DD Supporting Evidence: EJP18

Reinforcements Below 7bar

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CADENT - CONFIDENTIAL

1 Introduction

The EJP18 investment is driven as part of our gas transporter licence conditions, we are required to provide a reliable service to our customers, ensuring that our network is resilient and able to cope with extreme events (including 1 in 20 year events). Reinforcements of the network are required to continue to meet customer gas demand requirements where we have an increase in growth or where network changes impact capacity.

This submission provides:

1. Confirmation of the Proposed Cost Volumes & Volumes
2. Supporting justification for General and Specific reinforcements RIIO-GD3 Volumes

For clarity, the feedback provided by Ofgem in Cadent's Draft Determination feedback for EJP18 is shown below (Table 1).

EJP Title	Needs Case	Optioneering	Scope Confidence	Comments
Reinforcement below 7bar **EJP18**	Partially Justified	Partially Justified	Medium Confidence	Proposed Outcome: Partially Justified. We propose to reduce volumes. Costs and volumes are uncertain as the workload is reactive, often driven by third parties. The workload is split into three categories: general reinforcement, specific I&C reinforcements and IMRRP insertion enabling reinforcements. We consider insertion enablement to be well justified, and we agree with the proposed volumes. The needs case and scope for general reinforcement is considered poorly justified and we have concerns over scope confidence for specific I&C reinforcements. We consider both general reinforcements and specific I&C volumes to not be justified. We would expect more data to be provided to support the justification of the proposed volumes, dimensions and cost. Where sufficiently detailed data cannot be provided due to the uncertainty or need, a re-opener may be an option for funding additional volumes in-period.

EJP Title	Needs Case	Optioneering	Scope Confidence	Comments
22nd July Ofgem Engineering – Cadent Bilateral	• Ofgem have requested for visibility of the process for identifying our workload for reinforcements and when workload becomes certain.			

Table 1: Specific EJP018 feedback from the Cadent Draft Determinations Annex

We understand the need for transparency regarding our reinforcement activities We anticipate an ongoing demand for reinforcements into RIIO-3 based upon a continuing trend of customer triggered reinforcement works in RIIO-2. The proposed volumes and associated costs for RIIO-3 are based on this historical data, reflecting the actual work undertaken in previous years and the established trends within our network. We anticipate the completion of the planned reinforcement volumes within the current RIIO-2 period, as our proactive yet efficient approach maintains a balance between the need for capacity and cost-effective planning. At this stage, we do not have any known specific reinforcement projects planned for Year 1 of RIIO-3.

Our preferred investment option reflects the forecasted level of intervention required to maintain compliance to our licence conditions as highlighted in the EJP18 (Section 5.1) and aligns with our Network Asset Management Strategy (Appendix 10). It proposes 190km of interventions over RIIO-3 at a forecast cost of [redacted]

Our primary investment needs are driven by compliance with our Gas Transporter Licence conditions and the following:

- Reinforcement to meet demand growth (new gas demand or new connections).
- Reinforcement to enable insertion, reducing overall delivery costs and environmental impact of mains replacement (network capacity reduction due to mains insertion technique used in mains replacement.
- Insertion-reinforcements: Additional reinforcement to allow "pipe insertion" as part of the main replacement programme reducing net costs

2 Purpose of Document

This response provides essential clarifications and detailed justifications for key aspects of our RIIO-3 Business Plan.

- Current known workload for general and specific Industrial & Commercial (I&C) reinforcements
- Re-states our approach for estimating our RIIO-3 volumes and costs, due to the limited visibility of forward workload.

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3 Known workload & Development Process

This section sets out our current view of forward workload for General and specific I&C reinforcements.

Network	General Reinforcement delivered				Known workload (forecast)	
	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27 (RIIO3)
EoE	5.06	5.05	8.1	5.01	5.02	0
NL	0	0.54	1.64	3.02	1.52	0
NW	2.8	0.03	0.41	1.02	1.02	0
WM	0.38	0.98	1.92	0.4	0.4	0

Table 2: Known general reinforcements

Network	I&C Reinforcement delivered				Known workload (forecast)	
	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27 (RIIO3)
EoE	14.51	16.24	11.86	17.96	18.32	0
NL	0.36	1.7	1.47	6.38	6.4	0
NW	0.27	6.57	13.98	10.95	10.95	0
WM	1.24	5.3	4.83	6.37	2.68	0

Table 3: Known I&C reinforcements

While future reinforcement work is anticipated, our workload certainty is limited to the next 12 months. This uncertainty stems from customer quote acceptance, which is required before projects are confirmed and scheduled. Average projects for specific and general reinforcement take 33 weeks from acceptance. Delays in quoting and customer acceptance may also arise from the economic test, a financial assessment designed to ensure Gas Act compliance for efficient pipelines and reasonable connection requests.

4 Methodology for RIIO-3 workload and costs

4.1 Workload forecasting

As demonstrated in Section 3, this work is inherently difficult to forecast. The timescales from the point of customer acceptance to completion of the work is circa 12 months, and Cadent does not plan for work that is still in "quotation stage". All reinforcement work known (as of August 2025) will be delivered before the end of RIIO-2.

The nature of our reinforcement work is reactive, driven by unforeseen factors such as customer demand and third-party activities, including housing or business growth. The precise location of any new gas demand significantly influences the need (or not) for reinforcement. For example, a large new housing estate built on the site of a former industrial complex that had a large gas demand is unlikely to require reinforcement. However, if the same large housing development is built at the edge of a town, at the extremity of the network where pressure is lowest, reinforcement is likely to be required. This prevents precise forecasting of specific locations, dimensions, and costs.

For this reason, our approach to RIIO-3 workload and cost forecasting is based on using the RIIO-2 workload and costs as a basis.

Whilst reinforcement work can't be reliably forecast based on actual known work, our RIIO-2 reinforcement workload has been generally stable. We are aware that housing and business demand is forecast to reduce slightly – 1.5% inline with the 2025 Future Home Standard (as observed in our 5-year centralised supply-demand forecast). We have therefore applied a conservative 5% year on year reduction to our historic annual average workload. We are confident that there will be a continued need for reinforcements, which won't be directly impacted by the reducing gas-demand.

The RIIO-2 average workloads for general and specific reinforcements is summarised in table 4. Applying the 5% year on year reduction, we can derive our RIIO-3 forecast workload (Table 5).

	RIIO-2 average (General and specific reinf.t) km/yr
EoE	20.27
NL	1.90
NW	8.02
WM	4.88

Table 4: RIIO-2 average workloads for General & Specific Reinforcement

	2026/27	2027/28	2028/29	2029/30	2030/31
EoE	20.27	19.26	18.30	17.38	16.51
NL	1.90	1.81	1.72	1.63	1.55
NW	8.02	7.62	7.24	6.88	6.54
WM	4.88	4.64	4.40	4.18	3.98

Table 5: RIIO-3 workloads for General & Specific Reinforcement

We have analysed the proportion of reinforcements delivered in RIIO-2, by pipe diameter, network, and used this to inform a granular forecast of specific and general reinforcements by pipe diameter for RIIO-3 (Tables 6 & 7).

General Reinforcement (Pipe size)	EoE	NL	NW	WM
<= 75mm	6%	0.0%	0.4%	0.4%
75 – 125	5.2%	14.4%	2.7%	7.9%
125 to 180	9.1%	9.9%	9.6%	6.7%
180 – 250	9.1%	0.7%	0.7%	1.3%
250-355	5.4%	13.2%	0.1%	0.1%

General Reinforcement (Pipe size)	EoE	NL	NW	WM
255 to 500	0.4%	0.0%	0.0%	5.9%
500 to 630	0.1%	0.0%	0.0%	0.0%
> 630	0.0%	0.0%	0.0%	0.0%

Table 6: RIIO-3 General Reinforcement pipe sizes

Specific Reinforcements (Pipe size)	EoE	NL	NW	WM
<= 75mm	0.3%	0.8%	0.7%	0.2%
75 – 125	16.0%	25.9%	5.0%	11.0%
125 to 180	23.8%	28.3%	33.9%	44.9%
180 – 250	14.4%	6.4%	6.0%	6.8%
250-355	15.6%	0.6%	30.0%	4.6%
255 to 500	0.0%	0.0%	6.9%	10.1%
500 to 630	0.0%	0.0%	4.0%	0.0%
> 630	0.0%	0.0%	0.0%	0.0%

Table 7: RIIO-3 Specific Reinforcement pipe sizes

The resulting annual workload per network is summarised in tables 8 and 9. BPDT 5.02 shows these workload volumes broken down by pipe diameter band.

	2026/27	2027/28	2028/29	2029/30	2030/31	Total
EoE	6.07	5.77	5.48	5.20	4.94	27.46
NL	0.72	0.69	0.65	0.62	0.59	3.28
NW	1.08	1.03	0.98	0.93	0.88	4.89

	2026/27	2027/28	2028/29	2029/30	2030/31	Total
WM	1.09	1.04	0.98	0.94	0.89	4.93

Table 8: RIIO-3 Annual workload: General reinforcements: Option 4 [Chosen]

	2026/27	2027/28	2028/29	2029/30	2030/31	Total
EoE	17.25	16.54	15.87	15.22	14.62	79.49
NL	3.07	3.04	3.00	2.97	2.94	15.03
NW	6.96	6.72	6.48	6.26	6.04	32.46
WM	4.78	4.59	4.41	4.24	4.08	22.10

Table 9: RIIO-3 Annual workload: Specific reinforcements: Option 4 [Chosen]

4.2 Unit Costs

We have derived an average unit cost for reinforcements by pipe diameter band, using data from the RIIO-2 period. These unit costs, as shown in 10, are based on competitively tendered contracts, reflecting the typical work mix observed during RIIO-2.

This historical benchmarking approach ensures that the cost projections are aligned with real-world delivery trends and provide a reliable foundation for planning. Regional adjustments have been applied to account for variances in labour costs, material prices, and operational conditions across different geographic areas, such as the East of England and London.

Pipe Diameter	EE (£k/km)	Lon (£k/km)	NW (£k/km)	WM (£k/km)
≤75mm	[redacted]			
>75mm to ≤125mm				
>125mm to ≤180mm				
>180mm to ≤250mm				
>250mm to ≤355mm				
>355mm to ≤500mm				
>500mm to ≤630mm				

Table 10: Unit Cost per Diameter and Network (Reinforcements)

These unit costs have been applied to the granular workload by pipe diameter band to calculate a total RIIO-3 cost for general and specific reinforcements. Refer to Section 8.4.5 for more details (EJP18)

5 Proposed RIIO-3 Programme

5.1 Forecast Workload Cost & Volume

Costs and volume tables are listed below and are in line with the Business Plan Data Template (BPDT) and EJP18 regarding the RIIO-3 work allocation. There are no changes to the overall proposed volumes from our original submission.

Network	General Reinforcement	Specific Reinforcement	Reinforcement for Insertion	Total
EE	91.72	7.71	7.52	106.95
NL	6.56	7.9	3.85	18.31
NW	27.35	4.35	5.65	37.35
WM	22.08	2.33	2.63	27.04
Cadent	147.71	22.28	19.66	189.65

Table 11: Forecast Reinforcement Work Volume by Network in RIIO-3

Network	General Reinforcement (£m)	Specific Reinforcement (£m)	Reinforcement for Insertion (£m)	Total (£m)
EE	[redacted]			
NL				
250 - NW				
WM				
Cadent				

Table 12: Forecast Reinforcement Work cost by Network in RIIO-3