Scottish & Southern Electricity Networks

TRANSMISSION

Non-Operational IT Capex

RIIO-T2 Re-Opener – Strategy and Investment Summary

September 2023

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

Inveralmond House, 200 Dunkeld Road, Perth PH1 3AQ ssen-transmission.co.uk

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1 Executive Summary

The increasing challenge to build sufficient renewable energy and infrastructure to deliver the UK Net Zero ambition by 2030 has meant a further step change is required from the already ambitious growth plan set out by industry. Ofgem has therefore developed the 'Pathway to 2030 programme'. This sets out the blueprint for the electricity transmission network infrastructure required to enable the forecast growth in renewable electricity across Great Britain.

SSEN Transmission (SSEN) is the Transmission Owner (TO) responsible for the high voltage 132kV, 220kV, 275kV, and 400kV electricity transmission network in the north of Scotland. Our network consists of underground and subsea cables, overhead lines on wooden poles and steel towers, and electricity substations, extending over a quarter of the UK's land mass crossing some of its most challenging terrain. SSEN aims to deliver 11GW of offshore wind as part of the UK and Scottish Governments' 2030 overall ambition for offshore wind targets of 50GW and 11GW.

To assist the UK TOs in delivering the 'Pathway to 2030', Ofgem introduced a new Accelerated Strategic Transmission Investment (ASTI) framework. This aims to accelerate onshore electricity transmission investment, by streamlining the regulatory approval and funding process and to exempt certain large, strategic onshore transmission projects from competition. This framework identified 10 SSEN Transmission projects (7 sole SSEN and 3 joint SSEN/NGET/SPT) as fulfilling the ASTI criteria for strategic investments. The delivery of these projects will mean that SSEN will be operators of one of the fastest growing Electricity Transmission networks in Europe.

This will require an investment of ~£9bn, which will create and support over 20,000 jobs across the UK in its delivery. Successful delivery 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. Out of the overall forecast increase in UK jobs, 9,000 of these are forecast to be created be in Scotland. Progress so far has created 400 jobs directly in SSEN Transmission last year and a further 500 are expected this year.

We are also seeing unprecedented growth in the number of connection requests – the number and size we will need to deliver on an annual basis between now and 2030 is more than double the largest year we had in the RIIO-T1period. If we look further into the future, we can see further increases in the scale and complexity of the SSEN Transmission network investment requirements.

Our business needs to grow in capacity and capability to meet the demands that are placed on us. Technology investment, through our Digital Programme, is key to that success – both in terms of building the platforms and capabilities to enable our business to operate more effectively, and in new digitally enabled ways, and through the liberation of data and exploitation of information in day-to-day business decision making.

Information Technology (IT) enables us to achieve the commitments set out in our business plan for RIIO-T2 and specifically delivery against the IT & Telecoms (IT & T) plan that supports the business plan. We established our Digital Vision and Strategy for the organisation and regularly review our Digital Strategy and Action Plan (DSAP). We build and deploy digital solutions that enable and enhance our business and securely maintaining the services and platforms that we deliver to our customers.

We submitted our RIIO-T2 IT & T business plan in December 2019, which we are well on the way to delivering. Based on the additional demands that are being placed on SSEN Transmission since our RIIO-T2 business plan submission, we need to adjust our strategy and IT & T business plan, to add new capabilities, and to react to the changing regulatory landscape, particularly in relation to enhanced digital and data expectations on Network Operators.

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In total across the two mid-period reopener windows, we have identified eight additional investments that will enable SSEN Transmission to meet the demands of our revised strategy. We applied for [redacted] of additional funding (to support five of these additional investment projects) in January 2023. We are waiting for Final Determination on those investments. In this Summer 2023 reopener application submission, we are re-submitting one of the projects from the January 2023 application (Integrated Project Management - as requested by Ofgem in their Draft Determination) together with three new reopener applications. There are a total of four investment applications contained within this re-opener submission, including:

- Integrated Project Management (IPM);
- Acceleration of Digitisation (AoD);
- Control Centre Disaster Recovery (DR) Phase 2; and,
- Transmission Time Management (TTM).

In the January 2023 submission, the Integrated Project Management investment represented [redacted] of the [redacted] requested. The request from Ofgem was to re-submit this paper with clarified costs following tendering and design activities. We have completed these now and are re-submitting the paper for Integrated Project Management with updated costs.

The total value of this Summer 2023 Reopener Application is [redacted], with [redacted] associated with the Integration Project Management submission, and [redacted] related to the three new investment applications.

Table 1 (below) summarises the current, additional (broken down by January and Summer applications), and revised total allowance for Non-Operational IT & T Capex and associated Operating Costs.

Table 1: RIIO-T2 Non-Operational IT Cost Summary inc. Re-Opener (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]	£45.59m
Business Support Costs IT Opex	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	£19.60m
Total RIIO-T2 Allowance – [A]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	£65.19m
Mid-Period RIIO-T2 Re-Opener Request (January 2023) – [B]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Integrated Project Management (IPM) January 2023 Value – [C]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Mid-Period RIIO-T2 Re-Opener Request (Summer 2023) - [D]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Revised Total Allowance (post-January & Summer 2023 Re-Opener) – [E]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

NB: Revised Total Allowance (post reopeners) calculation: E = ((A+B) – C) + D

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Table 2 sets out the additional strategic objectives that will be delivered as a result of the mid-period reopener applications.

Table 2: Strategic Objectives Summary

Ref.	Strategic Objective	Re-Opener Window
SO1	We need to deliver a digital platform to enable integrated project management for our Capital Projects team	January 2023
SO2	Our asset management, planning and design teams need access to the tools and data to enable effective whole system design and process requests faster	January 2023
SO3	We need to separate our operational IT network from other SSE business units	Summer 2023
SO4	We need to align with Data Best Practice Guidance and accelerate the digitisation of our asset information	Summer 2023
SO5	We need to continue to invest in the DR SCADA site to establish the required level of resilience	Summer 2023
SO6	We need to establish a mechanism for us to be able to deal with future opportunities	January 2023
SO7	We need to prepare for the RIIO-T3 period	January 2023
SO8	Invest in the platforms to enable our digital vision and remove legacy technologies	Summer 2023
SO9	Applying IT/OT Convergence at the Grid Edge enabling smarter and more cost-effective substation networking design	January 2023
SO10	Reduce the risks associated manual data entry and enable financial data sharing to provide business insights	Summer 2023

As requested by Ofgem in November 2022, we prioritised submission of investments between the January 2023 Re-Opener window and an additional Re-Opener window established by the regulator in Summer 2023. We prioritised those projects that directly support the delivery of our Accelerated Strategic Transmission Investment (ASTI) programme, projects that are key enablers for the RIIO-T3 price control period and those projects that require expenditure in 2023/24. Those projects were submitted in the January 2023 window and the other projects deferred.

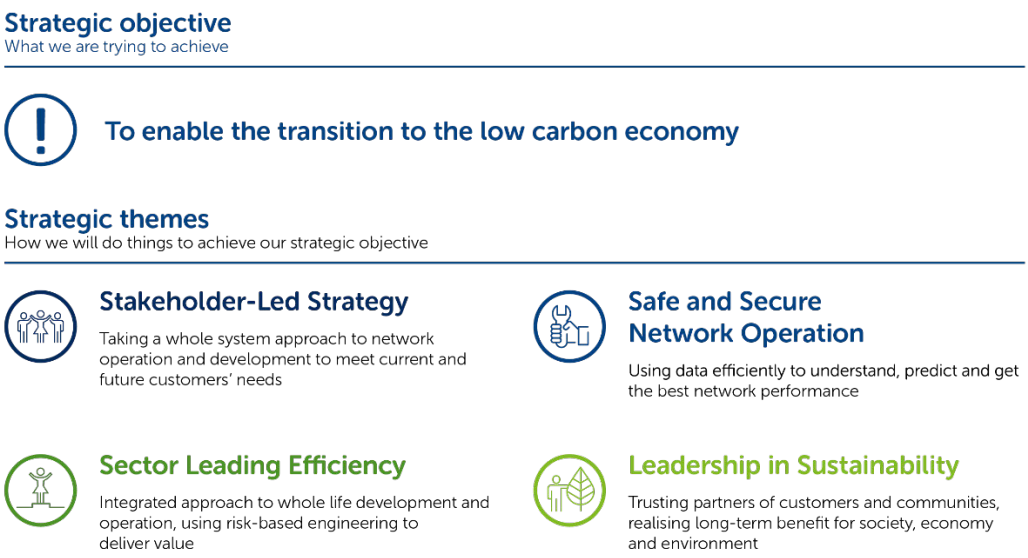
For this summer reopener application the three additional, and one re-submitted, projects are detailed in project definition and investment justification papers, contained within Appendix 2.

2 Introduction

2.1 Our business

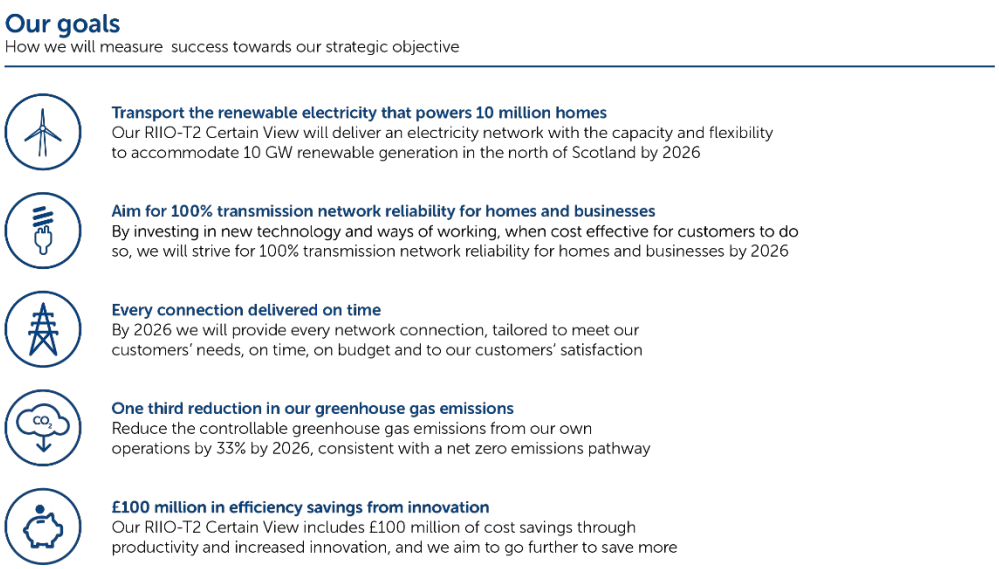
Our RIIO-T2 Business Plan sets out our strategic themes for how we will do things to achieve the strategic outcome "To enable the transition to the low carbon economy". These four themes are set out in Figure 1 below.

Figure 1: SSEN Transmission's Strategic Themes for RIIO-T2



SSEN Transmission's five clear goals - our measurement of success in delivering our strategic objective in RIIO-T2 - are set out in Figure 2 below.

Figure 2: Our five clear goals



These strategic themes and goals necessitate further digitalisation of our business (spanning Non-Operational IT and Operational IT) to build new and enhanced existing capabilities as we face into the challenges and opportunities of the future.

2.2 Objectives and Scope

The purpose of this document is to provide an overview of the Non-Operational IT investments that make up the mid-period Re-Opener under this expenditure category. As part of that purpose, this document sets out how the changing environment in which we operate has given rise to changes in its investment needs.

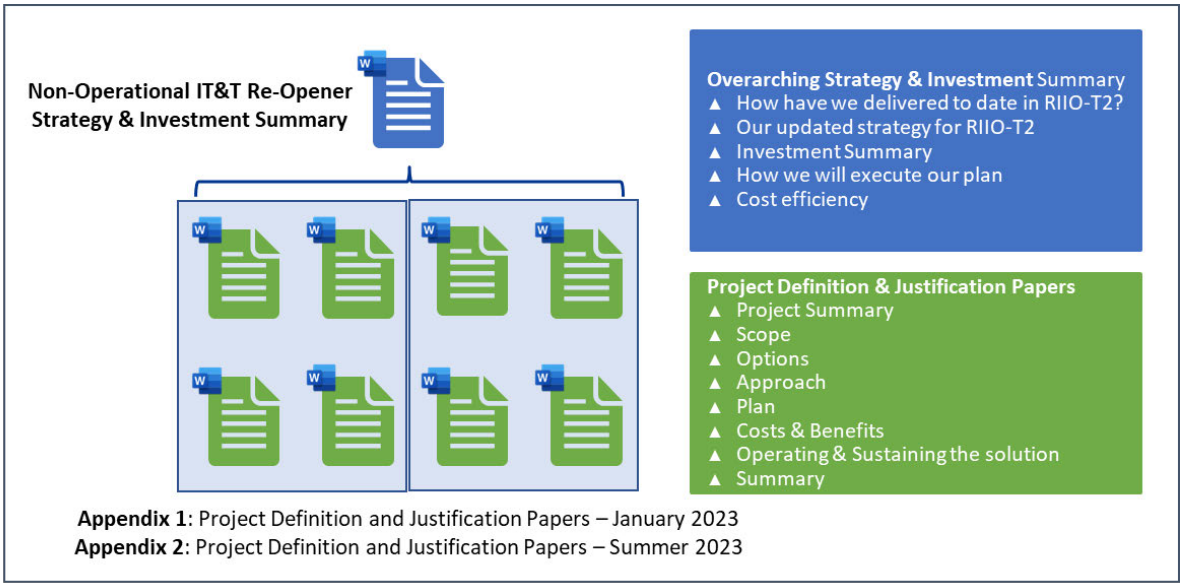
The proposed investments will complement and build on the existing portfolio of delivery, much of which is inflight already through our Digital Programme. This will be demonstrated through the accompanying Project Definition and Investment Justification documents that are appendices to this document. We have aligned this document and our proposed investments with the published Digital Strategy and corresponding action plan[1], as well as the following additional publications and responses to recent industry announcements:

1. Pathway to 2030: Delivering 2030 Government targets and the transition to Net Zero[2][3]
2. SSEN Transmission statement on UK Government's Energy Security Strategy[4]
3. SSEN Transmission welcomes ScotWind leasing round outcome[5]
4. Ofgem's decision on ASTI, confirming the need for us to progress eight strategic projects[6]
5. SSEN Transmission Customer Experience Strategy[7]

2.3 Structure and content of our submission

The summary of the structure and content of our submission is as follows:

Figure 3: Structure of our submission



[1] SSEN Transmission Digital Strategy and Action Plan
[2] 'Pathway to 2030' – Delivering 2030 Government targets and the transition to net zero
[3] 'Pathway to 2030' underpins £7bn+ investment
[4] SSEN Transmission statement on UK Government's Energy Security Strategy
[5] SSEN Transmission welcomes ScotWind leasing round outcome
[6] Decision on accelerating onshore electricity transmission investment | Ofgem
[7] https://www.ssen-transmission.co.uk/customer-connections/customer-strategy/

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See Section 2.4 for an explicit mapping from the licence and Re-Opener guidance to different sections of our submission. There is a single document (this one) that sets out: the current delivery progress; the changing environment and strategy for the investments; a summary of the new investments being proposed; an explanation of how we are set up to successfully deliver these new investments alongside the current ones; and, a demonstration on how we will ensure value for money for customers.

To accompany this document, there are several Project Definition and Investment Justification papers, grouped together in appendices to this document (Appendix 1 – January 2023 reopeners and Appendix 2 – Summer 2023 reopeners). These papers set out the details of the scope, rationale, optioneering, and plans, for each of the proposed investments.

The recommendation is that this document serves to provide the overarching summary and strategic direction, with the details of the projects in each of the individual investment papers.

2.4 Requirement Mapping

Table 3 below sets out how our submission meets the requirements of our licence and the Re-Opener guidance.

Table 3: Licence and Guidance Requirements for Submission

Licence and Guidance Requirement	This Document	Appendix 1 & 2
Clear statement on needs case, demonstrating alignment with the overall business strategy and commitments. Including the organisational context, strategy, and business alignment	Section 4	Project Definition & Investment Justification Papers – 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 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	Project Definition & Investment Justification Papers – Section 2
Explanation of options assessment, including the methodology used		Project Definition & Investment Justification Papers – Section 4
Clear description of preferred option, covering the following:		
• 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 4	Project Definition & Investment Justification Papers – Section 3
• A detailed description of project delivery plans, including project schedule, governance, and KPIs to monitor the progress of the project	Section 6	Project Definition & Investment

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		Justification Papers – Section 5 & Section 6
Breakdown and Justification of costs, including the following:		
• Justification for the need and amount of allowance required per project, considering the requirements and capabilities being delivered		Project Definition & Investment Justification Papers – Section 7
• An overall portfolio cost for the proposed Re-Openers, and delineation of costs per project	Section 7	Project Definition & Investment Justification Papers – Section 7
• Commitment to the use of good practice governance, including investment management and controls	Section 6.4	
• Inclusion of uncertainty and risk costing		Project Definition & Investment Justification Papers – Section 7
Clarity on the purpose, scope, and dependencies of the project		Project Definition & Investment Justification Papers – Section 3 & Section 6.2
A description of the proposed solution at an appropriate level of detail		Project Definition & Investment Justification Papers – Section 3 & Section 5
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		Project Definition & Investment Justification Papers – Section 7
Project Resource breakdown showing costs per resource type across defined cost categories		Project Definition & Investment Justification Papers – Section 7

3 Our current delivery progress in RIIO-T2

At the beginning of the RIIO-T2 period, SSEN Transmission did not have its own IT function and was reliant, alongside the SSE group functions, on a shared IT service delivered by SSEN Distribution and SSE Group IT. As SSEN Transmission separated as a business from SSEN Distribution, in parallel it has established and continues to develop its IT function. Whilst some key elements of the IT Operating Model are delivered through hybrid or shared service teams, the delivery and operation of the SSEN Transmission specific platforms and capabilities are within the remit of our IT function. This includes the Non-Operational IT & Telecoms investment plan, which is delivered through our Digital Programme.

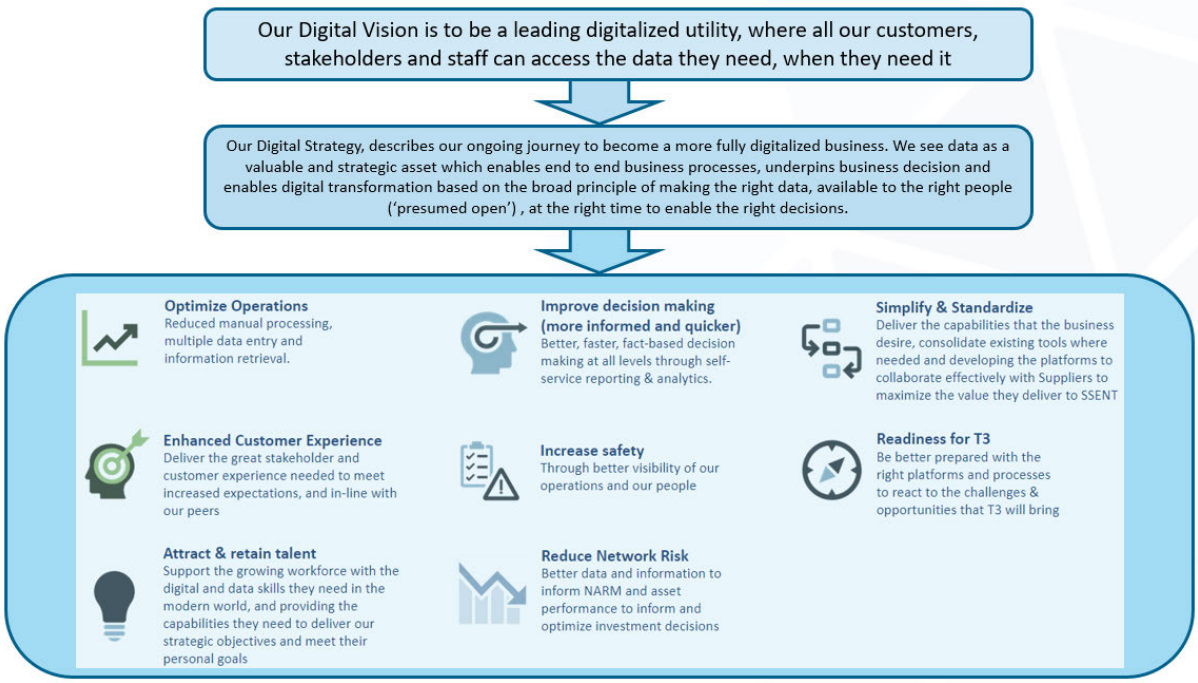
The Digital Programme sets out to:

- Meet a rapidly changing digital energy landscape
- Bring digital and data closer to the heart of the business
- Improve operational capability
- Assist in meeting business objectives
- Reduce risk
- Create opportunities for cost efficiency or operational improvement on the network
- Deliver the Non-Operational IT & Telecoms investments set out in the RIIO-T2 business plan and the RIIO-T2 Re-Opener submission(s)

Our Digital Strategy and Vision was refreshed in March 2022, to reflect the changing energy landscape with the revised strategy to be a leading digitalised utility, where customers, stakeholders and staff can access the data they need, when they need it. In line with regulatory requirements, we regularly publish our Digital Strategy – most recently in June 2023. A key part of this strategy is our aim to become an increasingly data driven business, and in support of Ofgem's Data Best Practice Guidance, this means that we need to invest in Data Management and Governance capabilities alongside data development services.

Figure 4 depicts how the Digital Vision will enable our Digital Strategy to provide us with the right capabilities and systems that will enable SSENT to deliver operational efficiency, network resilience, and data-driven investment decisions. It will also support the development of our network - including facilitating renewable generation connections for our customers - as we build a network for Net Zero.

Figure 4: Our Digital Vision



Following internal approval of our Digital Vision and mobilisation of the Digital Programme, our initial focus has been delivering foundational capabilities and enablers for delivery of our RIIO-T2 plan. Beyond this, we must begin to prepare for efficient and coordinated delivery of wider programme work (such as ASTI). Our Digital Programme will be a key enabler for this. Our separation from SSEN Distribution has allowed us to invest in SSEN Transmission specific instances of work and asset management solutions alongside Operational Technology (OT) platforms such as SCADA, enabling increased independence and greater ability to control how key capabilities are served from a technology perspective. Additionally, we have invested in technology platforms that enable the wider programme and improve business performance. Section 3.3 below summarises the milestones that we have delivered.

3.1 Our current RIIO-T2 investment plan

Our current RIIO-T2 allowance for Non-Operational IT & T Capex is £45.59m, split across the various investments set out in Table 4. In keeping with our Digital Vision, each of the investments are grouped into portfolios organised around delivery value streams within the Digital Programme. The value streams are responsible for the delivery of the projects within their respective portfolios.

Table 4: RIIO-T2 Non-Operational IT & T Investment Summary (2018/19 Price Base)

Grouping/Investment		RIIO-T2 Allowance (£m)	Value Stream (VS) Mapping
Stakeholders including Customer Connections			
5.2	Pre-Connection Information	0.72	VS1
5.3	Connection Case Management	1.76	VS1
5.4	Customer Contact Management	0.83	VS1
5.5	Stakeholder Engagement	0.82	VS1
5.6	Transmission User Interface	4.99	VS5
Asset Stream			
6.3	Master Data Management and Data Lake	3.63	VS5
6.4	Data Enrichment and Analytics	2.95	VS5
6.5	Smart Monitoring	2.45	VS4
6.6	Linear Assets – Underground and Subsea Cables	3.21	VS4
6.7	Building Information Modelling (BIM)	2.24	VS2
6.7.1	BIM Support	2.03	VS2
6.8	Enabling Technologies	1.38	VS5
6.9	Asset Digital Nerve Centre	0.32	VS4
6.10	Investment Optimisation (Risk Management)	1.92	VS4
Work Management Stream			
7.2	Total Work Management	3.53	VS4
7.3	Inventory Management System	2.86	VS4
7.4.1	Environmental Management Solution	1.16	VS2
7.4.2	Environmental Data Aggregation	0.67	VS2
7.4.3	Marine Survey Tooling	0.88	VS4
7.4.4	Footprinting	0.69	VS3
7.5.1	Workforce Mobility	1.26	VS4
7.5.2	Network Switching	0.69	VS4
Operational Technology & Cyber Security			
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
Totals (£m)		**45.59**	

These value streams are summarised as follows:

VS1 Customer & Stakeholder & Commercials

- Re-platform our web presence with ability to iteratively enhance our content and capabilities
- Introduction of a stakeholder management system consistent and aligned with our customer experience strategy
- Implementation of a new connection management system to streamline and drive efficiency as our business scales

VS2 Projects & Capital Delivery

- Enhance and digitise our Building Information Management (BIM) processes with modern tool sets and integrate with other core systems

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- Respond to the growth in number and scale of our capital projects through the delivery of an Integrated Project Management (IPM) platform

VS3 Network Planning

- Enhance our data insight into Network Performance using updated data models and network modelling capabilities (also allowing for easier identification of whole system opportunities)
- Provide relevant and rich information to customers looking to engage and connect with our network

VS4 Asset and Operations

- Enhance existing and deliver new capabilities across Asset & Work Management that will drive business and asset performance, resulting in decreased network risk and setting the foundation for further enhancements in RIIO-T3

VS5 Enabling IT

- Creating IT capabilities that provide fit for purpose suite of applications, supporting the end-to-end business processes and enable the business to deliver the outcomes as efficiently as possible

VS6 Enterprise and Corporate

- Creating and delivering cross functional solutions that facilitates better information sharing, enhanced control, improved safety and improved financial insight

Table 5 below sets out the mapping of the current RIIO-T2 projects against each of the value streams within the Digital Programme.

Table 5: Non-Operational IT & T Projects mapped to Value Streams (2018/19 price base)

Value Stream	ID	Project	Allowance (£m)
VS1 – Customer & Stakeholder & Commercial			
	5.2	Pre-Connection Information	0.72
	5.3	Connection Case Management	1.76
	5.4	Customer Contact Management	0.83
	5.5	Stakeholder Engagement	0.82
VS2 – Projects & Capital Delivery			
	6.7	BIM	2.24
	6.7.1	BIM Support	2.03
	7.4.1	Environmental Management Solution	1.16
	7.4.2	Environmental Data Aggregation	0.67
VS3 – Network Planning			
	7.4.4	Footprinting	0.69
VS4 – Asset & Operations			
	6.5	Smart Monitoring	2.45
	6.6	Linear Assets – Underground and Subsea Cables	3.21
	6.9	Asset Digital Nerve Centre	0.32
	6.10	Investment Optimisation (Risk Management)	1.92
	7.2	Total Work Management	3.53
	7.3	Inventory Management System	2.86
	7.4.3	Marine Survey Tooling	0.88

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	7.5.1	Workforce Mobility	1.26
	7.5.2	Network Switching	0.69
	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]
VS5 – Enabling IT			
	5.6	Transmission Universal Interface	4.99
	6.3	Master Data Management and Data Lake	3.63
	6.4	Data Enrichment and Analytics	2.95
	6.8	Enabling Technologies	1.38
Total			**45.59**

3.2 Our digital strategy and action plan

As set out above, in addition to being a licence condition, our Digital Strategy is the artefact by which we set out the strategic direction and the objectives for all our Non-Operational IT & Telecoms investment. We execute our Digital Strategy through our Digital Programme.

We have published the latest version of our Digital Strategy, and the corresponding six-monthly action plan update, on our website[7], and we will continue to do so in line with licence obligations.

This submission is informed by the latest refresh of the Digital Strategy and the corresponding vision for digital in our business.

Data is at the core of our digital strategy. We continue to develop our data capabilities to enhance the foundation to delivery on our commitments. This includes significant investments in data quality, data management and analytics. The concept that Data is a critical asset and must be managed as such is embedding with our business. This is in line with direction from the Energy Data Taskforce, Ofgem Data Best Practice guidance, and the SSE Group Data Management Centre of Excellence (CoE).

Our Digital Strategy vision has clear outcomes and delivers value to our internal and external stakeholders. These outcomes align with our strategic themes and our five business plan goals. Collectively, the initiatives will enhance our customer's experience with us adding value for our end customers.

3.3 What have we delivered so far?

Through our Digital Strategy & Action Plan, we continue to share progress and achievements delivered since the beginning of the RIIO-T2 period. Our initial focus was to establish our IT function and to separate the technology estate from SSEN Distribution. Focus has now shifted towards scaling the delivery capability and capacity within the Digital Programme and the enabling services. The following summarises the key achievements.

Evolution of SSEN Transmission IT – Our team was formed in 2020, with a small core team and a mandate to grow the function and build the capabilities needed to deliver on the SSE Group promise to be a leading digital business. Since then, we have grown significantly and recruited teams across

[7] https://www.ssen-transmission.co.uk/about-us/digital-strategy-and-action-plan/

the IT Operating Model functions – and continue to do so. We also work extensively with the SSE Group IT function in the delivery of projects and operations. In support of the Digital Programme specifically, we have established centralised shared services for Project Management Office (PMO) and Architecture.

Mobilisation of the Digital Programme – Following the approval of our Digital Strategy and Vision in July 2021, we mobilised the Digital Programme. Since then, we have organised into six value streams aligned to the business, appointed business, and IT resources into those value streams, and recruited delivery resources. We have designed and implemented delivery governance at value-stream and programme level, aligned to SSE standards and best practices.

Independent Transmission Systems – We have separated core applications from our sister business unit, such as work & asset management, Geospatial Information System (GIS), and Network Management Systems. This separation gives us increased control over the strategic direction and specific needs of our business, as well as the ability to scale as we grow as an organisation. We have also adopted a cloud first strategy, bringing increased agility.

Some key specific delivery achievements since the beginning of RIIO-T2 include the following items as shown in Figure 6.

Table 6 - delivery achievements

Value Stream	What we have achieved in the last six months
1. Customer & Stakeholder	• Personas have been developed to support our customer centric approach to our solution design and delivery. This includes customers involvement as we refine their user experience and journey. • Transmission instance of our Stakeholder tracking system, Tractivity, has been implemented with the number of users increasing from 5 to around 75. • Customer Relationship Management (CRM) discovery sessions have now completed for customer contact management and case management to support our connections processes. This will deliver a pilot system by the end of this year followed by iterative enhancements to extend the use of online self-service processes for our customers. • We have reforecast our Online Pre-Connection mapping website capabilities to later in our T2 plan to allow our data enhancement projects to deliver the required data sets to support this.
2. Projects & Capital Delivery	• Vendor selection process complete for our new • Integrated Project Management (IPM) solution, which will transform our capital project workflow. We have now entered the discovery phase, with the MVP being ready for implementation in the first few months of 2024. The full rollout will be delivered in regular releases of new capability. • Processes and systems in place to support the embedding of the Building Information Modelling (BIM) ISO 19650 standards. This includes the creation of a Common Data Environment (CDE) and refinements to our documents and controls. The embedding of these changes will be delivered

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	during the lifecycle of our capital projects, starting from October 2023., • The initial scoping session for the Environmental management solutions and data aggregation has been pulled forward into Quarter 2 of 2023 and completed. This will consolidate all environment management data and processes into a single solution.
3. Network Planning	• All projects focused on transforming our system planning and performance capability have been fully mobilised. • The first phase ur Architecture vision is complete and will continue to be refined as business use cases are developed. • The Power quality monitoring software (PQMS) project has accelerated with the first implementation scheduled for late 2023. • High Performing Compute will also be delivered in phases with PSCAD due for release in November 2023, following by Networking Modelling Systems and Tooling and then Power Factory.
4. Asset Management & Operations (IT)	• We have introduced a new Condition Based Risk Monitoring capability allowing us to invest further in functional enhancements and the deployment of a web interface that further improves the end user experience. • We restructured the Asset management, Geospatial and Condition Based Risk Monitoring system projects to deliver early in the first half of 2023. We will look to introduce further integration across these systems by the end of 2023. • We have completed product selection to support mobile capability for our field staff to manage asset and maintenance activities more efficiently.
5. Asset Management & Operations (OT)	• Operational field laptops are now deployed across Technical Services, to enhance in-field operations and security. This provides full mobile capability for our transmission colleagues. • Transmission PI (operational data historian) was successful deployed and rolled-out to over 80 users in August. [redacted] • [redacted] • [redacted]
6. Enabling IT	• We continue to develop our data governance and controls though our Master Data Management project. Our Data Owners and Data stewards are actively supporting this.

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	• Our Open Data portal project will facilitate the external sharing of data in-line with Ofgem data best practice and the delivery of our NetZero ambition as a result of us contributing to innovation across or sectorOur Integrated Data Platform project also continues to progress, and we are now prioritising use cases to consolidate data from our core systems into the data platform to drive insights from the data we hold. • We successful launched our new Safety, Health and Environment system to all staff, partners and contractors. This allows them to log incidents via a mobile app and for SSEN-Transmission to track trends and implement changes which address the root cause of a SHE incidents, alongside real-time incident management.

More information on our delivery progress against the Digital Strategy, and the RIIO-T2 IT Investment Plan, can be found in our published Digital Strategy and Action Plan updates[8]. This also includes the roadmap of change over the next 2 years. An archive[9] of our updates is also available.

[8] https://www.ssen-transmission.co.uk/about-us/digital-strategy-and-action-plan/

[9] https://www.ssen-transmission.co.uk/about-us/digital-strategy-and-action-plan/digital-strategy-archive/

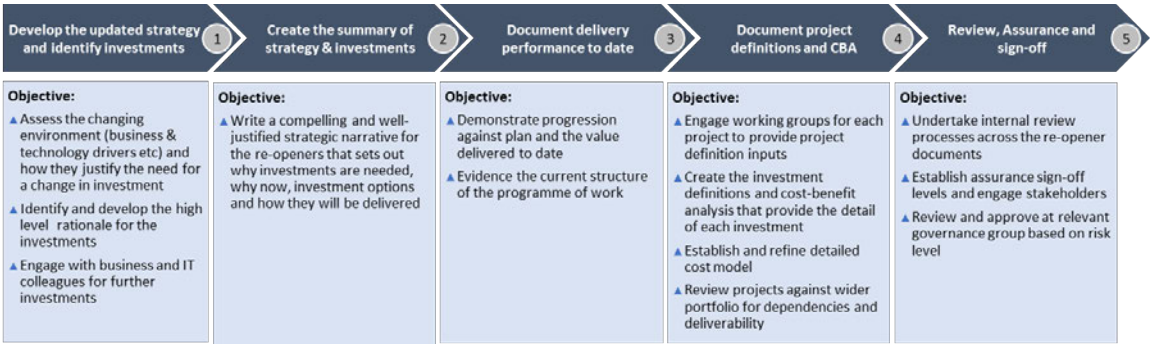
4 Developing our RIIO-T2 Re-Opener Investment Plan

4.1 Our approach to developing this Re-Opener submission

We developed this submission to reflect the changing business and external landscape, which has evolved dramatically since our original RIIO-T2 Non-Operational IT & T investment plan. SSEN Transmission has gone through extensive internal change since the start of RIIO-T2. Furthermore, the changing external environment (e.g., ASTI, Pathway to 2030) and Net Zero commitments have placed additional demands on our business. These changes are articulated in section 4.2 below.

The approach we have followed to develop our Re-Opener, including the revised strategic objectives, and the corresponding investment needs is summarised in Figure 5 below.

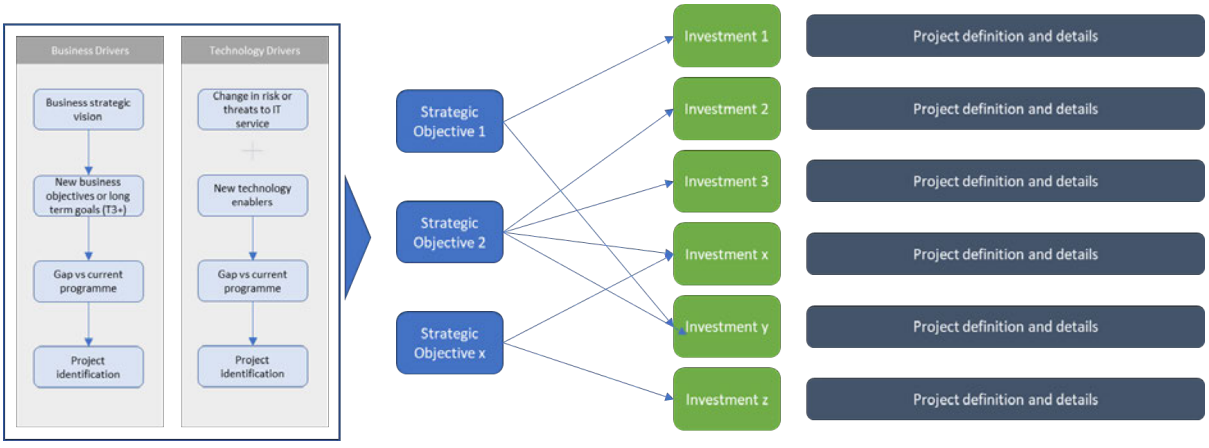
Figure 5: Re-Opener Development Approach



In parallel to development of the strategy, we have undertaken a review of the existing investment plan and the portfolio of projects that are currently planned. The focus of this review was to critically assess the portfolio of work, focussing on confirming strategic alignment and continuation of delivery.

The approach that we have taken has identified the strategic drivers across business and technology. Consequently, we have several investment needs that go beyond our current investment portfolio. The projects and programmes are needed to meet these needs. The conceptual map of this hierarchy is shown in the diagram below.

Figure 6: Conceptual representation of the strategic investment model



To support this Re-Opener, and to provide clarity to the overall investment portfolio, we have developed a future state architecture at a conceptual level.

The subsequent sections provide more information on the strategic drivers and our desired future state.

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4.2 Our changing business and external environment

Through engagement with our business colleagues, and assessment of the wider external market, we have identified the following strategic business drivers (Table 7) that are impacting the IT Strategy, and, therefore, require additional investment.

Table 7: Strategic Business Drivers for Investment

Strategic Business Driver	High Level Description
We are a critical enabler for Net Zero	We have a crucial role in enabling the delivery of Net Zero targets in the UK, through increased investment in load and non-load related infrastructure, crucial to achieving the UK's decarbonisation pathways.
Our business is growing and maturing	Our business is evolving and transforming due to increased demand on our network and for our services. We need to develop new and enhanced capabilities that will serve the business into the 2030s and beyond.
We made promises to consumers and stakeholders	Throughout this period of extensive growth, we cannot compromise on our obligation to provide a safe, secure, and cost-efficient transmission network for consumers and stakeholders.

4.2.1 We are a critical enabler for Net Zero

The UK Government's commitment for Net Zero by 2050 is not optional. Energy Networks have a critical role in the delivery of the decarbonisation pathways that will enable Net Zero, the transmission network is a critical enabler of that and SSEN Transmission has a key role in connecting and exporting the contribution of renewable energy into the wider electricity system. The north of Scotland is set to contribute 11GW of offshore wind of the UK's total target of 50GW. This will require a dramatic increase in infrastructure build and reinforcement to enable our network to cope with this scale of change.

While there are various pathways to deliver Net Zero emissions, greater electrification will make a leading contribution to decarbonising the UK's economy. In its 6th Carbon Budget, which provides analysis to the Government on Net Zero pathways, the Climate Change Committee (CCC) set out its 'Balanced Net Zero Pathway'. This outlines the contribution of a range of technologies and societal factors in delivering Net Zero pathways, with increasing electrification as the main contributor to Net Zero.

Crown Estate Scotland's announcement (in January 2022) on ScotWind saw seabed allocated for up to 25GW of offshore wind in Scottish waters. In 2023 the Scottish Government proposed to double onshore wind capacity, with an additional 8-12GW targeted by 2030. The outcome of the Holistic Network Design (HND) demonstrated that the industry and our business must grow at pace and to support that we need to revisit our IT Strategy, the resulting investments are proposed in the Mid-Period Re-Opener applications.

In February 2022, the Department for Business, Energy, and Industrial Strategy (BEIS) announced that Contracts for Difference (CfD) auctions would be held annually from 2023 to speed up the UK's adoption of renewable power.

The British Energy Security Strategy and Electricity Networks Strategic Framework set out the requirements for strategic investment in electricity networks to meet ambitious targets including an increased target for 50GW of offshore wind by 2030.

In 2023, Ofgem's final decision on the need for ASTI investments and Transmission Operator delivery gave the green light for c. £9 billion of infrastructure investment in the north of Scotland and set the pathway for how the strategic investment would be realised.

Finally, the 'Pathway to 2030' as part of Ofgem Onshore Transmission Network Review, outlined a series of delivery models giving developers the choice of either a very late competition generator build model or a late competition offshore transmission owner (OFTO) build model for delivery of non-radial offshore transmission assets. These changes strengthened the certainty of need for strategic investment in network capacity, coupled with increasing demand for connections to our electricity network mean we also need to change how we both digitally and physically deliver.

These developments have the following impact on our network:

1. To meet 2030 targets, we need to grow ourour network to accommodate around 24GW of low carbon generation by 2030. Modelling shows that, to deliver Net Zero scenarios, our network capacity will need to increase from just over 9GW today (just over 8 GW of which is renewable generation), to around 24GW by 2030 and 50GW by 2050.
2. The complexity of our network will increase with the deployment of multiple DC systems across our network and connecting with other Transmission Operators
3. The complexity of system design and planning, project development, integrated delivery and operations will increase with the scale and type of strategic network investment
4. The supporting back-office and supporting functions will need to scale and grow to support the growth in the core business functions

In addition to this level of investment in connecting renewable generation capacity to the electricity network, we will need to undertake significant additional build and reinforcement across our asset base to support the additional capacity that we will be carrying.

During our last price control (RIIO-T1), a simple average of new capacity connected per annum was 367MW and our highest capacity connected in one year was 1GW. Averaged out across the period to 2030, meeting the Net Zero scenarios requires average annual connections of over 2GW a year, more than double our highest year in RIIO-T1.

Linked to the Strategic Theme of Sector Leading Efficiency, and the Clear Goals of "Transport the renewable electricity that powers 10 million homes" and "£100 million in efficiency savings from innovation" our RIIO-T2 business plan we set out a certain view of investment that resulted in £1.8 billion of major capital project investment needed to be delivered to support load and non-load related investment, as a result of recent publications this figure has grown substantially. This scale of expansion cannot simply be accommodated by a linear scaling of prior approaches and delivery models for capital project delivery, we need to invest in new ways of working, engaging, and partnering with suppliers and through embracing modern digital platforms and approaches to the delivery of large infrastructure capital projects.

Without additional investment in the digital platforms, tools, and ways of working, then there is a risk that we will not be able to keep pace with the demands to deliver against our Accelerated Strategic Transmission Investment programme and more broadly jeopardise the delivery of Net Zero. As we set out in our December 2022 ASTI Delivery Plan, establishing the correct project interfaces between SSEN Transmission and delivery partners is key and a further driver for investment in Building Information Management (BIM), a Common Data Environment (CDE) and an Integration Programme Management (IPM) Platform.

4.2.2 Our business is growing and maturing

As a result of the increased demand for our services and the scaling level of transmission infrastructure investment, our business will need to grow and adapt to deliver the scale of change in support of Net Zero targets. Since the beginning of RIIO-T2, our business has changed size and shape significantly – starting with the separation of the SSEN Transmission business from SSEN Distribution and establishing the enterprise and IT functions needed as a standalone business unit as part of the wider SSE Group.

As our business grows in headcount (400 additional employees last year and a forecast of a 500 this year), so will our enterprise capabilities and capacity to provide effective enterprise support. The rapid growth underway and required to meet our commitments to customers, stakeholders and Net Zero deliverables, is forecast to overwhelm the capacity and capability of some of our current systems. Our current processes and frameworks will only scale so far before they need to transform to reach the next level of support.

Our capital programme will grow from c. £400m per annum at the start of RIIO-T2, to being a c. £1 billion per annum programme, and further increases beyond 2026 if we include ASTI. In some areas we can scale up the current approaches and bring in additional people – this will not work for the technology and systems that capital project delivery; they simply won't scale to meet the additional demand. New Digital platforms must be embraced and implemented rapidly to deliver value now, not in 2030.

We'll have more assets to build, operate and maintain over the next decade, to do so efficiently will require more modern and data enabled asset management approaches to be implemented and adopted. Laying the foundations in the digital platforms required to collect, manage, and utilise operational and asset data to drive more effective Asset Lifecycle Management.

Underpinning much of the required changes outlined above is the delivery of our Digitalisation Strategy, which will enable much of the step-changes that will be needed to support our business as it grows. Digitalisation will also ensure that the costs associated with this increased scale and complexity are efficient, ensuring that we always represent good value to our stakeholders and consumers.

Exploiting digital tools and platforms across our business will help manage and mitigate risk to the business, reducing the delivery risk in the capital programme through greater precision and control in the management of capital projects and maximise the delivery throughput that we can achieve. As we deliver the Digital Programme, the digital maturity and literacy of our business colleagues will be enhanced as they will need to use the digital tools and platforms that are available to them. Equally, we will look to the business users of the platforms to become the product owners and managers of the future – identifying new ways to exploit digital and data within the business and identifying new use cases and demand.

4.2.3 Meet our promises for consumers and stakeholders

We set out our five clear goals for RIIO-T2, which are shown in Figure 2 in Section 2.1. This includes the strategic theme of "Safe and Secure Network Operation" and the specific goal of "Aim for 100% transmission network reliability for homes and businesses".

In its RIIO-T2 Final Determination, Ofgem affirmed these – *"By the end of RIIO-T2, we want to see an ET (Electricity Transmission) sector that is:*

- *Meeting the needs of consumers and network users, using outputs and a range of incentives to improve service quality and to encourage the efficient operation of the transmission network*
- *Maintaining a safe and resilient network, by funding the ETOs (Electricity Transmission Operators) to replace ageing assets while ensuring costs to consumers are kept as low as possible. We will allow funding for cyber resilience projects, as well as IT investments where the scope of work is well understood*
- *Supporting the delivery of an environmentally sustainable network by providing funding or uncertainty mechanisms, which will facilitate the connection of low carbon generation; as well as, setting outputs and incentives to further reduce the harmful impact that the transmission network and related business activities can have on the environment."*

Set against the backdrop of unprecedent network growth and expansion (similar levels to the birth of the national high voltage grid in the 50s), our obligation to create and run a secure and resilient network do not diminish, in fact as more flexibility and renewable generation sources are connected to our network the complexity of that obligation becomes more significant.

Finally, we recognise that we will continue to operate with a degree of uncertainty through the remainder of this period and into RIIO-T3, the SSEN business looks very different since 2019 when the current business plan was created; it looked different again when RIIO-T2 started. Further, the demands that we have faced into during this period are the tip of the iceberg. With no further applicable Re-Openers available in RIIO-T2, we need to create mechanisms for the business and IT to innovate, be creative, and be able to invest in new solutions, where there is a needs case on scope that we haven't yet conceived.

4.3 Our changing technology landscape

Technology is a fast moving and ever-changing domain, creating challenges and opportunities for Chief Information Officers (CIOs) and IT functions across the globe. As an organisation that is becoming increasingly reliant on technology and has set out ambitious goals through our Digital Strategy, we are positively impacted by the evolution of technology and the changes and enhancements that occur. We need to be able to embrace the opportunity that this presents.

The pace of change in technology outstrips the pace of regulation and the regulatory cycles associated with SSEN Transmission. This means that our ability to adapt and react to changes and enhancements in technology is key to our success as an organisation in the delivery of our business plan, but also to attract talent in an increasingly competitive market.

We have identified three key technology drivers (Table 8) that have affected our strategy and given rise to the need for additional investment through this RIIO-T2 Non-Operational IT Re-Opener.

Table 8: Strategic Technology Drivers for Investment

Strategic Technology Driver	High Level Description
Digital and Data evolution in Transmission and the wider energy system	We have a growing mandate to invest in digital and data platforms and enablers to create a Modern Energy Data landscape, with enhanced internal data management and governance internally and interoperability across energy market participants externally.
Growing and maturing SSEN Transmission IT	We have established our own IT function for SSEN Transmission and have been scaling and maturing over the last two years. We need to continue the journey that we have started, to mature our capabilities in key areas such as data and Cyber Security and commence the journey to increased separation of operational IT concerns from other businesses in the SSE Group.
Technology Innovation and Development	It is commonly accepted that the pace of change and innovation in technology is hard to keep up with, however any modern IT function needs to be able to exploit new platforms and services in a timely fashion to meet demands from the business and deliver value to the consumer.

4.3.1 Digital and Data evolution in Transmission and the wider energy system

Digitalisation is vital to ensure that the energy sector can meet its Net Zero targets by 2050. This is recognised across the industry and in regulators and industry bodies and gave rise to several projects and initiatives across the industry over the last four years that have affected policy and regulation which is now in place for the regulated networks.

Through Energy Systems Catapult, the Energy Data Taskforce and the Energy Digitalisation Taskforce have produced reports that have been instrumental in informing industry direction and given rise to the Modernising Energy Data initiative within Ofgem and the embedding of data and digitalisation policy into the license conditions of the network operators.

Alongside the Digitalisation Strategy and Action Plan that we have published, we are committed to enhancing our data capabilities in line with the Ofgem Data Best Practice guidance as set out in our license. This is a maturing capability for SSEN Transmission, some of which is inflight through existing investments and some that will require additional investment to establish the required capabilities.

Following the separation of SSEN Transmission from SSEN Distribution, we are uniquely positioned to be a quick adopter of digital and data platforms, unencumbered by a myriad of legacy line of business systems. As a result, we can leverage the opportunity created by being predominantly greenfield Non-Operational IT systems to create an enhanced digital energy IT landscape through RIIO-T2 and further into RIIO-T3.

Across SSEN Transmission, digitalisation and data exploitation have significant benefits, and numerous use cases – some identified and some to be identified, including:

- Digitalisation of data exchange is vital to ensure we can plan and manage the future energy system efficiently
- Collaboration with suppliers through a digitally enabled integrated project management platform will be key to being able to scale delivery to meet demand and realising efficiencies

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- As an organisation, and across the industry, we need to open and share more data and information with stakeholders and other market participants

We firmly believe that to be successful, we need digital and data skills in our IT organisation and throughout our wider business. Our desire is to drive a cultural change in SSEN Transmission to embrace and evolve the understanding of digital and data and the opportunities that will be created through exploitation. As the business become more literate in digital and data, they will become more informed and intelligent customers of the IT function and drive additional demands and opportunities.

4.3.2 Growing and maturing SSEN Transmission IT

As set out in Section 3, at the point of submitting the original RIIO-T2 IT & T investment plan, the IT function of SSEN Transmission was joined with SSEN Distribution. As a result of the business and technology separation in IT and Operational Technology, the SSEN Transmission IT function was established in 2020. We have achieved a lot since then, growing and maturing across multiple capabilities. Our journey is not complete, and we need to continue expanding our team and building capabilities to support the business, as we continue to deliver our digital programme through RIIO-T2 and towards 2030.

We have established, but need to scale further, the right capabilities to deliver and operate a significant digital programme, alongside demand on Cyber Resilience and Operational Technology. A key growth area is in data and information management, where our historic capability and capacity was low. There are increased demands placed on those functions through enhanced regulation in the form of the Ofgem Data Best Practice guidance, and a need to change the culture of the organisation to own and manage data as an asset.

In summary, our IT function is growing and developing in the current regulatory period, and we will continue to make investments that will add new and enhance existing capabilities as we move towards RIIO-T3. Specifically, this needs to include additional strategy development and forward-looking capability, something that we have not been able to develop to date and we continue to rely on expert external resources to support those needs. We need to make these foundational improvements and deliver the capabilities needed within IT as well as across the business to setup for success in RIIO-T3 – to not do so would create a risk to our business more broadly and compromise IT's ability to deliver for internal and external customers and stakeholders in the next regulatory period.

4.3.3 Technology Innovation and Development

Technology innovation, development, and growth over the last decade is unprecedented and is unlikely to slow down over the next decade. Modern cloud computing and Infrastructure as a Service (IaaS) may have been first developed in the 2000s, but the highly available cloud computing environments that are familiar today have only been developed in the last few years, with Cloud IaaS and PaaS seeing a 17% annual growth currently[10]. Giant tech firms have been investing heavily in research and development in Artificial Intelligence (AI), such as Facebook, Amazon, Microsoft, Google, and Apple, driving technological advancement. They are also investing in data platforms, and

[10] Artificial Intelligence Market Size Report, 2022 – 2030

consequently making better business decisions and decreasing operating costs[11] [12]. The computing and processing capacity of computing doubles every 18 months[13], meaning that previously impossible, or very complex and time-consuming processes, are increasingly accessible in commodity compute environments.

Technology continues to evolve and develop at a rate that exceeds practical adoption by organisations, particularly in SSEN Transmission where the focus has been establishing a separate business, mobilising, and delivering our Non-Operational IT programme plan and establishing a SSEN Transmission specific technology landscape since the start of RIIO-T2, and will continue for the duration of the regulatory period. However, we cannot ignore the opportunity that technological advancement presents us in terms of being able to tackle challenges in data and digitalisation that even three years ago may have been impossible to consider – or prohibitively expensive. As discussed in section 4.3.1, the Modernising Energy Data and the Ofgem Data Best Practice Guidance create the regulatory demand to continue to invest in our data capabilities and the innovation and advancement of the technology and solutions create the opportunity for SSEN Transmission to do more.

This does not mean that we have not exploited and taken advantage of the technology advancements. One example is that we have already embarked on embracing the opportunity created by cloud and the implementation of key business and technology platforms – we continue to exploit those. We are developing data integration platforms to maximise the value of and exploit data.

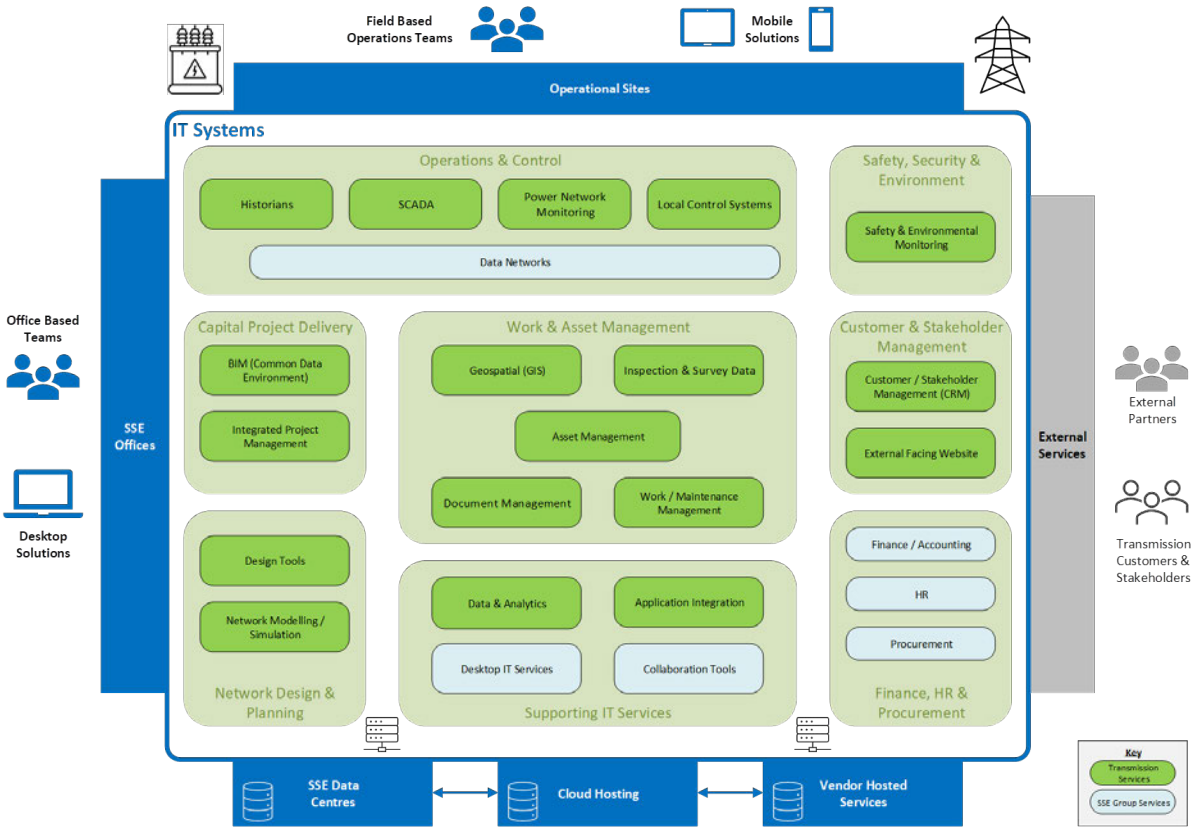
Whilst we remain committed to building the foundations in the technology and data landscape that will be the enablers for exploitation in late RIIO-T2 and into RIIO-T3, we know that opportunities will come along that we cannot anticipate, and we need to be able to respond and react to business demand to exploit technology innovation that will drive incremental business value. As a result, we need to establish the mechanisms and the corresponding funding allowances to enable us to be nimbler and respond to new demands, where they will create business and/or consumer value. This will be achieved through our Small IT Change project.

4.4 Our future state

Through the current Digital Programme and the Architecture capability in SSEN Transmission IT, we have established our target architecture vision for the IT landscape. This is articulated in Figure 7 below.

[11] Fortune 1000 to 'urgently' invest in Big Data
[12] Data Nation: Big Data Pros and Cons
[13] Tech Jury: How fast is technology growing?

Figure 7: Future Architecture State



The IT estate for Transmission is represented here as a broad set of Business Domains:

- Operations & Control
- Capital Project Delivery
- Network Design & Planning
- Work & Asset Management
- Customer & Stakeholder Management
- Safety, Security & Environment
- Finance, HR & Procurement
- Supporting IT Services

Within each of these domains there are a range of existing systems that provide the required capabilities in those areas. The Digital and Cyber Resilience Operational Technology (CROT) Programmes will enhance these capabilities through the addition of new systems, enhancement of existing ones and integration of the systems and data across domains.

The systems used will continue to be a mix of those owned by Transmission and those provided by SSE Group IT. The strategy being pursued is to focus on Software as a Service (SaaS), or externally hosted solutions, however there will continue to be a need for on-premises hosted systems, particularly for the provision of Operational Technology. End user access to the IT systems will be supported through a range of desktop and mobile solutions.

We also recognise that RIIO-T3 is on the horizon. Our digital journey will not complete in one regulatory cycle, and, as such, we can see that we will need to continue to invest in Non-Operational IT Capex though RIIO-T3 and beyond. We want to be clear and confident in the investments that we will make in the next period, and as such we will undertake the required strategic planning and design

during 2023/24 so that we have a clear articulation of the Information Security & Technology Strategies, our future operating model, and the change roadmap of projects. We anticipate, as occurred going into RIIO-T2, there will be some delivery overspill from the current regulatory period. RIIO-T2 has been focussed on establishing the foundational platforms and services that are needed to serve our business. RIIO-T3 will combine the exploitation of those foundations and delivering the next wave of business capabilities that have been unlocked through current investments.

4.5 Gap Analysis

Given the changing context that our business is operating in, and the future state that we are aiming for, we need to enhance our business capabilities in several key areas.

Figure 7 focusses on the Non-Operational IT estate, we have included Operational IT related investments in this Re-Opener submission.

We are also including a digitalisation project, this will be an enabler towards the vision of having a truly digital business as it will grow the Digital Teams capabilities and treat data as an asset that can be shared both internally with our stakeholders and customers. The final investment request, Transmission Time Management, will both enable SSEN Transmission staff to utilise digital tools to manage, share and understand their work management data, reduce manual data entry risks, and replace a legacy finance IT system by aligning with the digital strategy to move to “cloud” based fit-for-purpose solutions.

As a result, we have set out the incremental strategic objectives for the SSEN Transmission IT function in Table 9.

Table 9: Our strategic objectives for this Re-Opener submission

Ref.	Strategic Objective	Why	Existing Investment in RIIO-T2	Additional Investment in RIIO-T2
SO1	We need to deliver a digital platform to enable integrated project management for our Capital Projects team	The scale of future capital projects is such that we cannot simply increase resources, we need to work smarter and more efficiently. Our suppliers expect us to be digitally enabled. We need to decrease the time taken to handover and ensure we have accurate digital records transitioning from delivery into operations.	Project 6.7: Invest in Building Information Management (BIM) capabilities	Invest in Integrated Project Management (IPM) capability development
SO2	Our asset management, planning, and design teams need access to the tools and data to enable effective whole system design and process requests faster	With the increased scale in capital project designs and connection design requests, being able to quickly and easily access data, and run network models and studies, will reduce the workload on internal teams and improve stakeholder satisfaction.	Project 6.3: Invest in Data Management and Data Platforms through MDM and Integrated Data Platform projects	• Invest in Network & System Design and Planning capabilities • Invest in digitising asset records and improving network models
SO3	We need to separate our operational IT network from other SSE business units	As the criticality of our network increases, security of supply responsibilities increases proportionately. We need to establish an independent set of Operational IT capabilities from our colleagues in SSEN Distribution and SSE Renewables.	Project 8.2: Deployment of a New Transmission DR Centre (Inverness) – Phase 1	• Invest in Control Room DR WAN Link – Phase 2 • CROT Investment in OT Network & Domain Separation
SO4	We need to align with Data Best Practice Guidance as part of our licence condition and need to treat data as an asset for the benefit of consumers and the Public Interest.	Our licence to operate contains an obligation to meet Data Best Practice Guidance. This is a new requirement that did not exist when submitting the original RIIO-T2 business plan. As such, we need to invest in data digitisation and governance capabilities.	Project 6.3: Master Data Management and Integrated Data Platform (Data Lake)	• Invest in digitising asset records and improving network models • Invest in Acceleration of Digitisation
SO5	[redacted]	[redacted]	[redacted]	[redacted]

	[redacted]	[redacted]	[redacted]	[redacted]
SO6	We need to establish a mechanism for us to be able to deal with future opportunities	Dealing with new and unplanned demand is a reality of a modern IT function. Having the funding in place to be able to deal with the unknown will mean that budgets and benefits won't be reduced on other projects that are included in the allowances.	N/A	• Small IT Changes Allowance
SO7	We need to prepare for the RIIO-T3 period	We need to improve our planning and readiness for RIIO-T3 versus RIIO-T2, including the creation of clear and aligned evergreen strategies across Information Security, Technology, Digital and Cyber Security.	N/A	• Invest in RIIO-T3 Strategy & Planning
SO8	We need to invest in the platforms to enable our digital vision and remove legacy technologies	Investing in the core platforms to enable our IT estate has been a key principle of the digital programme. This will ensure that applications can be integrated across business processes and value chains, preventing duplicated manual data entry across multiple systems, and delivering the expected enterprise grade solutions.	N/A	• Invest in Transmission Time Management.
SO9	[redacted]	[redacted]	[redacted]	[redacted]

SO10	Reduce risks associated with manual data entry and enable financial data sharing to provide business insights	Replace legacy IT system with a solution aligned with the digital strategy to move to the cloud. This will also enable finance data to be shared between systems without the need to manual move/re-enter data to improve business efficiencies.	N/A	• Invest in Transmission Time Management solution

4.6 Our proposed investments

Table 10 & Table 11 below set out the alignment of each of our proposed investments against the Business and Technology Drivers set out in sections 4.2 and 4.3. These tables also reflect when the proposed investment was submitted. At the time of writing, we are pending the final determination of the January 2023 Reopener applications.

Each of the Project Definition and Investment Justification Papers sets out the more detailed rationale for how respective projects support the business and technology drivers.

Table 10: Mapping our proposed investment to business drivers

Investment	We are a critical enabler for Net Zero	Our business is growing and maturing	Meet our promises for consumers and stakeholders	Re-opener Submission Window
System & Network Modelling Portfolio	Yes	Yes	-	January 2023
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Small IT changes	-		Yes	January 2023
RIIO-T3 Strategy & Planning	Yes	Yes	Yes	January 2023
Integrated Project Management (IPM)*	Yes	Yes	Yes	January 2023 Summer 2023
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Acceleration of Digitisation (AoD)	Yes	Yes	Yes	Summer 2023
Transmission Time Management (TTM)	-	Yes	Yes	Summer 2023

* Integrated Project Management was submitted in the January 23 window and will also be re-submitted in Summer 2023 only with updated costs (to reflect the feedback received in the Draft Determination following the January submission).

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Table 11: Mapping our proposed investments to technology drivers

Investment	Digital & data evolution in Transmission & the wider energy system	Growing & maturing SSEN Transmission IT	Technology Innovation & Development	Re-opener Submission Window
System & Network Modelling Portfolio	Yes	Yes	Yes	January 2023
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Small IT changes		Yes	Yes	January 2023
RIIO-T3 Strategy & Planning	Yes	Yes	-	January 2023
Integrated Project Management (IPM)*	Yes	Yes	Yes	January 2023 Summer 2023
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Acceleration of Digitisation (AoD)	Yes	Yes	Yes	Summer 2023
Transmission Time Management (TTM)	Yes	Yes	Yes	Summer 2023

* Integrated Project Management was submitted in the January 23 window and will also be re-submitted in Summer 2023 only with updated costs (to reflect the feedback received in the Draft Determination following the January submission).

4.7 Prioritising our proposed investments

In response to Ofgem's request of the impacted Network Operators in November 2022, we prioritised our investments for the existing January 2023 Re-Opener submission window (Appendix 1) and now propose to submit the remaining investments in Summer 2023 (Appendix 2).

Our approach to the prioritisation is simple and risk based. We used the following criteria (Table 12) to determine which of the identified investments were to be submitted in the January 2023 submission, with the remaining ones to be now submitted in Summer 2023 window:

Table 12: Re-Opener Submission Prioritisation Criteria

Criteria	Key Considerations/Questions
Enabling the delivery of ASTI	• Is the investment related to or supporting the delivery of our Accelerated Strategic Transmission Investment (ASTI) programme of work? • Does the investment decrease the risk associated with the delivery of such a complex and significant capital programme portfolio? • Will the investment enable SSEN Transmission to respond to Net Zero infrastructure requests and studies with reduced time, increased accuracy or at lower internal cost?
Enablers and foundations for RIIO-T3	• Is the investment an enabler for RIIO-T3, which would result in future cost savings or risk reduction on plans? • Is the investment establishing core capabilities that are currently missing (or not sufficiently mature) in SSEN Transmission?
Will the delay to the funding determination have a detrimental effect on SSEN Transmission?	• Can we afford to delay the investment (or receiving confirmation of the funding allowance) any more than is necessary? • Is the investment covering a gap in the current RIIO-T2 Allowances? • Does the project need to commence in 2023/24 to achieve the desired outcomes?

As a result of the prioritisation criteria set out in Table 12 we have prioritised the identified investments as follows (Table 13).

Table 13: Investment Prioritisation for Re-Opener Submission

Project	Enabling the delivery of ASTI	Enablers and foundations for RIIO-T3	Will the delay to the funding determination have a detrimental effect on SSEN Transmission?	Re-Opener Submission Window
System & Network Modelling Portfolio	Yes	Yes	Yes	January 2023
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Small IT changes	No	No	Yes	January 2023
RIIO-T3 Strategy & Planning	Yes	Yes	Yes	January 2023
Integrated Project Management (IPM)*	Yes	Yes	Yes	January 2023 Summer 2023
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Acceleration of Digitisation (AoD)	No	Yes	No	Summer 2023

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Transmission Time Management (TTM)	Yes	Yes	No	Summer 2023

* Integrated Project Management was submitted in the January 23 window and will be re-submitted in Summer 2023 only with updated costs (to reflect the feedback received in the Draft Determination following the January submission).

5 Investment Summary

Table 14 and Table 15 set out the current view of the incremental investments that we need to make as part of this mid-period Non-Operational IT Capex Re-Opener. More detail of the five investments in January 2023 can be found in each of the respective Project Definition and Investment Justification Papers that are contained within Appendix 1. The confirmed set of investments and the associated Project Definition and Investment Justification Papers for Summer 2023 is contained within Appendix 2.

Table 14: Summary of our proposed investments in January 2023 (2018/19 Price Base)

Investment (£m 2018/19)	Summary of Investment Scope	Re-Opener Submission Window	Strategic Objective	Capital Investment	Operating Costs	Determination
Integrated Project Management (IPM)*	Implementation of a digital platform to enable managed collaboration and supplier engagement in the design, delivery & management of capital projects.	January 2023	SO1	[redacted]	[redacted]	Draft Determination – resubmit updated costs in Summer 2023
System & Network Modelling Portfolio	A range of mainly data-based projects to enhance the system and network planning capabilities in the business, supporting the growth of the electrical network.	January 2023	SO2	[redacted]	[redacted]	Draft Determination - 5/6th of funding allocated. SSEN have challenged for final 1/6th
Small IT changes	Funding within Transmission IT to be able to respond to additional business demands that come up in-year	January 2023	SO6	[redacted]	[redacted]	Draft Determination - SSEN have challenged

						the Draft Determination
RIIO-T3 Strategy & Planning	This project funds the longer-term strategy, planning and design work needed to deliver comprehensive and detailed IT and OT Business Plans for the RIIO-T3 period, with the added benefit of creating an evergreen strategy framework for SSEN Transmission IT.	January 2023	SO7	[redacted]	[redacted]	**Draft Determination - SSEN have challenged the Draft Determination**
Project TReNDS		January 2023	SO9	[redacted]	[redacted]	**Draft Determination - SSEN have challenged the Draft Determination**
Total				**£18.85m**	**£1.03m**	

Table 15 sets out our proposed set of investments submitted in the additional Re-Opener in Summer 2023, Integrated Project Management* is included with a revised set of costs as required as part of the January 2023 Draft Determination outcome. More detail of the other three investments in Summer 2023 can be found in each of the respective Project Definition and Investment Justification Papers that are contained within Appendix 2.

Table 15: Summary of our proposed investments in Summer 2023 (2018/19 Price Base)

Investment (£m 2018/19)	Summary of Investment Scope	Strategic Objective	Capital Investment	Operating Costs
Integrated Project Management (IPM)*	Implementation of a digital platform to enable managed collaboration and supplier engagement in the design, delivery & management of capital projects. -UPDATED COSTS	SO1	[redacted]	[redacted]

Control Centre DR Phase 2	Phases 3 & 4 of the current OT project for establishing the DR SCADA site – focusing on building out the WAN resilience for that new site.	SO3, SO5	[redacted]	[redacted]
Acceleration of Digitisation (AoD)	Provide the Digital Team with the capabilities to enable the business to respond to increased queries and design demands by digitising overhead line and tower records in PLS-CAD.	SO2, SO4	[redacted]	[redacted]
Transmission Time Management (TTM)	Replace a legacy IT system with a cloud-based solution, that enables the sharing of data, removes the need for multiple manual data entry, reduces the associated risks with manual activities and enables business insights and efficiencies.	SO8, SO10	[redacted]	[redacted]
Sub-Total			*£12.79m*	*£2.25m*
Total				**£15.04m**

6 Execution of our Plan

As set out in Section 3 above, we already have a delivery programme inflight for the IT & Telecoms investments that we set out in our original RIIO-T2 Investment plan. We have called this our Digital Programme. We also benefit from the extensive frameworks and structures that are available to SSEN Transmission through the wider SSE Group. As a result of this, the delivery of the investments proposed under this Re-Opener are a complement to the existing portfolio – an evolution rather than a revolution of the programme of work that is already inflight.

The following sections set out the key elements of how we execute the delivery of our Digital Programme, including the methods that we follow, how we manage resources and the governance that we apply.

6.1 Approach & Methodology

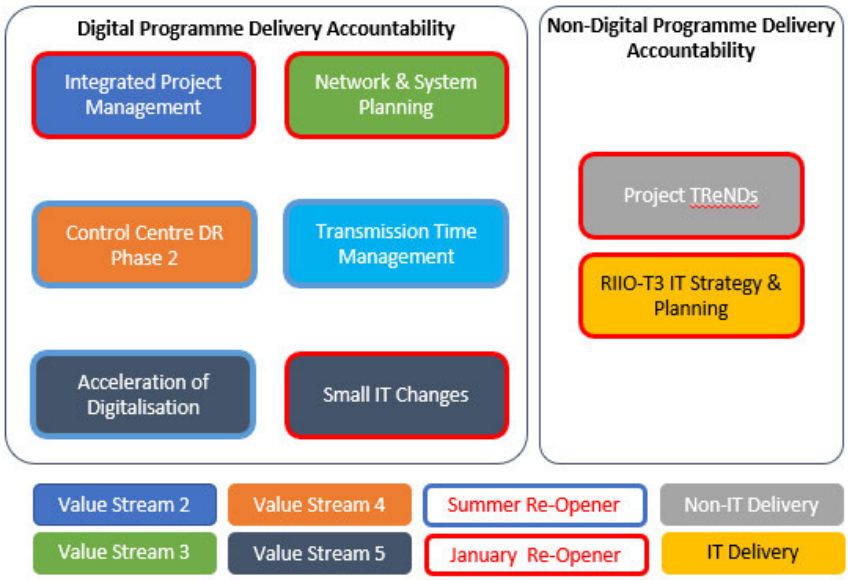
6.1.1 How have we setup to deliver the investment portfolio?

Our established Digital Programme will be used to deliver six of the eight proposed investments in this RIIO-T2 Re-Opener period, with the other two projects being delivered as follows:

Project TreNDs and the RIIO-T3 Strategy & Planning will be undertaken as discrete projects, separate from our Digital Programme, as set out in the respective Project Definition and Investment Justification papers. RIIO-T3 Strategy & Planning will be delivered within the IT function, outside of the Digital Programme. Project TReNDS is already mobilised within our Assets and Operations Directorate. The remainder of this section focusses mainly on our Digital Programme, see the specific Project Definition and Justification Papers in Appendix 1 (for January re-openers) and Appendix 2 (for Summer Re-openers) for more details on the delivery details for each proposed investment.

We split our Digital Programme into six value-streams, organised generally around business domains. The figure below summarises how each of the proposed investments will be delivered and the mapping to the impacted value streams, if applicable.

Figure 8: Re-Opener investment delivery accountabilities



Our Head of Digital Delivery is accountable for the delivery of the Digital Programme. This role reports directly into the SSEN Transmission Chief Information Officer (CIO). The Head of Digital manages each of the Value Stream Leads and several of the additional services needed to enable a programme of this scale to function, such as Project Controls and Governance and the Project Management Office capability. In addition, the Digital Programme calls on other functions within SSEN Transmission IT to deliver, including Architecture, Data and Operations. Finally, there are several internal and external parties that are involved directly in the delivery of the projects these include the SSE Group IT functions and various vendors and third parties that provide advisory, assurance, technology, and implementation services. The figures below summarise the delivery model and organisation models for the Digital Programme.

Figure 9: Digital Programme Delivery Model

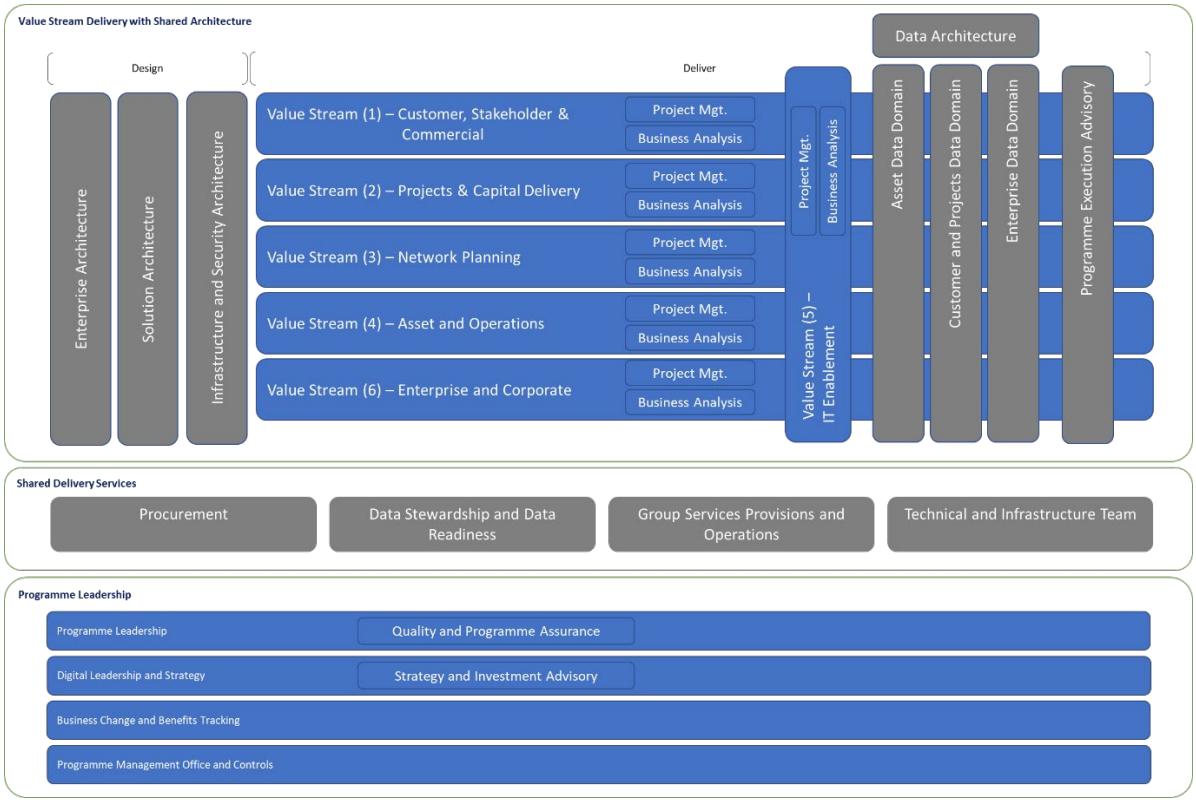
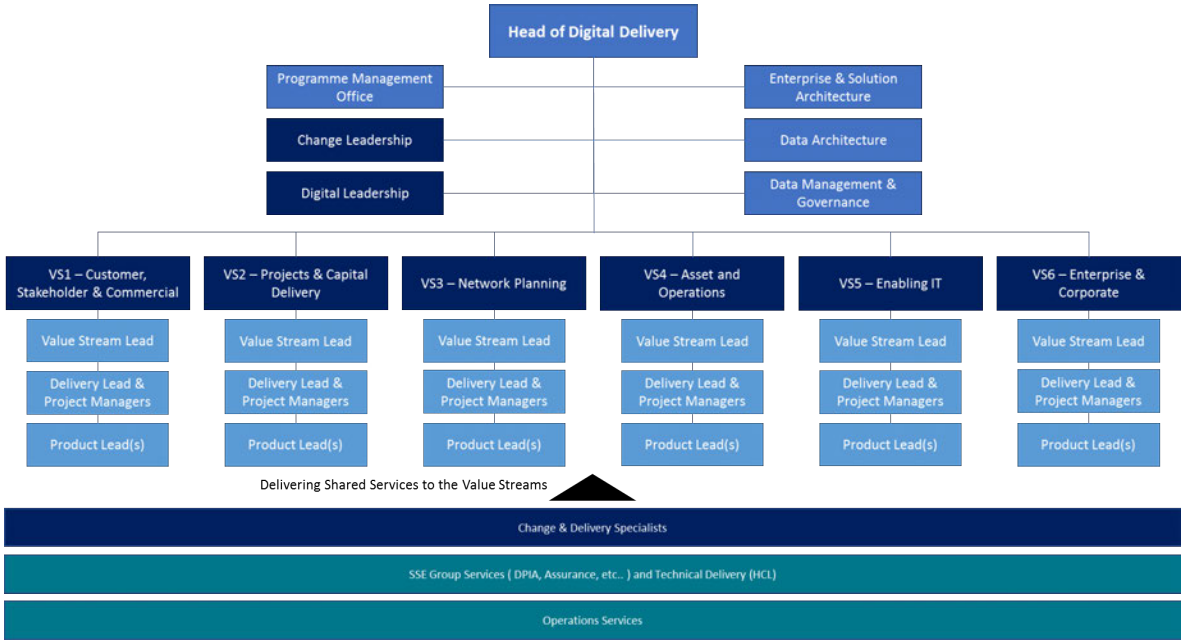


Figure 10: Organogram for the Digital Programme



6.1.2 The SSE Delivery Methodologies

SSEN Transmission IT leverages the two well-defined delivery methods used across the SSE Group that are tried and tested to deliver outcomes. By operating as a business partner, IT will enable stakeholders to collaborate on the delivery of our Digital Programme, and together with the creation of effective digital roadmaps and delivery, will enable strategic, robust, and dynamic solutions that operationally support SSEN Transmission's digital direction.

After initially adopting the SSE Transformation Change Governance Framework (TCGF) delivery methodology, we have now adopted the lighter weight Waterfall Lite method of delivery to achieve several benefits. The new methodology is less onerous, and more streamlined, and moves us closer to an agile delivery model which will become increasingly relevant as we move towards exploitation of the platforms that we have, and will, implement. Waterfall Lite provides us with a very suitable delivery method for many of our programmes, especially where we are establishing new platforms or working with well-defined and well understood scopes of work. We have also used Agile methodology where the scope is less well understood upfront or to deliver continuous improvement beyond a Minimum Viable Product (MVP).

More information on the delivery models that we exploit is contained below, including a comparison between both approaches that can be seen in Figure 11.

Figure 11: Agile vs Waterfall Lite delivery models

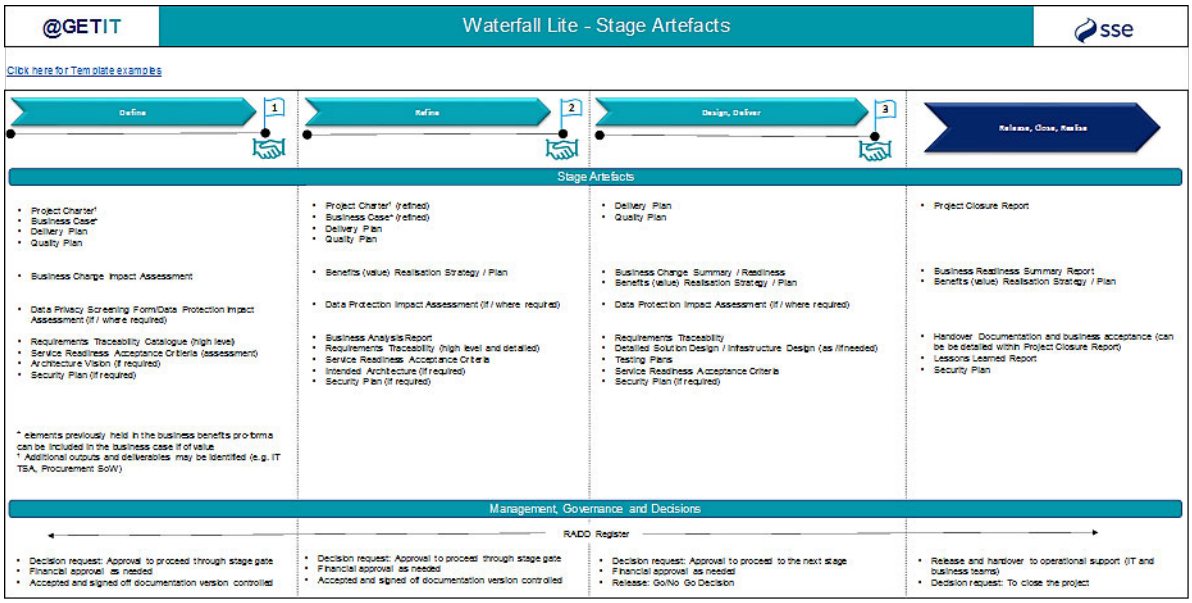
Depending on the nature of the project or programme, the most appropriate delivery method will be determined during the project mobilisation. The Project Manager in conjunction with the Value Stream Lead and the Head of Digital Programme will make this evaluation and decision.

It is commonly understood that there are pros and cons to each delivery method depending in the type of project.

Waterfall Lite

This will be used for projects that may have a fixed budget, fixed scope, and fixed timescale to deliver against an agreed business case. The SSE Waterfall Lite methodology can be seen in Figure 12.

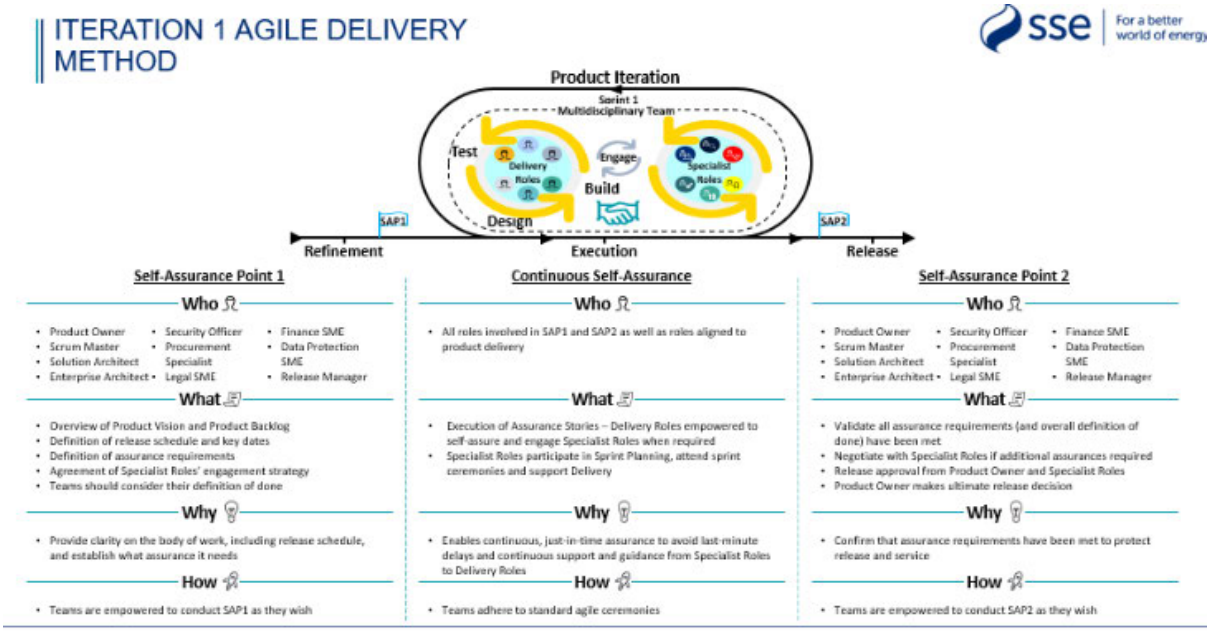
Figure 12: Waterfall Methodology



Agile

This is suitable for projects that have reduced certainty on specific scope, or that require iteration through multiple releases and a continual re-assessment of value delivery and benefit are better suited to an agile approach. These projects would rely on more formed teams across business and IT stakeholders to initially deliver an MVP and iterate from that baseline through further releases. The SSE approach to Agile methodology can be seen in Figure 13.

Figure 13: Agile Methodology



6.2 Our Digital Principles

As part of our Digital Programme, we have established a set of principles to act as guardrails and in support of delivery and design governance within the programme. These principles are set out in Figure 14 below.

Figure 14: Our Digital Principles

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6.3 Resourcing

We can deploy multiple types of resources to deliver projects, with the major types of resources being:

- Internal resources
- Contractor resources
- Consulting Partners
- Systems Integration Partners

Where there are specialist resourcing needs, or additional capacity is required then we will use external resourcing solutions to meet the demands of the projects and programmes. External resources are sourced through resourcing partners, for contractors, and framework agreements or specific tenders for implementation services.

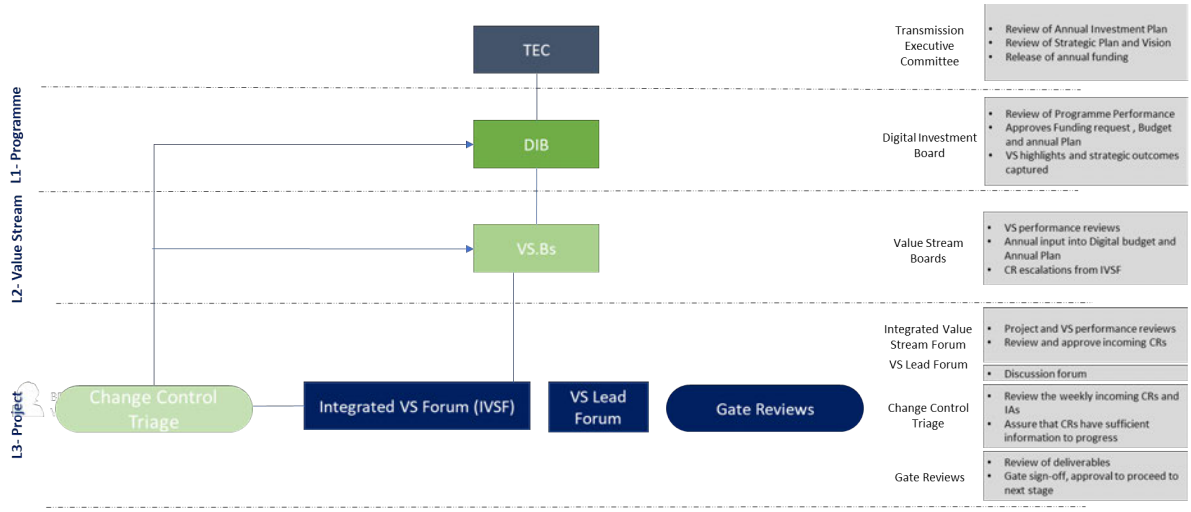
Each project definition paper sets out the specific resources that are required to deliver.

6.4 Governance

As an established programme, there is a governance model in place already for the Digital Programme. The governance applied to the projects outside of the Digital Programme is articulated in more detail in the respective Project Definition and Investment Justification papers.

Figure 15 below summarises the governance model that is applied within the Digital Programme.

Figure 15: Digital Programme Governance Model



The intention of governance is not to put control over the team, but rather to create:

- The appropriate flow of information for effective decision making
- Ensure there is collaboration within the team
- Increase empowerment
- Provide a sense of confidence
- And ultimately ensure all eventualities and scenarios are covered to effectively management risk

The success of the governance model is dependent on the following criteria:

- Active participation
- Culture of empowerment and accountability
- Giving everyone a voice
- Timely inputs
- Adherence to the standards set
- Being conscious about quality of reporting
- Pursuing a fact base approach to reports

Taking each level of the governance model in turn from the bottom up, the table below sets out the purpose of each of the forums. Terms of Reference are in place and agreed for each of these forums (see Table 16).

Table 16: Digital Programme Governance Forum Descriptions

Governance Forum	High Level Description
Gate Reviews	Gate reviews are part of delivery framework and are part of the project lifecycle. The gate review is the formal conclusion of a stage gate and reviews and approves the project documentation and effectively takes the decision to move on with the project.
Change Control Triage	The Triage is there to review Change Requests (CRs). These requests can be changes to scope, delivery method, budgets, or plans. The Triage will issue and review Impact assessments. It will also facilitate CRs through the approval process.
Integrated Value Stream Forum (IVSF)	This is a fortnightly event in which all Value Streams (VS1 through VS5), as well as key roles from the IT team, participate, to facilitate cross Value Stream integration. Driven by the Digital Programme Integrated Plan, the IVSF will ensure that we are collectively delivering, helping each other, and maintain a portfolio view. This weekly programme meeting is vital to ensure key roles within the programme are aware of the relevant details. These sessions are not IT only sessions and the relevant roles from the business will also be invited to them. Change Requests will seek approval at IVSF due to its audience and regularity.
Value Stream Lead Forum	A fortnightly meeting to give a comfort space for the VS leads to discuss any ongoing issues and matters.
Value Stream Boards (VSBs) – one for each Value Stream	Monthly meetings, attended by Directors for each VS. The VSBs provide the sponsors with a chance to dive into the appropriate level of detail, approve funding, escalate change requests, and hear about the highlights, risks, and issues that are raised to them.
Digital Investment Board (DIB)	These focus on strategic outcomes, value stream highlights, and the success stories from the program. Where appropriate, they support resolution of escalations. They also have the authority to approve funding requests in line with the financial approval matrix. The DIB signs off on the annual Digital Programme plan prior to the Transmission Executive Committee. Minutes from the meeting are submitted on a quarterly basis to Transmission Executive Committee.
Transmission Executive Committee (TEC)	The TEC reviews the Digital Vision & Strategic plan. Annual investment plan and value stream planned outcomes are reviewed and the TEC releases annual

	funding for digital program overall and to each value stream. The TEC has the highest authority to approve funding requests.

6.5 Project & Portfolio Measures and Controls

Our approach to measuring, managing, and controlling the portfolio of projects within the Digital Programme is to combine simplified core RAG (Red, Amber, Green) reporting with change success criteria. Together, this creates improved quality of data and insight on the performance of the programme.

Each project reports using standardised RAG definitions, based on variance to project baselines in the following core categories:

- Time – Driven from plans against baseline
- Cost – Driven from Project Approved Total (PAT) vs. Budget allocation
- Quality – Driven from pre-defined quality criteria established in Project Initiation Document and/or Quality plan
- Overall RAG – formed from Time/Cost/Quality

Additionally, the success conditions are split into the following six categories (Table 17), with corresponding definitions.

Table 17: Project Success Condition Categories

Success Condition Category	Definition
1. Business Benefits	Business benefits are being/on track to be realised incl. L1, L2, L3 benefits.
2. Stakeholders & Scope	Stakeholders are committed, available and providing the input required. The Scope is realistic, reflects the business need and is being managed via change control processes (when appropriate).
3. Work & Schedule	Work & schedule is predictable, it has been baselined with milestones defined.
4. Risk and Issues	Risks and Issues are being actively mitigated/managed through the defined control mechanisms e.g., RAID log, and governance processes.
5. Team Performance	The project team is high performing, all required resources with the correct skill sets are in place. The team understands and is focused on delivering the business outcomes.
6. Change Management	People, process, data and technology elements of the change are being actively managed. Stakeholders understand and are ready to accept the change.

All the project reporting is performed on a fortnightly basis, with project RAG and success conditions reported via the Programme Delivery SharePoint site and combined with the Risk, Issues, Actions and Assumptions that are managed through SharePoint lists. The data reported feeds PowerBI

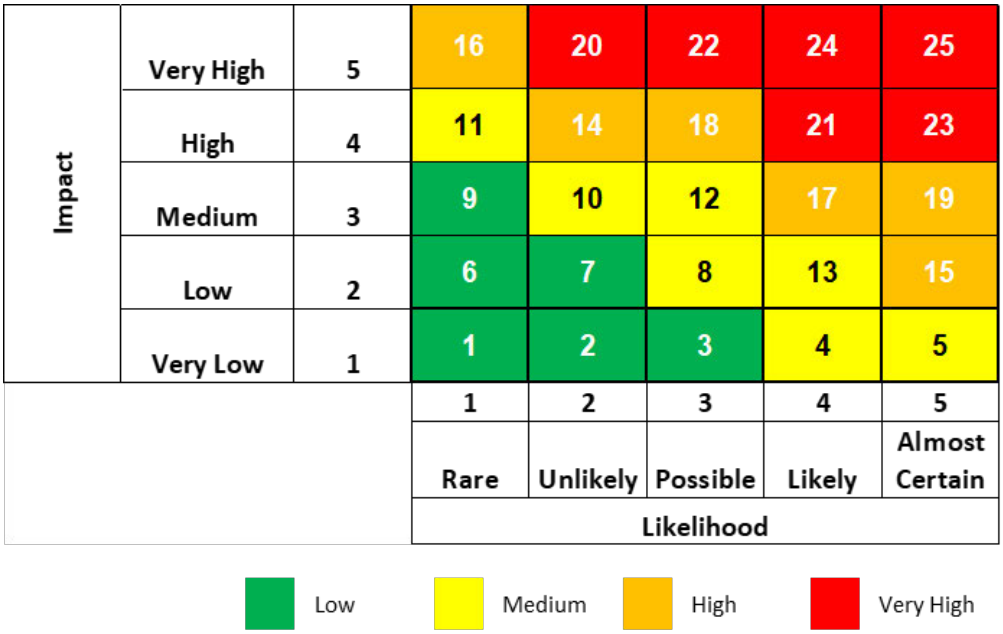
dashboards, which are reviewed by the Central Programme Management Office (PMO) and Digital Programme Leadership.

6.6 Managing risks in project delivery

The approach to managing risks in project delivery is standardised across the Digital Programme, based on the guidance and frameworks used across the entire SSE Group for IT Delivery. Risks are captured in a central SharePoint List and reviewed and updated on a weekly basis by the PMO team and Value Stream Leads and monthly at the Programme Leadership level.

Risk Impact and Risk Likelihood/Probability are standardised to drive consistency across the reporting, with a corresponding Risk Score matrix (see Figure 16). Risks are escalated based on predefined levels, from Level 3 at project level, up to Level 0, Executive/CIO. Risks are escalated based on the risk exposure score and/or the level of intervention needed for the risk mitigation. As above, risks are reported through the centralised PowerBI dashboards used across the programme.

Figure 16: Risk scoring matrix used on the Digital Programme



6.7 Managing quality in project delivery

Quality Management is performed through several mechanisms within the Digital Programme, relying on the SSE Waterfall Lite methodology to provide the framework of tools that are utilised.

Whilst the primary mechanism for the delivery of high-quality solutions is through testing, with different types and levels of testing being employed depending on the type of solution that is being delivered. The scope and nature of the testing needed is captured within the mandated Quality Plan deliverable, as part of the Refine phase and is a criterion for exit from the second stage gate in the method. The Quality Plan may be refined during the "Design, Deliver" stage and will manifest into actual Test Plans during this phase as well. These Test Plans are executed to completion and test acceptance signed off by the stakeholders during this stage.

Whilst testing may vary from project to project, we would anticipate that for a technology-based solution System Integration Testing (i.e., testing the solution end to end across all components in the process chain) and the User Acceptance Testing (i.e., business user testing of the end-to-end business process) will always be performed.

Quality is managed through other means within the delivery of projects in our portfolio, including:

- Requirements Traceability Matrix – establishing line of sight and lineage between a business requirement, a design element, a delivered solution component and the test cases or scripts that validate that the requirement(s) have been satisfied
- Service Readiness Acceptance Criteria (and testing) – setting out the requirements for transitioning a solution (either new or updated) into BAU Operations, ensuring that the solution meets the technical and service requirements to be successfully supported by the IT function and provide the required quality of service to the users of that solution

6.8 Managing and realising benefits in projects

Identifying, managing, and realising benefits within project delivery and post-implementation is a key aspect of the SSE Waterfall Lite methodology that we employ for most projects within the Digital Programme.

The development and refinement of a business case, and then the subsequent realisation of value (benefits) is featured across the stage gates of the methodology.

During the "Define" phase, a key artefact to be produced is a Business Case for the project alongside other key project delivery outputs such as a Project Charter, Project Initiation Document and Delivery Plan. This Business Case is then refined, updated, and validated at the end of the next stage gate during the second stage, which is called "Refine". In addition to the Business Case, a Value/Benefits Realisation Strategy and Plan will need to be developed and approved at the end of the second stage gate and before entry into the "Design, Deliver" phase. During the remainder of the delivery and post-implementation ("Release, Close, Realise") the Value/Benefits Realisation plan is executed and tracked. This ensures that a) the built solution can deliver the agreed benefits and then that the benefits are realised post-implementation. There are SSEN Transmission IT specific templates available on the central Digital Programme SharePoint site for the artefacts mentioned in this section.

6.9 Our revised investment portfolio

Our revised investment portfolio and the corresponding roadmap for the next two years is shown in our June 2023 Digital Strategy and Action Plan update, which is published on our website here.

7 Value for money

7.1 Costing Approach & Cost Breakdown

The nature of the investments that are proposed is such that standardised total implementation costs are not applicable, given that implementation of the projects is unique to the business and the environment. Similarly traditional benchmarking approaches add little value, as they do not take account of the unique business situation and business need. On that basis, we have adopted an estimating process that standardises the market tested and externally published resource rates for internal and external resources – but varies the effort estimates based on the requirements and situation.

To improve cost certainty, the costing approach for our projects was varied based on the type of project. The costing was done using a combination of top-down phasing of the plan, and bottom-up resource estimates. The team also used the following methods for gaining cost certainty:

- input from the team with experience in delivering similar projects,
- collaboration with key internal stakeholders,
- supplier quotes for systems or services,
- review of team velocity for current RIIO-T2 programme delivery, and
- review and validation of effort estimates by an external consultancy.

Each project provides the details of the costing approach taken in the Project Definition & Justification Papers.

Contingency was only included where specific risks have been identified to the costs of the project. Where major risks have not been identified to the costs of the project, contingency has not been added.

Costs are presented in a consistent fashion, grouping the costs into specific categories aligned with the RIIO-T2 Re-Opener guidance and the assessment methodology applied during the RIIO-T2 Non-Operational IT & T business plan. These cost groups are as follows (Table 18):

Table 18: Cost Category Descriptions

Cost Category	Description
Internal Staff	• SSEN Transmission permanent staff and headcount that are working directly on delivering a project within the portfolio
External Contractor Staff	• Contractor and Contingent workforce fulfilling dedicated or specialist roles within the SSEN Transmission IT team and delivering scope within the portfolio • Used where additional capability or capacity is required on a short to medium term basis
3rd Parties & Suppliers (Consulting / System Integration)	• Service providers that deliver advisory, consulting, or implementation services as part of the delivery of projects within the portfolio
3rd Parties & Suppliers (Business Change & Readiness)	• Service providers that deliver business change and readiness (training, communications, stakeholder engagement, leadership coaching etc) as part of the delivery of projects within the portfolio
Software Licensing Procurement	• Initial purchase of software licenses to enable the delivery of a project or programme. This could include the initial purchase and capital outlay for cloud-based subscription services, such as Software or Platform as a Service
Software Licensing Support & Maintenance	• Ongoing charges for the support and maintenance of software licenses that provide business or technology capabilities. This could include the ongoing subscription costs for cloud-based subscription services e.g., Software or Platform as a Service
Hardware/Cloud Procurement	• Initial purchase of hardware or cloud infrastructure/platforms to enable the delivery of a project or programme
Hardware/Cloud Support & Maintenance	• Ongoing support and maintenance, or subscription charges, for hardware or cloud-based infrastructure/platforms that provide business or technology capabilities

All the cost tables (Table 19 and Table 20) presented below solely focus on the Summer 2023 project submissions.

Table 19: Project Cost Breakdown by Year (2018/19 Price Base)

Cost Table (£m 2018/19)	2021/22	2022/23	2023/24	2024/25	2025/26	Total
Integrated Project Management (IPM)	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Control Centre DR Phase 2	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Acceleration of Digitisation	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Transmission Time Management (TTM)	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Total	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	**£15.04m**

Table 20: Project Cost Breakdown by Resource Type (2018/19 Price Base)

Cost Table (£m 2018/19)	Integrated Project Management (IPM)	Control Centre DR Phase 2	Acceleration of Digitisation (AoD)	Transmission Time Management	Total
SSEN T (Internal & Contingent Resource)	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
3rd party services (Consulting/SI Services)	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
3rd Party Services (Business Change and Readiness)	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Software Procurement	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Hardware Procurement	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Software Maintenance	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Hardware Maintenance	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Total	[redacted]	[redacted]	[redacted]	[redacted]	**£15.04m**

7.2 How are we demonstrating cost efficiency?

We are constantly striving to ensure that the investments that we make represent good value for money to the consumer. As with all budgeting and forecasting for future investments, there is a degree of estimation required that is influenced by assumptions and the known risks as they are understood at the current point in time. We have taken several steps to ensure that the estimates for the proposed

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investments are as complete and accurate as possible and have applied several mechanisms designed to provide assurance of the costs.

Table 21, below, summarises the mechanisms that we have employed across this Re-Opener. Individual Project Definitions and Justification papers contain more details on the specific application of these mechanisms for each project.

Table 21: Cost assurance mechanisms we have applied to this Re-Opener

Cost Assurance Mechanism	What does this mean?
High level plan	Our plans have been created as top-down phased plans with work breakdown structures and estimated periods of time that are required to achieve the objective.
Top-down resource estimates	Not applicable
Bottom-up resource estimates	To estimate resource requirements, we have used a bottom-up approach to estimate the time that would be needed for each resource to do the activities needed to complete the phase of work. These estimates are independent of, but always less than, the duration allotted in the high-level plan.
Confidence weighting on resource estimates	We have not applied confidence weighting on resource estimates, instead building a moderate contingency into the cost estimates through the unit rates.
Experience from prior investments	We have applied lessons learned from the currently operating Digital Programme, especially in resourcing approaches. This has resulted in an increase in the use of internal resources and service delivery partners instead of 3rd party contractor resources.
RIIO1/2 allowance and expenditure	Our experiences in resource management and project costing from the early RIIO-T2 IT & T project delivery have informed the cost estimating used for the Re-Openers.
Negotiated and market tested frameworks and contracts (e.g., consulting services or managed services)	Where applicable, we have applied unit rates for resources based on market tested framework agreements across a range of different service providers. Where we have had the opportunity, we have asked for quotes from suppliers who are already contracted to us.
RFx processes	We have not needed to perform any RFx processes as explicit input into this Re-Opener. However, we do have some RFx processes that have concluded or are in progress currently for the scope of investments that are proposed. We have also executed some informal vendor engagement to determine external costs on the Acceleration of Digitisation investment.
External benchmark of investment titles	[redacted] have provided a quality review of the project plans and estimates.

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Unit cost assumptions	We have applied unit cost assumptions for different resource categories e.g., internal, contractor and service providers. The unit rates for internal resources and contingent resources have been based on the SSEN Transmission final charging methodology 2022-23, published on our website.
Expert/External provider support to paper	Baringa Partners have provided external expertise and support in developing the project definitions and conducted internal reviews with Subject Matter Expert resources to confirm that the proposed cost estimates fall within the expected ranges for implementation based on the SSEN Transmission requirements and situation.
Project delivery risks	We have captured key project risks and identified, based on the risks, any required contingency factored into the cost estimates.

8 Conclusion

In conclusion, we have identified and developed the strategic objectives for this Re-Opener based on the changing business and technology landscape that SSEN Transmission faces.

The growing importance of ensuring the UK hits its Net Zero targets has prompted a step change in the need to deliver. This has been highlighted by the Accelerated Strategic Transmission Investment (ASTI) framework and Path to 2030 programme. For SSEN to meet its commitments there is a need for further investment in its business and Digital capabilities and infrastructure and as our business grows and adapts to meet these demands.

These Summer 2023 SSEN investments will build additional capabilities in terms of building and improving the digital replica of the Transmission network as part of the journey to becoming an fully digital business and treating data as an asset. We aim to increase our Transmission system resilience by ensuring our control centre continues its journey of increasing its cyber standards and incorporating Industry best practice by having sufficient back up and disaster recovery facilities available 24/7. The investment in Transmission Time Management will replace a legacy IT system and reduce the risks that multiple manual data entry adds to any business and enable this data to be shared between system, improving business efficiencies and providing insights.

We had identified eight additional investments that we would like to make over and above the current RIIO-T2 investment plan. Under Special Condition 3.7 of our Licence, we are looked to make additional investment on a TOTEX basis through the remainder of the RIIO-T2 period, with five investments having being submitted in January 2023 for a TOTEX value of [redacted]. The remaining three investments are now being submitted, along with the re-submission of the Integrated Project Management investment, in the Summer 2023 Reopener window with a TOTEX value of [redacted], bringing the total Mid-Period Non-Operational IT Reopener application, across both windows, to be [redacted].

We have made certain that our plan is robust and deliverable, and the cost estimations are equally robust and well justified. For complete details of each of our proposed investments, please see the Project Definition and Investment Justification papers set out in the relevant appendix to this document.

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