset Refurbishment (PoF driven) 10. Asset Refurbishment (CoF driven) 11. Asset Refurbishment (Other Driven) 12. Indirect Interventions 13. Changes in Maintenance Programme (not required for business plan submission) 14. Asset Replacement Due to Early Life Failures (not required for business plan submission) 15. Methodological Changes (not required for business plan submission) 16. Data Cleanse (not required for business plan submission) 17. Other Factors <p>Licensees are also required to report the long term benefit of replacement and refurbishment activities forecast to be delivered in a given year. Long Term Benefit shall be derived in accordance with a methodology to be agreed with Ofgem ahead of submission.</p> <p>Non like for like replacements: Licensees are required to report the removal and addition elements of non-like-for-like replacements (e.g. replacing a 132kV Transformer with a 275kV Transformer, or replacing an iron main with a PE main) split across the two categories.</p> <p>For example. replacing 5km Iron Mains with 5km PE Mains:</p> <ul style="list-style-type: none"> • Input 'replacement removal' as -ve numbers (i.e. -5 in R10 band) in the corresponding replacement driver row in Iron Main tab; • Input 'replacement addition' as +ve numbers (i.e. +5 in R2 band) in same row but different risk band in PE Mains tab; • Input Volume Impacted for the removed asset as the absolute value of 'replacement removal' numbers (i.e.. 5 in Column T in Iron Mains tab); • Input Volume Impacted for the added asset as the 'replacement addition' numbers (i.e. +5 in Column T in PE Mains tab).
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Sector specific guidance

Electricity Transmission	N/A
Gas Transmission	N/A
Gas Distribution	<p>At this stage, rather than splitting out into the ten band, R1-R10 and P1-P10), GDNs may report Monetised Risk, PoF, and volumes as two values (1. pre-intervention (or pre-factor impact) and, 2. post intervention) for each risk factor. If doing so then the higher risk state of the two scenarios should be entered in the relevant R10 or P10 column and the lower risk state should be entered into the R1 or P1 column. Full risk banding may be required at a later date.</p> <p>Examples:</p> <ul style="list-style-type: none"> <u>PoF Driven Replacement of 2,000 no. governors with risk pre-intervention of R£10m and risk post-intervention of R£5m (net risk increase of -R£5m):</u> -R£10m should be entered under R10 to represent the risk removed and +R£5 should be entered under R1 to represent the risk added. Associated volumes or -2,000 and +2,000 should be entered in R10 and R1 respectively. <u>Deterioration of total population of 10,000 no. governors increases risk from R£20m to R£30m (net risk increase of R£10m):</u> R£0m (zero) should be entered in R1 and +R£10m entered in R10 to reflect the net risk movement due to deterioration. Associated volumes or -10,000 and +10,000 should be entered in R10 and R1 respectively.

Specific definitions for this worksheet

Long Term Benefit of Interventions During RIIO-2	The long term benefit resulting from replacements and refurbishments forecast to be delivered over RIIO-2 (please refer to general guidance of tab N1.3 for calculation of long term benefit).
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Asset Additions (not part of replace or refurb)	<p>As per 'Addition' definition in Appendix 1</p> <p>At this stage licensees are not required to report the impact of any new network assets that are planned in RIIO-2 (other than those added as part of a replacement). If a load related (or growth) project contains an element of replacement or refurbishment, then the impact of the replacement or refurbishments should be reported as Asset Replacement (Other Driven) or Asset Refurbishment (Other Driven) – see below.</p>
Asset Disposals (not part of replace or refurb)	As per 'Removal' definition in Appendix 1
Deterioration	Actual or forecast deterioration of asset assuming no intervention.
Manual Over-ride on PoF or CoF	Any change in licensees view of the PoF or CoF based on engineering judgement to account for factors not directly covered by defined rules under the NOMs Methodology e.g. application of a PoF or CoF modifier parameter to account for an identified type issue.
Extension of Expected Asset Life	Any change due to revised view on the expected life of an asset or a revision of the deterioration curve. An Expected Asset Life extension applies to an Asset Category as a whole or to an Asset Family and may be applied due to updated data on asset failures or better understanding of failure modes.
Asset Replacement (PoF driven)	Replacement aimed at reducing risk, where the probability of failure or asset health justifies intervention.
Asset Replacement (CoF driven)	Replacement aimed at reducing risk, where consequence of failure justifies prioritisation for intervention over assets of similar risk and/or higher probability of failure/worse asset health.
Asset Replacement (Other Driven)	Replacement other than PoF/CoF driven (including load-related replacement work).
Asset Refurbishment (PoF driven)	Refurbishment aimed at reducing risk, where the probability of failure or asset health justifies intervention.

Asset Refurbishment (CoF driven)	Refurbishment aimed at reducing risk, where the consequence of failure justifies prioritisation for intervention over assets of similar risk and/or higher probability of failure/worse asset health.
Asset Refurbishment (Other Driven)	Refurbishment other than PoF/CoF driven (including load-related refurbishment work).
Indirect Interventions	As per 'Indirect Intervention' definition in Appendix 1.
Changes in Maintenance Programme	Changes in risk due to change of maintenance programme.
Asset Replacement Due to Early Life Failures	Changes in risk due to unplanned replacement of failed assets.
Methodological Changes	Changes in risk due to changes in NOMs Methodology.
Data Cleanse	Changes in reported risk due to correction of data errors detected during the year.
Other Factors	Any changes in risk not falling within any other category.

Appendix 1 – Glossary and Definitions

A

Addition

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.

Asset Category

The asset grouping that is relevant for NARM reporting purposes for each sector:

- Electricity transmission: seven categories at each of the three voltage levels (132 kV, 275 kV, 400 kV) making 21 asset categories in total
- Gas transmission: 37 secondary asset categories
- Gas distribution: 18 secondary asset classes

Asset Family

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.

C

Indirect Intervention

Any intervention on a network asset, or other infrastructure asset, that modifies the probability of failure, or consequence of failure of another network asset.

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, and indirect intervention can include, for example:

- a. 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).
 - in such a case the risk reduction impact on the protected adjacent assets should be entered as 'Indirect Intervention' risk
- b. addition or disposal that increases or decreases the resilience of a local or regional network and hence modifies the consequence of failure of other asset(s) in the locality or region.
 - the risk impact on the other network assets should be entered as 'Indirect Intervention' risk. The risk impact of the additions and disposals themselves are not included in this category.

D

Disposal

See removal

M

Maintenance & Repair

Any activity required or assumed to be necessary to achieve the expected life of an asset. Maintenance & Repair activities, if carried out as assumed to be necessary, do not impact the Monetised Risk of an asset.

Monetised Risk

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'.

Monetised Risk Output

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.

N

NARM Assets

Assets where, by applying the relevant sector/company NOMs Methodology, the Monetised Risk of the asset can be estimated.

R

Refurbishment

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.

Removal

The permanent removal of an asset from the network, not including removals carried out as part of a replacement or refurbishment activity.

Replacement

Asset 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:

- the installation of replacement assets
- the dismantlement of existing assets where the dismantlement is undertaken as part of the asset replacement works.