



SSEN Distribution Response to ED2 Draft Determination - Annex 7: Deliverability



**Scottish & Southern
Electricity Networks**

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community

The purpose of the document is to supplement the evidence provided within our Business Plan submission, and to respond to specific deliverability concerns Ofgem have highlighted in their Draft Determination. This corresponds to the deliverability concerns with the following Engineering Justification Papers (EJPs):

- 307_SSEPD_NLR_132kV_SWGR
- 308_SSEPD_NLR_HV_TRANSF
- 311_SSEPD_NLR_LV_UG & 70_SHEPD_LRE_LVFeeders
- 312_SSEPD_NLR_HV_UG & 69_SHEPD_LRE_Feeders
- 314_SSEPD_LV_SWGR
- 315_SSEPD_LV_UGB
- 322_SSEPD_NLR_RISING_&_LATERAL_MAINS
- 425_SSEPD_NLR_33kV&132kV_TOWERS

We have completed comprehensive reviews of our strategy which have been validated externally to detail delivery of our RIIO-ED2 Final Business Plan submission, and therefore this supplementary Annex should be read in conjunction with the following sections of our original business plan submission:

1. Chapter 16 – Ensuring Deliverability and a Resilient Workforce;
2. Annex 16.1 – Deliverability Strategy;
3. Annex 16.2 – Supply Chain Strategy; and
4. Annex 16.3 – Workforce Resilience Strategy

Delivering infrastructure investment – the context

Since the submission of our RIIO-ED2 Business Plan, the outlooks for the economy, and infrastructure and energy sectors, has changed considerably. The Ukraine War and ongoing supply chain disruptions, tight labour market caused by the COVID-19 pandemic and the drive towards net-zero, have all put pressure on resources.

While we note Ofgem's concerns with deliverability in specific areas, we do not think that reducing allowances in all areas where Ofgem has expressed concerns is appropriate, as it fails to recognise the potential impact on current and future consumers of not delivering specific key activities. Furthermore, we would urge Ofgem to consider the feedback from our CEG around "the importance of visibility of workload to marshal resources, reduce mobilisation times and inform the skills pipeline." This is also in line with the feedback we have been receiving from our supply chain partners. Ofgem must consider setting a RIIO-ED2 framework which proactively enables deliverability in a very different environment to RIIO-ED1. This includes ensuring the right balance is struck between the use of uncertainty mechanisms and baseline funding.

The IMF's July 2022 World Economic Outlook paints an increasingly challenging outlook for the global economy with 2021's tentative economic recovery followed by contractions in the second quarter of 2022. The IMF's July baseline forecast for annual global growth has been further reduced to 3.2%, 0.4 percentage points lower than April of this year. Simultaneously, global inflation has been revised upwards driven by higher food and energy prices caused by supply-demand imbalances. Commodity prices remain at all-time highs – the World Bank notes energy prices (in U.S. dollar terms) were more than four times higher in March 2022 than their April 2020 lows—the largest 23-month increase in energy prices since the 1973 oil price hike. The IMF notes that there is a plausible scenario where additional risks such as a property sector crisis and global trade fragmentation materialise, which will put global growth in the bottom 10 per cent of outcomes since 1970.

These pressures combine to present a unique challenge where industry-wide efforts are required to respond to climate change and to achieve net zero within the United Kingdom. This means investment today and a robust plan to deliver it in a timely and value-for-money fashion.

We have carried out extensive engagement with our supply chain since the Draft Determinations to provide evidence of how we are managing risks. As outlined in our Executive Summary, confidence, and clarity regarding our intent and strategic outcomes, are essential to provide the supply chain with sufficient certainty to efficiently plan and deliver works. The need for a robust baseline plan is important as the absence of a strategic

plan for infrastructure can lead to inappropriate and inconsistent project selection, contributing to uncertainty and resulting in higher costs of capital. There is strong evidence to justify our investment: significant distribution network reinforcements are required to meet the uptake of low carbon technologies (*Accelerated electrification and the GB electricity system*). We need commitment from Ofgem on the investment required to achieve net-zero that translates this confidence to our supply chain. Delaying investments will have significant impact in reducing our ability to meet net zero targets and increase costs for future price controls. Our approach to the deliverability of our plan becomes ever more important in the context of infrastructure where project optimisation through our grid supply model will capitalise on optimising design, minimising waste, and utilising resources more effectively by delivering sustainable whole system solutions together with our supply chain.

As noted above, Ofgem must consider the impact on deliverability of the RIIO-ED2 framework, in terms of the potential impact on both current and future consumers:

- Addresses errors in its cost assessment including unachievable and unreasonable efficiency targets to provide confidence to our supply chain within the context of infrastructure.
- Accepts our submitted unit rates for asset categories where we have unique cost challenges or justification through taking a different approach to other DNOs (e.g., North of Scotland and specific non-load asset categories such as LV cables, further details can be found in Annex 10)
- Recognises the investment required to deliver network capacity and growth, and appropriate balance of risk and reward that maintains finance-ability and is transparent about the cost of net-zero.
- Accepts the digital investment required to improve service delivery to our customers in an increasingly challenging environment, including to enable new connections.

In anticipation of the forthcoming price control period, and with a view to optimise delivery, we have already commenced mobilisation efforts, supply chain engagements, procurement of goods, services and works as per our original baseline plan.

While we continue to engage proactively with our supply chain (see Annex 1 for further engagement details), key partners are telling us they need greater certainty of volumes to progress negotiations further, and this is further exacerbated by the uncertainty created by Ofgem's proposed cuts in certain areas, for example in relation to LV overlay volumes in SHEPD. The additional information provided in this annex is intended to resolve outstanding concerns to enable our engagement to progress and a positive outcome to be delivered.

Transformation and Mobilisation Efforts for RIIO – ED2

Ofgem's concerns around deliverability are summarised into two key areas (see Annex 3 and Annex 4 for a mapping of SSEN's response to Ofgem's specific feedback from the Draft Determinations and subsequent bilaterals):

1. '*...significant increase in volume compared to ED1'*
2. '*Due to the ramp up in capability, we consider that there is a risk related to deliverability...*'

Ofgem's response has been to disallow costs of associated with a number of key investments related to Asset replacement and Net Zero Load related reinforcement. We do not consider this response to be proportionate or appropriate, as it fails to consider the impact on current and future consumers of delaying key investment in our plan. This includes in terms of ensuring security of supply in the short and longer-term, as well reducing carbon emissions. This also risks a bow wave of activity in future price controls, exacerbating deliverability issues at a later stage and resulting in greater costs to future consumers. (See Fig1)



Fig 1 – Range of Potential Ex-Ante LRE ED2



We recognise the importance of ensuring our business plan is deliverable, and as highlighted in Annex 16.1 of our final plan submission. We have validated our delivery model and have mobilised efforts to deliver transformation to support our step change in capability. We have therefore sought to further address Ofgem's concerns directly in our response to Draft Determinations and are providing additional evidence to support our preparedness. This includes further information on how we are preparing for RIIO-ED2 as well as more detail evidence in key areas identified by as being of concern.

Mobilising our Business and our Supply Chain

1. We have established an Integrated Delivery Planning Centre (IDPC) to identify at an early stage all interdependencies including present and future business as usual operational requirements – it ensures all parts of our delivery organisation have a common level of forward planning, ensuring works are integrated and optimised for performance and benefits outcomes.
2. The IDPC continues to develop optimised and integrated programmes of work that align to our grid supply point model. For example, in Mannington we have identified areas for optimising considering a whole system approach rather than considering projects and drivers in isolation, which will deliver improved customer outcomes through fewer interruptions, and this supports our market engagement. Through our GSP integration we have identified several areas where assets need to be upgraded ahead early in their whole life cycle costs, which evidences the need for our holistic approach.
3. We have identified long lead time plant and commenced procurement to secure delivery for the initial years of RIIO-ED2 and where lead times have exceeded our plans, we have made proactive decisions to place orders to secure delivery of our commitment. For example, we have already procured items including 132kV and 33kV transformers, Distribution Transformers and secondary SF6 circuit breakers to safeguard our deliverability commitments whilst the supply chain normalises to demand profiles. For standard items held in our logistics stores we have already modelled likely future demand across all product classes and are sharing these with our suppliers (to support their supply chain and resource and investment plan) and are in the process of placing orders to secure products for RIIO-ED2.
4. We have also commenced engineering design and consenting activities to ensure we are ready to deliver from the start of RIIO-ED2 and throughout.
5. We are piloting our GSP approach on the Green Recovery programme and although contract award recommendations are imminent, this demonstrates that the supply chain supports the multi-disciplinary activity and welcomes the opportunity to design out cost and maximise productivity by optimising projects and outages.
6. Good progress is being made on delivering the new SEPD GSP model agreement (as outlined in Annex 16.1 of our final business plan). This will be the largest contract for RIIO-ED2 and have the greatest impact on successful delivery. A thorough evaluation of options has been completed and a specific GSP Commercial and Contracting strategy has been developed. Internal governance has approved the

- strategy and we will launch our pre-qualification questionnaire in August 2022, the first stage of the tender process.
7. In recognition of our capability and capacity needs for the future we have deployed practitioner portfolio programme and project management & commercial expertise to accelerate execution of our commercial strategy for RIIO-ED2, providing upskilling, knowledge transfer and training opportunities for our people
 8. To support our GSP model, we have established a new organisational design, creating a Capital Delivery Directorate which aligns to Programmes 1-3 of our delivery model and focuses on the delivery of our customer connections and capital works. This means our Operations Directorates are focused on maintenance, inspections and fault restorations including planned works that require significant customer focus and interface.
 9. We have deployed design by exception principles and geographically mapped our work to optimise visits to a single location and utilising staff based locally to improve effectiveness of our internal delivery teams.
 10. In SHEPD, we will utilise our existing frameworks and optimise investments to provide supply chain visibility and adopting GSP principles.

Mobilising our Workforce

Within our final business plan submission, we submitted a workforce strategy in Chapter 16 and our Annex 16.3 which contains the detail of the process to determine the growth plan to support our delivery strategy. A key commitment was to increase our workforce from 3,974 to 4,839 to ensure business readiness for RIIO-ED2.

Table 1 provides demonstrable evidence on our progress since final plan submission, giving us and our customers the confidence that our plans are effective and will deliver the growth needed to support our plan. Improvements to our internal capabilities and skillsets to support delivery of work are detailed in our Annex 16.3.

Table 1 - Key workforce constraints and risks, and mitigations

Identified Risks / Constraints / Market Challenges	Our Mitigation Strategy (from April 2022 to date)
Increased competition for resources and skills	<ul style="list-style-type: none"> - We have made 388 offers with a 97% acceptance rate. This is in addition to our apprentice and trainee pipelines. 165 of these roles are new and represent growth. This indicates that our strategy for market penetration is effective. It is supported by our new recruitment partners and our analysis of the market data from EUSkills informing our geographical penetration.
Ageing workforce, representing a loss of skills on retirement ⁶	<ul style="list-style-type: none"> - We have recruited 109 apprentices and trainees. - We have 68 adult learners – our highest number to date.
High demand but low availability technical skills	<ul style="list-style-type: none"> - We have established 3 new fast-track pipelines for specialist engineers, recruiting 15 in our pilot campaigns in September 2021, with another 35 joining in September 2022.
Perception that the traditional electrical industry is not attractive to women or entrants from diverse ethnic backgrounds – limiting the available pool of candidates and industry diversity	<ul style="list-style-type: none"> - We have designed an innovative fast-track learning programme for system planners. The programme is designed to be accessible to a socially inclusive and diverse range of candidates. From a response of 114 we interviewed 32 and recruited 13 people with 75% ethnic diversity, and 25% male/female diversity. This programme is scalable, replicable, and cost effective. We will repeat this programme annually and extend it to other specialist engineering skill areas, ensuring that we can grow our own talent, achieve better diversity, and be more socially inclusive in line with our Just Transition commitment.
Attracting the next generation of talent and upskilling for the future	<ul style="list-style-type: none"> - As a result of these initiatives, 60 people will have joined our new specialist engineering FastTrack pipelines by September 2022. We will have 24 people in our jointer fast track programme by September 2022.



Identified Risks / Constraints / Market Challenges	Our Mitigation Strategy (from April 2022 to date)
Responsibility to obtain and maintain skills to operate the network	<ul style="list-style-type: none"> - We continue to operate our own training schools, giving us the scalable and controllable resource and facilities to deliver cost effective training and authorisations needed for our existing and new employees to operate safely and efficiently.
Meeting stakeholder expectations	<ul style="list-style-type: none"> - We have endorsement and support from our trade union partners, for our job growth and skills development plans required for ED2 delivery. Our external stakeholders have indicated the importance of ensuring skills are passed to the young workforce and opportunities for long term careers are increased. Our new pipelines meet this expectation.
Workforce growth and phasing to meet the need of the work phasing	<ul style="list-style-type: none"> - We phased our workforce growth to align with delivery needs in our strategic workforce plan, recognising that we would need capabilities in place at the start of RIIO-ED2. - Our workforce planning process is now contained within our overall strategy and will define the process for continually reviewing the optimum model. It has the agility built in to respond to emerging market conditions, changing regulatory requirements and other influencing factors.

Specific Areas of Concern and Our Response

In the remainder of this document, we outline our response to specific issues identified by Ofgem in their feedback. Our response addresses the specific feedback received. We note that feedback was provided by Ofgem in three ways:

- (i) Through an “Engineering EJP Overview” spreadsheet, provided to us on 29th June: this feedback was high-level and in places generic;
- (ii) Additional written feedback provided by the engineering hub: this only covered a small number of areas (Submarine Cables, Diesel Generators, LV/HV/EHV poles and LV/HV Cables) and was provided to us on 5th August, less than three weeks before the consultation closing date; and
- (iii) Oral feedback provided in meetings with Ofgem: this covered mainly LV/HV/EHV Poles, LV/HV Cables, Rising Laterals and Mains (RLM). A full list of engagements can be found in the Annex 4.

Separately, we also asked Ofgem a number of formal Supplementary Questions (SQs) to better understand Ofgem’s concerns with the EJPs listed as ‘Partially Justified’ due to deliverability concerns. We expect engagement on these areas to continue in the run up to Final Determinations, to ensure we have fully understood the nature of Ofgem’s concerns and are provided with sufficient opportunity to respond.

The additional information provided below is complementary to the analysis in our original EJPs and must therefore be read in parallel with our final business plan submission. We are confident that our original EJPs met the standard set out in Ofgem’s EJP guidance document, the significant additional evidence provided here builds on evidence already provided in line with guidance relating to deliverability and risk, with a strong focus on deliverability constraints, and key deliverability risks and mitigations.

Environmental (FFC, SF6 & Bunding)

Across a number of asset categories Ofgem have questioned our deliverability plans; an example of their comments is '*...EJP presented limited information on deliverability which is considered a risk.*'

This has a direct impact on our ability to meet Ofgem own minimum requirements, our publicly accredited Science Based Target, and overall delivery of a credible and ethical net zero. This also goes against our stakeholder priorities. In response to Ofgem's concerns on deliverability, we have outlined our specific strategy and mitigations to demonstrate our preparedness (see Table 2).

Table 2 - Key deliverability constraints and risks, and mitigations

Identified Risks / Constraints	Our Mitigation Strategy
Volume Increase Step change increase in volume delivery between RIIO-ED1 and RIIO-ED2. Bunding; SF ₆ ; Flood; Building Improvements ;PCBs	<ul style="list-style-type: none">- Works associated with bunding are being aligned with our Load and other Non-Load investments to ensure we have optimised our work bank which will be delivered through our GSP model.- Our consultation response to Core-Question 13 demonstrates how we have addressed all Ofgem's concerns, in addition to the supporting evidence provided in Annex 8.
Current Process Legacy ways of working limit deliverability. SF ₆ ; NbS	<ul style="list-style-type: none">- We are reviewing synergies with SSE Networks Transmission for SF₆ alternatives products to enable commitment of our plan.- We are working with the supply chain to trial and develop new technologies in line with ENA standards which we will continue to support.- We are working with external partners, statutory stakeholders and experts to ensure deliverability of our Nature Based Solutions & CVP proposals
Resourcing Project team and management resources required to oversee delivery contracts. All environmental drivers	<ul style="list-style-type: none">- Our resourcing plan has been developed in accordance with our GSP model and commercial strategy, which through economies of scale, pipeline visibility will secure the necessary resource.- Alignment of our work across different investment drivers means that we will optimise the use of critical resources to enable delivery of our plan. We have an established project management and commercial team that will deliver volumes associated with environmental drivers.
Procurement Ability to secure supply chain and associated resources. All environment drivers	<ul style="list-style-type: none">- For projects identified in the early years of RIIO-ED2 we have commenced procurement of SF₆ circuit breakers to secure delivery of our plan, as evidence from the supply chain indicates lead times can be up to 12-18 months depending on the voltage.- A new Distribution Transformer framework was let in 2020, appointing four robust suppliers, significantly increasing our capacity. Orders have already been placed for units due for delivery of Year 1 with longer term plans for future years shared with suppliers. The supply chain has raised concerns on the impact of the volume moving to the Uncertainty Mechanism and their ability to make long term manufacturing site investment decisions, further details can be found in Annex 1.- We have also commenced procurement of a new 5-year framework for 132kV Circuit Breakers with dedicated lots for non-SF₆ plant, expected award in Q1 2023, with units being received in Year 2 of RIIO-ED2 (to allow for manufacturing and Factory Acceptance Testing timescales). We are in the process of placing orders to secure Year 1 requirements and this will be completed by early September 2022



Identified Risks / Constraints	Our Mitigation Strategy
Reviewing Delivery Monitoring our plan and responding to change. All environment drivers	<ul style="list-style-type: none"> - We will continue to make informed risk-based decisions and continue engagement with our stakeholders throughout RIIO-ED2 and where required, we will reassess prioritisation if factors of change arise. - We have established governance forums and project, programme, and portfolio levels to report and monitor progress.

There will be short and long-term impacts on our networks and customers if we are not awarded the volumes requested. These are detailed in Table 2. Furthermore, for FFC, the unit rates for these investments are based on circuit lengths, whereas FFC requirements are short sectional lengths, the latter cannot leverage economies of scale for efficient design and installation because multiple sites result in multiple site set-up and preliminaries costs. We have also highlighted errors with Ofgem's cost assessment approach for oil filled cables as detailed in Annex 5.

Table 3 – Summary of impacts associated with Ofgem's engineering assessment not to fully justify our proposals or in some areas Ofgem's of our environmental investments

Impact	Impact Statement
Environmental Contamination	<ul style="list-style-type: none"> - As part of our FFC proposal, we aim to tackle 20.92km in the Portsmouth Water area. These cables are in a Source Protection Zone (SPZ) where they are positioned near drinking water sources. If these cables were to leak it could cause serious environmental contamination.
Non-Compliances and Environmental Hazards	<ul style="list-style-type: none"> - These transformers pose a significant risk if a leak were to occur as they are situated in environmentally sensitive areas, meaning they are less than 10m away from any inland freshwater or coastal waters and less than 50m away from a well or borehole otherwise known as a Source Protection Zone. - Our bunding proposal aims to tackle 189 transformers that contain more than 200 litres of oil and currently don't have any bunding fitted. - Constructing bunding on these assets will bring them in line with current Oil Regulations.
Stakeholder expectations and ambitions not met	<ul style="list-style-type: none"> - On 27th July 2022 we hosted an online sustainability and environment engagement session to give stakeholders an opportunity to provide feedback on Ofgem's draft determinations for our business plan investments (further details in Annex 1). - Overall stakeholder participants continued to support the need to tackle SF6, considering it to be a potent greenhouse gas, making it an obvious target for reduction efforts. Stakeholder participants were overwhelmingly in favour of tackling both severe and poor leaking assets with an average of 4.71 out of 5 being in favour of this approach when asked to vote on this. - By contrast, stakeholder participants returned an average score of 1.92 out of 5 when asked whether they supported Ofgem's consultation position to remove the SF6 investment from SSEN with some stakeholder participants providing feedback that they felt our SF6 costs were considered and justified.
1.5° Science Based Target (SBT)	<ul style="list-style-type: none"> - Ofgem's Draft Determination proposed cuts explicitly undermine our ability to meet our industry-leading and stakeholder-supported 1.5° Science Based Target (SBT)



Delivery of a credible net zero	<ul style="list-style-type: none">- Ofgem's Draft Determination propose cuts in NbS significantly impacts our ability to meet a credible and ethical net zero (as required under the Climate Change Act 2008 r 2019), and has the potential to push the costs associated with net zero onto future generations. This decision also impedes our ability to deliver against the biodiversity net gain requirements in the Environment Act 2021.
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HV and LV Circuit Investments

The Needs Case:

As described within both our non-load underground cable EJPs and load feeder EJPs, it is critical that we undertake adequate investment in our underground cable network to protect current and future network customers. The LV and HV cable networks will be a key enabler of the transition to Net Zero given the additional loading that will be added to this infrastructure with the continued adoption of electric vehicles and heat pumps.

As described within the relevant EJPs a large percentage of our cable network was installed in the 1940s-1960s. Much of this older cable is CONSAC and Paper insulated with a shorter lifetime than the modern alternatives. For this reason and combined with the trends we see within our NAFIRS fault data, we expect a huge bow wave of cable overlays being required in RIIO-ED2 to RIIO-ED4. It is therefore critical that during RIIO-ED2 we get ahead of this bow wave as much as possible to protect our network customers.

The consequences of under investment in our cable network is potentially severe for network customers. The failure to proactively invest in this infrastructure could lead to a significant increase in cable faults and massive increases in our CV26 Faults costs as we respond reactively to the worsening condition of the cable network. There is also a direct benefit in replacing these ageing assets to further assist in supporting our drive towards Net Zero targets with the increased capability for EV charging and LCT demand. We strongly believe that a proactive response during RIIO-ED2 represents much better value for current and future network customers than an inefficient reactive approach in future price controls as thousands of kilometres of cable collectively reaches an ‘end-of-life’ condition.

RIIO-ED1 Strategy & Transition to RIIO-ED2:

Our RIIO-ED1 plan which was submitted in 2012/13, ten years prior to the commencement of RIIO-ED2, and the data that supported our plan and associated investment needs at the time did not suggest that we needed to undertake targeted investment in cables. As such, we did not seek any specific allowances for the direct replacement of underground cables during the RIIO-ED1 period.

Our focus during the RIIO-ED1 period has been on taking data-driven decisions and further improving our understanding of our key assets through better underlying systems and data. We have started to see an increase in underlying fault trend in the RIIO-ED1 period and have replaced 166km of underground cables on our network as of 2020/21. However, we have also had to prioritise other activities, in particular responding to unexpected faults on our subsea cables, underlying the need for a more strategic approach to managing these assets (see Annex 10). For these reasons there have been no steady increase in dedicated asset replacement activity in this area. We are proposing a complete change in emphasis and direction for these asset classes in ED2 with the commencement of a long term proactive replacement programme until 2060 and beyond. We are utilising the remaining time in RIIO-ED1 to set ourselves up to deliver these assets in the most efficient and effective way possible, working with our supply chain to set up new frameworks which are fit for purpose for the significant step up required in RIIO-ED2. We have therefore been proactively engaging our supply chain and contractors so that we can commence with this key investment work immediately from the start of RIIO-ED2 in April 2023.

Ofgem Feedback:

Within the EJP feedback and as discussed during the Draft Determination Cost & Engineering Bilateral, Ofgem has indicated their broad agreement with the needs case described within our underground cable EJPs and as demonstrated by the corresponding Cost Benefit Analysis. The volume justified exceeds the volumes we have submitted given our strategy to steadily ramp up our delivery capacity throughout RIIO-ED2 collaboratively with the supply chain.

Instead, we understand that Ofgem’s key concerns to be the perceived deliverability of the volumes we have proposed, whilst accepted the need to carry out these volumes. Ofgem states in its Draft Determination for **Non-Load**: ‘*Due to the ramp up in capability to deliver the proposed volume, we consider that there is a risk related to deliverability and hence consider the EJP to be partially justified.*’ Similarly, for the **Load related** HV and LV circuit EJPs, Ofgem makes the following comments: ‘*...we consider that there is a risk related to the*



assumptions used materialising and delivery of the proposed volumes.' This feedback corresponds to the following EJPs:

311_SSEPD_NLR_LV_UG & 70_SHEPD_LRE_LVFEEDERS
312_SSEPD_NLR_HV_UG & 69_SHEPD_LRE_FEEDERS

It also corresponds to the following Reverse SQs that were submitted during the Draft Determination window:

- SSEN006 – HV & LV Cable Volumes in Disaggregation Model
- SSEN016 – LV UG Service Volumes

Ofgem's assessment has resulted in the following cuts to our underground cable volumes. This corresponds to an approximately £50.8m reduction to our CV7b baseline plan.

- **LV UG Cable (CV7b):** SEPD cut from 350km to 251.3km, SHEPD cut from 164km to 5.6km
- **HV UG Cable (CV7b):** SEPD cut from 200km to 77.5km, SHEPD cut from 95km to 24.6km

Within this document we aim to prove the deliverability of the volumes we have proposed. However, we are concerned with the scale of the cuts made by Ofgem to our 'Partially Justified' cable EJPs. In the case of LV cable in SHEPD our proposed volumes have been cut by 97%. At this rate it would take over 10,500 years to overlay our entire LV cable network in SHEPD. Even if the Load related volumes (56.3km) were added to the Non-Load total, which are not targeted towards 'end of life' cable, it would still take over 956 years to overlay our existing network. As such, we believe that the alternative volumes awarded by Ofgem in the Draft Determination do not adequately protect network customers from a severe under investment in critical network infrastructure.

To maximise our ability to efficiently deliver the volumes we have proposed within our RIIO-ED2 business plans, we require commitment from Ofgem on volumes and the associated funding. This commitment will allow us to award frameworks and provide confidence to our supply chain. However, we have **currently progressed a regulated procurement event** based on volumes and funding being secured as per the volumes included within our final business plan. **This early engagement with the supply chain** gives us confidence that our delivery partners will be prepared to ramp up the resource allocated to SSEN during RIIO-ED2 to deliver the underground cable volumes we have proposed.

We have **fully assessed the risks associated with delivering our underground cable volumes** and we are confident that our mitigation strategy will ensure effective and efficient delivery of the volumes we have proposed within final business plan submission and have evidence to demonstrate our preparedness (see Table 4).

It is also important to carefully consider the **impacts to our current and future network customers** if the investment that our EJP and CBAs prove is required is not funded. These consequences are described within Table 6.

Table 4 - Key deliverability constraints and risks, and mitigations

Identified Risks / Constraints	Our Mitigation Strategy
Deliverability Cap Significant increase in UG cable replacement required across multiple price controls	<ul style="list-style-type: none">- We have taken a holistic view of our RIIO-ED2 and future plans by understanding asset replacement and load driven reinforcement plans to determine what volume is achievable whilst balancing deliverability, cost to customers and network performance.- As outlined in our final business plan Annex 16.1, we considered the level of business change and transition required to our improved commercial approach.- The RIIO-ED2 deliverability cap we applied to our proposed volumes has been chosen to ensure the targeted volumes can be achieved. It also reflects our plans to steadily ramp up our resources through RIIO-ED2 and into RIIO-ED3/ED4 to address the bow wave described within our non-load EJPs.



Identified Risks / Constraints	Our Mitigation Strategy
Volume Increase Step change increase in volume delivery between RIIO-ED1 and RIIO-ED2.	<ul style="list-style-type: none"> - We have implemented a new process to ensure the locations of our investments have been identified and issued to our Operational teams earlier this year to commence delivery planning. - To ensure an efficient start in April 2023, we have identified our work bank for the early years of RIIO-ED2, completed surveys, take-offs and in parallel are applying for consents with local authorities and stakeholders to meet out delivery plans. - Recognising the total volume proposed by our analysis and taking our past delivery into account, we are proposing a steady yearly increase in volume delivery to enable continual increases in delivery that will be required in future price controls (see Table 4).
Current Process Legacy ways of working limit deliverability.	<ul style="list-style-type: none"> - We have completed a root and branch review of the existing process to streamline and drive efficiency, with project design and delivery to be progressed in a significantly different manner than in RIIO-ED1.
Internal Resource Project team and management resources required to oversee delivery contracts.	<ul style="list-style-type: none"> - Our new organisational structure means that a dedicated team will work collaboratively with our supply chain to ensure quality outcomes and delivery to our proposed cable unit rates. - We recognise the need for different roles to manage our new commercial and delivery approach which provides opportunity for our people to develop into programme management and commercial management roles through training and supports retention. - We will deploy a dedicated Programme Manager to direct, shape, manage and deliver the programme with overall accountability of budget, time, and quality complemented with a Commercial Manager to ensure robust cost control and contract management.
Procurement Ability to secure supply chain and associated resources.	<ul style="list-style-type: none"> - As part of the fully root and branch review of the current processes, a thorough investigation of needs, potential contracting strategies and the supply chain was completed. - It concluded the approach used for ED1 would not successfully deliver in ED2. It was determined to achieve the best value for the customer, this commercial strategy will leverage both planned & reactive work to improve apportionment of overheads, resources, and risks. - As outlined in the Supply Chain Annex of our final business plan, the suppliers require commitment of work, and visibility of a firm pipeline of work. - Based on securing the volumes above, we will be providing our supply chain partners a six to 12 month in-contract pipeline visibility with a guarantee of volumes. - The Pre-Qualification Questionnaire has been returned and the responses are being evaluated. Contract award is expected Q1 2023. - We have received positive feedback from the supply chain and significant interest.
External Resource Limited skilled staff contracting staff availability	<ul style="list-style-type: none"> - Our committed volume framework means we can provide long term visibility for the supply chain to secure dedicated resource to SSEN which aligns with supply chain feedback. - As part of our commercial approach, we will incorporate co-development & retention on key skills (SAPs, Jointers etc) throughout the life of contractual agreements.



Identified Risks / Constraints	Our Mitigation Strategy
Supply Chain Ensuring Supply Chain Delivery	<ul style="list-style-type: none"> - Guaranteeing volumes will enable the supply partners to invest in training and retaining their workforce. - Contract-specific Key Performance Indicators (KPI) are included in the contract. These will link into a Service Level Agreement (covering several areas including service, safety, quality, innovation etc). - The contract also provides mechanism to rectify poor performance on a project, programme, or company basis.
Reviewing Delivery Monitoring our plan and responding to change.	<ul style="list-style-type: none"> - We will review and monitor progress periodically through our dedicated project and commercial management teams. - We have established governance forums and project, programme, and portfolio levels to report and monitor progress. - We will continue to engage with our stakeholders and incorporate feedback into our plans. - Where delivery of our commitments deviates from our baseline plans, we will implement corrective actions and mitigations.

Table 5 below shows the non-load (CV7b) volumes we are proposing through each year of RIIO-ED2. We are proposing a steady ramp up in volumes throughout the period as we work collaboratively with our supply chain and external contractors to increase our delivery capacity. This ramp-up strategy will continue into RIIO-ED3 and RIIO-ED4 as we look to address the bow-wave of 'end-of-life' cable that we have forecasted within our EJPs.

Table 5 – Volume delivery profile on year-by-year basis

Licence Area	Asset Type	Volumes				
		2023/24	2024/25	2025/26	2026/27	2027/28
SEPD	LV UG Cable	50.0	60.0	70.0	80.0	90.0
SEPD	6.6/11kV UG Cable	30.0	35.0	40.0	45.0	50.0
SHEPD	LV UG Cable	16.0	25.0	33.0	41.0	49.0
SHEPD	6.6/11kV UG Cable	17.0	18.0	19.0	20.0	21.0

As described above, proactive intervention before failure is critical as we are to minimise disruption to our network customers and manage our distribution network in a cost-effective manner. We will see an acceleration in cable faults if we do not proactively address the bow wave of 'end-of-life' cable that is approaching. Our ability to address this proactively is much more deliverable than it is to respond reactively to the unplanned failure of these assets due to under investment. As such, Table 6 below shows the risks to network customers if the volumes we have proposed are not funded by Ofgem.

Table 6 – Summary of impacts associated with Ofgem decision not to fund

Impact	Draft Determination Impact Statement
Transition to Net Zero	<ul style="list-style-type: none"> - A robust and reliable LV/HV cable network is required to facilitate the transition to Net Zero. - Under investment in this critical infrastructure will threaten the ability of our network to reliably supply the electric vehicles and heat pumps adopted by our network customers. - The reputational damage associated with a poorly performing cable network will discourage network customers from adopting these low carbon technologies.

Impact	Draft Determination Impact Statement
Network Reliability	<ul style="list-style-type: none"> - In the round of wider volume adjustment, the removal of the UG Cable volumes will have an impact on our ability to manage and meet IIS targets set by Ofgem. - This also impacts our ability to deliver on our output commitment to reduce the average frequency and duration of unplanned power interruptions affecting our customers by 20% (see Annex 2) - Our evidence has shown an underlying trend of cable failures is increasing as our asset age and cable capacity utilisation is increased.
Fault Costs	<ul style="list-style-type: none"> - With the fault trend increasing, particularly for LV UG Cables. The number of reactive faults repairs will increase potentially exponentially if a large volume of cable collectively reaches and 'end-of-life' condition as we have forecasted. - Reactive fault repairs drive a significantly inefficient asset management strategy and ultimately leads to higher cost for customers.
Cost Impacts	<ul style="list-style-type: none"> - The unit rates associated with key activities including faults, link box changes, some wayleave terminations, minor connections, looped services, and load checks are predicted to increase. - Our commercial strategy leverages commitment of baseline planned work volumes to reduce other unit costs through integrated planning across different investment drivers. These efficiencies have already been incorporated into unit rates.
Greater step change increase in RIIO-ED3 volume delivery	<ul style="list-style-type: none"> - Our analysis demonstrates that our aging network will require continual and increased volume replacement over the foreseeable future. Significant volumes reductions now will increase the risk of requiring us to do exponentially more volumes in the next price control.
Disincentivised Supply Chain	<ul style="list-style-type: none"> - We have commenced a regulated committed volume framework to deliver volumes as per our final business plan, and any significant changes to these will cause change resulting delays to contract award.



Rising Lateral Mains (RLM)

Needs Case:

This investment is urgently required to ensure the RLM within SEPD and SHEPD are reliable and safe for our network customers. The final volumes for both RLMs related inspections and interventions reflect the increased focus on the safety of high-rise multi-occupancy dwellings following the Grenfell Tower incident in 2017.

Reference EJPs:

322_SSEPD_NLR_RLM Rising and Lateral Mains Driven By Condition & Asset Replacement

Reverse SQs:

- SSEN031 – RLM Unit Costs

Ofgem Feedback:

Ofgem states in its Draft Determination for non-load: '*The proposed volumes are based on a sample of 380 buildings which have then been used to inform the forecast for circa 290,000 buildings. The relatively low sample rate is considered a risk to the required volume. The proposed volume is also a significant increase from ED1. Due to the accuracy and deliverability of the proposed volume, we consider that there is a risk related to the proposed volume and its deliverability, hence we consider the EJP to be partially justified.*'

Ofgem's assessment has therefore resulted in a cut of £5.4m from our baseline plan. Unlike other DNOs, until the introduction of any regulations we are proposing to act under a "Duty of Care" arrangement as per ESQCR 2002, whereby we will manage, inspect, maintain, and replace RLM assets where we own or act as the Building Network Operator (BNO) and where another BNO is unconfirmed if the connection is confirmed to be pre-18 January 2021. This reflects our increased focus on the safety of high-rise multi-occupancy dwellings following the Grenfell Tower incident in 2017. We have taken this stance off the back of the Grenfell Tower disaster. We have duly considered our delivery strategy and provide the evidence in Table 6 to demonstrate our preparedness.

Table 7 – Key deliverability constraints and risks, and mitigations

Identified Risks / Constraints	Our Mitigation Strategy
<p>Volume of Survey sample</p> <p>Significant increase in UG cable replacement required across multiple price controls</p>	<ul style="list-style-type: none">- The inspections that have informed our RIIO-ED2 plan was based on a statistical sample size using a random selection process to inspect dwellings. The Cochrane model, which was used, is a well-established statistical sample size calculation methodology.- Our surveys & inspections programme is the first step towards implementing a shift in focus from those requirements delivered in RIIO-ED1, when our volume and strategy was based on mainly reactive/fault works.- We will carry out inspections in the order of predicted risk score defined by the RLM Risk Model. We can prioritise inspections if requested by the building owners/local authorities or where defects are reported by the Member of Public to SSEN Distribution.- We will ensure that all staff (internal and external) have appropriate training and understand our policies.



Identified Risks / Constraints	Our Mitigation Strategy
Delivery Strategy for volume increase Step change increase in volume delivery between RIIO-ED1 and RIIO-ED2.	<ul style="list-style-type: none"> - We are in the process of establishing a dedicated programme team which aligns to our Rising and Lateral Mains (RLMs) Strategy and will employ the appropriate resources by the end of RIIO-ED1. - A portion of the associated maintenance and replacement works will be conducted by external contractors. Framework agreements with suppliers with relevant experience and resource levels are being established. See Procurement section below for more information.
Resource requirements Project team and management resources required to oversee delivery contracts.	<ul style="list-style-type: none"> - Our new dedicated RLM team will include the following roles and responsibilities: <ul style="list-style-type: none"> o Programme / Project Management – Direct, shape, manage and deliver the programme/project with overall accountability within budget, on time and high quality. o Customer Relations – Prepare letters, arrange appointments with customers (including local authorities, building owners, property management companies, residents, landlord, etc) to enable I&M or replacement, support the clarification process of the ownership and boundaries of DNO's responsibilities, etc. o Legal & regulatory compliance – Deal with regulators, landlords, property management companies, BNOs, etc to clarify and register the legal ownership of RLM assets o Data Analytics and Reporting – Validate the Multiple Occupancy Buildings population, process inspection and maintenance records to identify trends and escalate issues and regular progress update reporting o Data Scientist – Review and refine the risk model and perform any other advanced analysis and modelling o Inspectors – Perform the inspection of RLMs and Cut Out o Contract Managers – Manage commercial aspects of works with the supply chain and provide robust control through assessment of changes, claims and payment applications.
Procurement Ability to secure supply chain and associated resources.	<ul style="list-style-type: none"> - RIIO-ED2 requirements represent a high volume of planned works, where we intend supplementing our in-house inspection programme with a turnkey service provided by key contractors; to include supplier responsibilities such as access, planning, programme, stakeholder management & sign-off. - Whilst some suppliers have been identified, we are embarking on a significant supply chain engagement activity to identify suitable supply chain partners to deliver the turnkey approach required for RIIO-ED2. - The long-term collaborative agreements and the identification of works through the robust inspection processes will allow the contractors to ramp up through RIIO-ED2. The agreements will require the supply chain to commit to training and development of key skill set to support delivery in future regulatory periods.

Identified Risks / Constraints	Our Mitigation Strategy
Reviewing Delivery Monitoring our plan and responding to change.	<ul style="list-style-type: none"> - We will set up an internal RLM Working Group to develop the action plans to enact this strategy and monitor the performance against targets monthly via KPI's. This will track the effectiveness of this strategy over time and any adjustments will be fed back into an update of this strategy. - The Steering Group (Director level) will monitor progress against targets and provide leadership on any escalations from the Working Group and provide direction against corporate objectives. The strategy will be updated if required based on the guidance from these groups. - We will continue to work with other DNOs to ensure we are aware of best practice across the industry. Additionally, SSE Distribution shall continue involvement with the ENA and other working groups.

Table 8 – Summary of impacts associated with Ofgem decision not to fund

Impact	Draft Determination Impact Statement
Safety	<ul style="list-style-type: none"> - SSEN are proposing to increase investment in RLM to reduce the safety risk posed by aging RLM infrastructure and the Draft Determinations limit our ability to make significant safety improvements - This also impacts our ability to deliver on our safety related outputs and legal obligations, therefore we would need to re-route funding away from other stakeholder led outputs to meet the requirements (see Annex 2)
Procurement	<ul style="list-style-type: none"> - Although we are engaging with third parties, the Draft Determination cuts have highlighted a risk that the volume of activity may not be available for investment which delay the award of contracts (a change in contracting strategy may be required as well as supply chain engagement with a different segment) and it is likely to impact costs due to lower economies of scale and consistency of workload.
Unit Rates	<ul style="list-style-type: none"> - We have significantly altered our RLM strategy for RIIO-ED2 in response to the important learnings associated with the Grenfell Tower disaster. - As a result, we are proposing a step change in our RLM volumes during RIIO-ED2, and specifically targeted multi-storey buildings given the higher risk these represent. - This drives an increase in the unit cost when compared to RIIO-ED1. Our unit costs proposed for RIIO-ED2 have been built up bottom-up and are described in our EJP. - The proposed cuts to our unit rate will impact our ability to provide a good price signal to third parties that will assist us with delivering the volumes we are proposing. - As such we believe the RIIO-ED1+RIIO-ED2 median unit rate is not appropriate for RIIO-ED2.



6.6/11kV Transformer (GM)

The Needs Case

As described within our EJP 308_SSEPD_NLR_HV_TRANSF we have proposed to replace ‘end-of-life’ 6.6/11kV Transformers with transformers equipped with an LV On Load Tap Changer (LV OLTC). This proposed investment follows the learnings associated with ENWL’s Smart Street innovation project and the subsequent £18m Innovation Rollout Mechanism (IRM). We intend to secure the same benefits for our network customers during RIIO-ED2 that Ofgem has funded ENWL to deliver during RIIO-ED1 and now RIIO-ED2.

As described within our EJP the primary benefit of this technology is a reduction in energy consumption from our customers home appliances. This energy saving is associated with the principle of Conservative Voltage Reduction (CVR) which minimising the energy use of certain loads at a lower voltage. The detailed CBA we have presented within our EJP demonstrates the compelling benefits associated with this investment. These benefits will be targeted at vulnerable and fuel poor customers during RIIO-ED2. As such, the consequence of rejecting this proposal becomes more severe given the rising energy prices and cost of living crisis that our network customers are currently experiencing.

We believe that our RIIO-ED2 strategy allows us to deploy the Smart Street technology in a much more cost-effective manner for network customers when compared to the Smart Street CVP. Rather than replacing healthy transformers with years of lifetime remaining, we plan to deploy the LV OLTC together with the required network monitoring when replacing ‘end-of-life’ transformers that need to be replaced regardless. This approach means that we are maximising the lifetime of our existing network.

SSEN is asking for incremental funding of only [REDACTED] to deploy 435 LV OLTC during our CV7a asset replacement programme ([REDACTED] per deployment). Based on the information we have available to us, this appears to be more than 10 times less than the [REDACTED] that Ofgem has awarded to ENWL as a bespoke CV2 output to deploy 1000 units ([REDACTED] per deployment). Unlike our CV7a proposals, ENWL’s proposed CVP volumes are in addition to the volumes they have also requested in CV7a and CV2.

Reference EJPs:

308_SSEPD_NLR_HV_TRANSF

Reverse SQs:

- SSEN007

Ofgem DD Feedback

Ofgem states in its Draft Determination for non-load: ‘...starting low, ramping up to 80% all replacements end ED2. There is some risk related to the outrun percentage of replacements with LV OLTC over ED2, hence we consider partially justified.’ This feedback refers to our non-load EJP 308_SSEPD_NLR_HV_TRANSF.

Subsequent feedback in response to our **SQ SSEN07** clarified that “Our deliverability concern is centred on the unit rate for the OLTC being higher than the nominal TX unit replacement” and “Incremental costs were considered as part of a wider review of the RIIO-ED2 unit costs”.

However, as described above our incremental unit cost over and above the nominal transformer unit replacement cost is only [REDACTED] compared to the [REDACTED] Ofgem have awarded to ENWL. This incremental cost is a result of our engagement with the supply chain and manufacturers of the technology that we carried out prior to the final submission. We then calculated a blended unit cost that reflects the mix of the conventional volumes and the LV OLTC variant volumes in CV7a. This unit cost has been recorded within the M26 Incremental Cost Table

Our incremental CV7a unit cost is [REDACTED] per unit lower than the costs associated with the ENWL Smart Street CVP. This is reflective of our strategy to build this innovation in as Business as Usual (BaU) and into our CV7a baseline and deploy the technology when replacing ‘end-of-life’ transformers rather than to rely upon bespoke mechanisms to deploy a technology that already has a proven business case in place of healthy transformers with many years of useful lifetime remaining.

Ofgem's assessment has been to disallow the incremental funding we proposed within our CV7a unit cost from our baseline plan. This means our fuel poor customers and most vulnerable do not benefit from our proposed innovation, particularly within the context of the on-going cost of living crisis where such technology would reduce customers electricity bills.

This product has been installed and assessed through an innovation trial by ENWL and has proven that there are significant benefits for customers. Ofgem's challenge on deliverability and overall reduction in expenditure penalises SSEN for attempting to build innovation into our baseline plan that would ultimately benefit our customers.

Ofgem must be prepared to fund the Business as Usual (BaU) deployment of innovations during RIIO-ED2 even when there is not a historic track record of delivery during RIIO-ED1 and DPCR5. This is important to secure the benefits promised to customers when funding the corresponding NIA/NIC/IRM innovation projects. Failure to do so limits the benefits arising from these multi-million-pounds projects and undermines the objectives of these innovation funding mechanisms. Further details on unit rates can also be found in Annex 12.

Ofgem's position is contrary to its previously stated policy aims. In its SSMC, Ofgem stated that it expects "companies to do more innovation as part of their BAU activities, and rely less on ring-fenced innovation funds" In the Business Plan Guidance, Ofgem also required companies "to ensure that previously proven innovation (i.e. innovation which was proven before the start of RIIO-ED2) is rolled out into BAU in the RIIO-ED2 Business Plan."

Our RIIO-ED2 Delivery Strategy

We have confidence in our ability to deliver the proposed volume of 6.6/11kV transformer (GM) replacements for the following reasons:

- We have proactively engaged with the supply chain including suppliers of the LV OLTC technology. We have also taken learnings directly from ENWL's Smart Street innovation project.
- We are proposing a steady ramp up in volumes throughout RIIO-ED2
- Overall, our 6.6/11kV Transformer (GM) volumes are significantly lower than the volumes delivered in RIIO-ED1, and the installation of the LV OLTC is not significantly different from a conventional fixed tap 6.6/11kV Transformer (GM).

Recent Track Record

The table below shows the volume of 6.6/11kV Transformers (GM) that we plan to deploy during RIIO-ED2 compared to volumes from the last 5-years of RIIO-ED1 as a good indication of our current delivery capability.

Table 9: RIIO-ED1 vs RIIO-ED2 volume comparison

License Area	ED1 Volume	ED2 Volume	Change (%)
SEPD	945	532	-43.7%
SHEPD	341	382	+12.0%
SSEN	1,286	914	-28.9%

As per Table 9 across both licence areas the total volume of replacement 6.6/11kV Transformers that we will look to replace due to condition is down by 28.9%. There is a small increase in SHEPD of 12%. This increase is driven by our Network Asset Intervention Methodology (NAIM) and the corresponding Health Score intervention Criteria (HSIC) as described within the EJP.

As a result, we are confident that we have the ability to deliver the proposed volumes of 6.6/11kV Transformer (GM) replacements planned for RIIO-ED2 including our plans to replace a proportion of these end-of-life transformers with the LV OLTC variant.

Ramp Up Proposal

However, we recognise that there will be a learning curve when deploying this innovative technology at scale for the first time. We do not consider this to create a delivery risk and this is why we have proposed a steady ramp up of the LV OLTC volumes throughout RIIO-ED2, starting from only 5% of the 6.6/11kV Transformers scheduled for replacement and increasing to 80% by the final year of RIIO-ED2.

We believe this conservative approach together with the preparation we have undertaken so far (included the described supply chain engagement) gives confidence in our ability to deliver the volumes associated with the LV OLTC variant volumes.

Table 10: Phased RIIO-ED2 deployment of LV OLTCs

	2024	2025	2026	2027	2028	Total
Number of end-of-life HV Transformers	149	179	194	196	196	914
Percentage replaced with LV OLTC	≈ 5%	≈ 20%	≈ 50%	≈ 70%	≈ 80%	≈ 47.6%
Number of standard replacements	165	137	91	54	35	479
Number of LV OLTC replacements	18	47	91	130	149	435

Risk and Mitigations

A summary of the key Risk and Mitigations we have identified when assessing our plans to deploy the LV OLTC technology is shown below in Table 11. We believe this evidence demonstrate our preparedness for RIIO-ED2.

Table 11 - Key deliverability constraints and risks, and mitigations

Identified Risks / Constraints	Our Mitigation Strategy
Volume increase Volume increase between RIIO-ED1 and RIIO-ED2.	<ul style="list-style-type: none"> - Overall, our 6.6/11kV Transformer (GM) volumes are significantly lower than the volumes delivered in RIIO-ED1 (by 372 units). - We are proposing a steady ramp up of the LV OLTC volumes throughout RIIO-ED2 starting from only 5% of the 6.6/11kV Transformers scheduled for replacement and increasing to 80% by the final year of RIIO-ED2. - This approach allows us to learn from the early deployments and maximise the benefits arising from the majority of the volumes delivered in the later years of RIIO-ED2.
Delivery strategy & resource planning. Project team and management resources required to oversee delivery.	<ul style="list-style-type: none"> - The installation of the LV OLTC is not significantly different from a conventional fixed tap 6.6/11kV Transformer (GM) and therefore does not significantly increase the resource required to install the volumes we have targeted. - We have considered the need for training and plant familiarisation with our manufacturers and wider supply chain. - Most of our replacements will be aligned with our GSP model, where required for any fibre or associated works are considered.
Supply Chain Ensuring supply chain engagement.	<ul style="list-style-type: none"> - A new Distribution Transformer framework was let in 2020, appointing four robust suppliers, significantly increasing our capacity. - Orders have already been placed for units due for delivery of Year 1 with longer term plans for future years shared with suppliers. - We have proactively engaged with the supply chain including suppliers of the LV OLTC technology. We have also taken learnings directly from ENWL's Smart Street innovation project. - This supply chain engagement has given us confidence that the volumes we have proposed can be procured at the unit cost we have proposed.



Identified Risks / Constraints	Our Mitigation Strategy
New Asset Type Building procedures and operational knowledge to roll out this new asset	<ul style="list-style-type: none"> - This technology has been successfully trialled by ENWL through innovation funding in RIIO-ED1. A proven business case has been developed which has adequately demonstrated the consumer benefits resulting from the investment in this technology. - As per the agreement with successful innovation products, lessons learned, and information must be shared; and we propose to use this learning to great effect.
Deployment Strategy Coordinated with non-load investments to improve efficiency	<ul style="list-style-type: none"> - We are targeting 'end-of-life' transformers when deploying the LV OLTC variant. As such, the plans for coordinated with our CV7a investments. - This ensure customers only pay for the incremental costs over and above the standard costs associated with replacing end-of-life transformers that would be replaced regardless. - This approach also prevents a double or triple counting with the conventional transformer replacement already built into our baseline plan - It also maximises the lifetime of our existing transformers and prevents these from being replaced early in their life cycle before necessary

Table 12 shows the impact to network customers if Ofgem continue to reject our £6.5m plans to deploy the LV OLTC technology in RIIO-ED2 despite having provided ENWL with £98.4m to develop and deploy the same technology with the same benefits.

Table 12 – Summary of impacts associated with non-award

Impact	Draft Determination Impact Statement
Innovation Restricting the benefits associated with customer funding Innovation projects	<ul style="list-style-type: none"> - The decision to reject our proposed incremental CV7a unit cost for 6.6/11kV Transformers prevents us entirely from deploying the technology during RIIO-ED2 - This undermines the objectives of the NIA/NIC funding mechanisms which intend to fund projects that can deliver benefits to all GB network customers and not just the DNOs that undertake the projects. - It then directly limits the financial and environmental benefits associated with the investment made by network customers to fund the original Smart Street innovation project given that SSEN are being preventing from acting as a "fast follower".
Reduced Consumer Bills Preventing SSEN from reducing customer bills during the cost-of-living crisis	<ul style="list-style-type: none"> - Our strategy for the LV OLTC was to target areas with a high percentage of vulnerable and fuel poor customers. - As such, rejecting our proposals limits our ability to protect vulnerable and fuel poor customers during the cost-of-living crisis and as energy prices continue to increase. - The very large financial benefits demonstrated within our 6.6/11kV Transformer (GM) CBAs will not be delivered of energy consumers.

132kV Circuit Breakers

Needs Case:

As a NARMs asset category, we have implemented our internal Network Asset Intervention Methodology (NAIM) and the corresponding Health Score Intervention Criteria (HSIC) to identify which 132kV circuit breakers required proactive replacement during RIIO-ED2 prior to asset failure.

Given that we have applied our conservative HSIC to this asset category any reduction to our proposed volumes risks disruptive and costly asset failure which is not in the best interest of network customers, particularly for 132kV assets as in this case. Choosing not to replace these proactively during RIIO-ED2 is choosing the replace them reactively under fault conditions instead given that we have asset specific condition data for each of the circuit breakers we have included within the plan.

Using the approach described above we identified 16 specific circuit breakers that require intervention during RIIO-ED2. This is a small increase from the 12 we have replaced during RIIO-ED1. However, within the CV7 disaggregated modelling Ofgem have awarded a volume of 0.6 circuit breakers. This is despite the Run-Rate calculation of 26.1 which Ofgem has indicated it will use to assess the deliverability of DNOs proposed volumes.

Given the very slight volumetric increase when compared to RIIO-ED1 we have confidence that the proposed volumes can be delivered with ease during RIIO-ED2. Our evidence to support this claim is expanded upon below.

Ofgem Feedback:

Ofgem states in its Draft Determination for non-load: '*Due to the increase in volumes compared to ED1 with limited information on deliverability we consider this to be a deliverability risk and therefore view the EJP to be partially justified.*' This feedback corresponds to the EJP 307_SSEPD_NLR/132kV_SWGR.

This feedback has resulted in the cuts applied to the disaggregated modelling from 16 circuit breakers to 0.6 circuit breakers. At the Ofgem proposed unit cost this is equivalent to a reduction of £2.7m against our baseline plan.

This decision undermines the NAIM we have implemented for RIIO-ED2 which has delivered a £105m efficiency into our NARM CV7 and CV9 volumes. This will increase the risk of failure in this asset categories to level that are not tolerable for our network customers potentially resulting in disruptive and costly failures to these critical network assets.

Table 13 below shows the Risks and Mitigations we have identified when assessing our deliver plan for the 16 132kV circuit breakers we have proposed within our CV7a baseline plan. We believe this evidence demonstrate our preparedness to deliver these volumes.



Table 13 - Key deliverability constraints and risks, and mitigations

Identified Risks / Constraints	Our Mitigation Strategy
Volume increase Volume increase between RIIO-ED1 and RIIO-ED2.	<ul style="list-style-type: none"> - We do not believe the volume increase from 12 to 16 is significant and our supply chain and staff can be scaled-up to deliver additional units. - Out of the proposed 16 CBs, 9 are within a single substation, 3 in another, and the other 4 are across another 4 sites. This means the that 16 circuits breakers will effectively be delivered by just 7 individual projects. - We are also targeting fewer substations than RIIO-ED1 and our portfolio is more optimised. - The volume increase associated with 132kV circuit breakers are offset by reduction in our 33kV circuit breaker volumes. A holistic view across our entire NARMS intervention plan shows a net reduction in our ask compared to RIIO-ED1 which will be easier to deliver.
Delivery strategy Defined delivery strategy for 132kV circuit breakers.	<ul style="list-style-type: none"> - We have engaged the supply chain and secured 11 No. 132kV Circuit Breakers associated with our Asset Replacement programme for the early years of RIIO-ED2, and secured a significant number associated with our Load and Customer Connections works. - Engineering design and delivery planning associated with volumes in the initial years have commenced in RIIO-ED1 for projects to be delivered in the early years of RIIO-ED2.
Resource requirements Project team and management resources required to oversee delivery.	<ul style="list-style-type: none"> - A separate team has been established to develop and refine requirements in advance of RIIO-ED2, this team oversees the progression of these works, including others. - A Project Manager and Engineering Designer have been assigned to this package and are working with operational teams to detail construction phasing and are monitoring progress against plan. - Works will be delivered by a mix of external resources or by a new internal plant team set up in 2020.

Table 14 below shows the impact to our network customers if the volumes we have proposed for our 132kV circuit breakers are not awarded by Ofgem within the Final Determination.

Table 14 – Summary of impacts associated with Ofgem decision not to fund

Impact	Draft Determination Impact Statement
Network Reliability	<ul style="list-style-type: none"> - Our RIIO-ED2 asset intervention model focuses on assets with the poorest health index and high probability of failure, so reducing our volumes impact our network reliability - Our network monetised risk reduction is aligned to the total volume in our plan, the reduction changes our monetised risk output
Expenditure & RIIO-ED2 Preparedness	<ul style="list-style-type: none"> - We have already committed to procuring 11 No. 132kV CBs so that we are ready for replacing assets that need to be replaced. - The volume adjustment proposes a low number than we have procured which means will impact our spend in RIIO-ED2 before the price control has commenced.

33kV & 132kV Tower Line Conductor & Fittings

The Needs Case

This section of this Deliverability annex corresponds to 132kV Tower Line Conductor and our 33kV and 132kV Fittings. The volumes we have proposed have been calculated using our RIIO-ED2 Network Asset Intervention Methodology (NAIM) and the corresponding Health Score Intervention Criteria which has resulted in a £105m efficiency to our CV7 and CV9 volumes.

Our NAIM/HSIC when applied to the outputs of our CBRM models acts as justification for the needs case to intervene upon these important network assets. As such, any deferment in the volumes we have proposed increases the risk of asset failures due to condition. Given that these are 132kV assets any failures can be extremely disruptive, costly and difficult to resource when resources are not planned and scheduled in advance. As a result, we proposed the following volumes we have been cut by Ofgem in the CV7 disaggregated modelling:

- **132kV Tower Line Conductor:** cut from 71.6km to 59.4km (SEPD)
- **132kV Fittings:** cut from 1782 fittings to 673.3 fittings (SEPD)
- **33kV Tower Line Conductor:** cut from 63.7km to 22.2km (SHEPD)
- **33kV Fittings:** cut from 113 fittings to 45.5 fittings (SEPD), 298 fittings to 40.9 (SHEPD)

Ofgem Feedback

Ofgem has provided the following feedback when reviewing our RIIO-ED2 proposals for these asset categories. This feedback corresponds to the EJP 425_SSEPD_NLR_33kV&132kV_TOWERS

'The EJP presents a clear needs case and it was clarified that nearly all towers have been assessed using the method described in the EJP. However, there are significant changes in volumes compared to ED1 with limited justification. Due to the change in volumes from ED1 with limited justification we consider there to be volume / deliverability risk and hence consider the EJP to be partially justified.'

This feedback has resulted in the cuts described above within the disaggregated modelling and is equivalent to a reduction of £5.9m to our baseline plan. This cut threatens our ability to adequately manage these asset categories and adds intolerable risk over and above the risk that is acceptable to our network customers

With regards to the justification of the increase from RIIO-ED1, the needs case (which has been accepted by Ofgem) is the justification itself. As described above, the volumes we have proposed are based upon condition data and the Health and Criticality scores calculated by our CBRM models. This data proves the physical need to replace these assets.

The volumes are greater than RIIO-ED1 because the network was not built at a constant rate historically. This is demonstrated in the age profiles of our network assets that shows significant peaks of historic investment. This subsequently means we would expect to see similar peaks in investment when these assets collectively reach and 'end of life' condition.

As such, we have prepared Table 15 below which highlights the Risks and Mitigations we have identified when assessing our reviewing our delivery plans for these asset categories. We believe this information demonstrates our preparedness to deliver these volumes.



Table 15 - Key deliverability constraints and risks, and mitigations

Identified Risks / Constraints	Our Mitigation Strategy
Volume Increase Volume increase between RIIO-ED1 and RIIO-ED2.	<ul style="list-style-type: none"> - We are proposing a steady ramp up of volumes associated with our 132kV Conductor & Fittings investments. - The proposed volume increase does not reflect an increase in the number of sites or locations associated with our plan. - Our 132kV investments are associated with 12 different circuits. - We will continue to monitor our delivery plans and make risk-based interventions of Fitting refurbishments or replacements dependant on CBRM data. - The DISAG volumes Ofgem has proposed are in some cases lower than the Ofgem calculated "Run Rate" despite being highlighted as a deliverability risk e.g. 132kV Tower Line conductor, 132kV Fittings, 33kV Fittings (SEPD). - In some cases, the Run Rate volume is higher than our own proposed volumes e.g. 132kV Tower Line conductor, 33kV Fittings (SEPD) but have still been cut on Deliverability
Delivery Strategy for volume increase Step change increase in volume delivery between RIIO-ED1 and RIIO-ED2.	<ul style="list-style-type: none"> - For the early years of RIIO-ED2 we will utilise internal delivery teams and capability. - In the latter years we will deliver these works through our framework partnerships using design and build with standardisation of design and installation where applicable to improve end-to-end construction times. - We have considered risk and complexity factors of our work bank, where low complexity projects will be delivered in-house, and higher complexity projects outsourced.
Resource requirements Project team and management resources required to oversee delivery contracts.	<ul style="list-style-type: none"> - We have an existing, dedicated teams of 17 linesmen with an aim to grow this team to 25 within the first year of RIIO-ED2 which aligns to our ramp-up in volumes. - We are confident in the results of our Workforce Strategy to recruit 8 additional linesmen. - Our delivery teams are supported by a dedicated project manager and contract manager, including shared PMO services.
Supply chain Ability to secure supply chain and associated resources.	<ul style="list-style-type: none"> - We will utilise our contingent labour framework to deliver increase in volumes, this also provides a flexible service that can be scaled-up and we will capitalise on joint-training and upskilling. - A new framework agreement is being tendered to provide turnkey support for the later years of ED2 when volumes do ramp up. The tender process has been started two years earlier than normal to secure resources in a market dominated by Transmission companies who have long range programmes; and still allow sufficient time for design and securing any key materials. - Product forecasts are being shared with suppliers, with materials secured for one year.



Table 16 – Summary of impacts associated with Ofgem decision not to fund

Impact	Draft Determination Impact Statement
Network Reliability	<ul style="list-style-type: none"> - Choosing not to allow volumes that are justified by CBRM calculated Health Scores is choosing to take a risk that these assets will fail during RIIO-ED2 - This may result in network outages for customers and decreasing the reliability of the network.
Cost to Consumers	<ul style="list-style-type: none"> - Reacting to unplanned outages under fault conditions is far less efficient and more costly for network customers in the long run.
Deliverability	<ul style="list-style-type: none"> - Reacting to unplanned outages under fault conditions is also far more difficult to resource. - This will pull resource away from planned work and have negative impacts on the proactive investment planned elsewhere.



LV Link Boxes (LV UGB)

Needs Case

Our RIIO-ED2 LV UGB proposed volumes have safety critical investment drivers in addition to the condition recording in our CBRM models. These assets are often located in public locations beneath the feet of the public. Over the last few years there has been a number of incidents amongst other DNO where these assets have exploded. This is an obvious safety concern that SSEN has responded to as a priority during RIIO-ED1.

In response, SSEN has been carrying out an extensive inspection programme to better understand the condition and risk associated with all our underground link boxes. This includes the deployment of fire blankets amongst those classified as high-risk.

Whilst the survey is not complete, we have completed a sufficient percentage of this inspection programme to reliably project the number of link boxes that need to be replaced during RIIO-ED2. The proposed volumes are higher than the volumes we have undertaken in RIIO-ED1 but we believe this step change is required to protect the public and prevent any incidents that may harm the public.

Ofgem Feedback

Ofgem have provided the following feedback within the Draft Determination on our proposed LV UGB volumes. This corresponds to our EJP 315_SSEPD_LV_UGB

'There is a significant increase in volume compared to first 5-years of ED1. The step change is not explicitly explained, however appears to be due to new concerns regarding safety for high-risk link boxes. It was clarified that the NARMS model "caps" HI at 3 in the absence of inspection data. The approach described appears logical but is still based on several assumptions in the absence of inspection data. Due to the significant increase in proposed volumes and risks related to assumptions we consider the EJP to be partially justified.'

Ofgem's assessment has therefore resulted in a cut of £3.93m from our baseline plan. This means that our customers will be at great risk of LV link box failures which will impact their network reliability and there will also be an increased risk, albeit minimal, to the public in high traffic areas where LV link boxes are installed. With an increased reliance on electricity for domestic and industrial customers, reduced network reliability will impact SSENs and government net zero ambitions. In response we provide the evidence in Table 15 to demonstrate our preparedness to deliver these volumes.

Table 17 - Key deliverability constraints and risks, and mitigations

Identified Risks / Constraints	Our Mitigation Strategy
Volume Increase Volume increase between RIIO-ED1 and RIIO-ED2.	<ul style="list-style-type: none">- Post identification of our work bank, we have summarised these into four key areas and optimised our plans with consideration of wider works within a geographical area:<ul style="list-style-type: none">o Align link boxes with cable overlay volumes i.e., where cables are being overlaid associated link boxes will be replaced at the same time.o Coordinate link box replacements with substation works i.e., where asset replacement or refurbishment works is being complete at a given substation, associated link boxes will be replaced at the same time.o Integrated link box replacements with our LV OLTC programme of work.o Where our investments do not fall into the above categories these will be delivered as a programme of work.- The above demonstrates are volume delivery is integrated into wider works which offsets the proposed volume increase.



Identified Risks / Constraints	Our Mitigation Strategy
Delivery Strategy Step change increase in volume delivery between RIIO-ED1 and RIIO-ED2.	<ul style="list-style-type: none"> - Our LV link box investments will be optimised through our Integrated Delivery Planning Centre, with our HV and LV cable circuit investments and other works this will mean we touch the network efficiently. - We have optimised our work bank for the early years and have completed site surveys LV link boxes have formed part of the scope.
Resource requirements Project team and management resources required to oversee delivery contracts.	<ul style="list-style-type: none"> - Our resource requirements and internal project management structures are streamlined with consideration of the four key categories above. - We will also supplement our supply chain with in-house labour and jointing teams to deliver the increased volumes, with an approximate 60% outsourced and 40% in-house.
Supply chain Ability to secure supply chain and associated resources.	<ul style="list-style-type: none"> - Most of our investments will be delivered through our Underground Cable Infrastructure committed volume framework for which Contract award is expected Q1 2023. - Product forecasts are being shared with suppliers, with materials secured for one year. - We will collaborate with our supply chain and manufacturing partners to adopt innovation to make link boxes, smaller and more adaptable for future years.

Table 18 shows the impact to our customers if the volumes we have proposed are not allowed by Ofgem in the RIIO-ED2 Final Determination.

Table 18 – Summary of impacts associated with Ofgem decision not to fund

Impact	Draft Determination Impact Statement
Safety	<ul style="list-style-type: none"> - Although minimal, there is a public safety concern that we are addressing through this investment. - Our strategy focuses on our highest risk LV link boxes, reducing volumes increases the number of HI5 assets in high-risk areas as we are not being adequately funded to replace them.
Network Reliability	<ul style="list-style-type: none"> - Where assets are nearing end of life and not being replaced there is a higher likelihood of failure. - More faults would lead to reduced network performance for customers. - Volume reduction impacts our ability to meet our monetised risk reduction.
Reactive Investment	<ul style="list-style-type: none"> - With the likelihood of increased faults due to assets with poor health, we will move towards a reactive replacement programme compared to the proactive replacement programme we've put forward as part of our plan. - Reactive replacement will lead to higher costs and may not afford us to undertake our strategy to replace LV link boxes with Pillars which needs additional planning
Net Zero	<ul style="list-style-type: none"> - If network reliability is impacted, especially at the LV level, this will impact consumers & customers want to transition to all electric connections that support net zero ambitions.

LV Switchgear

Ofgem have provided the following feedback in response to our proposed CV7 LV Switchgear volumes. This feedback corresponds to our EJP 314_SSEPD_NLR_LV_SWGR

'An annual inspection cycle is aimed for with these assets and in the last complete financial year approx. 66% (SHEPD) and 88% (SEPD) of asset were inspected. Assets that have not been inspected are capped at HI3 and hence not considered. Whilst this approach is considered reasonable, there is a significant increase in volume compared to ED1 which presents a deliverability risk. We therefore consider the EJP to be partially justified.'

Ofgem's comments on the cap at HI3 are valid, however, if the full asset suite had been inspected there is a likelihood that more assets would need to be replaced; not less. This is a risk that SSEN must own, but Ofgem's challenge on deliverability on our proposed volumes is unfounded based on their own run rate analysis.

For LV Switchgear only two asset categories have seen volume reductions based on deliverability; these are for LV Pillar (OD at Substation) and LV Board (WM) and these reductions are only applicable to SHEPD. Ofgem's run rate, based on our historic performance, for both asset categories suggests that our ED2 volumes are well within the run rate volume and therefore are in fact deliverable.

In response we provide the evidence in Table 19 to demonstrate our preparedness to deliver these volumes.

Table 19 - Key deliverability constraints and risks, and mitigations

Identified Risks / Constraints	Our Mitigation Strategy
Delivery Strategy	<ul style="list-style-type: none">- Our proposed ED2 volumes are less than Ofgem's calculated 'Run Rate'- This should give confidence that the volumes we have proposed are in fact deliverable as proven by the 'Run Rate'

Table 20 – Summary of impacts associated with Ofgem decision not to fund

Impact	Draft Determination Impact Statement
Network Performance	<ul style="list-style-type: none">- The overall impact to network performance is minimal based on the volume adjustments; however, with there is a risk that network performance will be impacted as the volume reduction will mean that not all assets assessed as being in poor health will be replaced.- Poor network performance, particularly on the LV network, could have a detrimental impact on customers willingness to transition to an all-electric connection to support the UK to meet net zero ambitions.
Network Safety	<ul style="list-style-type: none">- Given that our proposed volumes are directly informed by our CBRM calculated Health and Criticality scores the proposed volume cuts risk asset failure which may have safety implications to both the public and our employees.

