Scottish and Southern Energy
Power Distribution

RIIO-ED1 Business Plan

Smart Metering Strategy

References

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Changes to this paper:

This Smart Meter Strategy Paper supersedes three papers which formed part of our business plan submission in July 2013. Our previous strategy paper and two cost justification papers have been consolidated into this single strategy paper.

We have reassessed our costs forecasts following development of our procedures which will allow most remedial work to be carried out live, and further design work on the interfaces between our IT.

What we plan to do:

Our plans for Smart Metering are explained within this paper and the accompanying CBA.

- In summary we expect to spend £54.6m during the first five years of RIIO-ED1 supporting the mandated national programme to install smart meters in domestic and small commercial premises. This expenditure is made up of £39.6m carrying out work at our service terminations to facilitate the installation of smart meters, and £15.0m on payments for use of the smart meter data and communications infrastructure.
- In addition to savings accruing to suppliers and customers, in our role as a network operator we anticipate deriving almost £50m of indirect benefits from this investment where actions by suppliers and customers reduce the peak demand for electricity.
- During RIIO-ED1 we also plan to spend £16.3m building and using IT systems to allow us to take information from smart meters and use it to operate our network more efficiently and to improve some services to our customers. This expenditure involves £10.5m of investment in IT systems and £5.8m operating costs.
- We expect to generate over £17m of benefits during RIIO-ED1 and RIIO-ED2 from this programme.

Smart metering is a new technology within the UK energy market and our estimate of benefits is based on a joint network operator and consultant assessment facilitated by the ENA.

The Contents and Introduction sections on the next few pages give more details and explain where each element of our strategy is described.

Abbreviations List

Abbreviation	**Definition**
ANM	Automatic Network Management
CBA	Cost Benefit Analysis
CV109	Ofgem Data table for Smart Metering
DCC	Data Communication Company
DCUSA	Distribution Connection Use Of System Agreement
DECC	Department of Energy and Climate Change
DNO	Distribution Network Operator
DPCR5	Distribution Price Control Review 5
DTN	Data Transfer Network
ENA	Energy Networks Association
EV	Electric Vehicle
GBCS	Great Britain Companion Specification
GIS	Graphical Information System
HAN	Home Area Network
HR	Human Resources
HV	High Voltage
IHD	In Home Display
IT	Information Technology
ITT	Invitation to Tender
LCNF	Low Carbon Network Fund
LCT	Low Carbon Technology
LV	Low Voltage
MOCOPA	Meter Operators Code of Practice Agreement
MPRS	Meter Point Registration System
MPAN	Meter Point Administration Number
NDAG	Networks DCC Access Gateway
NPV	Net Present Value

Abbreviation	Definition
OFGEM	Office for Gas and Electricity Markets
OMS	Outage Management System
RDP	Registration Data Provider
RFI	Request for Information
RIIO-ED1	Revenue = Incentives + Innovation + Outputs, Electricity Distribution 1
RIIO-ED2	Revenue = Incentives + Innovation + Outputs, Electricity Distribution 2
RTS	Radio Teleswitch System
SEC	Smart Energy Code
SEPD	Southern Electric Power Distribution
SFTP	Secure File Transfer Protocol
SHEPD	Scottish Hydro Electric Power Distribution
SLA	Service Level Agreement
SMIP	Smart Metering Implementation Program
SMSG	Smart Meter Steering Group
SSEPD	Scottish and Southern Energy Power Distribution
TwH	Terrawatt Hours
UPRN	Unique Property Reference Number
WAN	Wide Area Network

SSEPD Documents

MA-PS-001

Document Type	Business Area	Number Sequencing
MA – Manual	PS – Power Systems	001
PO – Policy	PS – Power Systems	001
PR – Procedure	PS – Power Systems	001
OR – Operational Restriction	PS – Power Systems	001
TG – Technical Guidance	PS – Power Systems	001
WI – Work Instruction	PS – Power Systems	001
RS – Risk Standard	SHE – Safety, Health & Environment	001

Summary of Benefits from Smart Meters

Output activity	✓	How we plan to deliver?
Improve **Safety** further	✓	Develop new processes to exploit data from smart meters; more information about network management and performance.
Deliver better **Customer Service**	✓	Utilise information regarding unplanned supply interruptions at LV network level to improve supply restoration and voltage complaint performance.
Promoting **Social Obligations**	✓	Use smart meters to help deliver an enhanced service for vulnerable customers during unplanned supply interruptions.
Providing quicker **Connections** and a better service	✓	Use smart metering data to develop LV “load indices” enabling more informed new connections choices whilst enabling flexible connection of LCT derived load.
Maintaining network **Reliability** and reducing interruptions	✓	A better understanding of changes to network loading will ensure that network capacity is not exceeded. Use information from smart meters to assist in supply restoration process.
Taking care of our **Environment**	✓	Use smart metering data to develop LV “load indices” enabling better informed network reinforcement decisions resulting in fewer excavations.
Being more **Efficient**	✓	Use data from smart meters to assist with many aspects of LV network operation and management including: supply interruptions, voltage complaints, network reinforcement and the connection of additional load.
Developing **Innovative** solutions	✓	Use data from smart meters to enhance all aspects of LV network management ensuring that data from smart meters acts as a catalyst for the development of smarter grids.
Meeting **Stakeholder** expectations	✓	Work with suppliers and other industry stakeholders to provide support during the smart meter roll-out programme.

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1. Introduction

1.1.1. Smart meters are intelligent meters that store details of tariffs and energy use and can communicate with the energy supplier, network operator and other devices. In addition to recording energy consumption, they provide real-time information for customers about their energy use, can be remotely switched between credit and pre-payment mode, enable remote meter-readings and can send alarms to network operators in the event of a poor power quality or a power outage.

1.1.2. The Government's national roll-out programme plans to install a smart meter in most homes and small businesses in Great Britain by the end of 2020. This requires the energy industry to replace around 54 million electricity and gas meters and visit over 29 million properties.

1.1.3. In addition to reducing the cost of operating metering systems the introduction of smart meters is intended to facilitate the transition to a low carbon energy economy by helping customers understand and control their energy use to both save energy and reduce bills; and by providing information to network operators about how our lower voltage networks are operating and how we can accommodate low-carbon technologies.

1.1.4. An early Government policy decision was that energy suppliers would be responsible for delivering smart metering systems to customers. The Government has established a Smart Metering Implementation Programme (SMIP) to co-ordinate delivery of the programme, including the development of the commercial and regulatory framework. This programme is being led by DECC and involves suppliers, network operators, Ofgem, the ENA and consumer organisations. The future operation of smart meters will be governed by the Smart Energy Code (SEC).

1.1.5. SSEPD expect about 3.5 million electricity meters connected to our networks in the north of Scotland and south of England to be replaced during this programme. Although we are not responsible for installing smart meters we will have to support the programme and our distribution licence obliges us to use information from smart meters to improve our service to customers.

1.1.6. Over the last few years as the Government has developed plans for smart metering roll-out we have worked with a range of stakeholders to support the development of these plans and the role of industry participants. National working groups have been led by DECC and we have participated directly and through the ENA, alongside other industry stakeholders including suppliers, consumer organisations and Ofgem, to help develop and define the rollout process, the role of participants and the commercial and regulatory framework.

1.1.7. We have shared information obtained from our installation surveys with this group of stakeholders to raise awareness and to ensure a robust framework is developed between suppliers and network operators to minimise inefficiency and ensure a good customer experience.

1.1.8. We are also working with established industry work groups to develop Service Level Agreements between suppliers and their agents and network operators to ensure there are clear and robust standards for responding to and resolving network issues supported by reporting processes and appropriate charging methodologies.

1.1.9. Electricity Network Operators (DNOs) such as SEPD and SHEPD anticipate a number of challenges over the next decades:

- We expect to see changes in the way customers use electricity as energy efficiency awareness increases and in response to rising energy costs and more flexible "time of use" tariffs.
- We anticipate increasing numbers of low carbon technologies such as heat pumps and electric vehicles connecting to our networks which will increase the demand for electricity.
- We are already experiencing increasing numbers of embedded renewable generation connections such as solar panels and wind turbines which can increase the supply of electricity locally.
- Although embedded generation can offset the local demand, the electricity generated may not match increased demand and will require storage, (e.g. solar cells generate during daytime, electric vehicles generally charge overnight).
- Renewable generation connections are often requested in areas where capacity is restricted and may involve innovative solutions to manage generation and demand in real time to gain maximum utilisation of network capacity.

1.1.10. Smart meters have the capability to provide much more information about our local low-voltage networks and thus assist us find new innovative ways of planning, developing and managing our network to meet these forthcoming challenges.

1.1.11. The remainder of this paper is divided into the following sections which deal in turn with installing meters, communicating with meters and how we use the meter data:

Section 2 - This section describes how we will support suppliers and the national rollout programme, dealing with situations where our electricity service termination is of an obsolete type or needs upgrading. It covers liaison with suppliers and customers, how we will collate information on workloads by locality so we can plan where resources will be needed, and our programme for recruiting and training these resources. This activity is in support of the national roll-out and independent of our plans for use of smart metering.

Section 3 - A key component of smart metering systems is the technology linking smart meters to organisations using smart meters. The second core section of our strategy paper explains how we plan to interface with the communications infrastructure and incorporate smart meter data into our IT systems. It also explains our approach to security and data privacy.

Section 4 - The third core section explains how we plan to use the smart metering data to provide better service to our customers and to reduce our operating costs. This section also covers safety aspects, opportunities for innovation and the need to maintain existing load-switching in north-west Scotland during the roll-out.

Section 5 - Our CBA analysis of the options and benefits and details of the cost recovery mechanisms.

1.1.12. To deliver our plan we will:

- Work with DECC, the DCC, energy suppliers and other industry participants to support the roll-out plan and ensure the installation of smart meters is a positive customer experience;
- Develop systems and interfaces that will allow us to access the data we need in a timely and efficient way and protect the privacy and security of customers' data;
- Implement processes and procedures which use smart meter information to minimise costs associated with network investment, improve network reliability and improve customer service;
- Comply with industry governance arrangements around data access and security;
- Complete entry processes and user acceptance tests; and:
- Meet DECC's requirements for Go Live in September 2015.

2. Installing Smart Meters - Remedial Work

2.1. Overview

2.1.1. Our involvement with the installation phase of the smart meter programme involves supporting suppliers during rollout of smart metering systems. Meter Installers operating on behalf of suppliers are likely to encounter situations where they cannot install a smart meter due to the condition or type of our service termination.

2.1.2. Although these situations exist on our network today the roll-out programme involves replacing meters at a much faster rate than routine changes, and installers are likely to utilise less experienced staff to meet their programmes. These factors combine to significantly increase the volumes of remedial work.

2.1.3. We will have to recruit and train additional teams to respond, and ensure we have resources in the right place to match the level of installations in the area. To optimise our operation we will continue to liaise with suppliers and programme our resources to match their installation plans.

2.1.4. In this section we explain:

- The categories of remedial work and service level agreements.
- Our plans to survey a range of premises to expand our knowledge of how remedial work will match property types and ages, and will align to the postcode information provided by suppliers.
- Our forecast of the number of situations where remedial work will be required, and the type of resources required alongside developing a service level agreement with suppliers.
- How we will help our customers by minimising inconvenience and arrangements for our vulnerable customers
- How we have calculated the costs of these activities for our business plan.

2.2. Categories of Remedial works and Developing a Service Level Agreement

2.2.1. Installation upgrades/remedial works have been defined by a (DCUSA/MOCOPA national working party) in three categories:

Category A - Emergency. Situations in this category have immediate safety implications and include damaged or overheating equipment and exposed live connections. Any Category A situation will be reported immediately by phone to our emergency response teams and we plan to attend site in no more than 4 hours to make the situation safe. In cases where further work may be needed to allow the meter installation the situation will be re-designated to Category B once made safe.

Category B - Remedial work required. Examples of this category which prevent the installation of the smart meter include where the main supply fuse cannot be removed, obsolete types of service terminations and where the service termination is damaged but not unsafe. In most cases the remedial work will involve replacing the service termination. In many cases this can be done live without disconnecting supply to the service cable, but in some situations the only safe way to replace the termination is to make the service cable dead.

Category C - Asset condition report. These situations do not generally prevent the smart meter being installed but may need to be factored into our future asset intervention programme.

Other installations - With meter installers visiting all domestic and many small commercial premises during the meter installation programme we have a unique opportunity to collect information about the type, age and condition of our service terminations. We are working with other network operators to develop a simple reporting mechanism to collate this information for all premises where no remedial work is required.

2.2.2. We are working with suppliers and other network operators to develop a DCUSA Service Level Agreement (SLA) for remedial work involving our electricity service termination. This SLA will establish response times for Category A and Category B remedial work based on suppliers providing advanced good-quality information about their roll-out plans.

2.2.3. Category A remedial work will be reported by telephone to our emergency service centres and Category B situations will be reported to us using the industry standard flows. Details of the SLA are still to be finalised.

2.2.4. In planning, programming and executing remedial work we will minimise the level of disruption and inconvenience to customers. Where practicable we will give suppliers the option to attend and install the smart meter at the same time that we schedule the remedial work to avoid the customer having separate appointments.

2.2.5. Where a supplier requests us to attend outside normal hours and we will incur additional costs then we will normally seek to recover these costs from the supplier. We are developing cost schedules that will allow suppliers to understand the additional costs involved when they request us to attend outside normal hours.

2.2.6. We are currently developing an enhancement to our existing systems to receive reports of remedial work via the industry standard flows, to record appointments, programme work, notify suppliers when remedial work is complete and report our performance against the final SLA.

2.3. Planning and Resourcing

2.3.1. To inform our initial plans for supporting suppliers during the roll-out we have already surveyed a selection of over 4,000 service terminations on our SEPD network (3,786 domestic and 313 commercial) and over 2,500 service terminations on our SHEPD network (2,429 domestic and 136 commercial).

2.3.2. These surveys were carried out by experienced meter operators between December 2010 and May 2011 to gain an understanding of what upgrade work is likely to be needed for a smart meter to be installed and to ensure our network remains safe and reliable.

2.3.3. Based on the survey results to date we expect 4-6% of smart metering installations on our SHEPD and SEPD networks may require some remedial work to allow the smart metering system to be installed. We have based our business plan resubmission on the 2% ex-ante allowance level proposed by Ofgem, but we have also included our anticipated additional costs for the higher volume of remedial work. The volume driver arrangements described in Section 5 will correct variations from the 2% ex-ante funding.

2.3.4. This level of remedial work will require additional resources to ensure we respond efficiently to avoid delays to meter installation and minimise disruption to customers.

- Where we can identify premises needing remedial work in advance of the roll-out we will schedule this ahead of the meter installation where practicable.
- We recognise that good intelligence is essential to match the volume and location of remedial work to our resources effectively and we plan to carry out further surveys during the period leading up to roll-out in September 2015. We are also exploring opportunities to collate information from suppliers and external sources, e.g. the Valuation Office Agency, to map property age and type to postcodes. This will allow us to predict the level and location of remedial work based on suppliers plans, which will be based on postcodes.

- We will continue to liaise with suppliers so we can plan resource deployment efficiently and minimise the quantity of remedial work reported by less experienced installers.
- We will also work with suppliers and their agents to avoid issues arising as a result of misreporting or shortcomings with training of installers.

2.4. Remedial Work Volumes

2.4.1. With the smart meter rollout plan replacing every eligible meter by the end of 2020 the remedial work which would normally take place over a meter recertification period of twenty years will be condensed into a much shorter period.

2.4.2. Figures 1 and 2 below show our anticipated level of remedial work on the assumption that the level remains at the same proportion of installs across the period of the roll-out. However we expect that suppliers may initially focus their installation teams on areas where installations are straightforward in order to maximise early progress on the roll-out programme and these areas may require a lower proportion of remedial work than other areas which are scheduled later. Our internal resourcing plans will include a degree of flexibility to respond to some variations in the level of remedial work.

2.4.3. This profile is based on information collated by DECC from all suppliers and published in Sept 2013. The blue columns show the level of remedial work based on the 2% used as the basis of Ofgem's ex-ante allowance. The red columns show our anticipated level based on survey work of 4.5% (SHEPD) and 5.28% (SEPD).

Figure 1: Remedial Work Volumes for SHEPD

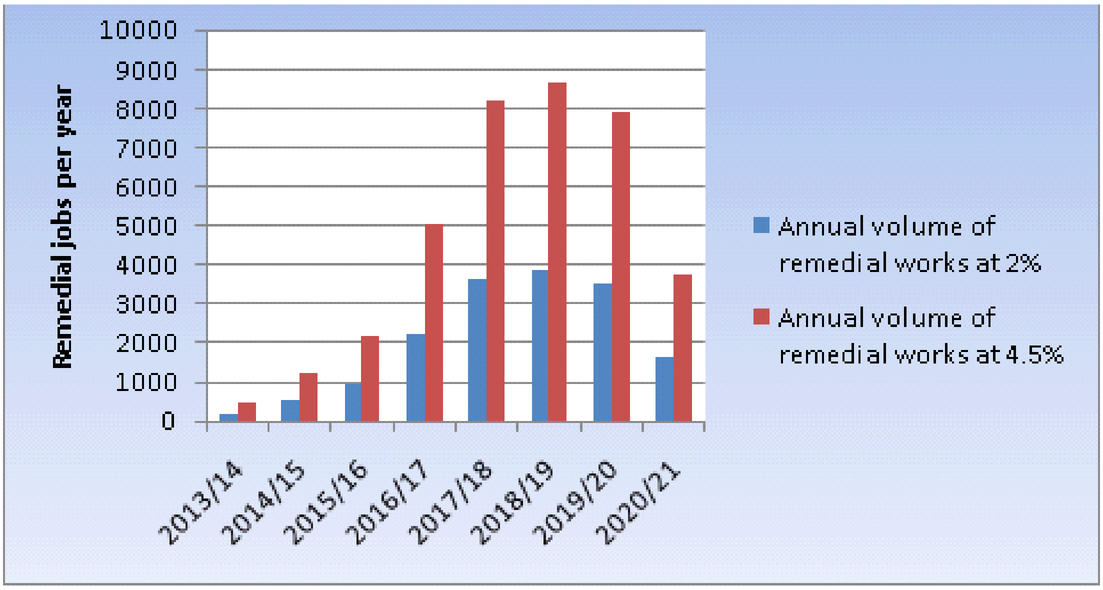
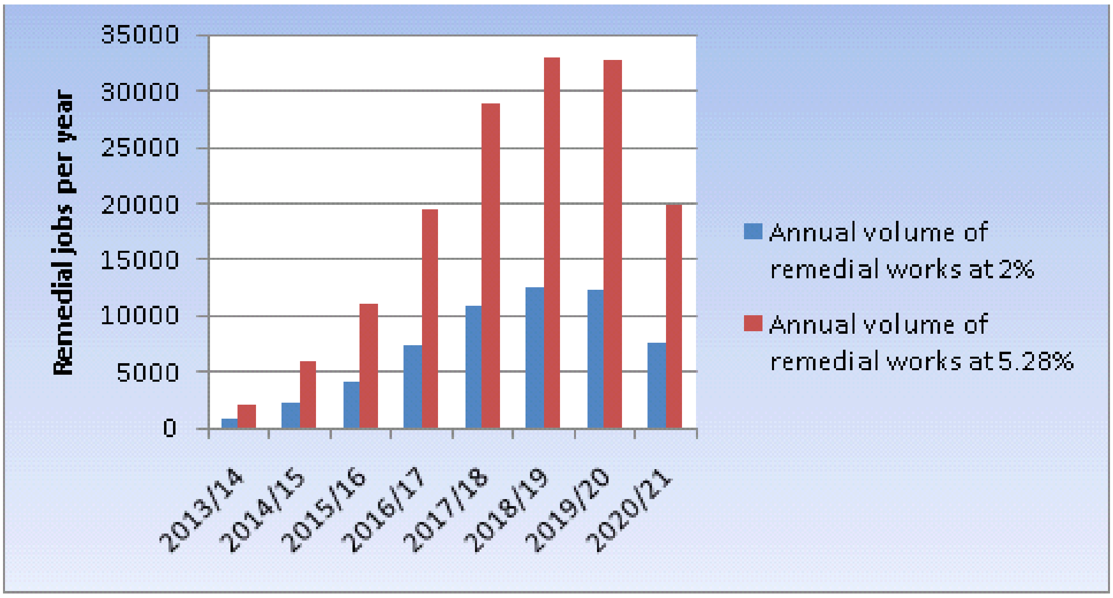


Figure 2: Remedial Work Volumes for SEPD



2.5. Helping our Customers:

2.5.1. We recognise that not all customers will be well-informed or enthusiastic about having a smart meter installed and any delay for remedial work at the service termination needs to be minimised. It is essential that whenever a smart meter installation is dependent on remedial work we keep the customer informed of the situation, programme a mutually acceptable appointment for the remedial work and where practicable liaise with the supplier to install the meter during the same appointment. Our ability to achieve this is dependent on us receiving timely notification from the supplier supported by quality address and customer contact information. For the duration of the roll-out programme we will establish a specialist team who will manage the customer contacts and ensure the process is as easy as possible and take the opportunity to enhance their understanding of smart meter benefits.

2.5.2. The system we will use for scheduling remedial work also holds records of our vulnerable customers so we can ensure the arrangements for remedial work are clearly explained and appropriate for these individual customers.

2.5.3. We will also work with suppliers to use the smart meter installation as an opportunity to identify vulnerable customers that we are not already aware of and to add them to our priority service register.

2.6. Our Costs Forecast:

2.6.1. Some details of our costs forecast are confidential and consequently we have omitted this section from this version of our strategy paper.

3. Using Smart Meters - Data and Communications

3.1. Overview

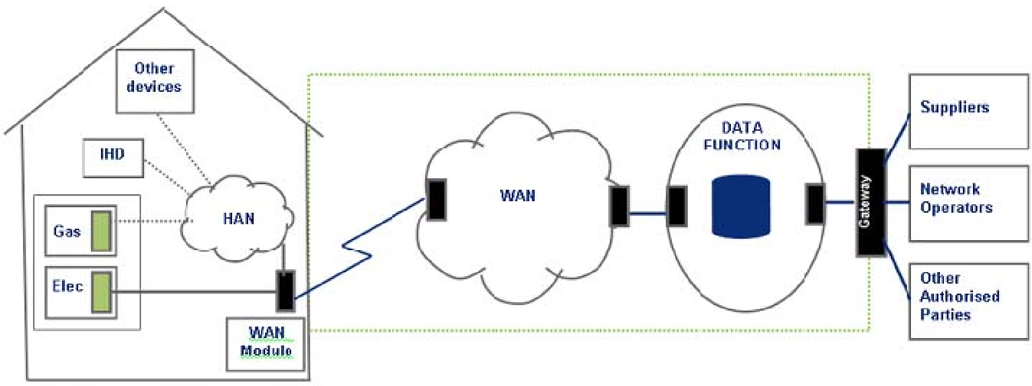
3.1.1. In order to utilise information available from smart meters we require a connection between our IT systems and the national smart meter data and communications infrastructure provided by the Data Communications Company (DCC).

3.1.2. The DCC has been appointed to operate the communications infrastructure and associated data services. The design and specification of the DCC systems and interfaces is due to be completed by March 2014. All activity and charging associated with the provision of national smart metering data and communications services is governed by a new code; the Smart Energy Code (SEC).

3.1.3. The detailed specification of meters, the infrastructure and role of service users is shared between the Smart Meter Technical Specification, (SMETS), the GB Companion Specification (GBCS) and the DCC design documents currently under production.

3.1.4. The diagram below illustrates the key components of the infrastructure. The DCC will operate the WAN and Data Functions.

Figure 3: National Smart Meter Architecture



In this section we explain our plans for:

- Provision of registration data to the DCC.
- Developing interfaces to allow us to send and receive data via the DCC Gateway.
- Providing secure storage for consumption data in non-aggregated form as this is deemed personal data and meeting privacy requirements for storage and use of this data.
- Handling security and critical commands to update meter security keys.
- Developing existing and future applications to utilise meter data.
- Calculating the costs of these activities for our business plan.

3.1.5. Our plans for using smart meter data and the benefits we expect to deliver are described in section four.

3.2. Registration Data Systems:

3.2.1. The current programme plan for smart metering involves two changes to the current processes for managing registration data. Currently all relevant industry participants share registration data through the MPRS system using data flows managed by Electralink through their Data Transfer Network (DTN).

3.2.2. From Autumn 2014 the DCC require registration data to be provided from all RDP's which they will use for three purposes:

- To validate transactions on the DCC infrastructure and ensure that requests and responses are made by and directed to the correct supplier and network operator for the meter.
- To calculate the fixed charges for service users which are based on the number of MPAN's associated with the user.
- To receive daily notification of new registrations and updates.

Initially this data may be provided by use of a suitable storage device to transfer information securely for initial DCC testing. Details of information to be provided to the DCC by registration providers is detailed in section E of the SEC.

3.2.3. Recent changes to the industry standard MPRS system have been implemented to support these requirements and include provision to incorporate the Unique Premises Reference Number (UPRN) where this is available.

3.2.4. The DCC design forums have developed a specification for this interface which involves replicating the existing data flows between RDP's and suppliers with a duplicate flow directed to the DCC via a SFTP server. The design specification and associated Code of Connection also specify security requirements for this configuration. We anticipate the cost of this requirement will be incurred during DPCR5.

3.2.5. The second change may involve the DCC operating a centralised single registration service for both electricity and gas customers. This change is unlikely to take place before 2018 but will involve us in changes to the storage and management of registration data.

3.3. Interfacing to the DCC:

3.3.1. The DCC will operate the communications and data infrastructure between smart meters and service users. As shown in the diagram above the DCC will provide a gateway to this infrastructure which will allow service users to communicate with the meters they operate, as supplier or network operator.

3.3.2. Development of this interface is a key element which will to enable us to receive alarms, alerts and data from smart meters and for us to manage meter security.

3.3.3. The DCC have organised a design forum and created a specification and code of connection for service users to connect to this interface.

3.3.4. The electricity network operators have recognised that we all have a common requirement for our connection to this interface and the ENA have facilitated a joint approach towards the development of a common RFI and ITT. Network Operators will then have the opportunity to use the ITT as a basis for their own individual development.

3.3.5. This development of a common design of Network DCC Access Gateway, (NDAG) is scoped to include meter configuration, on-demand and scheduled requests and critical commands for administration of the meter security keys.

3.3.6. These functions will be supplemented by the DCC Self Service Interface which supports low-volume ad-hoc enquires, incident reporting and administration.

3.4. Data and Privacy Requirements:

3.4.1. Network operators are permitted to download consumption data from smart meters to support our licence obligations to operate and develop the network efficiently.

3.4.2. An individual customer's half-hourly consumption data has been deemed to be personal data (under the Data Protection Act) as it could be used to interpret their behaviour and lifestyle and although we will have access to this information through the regulatory framework we will need to ensure compliance with the Data Protection Act and industry governance arrangements being introduced through the SEC.

3.4.3. Electricity network operators have commissioned development of a generic Privacy Framework through the ENA which examines options to meet privacy restrictions and how these are best applied to meet a network operator’s requirement to use data.

3.4.4. We anticipate the outcome of this work will be incorporated in our formal application to DECC/Ofgem to acquire and use consumption data.

3.4.5. Half-hourly consumption data ceases to be personal data if it is aggregated with other customers’ consumption, or if it is aggregated over a month or more. In most cases the consumption data will be used in an aggregated form as we assess the impact of new connections or changes to our low-voltage networks, (e.g. the aggregate demand of all customers supplied by a particular circuit).

3.4.6. However due to the volatile nature of our networks which change and evolve over time we will need to retain the non-aggregated consumption data for individual premises which can be aggregated on demand in the right format for the time at which it is being used. We anticipate with an eight-year price control it will be appropriate to keep this data for a period of ten years before aggregating it into an enduring non-sensitive format.

3.4.7. We are planning to schedule service requests on a quarterly basis to extract the half-hourly consumption data which will be encrypted by the meter before being passed over the DCC infrastructure.

3.4.8. To meet the privacy requirements this data will then be held in a secure environment within our corporate IT infrastructure.

3.4.9. The data will generally only be available for use when aggregated into an appropriate format, although there will be occasions when disaggregated data needs to be used and this will only be permitted under controlled conditions by authorised individuals.

3.5. Security and Critical Commands:

3.5.1. Security is an essential aspect of the smart metering systems to avoid unauthorised access to information and operation of meters which could affect the security of energy supplies. Certain high-security actions have been designated "critical commands" and utilise a system of security keys to authorise the commands and where relevant to encrypt data. Although we are currently not empowered to carry out "critical commands" to operate the meters we are required to maintain network operator security keys on the meter and the installation and updating of these keys are "critical commands". We currently anticipate installing our security keys on meters shortly after installation and renewing them twice a year. The costs of utilising the DCC infrastructure to install and renew keys have been included in our plan.

3.6. Integration with Existing Applications:

3.6.1. To meet DECC's requirements to support the roll-out of smart meters and to receive and respond to alarms and alerts from Go Live in September 2015 we plan to integrate a limited set of smart meter data into existing applications sufficient to meet this timescale.

3.6.2. In the first instance we will develop an interface to populate our Outage Management System with alerts for supply loss and for supply restoration. As part of the same development we will incorporate alerts associated with voltage issues.

3.6.3. Our Outage Management System will be developed to manage supply-loss alerts in parallel with customer calls, in the early years we are likely to receive both a smart meter alert and a customer call for many premises losing supply. We will also take the opportunity to use smart meter event information within our fault reporting procedures.

3.6.4. The smart meter infrastructure will also generate an alert when supply is restored to a premise and we plan to match supply-loss alerts to restoration alerts to ensure all premises are restored post-fault.

3.6.5. We also plan to use meter consumption data to assist us planning and developing our low-voltage networks more efficiently. However our Outage Management System is not suited to holding consumption data securely and we expect to install a separate data repository to meet privacy requirements for this information.

3.6.6. Details of the benefits we anticipate from Smart Meters are explained in Section Four.

3.7. Network Connectivity Model

3.7.1. The ability to use smart meter data from individual properties to manage power outages, assess network loading and the connection of LCT devices requires an accurate connectivity map to associate premise data correctly to the local low-voltage circuit and with the phase which supplies the premises.

3.7.2. Our existing connectivity model was constructed from our GIS system and although it provides a robust relationship between premises and circuits for our higher-voltage networks it is less accurate for low voltage circuits, particularly in congested urban areas where there are potentially a number of low- voltage cables in the same vicinity.

3.7.3. Although we have considered options to repopulate the connectivity model as a one-off exercise this would be slow and potentially expensive. Although innovation options are available to assist with some aspects of network connectivity development we do not believe this to be the most efficient approach at present.

3.7.4. Instead our plan is based on two complementary activities:

- Whenever an outage on our network affects customer supplies we will receive a smart meter alert and/or customer calls and we will associate these customer/premises to the correct part of the network depending on the type of fault. We can only allocate customers/premises to the correct phase of the low-voltage circuit supplying them when a low-voltage fault affects one phase.
- Where demand or generation hotspots develop and we need to undertake some more detailed connectivity modelling we will carry out one-off exercises to map connectivity for specific LV networks.

3.7.5. We will also review options to use GIS/mapping technology, and any further innovations, to enhance our connectivity models as the opportunity occurs.

3.8. Future Application Development:

3.8.1. Beyond the immediate requirement to support smart metering from Go Live in September 2015 we will be reviewing our future IT application requirements to support the business during RIIO-ED1 and RIIO-ED2. This review will include how we incorporate learning from LCNF projects and the evolving smart meter programme.

3.8.2. Using experience gained from other innovative projects such as SSEPD's Thames Valley Vision Project supported by the Low Carbon Network Fund we will adopt a structured approach to business process and system development, based on architecture frameworks which help us understand our end to end activities and how they relate to future business needs. The review will focus on supporting changes that will help improve our customer service, including outage management, and asset management with the intention of maintaining single instances of all core data.

3.8.3. Our IT development plans will identify critical strategic changes to support wider rollout and help deliver the smart metering programme benefits, including using functionality which is currently out-of-scope for network operators such as demand control/ switching.

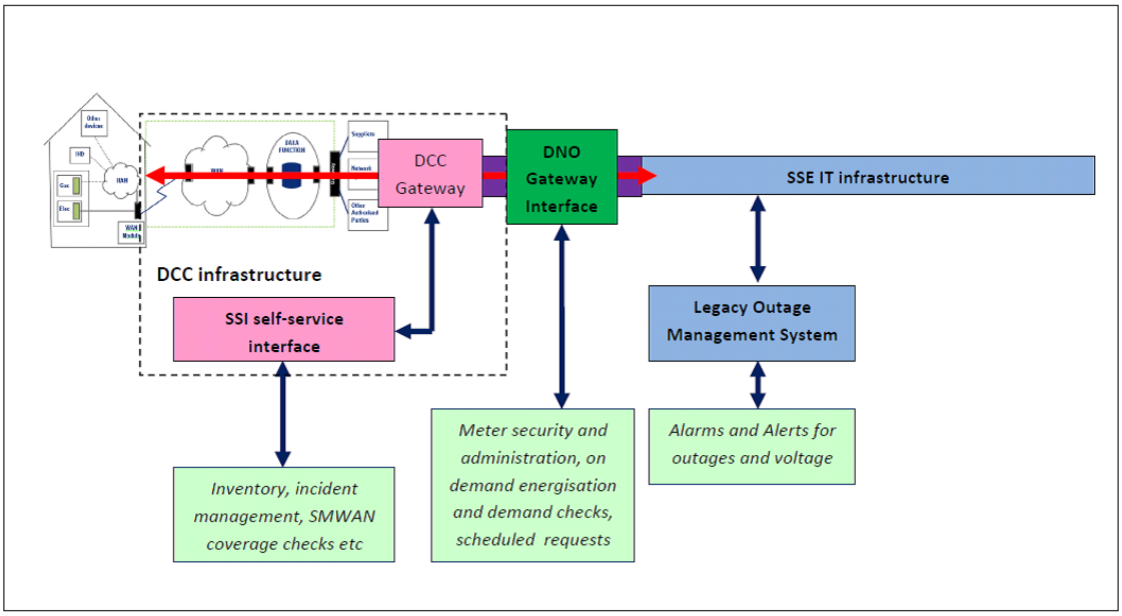
3.9. Costs for IT System Developments and Interfaces

3.9.1. The requirement to provide registration data to the DCC is mandated in the SEC but does not provide any direct benefit to us as a network operator. This development is due to be completed during DPCR5. During RIIO-ED1 it is likely that registration will be transferred from the existing RDP's to the DCC and we have included costs for this within our plan and our CBA baseline.

3.9.2. Our forecast costs associated with developing and implementing our smart metering programme are separated into three parts which each correspond to one of the options considered in section 5. Each of the following stages of IT development is illustrated diagrammatically to show how each stage relates to system developments and business activities.

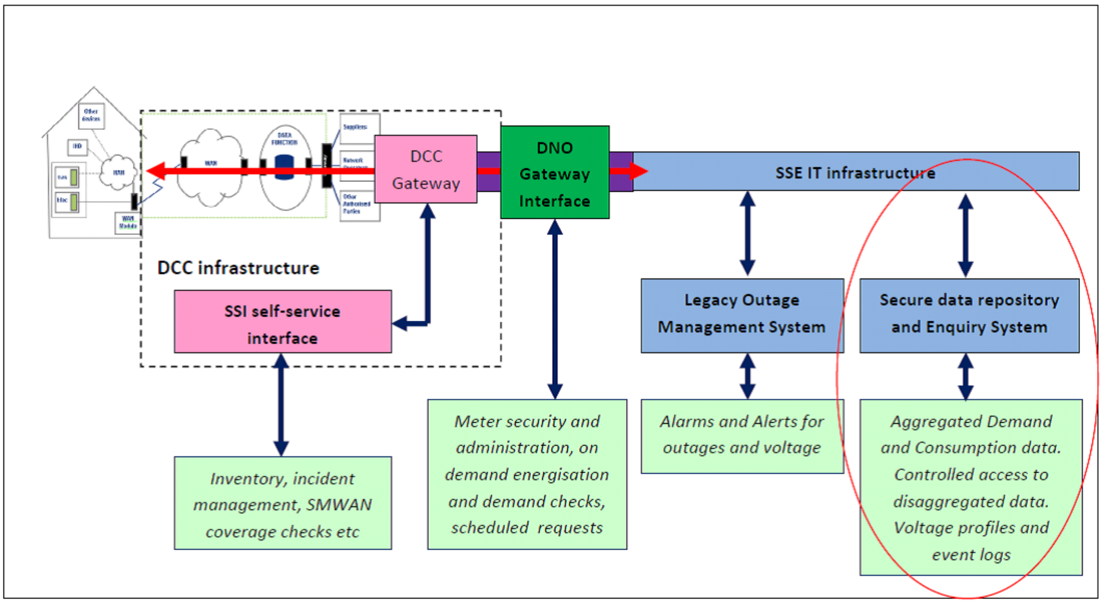
- Stage One is the core interface to the DCC gateway and associated meter administration functions which enable us to receive data from smart meters, to administer meters and manage security and schedule requests. The interface to our existing OMS system is included in this stage which will give us the capability to receive and respond to outage and voltage alerts.

Figure 4: Smart Meter Data Systems Stage One



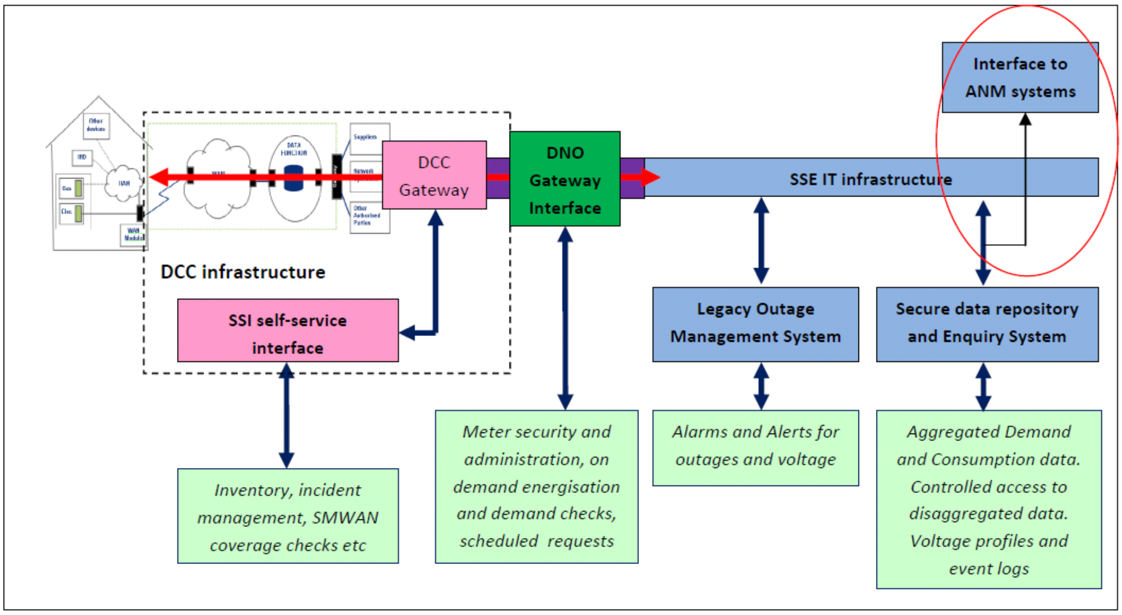
- Stage Two of development is the provision of a secure data store and enquiry system to allow us to collect consumption data from smart meters and hold this securely in disaggregated form. This stage supports the use of electricity network loading data for planning connections and network development.

Figure 5: Smart Meter Data Systems Stage Two



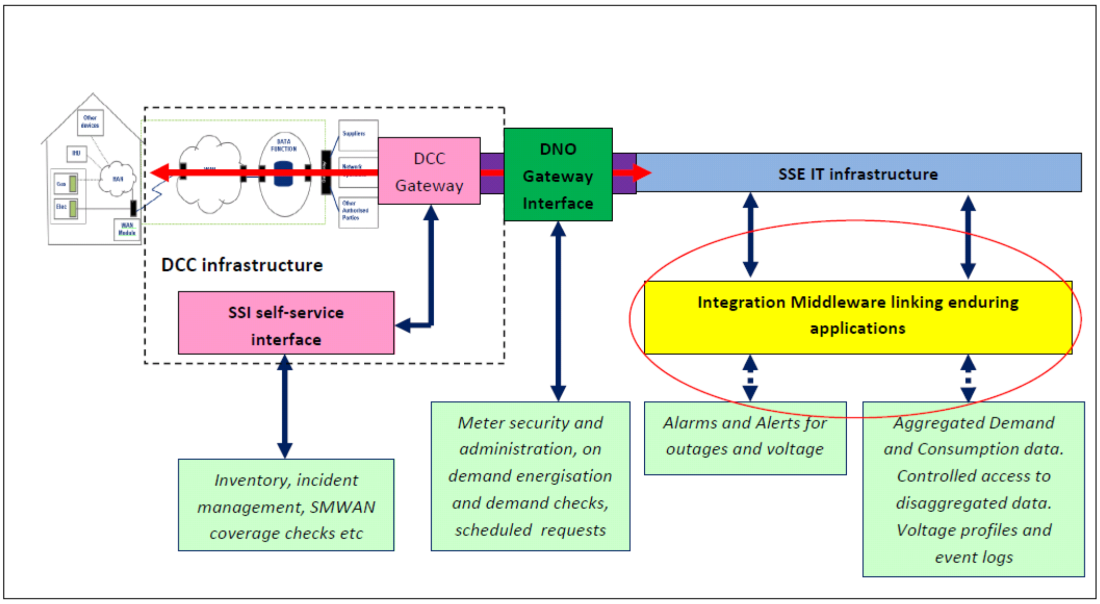
- The third stage of development supports the use of experimental Active Network Management (ANM) schemes where smart meter data is suitable for monitoring energy import and export and/or voltage in a sufficiently timely manner to support these schemes. This stage does not involve significant system development but does require much higher usage of the DCC to collect data and provision of "near" real-time links to ANM schemes.

Figure 6: Smart Meter Data Systems Stage Three



- The fourth stage of development is part of our overall IT development plan and involves the replacement of legacy systems with enduring applications and the provision of integration middleware to share data between systems and applications. The impact of this development on smart metering data is illustrated in the diagram below, but described and costed within our IT systems development strategy paper.

Figure 7: Smart Meter Data Systems Stage Four



Some details of our costs forecast are confidential and consequently we have omitted this section from this version of our strategy paper.

3.10. Costs for use of DCC Smart Metering Data

3.10.1. Charges for use of the DCC are based on two elements:

- The fixed DCC charges cover connection to the DCC and currently include the cost of alerts and alarms from the meter or associated communications hub.
- Fixed charges are based on the number of eligible meters operated by a service user and the intensity of use, e.g. a supplier would normally pay a higher charge per meter than a network operator as they will make more frequent on-demand use of the DCC with larger transactions.

3.10.2. In reality DCC charges are being calculated based on the number of MPANS. Where suppliers have used multiple MPANS for some tariffs we have more MPANS registered than meters and consequently our DCC fixed charges will be in the order of £70k per year higher than intended.

3.10.3. Variable charges levied for messages sent to smart meters and/or data transmitted from meters. These charges vary depending on the size and timing of transactions e.g. an on-demand request will be more expensive than a scheduled one which will be carried out within 24 hours. There is some uncertainty about the number of requests necessary to read consumption data but we believe the charge will be levied for one request.

4. Delivering Benefits for RIIO-ED1 and RIIO ED2

4.1. Overview

4.1.1. Benefits from Smart Metering are shared between customers, suppliers and network operators. Some of the key benefits are:

- Customers will be able to use smart meter information and/or time of use tariffs to reduce their energy consumption and bills. They will also benefit from better service from their network operator when outages occur and reduced use of system charges as network operators can reduce some investment in their networks. The process of changing supplier will also be easier, and estimated readings will no longer be needed.
- Suppliers will benefit from reduced meter operating costs, easier change of supplier processes and will be able to offer tariffs which reduced energy purchase costs.
- Network operators will have better information about their low-voltage networks which will enable them to provide a better service to their customers and to invest more efficiently in their networks. This will include a robust record of all supply losses affecting a customer including short interruptions and will allow low-voltage "worst served" customers to be identified. They will also benefit indirectly from reduced network investment driven by time-of-use tariffs, demand side response and reduced losses.

4.1.2. We consider that a key enabler to maximise the value of data obtained from smart meters is the evolving development of accurate network connectivity models at the low voltage level, although we recognise in the absence of any suitable innovative solutions that this is best achieved gradually as described in section three.

4.1.3. In this section we explain:

- What benefits we expect from smart metering as a network operator
- The calculation of benefits based on the ENA use case analysis
- Our thoughts on safety and smart meters

- The opportunities for Innovation linked to smart meters
- The need to retain existing load switching capabilities in NW Scotland to avoid major investment costs.

4.2. Smart Metering Benefits for SSEPD

4.2.1. The availability of benefits during the roll-out programme will be dependent on suppliers and how they schedule installations. If suppliers install a significant number of meters in discrete areas it is possible that benefits will be achievable from those meters earlier than for similar numbers of meter installations thinly spread across a wider area.

Power Outage and Voltage Management

- Power outage information from smart meters, (and the associated communications equipment), will improve our response to unplanned outages affecting sections of network which are not remotely monitored and where we rely on customer calls to advise us on the extent of a problem, and where exact information about customers affected by a fault can improve location and restoration times. Ultimately customers may rely on the meter to notify us of a power outage reducing the number of calls to our emergency response centres.
- The ability to check remotely whether a meter has supply or not will also help us respond to the many calls we receive each year from customers suffering supply loss and who are unsure whether the problem is with their installation or our supply.
- Power restoration alerts will allow us to check that all of the properties affected by an outage have been reconnected and will reduce the occasions where two co-incident faults in the same area may not be detected.
- The outage reports from meters will support our fault-reporting procedures and will facilitate automatic payment for Guaranteed Standard failures.
- Voltage alerts and measurement will avoid the cost of a site visit in many cases and will facilitate a quicker response to customers. We recognise however this is an area where we have little historical information and we may experience an increased volume of detected voltage issues.

Proactive planning of HV and LV networks:

- Detailed information about the electrical demand, (import and export), every half-hour and the maximum demand on our low-voltage circuits will enable us to assess the effect of new connections and whether existing networks have sufficient capacity or need to be upgraded. This capability will become increasingly beneficial with the future connection of low-carbon demand and generation loads which will increase the complexity of network modelling and without adequate information could prompt extensive investment.
- A high penetration of smart meters will support development of LV load indices and improve our asset management options. However our Thames Valley Vision LCNF project is developing the ability to calculate accurate estimates based on a lesser population of smart meters.

Active Network Management

- Many active network schemes which adjust generation and demand require information about voltage and loading in real-time and will not be compatible with the timing of data from smart meters. We anticipate there will be some opportunities for instantaneous import/export, half-hourly consumption and voltage data to be used for ANM schemes, particularly adjusting scheme parameters to take account of background factors. The benefits assessment needs to take into account increased charges for on-demand use of the DCC network.

- We do not anticipate any benefits from ANM usage in RIIO-ED1.

4.2.2. Network Operators will also benefit indirectly where time-of-use tariffs, demand-side response and improved utilisation driven by suppliers reduce network peak demands.

4.3. Benefit Calculations

4.3.1. In March 2012 the ENA Smart Metering Steering Group (SMSG) published a document entitled the Analysis of Network Benefits from Smart Meter Message Flows to help inform debate under the DECC Smart Metering Implementation Programme. This was updated in March 2013 and June 2013 taking into account changes that had occurred in the national smart meter programme which have impacted on the ability to deliver the benefits identified. These include changes in the security architecture which prevent network operators having direct access to load control switching and changes to the specification for electricity smart meters themselves.

4.3.2. In the absence of any better information, as Smart Metering is in its infancy, we have used the ENA June 2013 report as the basis for our benefit calculations by assuming each customer will have an equal share of the benefits identified and consequently our benefits are in proportion to the ratio of customers in our licence areas compared to the overall number of customers. For most activities the ENA report quotes benefits based on both their own assessment and work by KEMA. Our assessment of benefits is based on the average of these two figures.

4.3.3. This information is presented in tables 7 and 8 below.

- Table 7 summarises the benefits directly available to us from using smart meters to operate more efficiently, and is based on our Option 3 (see 5.2.5 and Table 9).
- Table 8 is a summary of indirect benefits as a result of customers and suppliers using more flexible tariffs and demand-side response to reduce peak electricity demand, which in turn will reduce demand on our network avoiding reinforcement costs.

4.3.4. Since the ENA completed its review in March 2013 the overall smart metering programme has been delayed by one year. The impact of this change has been included in these tables for RIIO-ED1 by a 30% reduction in those benefits based on the premise that on the full complement of smart meters will only be available for two years of RIIO-ED1 instead of three years.

Table 1 - Benefits deliverable by Scottish and Southern Energy Power Distribution independently of other parties (based on SMETS2 functionality).

Category	Nature of Benefit	Basis of Derivation	SSEPD ED1 Benefit *	SSEPD ED2 Benefit	Notes
Proactive Planning of HV & LV networks	Better informed load-related investment decisions	DPCR5 baseline for HV & LV general reinforcement	£1.34m	£2.69m	From 2019-2025 only - then superseded by Responsive Demand and ANM benefits
Voltage monitoring and sag/swell alarms	Avoided voltage complaints and admin costs	Avoided costs of site visits to install and recover voltage recorders and track	£0.25m	£0.73m	Assuming gradual increasing benefit from 2015 to 2020 due to increasing smart meter volumes and from 2025 due to faster LCT ramp rate

Category	Nature of Benefit	Basis of Derivation	SSEPD ED1 Benefit *	SSEPD ED2 Benefit	Notes
		sources of power quality issues			
Proactive Planning of HV & LV networks	Reduced investment to serve new connections	DPCR5 baseline for demand connections	£1.24m	£2.77m	From 2019-2025 only - then superseded by Responsive Demand and ANM benefits
Power Outage Management*	Reduce duration of LV interruptions	Assumed 10 min reduction (from 192 to 182 min) in avg. time to restore supplies for an LV fault - valued at 17p per min (WTP)	£1.91m	£3.99m	Increasing from 2015 to 2019 (when rollout complete) Benefit is based purely on consumer valuation (WTP).
Power Outage Management	Reduced Guaranteed Standard failure and payments	Elimination of GS2 failures (11,237 in 2009/10) approx. £0.5m p.a.	£0.19m	£0.50m	From 2019 assuming energisation status polling capability Note: proposed ED1 reduction from 18h to 12h not taken into account
Active Network Management	Optimising LV network voltage and power flows (or power sharing) informed by smart meter data	IC Report assessment of HV & LV reinforcement required due to LCT (potentially avoided through ANM)	£0m	£4.59m ** (30% of ENA £15.34m)	Based on LCT growth trend and minimum cost of counterfactual in the IC report (assuming 10% increase in capacity headroom) Assumes hh 'real time' data flows from smart meters
TOTAL			**£4.93m**	**£15.27m**	

* ED1 benefits reduced from original ENA estimates by 30% to account for delayed start of roll-out.

**We believe there will be benefit from ANM during RIIO-ED1 and due to the limited applications for non-real-time data the scale of benefit during RIIO-ED2 will be lower than the ENA assessment - we have assumed 30%.

Table 2 - DSR benefits dependent upon Supplier-led ToU tariffs and load control / smart appliances

Category	Nature of Benefit	Basis of Derivation	SSEPD ED1 Period Benefit	SSEPD ED2 Period Benefit	Notes
Responsive Demand - TOU tariffs*	Reduced need for network capacity to meet peak demand	Avoided cost of reinforcement due to improved load factor releasing	£5.85m	£42.03m	Based on LCT exponential growth trend and minimum cost of counterfactual in the IC report

		capacity headroom			(assuming 15% contribution towards ideal LF)
Responsive Demand - Load Control	Remote control or smart appliance managed responsive demand	Avoided cost of reinforcement due to improved load factor releasing capacity headroom			Based on LCT exponential growth trend and minimum cost of counterfactual in the IC report (assuming 20% contribution towards ideal LF)
Management of Network Losses*	Mitigated increase in HV/LV transformer and LV I^2R network losses due to improved load factor	Current level of technical losses and predicted 19% increase in energy throughput at 2030 with potentially deteriorating LF	£0.00*	£0.00*	Based on DECC 4th carbon budget scenario 3 for heat pumps and EVs (19% increase in distributed electrical energy to 416TWh at 2030)
TOTAL			**£5.85m**	**£42.03m**	

* We have assumed no benefit to DNO's from reduced losses.

4.3.5. Tables 7 and 8 clearly demonstrate that the greatest financial benefits are related to Demand Side Response enabled by Suppliers offering consumers time-of-use tariffs and demand management incentives.

4.3.6. These initiatives benefit suppliers and customers and also indirectly impact on the network operators costs through reduced network investment. The benefits in Table 7 directly reduce our cost base and generally benefit customers through reduced use-of-system charges.

4.3.7. The benefit calculations for Table 7 and 8 are based on the assumption that volumes of low carbon technologies such as electric vehicles and heat pumps will grow broadly in line with DECC's 4th Carbon Budget scenarios (1, 2 or 3) and represent the anticipated level of conventional network reinforcement that would be necessary in the absence of effective Demand Side Response.

4.3.8. We recognise that there will be an increasing need to use data from smart meters to understand changes in network loading at specific geographic locations, or hotspots, where a number of customers have deployed LCT's on the same section of LV network.

4.3.9. The timescale associated with the deployment of many of these technologies will be driven by low carbon transition, although there is a clear need to have systems and processes fully operational once most smart meters have been installed, i.e. by 2020. However benefits may be available earlier if supplier’s plans for the roll-out target some areas where full smart meter coverage may be achieved well before the end of the programme.

4.4. Safety:

4.4.1. Some stakeholders have raised concerns about safety during the mass roll-out. We will support installers as far as practicable to ensure their new personnel are well briefed on the potential safety issues associated with changing meters, and the importance of the finished installation being left in reliable condition.

4.4.2. We respond immediately to any unsafe or emergency situations reported to us by installers during the roll-out of smart meters.

4.4.3. In addition to dealing with existing issues requiring remedial work we plan to collect data about our service termination equipment during the roll-out programme. This will give us better information to manage these assets and enable better planning of replacement programmes associated with our service termination equipment in order to avoid future safety issues and mange risks.

4.4.4. The installation of smart meters will provide an opportunity for us to understand more about the operation of our LV networks and we will use this loading and voltage information to deliver a safer, more reliable supply to our customers.

4.5. Innovation

4.5.1. Data from smart meters will enhance our understanding of how our LV networks operate. This will become more important as customers adopt new LCT's such as EV's, Heat Pumps and micro generation.

4.5.2. Smart Metering innovations will help drive improvements, by providing more data and information about how the LV networks are operating that will inform us about how to change and develop the operation of the business and the best way to change or upgrade our networks.

4.5.3. There are a number of opportunities for innovative solutions to be developed alongside the roll-out of smart meters to maximise the benefit from investment in this technology.

4.5.4. The areas identified to date are:

- Network planning information - Development of new tools to assist planning engineers manage all aspects of LV network planning including the connection of low carbon technologies and microgeneration.
- Responsive demand - Investigate how supplier actions associated with the control of existing space and water heating load can be managed to avoid overloading SSEPD networks in areas where network constraint exists.
- Power quality management - Understand how granular data, including voltage data from smart meters can be used to identify where network problems exist or where they are likely to develop and help identify the likely cause.
- Management of Network Losses - Having access to granular consumption data will enable SSEPD to better understand the scale of losses associated with its LV networks. It will develop means to identify where networks are operating with losses that are higher than would normally be expected and ascertain the potential reason. We would then be able to target any required remedial action.

4.5.5. Development of technical solutions will continue to progress within the network operator/ vendor community. Whilst technical solutions may develop progress will also need to be made in other aspects of industry governance, namely supportive commercial and regulatory arrangements.

4.5.6. This work is in addition to our £30 million Thames Valley Vision Low Carbon Networks Fund project which aims to:

- Understand consumption behaviour to determine potential network issues
- Anticipate future changes to identify new network management requirements

4.5.7. As the smart metering technology and infrastructure develops future capabilities are likely to evolve to support ongoing innovation.

4.6. Load Switching Requirements:

4.6.1. The ability to control load switching through smart meters is designated as a critical command and has currently been restricted to suppliers, although as a network operator we will utilise critical commands to manage meter security keys.

4.6.2. Within our SHEPD licence area we utilise a Radio Teleswitch System (RTS) to control peak electricity demands from space and water heating in remote areas of NW Scotland to avoid network overloading and the need to invest an estimated £160M in reinforcement costs.

4.6.3. Following the roll-out of smart meters all space and water heating will be controlled by suppliers effectively removing any direct control that we have over load management. Controls need to be established to ensure that our networks do not become overloaded as a result of "supplier led" load switching.

4.6.4. We are promoting a review of industry governance to ensure that we retain some degree of control over load switching at locations where this is needed to manage existing network constraints and avoid significant reinforcement costs when RTS equipment is replaced by smart meters.

4.6.5. We are working with other DNO's to amend schedule 8 of DCUSA to ensure that we retain the flexibility of load switching, provided by suppliers via smart meters, in a way which continues to manage existing network constraints.

5. Section Five - Cost Benefit Analysis

5.1. Overview

5.1.1. In this section we explain:

- The costs and benefits we have used in our CBA - reproduced from earlier sections of this paper.
- The options we have considered within our CBA and the outcome
- The uncertainty mechanisms Ofgem have developed for smart metering

<u>The costs of remedial work are based on our forecast defect rate of 4-6% rather than the 2% ex-ante allowance.</u>

5.2. Our Cost Benefit Analysis:

5.2.1. We have based our smart metering CBA on the following options:

Baseline - costs of remedial work and providing registration data compared with the supplier/customer and indirect DNO benefits from demand reduction. This is a mandatory requirement and provides uncontrolled benefit to network operators. Our baseline costs are based on our forecast level of remedial work (4-6%) of which 2% will be subject to the ex-ante allowance and the remainder to a volume driver (see 5.3).

Option 1 - extends the baseline costs to include interfacing core IT applications to the DCC gateway so we can receive and respond to smart meter alerts and meet DECC's requirements for Go Live in Sept 2015. This option brings us benefits from better management of outages and voltage issues.

Option 2 - is option 1 plus provision of a secure data repository combined with scheduled consumption readings to deliver benefits from improved planning for new connections and LCT.

Option 3 - is based on option 2 but increases frequency of selected consumption and real-time readings to facilitate automatic network schemes. The benefit is assessed as being 30% of the ENA use case as only selected schemes will be viable for non real-time data.

5.2.2. The benefits we have used within our CBA are extracted directly from the ENA use case benefit analysis as described in section four.

5.2.3. We have attributed the supplier/customer led benefits from Table 2, e.g. TOU tariffs and Load Control to the baseline case.

5.2.4. For options 1, 2 and 3 we have used the DNO benefits from Table 1 as follows:

- For option 1 - power outage management and voltage monitoring
- For option 2 - option 1 plus proactive planning of HV and LV networks.
- For option 3 - option 2 plus active network management.

Table 3: Cost and Benefit Options

**Some details of our costs forecast are confidential and consequently we have omitted these figures from this version of our strategy paper.

Activity and benefit		Cost of Activity in RIIO-ED1	Cost of operation – DCC charges for ED1 and ED2	Benefit during ED1 and ED2
CBA BASELINE				
Remedial work to allow smart meters to be installed and registration data changes	Enables rollout and suppliers to provide DSR benefits	**	**	£47.87m – (potential DNO avoided costs through reduced reinforcement)
CBA OPTION 1 (baseline plus)				
Power Outage Alerts and Voltage Alerts	Interface to DCC gateway and data integration to OMS	**	**	£11.95m (societal benefits through reduction in CML)
CBA OPTION 2 (Option 1 plus)				
Consumption Data to support planning etc	Secure data storage and enquiry system incorporating data aggregation	**	**	£8.04m (potential DNO avoided costs through reduced reinforcement)
CBA OPTION 3 (Option 2 plus)				
Use of real-time meter information for ANM schemes	Real-time link from gateway to ANM schemes – increased transactions	**	**	£4.59m (potential DNO avoided costs through reduced reinforcement)

5.2.5. The outcome of our CBA analysis is:

- Option 1 shows a positive NPV from 2027 reaching £2.99m after 16 years and continuing positive to £11.64m at 45 years.
- Option 2 also shows a positive NPV from 2027 reaching £4.17m after 16 years and continuing positive to £19.13m after 45 years.
- Option 3 achieves a positive NPV by 2028, reaches £2.87m after 16 years and continuing positive to £18.48m at 45 years.

5.2.6. Based on this analysis we have adopted option 3 within our business plan. Although the difference between option 2 and option 3 is relatively small, we believe option 3 gives us the opportunity to develop further applications for using smart meter data and automatic schemes to operate our network more effectively during RIIO-ED2 and beyond.

5.2.7. The costs of the DCC interface are included in option 1 and we have not considered option 2 & 3 in isolation since this would not meet DECC's requirement to use alarms and alerts for Go Live in Sept 2015.

5.2.8. The benefits of DNO avoided costs during RIIO-ED1 are likely to be realised at the end of the period and are comparatively small and we have incorporated these within our overall 1% efficiency saving.

5.3. Risk and Uncertainty:

5.3.1. The roll-out programme could be delayed or cancelled. Our plans for resourcing remedial work incorporate a degree of flexibility and we do not plan to recruit additional staff earlier than necessary to minimise the risk of avoidable costs. If necessary the additional staff will be absorbed within our overall succession planning. Our plans to invest in IT systems to interface with the DCC are phased to meet programme deadlines yet avoiding early expenditure which may not be necessary to align with the actual rate of meter installations.

5.3.2. There is a significant uncertainty regarding the number of smart meter installations which will require remedial work before the meter can be installed. As a result Ofgem have decided to utilise a volume driver mechanism to deal with costs which are higher or lower than anticipated.

5.3.3. Ofgem's Strategy Decision document for RIIO-ED1 set an up-front ex-ante allowance to cover costs associated with remedial work based on remedial works being required at 2% of premises where a smart meter is installed.

5.3.4. Where the level of remedial work varies from 2% then a volume driver applies and will retrospectively adjust the ex-ante allowance up (or down). This volume driver is based on a tapering mechanism and where the intervention rate is up to ten per cent of all smart meters installed in the DNO's area in a given year, then the benchmarked unit cost will apply. Where the intervention rate is between ten and fifteen per cent, then the benchmarked unit cost for this increment will be multiplied by 0.75. Where there are intervention rates between fifteen and twenty per cent, the benchmarked unit cost for this increment will be multiplied by 0.5. For intervention rates above twenty per cent the benchmarked unit cost for this increment will be multiplied by 0.25.

5.3.5. Based on our survey work we anticipate that the actual rate of remedial work is likely to be in the range 4-6%. We also believe it likely that suppliers will focus their installation teams in areas where installations are straightforward and the level of remedial work is low in the early years of the programme. The outcome of this strategy could be a significantly higher rate of remedial work in the final years of the roll-out.

5.3.6. Ofgem have also agreed that network operators can recover their efficient costs for IT development and connection to the DCC infrastructure until the end of the roll-out in 2020 as we are unlikely to achieve tangible benefits from smart meters until the full population has been installed. This cost recovery is enabled by a pass-through mechanism.

5.3.7. However the charges for variable transactions where we request information from smart meters will not be subject to pass through as it is expected that we will obtain a benefit from the data that we request.

5.3.8. Once the roll-out is complete Ofgem expect that we will have systems in place that will enable us to derive a benefit from the data that we obtain from smart meters and the DCC costs will cease to be recoverable as the benefit we derive from having access to smart metering data should at least equal the cost of obtaining data.