RIIO-ED2 Investment Decision Pack

Smart Meters+

Investment Reference No: 417/SSEPD/IT/SMART_MTR+

CONTENTS

Definitions and Abbreviations

BEIS	The Department for Business Energy and Industrial Strategy
BPDT	Business Plan Data Table
CAPEX	Capital Expenditure
DCC	Data Communications Company that manages the data and communication networks
DER	Distributed Energy Resources
DG	Distributed Generation
EJP	Engineering Justification Paper
FTE	Full Time Equivalent
IDP	Investment Decision Pack
LCT	Low Carbon Technology
LV	Low Voltage
MDM	Master Data Management
NDAG	Network DCC Access Gateway application to communicate with the DCC
NPV	Net Present Value
OPEX	Operational Expenditure
POC	Proof of Concept

1. Executive Summary

Scottish and Southern Electricity Networks (SSEN) have an important role to play in making the best use of the information smart meters provide. This information will help improve our service to our customers increasing the value we provide.

The information we receive and can obtain from smart meters will facilitate the development of smart grids and transition to a low carbon future. Visibility of the demand and load on our network is important to ensure we can operate an efficient and flexible system of electricity, connect low carbon technologies and make informed investment decisions. Access to smart meter half hourly consumption data, aggregated for each of our Low Voltage network feeders can be used to monitor, model and forecast the capacity on our network to support the connection of future technologies such as electric vehicles, heat pumps, and flexibility options instead of a traditional system investment/ augmentation approach.

In addition, the near real-time information that smart meters can send us will provide additional functionality that we can use to improve the service to our customers. Smart meters can send automatic alerts to us when there is a power cut or problem with required supply characteristics. These alerts will enable our teams to respond and resolve issues quicker and with less impact for our customers.

During the ED2 period we plan to integrate this data into our core systems and put it at the heart of our decision making processes whilst also ensuring that all available data is used in any analysis we undertake.

2. Investment Summary Table

Summary Table			
Name of Scheme / Programme	Smart Meters +		
Primary Investment Driver	Progress to Net Zero		
Scheme Reference / Mechanism or Category	417/SSEPD/IT/OT/SMART_MTR+		
Output References / Type			
Cost (CAPEX)	■		
Delivery Year	RIIO ED2		
Reporting Table	C4		
Outputs Included in RIIO ED1 Business Plan			
Spend Apportionment	ED1	ED2 ■	ED3

3. Introduction and Background Information

Throughout the RIIO ED1 price control we have been working to implement IT systems (NDAG) and processes that can communicate with smart meters, collect and store a range of smart meter data, conduct data analytics and use near-real time power outage alerts and supply status checks in our customer contact centres to interrogate and identify potential problems on our network so we can deliver a more proactive service to our customers.

We are also currently implementing the ability to schedule the mass collection of all smart meter data on a regular basis, which will then be integrated into our data storage platform for analytics purposes. This will enable multiple business areas to use smart meter data in their decision making processes and day to day tasks. In RIIO-ED2 the core hardware and software for our smart meter management system NDAG (gateway to DCC) will become unsupported by the vendors. In order to maintain security and integrity of the system this will need to be re-platformed.

4. Business Plan Fit

This project can be mapped to following strategic themes:

Progress to Net Zero	Safe, resilient and responsive networks	A trusted and valued service to customers and communities	Positive Impact on Society
✓	✓	✓	✓

5. Optioneering

Our plan in RIIO-ED2 is to Re-platform the NDAG. The NDAG that was delivered during the RIIO-ED1 period is coming to end of life and will become unsupported by the various vendors during ED2. A number of the NDAG's software and hardware components will require a significate technology re-platform. Failure to deliver this updated platform would:

- Expose the system, and potentially links with the DCC, to security risks associated with an obsolete system and the fact that security updates from Vendors would not be completed. An issue which would worsen over time.
- Risk the integrity of the system as it was no longer supported by the vendor and would require bespoke support.

The current plan covers the replacement of hardware and software. Some elements of the software will also be out of support during RIIO-ED2 (e.g. older versions of Java) and we are working with the vendor to understand the cost implications of this update.

5.1.1 Alternative Options

As this project delivers upgrades to software and hardware to ensure they continue to be supported with the latest security updates, the only alternative would be to replace the current hardware and software. Given the ED1 investment in these systems, replacing them would cost considerably more than upgrades to existing systems. However, given the pace of development in IT solutions, the market will be re-examined at the project commencement to ensure the best value solutions at that time are chosen for delivery.

6. Smart Meter Data

Smart Meter data will also be used to enable delivery of other initiatives in ED2, costs/implementation will be borne from the other initiatives listed within our plan:

Title	Description	IDP Coverage
Smart Phase Allocation Connectivity POC	Initial studies and proof of concept have been completed that demonstrate voltage data can be used to identify and map our phase connectivity model. This model can be of great use to help balance load and manage voltage on our network by identifying the phase of a three-phase system which each customer is connected to The next stage will be to conduct further analysis, develop data algorithms and able to productionise the collection and allocation of voltage data from across our estate and make available in our systems and business teams to benefit our network performance. The current volume of smart meters installed by energy suppliers in SSEN's area is low, we expect by the end of the government smart meter rollout in 2024 that volumes will be significantly higher and we can maximise the benefits of smart meter data for our customers.	Connectivity++
Smart Voltage Complaint Management POC	Initial studies have concluded that smart meter data logs are as accurate as traditional voltage recording equipment. Smart meters can therefore negate the need to attend a property to install, monitor and analyse the readings over the course of several days. The next stage will be to further analyse smart meter voltage data on a larger scale, consider the integration of downstream systems being able to collect and use voltage data to better manage customer voltage complaints. Our business teams that deal with customer voltage queries or voltage issues on our network will be able to manage these situations more efficiently reducing waste and improving customer value.	MDM, Data Lake & Analytics Tailored Insights

| Smart Supply Status Checker | Smart meters provide the ability to "check the supply status" of an individual property or groups of properties. We have already integrated this functionality into our outage management systems and is being used by our Customer Contact Centres to improve the service to our customers by being able to remotely check they are back on supply following a fault repair, or identify where customers are off supply and need further support.

We are now considering other opportunities for "check the supply status" whereby customers could be offered the ability to self-serve and check their own supply status in the event of a problem. This will allow the customer to validate if there is a problem with their supply without contacting SSEN – quick, easy and effective customer value. | Tailored Insights |
|---|---|---|
| Smart New Connection | Access to smart meter consumption, maximum demand and voltage data is useful when dealing with new connections or load increases and can provide granular information to better support and assess customer requests, such as connecting low carbon technologies.

Having access to accurate and current granular information from smart meters will enable our Connections teams to reduce time and effort completing the system studies needed to ensure customer load and connection characteristics are quickly and professionally accommodated. | MDM & Data Lake Connections+ |
| Smart LV Substation Monitoring & LV Strategy | SSEN's substation monitoring and LV strategy includes access to smart meter data to support the analysis and performance of our substations and network.

We will be considering how smart meter data can be incorporated into the required IT system and business process changes need to help ensure the success of our substation monitoring and LV strategy. | MDM & Data Lake |

The use of smart meter data is further explained in the following IDPs that will utilise smart meter data in various ways to ensure we maximise and realise the benefits available to us and for our customers:

- Analytics.
- MDM & Data Lake.
- LCT Analytics.
- Connectivity++.
- ADMS+.
- Outage Notifications.
- Business Automation.
- Investment Optimisation.
- Open Door.

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7.   Stakeholder Evidence

This work is needed to ensure we continue to deliver the Regulatory commitment to help continue the Government drive and rollout of smart meters. It will ensure we continue to meet the rules and standards set out by The Department for Business Energy and Industrial Strategy (BEIS).

It should be noted there are emerging issues being raised by the Data Communications Company (DCC), who maintain the smart meter infrastructure for organisations communicating with smart meters and data, that impact and restrict the ability for larger volumes of data being collected and used for benefit realisation.

As this issue evolves, we shall monitor and work closely with the DCC to understand any alternative options, what this means to SSEN in terms of system investment and development, whilst ensuring we can maximise benefit opportunities and value for our customers.

This request is not included in the costs noted in this document.

More details of overall stakeholder engagement are set out in the **_Digital Investment Plan (Annex 5.2)._**

8.   Analysis and Cost

Costs have been built up using a bottom up approach and have been based on the best currently available solutions.IT is a rapidly changing area, so the market will be re-examined prior to delivery, and the best value option to meet the requirements set out above will be chosen. The project has been assessed over a 5-year lifecycle, with required Opex and Benefits equated for that operational period, as IT projects often need updating after 5 years. NPVs of both 5 and 45 years have therefore been quoted below.

8.1   Cost Profile

This project has the following cost profile and will be delivered as a series of iterations. Given that this is replacement of obsolete hardware, and upgrade of obsolete software, Opex will not change, and neither will there be any new benefits. As there is no alternative to upgrade and replacement, in line with guidance no CBA has been produced. The full build-up of costs is contained in the ED2 IT Investment Plan (Non-Op Capex) Cost Estimate spreadsheet.

	Total £'M	2023/24 £'M	2024/25 £'M	2025/26 £'M	2026/27 £'M	2027/28 £'M
CAPEX	■	■	■	■		
ED2 OPEX	■					
ED2 Benefits	■					
5 Year OPEX	■					
5 Year Benefits	■					
NPV (5 Year)	■					
NPV (45 Year)	■					

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8.2   Benefits

8.2.1   Financial Benefits

No financial benefits have been logged, however failure to deliver the revised platform will significantly limit our ability to process Smart meter data and would ultimately dictate our existing systems would go out of date and be subjected to greater security risk and other known issues associated with system obsolescence.

8.2.2   Non-Financial Benefits

The prime purpose of the project is to remove the security and integrity risks associated with an unsupported platform. The main benefits are therefore associated with the ongoing ability to process data from Smart meters, and the security and integrity of the associated system

This project will continue to enable the benefits from smart metering data outlined above and in the Smart Meter Strategy.

Ensuring our IT systems are up to date and efficient is important so we can realise benefits for our customers and ensure we continue to improve the services we can offer and deliver to our customers now, and into the future. Such benefits are described below, more detail is available in our Smart Metering Strategy, as well as our Business Plan appendixes.

- Make a positive impact on society : Smart meter data will help us to make a positive impact on society through the use of local-level data to benefit customers through a more efficient network and support customers connecting low carbon technologies such as Electric Vehicle's (EV's). Access to granular information will help to improve customer service via various means, e.g. targeting support to vulnerable customers through prioritised smart meter notifications and proactive responses.

- Provide a valued and trusted service for our customers and communities: Near real-time information that smart meters can send us will help deliver an improved service to our customers. Smart meters can send automatic alerts to SSEN when there is a power cut or problems with the voltage. These alerts will enable our teams to respond and resolve issues quicker during supply related incidents.

- Proactive and Customer self-service : Contacting and responding to customer issues will be much improved through the use of smart meter information, we will be able to identify and resolve issues through granular specific data that is stored on smart meters, and also be able to implement self service offerings that enable our customers to remotely check their own supply status through our website or other platforms that speak directly to the smart meter.

8.2.2.1   Foundation to other Projects/Initiatives

The data gained from Smart Meters will be held in the central data lake (Master Data Management) and be used in other initiatives such as Open Door, Tailored Insights and Analytics.

8.3   Key Assumptions

This project is not reliant on other initiatives. It is however assumed that there will be no major new requirements in the Smart Metering area nationally.

8.4   High Level Dependencies

Smart Meter Phase 2 project to complete by the end of RIIO-ED1. Failure to complete the work would lead to delays on this project.

8.5   Deliverability & Risk

Our *Ensuring Deliverability and a Resilient Workforce (Chapter 16)* describes our approach to evidencing the deliverability of our overall plan as a package, and its individual components. Testing of our EJPs has prioritised assessment of efficiency and capacity, and this has ensured that we can demonstrate a credible plan to move from SSEN's ED1 performance to our target ED2 efficiency. We have also demonstrated that SSEN's in house and contractor options can, or will through investment or managed change, provide the capacity and skills at the right time, in the right locations. This assessment has been part of the regular assessment of our EJPs, IDPs and BPDTs. Our *Deliverability Strategy (Annex 16.1)* and *Supply Chain Strategy (Annex 16.2)* are included in the Business plan Submission.

Our deliverability testing has identified a major strategic opportunity which is relevant to all EJPs.

- In ED2 SSEN will change the way Capital Expenditure is delivered, maximising synergies within the network to minimise disruptions for our customers. This is particularly relevant for a Price Control period where volumes of work are increasing across all work types.
- The principle is to develop and deliver Programmes of work, manage risk and complexity at Programme level and to develop strategic relationships with our Suppliers and Partners to enable efficiency realisation.

9.   Conclusion

This initiative will ensure that our smart meter management systems will retain their security and integrity, whilst also providing enhanced and integrated data sets to be used in analysis and decision-making processes. This will help us to maximise the potential benefits and customer service smart meters introduce.