DD Supporting Evidence: EJP10 & EJP11

Multiple Occupancy Buildings (MOB) & PE Risers

Contents

Table of Figures

Table of Tables

1. Executive Summary: MOBs Risers

We note Ofgem's draft determination feedback indicating they recognise the need for proactive riser replacement in RIIO-GD3 and have requested further asset data to support the assessment.

In our response we will:

- Explain each part of our planned riser replacement program in detail including Planned Interventions, Interventions associated with Iron Mains Risk Reduction Program (IMRRP) and Proactive Energy Exchange.
- Provide evidence of our threshold for interventions for each area of the plan, with further explanation of how building safety scores are our assessment of asset condition.
- Provide granular asset data for our planned replacement program at individual riser level including building safety score demonstrating the assets are above threshold, predicted building safety score at the end of the period post intervention and total monetised risk pre and post intervention.
- Explain our response to EJP11 – PE Risers, presenting full analysis for High Rise Buildings (HRB).
- Provide the following annexes: Annex A: Complete Riser Asset List, Annex B: Final Planned Interventions by Network, Annex C: PE Medium Rise Buildings (MRB) Resurvey data.

We have robust processes in place to manage the risk associated with MOBs and the volume of activity proposed is the minimum required to safely operate this asset group. This approach is deliverable and limits impacts on customers' bills Our overall risers programme comprises of both reactive and proactive interventions, both intervention types play an important role in securing the safety of our customers.

Table 1 shows Ofgem feedback for EJP10 MOBs Risers and EJP11 PE Risers set out in the Draft Determination. We will address these comments directly in this response. For full details of all options that have been considered please refer to the EJP documents.

Feedback Source	Needs Case	Optioneering	Scope Confidence	Comments
RIIO-3 Draft Determinations – Cadent **Table 34: Summary of Cadent Engineering Recommendations – MOBs (EJP 10)**	Partially Justified	Justified	Medium Confidence	Outcome proposed: Partially justified. We have proposed reduced workloads based on alternative optioneering for reactive work only. The data provided to support justification of the needs case should clearly detail which assets require intervention, the intervention type, an asset health condition score for each asset alongside the risk score. We also need to understand what risk threshold has been applied in establishing intervention need and the associated justification. We do not think the data currently provided meets these requirements. Additional data is required to support the proposed scope.

Feedback Source	Needs Case	Optioneering	Scope Confidence	Comments
22nd July Ofgem Engineering – Cadent Bilateral	• Cadent must provide a clearer, more comprehensive global data repository that clarifies asset health conditions at the start and end of GD3. • Provide clarity on risk action threshold			

Table 1: Specific EJP10 Feedback from the RIIO-3 Draft Determinations Cadent Annex

2. Introduction

MOB customers are supplied with gas using riser pipe systems. Each MOB will have one or more riser systems. We operate 114,300 riser pipe systems. Our proposed plan for RIIO-GD3 indicates a total intervention rate of 1.8% per year of which a rate of 1.3% is associated with planned activity representing an asset life of approximately 75 years. This rate drops to 0.49% per year under Ofgem's draft determination increasing the predicted asset life to over 200 years, which we deem to not be acceptable to manage risk.

Steel exposed to air corrodes via oxidation, the rate at which this occurs will be influenced by its environment, with moisture, airflow and exposure to pollutants (e.g. sulphur dioxide) increasing its deterioration. Managed correctly risers can last many decades and our approach to inspection identifies and corrects issues based on building safety risk. It is unreasonable to expect a riser to last ~200years before a replacement is required.

Riser replacement and refurbishment work is classified and reported to Ofgem as either Reactive or proactive, based on the timing and nature of customer impact.

Reactive: Riser replacement or refurbishment work is triggered by immediate safety concerns, such as gas escapes or fires, where a customer could not be notified at least 5 days in advance of their gas supply being interrupted.

Proactive: work encompasses all other riser interventions, including those planned in advance or following temporary repairs.

Under Ofgem's definition, proactive work may originate from reactive events. For example, a temporary repair made during a gas escape avoids immediate interruption, but the subsequent permanent riser replacement is classified as proactive.

This classification ensures that safety-driven reactive events can lead to planned, proactive engineering responses, supporting both compliance and operational resilience. Under these definitions the removal of our planned intervention program would lead to serious defects remaining as prior notice was not required.

It is essential to have a core programme of proactive interventions to safely manage these assets.

3. Our Planned Intervention Programmes

We have three categories of planned activity in RIIO-GD3:

Planned Interventions: Planned replacements and refurbishments associated with asset condition based on proactive riser surveys. Interventions are selected from buildings over the prescribed risk threshold.

Interventions Associated with IMRRP: Planned replacement of risers that coincide with our IMRRP programme. We only intervene on risers that fail engineering assessment at the time of IMRRP and NOT every asset.

Proactive Energy Exchange: Planned disconnection of gas from a building where it is more efficient to do so. Energy exchange can be used as an option instead of a refurbishment or replacement of riser on Medium Rise Buildings (MRB) where it is advantageous to customers to do so.

We will explain the drivers and volumes in each category later in this document (Sections 3.3, 3.4 and 3.5).

3.1 Building Safety Scoring Approach

At the core of Cadent's risk-based approach to managing MOBs is a comprehensive and structured survey process. These surveys are not merely data collection exercises, they are the foundation upon which risk is quantified, condition is assessed, and investment decisions are justified.

The surveys are designed to capture a detailed, asset-level picture of the gas infrastructure within each building. They cover four key asset types:

- Building
- Risers
- Lateral
- Supply Pipe

Physical attributes are identified during the survey and from building information, including the size, age and construction of the building as well as the material, diameter and joint construction of the riser. Conditions are also recorded including signs of corrosion and moisture on and surrounding the riser.

The building safety score is calculated using the structured survey. Each asset is assessed for:

- **Likelihood of failure** (e.g. corrosion, joint failure, third-party damage).
- **Potential consequences** (e.g. gas leaks, fire, explosion).
- **Mitigation measures** (e.g. isolation valves, pipe supports, corrosion protection).
- **Survey confidence** (extent of asset visibility during inspection).

Each risk factor is assigned a numerical value. The overall risk score is calculated by multiplying:

Consequence value × Likelihood value × Mitigation factor (if applicable).

Importantly, the model applies specific weightings to reflect the relative risk of different failure modes. For example, corrosion is weighted more heavily than joint failure, using a factor of 2.5 for likelihood and 4 for consequence.

Survey confidence is also weighted—if 0% of a riser is visible, a factor of 20 is applied to reflect uncertainty. Buildings identified as vulnerable to progressive collapse receive a multiplier of up to 20.

The final score is a product of these weighted values, with mitigation factors (ranging from 0.01 to 1.0) reducing the score where effective controls are in place. This weighted approach ensures that both the severity and uncertainty of risk are captured, enabling prioritised, risk-informed decision-making for asset maintenance and safety planning.

This approach is our assessment of condition score of the risers associated with that building prior to intervention and we prioritise our planned activity accordingly.

All buildings are surveyed after riser intervention to confirm that risk has been reduced to an appropriate level. We have reviewed our RIIO-GD2 activity to date and calculated the percentage of building safety score reduced by intervention. This equates to an average 95% reduction in building safety score across the period. We have used this to infer the asset condition at the end of RIIO-GD3 following delivery of our planned intervention programme.

3.2 MOBS Action Threshold (MAT):

Our approach to managing MOBs is documented in our procedure; 'Multi-Occupancy Buildings CAD/PM/MOB/2' issued in December 2023.

This policy sets out the risk threshold, which drives our inspection frequency to manage risk until intervention can be planned, as follows:

Inspection Threshold Frequency	Inspection Frequency (yrs)	Medium Rise Buildings (Building safety score)	High Rise Buildings (Building safety score)
High	1	>=210,000	>=210,000
Medium	5	100,000 to 209,999	100,000 to 209,999
Low	10	0 to 99,999	0 to 99,999

Table 2: MAT levels and inspection frequency

Although HRB and MRB differ in scale, the risk profile associated with a failure of metallic riser is effectively equivalent due to similar likelihoods o defect and comparable safety consequence. As such it is appropriate to maintain the same inspection frequency to ensure consistent risk mitigation and compliance. The risk profile is different with PE risers where third party damage is more consequential for HRB.

Any buildings with a risk score above 100,000 where additional survey will be completed in period are eligible for selection within our planned replacement programme. When an intervention is planned it must reduce the building safety score to below 100,000.

We have chosen to set the threshold for identification of potential interventions at a building safety score of 88,000, this allows for deterioration of the assets between 2024 when the data was extracted and the end of RIIO-GD3 (2030). Only buildings with a score above 100,000 will be intervened on (Those deteriorating above, or already above threshold)(Figure 1).

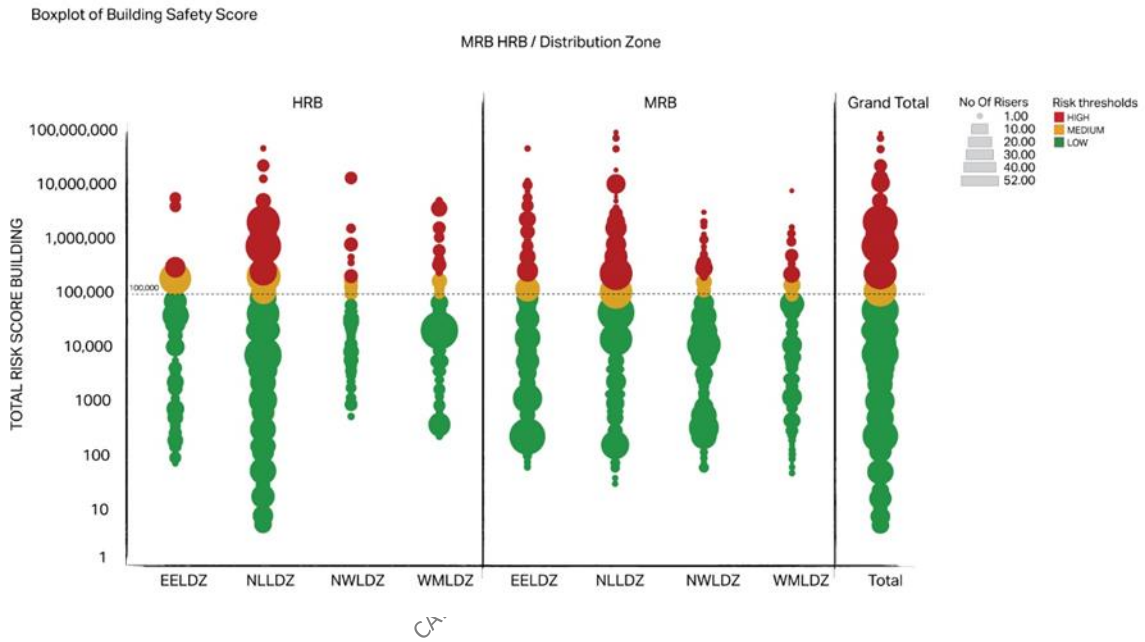

Figure 1: Total number of buildings above MAT threshold

In total there are 57,000 HRB and MRB included on our asset list. Of these 9,651 have a building safety score over 88,000. This is the eligible list of buildings for planned intervention. This equates to 25,885 risers out of a total of 114,000, 23% of the total population (Table 3)

Network	Buildings above threshold	% of buildings	Eligible risers	% of risers
East of England	1168	12%	3255	13%
North London	6974	72%	18759	72%
North-West	534	6%	1445	6%
West Midlands	975	10%	2426	9%
Total above threshold	9651		25885	
Total Risers	**57178**	**17%**	**114000**	**23%**

Table 3: Total Assets above threshold (building safety score >88,000)

We are only proposing planned interventions on ~5000 risers representing approximately 20% of those above thresholds.

3.3 Planned Interventions (refurbishment and replacement)

Our RIIO-GD3 volumes have been derived from our current RIIO-GD2 plan. We have chosen this in conjunction with the networks based on a realistic, deliverable programme that targets our highest building safety risks. The profile of replacements is phased across the period to allow for efficient delivery by the networks.

Network	Building Type	Intervention	'26	'27	'28	'29	'30	Grand Total
EELDZ	HRB	Refurb Planned	1	1	1	1	1	5
		Replace Planned	15	15	15	15	15	75
	MRB	Replace Planned	214	214	214	214	214	1070
NLLDZ	HRB	Replace Planned	124	124	124	124	124	620
	MRB	Refurb Planned	11	11	11	11	11	55
		Replace Planned	259	259	259	259	259	1295
NWLDZ	HRB	Replace Planned	20	17	0	0	0	37
	MRB	Refurb Planned	54	53	54	54	54	269
		Replace Planned	119	119	119	119	74	550
WMLDZ	HRB	Replace Planned	13	13	13	13	13	65
	MRB	Refurb Planned	8	8	8	8	8	40
		Replace Planned	188	188	188	188	188	940
		Grand Total	**1026**	**1022**	**1006**	**1006**	**961**	**5021**

Table 4: RIIO-GD3 planned interventions by network and building type

As described above only buildings over MAT are eligible for selection and our AIM model then selects risers for intervention based on their total monetised risk benefit with the optimal balance of costs and

risk. Please see section 5 of Appendix 10 Network Asset Management Strategy (NAMS) for explanation of the AIM model.

This takes into account the risk of failure of a riser including safety, environmental and interruptions benefit. The AIM model optimises the programme and feeds into the cost benefit analysis presented in our original submission which confirmed our chosen option as the most viable option available.

We chose to intervene on highest safety scoring buildings to mitigate potential safety hazards before they occur. This is not easily modelled in AIM. Without using a process safety risk measure within AIM, the risk these assets present is not easily represented.

We have included a full list of individual risers selected for intervention with their associated building safety score pre and post intervention and their monetised risk pre and post intervention. We will reduce building safety risk associated with these assets.

Our planned approach targets the highest building safety scoring risers helping to reduce risk in this category of work. Overall including all planned and reactive activity our risk position remains stable through the period (**Error! Reference source not found.**).

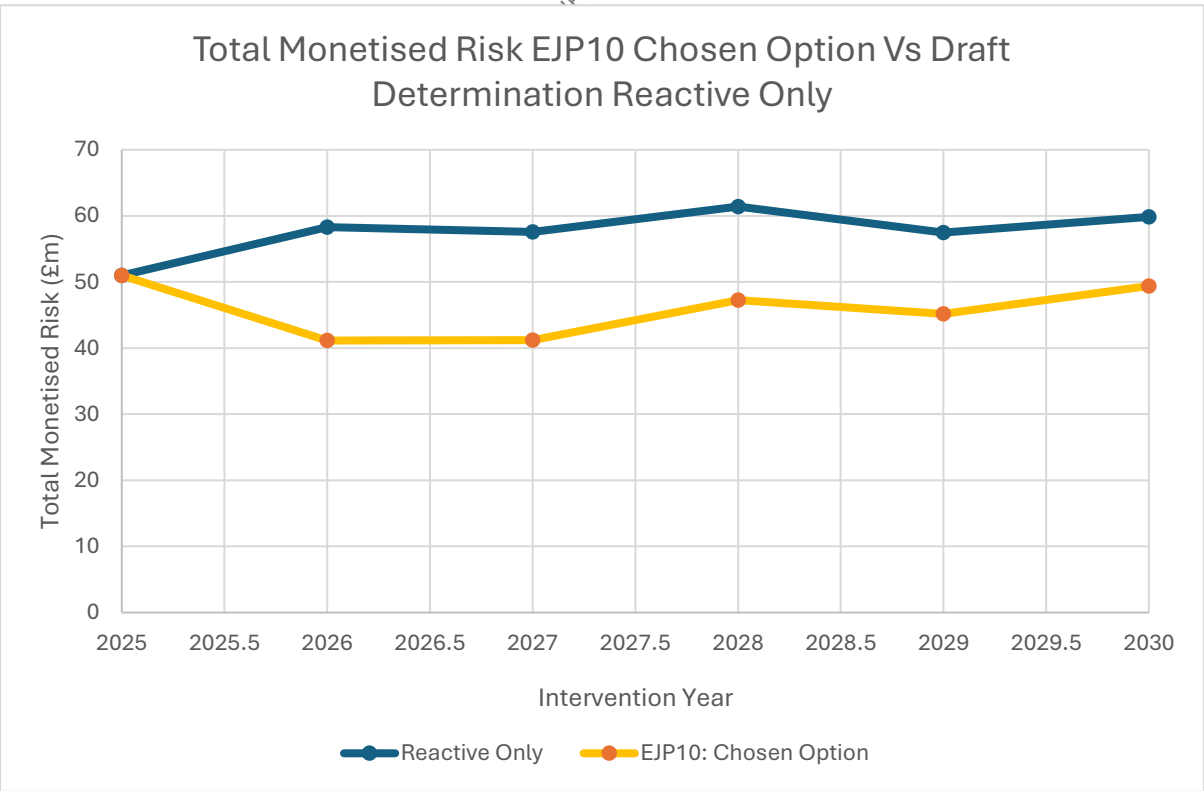

Figure 2: Total Monetised Risk across RIIO-GD3

The list of planned riser interventions should be viewed as indicative and not definitive of what we will replace in RIIO-GD3. Our survey programme will continue, and we expect other high-risk risers to be identified and prioritised for intervention in period based on their building safety score and our ongoing survey activity.

3.4 Risers Associated with IMRRP

			RIIO-GD3 Intervention Year					
Network	Building Type	Intervention	'26	'27	'28	'29	'30	Grand Total
EELDZ	MRB	Replace Mains	168	168	168	168	168	840
NLLDZ	HRB	Replace Mains	19	19	19	19	19	95
	MRB	Replace Mains	137	137	137	137	137	685
NWLDZ	MRB	Replace Mains	117	117	117	23	0	374
WMLDZ		Replace Mains	0	0	0	0	0	0
Grand Total			441	441	441	347	324	1994

Table 5: RIIO-GD3 Mobs associated with IMRRP by network and building type

The IMRRP is a mandatory programme of work to ensure the safety of our customers. The replacement of aged iron pipes delivers wide customer and societal benefits including reductions in risk to property and life, repairs (cost and disruption), leakage and interruptions to supply.

We must transfer risers onto these new mains as the IMRRP is delivered. Any riser within 30m of an IMRRP main must be assessed. The HSE enforcement policy 2021-2026 specifies that all Tier 1 iron mains <8" within 30m of a building must be decommissioned by 2032. Figure 3 shows that 33,700 risers meet these criteria. The engineering requirements set out below define whether a riser must be replaced at the same time.

Our RIIO-GD3 volumes are based on RIIO-GD2 replacements associated with IMRRP (Figure 3: Total Number of Risers within 30m of IMRRP Main). As the IMRRP continues we expect to find similar levels of riser replacements.

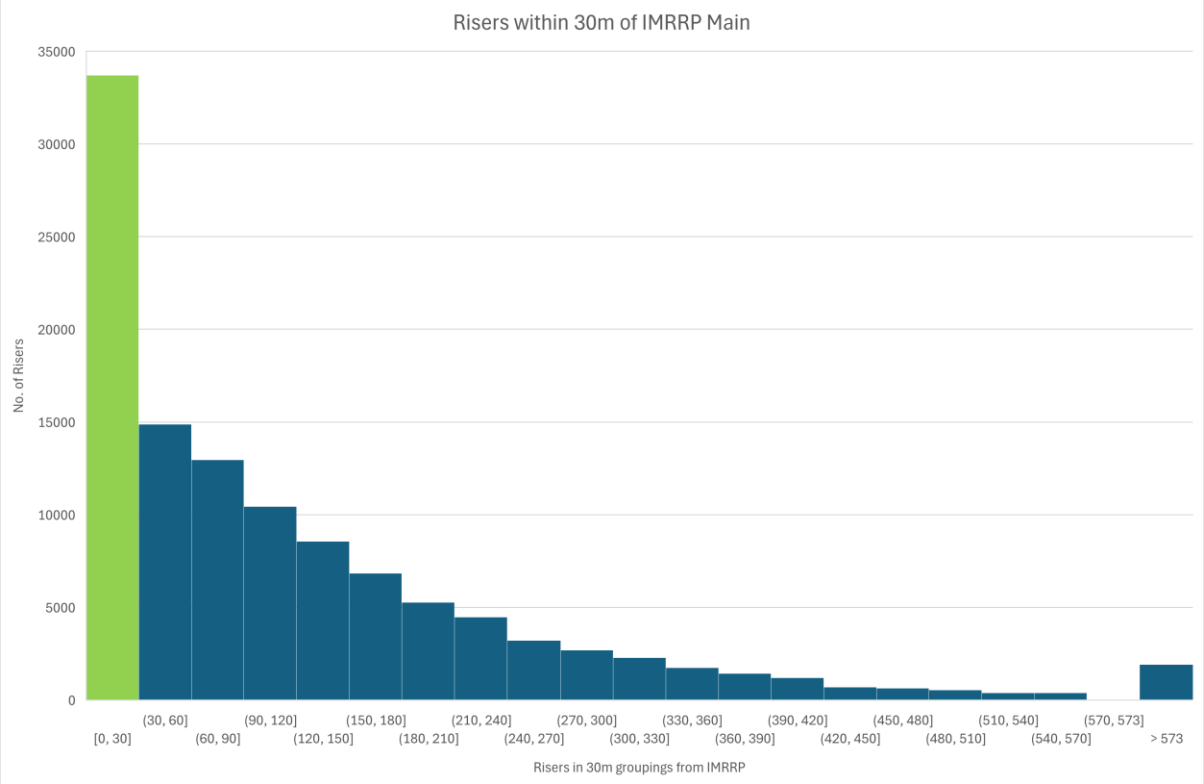

Figure 3: Total Number of Risers within 30m of IMRRP Main

Many risers will be transferred onto the new mains without needing to be replaced. As the new main is being installed an engineering assessment of the risers in proximity will determine whether an intervention is necessary.

The engineering reasons for intervening on a riser during a mains replacement are:

- **Above Ground Live Transfer**: Above-ground steel pipework is visually inspected to determine suitability for an above ground transfer. If unsuitable for an above ground transfer, then an inground transfer is considered.
- **In Ground Live transfer**: The in-ground pipework is visually inspected to ensure that it is sound, free from corrosion and capable of being worked. If the in-ground pipework does not pass this assessment, then the riser will need to be rebuilt.
- **Leakage Testing**: A leakage test is mandatory before a live transfer is undertaken. If leaks are identified that cannot be remediated, the transfer is aborted, and the riser will need to be rebuilt.
- **Internal Riser Inspection:** Corrosion identified during internal riser inspection halts the transfer, requiring the riser to be rebuilt.
- **Joint Restrictions**: Mechanical compression joints are not allowed within 2 meters of the property. If the entire riser approach main falls within this zone, live transfer is not viable, necessitating a rebuild.

Based on assessment of our RIIO-GD2 workload to date we intervene on 39% of risers that are in proximity to IMRRP activity. We consider the continuation of RIIO-GD2 volumes to be appropriate for RIIO-GD3 and have reviewed the approach with our networks to check for deliverability. The delivery profile over the period is aligned with our IMRRP flat run rate across the remaining years of the programme.

As the riser replacements associated with IMRRP are only identified during delivery of the programme it is not possible to provide a detailed list of each riser at this stage.

3.5 Energy Exchange – Planned Disconnections

			RIIO-GD3 Intervention Year					
Network	**Building Type**	**Intervention**	**'26**	**'27**	**'28**	**'29**	**'30**	**Grand Total**
EELDZ	HRB	Disconnection Planned	12	17	17	7	0	53
	MRB	Disconnection Planned	20	21	20	20	20	101
NLLDZ	HRB	Disconnection Planned	20	20	20	20	20	100
		Disconnection Reactive	10	10	10	10	10	50
NWLDZ			0	0	0	0	0	0
WMLDZ	HRB	Disconnection Planned	12	12	12	12	12	60
		Grand Total	**74**	**80**	**79**	**69**	**62**	**364**

Table 6: RIIO-GD3 Energy Exchange Programme

The Energy Exchange Programme (EEP) is a strategic initiative designed to deliver long-term operational efficiencies and customer benefits by transitioning low gas usage buildings from gas to electric energy solutions.

The programme identifies MOBs with minimal gas consumption and engages with residents and building owners to explore the opportunity of switching to electricity. Where full customer agreement is achieved, the gas riser is decommissioned, and the building is converted to electric appliances. Customers are supported through this transition with incentives such as financial contributions toward induction-compatible cookware.

This approach presents a significant opportunity to eliminate risk by permanently removing gas infrastructure from buildings, thereby reducing future safety liabilities, maintenance obligations, and compliance costs. It also aligns with broader decarbonisation goals.

However, the success of this programme is contingent on securing full consent from all residents and building owners connected to a riser. This presents a notable challenge, as agreement must be unanimous to proceed with decommissioning. Engagement strategies must therefore be robust, transparent, and tailored to address concerns around disruption, appliance suitability, and long-term energy costs.

From a regulatory perspective, while Section 10 of the Gas Act mandates the maintenance of domestic gas supplies without applying an economic test, EEP offers a compliant alternative by removing the need for gas supply altogether—thereby avoiding the ongoing cost of maintaining underutilised assets to full safety standards.

Volumes have been agreed with the networks based on historic uptake of energy exchange (Table 8). As described above interventions are not based on building risk and will be identified in period whilst reviewing potential intervention types for a building.

4. Conclusion

We have presented further comprehensive evidence to support the proactive intervention in metallic MOBs risers based on their building safety scores, proximity to IMRRP and opportunity for energy exchange.

We strongly disagree with Ofgem's approach in removing planned interventions from the draft determination.

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5. EJP11 PE Risers

Feedback Source	Needs Case	Optioneering	Scope Confidence	Comments
RIIO-3 Draft Determinations – Cadent **Table 34: Summary of Cadent Engineering Recommendations**	Partially Justified	Justified	High Confidence	Outcome proposed: Partially justified. We have proposed reduced workloads based on alternative optioneering for reactive work only. The data provided to support justification of the needs case should clearly detail which assets require intervention, the intervention type, an asset health condition score for each asset alongside the risk score. We also need to understand what risk threshold has been applied in establishing intervention need and the associated justification. We do not think the data currently provided meets these requirements. Additional data is required to support the proposed scop
22nd July Ofgem Engineering – Cadent Bilateral	• Provide data on missing 63 MRB PE risers • Clarify risk position for HRB PE and provide risk assessment in line with MRB			

Table 7: Specific EJP11 Feedback from the RIIO-3 Draft Determinations Cadent Annex

5.1. Medium Rise Buildings

We acknowledge that 63 risers without fault data were included in our submission and were discussed at our bilateral on the 22nd July. We have re-surveyed these buildings and can confirm that 47 of the risers in question have had PE risers replaced with metallic risers and had not been recorded in the PE risk assessment system.

The remaining 16 risers have had their assessments and scoring updated and their risk score has dropped below the threshold of 10,000 risk score.

We accept that the 63 risers are removed from our MRB PE plan.

5.2. High Rise buildings

We will explain our approach to addressing the risk associated with PE Risers on HRB. We have replicated our approach to MRB to provide a complete picture of risk for our HRB assets as requested at the bilateral session on the 22nd July.

Legislative Context

The legislative context for intervening on these assets is:

The Building Regulations – Approved Document B, Section 4, Regulation 7.2 explicitly prohibits the use of flammable materials on the external surfaces of High-Risk High-Rise Buildings. While certain exemptions are listed, gas risers are notably absent, indicating that their inclusion would contravene current building safety legislation.

Further, the findings of the Grenfell Tower Inquiry (Volume 4, Part 6, Sections 48.35–48.39) highlight the risk posed by PE risers in undermining compartmentalised fire protection. Specifically, the Coanda effect whereby hot gases and flames adhere to building surfaces can accelerate fire spread, particularly when flammable infrastructure such as PE risers is present.

Whilst it is not explicit that we must remove PE, as an asset operator we have a responsibility to remove or reduce the risk to an acceptable level.

Risk Assessment and Asset Strategy

Cadent has conducted comprehensive risk assessments across all HRBs with PE infrastructure, applying the same rigorous methodology used for Medium-Rise Buildings (MRBs) as submitted in our RIIO-GD3 documentation. We have presented the full dataset in Annex C.

The total number of risers in each risk category is shown in table 9. Under our risk assessment criteria the majority of risers are above a risk score of 5000. As detailed in EJP11, this risk categorisation process is specific to PE risers and not related in number of points to the metallic riser assessment method. The number of risers in each category has changed since our initial submission as we have had new survey's completed in the past year, with the data updated accordingly and relates to the data in Annex C.

HRB Risers Risk Threshold	East of England	London	Northwest	West Midlands	Grand Total
01. <5000	0	5	0	2	7
02. 5000-10000	25	13	23	0	61
03. 10000+	6	4	11	4	25
Grand Total	31	22	34	6	93

Table 8: Total Number of HRB PE Risers in each risk category

Figure 44 shows the cumulative risk position for these assets we propose to remove all HRB PE risers and reduce the risk to zero. The cumulative risk position is the same methodology we have applied to our MRB assets; we are proposing an appropriately lower level of risk for HRB given the consequence of failure. Our risk appetite is zero and therefore all risers to the right of the line on figure 5 are proposed for removal. As a responsible asset owner it is important we take steps reasonably practicable to remove the risk related to this asset group entirely. The scale of investment is such that for a marginal investment the specific risk associated with PE can be mitigated, with replacement risers being metallic and falling in line with our management approach for these assets.

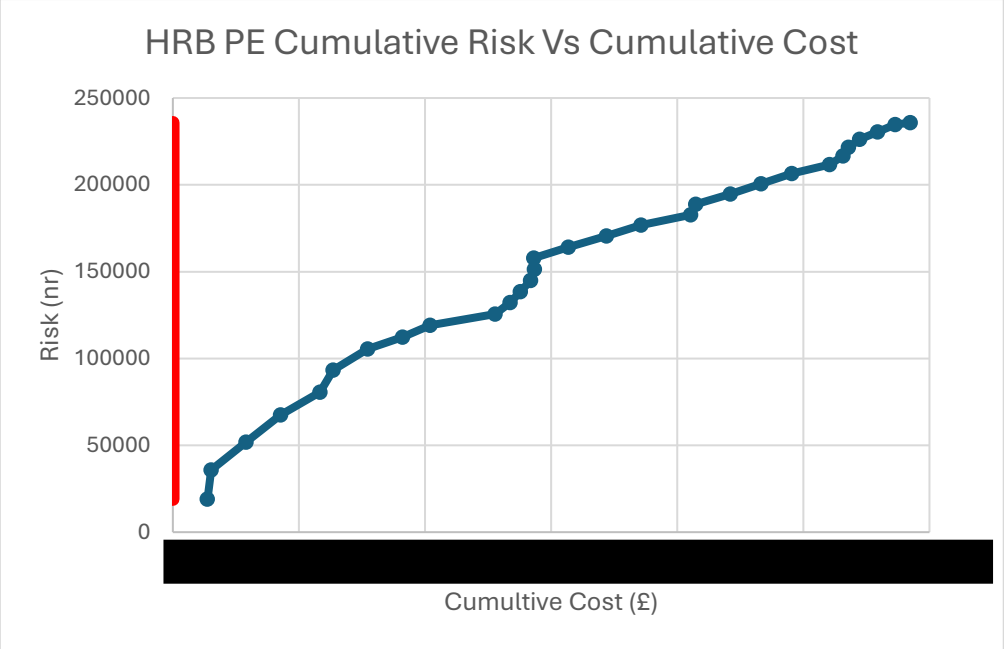

Figure 4: Cumulative Risk Vs Cumulative Cost HRB PE Risers

5.3. Limitations of Current Mitigation Measures

While Pipeline Isolation Valves (PIVs) are installed as part of riser systems to provide emergency shut-off capability, they do not offer sufficient mitigation in the event of fire. PE melts at approximately 120°C, and Glass Reinforced Polyester (GRP) sleeves, commonly used to contain PE risers, are not fire-rated and ignite at around 300°C. In a fire scenario, Cadent response teams typically arrive within one hour of a call being raised, which is unlikely to be sufficient to prevent riser failure and subsequent gas release.

5.4. Conclusion and Position on the replacement of HRB PE Risers

The need to intervene and replace PE risers on HRBs is rooted in both the prevailing legislative landscape and the heightened public awareness regarding gas safety in multi-occupancy buildings. Recent changes in legislation, driven by high-profile incidents have underscored the vulnerabilities present in the relatively small population of PE risers on HRB's and the pressing need to address them proactively. Whilst this is not a direct legislative driver, it is important to mitigate the risk these assets play in propagation of fire. The scale of investment is such that for a marginal investment over RIIO-GD3 we are able to remove the specific risks associated with PE risers, which is in line with prevailing public sentiment and risk appetited on this high consequence infrastructure.

Technical factors further reinforce this need. Existing mitigation measures, such as Pipeline Isolation Valves and GRP sleeves, offer limited protection against the risks posed by fire. The materials currently in use—namely PE and GRP—have relatively low thresholds for heat resistance and fire ignition, making them inadequate in the event of an emergency. These technical limitations expose customers to unacceptable levels of risk in a relatively small volume of assets. Therefore, intervention becomes a matter of both compliance and responsibility and can be delivered for a relatively low cost.

By committing to the replacement of all PE risers on HRBs within RIIO-3, we are not only aligning with regulatory expectations but also reaffirming our commitment to public safety and asset integrity. Such intervention is essential to mitigate potential hazards, ensure long-term compliance, and maintain the trust of the communities we serve. In light of both the legislative mandates and technical realities, fully replacing these assets is the only prudent course of action.