

RIO-T2 Non-Operational IT Capex

Appendix 2: Project Definition and Justification Papers

September 2023

Any confidential or commercially sensitive information has been redacted from this document



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Integrated Project Management (IPM)

Project Definition and Justification Paper

(Updated September 2023)

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1 Executive Summary

SSEN Transmission’s primary function is to provide a safe and reliable supply of electricity to the communities it serves. It also plays a critical role in the transition to a low carbon future, developing, building, maintaining, and operating a network for Net Zero. It is vital to the UK’s Net Zero ambitions as it transports huge quantities of clean, green, and renewable power to over a quarter of the UK land mass across some of its most challenging terrain.

This network supports both the UK and Scottish Governments’ Net Zero emissions targets, whilst meeting the needs and expectations of stakeholders. With the region home to some of the UK’s greatest resources of renewable power, the business has a critical role to play in the transition to a low carbon future, connecting more renewable energy and transporting it across the country.

SSEN Transmission is a growing business, as this transition requires billions of pounds in investment to meet energy demands, both now, and, in the future. Through a fair, balanced, and considered investment programme, we are committed to improving network reliability and enabling the transition to Net Zero, at an affordable cost to consumers.

A key element for the successful delivery of this journey to Net Zero will require SSEN Transmission to build forward looking, digitally enabled teams. This means high levels of user experience with all the digital tools needed to achieve high performance delivery. We will use these tools to develop the ‘single source of the truth’, to directly support our people and stakeholders, and put safety, efficiency, insight, and great customer service as the main drivers for change in our Capital Delivery programmes.

We have created a vision for Integrated Project Management (IPM) that meets this ambition and is aligned with our overall digital investment plan. Impacts on other areas of the business, such as Finance, Procurement, and other supporting functions, will be assessed to identify if there are any overlap of requirements, and, if so, the most appropriate delivery mechanism will be suitably determined. SSEN Transmission will use digital products to capture, manage, integrate, and share our data to drive performance and innovation across our business.

Our RIIO-T2 Business Plan sets out four strategic themes, of which this investment aligns:

- “Sector Leading Efficiency”
- “Safe and Secure Network Operations”
- “Transport the renewable electricity that powers 10 million homes”.
- “£100 million in efficiency savings from innovation.”

The successful delivery of this investment, which will span the RIIO-T2 and RIIO-T3 periods, will enable the integration of IPM capabilities into several wider capabilities, such as Asset and Operations, Engineering Designs, Supplier Collaboration, Enterprise Systems, Resourcing, and Costing.

The investment requested in RIIO-T2 and a breakdown of the cost elements within this investment is shown in Table 1.

Table 1: IPM Cost table (2018/19 Price Base)

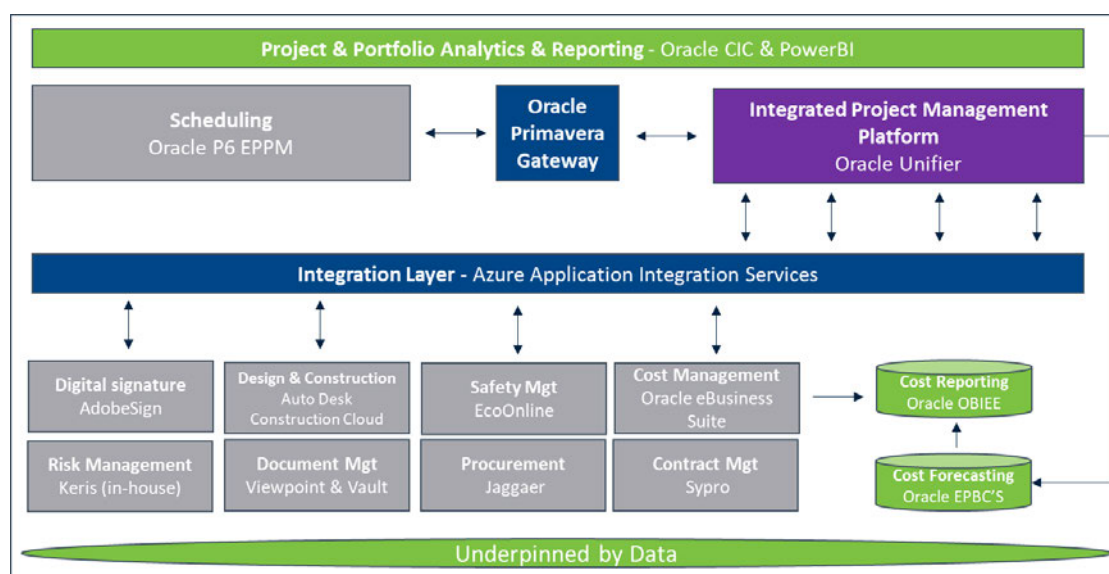
Cost Table (£m 2018/19)	2021/22	2022/23	2023/24	2024/25	2025/26	Total
Non-Op IT & T Capex						
Business Support Costs						
IT Opex						
Total Investment						

2 Project Summary

2.1 Document Purpose

This paper was originally submitted within the January re-opener window. The feedback received required further cost certainty to be provided. Over the last 6 months we have progressed several activities to provide this certainty and confirm the architectural design (as below), product selection and the resources required to execute the delivery plan. This has increased the confidence in the costs and timeline for delivery.

Diagram 1: Integrated Project Management Systems diagram



These activities are captured in detail in section 7.4 Cost Assurance.

2.2 Background

SSEN Transmission's approach to the delivery of large-scale Capital Delivery projects to date has been effective and delivered outcomes in RIIO-T1 and early RIIO-T2. However, with the forecasted rate of growth in connections and large-scale transmission reinforcement expected to accelerate, the legacy approaches will not be sufficient. Additionally, with the growing usage of digital technologies by key stakeholders and customers, there is a risk to the business that efficiencies delivered by these technologies will be lost.

The current technology landscape within Capital Delivery does not meet or enable us to meet the above requirements because:

- It is fragmented.
- We do not have the functionality required.
- It is outdated and has not kept up with the changes in delivery technology.
- Input is primarily captured manually into Excel-based tools.

2.3 Rationale

SSEN Transmission's ambition is to become a digital organisation and this ambition covers all aspects of the business from project delivery to operational decisions. Based on the current level of digital maturity in the capital asset delivery and the growing portfolio of assets requiring connection to the transmission system there is a risk of not delivering the capital programme, which will impact the Net-Zero ambition. Therefore, there is a need to invest in growing and maturing the digital capabilities of the capital delivery functions.

IPM is the digitalisation of the management processes underpinning Capital Delivery including scheduling, costing, risk assessment, and issue management. Standardisation ensures best practices are embedded in complex capital delivery. This has three benefits. First, it leads to a faster and more optimised way of delivering projects. Second, it ensures that the right data is collected at every stage, in a manner that ensures it can be aggregated for provision of insight, providing benefits including:

- Enabling early actions, ensuring bottlenecks are identified and addressed
- Providing better reporting leading to enhanced stakeholder engagement, and more informed customers
- Facilitation of Data led decisioning.

Finally, this investment will reduce the inherent delivery risk in the capital programme bringing greater confidence in delivery against the business plan commitments and the additional projects that have been funded through the RIIO-T2 period.

The IPM capability is a key enabler for RIIO-T3.

2.4 Alignment to our RIIO-T2 Business Plan

This programme supports the five clear goals set out in the SSEN Transmission RIIO-T2 business plan. This investment also aligns to the delivery of the “Sector Leading Efficiency” and “Safe and Secure Network Operation” themes in our business plan. To enable the plan’s delivery, it requires a fully digital business, with the IT digital capabilities to rapidly adapt and change in response to the demands of the business, customers, and stakeholders. Table 2 demonstrates how these investments assist in the delivery of our goals.

Table 2: Integrated Project Management alignment to goals

RIIO – T2 Business Plan	2026 Commitment	Alignment	Investment Delivers
Transport the renewable electricity that powers 10 million homes	Our RIIO-T2 Certain View will deliver an electricity network with the capacity and flexibility to accommodate 10 GW renewable generation in the north of Scotland.	High	The capability to use and combine data from various sources within SSEN Transmission to increase the flexibility and capacity of the transmission network (Efficiently share data)
Aim for 100% transmission network reliability for homes and businesses	Through investing in new technology and ways of working, when cost effective for customers to do so, we will strive for 100% transmission network reliability for homes and businesses.	High	Increased quality of data used in operational decision-making will both reduce risk and increase the reliability of the network (Data driven decisions)
Every connection delivered on time	We will provide every network connection, tailored to meet our customers’ needs, on time, on budget, and to our customers’ satisfaction.	High	Support to ensure project delivery to enable new connections (Provide tailored services)
One third reduction in our greenhouse gas emission	We will reduce the controllable greenhouse gas emissions from our own operations by 33%, consistent with a Net Zero emissions pathway.	Medium	More efficient decisions driven by accurate data (Operational efficiencies)
£100 million in efficiency savings from Innovation	Our RIIO-T2 Certain View includes £100 million of cost savings through productivity and increased innovation. We aim to go further to save more.	High	An environment that enables increased focus on areas that improve productivity by providing the data to identify those areas. It will also enable improved Innovation decisions (Creates opportunities)

2.5 Alignment to our strategic investment drivers

The current strategic investment drivers were identified through a series of workshops and engagement with stakeholders. Through these, we identified two themes that have driven the need to review and update our Digital and Data Strategy. This review has led to the need for additional Digital investments to increase the digital IT capabilities and the capability of related systems. The IPM programme has been developed to assist in delivering part of the overall strategy to support these drivers.

These themes are shown in Figure 1.

Figure 1: Digital Drivers



The delivery of this investment will enable efficiencies for project delivery of both new connections and transmission network upgrades, as well as increased standardisation of delivery and greater certainty on delivery of capital project outcomes. Its delivery will cater for the massive increase in the amounts of data generated. The current traditional approach and systems will not address the challenges Net Zero brings, as we have a landscape that is disjointed, our processes are not digitalised, and data resides in multiple places. These factors mean the current traditional approach and systems are unlikely to deliver improvements, or add value for customers, stakeholders, and consumers. The current traditional approach and systems has been sufficient for our short- and medium-term delivery, but it is not on par with the modern organisation we strive to be. Further, and more importantly, it is also not suited for the extensive delivery we have planned within RIIO-T2 and for RIIO-T3.

Our customers and stakeholders are using new technologies, and this increases our need to evolve and create new ways of working. They require more frequent, accurate, and digital information about the delivery of their projects or project they are interested in. Further, digital maturity is increasing within the user community internally and the lifecycle of technology keeps accelerating and getting disrupted, so there is a need for SSEN Transmission to evolve as well. This means increasing our number of digital channels, and more integrated ways of collaborating on projects.

The delivery of the components within the Integrated Project Management investment programme will ensure that these align with the SSEN Transmission Digital Vision and Strategy. Table 3 shows the alignment of these to our strategic drivers.

Table 3: Alignment of Drivers to changes

Investment/Project	Business Drivers	Technology Drivers	Alignment
Integrated Project Management	We are a critical enabler for Net Zero	Digital and Data evolution in Transmission and the wider energy system	High
	Our business is growing and maturing	Growing and maturing Transmission IT	
	Meet our promises to the consumer and shareholders		

2.6 Alignment to Re-Opener guidance

Table 4 sets out how our submission meets the requirements of our licence and the Re-Opener guidance.

Table 4: Licence and Guidance Requirements for Submission

Licence and Guidance Requirement	IT Re-Opener Strategy Summary	This Document
Clear statement on the needs case, demonstrating alignment with the overall business strategy and commitments. This includes the organisational context, strategy, and business alignment	Section 4	Section 2
Description of overall strategy and current operations covering non-operational IT capex investments, including description of IT Strategy, the role of IT Strategy in supporting the business, and overall IT Plan dependencies	Section 4.4 Section 4.5	
Demonstration of the needs case and problem statement, covering the capabilities that need to be enhanced and/or risks that need to be addressed and/or opportunities addressed	Section 4	Section 2
Explanation of options assessment, including the methodology used		Section 4
Clear description of preferred option, covering the following:		
<ul style="list-style-type: none"> A description of the proposed project including scope and objectives of the proposed option and how the proposed option will either improve operational capability, support meeting business objectives, or reduce risk / create opportunities 		Section 3

<ul style="list-style-type: none"> A detailed description of project delivery plans, including project schedule, governance, and KPIs to monitor the progress of the project 	Section 6	Section 5 Section 6
Breakdown and Justification of costs, including the following:		
<ul style="list-style-type: none"> Justification for the need and amount of allowance required per project, considering the requirements and capabilities being delivered 		Section 7
<ul style="list-style-type: none"> An overall portfolio cost for the proposed Re-Openers, and delineation of costs per project 	Section 7	Section 7
<ul style="list-style-type: none"> Commitment to the use of good practice governance, including investment management and controls 	Section 6	
<ul style="list-style-type: none"> Inclusion of uncertainty and risk costing 		Section 7
Clarity on the purpose, scope, and dependencies of the project		Section 3 Section 6.2
A description of the proposed solution at an appropriate level of detail		Section 5.3
Quality assurance approach for the project i.e., for testing and acceptance	Section 6.7	
A costed plan for delivery, in line with recognised good practice		Section 7
Project Resource breakdown showing costs per resource type across defined cost categories		Section 7

3 Project Scope and Outcomes

3.1 Project Scope

Our current digital capabilities in Capital Delivery, whilst sufficient for where we have been to date, are no longer sustainable for our growth targets and business ambitions. We, therefore, see the need to make the following changes within our Capital Delivery. We need to:

- Streamline our delivery processes and enable the embedding of best practices through Digitalisation.
- Use technology to give insights on our delivery performance, so we can act earlier and quicker to make corrections.
- Collaborate more effectively with our partners and hold them to account.
- Create and leverage the right structures in our finance system to be able to capture and report on capital project costs more efficiently and accurately, reducing the overheads on the business and finance colleagues.
- Plan our resource requirements early, so that we remove bottlenecks in terms of materials and resources, and most importantly allow us to engage with suppliers early to manage lead times.
- Provide better information to our stakeholders, especially connections customers, so that they can be kept up to date regarding their investments.
- Make data an asset in Capital Delivery by ensuring quality data flows through the life cycle of the asset and strengthen our foundation for future growth.

IPM will deliver integrated digital capabilities to execute Capital Delivery project management functions, including project scheduling, cost management, risk, change, issues, and scope management. This will streamline effort, make handover and governance processes more efficient, and provide insight and performance indicators, leading to faster and more efficient execution of Capital Delivery projects. These integrated digital capabilities are aligned with the vision of being a digital business and enable the flow of data from inception through to Asset Operations. We are realistic on how quickly this can be achieved, and plan to execute this scope across the RIIO-T2 and RIIO-T3 periods. We will focus initially on the core capabilities of Schedule Management, Cost Management, and Reporting, with supporting capabilities of Integration and Workflow and Process Automation being implemented in the current regulatory period. Risk/Issue Management and Change/Scope Management will be a focus for RIIO-T3, along with the continuous improvement and enhancement of the previously delivered functionality. As capabilities are implemented, and embedded into the business, we expect there will be demand for new functionality and increased granularity of information available within the IPM platform.

Table 5 sets out the functional capabilities, and how they align to the regulatory period from a delivery perspective.

Table 5: IPM Capabilities

Capability	Definition	Delivery Period
Schedule Management	This capability allows for centralising different planning data, to create integrated views of the delivery schedule, both at project and portfolio level, giving insight and a forward view on delivery. The capability will also allow for provision of specific performance indices, such as Schedule Performance Index, where forecasts are compared with baseline plans, allowing for better analysis of deviations. This prompts early action and helps specify the overall risk of a delivery.	RIIO-T2
Project Cost Management Structures (ERP)	Within our core finance platform, design and configure the cost structures that enable the more efficient capture, management and reporting of capital project costs. This will reduce the current overheads and use of non-core systems to manage the current cost breakdown structure and simplify the reporting of costs internally and through Regulatory Reporting. This is a key enabler for the IPM solution.	RIIO-T2
IPM Cost Management	Given the large costs associated with Capital Delivery, this capability is about using cost information to track the spend profile of projects in a more effective way as well as provision of improved cost reports. The capability will integrate with the Project Cost Management Structures enabler (above) within the ERP finance system to provide an improved view of cost performance at project and portfolio level.	RIIO-T2
System Integration	There are key sources of data, notably financial, HR, planning systems, and inventory that Integrated Project Management will require. System or data integration will ensure that such data is in place, enabling the distinct functions of IPM to provide holistic views across key management functions such as Scheduling, Cost, Risks and Issues, and Change Management. Such integration will also remove the “swivel chair” effect, e.g., double entry of planning data.	RIIO-T2
Reporting Capabilities	Standardisation of processes (scheduling, risk, issues, and change management) and access to central and required sources of data allows for a suite of reports to be created, which can be used across multiple stakeholder groups. The same is also possible when it comes to creation of analytics, especially using PowerBI tools.	RIIO-T2
Workflow and process automation	Given standardisation of processes, it is possible to include automation into these processes by building workflows. This will allow for a speedier execution of processes, such as processes to do with handover, but also identification of issues, and optimisation of execution.	RIIO-T2
Risks and Issues Management	Given each project has risks and issues, this capability is about creating a centralised and standardised method to manage risks and issues across all Capital Delivery projects as well as at a	RIIO-T3

	portfolio level. By being able to create heat maps, project and portfolio managers can have a prioritised and focused view on top topics, ensuring key mitigations are in place. Mitigation actions can be managed effectively through workflows, and key criteria such as longevity of risks, or issues can show where mitigations are not tracked well.	
Change / Scope Management	This capability is about centralising and standardising the methods by which changes are requested, impact assessed and accepted into each project. It is also about providing a portfolio view of changes (approved and in the pipeline) together with a forecast of commercial or schedule impacts. The capability will allow for better decision making, and more robust stakeholder management. It also allows for scrutiny of changes, showing which projects or portfolio have had the largest amount of change, giving traceability to these for future reporting.	RIIO-T3
Action Management	This is short term work scheduling rather than have multiple Exceles where teams are collaborating on actions. This is concerned with rolling out team spaces, where people have a collaboration space for their projects, including actions tracking.	RIIO-T3
Continuous Improvement and Enhancement	Once the core functional capabilities have been delivered, initially as a Minimum Viable Product (MVP), these will be iterated and improved in conjunction with the business to meet the evolving requirements and feature requests. This could include more sophisticated and advanced functionality, increased granularity and detail in data capture or reporting enhancements. Whilst the precise scope is currently unclear, this block of scope would lend itself well to a more agile delivery approach once the platform and core functionality is available.	RIIO-T3

By ensuring that all Digital IT investments are aligned to the Digital and Data strategies, this will ensure that projects deliver the required capabilities and systems that also result in the effective capture and management of data. This approach then becomes a key enabler, by creating an environment that ensures that all parties can exchange accurate data in a timely manner. Exchanging data through the Load (system planning) and Non-Load (asset management) investment processes will ensure stakeholders, planners, and engineers have visibility of all aspects of current and planned projects, outages, and so on, through to real time operations.

Having successful data capture, organisation, and management systems, tools, and capabilities in place enables data-driven investment decisions. This will enable SSEN Transmission to deliver operational efficiency, network resilience, timely connections, and support development of the Net Zero emissions network. Distinct functions within the business will have unique needs, but it is vital to ensure that the data flows consistently, is accurate, and entered only once. There is also the need to transfer the data back to stakeholders so that they can make their own analysis of potential future opportunities.

Integrated Project Management is more than just a capability. It is the design and integration of a set of capabilities that deliver the key benefits across the total lifecycle of project management with seamless hand over to Asset and Operations. In summary:

- **Data:** In one place, giving insight for better planning, cost management, etc.
- **Process:** Workflows ensuring we execute management processes more effectively, e.g., governance.

- Changes to skill: Changing our people’s ability and culture to become more collaborative, to value data and enforce accountabilities.
- Rationalised technology landscape: streamline and remove redundant systems.

3.2 Deliverables

The successful addition of the IPM platform and capabilities will provide SSEN Transmission with the following key deliverables:

- High level design
- Detailed design
- Selection and procurement of IPM Suite/Platform
- Platform deployment and base configuration
- ERP Project Cost Management Capability Release
- Schedule Management Capability Release
- IPM Project Cost Management Capability Release
- Integration of IPM to other applications
- Reporting Suite Release 1
- Workflow and Process Automation Release 1
- Transition to Service

These deliverables will place the business in a prime position to build on these capabilities and sets a solid foundation for the RIIO-T3 regulatory period.

3.3 Outcomes

The IPM investment will deliver specific outcomes to the business and its stakeholders and customers. These are outlined in Table 6.

Table 6: IPM outcome mapping

IPM delivers	Outcome
Standardisation	Leads to best practice and speedier processes
Centralisation of Data	Better insight and performance management
Portfolio view	Makes insight across multiple projects, driving economies of scale
Management of cross functional handovers	Handing over data into BAU for enhanced operational work
Increasing quality of output	Tracking and enforcing vendor obligations and enforcing quality criteria
Earlier view of change	At portfolio view, leading to better scrutiny of change and enhanced management of cost implications
Integration of planning across multiple functions	Dependency tracking, enhanced material management
Improved cost capture and reporting	More accurate capture of costs of diverse types in a project orientated finance structure, reducing manual intervention, journaling and

	allocation of overheads and better alignment to the regulatory reporting requirements
Reduction in delivery risk	Bring increased certainty and reduced risk to the capital projects delivery
Efficiency	Reduced overheads of sharing and transmitting data and information surrounding capital projects, with external suppliers and internally across the SSEN Transmission business. Reduced overheads of cost management and tracking. Reduced effort in the production of regulatory reporting for capital projects.
Reduction in Compensation Events	With better control and management of schedule and cost, issues, and risks, this could lead to a reduction in compensation events that are avoidable through enhanced project management and collaboration

The capabilities that the IPM investment will deliver can also be mapped to a set of benefit drivers. These drivers are aligned to our Net Zero delivery drivers, by achieving our capital programme in the most efficient manner and on time. This will also increase engagement with staff and benefit our stakeholders and customers. Table 7 maps these benefits to the IPM capabilities.

Table 7: Mapping of IPM capabilities to benefits drivers

IPM Capability	Efficiency Drivers	Increased speed of delivery	Stakeholder Information and Management	Better Employee Satisfaction	Improvements to Safety
Schedule Management	High	High	Medium	High	Low
Project Cost Management Structures (ERP)	High	Low	Low	Medium	Low
IPM Cost Management	High	Low	Low	Medium	Low
Risks and Issues Management	High	High	High	Low	High
Change/Scope Management	High	High	High	Low	High
System Integration	High	High	Low	High	Low
Reporting Capabilities	High	High	High	Medium	Medium
Workflow and process automation	High	High	Low	High	Low

As previously mentioned, the projected capital spend for the next three years is several billions of pounds per year. Based on our external digital partners' experience of delivering similar capabilities within similar environments, and industry norms and averages, we believe that the benefits mention

in Table 5 and Table 6 can be conservatively estimated at between 0.5 to 1% in capital project delivery costs and overheads.

4 Optioneering & Preferred Option

4.1 Method of evaluation

There were several different options available including delivering the work now and seek funding within the RIIO-T2 re-opener window, do nothing, or defer all the delivery until RIIO-T3. All these options were presented and debated within SSEN Transmission IT, Capital Delivery, and the wider business. Guidance was also sought from our digital partners, who assisted us to create the Digital Vision. The criteria that this evaluation was held against included:

- Impact on meeting strategic objectives
- Impact on meeting 2030 Strategy
- Impacts on RIIO-T3 Foundation
- Unmissable Quick Wins
- Alignment with stakeholder expectations

This led to options being narrowed down, which are outlined in the following section.

4.2 Options Considered

The subsequent different options were considered, evaluated, and set out in Table 8.

Table 8: Options considered

Options	Pros	Cons
Delay IPM until end of RIIO-T2	<ul style="list-style-type: none"> • Wider choice of solutions specific to the capability needed as technology and solutions move forward, e.g., a wider range of solutions that provide risk and issue management 	<ul style="list-style-type: none"> • Higher operational costs due to maintaining and supporting current multiple systems • Having to manage data across multiple systems, risking inferior quality data, user, and stakeholder experience • Different roadmap of product upgrades, leaving inconsistency in use, and alignment of upgraded capabilities • More difficult to use out-of-the-box functionality, given different solutions are not integrated or part of a platform • Harder execution of training, and vendor management, given multiple parties are involved
Deliver IPM now	<ul style="list-style-type: none"> • Less integration, albeit integration with ERP systems, Asset Management Systems, and Inventory Management systems will be required • A platform-based solution with expertise in IPM and a consistent roadmap of product evolution 	<ul style="list-style-type: none"> • Increased risk due to limited number of vendors • Potentially limited in certain functionalities in certain capabilities, for example, there might be better products in the market for change management, but this might be a

	<ul style="list-style-type: none"> • Better use of integrated data • Easier use of out of box functionality, leading to less costs of implementation • Easier training given one platform owner deployment • Easier management of vendors 	weaker capability in the chosen platform
Do Nothing	<ul style="list-style-type: none"> • No investment costs required • Minor change and intervention to in-flight projects • No additional training required 	<ul style="list-style-type: none"> • Increased headcount in the business to delivery projects, and high likelihood that they won't deliver without IPM • Will slow down or impede future growth of capabilities given limitations to certain systems • Cannot reap awards of integration, especially integration of data • Will continue to suffer from “swivel chair” effect

4.3 Preferred Option

The preferred option is to develop the “Deliver IPM now” option, resulting in the majority of IPM capability centred in one already integrated platform and solution. It requires only one procurement process, and the selected platform is designed for Integrated Project Management for Capital Delivery. This approach can be described as a hub that delivers the required capabilities. It leverages some of the existing systems (through integration), where they either provide strong capability or are part of an SSEN Transmission wide service (e.g., Finance).

5 Approach

5.1 Delivery Methodology

Based on the level of IT delivery maturity within SSEN Transmission IT, it was determined that the standard SSE methodology of Waterfall Lite would be the most appropriate for the initial Scoping and Approach, and Product selection, refinement, and planning phases, with the Design, Build, Test and release phases being delivered using the agile methodology. Strong governance will be applied to manage scope and ensure the project continues to align with the fixed budget, and fixed timescale to deliver against an agreed business case.

5.2 Defining and sequencing projects

A phased delivery approach will be adopted for this investment, using the agile methodology to realise benefit early. This iterative delivery is reflected in the plan displayed in section 5. We will also be adopting an initial pilot rollout to a sub section of users.

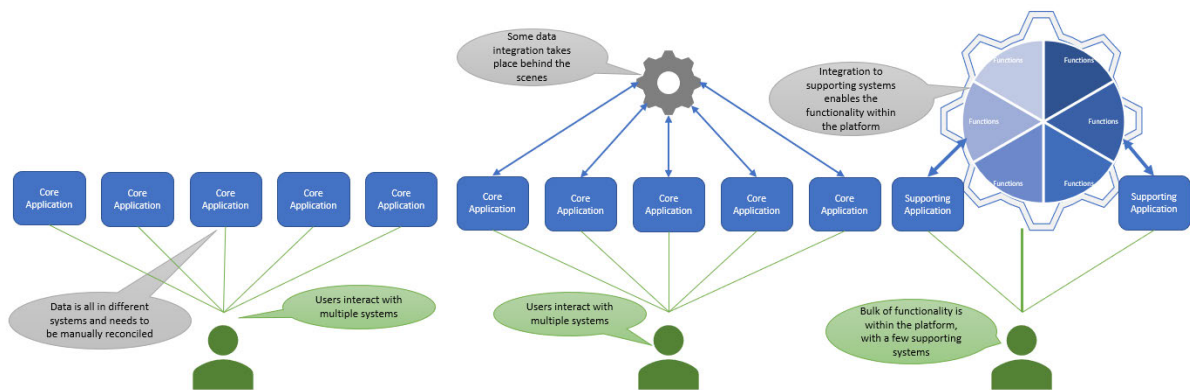
1. **Product Selection:** Tender completed; Product selection made, Systems Integrator selected, and Middleware solution agreed.
2. **Discovery Phase:** In depth analysis completed to inform delivery phase; scope, plan, technical design and resource requirements.
3. **Delivery 1:** Set-up foundational configuration of the Unifier platform with some quick wins to start adding value early.
4. **Delivery 2:** Scheduling, Resourcing, Change Management, Design documentation, Data migration and training.
5. **Delivery 3:** Cost Tracking, performance management, Risk Management, Quality Management, Contracts monitoring, Data migration and training.
6. **Delivery 4:** Oracle Construction Intelligent Cloud deployment with associated reporting and analytics.
7. **Middleware Integration:** Ongoing integration to support each incremental delivery.
8. **Data Quality assessment & Cleanse:** Ongoing Data assessment and data cleanse activity to support each incremental delivery.
9. **Continuous iterative improvements:** Following the final launch phase, with all functionalities having been delivered and all users onboarded, there will be a period of review and improvement to ensure the realisation of maximum value from the IPM product.

To bring greater confidence to delivery of the core scope in the RIIO-T2 period, we have mobilised this project already and completed the initial design and requirements, the procurement product selection process and selected an implementation partner for this project.

5.3 Technology Considerations

Based on the current favoured design, the platform would aim to utilise our core platforms whilst replacing some of our satellite systems in alignment with our Common Data Environment (CDE). This can be seen from a user's perspective in Figure 2.

Figure 2: A user's perspective to the technology considerations

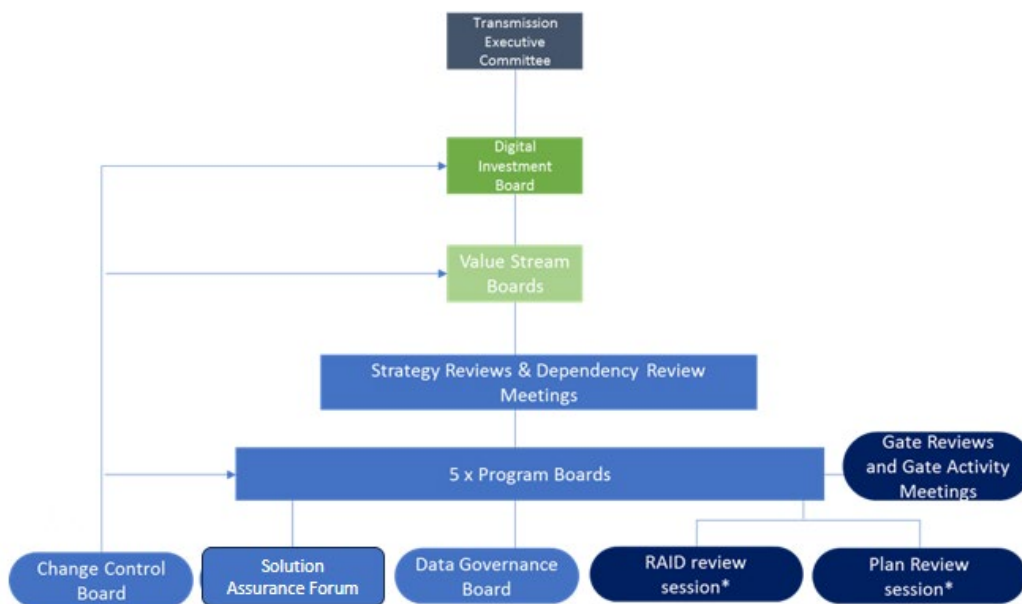


5.4 Governance

This investment will follow relevant change control guidelines to ensure that any changes to scope, schedule, or finances are formally signed off at the right level. Our approach will result in reduced business change and disruption. Due to the size of the investment required to deliver IPM, an appropriate level of governance will be required.

We already have a well-defined robust governance structure in place within SSEN Transmission (Figure 3). This enables all parties to understand the required governance. Each level has a separate Terms of Reference (ToR) and an associated Financial Framework to manage financial risk to the projects.

Figure 3: Governance structure



The appointed Value Stream Lead updates their Value Stream Board monthly. As mentioned, due to the size of this investment, there will also be a requirement to update the Digital Investment Board. These updates will ensure that progress against the relevant milestones is on track and any associated financial or project risks are discussed at the appropriate level. Any blockers to progress can be discussed and, if required, re-prioritisation of delivery can be agreed.

We have identified the following metrics to measure value added, and this will be managed through our governance model.

- Number of compensation events post release of IPM compared to current baseline.
- Optimisation of workflow resulting from reduction of data gathering and/or reporting duration.
- Enhancement of efficiency and product quality measured by the reduction of waste and minimisation of rework within our processes.
- Cost savings resulting from the reduction of manual tasks, errors and manual interventions.
- Volume handling measurement with the same or fewer resources post IPM implementation compared to current baseline.

5.5 Procurement

During the last 6-month period the standard approved SSEN Transmission procurement process has been completed for the IPM product. The Oracle Unifier platform has been selected with [REDACTED] as the Systems integrator. Additionally, the application integration middleware platform has also been selected, with the product being fully aligned to our Digital roadmap.

5.6 Change Management

The primary aim is to ensure readiness and smooth the path for acceptance and continuity of service. The change management function will understand the impact of the change, effectively communicating and providing training as required. This will be handled by our in-house Business Change Team.

6 Plan

6.1 Delivery Timelines

The Investment will be delivered in various stages, and currently our best view of the plans, and the basis on which we are going to tender is the expected timeline as outlined in. The elements highlighted in dark blue have already been completed and we have confidence that this scope and sequence will deliver the RIIO-T2 outcomes. Table 9: Sequencing of projects shows the current proposed milestones, sequencing and duration of each of the projects within the investment.

The revised plan has been created to maximise the delivery of benefit to both SSEN Transmission and our stakeholders, and to our customers and consumers. We also plan to use the Supplemental Questions process to advise on updated costs and timeline as the tender process develops.

Figure 4: Delivery Timelines

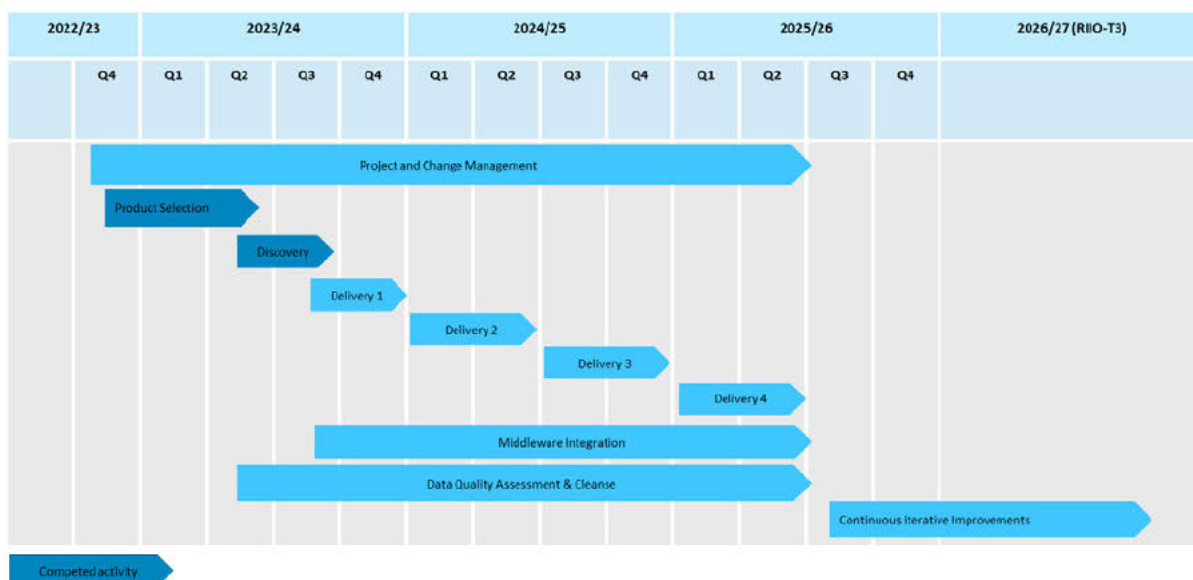


Table 9: Sequencing of projects

#	Project Name	Start	Finish	Duration
1	Project & Change Management	Q4 2022	Q2 2025	32 months
2	Product Selection	Q4 2022	Q2 2023	Completed
3	Discovery	Q2 2023	Q3 2023	Completed
4	Delivery 1	Q3 2023	Q4 2023	4 months
5	Delivery 2	Q1 2024	Q2 2024	6 months
6	Delivery 3	Q3 2024	Q4 2024	6 months
7	Delivery 4	Q1 2025	Q2 2025	6 months
8	Middleware Integration	Q3 2023	Q1 2025	22 months

9	Data Quality assessment and cleanse	Q3 2023	Q2 2025	25 months
10	Ongoing iterative improvements	Q3 2025	Q1 2026	9 months

6.2 Dependencies

We have identified the following dependencies for this investment (Table 10). These dependencies will be managed through good practices in project management and factored into the project mobilisation and execution.

Table 10: Project Dependencies

Dep. ID	Dependency	Impact	Direction
D1	Securing Re-Opener funding	If this is not received, then we will be unable to deliver business goals and commitments.	Inbound
D2	Availability of our vendors and their capacity to deliver to our timelines	If not available, then project schedule will be delayed, and business value will be reduced.	Inbound
D3	Availability of key stakeholders impacting the plan, such as the risk that sometimes key operational constraints (such as storms etc) occupy them	If not available, then business capability development will be assumed, and projects based on IT understanding rather than clear business need.	Inbound
D4	Actual projects to test the solution with, project priorities, and their delivery schedule	If not available, then value add of the build solution will not be realised	Inbound
D5	Other value streams within the programme to provide appropriate data governance and data quality from other non-capital delivery systems. This is seen most notably in those that are currently working on Master Data Management	If not available, then project schedule will be delayed, and business value will be reduced.	Inbound
D6	The IPM project is dependent on the Finance Transformation Programme to deliver the ERP changes for Project Cost Management structures	If not available, then the IPM Cost Management capability release will be delayed. The likelihood of this impact is low as the Project Cost Management scope is scheduled to deliver as soon as possible with a six-nine month schedule buffer between the scope items	Inbound

6.3 Risks to the plan

The following are risks to the delivery of the plan (Table 11).

Table 11: Risks to the plan

Risk	Impact	Probability	Mitigations
Risk that the delivery approach leads to cost and time overruns	Time and Cost	20%	A strong governance framework to ensure that projects have management oversight for their delivery
Licence costs may increase beyond budget	Cost	20-30%	Re-advise through the SQ process on Class 2/3 costs that will become firmer through the tenders that are in flight
Procurement delays	Time and Cost	20%	Ensure early engagement with procurement to understand potential blockers early in process
Capability gap to support and deliver projects in the programme	Resourcing	30-40%	Third party tactical support will be provided where required with plan to transition capability in-house for enduring delivery
Development time and cost may exceed the project duration given complexities in interoperability between systems	Time	30-40%	Alignment and steering from Asset Management, Capital Programme, and Services
Risk that the technology built will not be used by the workforce to drive the benefits	Benefits Realisation	10-30%	Gain strong business sponsorship and set up a change management workstream before all delivery to ensure the commitment to achieving the benefits

6.4 Resourcing

The following resource requirements have been identified to successfully deliver the components within the IPM investment. They can be supplemented by external resources if it is not possible to fulfil the resource requirement from within the current IT resource pool (Table 12). It is expected to utilise a mixture of the Waterfall Lite and the agile methodologies as reflected by the resource model below; this will be flexed as required.

Table 12: Resources and roles

Resource and Role	Internal/External	Objectives
Programme and Project Manager	Internal/External	Lead the project and ensure it is delivering to the agreed timelines. Accountable for the end-to-end delivery
Scrum Master	Internal	Lead, train and coach the team throughout the agile delivery, facilitating ceremonies and helping the removal of blockers.
Procurement and legal support	Internal	Responsible for communicating with vendors to buy, rent or contract products and services needed to achieve project objectives
Value Stream (VS) /Business SMEs	Internal	Provide guidance and oversight on the deliverables to ensure they meet requirements and expectations. Organise business engagement forums
Product Owner	Internal	Business representative that will own the solution from the business perspective, support the delivery of the right solution to meet business needs and inform the product/solution enhancement roadmap after initial delivery
Change Lead	External	Manage the change process and execute the change plan working with support from the business
Business Analyst	Internal	Gather the business, customer, and stakeholder requirements
Data assurance and protection	Internal	Provide a framework to make sure that data is available, usable, consistent, and secure. This includes creating data standards and processes that provide accountability to make sure data management is effective
Change Manager	External	Manage all aspects of IT changes, prioritise change requests, assess their impact, and accept or reject changes
Change Analyst	External	Identify the impacts resulting from changes to people, process, systems, and culture
Infrastructure Designer	Internal/External	Produce infrastructure technical designs to support the business in line with the organisations, technical strategy, and market developments

Security Assurance	Internal/External	Responsible for processes aimed at ensuring individual system components can adequately protect themselves from attacks
Test Manager	External	Create test strategy and co-ordinate testing across the multiple work streams
Testing	External	Conduct automated and manual tests to ensure the software created by developers is fit for purpose
Application Developers	External	Design, program, build, deploy, and maintain software. ██████████ have selected as our Systems integrator
Transition Support	Internal	Support the business when it migrates from old system to new solution
Solution Architect (IT)	Internal/External	Create the overall technical vision and technical design for a specific solution to a business problem. They design, describe, and manage the solution, which includes all integration requirements.
Data Architect	Internal/External	Encompass the design, development, and optimisation of the conceptual and logical data systems
Others	N/A	Non-people costs related to the project
Integration Developers	External	Set-up integration services platform and build integration between source systems and IPM platform
BI Developers	External	Create stakeholder led reports

Our strategy for resourcing is to use third party developers and external Digital Partners as required, but we will maximise the utilisation of our own internal capabilities, including reaching out to SSE group.

Whenever we use external resourcing, we will use existing consulting and other frameworks, that have been established through SSE procurement processes. In respect to any additional external support, we will use SSE procurement to align with regulatory requirements to bring in best capabilities and obtain the best price. Our quality and performance of resourcing is managed through appropriate vendor performance management. Internal resources are managed through internal performance management.

6.5 Confidence in our plan

Given what we know so far, we are confident in the plan and the resourcing that has been proposed. The tender process to procure the IPM platform and the corresponding implementation services has been completed, providing clarity to our resource model, cost estimates, and delivery plan. Our focus will be on the core scope, as outlined in section 3. Where there are material changes to the investment that come to light through H1 of 2023, we will leverage the SQ process to keep the regulatory parties up to date. Therefore, we are confident in this approach and delivery timeline based on two factors:

- A clear and achievable scope and defined deliverables
- Input from experienced SMEs on effort required to deliver the project scope

7 Costs

7.1 Costing Approach & Cost Breakdown

This investment is made up of two different expenditures:

- **Resource costs:** we plan to deliver this investment using a hybrid resource model as outlined in the previous section. Our model is built by leveraging experience from and by incorporating lessons learnt from other organisations.
- **Platform Costs:** working in conjunction with our digital partners, we have estimated additional costs that will be required to develop the product.

Across the expenditure types, we propose to spend a total of ██████ m.

7.2 Cost Breakdown

Based on the size of the required team to deliver the capabilities required, the following resource costs are detailed in Table 13.

Table 13: Cost breakdown for required resources (2018/19 Price Base)

Resource Type (€m 2018/19)	2021/22	2022/23	2023/24	2024/25	2025/26	Total
SSEN Transmission (Internal & Contingent Resource)	████	████	████	████	████	████
3rd party services (Consulting/SI Services)	████	████	████	████	████	████
3rd Party Services (Business Change and Readiness)	████	████	████	████	████	████
Software Procurement	████	████	████	████	████	████
Hardware Procurement	████	████	████	████	████	████
Software Maintenance	████	████	████	████	████	████
Hardware Maintenance	████	████	████	████	████	████
Total	████	████	████	████	████	████

7.3 Assumptions

The following assumptions (Table 14) were utilised to determine the expected costs within the investment.

Table 14: Assumptions

A. ID	Assumption	Impact if assumption is broken
A1	As there is not sufficient skills or bandwidth within SSEN Transmission IT or the business, we will use our consulting partner frameworks to source resources.	Schedule & Cost Impact – if external resources are not available, then costs will increase due to bidding war for resources and additional time taken to acquire.
A2	The procurement process will follow SSEN Transmission procurement processes and standards.	Schedule Impact – if different procurement processes are required, this will extend the time allocated in plan.

A3	A cloud-based solution will fulfil the requirements	Cost Impact – a non-cloud solution will require additional design work.
A4	Standard Unit rates will be used in costing resources (both internal and external).	Cost Impact – the project budget may require additional funds to cover change in projected costs.
A5	The delivered platform will require ongoing support.	Cost Impact – if this is not required, then support costs will require adjusting.
A6	Third Party resources are available in timely manner.	Schedule & Cost Impact – if inputs are not received when required, then this will delay the delivery of the strategy artefacts and increase costs.
A7	The business will be capable of providing experienced SME resource.	Schedule & Cost Impact – if inputs are not received during the initial stages, then this will delay the delivery of the strategy artefacts and increase costs.
A8	Operating costs for the investment have only been included for the current regulatory period.	Operating costs for the solution will continue into RIIO-T3 and will be submitted as part of the RIIO-T3 business plan submission.

7.4 Cost Assurance

Our costs are built up based on product and System integrator selection, high level scoping of our solution, in addition to traceability and experience (Table 15).

- **Working with consultancies** Our plan has been put together through working with our Strategic Advisors. Each partner has contributed to our projects, including providing the effort estimates we would expect to see. These are based on their experience partnering on similar projects delivered elsewhere.
- **Benchmarking** We have benchmarked this plan with projects of a comparable size and scale to demonstrate that the overall investment is within the expected amount for an organisation of our size. This has given further confidence that we:
 - Haven't excessively forecasted any costs, and we are delivering the investment efficiently
 - We haven't under forecasted and will be hit with unexpected costs when we come to deliver
- **Product Selected:** Following a 6-month regulated tender the cloud-based Oracle Unifier has been selected, with support, licensing and build costs confirmed.
- **System Integrator selected:** ██████████ have been chosen as our delivery partner. They bring a high level of technological and business expertise to the project and have also demonstrated previous experience of delivering an IPM solution. ██████████ also partnered with us on the BIM project and delivery of the design and construction CDE.
- **Integration platform selected:** The project has opted to go with the Azure integration services in alignment with the SSEN Transmission Digital IT roadmap.
- **High-Level technical design completed:** Through the procurement exercise and an 8-week discovery phase we have completed the high-level solution design aligned to our digital strategy and technology roadmap, with internal reviews also having been completed.
- **Recruitment of internal staff completed** with 3 new members recruited for Value Stream 2, reducing the overall resource costs, and ensuring continuity of resources and knowledge.

- **Stakeholder management and sponsorship:** Extensive work has been progressed on the management of our key sponsor and stakeholders, who have been fully engaged and actively involved in the project to-date.
- **Change Management strategy:** A change lead and change analyst have been appointed to the project to drive communication and change adoption.

Table 15: Cost assurance

Cost assurance mechanism	Applies to this PDJP	How it applies?
High level plan	Yes	We created a high-level plan and ensured we have aligned our resources against this plan
Top-down resource estimates	No	
Bottom-up resource estimates	Yes	Detailed resource plan revised from previous submission based on greater knowledge
Confidence weighting on resource estimates	No	
Experience from prior investments	Yes	Input was received from both internal SSE resources and Strategic Partners
RIIO1/2 allowance and expenditure	Yes	Similar projects delivered in RIIO- T1
Negotiated and market tested frameworks and contracts (e.g., consulting services or managed services)	Yes	Unit rates for the resource costings is based on a combination of internal loaded costs and the rates set out in negotiated and agreed framework consulting agreements
Rfx processes	Yes	Procurement inflight and costs will be update one complete and flagged via SQ process
External benchmark of investment titles	Yes	A third-party assurance activity has been undertaken to review the scope, timeline, resource mix and costs being proposed in this investment
Unit cost assumptions	Yes	Standard Unit costs applied
Expert/External provider support to paper	Yes	External consultancy input on the scope and effort estimates
Project delivery risks	Yes	We have assessed the project delivery risks as described in section 5.3

8 Operating and sustaining the solution

Based on our experience, and what we understand currently, we will need to pay, on an ongoing basis, for both licence costs for the IPM Platform, Project Cost Management software licenses and associated application support costs. Table 16 sets out the costs for operating the solution in the RIIO-T2 period, which will continue into RIIO-T3.

Table 16: Support Costs (2018/19 Price Base)

Solution Part (£m 2018/19)	2021/22	2022/23	2023/24	2024/25	2025/26	Total
ERP Project Cost Management - Support Costs	██████	██████	██████	██████	██████	██████
IPM Platform Support Costs	██████	██████	██████	██████	██████	██████
Total	██████	██████	██████	██████	██████	██████

9 Conclusion

The growing amount of transmission and new connections assets that need to be built to enable the UK to deliver on its Net Zero commitments is placing an increasingly large challenge on SSEN Transmission to ensure that it delivers these connections in time. There is a need to ensure the successful efficient delivery of these Capital projects, also the need to ensure that all the other associated aspects of its delivery into asset operations (e.g., capture, storage, and sharing of data), right through to decommissioning, is managed. Increasing the availability of this data is required and requested by both internal and external parties.

To assist in navigating this rapidly changing energy landscape, a Digital and Data Vision has been created. Our Digital Vision sets out our ongoing journey to become a more fully digitalised business. An Integrated Project Management (IPM) platform will deliver the capabilities and platform that are aligned to and enhance this vision over the remainder of RIIO-T2, and into the RIIO-T3 period. It will benefit all our stakeholders and customers, and the end-consumer. We are seeking investment of [REDACTED] for the remainder of the RIIO-T2 period, summarised in the table below.

Table 17: IPM Investment Summary (2018/19 Price Base)

Cost Table (£m 2018/19)	2021/22	2022/23	2023/24	2024/25	2025/26	Total
Non-Op IT & T Capex	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Business Support Costs	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
IT Opex	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Total Investment	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

This investment in IPM will deliver the required platform and capabilities through a series of coordinated steps by splitting the investment into several logical scope items, while prioritising the delivery order by focusing on the highest value add first. These different scope items are as follows:

- Change & Project Management
- Data and Integration Design
- Project Cost Management (ERP)
- Schedule Management
- IPM Cost Management
- Data Cleanse

The investment is expected to deliver the core capabilities by the end of RIIO-T2, with additional capabilities being delivered in early RIIO-T3 as well as enhancing the core functionality through continuous improvement. A core programme team will consist of both internal and external resources support by the relevant business SMEs.

Control Centre Disaster Recovery (DR) Phase 2

Project Definition and Justification Paper

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1 Executive Summary

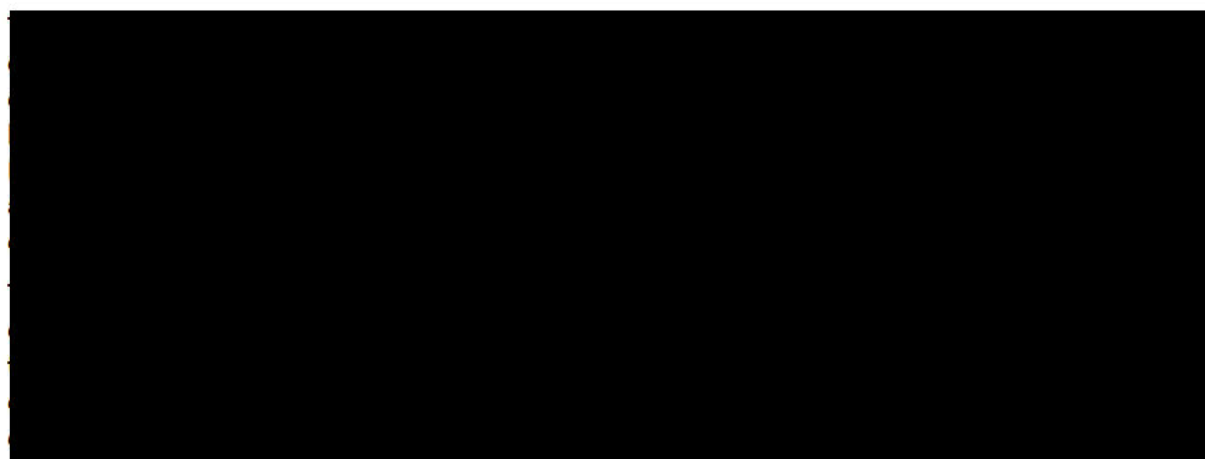
SSEN Transmission’s primary function is to provide a safe and reliable supply of electricity to the communities it serves. In 2000, the SSEN Transmission network consisted of [REDACTED]

[REDACTED] At the start of the RIIO-T2 period SSEN Transmission did not have its own control room and the RIIO-T2 plan was created based upon the “Certain View” of decarbonisation of the electricity industry; a view that has already been surpassed and with further growth required to meet Net Zero targets. The increases in penetration of renewable increases the operational complexities of safely and securely managing the Scottish power system.

This investment is to respond to two key subjects that have evolved substantially since the start of the T2 period. [REDACTED]

[REDACTED] The second relates to increasing operational complexities, and the essential role of the DR Control Centre as part of a strategic change to our Operational model to meet those complexities.

The growing SSEN Transmission network and our adoption of diverse technologies are driving increased resource demand to meet growing requirements for real-time control and system monitoring of the transmission network. In turn this means we need to grow the capacity of the Network Management and Control team, which cannot be facilitated in the existing Transmission Control Centre (TCC). We have outgrown the current facility and hence the proposed introduction of a new TCC and a remote-control centre facility within the existing scope of the RIIO-T2 plan.



This investment is to achieve the expected resilience, capacity, and reliability for Operational Control Rooms in line with CPNI guidance and stakeholder views; it will be delivered over eighteen months with preliminary requirements and design work having been completed in advance.

The associated cost breakdown is shown in Table 18.

Table 18: Cost Summary (2018/19 Price Base)

Cost Table (£m 2018/19)	2021/22	2022/23	2023/24	2024/25	2025/26	Total
Non-Op IT & T Capex	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Business Support Costs IT Opex	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Total Investment	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

2 Project Summary

2.1 Background

At the beginning of the RIIO-T2 period SSEN Transmission did not have its specific control centre and, at that time, had a shared facility with SSEN Distribution. Within RIIO-T2, our strategy was to introduce a purpose-built transmission control centre and business continuity centre, but with the growth of decarbonisation, operational complexity is increasing.

[REDACTED]

There also will be an increased need to actively manage and set flows and ensure that these flows are distributed correctly.

[REDACTED]

[REDACTED]

2.2 Rationale

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

This investment is to build on the infrastructure and services laid down by the RIIO-T2 [REDACTED] to extend the duration and capacity of the DR site's capability to support [REDACTED]

The SSEN Transmission Control centre team have reviewed the scope of the continuity control centre and concluded that adapting the [REDACTED] to become an operational control centre will become the focus for RIIO-T3, with the primary objective of [REDACTED]


[REDACTED] Equipping this facility with the IT services in RIIO-T2 period will allow it to become a standalone operations centre with limited capacity for staff and will form the basis of further adaption in RIIO-T3 to become an operational control centre, together this will address the RIIO-T2 and RIIO-T3 needs, with the reduced impact of travelling when the need arises.

[REDACTED]

2.3 Alignment to our RIIO-T2 Business Plan

This programme directly supports the SSE Transmission RIIO-T2 business plan (5 clear goals). A fully digital business with the IT digital capabilities to rapidly adapt and change in response to the demands of the business, customers, and stakeholders' cuts to the heart of this re-opener. Table 19, demonstrates how these investments assists in the delivery of our commitments.

Table 19: Alignment to RIIO-T2 Business Plan

RIIO – T2 Business Plan	2026 Commitment	Alignment	Investment Delivers
Transport the renewable electricity that powers 10 million homes	Our RIIO-T2 Certain View will deliver an electricity network with the capacity and flexibility to accommodate 10 GW renewable generation in the north of Scotland by 2026	High	Since the beginning of the RIIO-T2 period, the circumstances that formed that 'Certain View' have changed with increases in operational complexity and growth required to meet Net Zero targets. This reopener is critical to the achievement of this goal.
Aim for 100% transmission network reliability for homes and businesses	By investing in new technology and ways of working, when cost effective for customers to do so, we will strive for 100% transmission network reliability for homes and businesses by 2026	High	
Every connection delivered on time	By 2026 we will provide every network connection, tailored to meet our customers' needs, on time, on budget and to our customers' satisfaction	High	This facilitates the commissioning of the new connections from the renewable energy sources and operate the network.
One third reduction in our greenhouse gas emission	Reduce the controllable greenhouse gas emissions from our own operations by 33% by 2026, consistent with a net zero emissions pathway	Medium	Supports the acceleration of the achievement of NetZero.
£100 million in efficiency savings from Innovation	Our RIIO-T2 Certain View includes £100 million of cost savings through productivity and increased innovation, and we aim to go further to save more	Low	Limited contribution to the achievement of this goal.

2.4 Alignment to our strategic investment drivers

The current strategic investment drivers were identified through a series of workshops and engagement with internal and external stakeholders.

These engagements and workshops clearly identified two themes that have driven the need for SSE Transmission to accelerate the work for resilient network operations to meet the industry standard

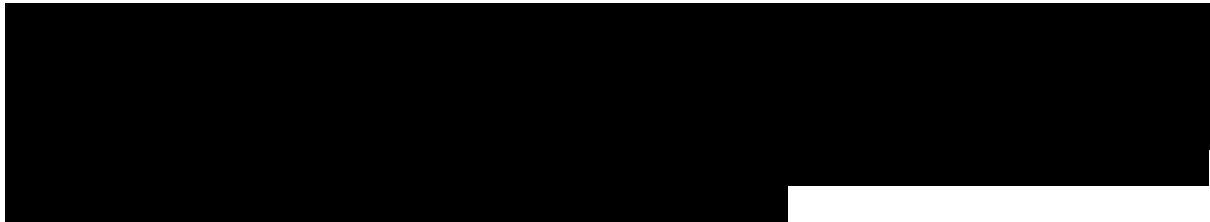
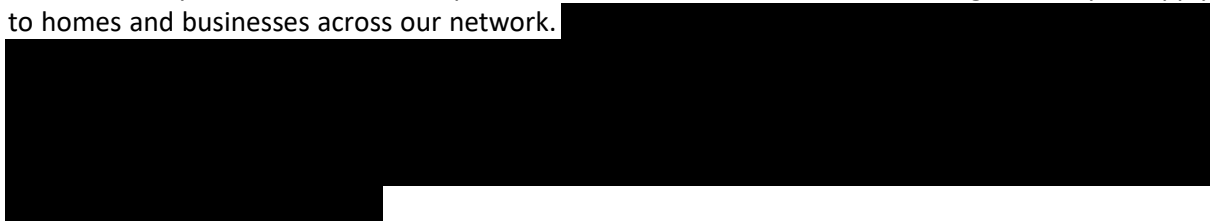
and will support SSEN Transmission in its continued efforts to operate and commission the energy network.

These themes were (see Figure 5) - Business and Technology.

Figure 5: Digital Investment Drivers



The data and systems that we use to operate the network are essential for ensuring reliability of supply to homes and businesses across our network.



Digital and Data evolution in SSEN Transmission and wider energy system will be empowered by using new technologies that support the need to evolve and create new ways of both working and operating our assets. The alignment of the projects to our strategic drivers is shown below in Table 20.

Table 20: Control Centre DR Phase 2 alignment to business drivers

Investment/Project	Business Drivers	Technology Drivers	Alignment
Control Centre Disaster Recovery (DR) Phase 2	We are a critical enabler for net zero	Digital and Data evolution in Transmission and wider energy system	High
	Our business is growing and maturing		
	Meet our promises to customers and stakeholders	Growing and maturing Transmission IT	

2.5 Alignment to re-opener guidance

Table 21 sets out how our submission meets the requirements of our licence and the Re-Opener guidance.

Table 21: Licence and Guidance Requirements for Submission

Licence and Guidance Requirement	IT Re-Opener Strategy Summary	This Document
Clear statement on the needs case, demonstrating alignment with the overall business strategy and commitments. This includes the organisational context, strategy, and business alignment	Section 4	Section 2
Description of overall strategy and current operations covering non-operational IT capex investments, including description of IT Strategy, the role of IT Strategy in supporting the business, and overall IT Plan dependencies	Section 4.4 Section 4.5	
Demonstration of the needs case and problem statement, covering the capabilities that need to be enhanced and/or risks that need to be addressed and/or opportunities addressed	Section 4	Section 2
Explanation of options assessment, including the methodology used		Section 4
Clear description of preferred option, covering the following:		
<ul style="list-style-type: none"> A description of the proposed project including scope and objectives of the proposed option and how the proposed option will either improve operational capability, support meeting business objectives, or reduce risk / create opportunities 		Section 3
<ul style="list-style-type: none"> A detailed description of project delivery plans, including project schedule, governance, and KPIs to monitor the progress of the project 	Section 6	Section 5 Section 6

Licence and Guidance Requirement	IT Re-Opener Strategy Summary	This Document
Breakdown and Justification of costs, including the following:		
<ul style="list-style-type: none"> Justification for the need and amount of allowance required per project, considering the requirements and capabilities being delivered 		Section 7
<ul style="list-style-type: none"> An overall portfolio cost for the proposed Re-Openers, and delineation of costs per project 	Section 7	Section 7
<ul style="list-style-type: none"> Commitment to the use of good practice governance, including investment management and controls 	Section 6	
<ul style="list-style-type: none"> Inclusion of uncertainty and risk costing 		Section 7
Clarity on the purpose, scope, and dependencies of the project		Section 3 Section 6.2
A description of the proposed solution at an appropriate level of detail		Section 5.3
Quality assurance approach for the project i.e., for testing and acceptance	Section 6.7	
A costed plan for delivery, in line with recognised good practice		Section 7
Project Resource breakdown showing costs per resource type across defined cost categories		Section 7

3 Project Scope and Outcomes

3.1 Project Scope

Within the scope of the original RIIO-T2 submission for control centres, [REDACTED] This investment is seeking to expand the [REDACTED] This will enable [REDACTED]

[REDACTED]

Table 22: outlines the capabilities of the project.

Capability	Definition
Regulatory and Safety	[REDACTED]
Strategic (resilience), Regulatory (reporting) and financial	[REDACTED]
Strategic (resilience)	[REDACTED]
Strategic (resilience)	[REDACTED]

Capability	Definition

3.2 Deliverables

The successful implementation of this investment will provide SSEN Transmission with the following key deliverables:

- Supporting high level and detailed infrastructure and architecture designs;
- [REDACTED]
- Data centre deployment and configuration;
- [REDACTED]
- Resource support time for DR Test scenario testing;
- DR and Service Continuity maintenance processes and audit requirements; and
- Transition to Service.

These deliverables will place the business in a prime position to build on these capabilities and sets a solid foundation for the RIIO-T3 regulatory period.

3.3 Outcomes

The DR Control Centre Phase 2 investment will deliver specific outcomes to the business and its stakeholders and customers. These are outlined in Table 6.

Table 23: Outcome mapping

Delivers	Outcome
Continuous DR Operations	[REDACTED]
Increased functionality	[REDACTED]
Increased capacity and scalability	[REDACTED]
Network Security	[REDACTED]

4 Optioneering & Preferred Option

4.1 Method of evaluation

There were multiple options available including delivering the work now and seek funding within the RIIO-T2 re-opener window, do nothing, or defer all the delivery until RIIO-T3. All these options were presented and debated within SSEN Transmission IT, Capital Delivery, and the wider business. The criteria that this evaluation was held against included:

- Meeting the core requirements of:
- Impact on strategy for Control Centres
- Impact on meeting 2030 Strategy
- Impacts on RIIO-T3 Foundation
- Alignment with stakeholder expectations

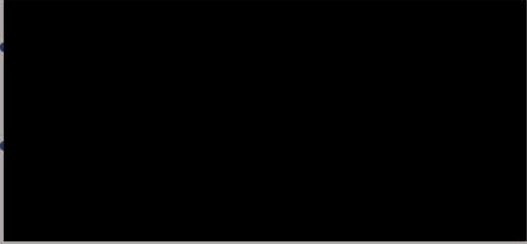
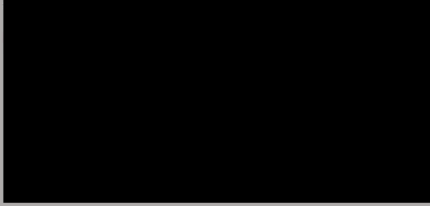
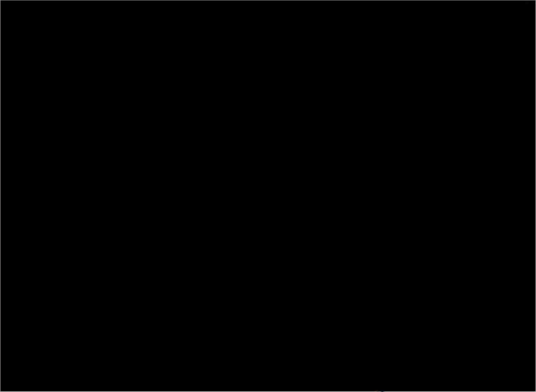
The options were assessed against the above criteria in a qualitative way, using subject matter expertise and business input.

4.2 Options Considered

The transmission control centre project team in conjunction with the DR Control Centre team have evaluated a range of different delivery options, see Table 24.

Table 24: Options Considered

Options	Pros	Cons	Score
Do nothing	<ul style="list-style-type: none"> • No funding needed 		-5
Defer to RIIO-T3	<ul style="list-style-type: none"> • Resilience is achieved by the end of the RIIO-T3 period for IT Services. 		-3

<p>Deliver additional scope in RIIO-T2</p>	<ul style="list-style-type: none"> • Resilience is achieved by the end of the RIIO-T2 period for IT Services. • On track with our control room strategy to achieve the pathway to 2030 for stakeholders. • It is an enabler for future expansion of control room capacity. 		<p>1</p>
<p>Accelerate the control centre strategy</p>	<ul style="list-style-type: none"> • Resilience is achieved by the end of the RIIO-T2 period for IT Services. • Achieved control room strategy to achieve seamless transfer for loss of a control room and the pathway to 2030 for stakeholders. • Achieve required control room capacity, delivered ahead of requirements 	<ul style="list-style-type: none"> • Investment required in RIIO-T2 to achieve additional control room space. • Delivery of resourcing and training is difficult within the timeframes. • Accelerated delivery may lead to poor planning, creating uncertainties in the build. 	<p>0</p>
<p>Expand current Burghmuir DR control centre</p>			<p>-4</p>

4.3 Preferred Option

Using the above scoring criteria, seeking additional funding to develop the additional scope option within the RIIO-T2 period scores the highest.

The delay or do-nothing options will not address the [redacted] are currently facing. Such challenges were not possible to foresee at the start of RIIO-T2, however do require attention in the immediate term such as e.g., improving resilience, increased growth, and complexity of new renewable connections.

By implementing the preferred option, we will not only meet the core requirements that we have set out, but provide the benefits to our consumers and stakeholders that we will be able to robustly and reliably continue to deliver safe and secure network operations in the event of high impact scenarios that should be planned for and mitigated against with considered and minimised risk of customer interruptions.

5 Approach

5.1 Delivery Methodology

SSEN Transmission IT have several different flexible delivery models so that it can deliver value at pace. By operating as a business partner, IT will enable stakeholders to collaborate on the delivery of Technology, and together with the creation of effective digital roadmaps and delivery, will enable strategic, robust, dynamic solutions that operationally support SSE’s digital direction.

SSEN Transmission IT supports both Waterfall Lite and Agile delivery models. A comparison between both approaches can be seen in Figure 6.

Figure 6: Agile vs Waterfall Lite delivery models

		VALUE DEFINITION, PLANNING & BUDGETING			SIGN OFF		VALUE REALISATION	
		WHAT?	WHO?	WHEN?	WHO?		WHEN?	
AGILE	VALUE STREAM	OKRs	Lead: Value Stream Owner Input: Business SMEs, Finance	Annually	BU EXCO (or equivalent)		Annually (or VS lifecycle) BUSINESS OUTCOMES	
	DELIVERY / PRODUCT / SERVICE QUARTERLY PRIORITIES		Lead: Delivery Lead / Product Owner Input: Delivery / Product Team, Finance	Quarterly	BUSG (or equivalent)		Quarterly VALUE INCREMENTS	
WATERFALL	WORK STREAM	Business Case (or OKRs) linked to business outcomes	Lead: Workstream Owner / BU Head Input: Business SMEs, Finance	Annually	BU EXCO (or equivalent)		Work stream / Project Closure BUSINESS OUTCOMES	
	PROJECT*		Lead: Project Manager Input: Project Team, Finance	Annually, Reforecast & Milestones	BUSG (or equivalent)			

* Projects can be standalone without being part of a work stream

The most appropriate methodology to use with this Project is Waterfall Lite. Waterfall Lite - For projects that may have a fixed budget, fixed scope, and fixed timescale to deliver against an agreed business case. The SSEN Transmission IT Waterfall Lite methodology can be seen in Figure 7.

Figure 7: Waterfall Methodology

@GETIT		Waterfall Lite - Stage Artefacts		sse	
<p>Click here for Template examples</p>					
<p>Define → 1 → Refine → 2 → Design, Deliver → 3 → Release, Close, Realise</p>					
<p>Stage Artefacts</p>					
<ul style="list-style-type: none"> Project Charter Business Case* Delivery Plan Quality Plan <p>Business Change Impact Assessment</p> <p>Data Privacy Screening Form/Data Protection Impact Assessment (if / where required)</p> <ul style="list-style-type: none"> Requirements Traceability by Catalogue (high level) Service Readiness Acceptance Criteria (assessment) Architecture Vision (if required) Security Plan (if required) <p>* elements previously held in the business benefits pro-forma can be included in the business case if of value. Additional outputs and deliverables may be identified (e.g. IT TSA, Procurement SoW)</p>	<ul style="list-style-type: none"> Project Charter (refined) Business Case* (refined) Delivery Plan Quality Plan <p>Benefits (value) Realisation Strategy / Plan</p> <p>Data Protection Impact Assessment (if / where required)</p> <ul style="list-style-type: none"> Business Analysis Report Requirements Traceability (high level and detail ed) Service Readiness Acceptance Criteria Intended Arch itecture (if required) Security Plan (if required) 	<ul style="list-style-type: none"> Delivery Plan Quality Plan <p>Business Change Summary / Readiness Benefits (value) Realisation Strategy / Plan</p> <p>Data Protect on Impact Assessment (if / where required)</p> <ul style="list-style-type: none"> Requirements Traceability Detailed Solution Design / Infrastructure Design (as / if needed) Testing Plans Service Readiness Acceptance Criteria Security Plan (if required) 	<ul style="list-style-type: none"> Project Closure Report <p>Business Readiness Summary Report</p> <ul style="list-style-type: none"> Benefits (value) Realisation Strategy / Plan <p>Handover Documentation and business acceptance (can be detailed within Project Closure Report)</p> <ul style="list-style-type: none"> Lessons Learned Report Security Plan 		
<p>Management, Governance and Decisions</p>					
<p>RAIDD Register</p>					
<ul style="list-style-type: none"> Decision request: Approval to proceed through stage gate Financial approval as needed Accepted and signed off documentation version controlled 	<ul style="list-style-type: none"> Decision request: Approval to proceed through stage gate Financial approval as needed Accepted and signed off documentation version controlled 	<ul style="list-style-type: none"> Decision request: Approval to proceed to the next stage Financial approval as needed Release: Go/No Go Decision 	<ul style="list-style-type: none"> Release and handover to operational support (IT and business teams) Decision request: To close the project 		

5.2 Defining and sequencing projects

This project is intended to be delivered in a single phase within a period of 18 months initial definition of the project took place during the current DR Phase 1 project, and many of the designs and technologies that will be involved are similar to implementations that have recently taken place in other locations using the same intended implementation partners. To maximise the success of delivery within a short period we are already progressing initial design and requirements activities. The project will follow our delivery frameworks define, refine, design, and deliver stages; with main outputs generated through design, procure, build and deploy type activities. More detail on this can be found in Figure 10.

5.3 Technology Considerations

To ensure the addition of [REDACTED] and all supporting services are deployed in a scalable and reliable way, we follow our existing technical standards. Technology considerations as part of this phase include:

- [REDACTED]
- [REDACTED]
- [REDACTED]

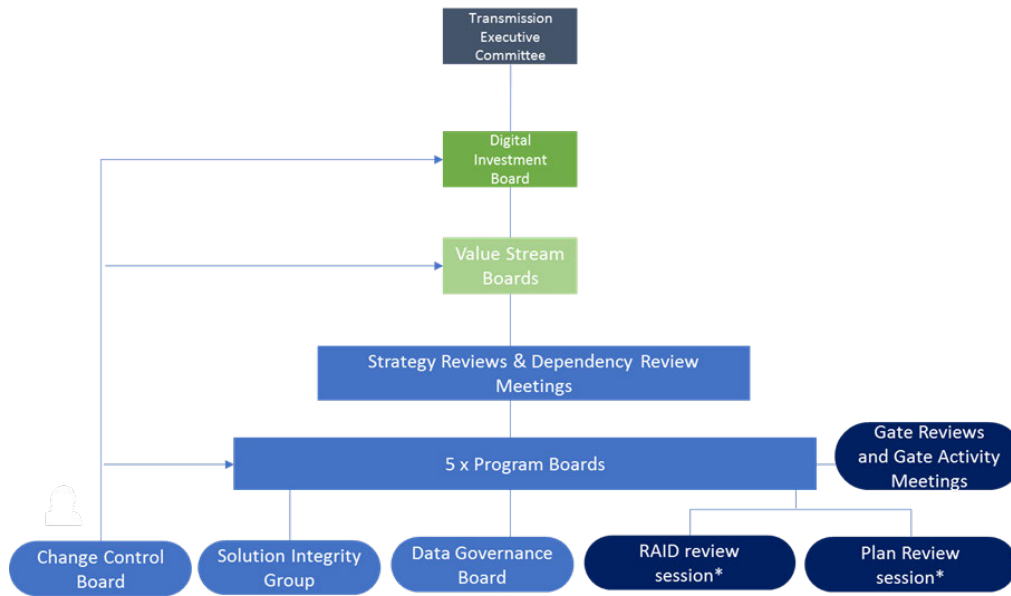
Meeting these considerations includes:

- Providing a suite of additional IT services and infrastructure
- Providing a suite of networking & OT server equipment to [REDACTED]
- Providing a set of firewalls to extend the security to [REDACTED]
- Configuring and deploying [REDACTED] and other services to provide critical [REDACTED]

5.4 Governance

Normal governance for SSE Networks Transmissions IT projects would require the following approach see Figure 8.

Figure 8: Standard SSE IT governance model



5.5 Procurement

To support the delivery of this investment, we will need to purchase the following components and services:

- [Redacted]
- [Redacted]
- [Redacted]

We will leverage our Digital Partners Framework to deploy additional resource, knowledge, and skills to support the project. Implementation is the largest element of the project estimates. The scale of costs per category for procurement is below with more details in 7.2 Cost Breakdown.

5.6 Change Management

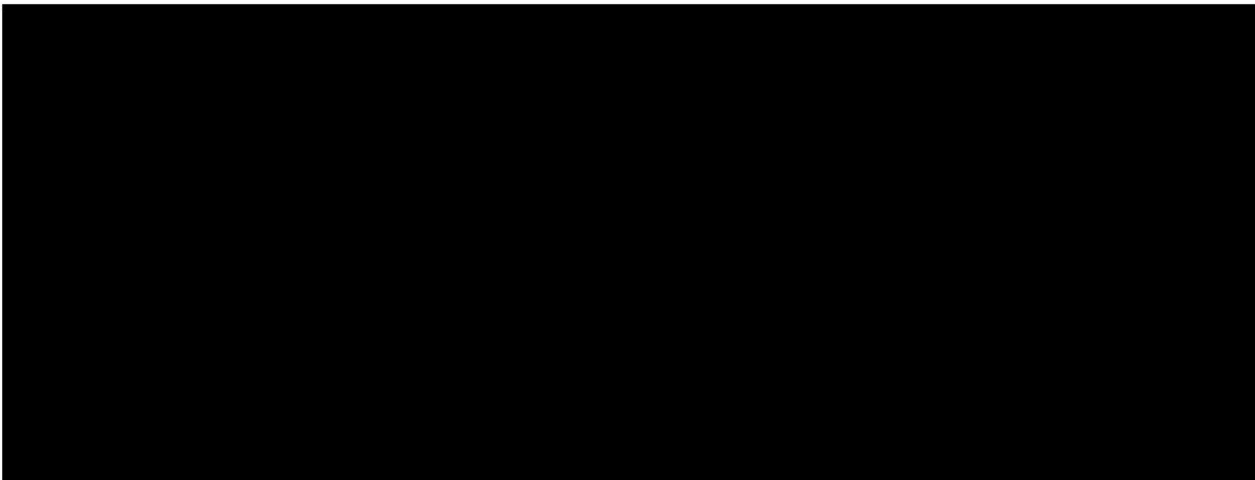
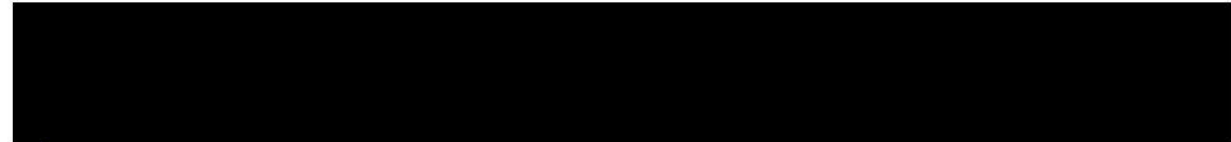
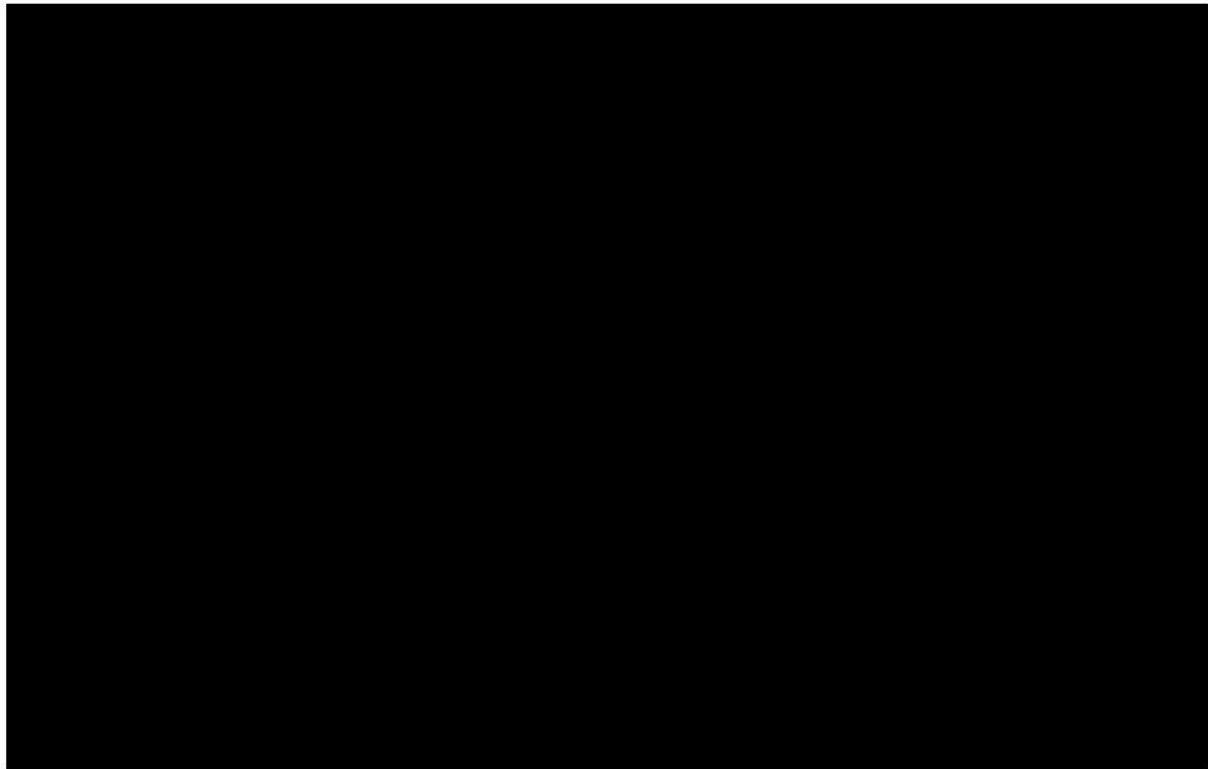
Technology is only one element of the programme. Our approach will result in an amount of business change and disruption; Where there is change however, we will build on our proven adoption track record and processes to effectively manage and introduce that change into our operation.

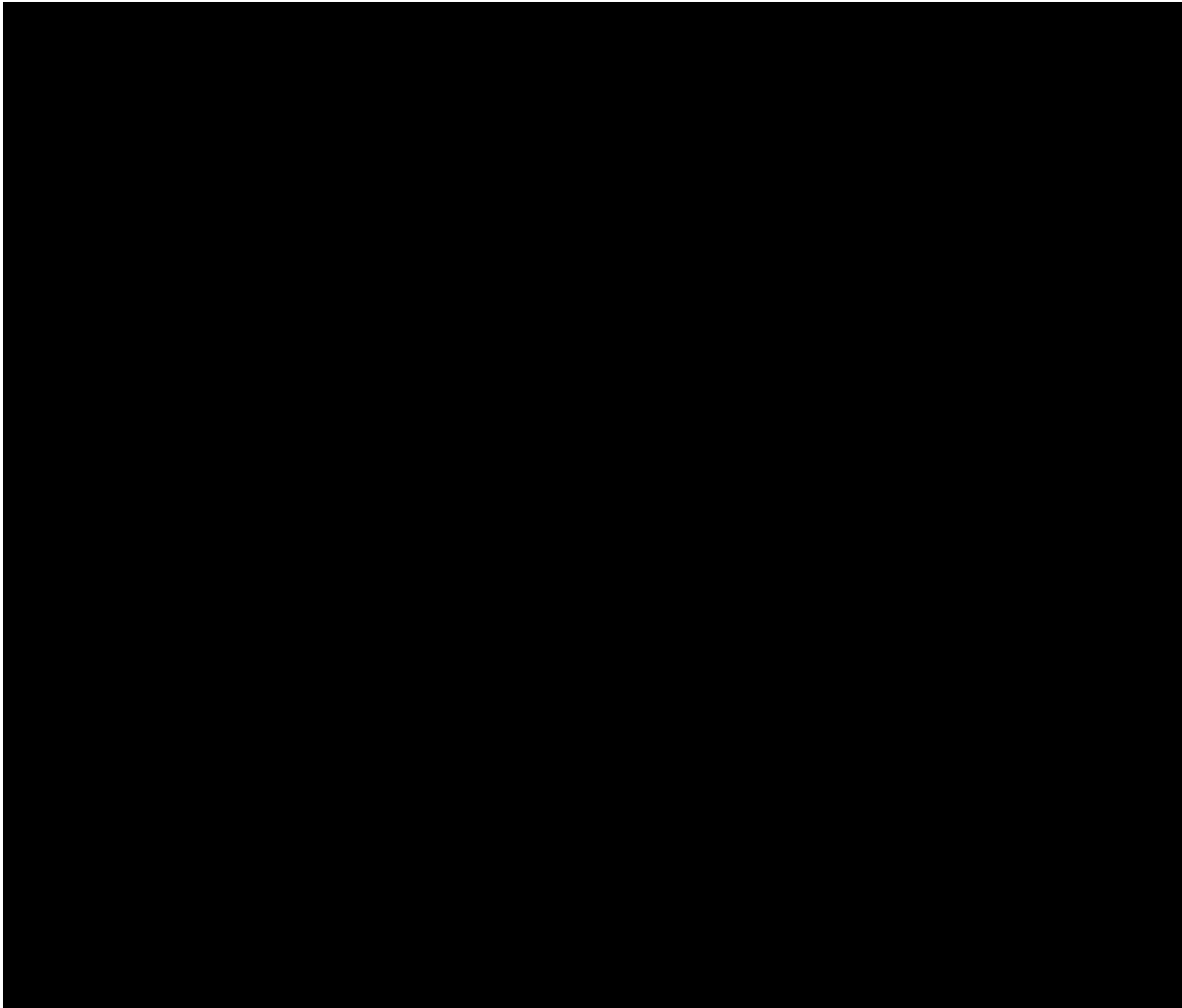
The primary aim is to ensure readiness and smooth the path for acceptance and continuity of service, this is critical to control centre operations. The change management function will understand the impact of the change, effectively communicating and providing training as required. This will be handled by our in-house Business Change Team.

6 Plan

6.1 Delivery Timelines

Along with the consideration of budget, we have systematically worked through the timeline and phasing of the delivery of the operational systems, to keep pace with the increase in resource, people, and specialist skills necessary within SSEN Transmission.





6.2 Dependencies

We have identified the following dependencies for this investment (Table 25). These dependencies will be managed through good practices in project management and factored into the project mobilisation and execution.

Table 25: Project dependencies

Dep. ID	Dependency	Impact	Direction
D1	Securing Re-Opener funding	If this is not received, then we will be unable to deliver business goals and commitments.	Inbound
D2	Availability of our vendors and their capacity to deliver to our timelines	If not available, then project schedule will be delayed, and business value will be reduced.	Inbound
D3	Availability of key stakeholders impacting the plan, such as the risk that sometimes key operational constraints (such as storms etc) occupy them	If not available, then business capability development will be assumed, and projects based on IT understanding rather than clear business need.	Inbound
D4	Ramping up internal IT capabilities (considering an extremely competitive labour market)	If not available, then project schedule will be delayed, and business value will be reduced.	Inbound
D5	The existing project team are available to provide continuity of key resources	If not available, then project schedule will be delayed.	Inbound

6.3 Risks to the plan

The following risk have been identified to the delivery of the plan, see Table 26.

Table 26: Risks to the plan

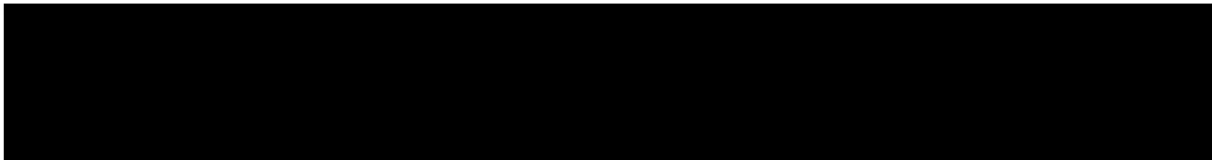
Risk	Impact	Probability	Mitigations
Risk that the delivery approach leads to cost and time overruns	Time and Cost	20%	A strong governance framework to ensure that projects have management oversight for their delivery
Licence costs may increase beyond budget	Cost	20-30%	Ensure early engagement with procurement to ensure monitoring of issue
Procurement delays	Time and Cost	20%	Ensure early engagement with procurement to understand potential blockers early in process
Capability gap to support and deliver projects in the programme	Resourcing	30-40%	Third party tactical support will be provided where required with plan to transition capability in-house for enduring delivery

Risk that the technology built will not be used by the workforce to drive the benefits	Benefits Realisation	10-30%	Gain strong business sponsorship before all delivery to ensure the commitment to achieving the benefits; this includes the necessary monitoring and maintenance of systems, scheduled DR testing scenarios and supporting continuity plans.
Infrastructure costs change due to the current technology price increases.	Cost	10-20%	Undertake the design as soon as possible to provide the list of components are procured as soon as is practical.

6.4 Resourcing

It is expected that due to the specialist nature of the project that the existing project team would be retained to provide continuity of key resources and to ensure a successful delivery. This will minimise risk and leverage existing working relationships.

Therefore, in terms of resources it is expected, based on previous experience, that:



A list of typical resources that will be required as outlined in Table 27.

Table 27: Resource types

Resource	Internal/External	Objectives
Project Manager	Internal	Lead the project and ensure it is delivering to the agreed timelines. Accountable for the end-to-end delivery.
Business SME	Internal	Provides the Business expertise, guidance, and oversight on the deliverables to ensure they meet requirements and expectations.
Solution Architect	Internal	Design the solution.
Security Architect & Assurance	Internal	Provide security design and assurance services.
Facilities Management	Internal	Provide build adaptation services and guidance.
Infrastructure Architect	Internal	Design the solution.
Product Manager	Internal	The project's key stakeholder—typically someone from marketing or product management, or the lead user of a system
Applications	Internal/External	External capabilities will be engaged to support design and implementation in conjunction with internal functions.

Infrastructure	External	An existing provider will implement and operate our infrastructure
Network	External	An existing provider will implement our network requirements
Others	N/A	Non-people costs related to the project

6.5 Confidence in our plan

As with all investments where we have planned in advance, there is a degree of uncertainty on the exact resource profile or cost. To mitigate this uncertainty we have created our plan in collaboration with those who have experience in delivering similar projects (in this case the project team that is delivering DR Phase 1). We have broken down our project into several cross-sections to aid analysis and have given consideration to dependencies, risks, and resource requirements across each phase of the project to enable us to build a reliable cost model.

This work has been undertaken in collaboration with, a third-party consultancy with significant expertise in the delivery of projects utilising this small change approach. Our cost model is detailed in the following section.

7 Costs

7.1 Costing Approach & Cost Breakdown

The estimate for this work is contained within this project cost breakdown, see Table 28 for additional details.

Table 28: Cost Approach (2018/19 Price Base)

Solution Part (£m 2018/19)	2021/22	2022/23	2023/24	2024/25	2025/26	Total
Project Mgt.						
Product Licensing						
Server Infrastructure						
Firewall (Switches & changes)						
Implementation Cost						
Total Capex						
Support Costs						
Total						

7.2 Cost Breakdown

The following costs are in addition to the existing RIIO-T2 business plan, see Table 29 for additional details.

Table 29: Cost breakdown for required resources (2018/19 Price Base)

Resource Type (£m 2018/19)	2021/22	2022/23	2023/24	2024/25	2025/26	Total
SSEN Transmission (Internal & Contingent Resource)						
3rd party services (Consulting/SI Services)						
3rd Party Services (Business Change and Readiness)						
Software Procurement						
Hardware Procurement						
Software Maintenance						
Hardware Maintenance						
Total						

7.3 Assumptions

The following assumptions apply to this project:

-
-

See Table 30 for additional assumptions made.

Table 30: Project assumptions

A. ID	Assumption	Impact if assumption is broken
A1	As there are not sufficient skills or bandwidth within SSEN Transmission IT or the business, we will use our consulting partner frameworks to source resources.	Schedule & Cost Impact – if external resources are not available, then costs will increase due to bidding war for resources and additional time taken to acquire.
A2	The procurement process will follow SSEN Transmission procurement processes and standards.	Schedule Impact – if different procurement processes are required, this will extend the time allocated in plan; overall around 7 months given the lead times for equipment and resource.
A3	The server-based solution will fulfil the requirements.	Schedule & Cost Impact – a server-based alternative solution architecture will require additional design work.
A4	Standard Unit rates will be used in costing resources (both internal and external).	Cost Impact – the project budget may require additional funds to cover change in projected costs.
A5	The delivered platform will require ongoing support.	Cost Impact – if this is not required, then support costs will require adjusting.
A6	Third Party resources are available in timely manner.	Schedule & Cost Impact – if inputs are not received when required, then this will delay the delivery of the strategy artefacts and increase costs.
A7	The business will be capable of providing experienced SME resource.	Schedule & Cost Impact – if inputs are not received during the initial stages, then this will delay the delivery of the strategy artefacts and increase costs.

7.4 Cost Assurance

Costs are examined throughout the stage gates of the Waterfall lite project methodology and include assessing confidence of estimates during Define stage, ensuring clarity of cost and alignment in the Refine stage, and controlling and monitoring estimates, forecasts and actuals throughout with gated reviews, change processes, spend authorisation, purchase approvals and support from finance and procurement functions.

Our costs are built up based on traceability and experience, using standard rates, negotiated framework rates and previous IT project costs as a basis upon which to build our estimates. This has also been completed in parallel with the planning for the Phase 1 activities which has allowed the scope of the two activities to be aligned, utilising external experience to check our estimates, including:

3.2.1 Working with consultancies

Our plan has been put together from working with external consultancies. Each have contributed to the projects, including providing the effort estimates we would expect to see. These are based on similar projects delivered elsewhere.

3.2.2 Costing out designs

We have detailed the architecture and infrastructure design as far as possible at this stage, reviewing the current costs of materials, accounting for time and implementation and management resource costs.

3.2.3 Benchmarking

We have benchmarked this plan with previous experience of delivering similar sized and types of IT projects within SSE to date to demonstrate that the overall investment is within the expected (see Table 31).

This has given further confidence that we:

- a) Haven't over forecasted any costs, and we are delivering the investment efficiently.
- b) We haven't under forecasted and will be hit with unexpected costs when we come to deliver.

Table 31: Cost assurance

Cost assurance mechanism	Applies to this PDJP	How it applies?
High level plan	Yes	We created a high-level plan and ensured we have aligned our resources against this plan
Top-down resource estimates	No	
Bottom-up resource estimates	Yes	Detailed resource plan created
Confidence weighting on resource estimates	No	
Experience from prior investments	Yes	Input was received from both internal SSE resources (Phase 1) and Strategic Partners
RIIO1/2 allowance and expenditure	Yes	Similar projects delivered in RIIO- T1 and in RIIO- T2
Negotiated and market tested frameworks and contracts (e.g., consulting services or managed services)	Yes	Unit rates for the resource costings is based on a combination of internal loaded costs and the rates set out in negotiated and agreed framework consulting agreements
RFX processes	Yes	Procurement is in flight and costs will be updated once complete and where necessary.
External benchmark of investment titles	Yes	A third-party assurance activity has been undertaken to review the scope, timeline, resource mix and costs being proposed in this investment
Unit cost assumptions	Yes	Standard Unit costs applied

Expert/External provider support to paper	Yes	External consultancy input on the scope and effort estimates
Project delivery risks	Yes	We have assessed the project delivery risks as described in section 5.

8 Operating and sustaining the solution

Once the solution has been fully implemented and passed Operational Acceptance Testing, our network and infrastructure providers will be supporting the network and server components respectively. Our internal [REDACTED]

The Operational costs for the building are included within the current DR Phase 1 project, as is the maintenance for the hardware and software introduced by the project. The Operating costs for this project relate to the additional software and hardware introduced. [REDACTED]

Table 32: Support cost (2018/19 Price Base)

Solution Part (£m 2018/19)	2021/22	2022/23	2023/24	2024/25	2025/26	Total
Software Maintenance	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Hardware Maintenance	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Total	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

9 Conclusion

There is rapid change of pace across the energy landscape now and this is only going to grow. The drive towards Net Zero is increasing the amount of assets being built on both the transmission network but also those who want to connect at a lower level which in turn requires further transmission reinforcement. This growth and predicted further growth have increased the scale and complexity of managing the SSEN Transmission system and highlighted the importance of ensuring the continuous management and control of the network.



This Project will be delivered over 12 months, following the establishment of the Inverness continuity centre (Phase One). This investment is expected to cost [REDACTED] with the majority of the cost is made up of the purchase and installation of additional hardware.

Transmission Time Management (TTM) Solution

Project Definition and Justification Paper

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1 Executive Summary

SSEN Transmission’s primary function is to provide a safe and reliable supply of electricity to the communities it serves. It also plays a critical role in the transition to a low carbon future, developing, building, maintaining, and operating a network for Net Zero. It is vital to the UK’s Net Zero ambitions as it transports huge quantities of clean, green, and renewable power to over a quarter of the UK land mass across some of its most challenging terrain.

As the pace of investment growth due to ‘Pathway to 2030’ and the Accelerated Strategic Transmission Investments (ASTI) projects picks up, SSEN Transmission will be the fastest growing Transmission network in Europe. This will require an investment of ~£9bn, create and supporting over 20,000 jobs across the UK in its delivery, it will play a key role in enabling the connection of up to 11GW of new offshore wind capacity through ScotWind projects, enough to power more than ten million homes in the UK. The programme is also expected to contribute over £6bn in additional value to the UK economy, including around £2.5bn of direct additional benefit in Scotland and out of the overall UK job figure, supporting 9,000 of which will be in Scotland.

SSEN Transmission is a growing business, and through a fair, balanced, and considered investment programme, we are committed to improving network reliability and enabling the transition to Net Zero, at an affordable cost to consumers. A key element for the successful delivery of our Net Zero journey will require SSEN Transmission to build forward looking, digitally enabled teams. This means high levels of user experience with all the digital tools needed to achieve high performance delivery. We will use these tools to develop the ‘single source of the truth’, to directly support our people and stakeholders, and put safety, efficiency, insight, and great customer service at the centre of all we do.

The current time management system is technically obsolete and requires extensive support. It’s a legacy system from when SSE was a single entity and does not currently fulfil the growing needs of a Business that has vision to move to a fully digital data driven business. This investment in a new Transmission Time Management (TTM) system would provide a single user centred system for use by all SSEN Transmission staff and contractors excluding directly costed Field based staff. It will also assist to move the business on in its journey to meet the growing digital regulatory reporting standards, plus provision of mobile capabilities needed for a geographically diverse and flexible staff.

The successful delivery of this investment, which will span the remainder of the RIIO-T2 period, will enable SSEN Transmission to increase its business accuracy and efficiency and in a format consistent with all Stakeholders requirements and needs. It will provide Increased ability to carry out resource planning and recruitment and mitigate the risks (service and security) coming from an obsolete system.

The investment requested in RIIO-T2 and a breakdown of the cost elements within this investment is shown in Table 33.

Table 33: TTM Cost Summary (2018/19 Price Base)

Cost Table (£m 2018/19)	2021/22	2022/23	2023/24	2024/25	2025/26	Total
Non-Op IT & T Capex	██████	██████	██████	██████	██████	██████
Business Support Costs	██████	██████	██████	██████	██████	██████
IT Opex	██████	██████	██████	██████	██████	██████
Total Investment	██████	██████	██████	██████	██████	██████

2 Project Summary

2.1 Background

SSEN Transmission currently utilise a legacy Time Management System (TMS) for recording time and the cost of office-based staff and contractors, excluding directly costed Field based employees. Since development of the current TMS system, SSEN Transmission has grown significantly in terms of staff numbers, business complexity and Regulated Asset Value (RAV) which has in turn led to additional strain on the existing system and risk associated with system downtime.

The current process required to manage the recording of time and costs has been built around the current system, leading to a variety of manual data entry processes to move data between systems. These manual processes add additional overhead to the business and introduce an increased level of risk associated with these processes, increasing the risk of human error. The associated limitations of the system have restricted the opportunities the business has to make efficiency improvements. This is due to time and focus being on system management rather than being able to utilise a system that helps to supply data and provide valuable insights.

The current system is not fit for purpose both on a business and technology level, as it requires additional effort in its maintenance and requires an extended period of time off-line, which exposes the business to additional unnecessary risks.

2.2 Rationale

The legacy TMS is an 'in-house' custom built application developed specifically for the office-based employees to record their time against a project or an Opex cost category. The existing system is currently operating at risk due to technical components at end of life which represent a potential security and service availability risk. This has led to enduring system issues which require regular intervention to ensure it remains functional.

When designed and implemented in FY13 the TMS currently used was not configured to manage the size and complexity of the existing (and future) SSEN Transmission business nor facilitate the continued focus on more granular reporting and detailed data outputs. Since implementation in FY13 SSEN Transmission headcount has grown from 245WTE at end Mar-12 to 709WTE at end of RIIO-T1, 1,293WTE at Mar-23 and is forecasting to grow to c2,200 by Mar-26 (although further growth is anticipated once ASTI project resourcing is understood and finalised). When the RIIO-T2 business plan was submitted, SSEN Transmission and the wider industry, did not foresee the Net Zero acceleration targets and the resulting significant increased pressure this would put on legacy IT solutions.

Over the last year we have experienced problems leading to system downtime in part due to the ageing nature of the systems currently being used. [REDACTED]

In addition, there are several key drawbacks with the existing TMS which need addressed, these include:

1. It is not possible to share key data between existing and planned IT systems. This means that it is not possible to facilitate long term resource planning and leads to examples of data inconsistencies between core systems, making reporting and analysis problematic and potentially inaccurate.
2. Timesheet entry outputs requires manual work to be suitable for entry into other systems. Time taken to complete this process is estimated at c2 days per month.

3. Difficulty in accurately capturing time entries including overtime, resulting in a) workarounds being established and b) impact on accurate cost forecasting
4. The current system does not align with the IT digital strategy (e.g., moving towards Software as a Service - SaaS) and Architecture principles (e.g., “cloud” based solutions) as it is built and running on local old server technology and software.
5. The current system does not align with the growing digital capabilities required to move to a fully digital data enabled business as many of the reporting functions are manual and only available to certain users. This leads to lack of data visibility and time spent distributing reports to internal stakeholders.
6. Regulatory reporting is challenging, very manual and time-consuming potentially leading to unintentional inaccurate or miss reporting.
7. Business improvement opportunities may be missed due to the excess manual nature of the financial reporting and productivity metrics required to support.

2.3 Alignment to our RIIO-T2 Business Plan

This proposed system improvement supports the five clear goals set out in our RIIO-T2 business plan. This investment also aligns to the delivery of the “Sector Leading Efficiency” theme in our business plan. To help to achieve the plan’s delivery, we require a fully digital business, with the IT digital capabilities to rapidly adapt and change in response to the demands of the business, customers, and stakeholders. Table 34 demonstrates how these investments assist in the delivery of our goals.

Table 34: Transmission Time Management alignment to goals

RIIO – T2 Business Plan	2026 Commitment	Alignment	Investment Delivers
Transport the renewable electricity that powers 10 million homes	Our RIIO-T2 Certain View will deliver an electricity network with the capacity and flexibility to accommodate 10 GW renewable generation in the north of Scotland.	Low	A simple to use, fit-for-purpose, time capture and management system that reduces the overheads on field workers and back-office staff in the capture, processing and analysis of time related data. (Efficient capture and usage of data)
Aim for 100% transmission network reliability for homes and businesses	Through investing in new technology and ways of working, when cost effective for customers to do so, we will strive for 100% transmission network reliability for homes and businesses.	High	Ability to effectively time manage and monitor performance and efficiency will lead to improved decision making including within the Operational business. Consistent data and link to the resource forecasting model will help maintain efficiency and ensure key skills are maintained across all areas of SSEN Transmission, including Operations (Consistent Data driven decisions)
Every connection delivered on time	We will provide every network connection, tailored to meet our customers’ needs, on time, on budget, and to our customers’ satisfaction.	Low	A simple to use, fit-for-purpose, time capture and management system that reduces the overheads on field workers and back-office staff in the capture, processing and analysis of time related data.

			Improved detail and understanding of time incurred on network connections processes. Automated reporting and analysis improving manager information and improving cost effectiveness for customer (Efficient capture and usage of data)
One third reduction in our greenhouse gas emission	We will reduce the controllable greenhouse gas emissions from our own operations by 33%, consistent with a Net Zero emissions pathway.	Low	Improved accuracy and ease in capturing of the data, leading to more accuracy in understanding how time is spent and determining the carbon impact of those activities. (Efficient capture and usage of data)
£100 million in efficiency savings from Innovation	Our RIIO-T2 Certain View includes £100 million of cost savings through productivity and increased innovation. We aim to go further to save more.	High	An environment that enables increased focus on areas that improve productivity by providing the data to identify those areas. It will also enable improved forecasting and decision making. Finer grained data and improved accuracy in time recording leading to enhanced association with regulatory cost categories and unit cost understanding. (Creates opportunities, better understanding and accounting for time)

2.4 Alignment to our strategic investment drivers

The current strategic investment drivers were identified through a series of workshops and engagement with stakeholders. These engagements and workshops clearly identified two themes that have driven the need for SSEN Transmission to review and update the strategy that has given rise to the overall Re-Opener submission. This review has led to the need for additional Non-Operational IT & T investments to increase IT capabilities and systems.

These themes are (Figure 11) - Business and Technology, with three investment drivers under each theme. These are discussed in more detail in the overarching Strategy and Investment Summary document.

Figure 11: Digital Drivers



This investment will enable SSEN Transmission to meet and align to many of its strategic business and technology drivers. The expected levels of growth on the Transmission network will require a corresponding level of growth in staff levels. This creates the need for a time management solution capable of scaling to meet this growth. The current solution relies on a many manual steps and processes that will not be viable to continue at scale and will only increase the risk of errors and inaccuracies. This will not enable the business to mature, develop and utilise a data driven approach to improve. There will also be increased expectations from our consumers and stakeholder to share, accurate reliable digital data.

This maturity will not only be required and expected from a business perspective but also from a technology perspective. The legacy solution currently utilised is obsolete and does not align with industry expectations for the easy sharing of digital data. This expectation is only going to grow. The Digital and Data evolution will continue with the wider energy system, and it is vital that SSEN Transmission do not get left behind as it is a key enabler to a Net Zero future.

Table 33 shows the alignment.

Table 35: Alignment to our strategic drivers

Investment/Project	Business Drivers	Technology Drivers	Alignment
Transmission Time Management	We are a critical enabler for Net Zero	Digital and Data evolution in Transmission and the wider energy system	High
	Our business is growing and maturing	Growing and maturing Transmission IT	
	Meet our promises to the consumer and shareholders		

2.5 Alignment to Re-Opener guidance

Table 36 sets out how our submission meets the requirements of our licence and the Re-Opener guidance.

Table 36: Licence and Guidance Requirements for Submission

Licence and Guidance Requirement	IT Re-Opener Strategy Summary	This Document
Clear statement on the needs case, demonstrating alignment with the overall business strategy and commitments. This includes the organisational context, strategy, and business alignment	Section 4	Section 2
Description of overall strategy and current operations covering non-operational IT capex investments, including description of IT Strategy, the role of IT Strategy in supporting the business, and overall IT Plan dependencies	Section 4.4 Section 4.5	
Demonstration of the needs case and problem statement, covering the capabilities that need to be enhanced and/or risks that need to be addressed and/or opportunities addressed	Section 4	Section 2
Explanation of options assessment, including the methodology used		Section 4
Clear description of preferred option, covering the following:		
<ul style="list-style-type: none"> A description of the proposed project including scope and objectives of the proposed option and how the proposed option will either improve operational capability, support meeting business objectives, or reduce risk / create opportunities 		Section 3
<ul style="list-style-type: none"> A detailed description of project delivery plans, including project schedule, governance, and KPIs to monitor the progress of the project 	Section 6	Section 5 Section 6
Breakdown and Justification of costs, including the following:		
<ul style="list-style-type: none"> Justification for the need and amount of allowance required per project, considering the requirements and capabilities being delivered 		Section 7
<ul style="list-style-type: none"> An overall portfolio cost for the proposed Re-Openers, and delineation of costs per project 	Section 7	Section 7
<ul style="list-style-type: none"> Commitment to the use of good practice governance, including investment management and controls 	Section 6	
<ul style="list-style-type: none"> Inclusion of uncertainty and risk costing 		Section 7
Clarity on the purpose, scope, and dependencies of the project		Section 3 Section 6.2
A description of the proposed solution at an appropriate level of detail		Section 5.3

Quality assurance approach for the project i.e., for testing and acceptance	Section 6.7	
A costed plan for delivery, in line with recognised good practice		Section 7
Project Resource breakdown showing costs per resource type across defined cost categories		Section 7

3 Project Scope and Outcomes

3.1 Project Scope

There is a requirement to improve our current digital toolset to capture time recording/writing within SSEN Transmission. The TMS system is an obsolete in-house platform, which is no longer sustainable to accommodate the growth of our business.

Through this Transmission Time Management (TTM) project, we will design and implement a new TMS based on the requirements captured and process definitions which delivers:

- A new fully supported digital platform aligned to our digital roadmap and IT digital strategy;
- A standardised and consistent method of capturing time writing against projects for all office-based staff;
- Inclusive of Direct and Indirect resources;
- Holiday planning facilitating visibility of business wide holiday requests particularly critical for high demand periods;
- Integration to our ERP system removing the need for manual intervention;
- Integration into multiple other systems such as our work management for field workers and project management tools (e.g. Integrated Project Management – IPM);
- Automated approval workflow for timesheet and holiday requests;
- Reporting functionality to help drive efficient decision making;
- Automatic journaling of costs;
- and Data transfer to the Work Force Planning Model (WFPM) to inform the future resource forecast model.

The concepts that this project aims to deliver can be seen in Figure 12.

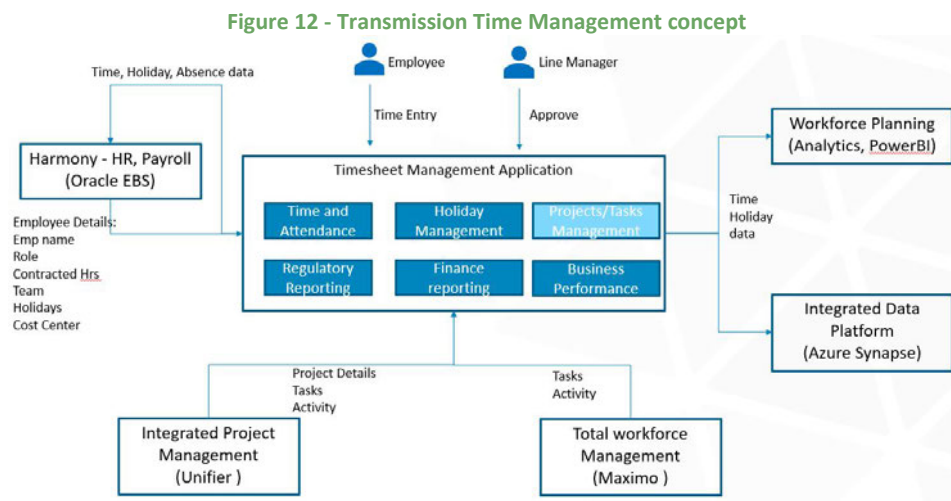


Table 37: TMS Capabilities

Capability	Definition	Delivery Period
Time Writing	Centralised capture of time writing for all office-based staff (SSEN Transmission employees and contractors) providing a clear and consistent understanding of time spent on each and every activity.	RIIO-T2
Holiday planning	Facilitation of holiday entry requests, showing holidays permitted, with deduction functionality ensuring a controlled and fair process for all.	RIIO-T2
Automatic journaling of costs	Automatic journaling of costs as specified within design which will save manual data extraction and manipulation.	RIIO-T2
ERP integration	Provide direct integration to our ERP system showing time writing against specific projects, therefore removing the need for manual updates.	RIIO-T2
Approvals Workflow and process automation	Provision of an automated and standardised approvals workflow process with real time notifications for approvers and employees.	RIIO-T2
Reporting Capabilities	Creation of a time management reporting suite including standard, customisable or self-service reporting, providing authorised staff access to accurate information in a usable format, showing clear reporting of time spent on all activities business wide holiday requests including high demand periods to drive efficient decision making.	RIIO-T2
Forecast Resource Model	Provide input to WFPM, ensuring time recorded is used accurately utilised to update the future resource forecast model. The model can then be updated periodically to then improve accuracy of predictions.	RIIO-T2

In conjunction with new TMS solution, SSEN Transmission are separately developing an in-house Workforce Planning Model (WFPM), linked to Power-BI. This model will allow SSEN Transmission to forecast future resource requirement based on future activity such as:

- a. Forecast project expenditure.
- b. Size of live network
- c. Staff leaver forecast – including retirees and normalized staff losses.
- d. Skills requirements and skills gaps

The new TMS will capture data consistent with the data required for the WFPM. Consistent ‘actual’ time recorded by appropriate activity will flow into the WFPM and so allow refinement to forecast assumptions and lead to improved resource forecasting.

By leveraging our digital capabilities to create these deliverables we will build a strong foundation to support the growth of the business into the RIIO-T3 regulatory period.

3.2 Deliverables

The successful addition of the TMS platform and capabilities will provide SSEN Transmission with the following key deliverables:

1. Requirements and process definition
2. Solution Design
3. Solution Delivery (Build/Config)
4. Implementation
5. Business Rollout

3.3 Outcomes

The TTM investment will deliver specific outcomes to the business and its stakeholders and customers. These are outlined in Table 38.

Table 38: TTM outcome mapping

TTM Delivers	Outcomes
Growth potential	Provide a system that meets SSEN Transmission wider and growing requirements, setting up the foundation for future developments
Standardisation	Standardise time management across SSEN Transmission to create efficiencies
Resource Forecasting	Provide the ability to forecast future resource and skills availability ahead by having clearer and more detailed understanding of time spent by activity for existing staff
Performance forecasting	Focus on use of actual time spent and costing to provide performance information
Regulatory compliance	Meet Regulatory reporting requirements more efficiently
Enable informed decision making	Additional detail captured from a more robust and stable TMS platform, using single sources of data and improved reporting functionality will allow SSEN Transmission to increase efficiency of decision making and allow benchmarking across a range of Network providers
Better Data visibility and quality	The new TMS will allow SSEN Transmission to capture time spent at a more granular and detailed level which will allow more efficient internal and external reporting. Specifically, the addition of clear job titles and descriptions and mapping to Indirect cost categories will facilitate more transparent reporting of Indirect cost categories for annual and Business plan submissions.
Data consistency	Integration to ERP (Oracle) will facilitate data consistency, with automatic updates improving Data quality.
Efficiency	Accounting entries are automatically produced without need for manual intervention, also facilitating better lessons learnt and enabling iterative improvements to be made.

The financial benefits to SSEN Transmission and the end consumer of implementing a new timesheet system, synchronised with a workforce planning model, based on current workforce growth expectations are thought to be approaching 0.5% of annual staff costs. The main driver for these savings will stem from more efficient and targeted workforce recruitment due to better management

understanding of existing workforce utilisation. Further savings, included within the 0.5% estimate, will be found through reduced time on existing workforce planning, administrative duties involved in system updates, financial entries, data cleansing and Regulatory reporting. The benefits noted will allow existing and future workforce to focus attention on more 'value-add' activities.

4 Optioneering & Preferred Option

4.1 Method of evaluation

Through discussion between SSEN Transmission IT, HR, Finance, and all other key internal stakeholders the scope noted above has been agreed. A clear, pressing need has been identified given legacy nature of current system and the rapidly changing landscape SSEN Transmission finds itself in. It is clear that 'do nothing' is not an option.

Having gathered views, three options have been considered.

4.2 Options Considered

The subsequent different options were considered, evaluated, and the pros and cons set out in Table 39.

Table 39: Options considered

Options	Pros	Cons
Defer to T3	<ul style="list-style-type: none"> Does not require any additional investment now No new additional training requirement Number of potential solutions may have increased 	<ul style="list-style-type: none"> increased risks associated with potential data inaccuracies. increased loss of time due to manual entries as number of employees increase. business improvement opportunities delay due to lack of data
Deliver TTM now	<ul style="list-style-type: none"> replaces old server/software reducing maintenance time and costs aligns with digital strategy to move towards a fully digital business aligns with IT architecture strategy to move to cloud and SaaS enables the sharing of data between systems reduce risks of data inaccuracies by reducing/removing manual data requirements address increased regulatory reporting requirements improved reporting functionality 	<ul style="list-style-type: none"> Additional training on new system
Do Nothing	<ul style="list-style-type: none"> no additional investment required no training required 	<ul style="list-style-type: none"> Reduced opportunities for grow staff digital capabilities Additional risks to business from potential data inaccuracies and inability to share data easily Additional reputational risk from potential from regulatory reporting errors Increased manual workload as staff numbers increase

- Increased time and costs associated with down time of aging legacy system

4.3 Preferred Option

The preferred option is to develop the “Deliver TTM now” option, as this will provide an integrated platform, deliver business benefits quickly (e.g., reduce manual entries) and reduce the risks associated with the current legacy system (e.g., excess down time due to aging system). The other options either extend the exposures to the risks identified, increase costs, or do nothing to address any of the business needs.

Within the “Deliver TTM now” option, two solutions were proposed and considered, these being:

- Re-engineer the existing legacy system by building an ‘on premises’ platform to provide the relevant capability.
 - This option does however create risks as a result of reusing legacy platforms that require to be replaced within the medium term.
 - This approach does not align with IT Architectural principles.
 - This approach does not guarantee the delivery of required capabilities and user requirements
- Implement a cloud-based off the shelf time management solution with capabilities that integrates seamlessly with the existing broader SSEN Transmission ERP (e.g., finance, HR systems) suite.
 - Will require minimum configuration as its out of the box capabilities.
 - Will be based on standard Industry requirements for time management.
 - Will incorporate the additional requirements for the new system.
 - Removes all obsolescence issues associated with the existing TTM platform.

Therefore, it has been agreed with the relevant stakeholders and users to align with the digital strategy and implement a cloud-based solution.

5 Approach

5.1 Delivery Methodology

Based on the level of IT delivery maturity within SSEN Transmission IT, it was determined that the standard SSE methodology of Waterfall Lite would be the most appropriate. This would enable the part of the delivery that may have a fixed budget, fixed scope, and fixed timescale to deliver against an agreed business case.

It was recognised that there are several components within the plan that may be suited better to an Agile delivery methodology and, once the level of experience and maturity grows within the IT delivery function, then elements will be delivered by this approach.

5.2 Defining and sequencing projects

A phased delivery approach will be utilised for the delivery of this investment. The scope will be delivered iteratively during RIIO-T2 to deliver the maximum benefit to the business. This will realise early benefit where available.

1. The initial delivery will stand-up the new platform, with a key focus on the capture of time writing, holidays and the approvals workflow and process automation.
2. We will build on the foundation and apply the required integration, and automatic journaling of costs.
3. The final phase will deliver a suite of reporting and the ability to create the forecasting resource model.

5.3 Technology Considerations

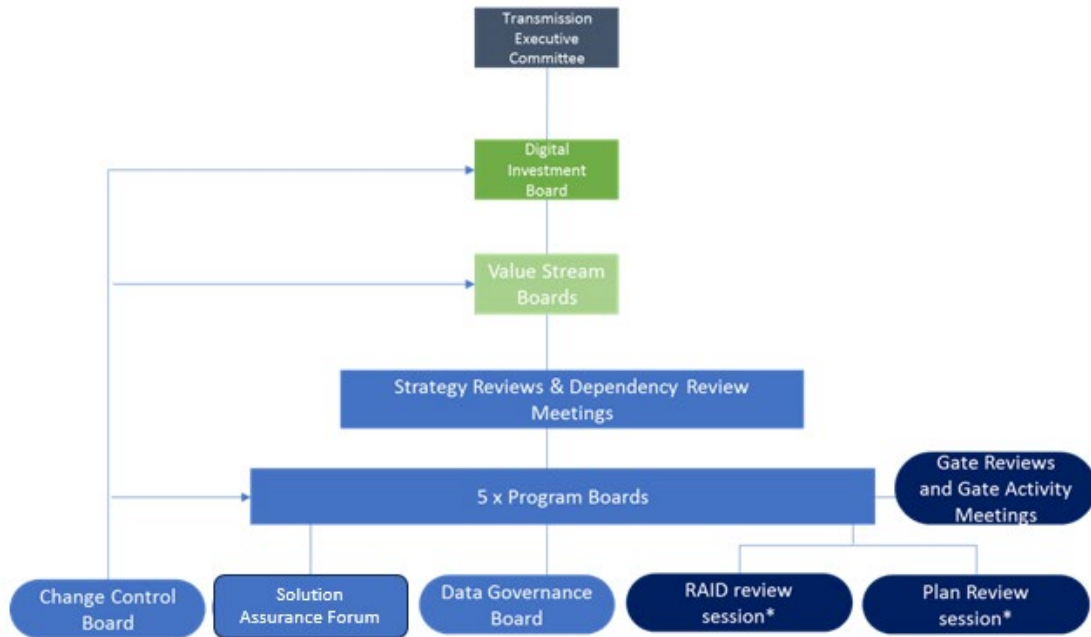
The SSEN Transmission Digital strategy aims to move current and future IT systems towards “cloud” based solutions and using Software as a Service (SaaS). Therefore, when considering the potential different technology options (e.g., server based) this strategy was taken into consideration. Also, the new TMS solution needs to be able to interface with Oracle E-business suite to ensure the business can maximise investments already taken.

5.4 Governance

This investment will follow relevant change control guidelines to ensure that any changes to scope, schedule, or finances are formally signed off at the right level. Our approach will result in reduced business change and disruption. Due to the size of the investment required to deliver TTM, an appropriate level of governance will be required.

We already have a well-defined robust governance structure in place within SSEN Transmission (Figure 13). This enables all parties to understand the required governance. Each level has a separate Terms of Reference (ToR) and an associated Financial Framework to manage financial risk to the projects.

Figure 13: Governance structure



The appointed Value Stream Lead updates their Value Stream Board monthly. As mentioned, due to the size of this investment, there will also be a requirement to update the Digital Investment Board. These updates will ensure that progress against the relevant milestones is on track and any associated financial or project risks are discussed at the appropriate level. Any blockers to progress can be discussed and, if required, re-prioritisation of delivery can be agreed.

5.5 Procurement

Specifically for this investment, [REDACTED]

The standard approved SSEN Transmission procurement process will be followed where required to ensure we achieve value for money. If additional consulting services are needed to support this project, we will access these services through existing framework agreements.

Where additional capability is required, we will leverage our Digital Partners Framework to deploy additional resource, knowledge, and skills to support the project. To achieve the outcomes from our digital projects, we need to think differently, and align ourselves to providers who can support us with that.

5.6 Change Management

The primary aim is to ensure readiness and smooth the path for acceptance and continuity of service. The change management function will understand the impact of the change, effectively communicating and providing training as required. This will be handled by our in-house Business Change Team.

6 Plan

6.1 Delivery Timelines

Figure 14 and Table 40 shows the proposed milestones, sequencing, and duration of each of the projects within the investment.

1. **Discovery phase:** Facilitate a deep dive into the requirements.
2. **Procurement:** [REDACTED].
3. **Technical Design and Data architecture:** Production of a solutions architecture design, inclusive of Data and integration requirements.
4. **Delivery 1:** Stand-up the new platform, with a key focus on the capture of time writing, holidays and the approvals workflow and process automation.
5. **Delivery 2:** We will build on that foundation and apply the required integration, and automatic journaling of costs.
6. **Delivery 3:** The final phase will deliver a suite of reporting and the ability to create the forecasting resource model.

Figure 14: Delivery Timelines

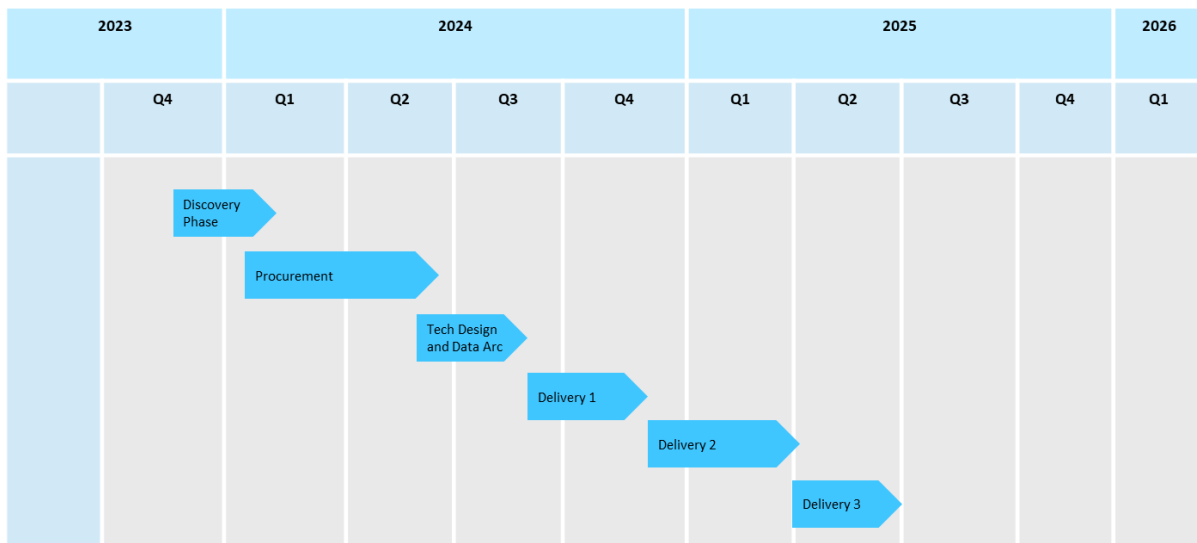


Table 40: Sequencing of project

#	Project Phase	Start	Finish	Duration
1	Discovery	Q4 2023	Q1 2024	3 months
2	Procurement	Q1 2024	Q2 2024	6 months
3	Technical design and Data architecture	Q2 2024	Q3 2024	3 months
4	Delivery 1	Q3 2024	Q4 2024	4 months
5	Delivery 2 (incl integration)	Q4 2024	Q1 2025	6 months
6	Delivery 3	Q2 2025	Q2 2025	3 months
7	Business change	Q3 2024	Q2 2025	12 months

6.2 Dependencies

We have identified the following dependencies for this investment (Table 41). These dependencies will be managed through good practices in project management and factored into the project mobilisation and execution.

Table 41: Project Dependencies

Dep. ID	Dependency	Impact	Direction
D1	Securing Re-Opener funding	If this is not received, then we will be unable to deliver business goals and commitments.	Inbound
D2	Availability of our vendors and their capacity to deliver to our timelines	If not available, then project schedule will be delayed, and business value will be reduced.	Inbound
D3	Availability of key stakeholders impacting the plan, such as the risk that sometimes key finance constraints (such as end of year returns etc) occupy them	If not available, then business capability development will be assumed, and projects based on IT understanding rather than clear business need.	Inbound
D4	Ramping up internal IT capabilities (considering a very competitive labour market)	If not available, then project schedule will be delayed, and business value will be reduced.	Inbound
D5	Other value streams within the programme to provide appropriate data governance and data quality from other non-capital delivery systems. This is seen most notably in those that are currently working on Master Data Management	If not available, then project schedule will be delayed, and business value will be reduced.	Inbound
D6	The TTM project is dependent on the Finance Transformation Programme to deliver the ERP changes for Project Cost Management structures	If not available, then the TTM Cost Management capability release will be delayed. The likelihood of this impact is low as the Project Cost Management	Inbound

scope is scheduled to deliver as soon as possible within the schedule.

6.3 Risks to the plan

The following are risks to the delivery of the plan (Table 42).

Table 42: Risks to the plan

Risk	Impact	Probability	Mitigations
Risk that the delivery approach leads to cost and time overruns	Time and Cost	20%	A strong governance framework to ensure that projects have management oversight for their delivery
Procurement delays	Time and Cost	20%	Ensure early engagement with procurement to understand potential blockers early in process
Capability gap to support and deliver project	Resourcing	30-40%	Third party tactical support will be provided if required with plan to transition capability in-house for enduring delivery
Development time and cost may exceed the project duration	Time	30-40%	Alignment and steering from Finance, IT delivery, and stakeholders
Risk that the technology built will not be used by the workforce to drive the benefits	Benefits Realisation	10-30%	Gain strong business sponsorship before all delivery to ensure the commitment to achieving the benefits

6.4 Resourcing

The following resource requirements have been identified to successfully deliver the components within the TTM investment. They can be supplemented by external resources if it is not possible to fulfil the resource requirement from within the current IT resource pool (Table 43). It is expected to utilise the Waterfall Lite methodology; therefore, the project will utilise a standard project team model, but this will be flexed as required.

Table 43: Resources and roles

Resource and Role	Internal/External	Objectives
Programme and Project Manager	Internal/External	Lead the project and ensure it is delivering to the agreed timelines. Accountable for the end-to-end delivery
Procurement and legal support	Internal	Responsible for communicating with vendors to buy, rent or contract products and services needed to achieve project objectives
Value Stream (VS) /Business SMEs	Internal	Provide guidance and oversight on the deliverables to ensure they meet requirements and expectations. Organise business engagement forums
Product Owner	Internal	Business representative that will own the solution from the business perspective, support the delivery of the right solution to meet business needs and inform the product/solution enhancement roadmap after initial delivery
Change Lead	Internal	Manage the change process and execute the change plan working with support from the business
Business Analyst	Internal	Gather the business, customer, and stakeholder requirements
Change Analyst	Internal	Identify the impacts resulting from changes to people, process, systems, and culture
Solution Architect	Internal/External	Encompass the design, development, and optimisation of the conceptual and logical data systems
Others	N/A	Non-people costs related to the project

Our strategy for resourcing is to maximise the utilisation of our own internal capabilities, including reaching out to SSE group.

Whenever we use external resourcing, we will use existing consulting and other frameworks, that have been established through SSE procurement processes. In respect to any additional external support, we will use SSE procurement to align with regulatory requirements to bring in best capabilities and obtain the best price. Our quality and performance of resourcing is managed through appropriate vendor performance management. Internal resources are managed through internal performance management.

6.5 Confidence in our plan

We are confident in the plan and the resourcing that has been proposed. Therefore, we are confident in this approach and delivery timeline. This confidence is based on extensive preparation and background exploration (this included gathering User requirements) to determine the different options available, this ranged from extending and developing new User interfaces to the current legacy system to align to the digital vision by utilising a cloud-based approach. This pre-planning work enabled us to develop a robust and credible plan.

7 Costs

7.1 Costing Approach & Cost Breakdown

This investment is made up of two different expenditures:

- **Resource costs:** we plan to deliver this investment using a hybrid resource model as outlined in the previous section. Our model is built by leveraging experience from and by incorporating lessons learnt from other organisations.
- **Solution Costs:** based our experience of the delivering the different solution proposed and by working in conjunction with our digital partners, we have developed our preferred solution costs that will enable us to build a cloud-based platform.

Across the expenditure types, we propose to spend a total of [REDACTED]

7.2 Cost Breakdown

Based on the size of the required team to deliver the capabilities required, the following resource costs are detailed in Table 44.

Table 44: Cost breakdown for required resources (2018/19 Price Base)

Resource Type (£m 2018/19)	2021/22	2022/23	2023/24	2024/25	2025/26	Total
SSEN Transmission (Internal & Contingent Resource)	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
3rd party services (Consulting/SI Services)	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
3rd Party Services (Business Change and Readiness)	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Software Procurement	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Hardware Procurement	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Software Maintenance	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Hardware Maintenance	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Total	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

7.3 Assumptions

The following assumptions Table 45 were utilised to determine the expected costs within the investment.

Table 45: Assumptions

A. ID	Assumption	Impact if assumption is broken
A1	As there is not sufficient skills or bandwidth within SSEN Transmission IT or the business, we will use our consulting partner frameworks to source resources.	Schedule & Cost Impact – if external resources are not available, then costs will increase due to bidding war for resources and additional time taken to acquire.
A2	The procurement process will follow SSEN Transmission procurement processes and standards.	Schedule Impact – if different procurement processes are required, this will extend the time allocated in plan.
A3	Standard Unit rates will be used in costing resources (both internal and external).	Cost Impact – the project budget may require additional funds to cover change in projected costs.
A4	The delivered platform will require ongoing support.	Cost Impact – if this is not required, then support costs will require adjusting.
A5	If required Third Party resources are available in timely manner.	Schedule & Cost Impact – if inputs are not received when required, then this will delay the delivery of the strategy artefacts and increase costs.
A6	The business will be capable of providing experienced SME resource.	Schedule & Cost Impact – if inputs are not received during the early stages, then this will delay the delivery of the strategy artefacts and increase costs.

7.4 Cost Assurance

Our costs are built up based on traceability and experience (Table 46).

- **Discovery phase completed:** An extensive exercise was carried out where the high-level requirements and process definitions were captured and reviewed. From this exercise several solutions were assessed (from both a technical and commercial perspective), with the recommendation being to implement a new cloud platform.
- **Working with consultancies:** Based on the output of the discovery exercise, our internal team generated the estimates based on their experience of similar projects.
- **Benchmarking:** we have aligned and benchmarked our plan following a review of projects of a similar size and scale, to demonstrate that the overall investment is within the expected amount for an organisation of our size ensuring a realistic forecast and efficiencies in delivery.

Table 46: Cost assurance

Cost assurance mechanism	Applies to this PDJP	How it applies?
High level plan	Yes	Based on the high level requirements, we have created a plan and aligned our resource need against this plan.
Top-down resource estimates	No	
Bottom-up resource estimates	Yes	Detailed resource plan created
Confidence weighting on resource estimates	No	
Experience from prior investments	Yes	Assessment done against projects of similar size and scale by our internal technical team.
RIIO1/2 allowance and expenditure	Yes	Similar projects delivered in RIIO- T1
Negotiated and market tested frameworks and contracts (e.g., consulting services or managed services)	Yes	Unit rates for the resource costings is based on a combination of internal loaded costs and the rates set out in negotiated and agreed framework consulting agreements
RFx processes	Yes	Procurement inflight and costs will be update one complete and flagged via SQ process
External benchmark of investment titles	No	
Unit cost assumptions	Yes	Standard Unit costs applied
Expert/External provider support to paper	No	
Project delivery risks	Yes	We have assessed the project delivery risks as described in section 6.3

8 Operating and sustaining the solution

Based on our experience, and what we understand currently, [REDACTED] The final solution selected will determine the exact cost associated with this (Table 47).

Table 47: Support Costs (£m 2018/19 Price Base)

Solution Part (£m 2018/19)	2021/22	2022/23	2023/24	2024/25	2025/26	Total
Business Support Costs IT Opex	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Total	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

9 Conclusion

SSEN Transmission will play a vital part in the overall GB ambition to deliver Net Zero by 2035, and as they build the infrastructure and connect the low carbon assets required to deliver this ambition, they will become the fastest growing Transmission business in Europe. This growth will not only be in infrastructure and assets but will require a large growth in the number of staff required to deliver, manage, maintain, and control this network. Therefore, it is important that SSEN Transmission enable their staff to build their capabilities and provide them with the best technology possible. SSEN Transmission have refreshed their Digital and Data Vision with this ambition in mind and aim to become a fully Digital Business.

This investment in a new Time Management platform will enable our staff to efficiently use their time and increase data accuracy. This will enhance the business by reducing the manual data entry done today, due to the limitations of the current system. This will ensure that they can provide and share time management data in an accurate, efficient, and consistent manner that will benefit all our stakeholders and customers, and, ultimately, the end-consumer. Also, the increase and further growth in Regulatory reporting will be met by the new TTM solution in an efficient way, which could not be met by continuing the manual process.

This investment will also enable the business to replace a legacy system that is heavily reliant on obsolete software and technology and the associated costs and risks that come with that. It will also ensure that the business is moving forward in its Digital strategy towards cloud and SaaS based solutions.

We are seeking investment of [REDACTED] for the remainder of the RIIO-T2 period. The investment is expected to deliver the core capabilities by the end of RIIO-T2, as well as enhancing the core functionality through continuous improvement. A core programme team will consist of both internal and external resources support by the relevant business SMEs.

Acceleration of Digitisation (AoD)

Project Definition and Justification Paper

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1 Executive Summary

SSEN Transmission’s primary function is to provide a safe and reliable supply of electricity to the communities it serves. It also plays a critical role in the transition to a low carbon future, developing, building, maintaining, and operating a Network for Net Zero. It is vital to the UK Net Zero journey as it transports ever increasing volumes of clean, green renewable power over a quarter of the UK land mass across some of its most challenging terrain.

The ‘Pathway to 2030’ investment growth and the increase in pace of the Accelerated Strategic Transmission Investments (ASTI) program means SSEN Transmission will be the fastest growing Transmission network in Europe.

This program will require an investment of ~£9bn, creating and supporting over 20,000 jobs across the UK in its delivery, 9,000 of these being in Scotland. It will play a key role in enabling the connection of up to 11GW of new offshore wind capacity through ScotWind projects, enough to power more than ten million homes in the UK. It’s also expected that this program will contribute over £6bn in additional value to the UK economy, with around £2.5bn of direct additional benefit in Scotland.

Our business is growing in capacity and capability to meet the demands that are placed on us. Technology investment, through our Digital Programme and by digitising our information is key to that success –through the liberation of data and exploitation of information in day-to-day business decision making.

High quality, accessible and digitised data is a vital part of everything we do at SSEN Transmission. We need data to effectively engage with stakeholders on their future system needs; to develop and deliver the most efficient, economic, co-ordinated whole system investments; to manage asset risk and maintain the vital operation of our transmission network. Ofgem have highlighted that data and digitalisation is the fastest route to Net Zero; enabled via exploitation and sharing of data both internally and externally with stakeholders.

Within our licence the OFGEM Data Best Practice guidance requires us to share quality standardised data in a more automated way across the energy industry whilst protecting the security, resilience, and privacy of that data.

Additionally, a portion of SSEN Transmission overhead line asset engineering design data is siloed, not digitised and therefore cannot be accessed and exploited in a way which fully meets the needs of our business and stakeholders. The data is currently stored in offline storage. This status quo will not support SSEN Transmission ambitions to become a fully data driven business and will not allow us to fulfil regulatory asks from OFGEM or deliver to the needs of our customers and stakeholders. To address this challenge, we want to standardise the level of digitisation that we have on our overhead line network, so that the existing network and the new network are recorded in a way that allows our engineering teams to access the data and perform engineering studies through the PLS-CAD tool. To do this, we will engage a third-party provider to survey the overhead lines network and provide digital models of our assets into SSEN Transmission owned platforms. To achieve this, Table 48 sets out the cost breakdown for this proposed investment.

Table 48: Acceleration of Digitisation cost breakdown (2018/19 Price Base)

Cost Table (£m 2018/19)	2021/22	2022/23	2023/24	2024/25	2025/26	Total
Non-Op IT & T Capex						
Business Support Costs IT Opex						
Total Investment						

2 Project Summary

2.1 Background

SSEN Transmission's ambition to become a fully digital data driven business can only be achieved by building upon key foundations of the required supporting functions within the business. This combined with the availability of a strong business wide digital team will support this data driven approach. Access to digital models of the transmission network and associated assets is a key enabler of efficient information access to our internal teams and for this data to be made open or shared with our external stakeholders to meet their use cases. The digital data can be captured while new assets are being built or through the process of digitisation of existing assets. This team will also enable the business to comply and align with the Digital and Data Vision and Strategy developed to deliver its ambition but also the UK's Net Zero goal.

SSEN Transmission is on a data and digital maturity journey to grow the levels of maturity within the different business teams that drives data ownership, production, and accountability. It is not just enough to put the process side in place, there is also a need to get Data Stewards, Data Owners, and Data Users along on the journey as we moved towards a data driven business.

SSEN Transmission are improving our data maturity posture in line with Ofgem Data Best Practice principles to align with this guidance and treat data as an asset, whilst ensuring data is made more accessible for our stakeholders and use data effectively for the benefit of consumers and the Public Interest. Adding value to our stakeholders is of equal importance, by being capable of demonstrating presumed 'open data' and 'data quality' with all the diverse types of data available. A challenging aspect of this is the fact that all utilities with the energy industry have a large backlog of non-digital source records (e.g., paper records) held within their business and operational systems. The digitisation of these records is seen as a key requirement to addressing the risks associated with this as well as providing ongoing efficiency and stakeholder benefits.

2.2 Rationale

As SSEN Transmission continues to develop our network infrastructure, including meeting the obligations of ASTI and more broadly Net Zero infrastructure, we are continuously constrained in our capabilities to access digitised information to efficiently and cost effectively interrogate and model our existing assets. This is evident when looking at our Overhead Line (OHL) Transmission Network specifically in relation to:

- Asset Management responding to enquiries from various utilities and developers to assist in assessing their proposals for work and activities near or in proximity to our assets.
- Project Engineering teams addressing load driven applications and commitments which require considerable redevelopment and re-design of our existing assets.

Both aspects referenced above require the need for detailed assessment and potential modelling of the OHL structures and conductor spans. To achieve this the industry recognised computerised software package is PLS CADD. The adoption of PLS software for OHL engineering has increased SSEN Transmission's capabilities, however we are not yet able to take full advantage of the software benefits across our network as we do not currently have a fully digitised data set for all our lines and towers. In order to do so, this requires LiDAR data relating to our entire network to be prepared in PLS CADD format. This is an exercise which is currently conducted on an adhoc basis targeting specific enquiries or developments.

Digitisation of our existing overhead line network would bring our current network in line with the Engineering Design Standards that we set for design teams that are working on new network designs.

This investment seeks to roll out that standard across our entire network within a practical timeframe of the end of the RIIO-T2 period.

Another driver for this investment is to deliver against the Energy Data Taskforce’s ‘A Strategy for a Modern Digitalised Energy System’, Energy Digitalisation Taskforce’s ‘Delivering a Digitalised Energy System’ and the subsequent definition of the ‘OFGEMs Data Best Practice Guidance’. This guidance specifies a range of data related capabilities, services, and outcomes (requirements) that network operators must meet going forwards.

To support this, this investment in digitisation of overhead line asset information will enhance the digitisation capabilities, tools, and processes. This will enable more efficient access to data and enhance our capability of meeting stakeholders needs for use cases which require this data. This investment enhances our ability to ensure data on our overhead line network is treated as an asset and used effectively for the benefit of consumers, stakeholders and the Public Interest, key elements of Data Best Practice . It will inform activities for RIIO-T3, will also demonstrate the business value of Digitisation (see

Table 53) and in the long term enable progress towards a digital twin.

This investment aligns to the Digital and Data Vision and Strategy, as it realises our ongoing journey to become a more fully digitalised business. Data-driven (information) investment decisions will help us deliver operational efficiency, network resilience, timely connections, and support development of our net zero emissions network. This is delivered through:

- Digitisation, integration, and management of our data, following OFGEM’s data best practice principles (EDTF, EDiTF)

2.3 Alignment to our RIIO-T2 Business Plan

This project supports the five clear goals set out in our RIIO-T2 business plan. This investment also aligns to the delivery of the “Sector Leading Efficiency” and “Safe and Secure Network Operation” themes in our business plan. To enable the plan’s delivery, it requires a fully digitally enabled business, with the IT digital capabilities to rapidly adapt and change in response to the demands of the business, our customers, and stakeholders. Table 49 demonstrates how these investments assists in the delivery of our commitments.

Table 49: Acceleration of Digitisation Alignment to goals

RIIO – T2 Business Plan	2026 Commitment	Alignment	Investment Delivers
Transport the renewable electricity that powers 10 million homes	Our RIIO-T2 Certain View will deliver an electricity network with the capacity and flexibility to accommodate 10 GW renewable generation in the north of Scotland.	High	The capability to use and combine data from various sources within SSEN Transmission to increase the flexibility and capacity of the transmission network (Efficiently share data)
Aim for 100% transmission network reliability for homes and businesses	Through investing in new technology and ways of working, when cost effective for customers to do so, we will strive for 100% transmission network reliability for homes and businesses.	High	Increased quality of data used in operational decision-making will both reduce risk and increase the reliability of the network (Data driven decisions)

Every connection delivered on time	We will provide every network connection, tailored to meet our customers' needs, on time, on budget, and to our customers' satisfaction.	High	Support to ensure project delivery to enable new connections (Provide tailored services)
One third reduction in our greenhouse gas emission	We will reduce the controllable greenhouse gas emissions from our own operations by 33%, consistent with a Net Zero emissions pathway.	Medium	More efficient decisions driven by accurate data (Operational efficiencies)
£100 million in efficiency savings from Innovation	Our RIIO-T2 Certain View includes £100 million of cost savings through productivity and increased innovation. We aim to go further to save more.	High	An environment that enables increased focus on areas that improve productivity by providing the data to identify those areas. It will also enable improved Innovation decisions (Creates opportunities)

2.4 Alignment to our strategic investment drivers

The current strategic investment drivers were identified through a series of workshops and engagement with stakeholders. These engagements and workshops clearly identified two themes that have driven the need for SSEN Transmission to review and update the strategy that has given rise to the overall Re-Opener submission. This review has led to the need for additional Non-Operational Information Technology & Telecoms (IT & T) investments to increase IT capabilities and systems.

These themes are (Figure 15) - Business and Technology, with three investment drivers under each theme. These are discussed in more detail in the overarching Strategy and Investment Summary document.

Figure 15: Digital Drivers



This investment will enable us to deliver and contribute to services that will ensure our data is turned into information that is discoverable, accessible, reliable, and interoperable. In addition, we will also develop capabilities that will help us deliver more efficiently “presumed open”, quality data to improve stakeholder access to energy data and contributing to the national decarbonisation agenda.

Our teams will obtain more efficient automated insight, the digitised data will contribute towards SSEN Transmission becoming be a fully data-driven business and help us make the most efficient, economic, co-ordinated investment decisions, help deliver operational efficiency, network resilience, timely connections (including renewable generation connections) for our customers and support the development and management of our Net Zero emissions network.

This investment in improving the maturity of our digital teams will help deliver significant improvement in customer and stakeholder satisfaction levels upon which the quality, reliability, ease of access and usability of our data has a direct impact. These improvements will in turn lead to reputational enhancements. Whilst large parts of our overhead line network will be digitalised as we progress overhead line design for network expansion and upgrades during the RIIO-T2 period we propose to digitalise the remaining elements of our current network prior to the end of the RIIO-T2 period. This digitisation will also expand the digital and data evolution into an area that is traditionally challenging due to its non-digital history. Table 50 shows the alignment.

Table 50: Alignment to our strategic drivers

Investment/Project	Business Drivers	Technology Drivers	Alignment
Acceleration of Digitisation	We are a critical enabler for Net Zero	Digital and Data evolution in Transmission and the wider energy system	High
	Our business is growing and maturing	Growing and maturing Transmission IT	
	Meet our promises to the consumer and shareholders		

2.5 Alignment to re-opener guidance

Table 51 below sets out how our submission meets the requirements of our licence and the Re-Opener guidance.

Table 51: Licence and Guidance Requirements for Submission

Licence and Guidance Requirement	IT Re-Opener Strategy Summary	This Document
Clear statement on the needs case, demonstrating alignment with the overall business strategy and commitments. This includes the organisational context, strategy, and business alignment	Section 4	Section 2
Description of overall strategy and current operations covering non-operational IT capex investments, including description of IT Strategy, the role of IT Strategy in supporting the business, and overall IT Plan dependencies	Section 4.4 Section 4.5	

Demonstration of the needs case and problem statement, covering the capabilities that need to be enhanced and/or risks that need to be addressed and/or opportunities addressed	Section 4	Section 2
Explanation of options assessment, including the methodology used		Section 4
Clear description of preferred option, covering the following:		
<ul style="list-style-type: none"> A description of the proposed project including scope and objectives of the proposed option and how the proposed option will either improve operational capability, support meeting business objectives, or reduce risk / create opportunities 		Section 3
<ul style="list-style-type: none"> A detailed description of project delivery plans, including project schedule, governance, and KPIs to monitor the progress of the project 	Section 6	Section 5 Section 6
Breakdown and Justification of costs, including the following:		
<ul style="list-style-type: none"> Justification for the need and amount of allowance required per project, considering the requirements and capabilities being delivered 		Section 7
<ul style="list-style-type: none"> An overall portfolio cost for the proposed Re-Openers, and delineation of costs per project 	Section 7	Section 7
<ul style="list-style-type: none"> Commitment to the use of good practice governance, including investment management and controls 	Section 6	
<ul style="list-style-type: none"> Inclusion of uncertainty and risk costing 		Section 7
Clarity on the purpose, scope, and dependencies of the project		Section 3 Section 6.2
A description of the proposed solution at an appropriate level of detail		Section 5.3
Quality assurance approach for the project i.e., for testing and acceptance	Section 6.7	
A costed plan for delivery, in line with recognised good practice		Section 7
Project Resource breakdown showing costs per resource type across defined cost categories		Section 7

3 Project Scope and Outcomes

3.1 Project Scope

This investment in accelerating digitisation capabilities within our digital teams will also enable us to deliver on other elements of Data Best Practice by adopting standard electric power system domain elements whilst, identifying and adopting a standard glossary to the information and the associated metadata. This will aid internal and external data users in receipt of information and reporting. Using digitisation tools and processes to deliver the digitalisation of the overhead line asset data will enable stakeholders to discover and subject to data triage obtain the required information. Data quality will be improved as we adopt modern data capture and quality-controlled processing and presentation of the data.

This digitisation of power transmission line data via design software for OHL engineering will increase SSEN Transmission's internal overhead line design and modelling capabilities. As part of this investment, we are seeking to enhance our capabilities for managing, maintaining, and accessing the models produced via the implementation of additional software. The software provides a common environment for saving models along with a range of data control and optimisation tools, interaction between model creation tools and storage and a facility to enable stakeholders outside of the overhead line design team to view digital models, generate reports and view documents. This facility is intended to provide secure access collaboration and interoperability for external stakeholders which can be controlled through an access control list.

3.2 Outcome and Benefits

The outcome of this investment will not only build and grow our capabilities, tools and process but the digitalisation of our overhead line asset engineering data will enable a faster, more efficient, and assured response for external stakeholder information requests – for example third party use cases for safe working in proximity to overhead line assets, planning of third-party development in proximity to our assets and optimise the utilisation of our overhead line assets. A typical utilisation use case is with respect to faster determination of the capacity headroom available on an existing overhead line circuit to enable a low carbon generator connection access to the SSEN Transmission system.

This enables better stakeholder engagement and promotes maximum utilisation of existing assets as opposed to reinforcements based on building new assets to provide reinforcement upgrades. This faster and more assured approach will enable the most economic, efficient, and co-ordinated options to be developed more rapidly resulting in reduced system reinforcement need.

The digitalisation of our overhead line assets will provide part of the foundation for a physical digital twin of our network. We see this as a future part of the development of a combined and interoperable ecosystem of aligned to the ESO vision of the “Virtual Energy System” and as stated within Bridging the Gap 2021 “Increased data availability and digitalisation of systems is fundamental to enable markets and technology to manage peaks and troughs”. We see the digitalisation of our overhead line assets as aligning to the recommendations of the Energy Digitalisation Taskforce with respect to embedding a culture of digitalisation, accelerating digitalising, and delivering interoperability. The project is also aligned to the National Digital Twin programme.

Digitalisation of overhead line assets reduces the need for site visits to review asset data inconsistencies and survey on an ad-hoc reactive basis. This has financial and safety benefits and cuts down on the time needed to process enquiries. The proactive capture and modelling of overhead line information also reduces mobilisation costs of an ad-hoc reactive approach to stakeholder enquiries (see Table 53).

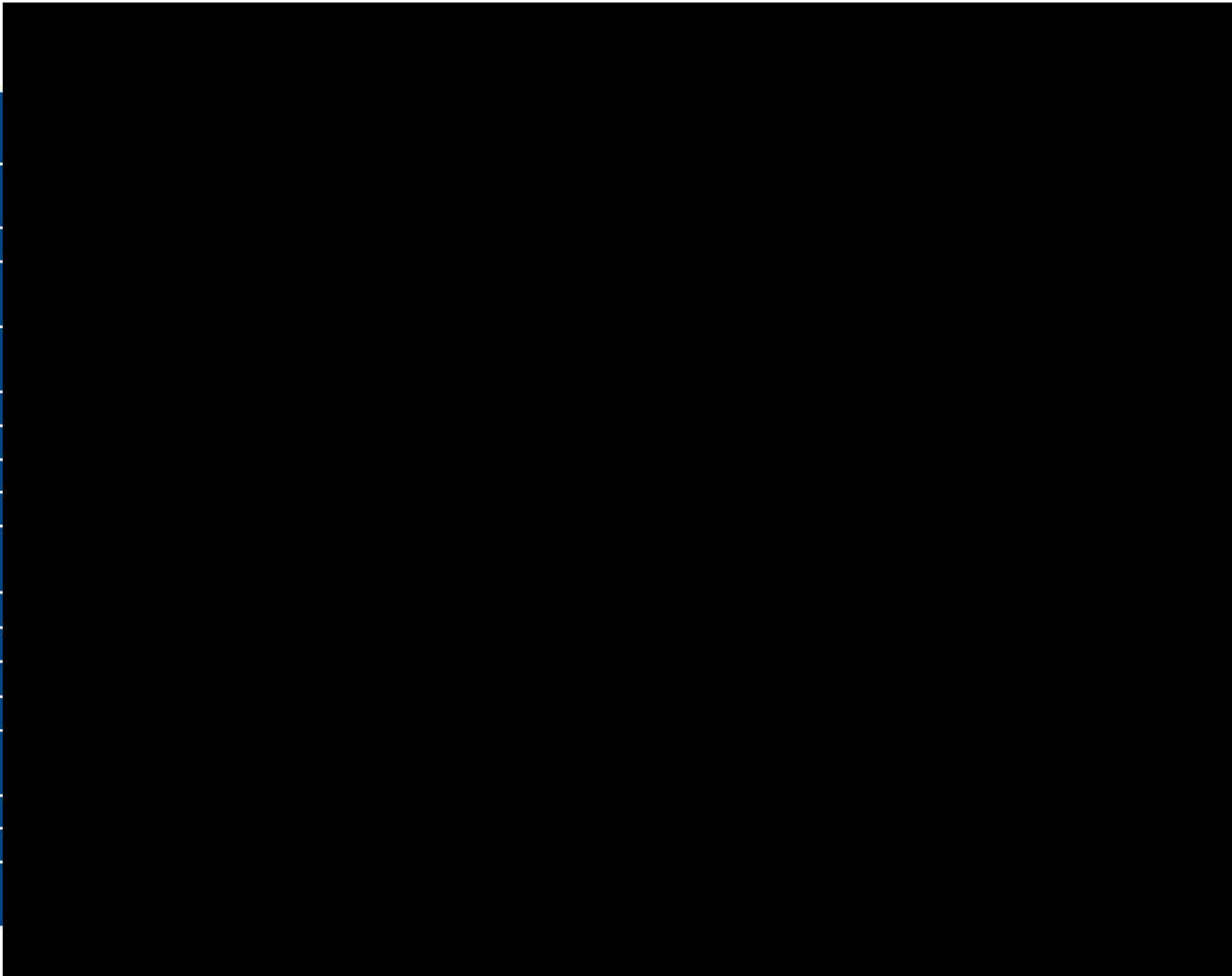
The scale of stakeholder information requests and enquires has rapidly increased from 98 data requests during the first six months of the RIIO-T2 period to 223 data requests during the first six months of FY22/23.

This investment will provide benefits by enabling us to develop a methodology to effectively capture non digital data and thereby assist us in moving forwards with Data Best Practice in a very challenging area (i.e. paper records) and then roll out this methodology into RIIO-T3, see Table 52.

Table 52: Alignment to Data Best Practice

OFGEM Data Best Practice Guidance: Principles	How investment in digitisation delivers best practice alignment by
Identify the roles of stakeholders of Asset Data	Enabling the identification of role of the stakeholder for Asset Data that may still be paper based or not in a searchable format.
Use common terms within Data Assets, Metadata and supporting information	Providing supporting information in a digital format thereby improving the linkage between Assets and Metadata
Describe data accurately using Industry standard Metadata	N/A
Enable potential Data Users to understand Asset Data by providing supporting information	Increasing the amount of Data Assets that can be published openly, made publicly available or shared with a specific group.
Make Asset Data discoverable by potential Data Users	Assisting Potential Data Users in identifying the Data Assets that the Licensees is the Data Custodian of.
Learn and deliver to the needs of current and prospective Data Users	<p>Meeting the needs of Data Users outlined below by providing a digital record</p> <ul style="list-style-type: none"> • Data granularity (time, space, subject) • Data accuracy or precision (how closely does the data reflect reality) • Data timeliness and consistency (duration between data creation and access) • Functionality and simplicity of access (file download, API requests, etc) • Service: <ul style="list-style-type: none"> - Reliability (service availability over time) - Stability (consistency over time) - Agility (the ability to adapt to changing needs) • Data interoperability (joining to other datasets).
Ensure data quality maintenance and improvement is prioritised by Data Users needs	By assisting Licensees in ensuring that Data Assets are of a quality that is sufficient to meet reasonable requirements of its Data Users and it is unlikely that non digitised records meet internal User data quality needs and certainly do not meet the needs of external data Users.
Ensure that Data Assets are interoperable with Data Assets from other data and digital services	Making the data accessible in a digital format, so that it can be consumed by digital systems

Protect Data Assets and systems in accordance with security, privacy, and resilience best practice	Assisting in ensuring compliance as non-digital records may not comply (e.g., Paper records do not meet this guiding principle even if held within a filing cabinet in a substation environment).
Store, archive and provide access to Data Assets in ways that ensure sustained benefits	By assisting in the challenge if not impossible task to ensure that the risk of unintentional or malicious deletion of Data Assets, Metadata and Software Scripts used to process Data Assets is effectively managed and monitored to ensure possible recovery. (e.g., paper records could be accidentally or maliciously destroyed without the knowledge or permission of the licensee).
Treat all Data Assets, their associated Metadata and software scripts used to process Data Assets as Presumed Open	By assisting in the challenging if not impossible task of treating non-digital data assets information as presumed open if they exist only in non-digital format.



4 Optioneering & Preferred Option

4.1 Method of evaluation

The method of evaluation for the options is based on qualitative expert assessment, and determination of whether the stated goals can be realised, specifically on whether the engineering design standards that we hold for new network design and build can be applied across our entire network by the end of the current regulatory period. The different options available were presented and debated among the relevant bodies within SSEN Transmission IT and the business. Guidance was also sought from the Data Governance Board and SSE Group Data Centre of Excellence (CoE). This debate was supplemented with input from SSEN Transmission digital partners who assisted SSEN Transmission to create their Digital and Data Vision.

4.2 Options Considered

The following three options were evaluated, see Table 54.

Table 54: Options considered

Options	Pros	Cons
Delay AoD until end of RIIO-T2	<ul style="list-style-type: none"> No additional investment required New tools/techniques may materialise 	<ul style="list-style-type: none"> Adds additional burden on digital teams to provide data to customers expecting digital data Extends the length of time it will take for SSEN Transmission to comply with all of Data Best Practice Reduces capabilities of digital teams Unable to apply the Engineering Design Standard needed by the end of the regulatory period
Deliver AoD now	<ul style="list-style-type: none"> Digital teams will have access to additional tools that will enable them to deliver digital data for both internal and external stakeholders and customers Saving in terms of time and effort in answering customer queries Assist in delivering Data Best Practice Accelerates SSEN Transmission on its journey to a fully digital network (digital twin) Standardises the digitised information available across the entire OHL network Engineering design standard applied within the desired time frame 	<ul style="list-style-type: none"> Risk due to limited number of survey vendors
Do Nothing	<ul style="list-style-type: none"> No additional investment required Will significantly hamper improved stakeholder access to overhead line data No additional training required 	<ul style="list-style-type: none"> Will slow down or impede future growth of capabilities given limitations due to lack of tools Cannot reap awards of digitalisation, especially in the sharing of data

		<ul style="list-style-type: none"> • Will continue to rely on paper-based data/information • Data quality and accessibility asymmetry across the entire OHL network • Engineering Design Standards not universally applied
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4.3 Preferred Option

The recommended option is the 2nd option “deliver accelerated digitisation” as this will meet the requirements, deliver compliance and lead to business benefits.

The first Option “Defer till RIIO-T3” is not recommended. There is a recognised immediate need to grow our digitisation capabilities and advance the maturity of compliance with the Data Best Practice guidance. Delays in investment would not drive the business forward, and potentially miss opportunities to deliver business benefit. This investment will also deliver business benefit via the digitisation of the entire SSEN Transmission overhead line network.

The third option “do nothing” is not recommended as this increase the risk to the business through lack of availability of digitalised data and information and also impacts on our ability to meet the needs of our stakeholders.. It is also denying the chance to drive business benefits and not does consider the ambition to deliver a data driven business.

5 Approach

5.1 Delivery Methodology

SSEN Transmission has two project delivery methodologies, and each project undergoes an assessment as to the best approach to ensure its successful delivery. They will either follow a Waterfall approach or combine aspects of Waterfall and Agile.

The acceleration of digitisation and specifically the OHL aspect of the project delivery will follow the SSEN Transmission IT Waterfall Lite model as the scope of the project that part of the project is clear with a fixed amount of data to be digitise but may utilise aspects of Agile approach once data is gathered from scanning to reduce timescales to create data models.

As part of the implementation, we will apply Quality Assurance processes within our Overhead Line Engineering Design function.

5.2 Defining and sequencing projects

The digitisation aspect of the project will decide in which sequence it will deliver the different elements of its project. In the OHL digitisation the sequence in which the 3rd party scans the OHL will depend on resources and access to land so this will be agreed within the team including the wayleaves team.

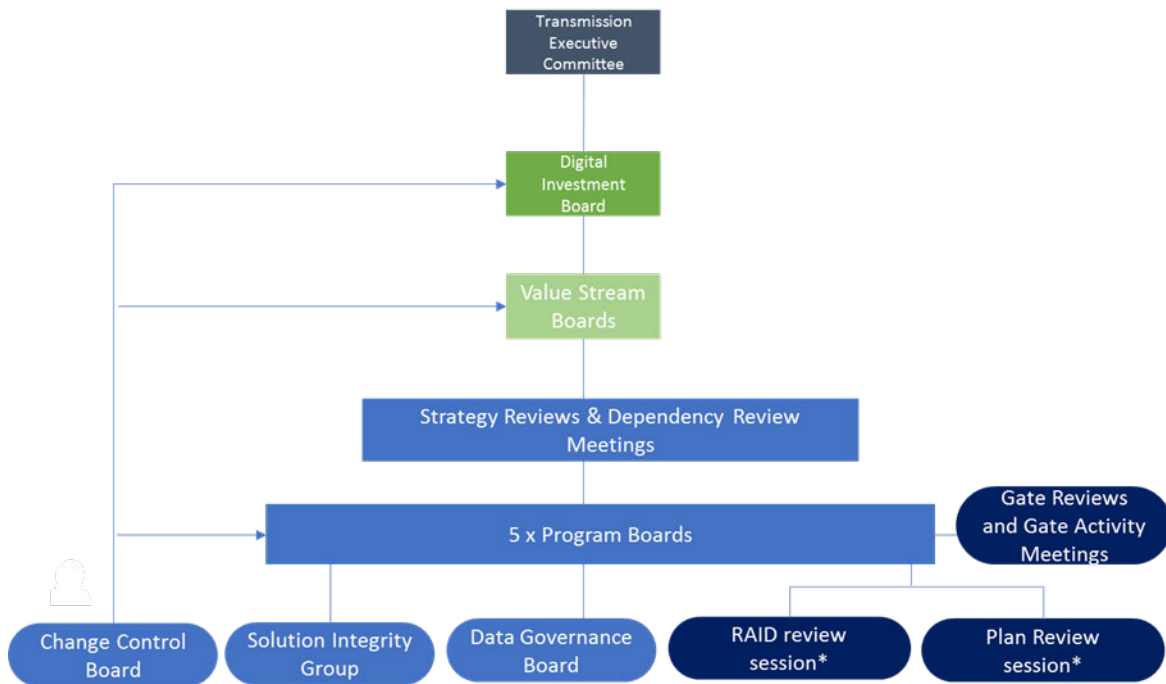
5.3 Technology Considerations

The digitisation of the OHL work is a continuation of the work previously done on several OHL routes. The technology consideration component is already known as this will be 3rd party scanning and for SSEN Transmission the utilisation of PLS Grid software will be deployed in the business to utilise the OHL data models.

5.4 Governance

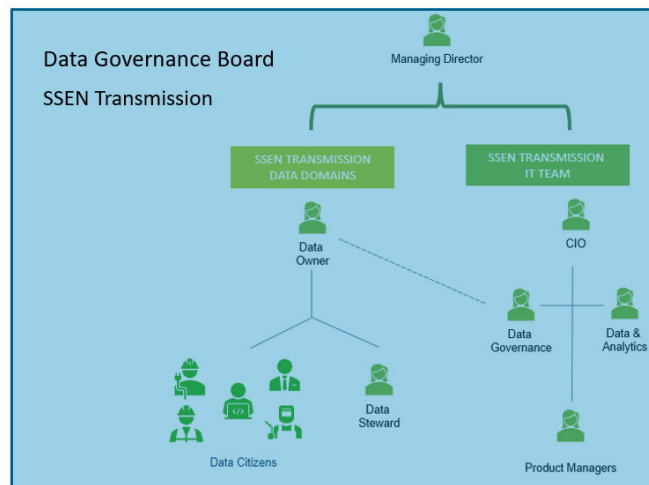
The project team will input and report to the Data Governance Board (see Figure 16). To ensure compliance with Group Data and Information Management policy, the Information governance framework will also apply (see Figure 17). It has been established to create policies and procedures and the enforcement of these to control and manage information as a resource, to create a culture where data/information is valued as a business asset.

Figure 16: High level Governance structure



The digitisation projects will also be expected to follow standard SSEN Transmission IT data project governance. See Figure 17.

Figure 17: Data governance structures



5.5 Procurement

We will utilise existing framework contracts in place to deliver the data acquisition and processing of the OHL data. Where additional capability is required, we will leverage our Digital Partners Framework to bring on the best parties to support. This framework has been set up in RIIO-T2 to seek partners who have specific skillsets that we can leverage. To achieve the outcomes from our digital projects, we need to think differently, and align ourselves to providers who can support us with that.

5.6 Change Management

This proposal will result in minimal change to our processes, however the enhanced digital coverage will enable a step change in the quality, reliability, ease of access and usability of our data in this domain.

The primary aim is to ensure readiness and smooth the path for acceptance and continuity of service. The change management function will understand the impact of the change, effectively communicating and providing training as required. This will be handled by our in-house Business Change Team.

6 Plan

6.1 Delivery Timeline

The delivery time of the digitisation aspect of the project can be seen in Figure 18, and Table 55 for the expected commencement and duration of the project.

Figure 18: High level plan for delivery of AoD

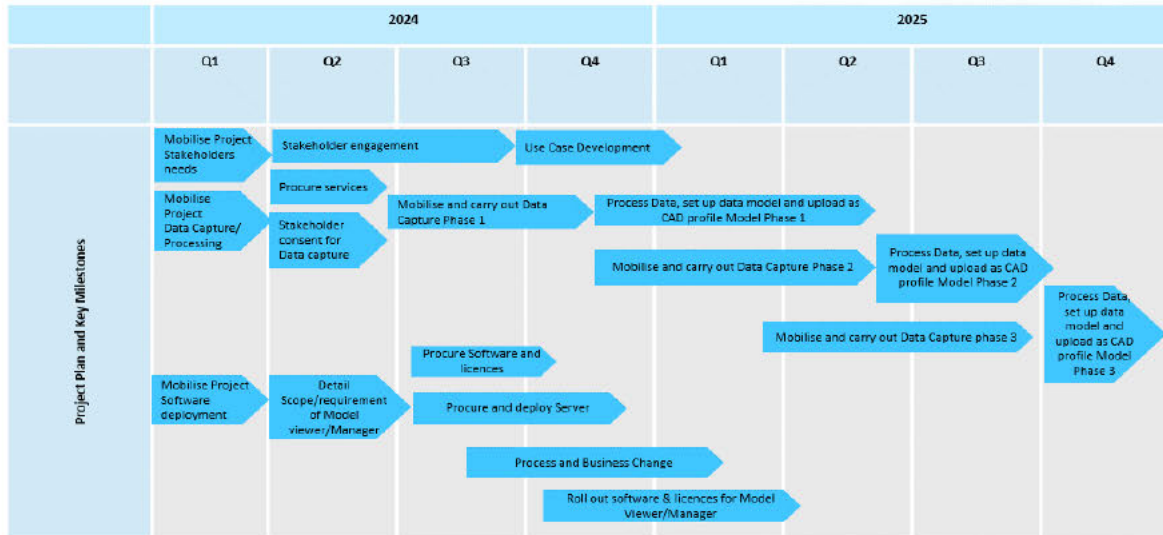


Table 55: duration of project within investment

#	Project Name	Start	Finish	Duration
1	Acceleration of Digitisation	Q1 2024	Q4 2025	24 months

6.2 Dependencies

The following dependencies have been identified in Table 56.

Table 56: Investment dependencies

Dep. ID	Dependency	Impact	Direction
D1	Securing Re-Opener funding	If this is not received, then we will be unable to deliver business goals and commitments.	Inbound
D2	Availability of our vendors and their capacity to deliver to our timelines	If not available, then project schedule will be delayed, and business value will be reduced.	Inbound
D3	Availability of key stakeholders impacting the plan, such as the risk that sometimes key operational constraints (such as storms etc) occupy them	If not available, then business capability development will be assumed, and projects based on IT understanding rather than clear business need.	Inbound

D4	Ramping up internal IT capabilities (considering an extremely competitive labour market)	If not available, then project schedule will be delayed, and business value will be reduced.	Inbound
D5	Permission to carry out data capture	If not possible or delayed, then project schedule will be delayed, and business value will be reduced.	Inbound

6.3 Risks to the plan

The following risk to the delivery of the plan, see Table 57.

Table 57: Risks to delivery of investment

Risk	Impact	Probability	Mitigations
Risk that the delivery approach leads to cost and time overruns	Time and Cost	20%	A strong governance framework to ensure that projects have management oversight for their delivery
3rd party scanning vendor cannot resource team for duration of project	Cost	20-30%	Ensure the 3rd party vendor has sufficient resources in place before commencing the scanning, flex duration and location of scanning to maximise opportunities to complete
Procurement delays of licences and sever	Time and Cost	20%	Ensure early engagement with procurement to understand potential blockers early in process
Shortage of adequate digital / data skills and expertise	Resourcing	30-40%	We will continue the programme of upskilling existing staff and recruiting new highly skilled individuals, as well as developing in-house capabilities through our digital apprenticeship
Risk that the software bought will not be used by the workforce to drive the benefits	Benefits Realisation	10-30%	Gain strong business sponsorship before all delivery to ensure the commitment to achieving the benefits

6.4 Resourcing

The following resources are required to successfully deliver of the digitisation aspect of the project. They can be supplemented by external resources if it is not possible to fulfil the resource requirement from within the current IT resource pool. See Table 58.

Table 58: Resources and roles

Resource and Role	Internal/External	Objectives
Programme and Project Manager	Internal/External	Lead the project and ensure it is delivering to the agreed timelines. Accountable for the end-to-end delivery
Procurement and legal support	Internal	Responsible for communicating with vendors to buy, rent or contract products and services needed to achieve project objectives
Value Stream (VS) /Business SMEs	Internal	Provide guidance and oversight on the deliverables to ensure they meet requirements and expectations. Organise business engagement forums
Product Owner	Internal	Business representative that will own the solution from the business perspective, support the deliver of the right solution to meet business needs and inform the product/solution enhancement roadmap after initial delivery
Data assurance and protection	Internal	Provide a framework to make sure that data is available, usable, consistent, and secure. This includes creating data standards and processes that provide accountability to make sure data management is effective
Data Analyst	Internal/External	Collect, organise, gather and scrutinise data using specialist tools to generate information that helps others make decisions.
Data Acquisition & processing vendor	External	Survey, data acquisition and processing of data into overhead line data model
Others	N/A	Non-people costs related to the project

6.5 Confidence in our plan

We have created our plan in collaboration with who have experience in delivering similar projects. We have broken down our project into several cross-sections to aid analysis, and have given consideration to dependencies, risks, and resource requirements across each phase of the project to enable us to build a robust cost model.

This work has been undertaken in collaboration with our Digital partner, and a third-party consultancy with significant expertise in the delivery of scanning projects such as this one. Our cost model is detailed in the following section. In addition, we have prior experience of digitising existing sections of our network that have helped inform cost and timescales involved. This prior experience gives us high confidence in our planned timeline and costs.

7 Costs

7.1 Costing Approach

This investment is made up of the following solution components, where the component is derived by the type of resources:

1. Internal resource costs to provide project management services, and oversee and manage the delivery
2. [REDACTED]
3. Asset Data Engineering resources in the business will be needed in order to perform a QA on an agreed subset of the vendor provided models to validate accuracy and quality. There will be no recharge to the project from these resources, therefore zero cost.

7.2 Cost Breakdown

Based on the size of the required team to deliver the capabilities required, the following resource costs are likely to result (as detailed in Table 59).

Table 59: Cost breakdown for required resources (2018/19 Price base)

Resource Type (£m 2018/19)	2021/22	2022/23	2023/24	2024/25	2025/26	Total
SSEN T (Internal & Contingent Resource)	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
3rd party services (Consulting/SI Services)	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
3rd Party Services (Business Change and Readiness)	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Software Procurement	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Hardware Procurement	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Software Maintenance	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Hardware Maintenance	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Total	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

7.3 Assumptions

The following assumptions (see Table 60) were utilised to determine the expected costs within the investment.

Table 60: Key assumptions

A. ID	Assumption	Impact if assumption is broken
A1	As there is not sufficient skills or bandwidth within SSEN Transmission IT or the business, we will use our consulting partner frameworks to source resources.	Schedule & Cost Impact – if external resources are not available, then costs will increase due to bidding war for resources and additional time taken to acquire.

A2	The procurement process will follow SSEN Transmission procurement processes and standards.	Schedule Impact – if different procurement processes are required, this will extend the time allocated in plan.
A3	A standard server is sufficient to run required Data modelling tools	Cost Impact – a non-server-based solution will require additional design work.
A4	Data modelling tools (e.g., PLS CAD) are already available, just require additional licences	Cost Impact – the project budget may require additional funds to cover change in projected costs.
A5	Survey company have sufficient bandwidth to complete their tasks	Schedule & Cost Impact – if inputs are not received when required, then this will delay the delivery of the digital artefacts and increase costs.
A6	The business will be capable of providing experienced SME resource.	Schedule & Cost Impact – if inputs are not received during the initial stages, then this will delay the delivery of the strategy artefacts and increase costs.

7.4 Cost Assurance

Our costs are built up based on traceability and experience. Survey costs are based on actual regulatory agreed contracted rates for Beaulay – Spittal (90km). The Survey company will produce a PLS model with the conductors sagged as surveyed. [REDACTED]

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

For external resource costs we have used agreed framework rates with our Digital Partners.

We will utilise existing UK industry standards for digitalisation of overhead line information which aligns to our overhead engineering design standards and is recognised good practice.

- **Working with consultancies**

Our plan has been put together from working one of our Digital Partner, as well as the surveying vendor. Each have contributed to the projects, including providing the effort estimates we would expect to see. These are based on similar projects delivered elsewhere.

- **Benchmarking**

We have benchmarked this plan with experience gather from the Beaulay – Spittal project to demonstrate that the overall investment is within the expected amount for an organisation of our size. This has given further confidence that we:

- c) Haven't over forecasted any costs, and we are delivering the investment efficiently.
- d) We haven't under forecasted and will be hit with unexpected costs when we come to deliver.

The table below (Table 61) shows the assurance mechanism we have used.

Table 61: Assurance mechanism

Cost assurance mechanism	Applies to this PDJP	How it applies?
High level plan	Yes	We created a high-level plan and ensured we have aligned our resources against this plan
Top-down resource estimates	No	
Bottom-up resource estimates	Yes	Detailed resource plan created
Confidence weighting on resource estimates	No	
Experience from prior investments	Yes	Input was received from both internal SSE resources and Strategic Partners, and we have prior experience from the Beaulieu – Spittal project.
RIIO1/2 allowance and expenditure	Yes	Similar projects delivered in RIIO- T1
Negotiated and market tested frameworks and contracts (e.g., consulting services or managed services)	Yes	Unit rates for the resource costings is based on a combination of internal loaded costs and the rates set out in negotiated and agreed framework consulting agreements
RFx processes	Yes	
External benchmark of investment titles	Yes	A third-party assurance activity has been undertaken to review the scope, timeline, resource mix and costs being proposed in this investment
Unit cost assumptions	Yes	Standard Unit costs applied based on framework rates and the quotes provided
Expert/External provider support to paper	Yes	External consultancy input on the scope and effort estimates
Project delivery risks	Yes	We have assessed the project delivery risks as described in section 7.3

8 Operating and sustaining the solution

This investment will mainly be spent on the surveying, data acquisition and processing of overhead line circuits that are currently on the SSEN Transmission network with the goal of creating consistent digital representation of our network in PLS-CAD. This will see the uniform application of the applicable engineering design standard, bringing the existing network in line with newly constructed parts of the network. Doing so will not only enable alignment with the data best practice guidance, but enable more efficient analysis and power studies to be performed on the network but also enable SSEN Transmission to share information with stakeholders and 3rd parties in a digital format.

There are no additional IT Operating costs associated with the delivery of this investment. The operating costs for the PLS-CAD software are already catered for in existing budgets and allowances. There is no incremental ongoing support and operations costs for the digital models, as this will be covered under current BAU business costs.

9 Conclusion

There is rapid change of pace across the energy landscape now and this is only going to grow. The drive towards Net Zero is increasing the amount of assets being built on both the transmission network but also those who want to connect at a lower level which in turn requires further transmission reinforcement. The only way to deliver all large capital investments is to proactively adopt digital technologies not just as part of asset delivery but across the business as a whole.

This increase in the use of digital tools is also necessary to deliver our strategic ambitions, and we need to ensure that we have the correct supporting functions in place to enable the business to embrace this and turn the large amount of data generated into useful and reliable information. This data will come in many forms (e.g., structured, unstructured).

The Energy Data Task Force (EDTF) report of 2019 and the Energy Digitalisation Taskforce 2022 report publications highlighted that different organisations being able to share and understand information is critical to solve the complex challenges of decarbonising energy, heat and transport. Barriers in the current energy system to the effective use of data all impede competition, innovation and ultimately a truly flexible and optimised system.

This investment will deliver digital teams with digitised SSEN Transmission overhead line data and processes which enable this data and the resulting insight to be more accessible to our stakeholders. This will demonstrate the business benefit with digitising of Overhead line data and moving towards the Digital Twin model, while also enhancing compliance with the license requirements concerning Data Best Practice. The learning from this digitisation project will be rolled into the RIIO-T3 submission. The developed methodology will also ensure that data is treated as an asset, is made more accessible for our stakeholders and used effectively for the benefit of consumers and the Public Interest.

The total investment costs are [REDACTED]