DCC Development Plan

2016-17 to 2020-21

Date: 23 May 2016

Classification: DCC Public

Table of Contents

1   Executive Summary

In the summer of 2016, DCC will launch the live data and communications infrastructure to enable the nationwide rollout of smart meters. The smart meter communication service will allow suppliers to install meters in homes and small businesses across Great Britain.

Funded by the energy industry, the DCC network will connect smart meters to the business systems of energy suppliers, network operators and other authorised Users, such as third party intermediaries. It will offer a secure, consistent service for all energy suppliers and avoid the complexity and duplicated costs of energy suppliers procuring their own networks. It will provide the information that will enable Users to develop innovative new services and products.

Building on DCC Live and the nationwide rollout of smart meters, the future development of DCC Services will allow industry and the consumer to realise increasing benefits from the opportunities offered by the smart metering system and our support of other industry initiatives. As a result, enhancing existing services and developing new services will become increasingly important to both SEC Parties and DCC.

To support this intent, DCC's Licence Objectives place an obligation on it to develop and deliver its services in a way that encourages innovation and competition and ensures value for money.

To meet these objectives, DCC's strategic priorities for development over the next five years are:

- secure the efficient and effective rollout of smart meters

- execute initiatives that will improve the performance and cost effectiveness of DCC Services

- support programmes that will enable a transformation in the supply of energy and operation of networks for the benefit of the consumer

- deliver value for money for the consumer and the energy industry by maximising the utility of DCC Services.

These remain consistent with last year's Development Plan.

DCC is already managing a growing portfolio of development initiatives, including preparing for future DCC system releases, supporting industry change programmes and responding to specific government policy requirements. Significant work is already underway on the Enrolment and Adoption of SMETS1 meters, the Switching Programme, the Dual Band Communications Hub and assessing SEC Section D Modifications.

The service development roadmap below provides a snapshot of DCC's development portfolio.
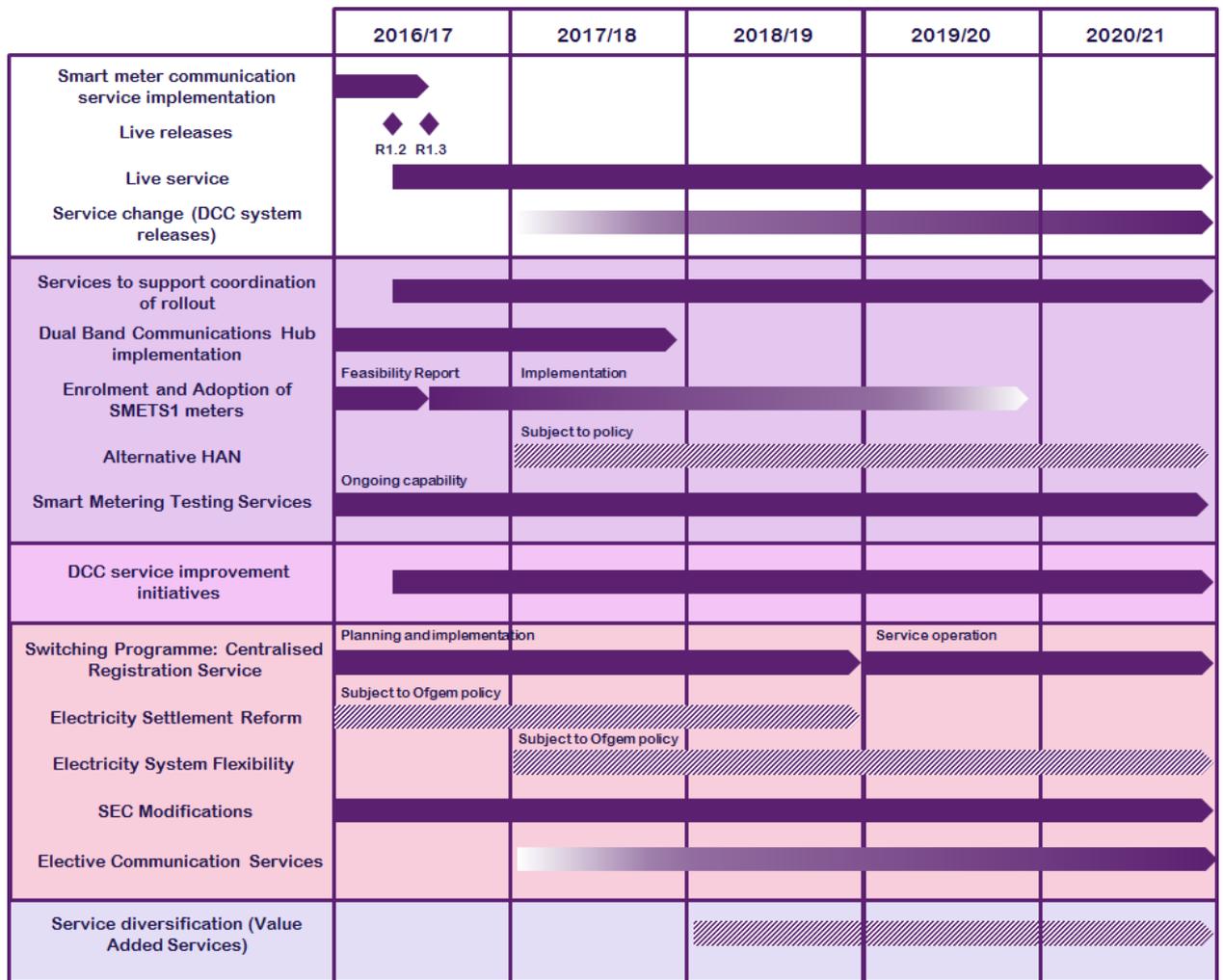
Figure 1 – Service Development Roadmap

	2016/17	2017/18	2018/19	2019/20	2020/21
Supporting Rollout					
Smart meter communication service implementation	■				
Live releases	◆ R1.2 ◆ R1.3				
Live service	■————	————	————	————	————▶
Service change (DCC system releases)		■————	————	————	————▶
Services to support coordination of rollout	■————	————	————	————	————▶
Dual Band Communications Hub implementation	Feasibility Report ■—	Implementation ——▶			
Enrolment and Adoption of SMETS1 meters	■—	————	————	————	▶
Alternative HAN		Subject to policy /////	/////	/////	/////
Smart Metering Testing Services	Ongoing capability ■—	————	————	————	————▶
DCC Service Improvements					
DCC service improvement initiatives	■————	————	————	————	————▶
Enabling Industry Transformation					
Switching Programme: Centralised Registration Service	Planning and implementation ■————	————	————	Service operation ————	————▶
Electricity Settlement Reform	Subject to Ofgem policy /////	/////	/////		
Electricity System Flexibility		Subject to Ofgem policy /////	/////		
SEC Modifications	■————	————	————	————	————▶
Elective Communication Services		■————	————	————	————▶
Exploiting DCC Services					
Service diversification (Value Added Services)			/////	/////	/////

Legend: **Supporting Rollout** · **DCC Service Improvements** · **Enabling Industry Transformation** · **Exploiting DCC Services**

Given the breadth of the service development portfolio, we recognise the importance of engaging with SEC Parties in a consistent way. We have therefore developed a set of principles which will guide how we undertake development activities:

- Responsive – we will work closely with industry to understand their requirements and consider how DCC could best meet them

- Transparent – we will provide clear information about the options we have considered, the decisions we make and how we have made them

- Consultative – we will engage industry stakeholders throughout the development process to seek input, feedback and approval where required

- Economic and efficient – we will shape and deliver cost effective solutions on behalf of industry and the consumer

- Innovative – we will look beyond the energy industry to identify alternative ways to meet industry needs.

This Development Plan includes:

- a summary of our development activities over the last year

- an update on our assessment of the utilisation and capacity of DCC Services

- our Development Approach, including routes for change, principles and key development stages

- our assessment of the trends and factors likely to influence DCC's future development

- our strategic priorities and service development roadmap covering the next five years.

Once DCC Live has been achieved, the future development of DCC Services will become increasingly important to both SEC Parties and DCC. Recognising this, we expect a substantive shift in the nature and level of engagement between SEC Parties and DCC relating to our future development activities.

We welcome your views on how DCC can work together with industry to maximise the potential benefit of DCC Services to industry and the consumer.

Information relating to DCC's development activities will be regularly updated on our website www.smartdcc.co.uk.

We look forward to your continued engagement in DCC development activities over the coming years.

2 DCC Development in context

2.1 DCC's role

Smart DCC Limited (DCC), a wholly owned subsidiary of Capita plc, was awarded the Smart Meter Communication Licence by the Secretary of State for Energy and Climate Change on 23 September 2013. DCC is a special purpose vehicle created to carry out the Authorised Business of the Licence, which is primarily to establish and manage the smart metering communication service for Great Britain. Our Licence requires that we deliver our services in a way that encourages competition and innovation, while ensuring value for money and reducing DCC charges.

We are a delivery body that provides services to the energy industry. On behalf of DECC, Ofgem, the Smart Energy Code (SEC) Panel and the energy industry, we help to realise policy objectives that will allow consumers to benefit from smart meters and a smarter energy market. We do not have a direct relationship with energy consumers.

In our delivery role, we aim to act as the intelligent client on behalf of the energy industry. This means we contract with Service Providers, assure the delivery of these Service Providers and lead coordination with other industry parties, such as energy suppliers, network operators, meter manufacturers and Registration Data Providers, to ensure that Users of the DCC infrastructure receive high quality, economic and efficient services.

The smart meter communication service

In the summer of 2016, DCC will launch the live data and communications infrastructure to enable the nationwide rollout of smart meters. The smart meter communication service will allow suppliers to install meters in homes and small businesses across Great Britain.

Funded by the energy industry, the DCC network will connect smart meters to the business systems of energy suppliers, network operators and other authorised Users, such as third party intermediaries. It will offer a secure, consistent service for all energy suppliers and avoid the complexity and duplicated costs of energy suppliers procuring their own networks. It will provide the information that will enable Users to develop innovative new services and products.

Development is a key part of DCC's role

A key part of DCC's role is to facilitate the evolution of a smarter energy industry in a cost effective manner. In line with our Licence Objectives[1], DCC must adapt to meet the evolving needs of the energy industry in a way that facilitates:

- competition – by providing a platform for Users to develop new services, products and offerings associated with smart meters, while ensuring fair treatment of all Users who interact with DCC Services

- innovation – by supporting the development of a smarter, more responsive energy system made possible by smart metering.

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[1] See Section 7 – Objectives and strategy priorities for further detail

We must also ensure that we provide value for money in how we deliver our services and explore opportunities to improve the efficiency, performance and operational risk of DCC Services. DCC should also explore opportunities to reduce DCC Charges by re-using the DCC infrastructure to provide services to non-energy sectors (Value Added Services).

Our top priority is to deliver the smart meter communication service to enable the smart metering rollout. To date, we have carried out our development activities in a way that ensures there is no detrimental impact on delivering DCC Live. Following DCC Live, change and development will be increasingly prioritised as a core business activity.

2.2 What does development mean?

DCC's development activities relate to changes to the infrastructure, systems and processes that underpin the provision of DCC Services. These changes may be required in order to:

- introduce new services, which may include:

  - new types of Core Communication Services, such as new service requests or alerts

  - new products, such as the Dual Band Communications Hub

  - new smart metering services, such as smart meter communication services for SMETS1 meters

  - new energy-related services beyond smart metering, such as our activities in support of Ofgem's Switching Programme to introduce faster, more reliable switching

  - new services for non-energy sectors provided as a Value Added Service in accordance with our Licence, for example communication services to support smart water metering or telehealth services

- adapt the way we provide DCC Services to respond to changes in industry requirements, for example to support half hourly settlement or to support the evolution of smart grids

- improve the efficiency, performance and cost effectiveness of existing DCC Services.

2.3 DCC's Authorised Business

The types of services that DCC is authorised to provide, develop and improve are set out in the Licence[2] and the SEC[3]. These services[4] are summarised in the table below.

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[2] Smart Meter Communication Licence – Condition 6. Authorised Business of the Licensee

[3] Smart Energy Code – Section H: DCC Services

[4] Service definitions have been paraphrased. Exact definitions are included in Smart Meter Communication Licence – Condition 1. Definitions for the Conditions of this Licence.

Authorised Business	Service	Definition	Example
Mandatory Business	Core Communications Services	Communication services that are provided by DCC to all Users dependent upon their role type. The Core Communication Services Schedule forms a schedule within the SEC.	Service Requests or Alerts that are available to relevant Users.
	Elective Communications Services	Communication services that are agreed and provided by DCC to Users on a bilateral basis.	Service Request or Alerts that are customised for a specific User.
	Enabling Services	Services provided by DCC that will enable the provision of Core Communications Services and Elective Communications Services.	There are three types of Enabling Service: • Communications Hub Services – the design, development, maintenance and update of Communications Hubs • Enrolment Services – the adoption, enrolment and provision of services for SMETS compliant meters • Other Enabling Services – services that DCC must deliver as defined in either the Licence or SEC (e.g. Smart Metering Key Infrastructure and Parse and Correlate).
Permitted Business	Value Added Services	Additional services provided by DCC that do not solely relate to the Supply of Energy (or its use). Value Added Services must not disrupt the provision of Mandatory Business and must be approved by Ofgem. Value Added Services should deliver benefits to Users of DCC's Mandatory Business (i.e. by re-using the DCC infrastructure for other purposes, fixed costs associated with	Provision of communications services to other sectors using the DCC infrastructure (e.g. water metering) Provision of additional services to current Users.

| | | maintaining the DCC infrastructure may fall on a per User basis).[5] | |
| | Minimal Services | Additional services that are provided by DCC that do not exceed £500,000 per annum.

Minimal Services should not be provided to any material extent from within capability or resources used in the provision of Mandatory Business. | Provision of specific services to SEC Parties or otherwise. |

Table 1 – DCC's Authorised Business

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[5] Smart Meter Communication Licence – Condition 5. General Objectives of the Licensee

3 Development activities in 2015/16

DCC is committed to conducting service development and improvement activities in an open and transparent manner. This section summarises our development activities in accordance with our development priorities over the last year.

Development and Improvement metrics will be developed as part of DCC's enduring Operational Performance Regime.[6] Ofgem indicated in their consultation[7] on the principles for the Operational Performance Regime that Ofgem does not intend to incentivise Development and Innovation at this time but will consider reporting metrics that could be included in DCC's Annual Service Report.

3.1 Strategic Priority 1: Secure the efficient and effective rollout of smart meters

DCC has introduced enhancements to increase the efficiency and effectiveness of rollout.

Supporting finalisation and interpretation of GBCS

DCC and industry are dependent on the Great Britain Companion Specification (GBCS) for the correct functioning of DCC Services and communications between Devices via the HAN. Last year DCC made available to industry a GBCS testing tool which allows meter manufacturers and others to test their implementation of GBCS. This aimed to reduce the risk of entering SIT with uncertainty of whether meter manufacturers and DCC's Service Providers have implemented GBCS consistently and to help enable other devices to have a similar interpretation of GBCS for deployment in the market.

We have since made several updates to this testing tool to further support integration. We have included functionality relating to the SMKI Apex Contingency Key and updated the tool to reflect GBCS v0.8.2. We are also aiming to expand the functionality of the tool to support more devices on the HAN, including mimicking the activities of the Gas Proxy Function, which will help Parties to test gas meter interoperability, as well as supporting interactions with Prepayment Interface Devices, In-Home Devices and Consumer Access Devices

We have also held test events with meter manufacturers and manufacturers of other devices supported by the GBCS testing tool and Critical Software. We have provided information to participants about where they are encountering problems with use cases, to allow participants to target particular use cases during these test events.

These activities are intended to support the achievement of a coordinated and efficient Completion of Implementation and deployment of smart meters and related devices.

Dual Band Communications Hub

At DCC Live there will be a single band Communications Hub, capable of operating a Home Area Network (HAN) radio in the 2.4GHz frequency range. Trials commissioned by DECC in June 2012 suggests the 2.4GHz frequency range should be suitable for establishing communications links between all smart metering equipment in approximately

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[6] Smart Meter Communication Licence – Schedule 4. The Operational Performance Regime
[7] DCC Operational Performance Regime: Principles and Objectives
https://www.ofgem.gov.uk/system/files/docs/2016/03/dcc_operational_performance_regime_principles_and_processes.pdf

70% of GB premises. Further DECC trials suggest the 868MHz frequency range improves the propagation and range of the HAN and is expected to provide increased coverage, suitable for establishing communications links between all smart metering equipment in up to 96.5% of GB premises.

DECC has concluded policy that a Dual Band Communications Hub (DBCH) capable of operating a HAN radio at both 2.4GHz and 868MHz should be provided by the DCC. As a result, in March 2015 DECC directed DCC to conduct an impact assessment for the DBCH and ultimately to secure delivery from the Communications Service Providers (CSPs).

Since the direction DCC has determined that an impact assessment cannot take place until the ZigBee GB868 radio standard reaches an appropriate level of development (v0.7 is currently scheduled for July 2016) and baselined versions of CHTS, SMETS and GBCS are available (August 2016). In advance of requesting a CSP impact assessment (now due to be completed in September 2016), DCC has sought to proactively expedite the delivery of the DBCH through the following activities:

- 868MHz Feasibility study

  - DCC commissioned a feasibility study with the CSPs to confirm 868MHz can be technically incorporated into the existing Communications Hub, establish sizing options on which DCC ran an industry consultation, develop an indicative delivery plan and establish indicative costs for the DBCH

- Commence DBCH hardware design early, in advance of the impact assessment

  - Through the 868MHz feasibility study DCC established that it would be possible to commence DBCH hardware design in advance of the availability of ZigBee GB868 and GBCS. By starting hardware delivery early DCC is able to shorten the overall delivery timescale by around three months. DCC is due to commence hardware design in June 2016

In addition, the DBCH project team have been engaging with suppliers and meter manufacturers through the Communications Hub and SM WAN Forum to seek to understand additional industry requirements of the DBCH.

Enrolment and Adoption of SMETS1 meters

SMETS1 meters contribute to the overall delivery of the smart metering rollout. We recognise the potential benefits of DCC being able to provide data communications services for SMETS1 meters:

- enabling more efficient and effective switching for customers with SMETS1 meters, to ensure they can continue to receive a smart service after switching energy supplier

- reducing the risk that meters will have to be replaced before the end of their operating lives.

Following direction from the Secretary of State in March 2015, DCC initiated the development of the Initial Enrolment Project Feasibility Report (Feasibility Report), which assesses the options for DCC to provide data communications services for SMETS1

meters. In May 2015 we issued our invitation to Suppliers to submit details of eligible meters that Suppliers wish to be included within the scope of the Feasibility Report.

The Feasibility Report is a complex piece of analysis which takes into account technical, commercial, financial, operational, security and implementation considerations across a number of different existing SMETS1 smart meter solutions. It will set out the feasibility, costs and risks of different options for providing a DCC smart meter communication service for SMETS1 meters.

We mobilised a separate team to carry out this work, to ensure that this would not distract from the delivery of the core smart meter communication service.

We will consult on the draft Feasibility Report in summer 2016 before submitting it to the Secretary of State, who will then direct DCC to implement one or more options.

During 2015/16, we have assessed the responses to the Invitation and iteratively developed a set of options for providing communication services to SMETS1 meters within the scope of the Feasibility Report. In line with the requirements set out in the SEC[8], the team has been developing options and assessing the technical, security, regulatory, operational, cost and risk dimensions associated with these options. We have been considering the different dimensions of the potential communication service, including approaches to integration, the user interface, ability to support prepayment, and the potential service catalogue for SMETS1 meters. We have engaged with suppliers whose meters are in the scope of the Feasibility Report throughout the process.

In order to provide early proof of concept evidence to support the Feasibility Report, DCC commissioned Enrolment Options Testing to prototype the communication with different types of SMETS1 meters based on the different options being considered. The objective of this work was to reduce the risk associated with a purely paper-based feasibility study and provide evidence to support the evaluation of options.

3.2 Strategic Priority 2: Execute initiatives that will improve the performance and cost effectiveness of DCC Services

DCC Service Improvement is the vehicle through which we will execute initiatives that will improve the performance and cost effectiveness of DCC Services to deliver tangible benefits to Users. We recognise the growing importance of this priority for Users. At the time of writing, DCC has 13 live services and as part of business as usual activities is looking at ways in which those services could be improved.

Our top priority is to achieve DCC Live. We expect the continuous improvement of DCC Services will become an increasingly important area of service development activity once the live service is stable.

3.3 Strategic Priority 3: Support programmes that will enable transformation in the supply of energy and operation of networks for the benefit of the consumer

DCC will play an important role in supporting programmes that will enable transformation in the energy industry. This strategic priority focuses on the introduction of new services and the transformation existing services within the energy industry, including shaping how

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[8] Smart Energy Code – Section N

the DCC Services can support the development of a smarter, more flexible energy system.

- **Switching Programme** – DCC has welcomed Ofgem's conclusions on faster, more reliable switching, which set out an expectation that DCC should be responsible for procuring, delivering and operating a new Centralised Registration Service that will underpin the operation of new next-day switching arrangements. Following Ofgem's initiation of the Switching Programme, DCC has mobilised a dedicated team to provide input into the Blueprint phase of the Programme. Our work on the Switching Programme is being delivered separately from DCC's Smart Metering Programme to ensure there is no impact on DCC Live. This is an important cross-industry change that aligns with our Licence Objective to facilitate competition in the supply of energy.

- **Electricity Settlement Reform** – DCC has participated fully in Ofgem's Electricity Settlement Expert Group which has developed options for settling domestic and smaller non-domestic consumers using their half-hourly consumption data, reducing the length of the settlement process and driving improvements to data processing and data aggregation. It has also participated in the Settlement Reform Advisory Group facilitated by Elexon. DCC is engaged with Ofgem's work in moving towards elective and mandatory half-hourly settlement and considers that DCC's support of this initiative aligns with our Licence Objective to facilitate competition in the supply of energy. DCC looks forward to engaging fully with Ofgem and industry to understand industry's requirements and to consider how DCC can best support the successful and cost-effective delivery of this cross-industry change.

3.4 Strategic Priority 4: Deliver value for money for the consumer and the energy industry by maximising the utility of DCC Services

Our immediate priority is the delivery of DCC Live. We currently expect that over the next five years we will remain focused on providing services to the energy industry and supporting the significant level of change in the energy industry.

At the appropriate time we will engage with the energy, wider utility and non-utility sectors to identify alternative uses of the DCC infrastructure that can be considered over the term of the Licence.

3.5 Preparing for change

SEC Modifications

The SEC Section D Modifications Process was activated by the Secretary of State in February 2016. This will be one of the primary means through which industry will raise changes to DCC Services and systems.

We have established our approach to engaging in the SEC Modifications Process. This is explained in more detail in Section 5.3 – Engaging in change. We are engaged in the assessment of the first Modification Proposals and will continue to endeavour to support this activity in parallel with preparing for DCC Live.

Release management

Changes to the DCC smart metering systems will be delivered via a DCC system release. We have consulted on and published our Release Management Policy[9], which sets out how DCC plans, schedules and controls the delivery of releases of IT updates, procedures and processes in respect of DCC's Internal Systems and the Parse and Correlate Software.

In response to our consultation on the Release Management Policy, a number of Parties commented that it was necessary to consider a joint approach to Release Management, which took into account all types of change across industry (i.e. not only DCC internal system change but also SEC Modifications, Secretary of State led changes, and so on).

DCC agrees with this view and is committed to the production of joint industry Release Management guidance. DCC is working with the Smart Energy Code Administrator and Secretariat (SECAS) to arrange and publish details of a joint industry workshop in early June 2016 to understand the requirements of industry, SECAS, the SEC Panel and DCC in relation to Release Management; and to begin the process of building a joint Release Management guidance document incorporating all types of SMIP change.

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[9] https://www.smartdcc.co.uk/consultations/dcc-consultations/release-management-policy/

4 DCC Service Provision Assessment

DCC is committed to providing SEC Parties with full transparency on the performance, projected utilisation and future capacity of DCC Services. This will be used to inform assessments of the impact that new and improved services will have on core DCC Services and to identify where further improvements are required.

Given that the majority of DCC systems, infrastructure and processes are not yet operational, and that User demand and processes are still evolving, DCC considers that provision of a full assessment of the actual utilisation and capacity of DCC Services would be impractical. Once DCC Services are live, the Development Plan will include a fuller assessment of DCC Services, including a rolling forecast covering availability and capacity and a variance analysis assessing gaps between projected and actual levels of service.

DCC must ensure efficient and economic management of the following key systems, infrastructure and processes in order to provide appropriate capacity and levels of performance:

	Systems	Infrastructure	Processes
Key service components	• DCC User Interface • Self Service Interface • DSP Systems • CSP Systems, e.g. Order Management System • SMKI Systems • DCC Service Management System • Parse and Correlate Software • Billing systems • Reporting systems	• DCC Gateway Connections • Smart Metering WAN • Communications Hubs • DSP infrastructure • SMKI infrastructure • Service Desk • Test environments	• Service management processes • SMKI processes • User entry and testing processes • Anomaly detection and management

Table 2 – Key DCC service components

DCC has been working to develop demand profiles based on functional demand, such as message sizes, and on non-functional demand, driven by User forecasts of rollout volumes, Service Request volumes, SMKI Certificate Signing Requests and Communications Hubs order volumes.

In parallel, we are building a better understanding of the forecast capacity of DCC systems, infrastructure and processes through our build and test activities. We have been engaging with industry to build a more detailed understanding of Users' plans and priorities for Service Request usage. This will inform the development of proposals for demand management in order to ensure fair use of services, prevent disruptions and performance degradation and ensure that capacity is economically and efficiently procured.

As our forecasts of User demand and DCC capacity continue to evolve, we will work with Users and consider options to optimise the DCC solution in order to best meet priorities.

5 Development Approach

This section sets out the different routes for change, the way that we carry out development activities and how we will engage with Parties through each change route.

5.1 Routes for change

DCC development activities can be initiated through several different routes. Changes may be externally driven or may be identified by DCC.

In relation to externally driven change, DCC's role is primarily to facilitate the evolution of the energy market in step with government, regulatory and industry priorities. In this sense, it is not for DCC to decide what new services we should develop, but instead to determine how DCC can best deliver the given requirements. Our responsiveness to these changes is an important part of delivering our Licence Objective to facilitate competition and innovation. Our consideration of how best to meet the requirements is grounded in our Licence Objective to provide services in an efficient, economical, coordinated and secure manner.

Internally driven change focuses on two areas:

- identifying ways in which DCC can improve the performance, efficiency and operational risk of the infrastructure and systems that underpin DCC Services

- exploring opportunities to reduce DCC Charges by re-using the DCC infrastructure to provide services to non-energy sectors (Value Added Services).

The available routes for change are summarised in the table below.

	Route	Initiated by
Externally driven change	SEC Section D Modification (via SEC Panel)	SEC Parties or DCC (where directed)
	Secretary of State direction	DECC
	Licence change	Ofgem
	Elective Communication Services (process defined in Licence, not yet activated in SEC)	SEC Parties raise bilaterally with DCC
Internally driven change	DCC internal change (continuous improvement)	DCC
	Value Added Services (process defined in Licence)	DCC

Table 3 – Routes for change to DCC infrastructure, systems and processes

5.2 Development approach

To meet the needs and expectations of SEC Parties and the wider smart metering ecosystem, DCC has put in place a Development Approach that facilitates innovation and accelerated delivery alongside rigorous analysis and structured decision-making. The Development Approach provides a consistent set of principles and methods that DCC applies for all development activities across each of the change routes outlined above.

Through our Development Approach, we will develop and improve DCC Services in line with our Licence Objectives and the Authorised Business obligations set out in the Licence[10] and the SEC[11]. The Development Approach has been designed to accommodate the development and decision-making criteria required by each.

The Development Approach is designed to ensure that service development and improvement initiatives are responsive to the needs of SEC Parties, structured with clear decision-making points, and that resultant costs are incurred economically and efficiently.

We will manage service development and improvement initiatives using a four-stage framework. Recognising that the priority, scale and risk of each opportunity will vary significantly, we will adapt the framework to provide the appropriate level of control.
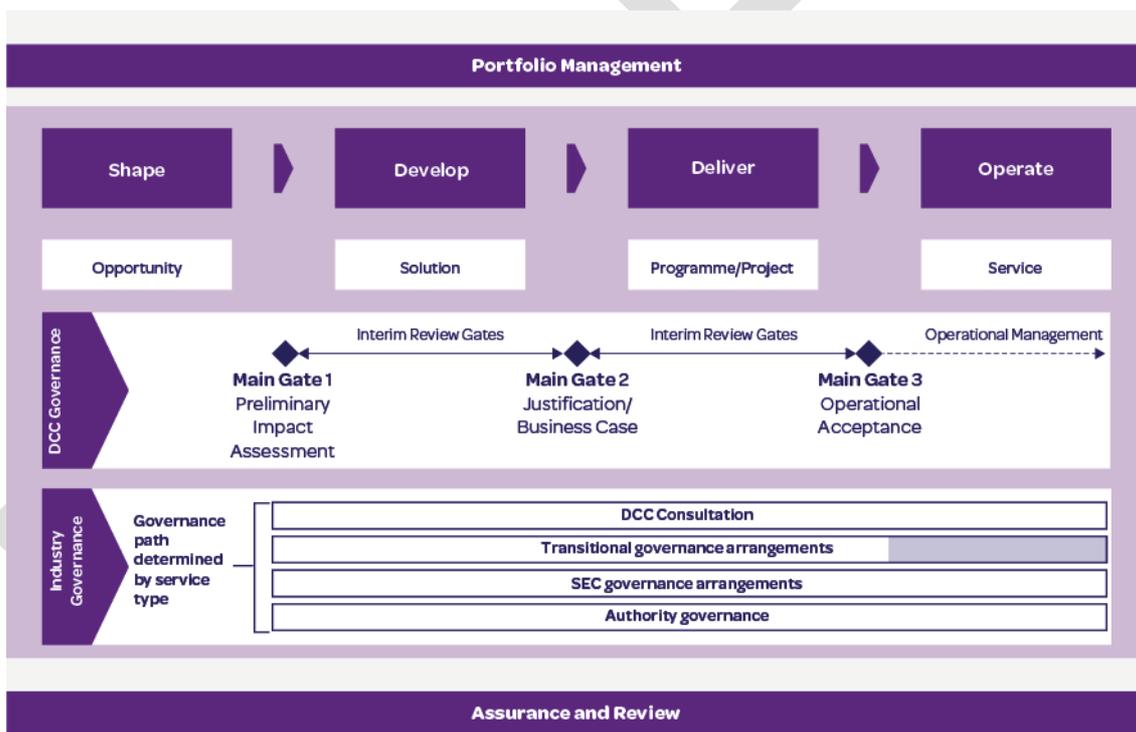

Figure 2 – Development Approach

5.2.1 Principles

Given the growth in DCC's service development portfolio, we recognise the importance of engaging with SEC Parties in a consistent way. We have therefore developed a set of

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[10] Smart Meter Communication Licence – Condition 17. Requirements for the provision of Services
[11] Smart Energy Code – Section H: DCC Services

principles which will guide how we undertake development activities across all routes for DCC change:

- Responsive – we will work closely with industry to understand their requirements and consider how DCC could best meet them

- Transparent – we will provide clear information about the options we have considered, the decisions we make and how we have made them

- Consultative – we will engage industry stakeholders throughout the development process to seek input, feedback and approval as required

- Economic and efficient – we will shape and deliver cost effective solutions on behalf of industry and the consumer

- Innovative – we will look beyond the energy industry to identify alternative ways to meet industry needs.

5.2.2 Stage 1 – Shape

The Shape stage focuses on the identification and initial development of opportunities that will support delivery of our strategic priorities.

Shaping will be underpinned by the collation and analysis of data from internal and external sources, including input from stakeholders across the smart metering ecosystem. DCC will evaluate this information to identify opportunities to improve and develop DCC Services.
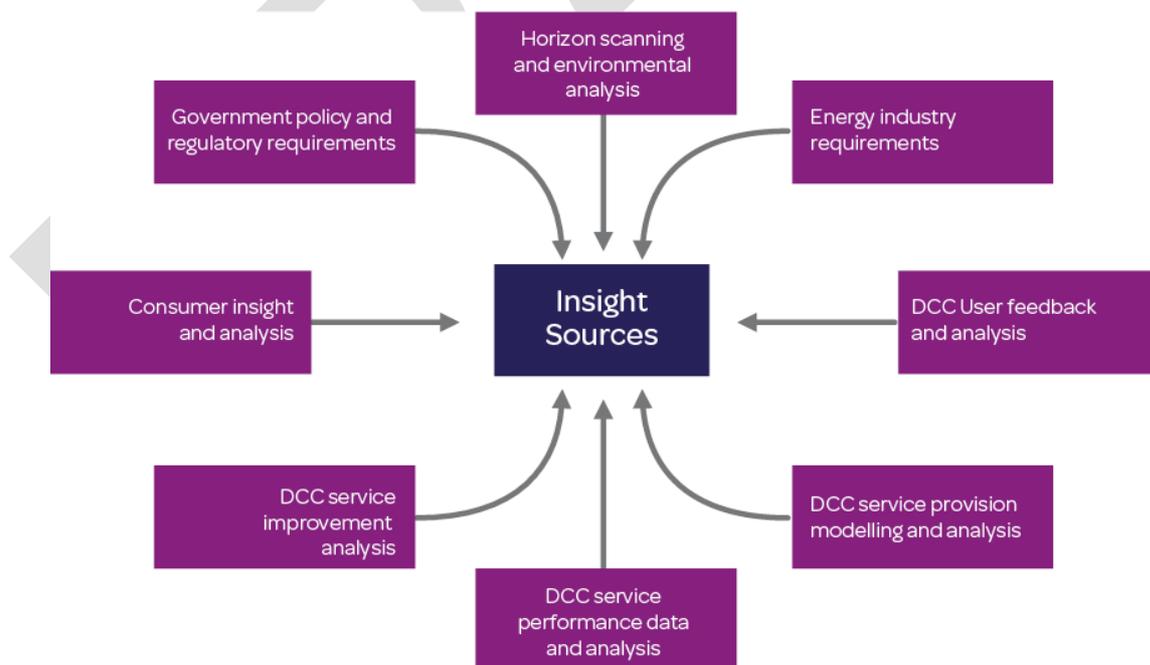
Figure 3 – Insight Sources

We will create the environment for SEC Parties, Service Providers and subject matter experts to raise ideas and collaborate on specific topics in order to shape and prioritise DCC's development and improvement initiatives.

We will carry out a preliminary impact assessment of the initiative to consider:

▪ desirability – is there demand from SEC Parties; does it meet a need?

▪ feasibility – is the desired outcome achievable; can we make it happen?

▪ viability – does it align with our strategic priorities; is it permissible under the regulatory framework?

The assessment will also include an outline cost-benefit analysis taking into account the costs to the energy industry, an assessment of the potential impact on core DCC Services and, where there is a decision to take forward the initiative, an investment case for work required within the Develop stage.

Where a new service is being considered, we will seek stakeholder support through Transitional Governance arrangements, industry governance arrangements and/or consultation.[12]

Initiatives discounted at the Shape stage will be retained for future reference and where appropriate, re-appraised or re-formulated.

5.2.3 Stage 2 – Develop

The Develop stage focuses on developing the solution that will best meet the requirements in the interest of SEC Parties and the consumer.

We will adopt an iterative approach to solution design and development, using checkpoints which will ensure the emerging solution is aligned with industry's requirements and DCC's Licence Objectives. Where possible, we will aim to develop several options in order to arrive at the optimum solution. In assessing options, we will consider the full range of potential impacts, including technical, security, regulatory, operational and implementation considerations, how the solution can be most economically and efficiently delivered, and our assessment of timescales, cost and risk.

During this stage, DCC will identify the capabilities required to deliver and operate the solution. Where required, Procurement of Relevant Service Capability to deliver new and improved services will commence within the Develop stage. This will ensure that an accurate assessment of costs will form part of the overall business case justification. We will source Relevant Service Capability in accordance with our Procurement Strategy and Condition 16 of the Licence.

We recognise that DCC must be agile in responding to opportunities to improve and develop services. To support this ambition, we will consider prototyping and piloting

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[12] with the exception of Elective Communications Services, which are agreed on a bilateral basis

technical solutions in controlled environments before transitioning capabilities onto the DCC infrastructure.

To provide transparency on costs and to assure alignment with our strategic priorities, the transition of a service development initiative into delivery will require business case authorisation. The business case will set out the justification for investment in the service development or improvement solution, success criteria and anticipated costs and benefits, including the costs to the energy industry. It will be scaled to the size, complexity and risk of the initiative.

We anticipate that following internal authorisation, the business case will be submitted for approval via industry governance mechanisms, supported by SEC Party consultations where appropriate. For example, DCC will consult on its Enrolment and Adoption Feasibility Report to seek views on the options proposed prior to submission to the Secretary of State.

We will monitor delivery against the business case throughout delivery and operation. In addition to formal reporting through industry governance, we will report on progress in our regular updates on the Development Portfolio.

5.2.4 Stage 3 – Deliver

All service development and improvement initiatives will be implemented as a project or programme to provide control, structure and consistency. We are not limited to one delivery approach (e.g. waterfall vs. agile) and will select the delivery approach based on the specific requirements of the project or programme.

The DCC Programme function will manage delivery through the detailed design, build, and testing phases to the point where the new or improved service can be transitioned into operations. Projects and programmes will be managed in accordance with DCC programme management standards (based on recognised programme and project management techniques) as well as industry and DCC release management guidance.

We will ensure that DCC Users are appropriately represented in project and programme governance structures throughout the delivery lifecycle.

Transition of new services and improvements into the Operate stage will be subject to achievement and approval of defined operational acceptance criteria which will be assessed at Main Gate 3.

5.2.5 Stage 4 – Operate

Following the completion of Main Gate 3, the service development or improvement will be transitioned into live service in accordance with industry and DCC release management guidance.

The DCC Operations function will scale the level of control and support based on the level of risk associated with the service transition. Once DCC has gained sufficient assurance relating to service performance, the service will be transitioned into a business as usual environment. Where a change affects DCC Users, DCC will ensure that Users are involved in acceptance of the change.

In order to improve the efficiency and effectiveness of DCC Services, all operational services will be subject to the service improvement regime outlined in Section 8 – Service Development Roadmap.

5.2.6 Assurance and Review

Service development and improvement initiatives (from Shape through to Operate) will be subject to DCC's internal governance arrangements and will be assured by DCC's assurance functions.

We will also complete post-implementation reviews to identify lessons from each stage of the development approach. These will be used to improve the framework and inform future development and improvement activities.

5.3 Engaging in change: what Parties can expect of DCC

Given the different routes through which DCC development activities can be governed, progress is reported through a number of different channels. This section sets out what Parties can expect of DCC under each change route, in terms of activities, information and communication, and how Parties can be involved in each type of change.

5.3.1 SEC Section D Modifications

The SEC Modification process was activated in February 2016. SEC Modifications will be a key enduring source of change to the DCC solution. We are resourcing up to provide DCC input to the development of Modifications, but we note that the number and size of future Modifications is difficult to predict.

DCC will support the Modifications process through providing input to SEC Panel, Sub-Committees, Working Groups and Change Board to aid the development of Modifications. DCC will raise a Modification Proposal where we are directed to do so. Where a Modification has an impact on DCC, we will fully engage in the development of the Modification by:

- supporting Working Group refinement of requirements

- providing an impact assessment for the DCC solution

- responding to the Working Group consultation, if appropriate.

In providing an impact assessment of the DCC solution, we will aim to provide technical solutions that reflect the optionality specified by the Working Group, and two or more options for when the change could be implemented as part of a DCC system release, to support Working Group decision making.

We will assess the potential solutions and release dates against criteria agreed with the Working Group, considering the full range of impacts, including technical, security, regulatory, operational, implementation, cost and risk dimensions. We will also take into account the need to maintain service stability, minimise risk to DCC operational systems and ensure the selected solution is economic and efficient.

While DCC will provide an assessment of options for the potential release dates, ultimately the Authority will direct an implementation date for the change.

In the short term, we will be supporting the assessment of the first Modification Proposals while also working towards DCC Live, which is our top priority. DECC has powers under the SEC[13] to suspend Modifications and may do so if it considers that this is distracting from the delivery of the smart metering communication service. We will continue to endeavour to support both activities in parallel.

As part of the Modification process, SEC Parties can raise Modification Proposals relating to DCC Services and can engage fully with the Modifications process. SEC Parties will have access to non-sensitive information in DCC's impact assessments through Modification Reports and are able to respond to Report Consultations before a Modification is concluded.

Following an Authority decision on a Modification, the change will be transitioned to the Delivery stage of the DCC Development Approach to be delivered as part of a DCC system release.

5.3.2 Secretary of State direction

As Secretary of State directions vary in nature and content, there is not a single standard process that DCC will follow. However, we will develop Secretary of State directed changes in line with the principles of our Development Approach. We will develop and assess the options for the solution as directed. The assessment criteria may be predefined, as is the case for the Initial Enrolment Project Feasibility Report[14]; otherwise we will consider the full range of business impacts, how the solution can be most economically and efficiently delivered and our assessment of timescales, cost and risk.

We will consult as required by the direction and will engage with stakeholders through transitional or enduring industry governance. We may also establish other engagement routes with industry, for example, we have run specific industry forums relating to the Enrolment and Adoption of SMETS1 meters and we have engaged with industry on the development of the Dual Band Communications Hub through the existing SMWAN and Communications Hub Forum.

5.3.3 Licence change

We expect that service development activities will arise through licence changes on an exceptional basis. Licence changes vary in nature and content, and as a result there is not a single standard process that DCC will follow. However, where there are service development activities associated with a Licence change, we will carry out these activities in line with the principles of our Development Approach. We will develop and assess the options for the solution as directed. The assessment criteria may be predefined; otherwise we will consider the full range of business impacts, how the solution can be most economically and efficiently delivered and our assessment of timescales, cost and risk.

We will consult as required and engage with stakeholders through industry governance or other dedicated governance structures, for example, the governance established by Ofgem as part of the Switching Programme. We will also engage with industry through other routes, such as dedicated DCC forums, as required by the nature of the change.

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[13] Smart Energy Code – Section X2.3(d)
[14] The process and assessment criteria for the Initial Enrolment Project Feasibility Report are defined in SEC Section N

SEC Parties can respond to consultations relating to these changes and engage with DCC through enduring or specific governance routes and through other dedicated DCC engagement routes.

5.3.4 DCC internal change

DCC's internal change activities will include improvements to the efficiency, performance and cost effectiveness of existing DCC Services. This programme of work will commence following DCC Live.

DCC will identify areas for improvement based on analysis of the performance of DCC's services. To ensure that we identify priority areas for improvement, we will also encourage improvement proposals from SEC Parties, Service Providers and other parties, such as those involved in the delivery of smart metering services.

Once we have identified a potential improvement, we will develop and assess options for the solution to deliver the change. We will consult on our proposal either via industry governance or through a formal consultation before taking forward the proposal for delivery as part of a DCC system release.

SEC Parties will be able to suggest improvements to the DCC solution and respond to consultations on DCC's proposed improvements.

5.3.5 Elective Communication Services

Elective Communication Services provide a route for SEC Parties to request a DCC communication service on a bilateral basis. The process for requesting, developing and agreeing Elective Communication Services is set out in the Licence.[15] This process has not yet been activated under the SEC.

Once activated, SEC Parties will be able to request an Elective Communication Service in accordance with the Licence and DCC will respond to requests in accordance with this process. In line with the principles of the Development Approach, DCC will carry out its evaluation activities based on a consideration of the full range of business impacts, how the solution can be most economically and efficiently delivered and our assessment of timescales, cost and risk.

5.3.6 Value Added Services

Value Added Services are services that DCC may provide to non-energy sectors, re-using the DCC infrastructure, in order to reduce DCC Charges for DCC's energy Users. The process for developing and agreeing Value Added Services is set out in the Licence. DCC will continue to engage with industry to consider when would be an appropriate time to explore the potential to develop Value Added Services.

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[15] Smart Meter Communication Licence – Condition 17 Part B: Terms in respect of Elective Communication Services

6 Horizon scanning: trends and factors affecting future development

DCC has an important role to play as an enabler of consumer, environmental and energy industry reform objectives. To meet these expectations, we will develop DCC Services in step with the priorities held by consumers, the energy industry, government and the regulator.

In this section we set out our assessment of key trends and factors that we expect to influence demand and expectations of DCC Services and which will shape our development priorities and activities over the coming years. This is intended to allow DCC to identify key initiatives with which we should engage and key topics to explore with our Users in relation to service development. This will help ensure our development activities are aligned with our Licence Objectives.

To develop this assessment, we have:

- conducted an environmental analysis to identify the strategic drivers that will directly affect DCC Services or influence the development of the smart metering ecosystem and wider energy industry

- engaged with internal and external stakeholders to update this assessment, including through discussions at our Service Development Forum which is open to all SEC Parties

- collated information gathered through the insight sources outlined in Section 5.2 relating to the Shape phase of the DCC Development Approach.

We have focused on identifying those factors that influence:

- demand for DCC Services

- User expectations about DCC performance

- requirements to develop new DCC Services

- opportunities for DCC to support the objectives of the smart meter rollout

- opportunities for DCC to support competition and innovation as part of the evolution of the energy industry.

Our analysis focuses on three key related areas: Users and their relationship with consumers; policy; and technology.

6.1 DCC Users and consumers

The energy industry is undergoing significant change in the shape and operation of energy supply markets, the way that energy is delivered and how it is generated.

As well as reacting to changing market dynamics, including greater consumer activity and an increasing number of consumers switching to smaller suppliers, DCC Users are

challenged with delivering services that meet the evolving expectations of customers. The rollout of smart meters is likely to lead to further opportunities and challenges for industry:

- maximising the benefits of access to more detailed, near real time data about energy usage

- helping to shape and respond to changing customer expectations

- adapting to an increasingly competitive energy market.

Key challenges facing suppliers include:

- delivering the smart meter rollout

- achieving the level of service expected by customers and policy makers

- exploiting the opportunities that smart meters provide, e.g. changing way in which customers engage with their energy supply, transforming customer experience, reducing cost to serve

- responding to changing market dynamics, including an increasing number of smaller suppliers

Key challenges facing networks include:

- effectively utilising information provided by smart meters to manage energy networks

- over the longer term, exploiting this information and identifying additional data sets to support a more active role in network management

Key challenges facing Authorised Third Parties include:

- Considering how best to engage with the smart metering system and make use of the information provided.

The smart meter rollout

Over the next five years, suppliers will be rolling out smart meters to homes and small businesses across Britain. A crucial part of DCC's role is to provide services in a way that supports suppliers in meeting their smart meter rollout obligations.

To enable this, the DCC infrastructure should reach as many properties as possible in an economic and efficient manner. The key elements of the DCC solution that will facilitate this are the coverage of the nationwide Wide Area Network (WAN) and the technologies that will provide a viable Home Area Network (HAN) in different property types.

DCC's ability to provide services for SMETS1 meters where this is feasible will also support suppliers to achieve their rollout obligations. This will provide Users with a single vehicle for communicating with smart meters and will reduce the risk of smart meters being replaced before the end of their operating life.

The reliability and performance of the DCC network will be an important enabler of a successful rollout, in particular its ability to support the install and commission process within the timescales that suppliers expect. As the rollout progresses, we will need to scale the DCC smart metering service to match increasing User demand and to ensure we continue to provide a reliable and consistent service.

Evolution of energy services

Demand for the smart meter communication service will be driven by the number and type of DCC Users and the ways in which they use DCC Services, including the volume, frequency and pattern of demand. In line with our Licence Objectives to support competition and innovation, DCC will need to adapt to facilitate the development of new types of energy service and new business models that make use of smart meter data.

The way that consumers interact with the energy market is already changing. For example, there has been a rise in bulk purchasing activity, and the number of consumers switching their energy supplier has increased. The rollout of smart meters will encourage consumers to engage with energy markets and will help consumers to make more informed decisions about how they buy and use energy. This will change consumers' expectations of the energy industry, for example:

- as energy suppliers will have access to real time information, consumers will expect industry processes, such as switching supplier and identifying and fixing technical issues, to be faster and easier

- as energy services visibly enter the digital world, consumers will expect more integration with other technologies and expect more flexibility in how they can interact with their energy supplier, including different payment methods.

In response, Users may wish to develop new services and propositions for their customers. This may lead to requirements for additional DCC Services or changes to the way we deliver DCC Services. DCC will need to be responsive to these developments to support the evolution of new energy services in line with our Licence Objective to facilitate competition and innovation.

As a result of the changing dynamic between consumers and suppliers and other energy services providers, the number and type of DCC Users is likely to diversify and increase over the coming years. The number of smaller suppliers operating in the energy market has increased in recent years and this trend may continue. New business models may also emerge and non-energy businesses who see opportunities in the use of smart metering data may also wish to start using DCC Services.[16] To facilitate the evolution of these energy services, DCC should minimise barriers to becoming a DCC User as far as possible.

As the cost of DCC Services is borne by the energy industry, we must ensure that the costs of DCC development activities are economic and efficient, in order to secure best value for industry and the consumer.

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[16] SEC Parties who wish to become DCC Users can access services based on their User role. These roles are defined in Section A of the SEC.

6.2 Policy

Government and Ofgem policy and initiatives will be an important factor influencing DCC's activities and the wider development of the energy industry over the coming years.

Government energy policy is focused on the delivery of secure, clean and affordable energy supply within the context of growing interdependency and international action to mitigate climate change. The rollout of smart meters is an important contributor to these objectives and to empowering consumers to reduce their energy consumption and lower their bills. Decisions made by the Department of Energy and Climate Change will directly affect DCC's development and the activities of DCC Users. In parallel, Ofgem are leading initiatives that will result in a smarter, more efficient and more competitive energy market enabled by smart metering data.

DCC will be instrumental in implementing and enabling government and regulatory initiatives that change the way energy markets operate and how consumers engage with them. Policy initiatives will drive a significant proportion of DCC's programme of work over the next five years, and we will work with government and industry stakeholders to shape, develop and implement solutions that support delivery of these initiatives.

Government decisions relating to the Enrolment and Adoption of SMETS1 meters, the delivery of the Dual Band Communications Hub and specific changes to be delivered through releases following DCC Live, such as arrangements for local CAD pairing, will directly affect DCC's development activities over the coming years.

Ofgem's decisions relating to the Switching Programme, which will introduce faster, more reliable switching, will also directly affect DCC's development activities in support of this Programme. DCC is currently providing resource into the Blueprint phase of the Switching programme and Ofgem have concluded[17] that DCC will be responsible for procuring, delivering and operating the Centralised Registration Service that will underpin the new switching arrangements.

More broadly, government policy relating to the smart meter rollout strategy, including the 2020 rollout target and interim obligations, will affect the rate of rollout and the associated demand for DCC Services. The outcome of trials of engagement tools other than In-Home Displays[18] may lead to changes in demand for DCC Services, for example if these engagement tools rely on messages being transmitted over the DCC SM WAN rather than drawing information from the meter via the HAN.

Ofgem's programme of work relating to electricity system flexibility, alongside government support for innovation in storage, demand-side response and other smart technologies, will shape the development of a smarter energy system. In the wake of the 'Smart Power' National Infrastructure Commission report[19], the government has committed to allocating at least £50 million for innovation in energy storage, demand-side response and other smart technologies over the next five years to help new technologies and business models access the market.[20] We will remain engaged in this area to understand how DCC can best support the evolution of a smarter and more responsive energy system, which is a key beneficial development made possible by the smart meter rollout.

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[17] https://www.ofgem.gov.uk/publications-and-updates/decision-moving-reliable-next-day-switching
[18] https://www.gov.uk/government/consultations/smart-meter-in-home-display-licence-conditions
[19] https://www.gov.uk/government/publications/smart-power-a-national-infrastructure-commission-report
[20] https://www.gov.uk/government/news/adonis-welcomes-400m-response-to-national-infrastructure-commission-recommendations

Ofgem's work relating to the introduction of half-hourly settlement may also influence the volume, frequency and timing of demand for DCC Services as a result of Users requesting half-hourly consumption data. It may also lead to DCC taking on additional functions relating to Data Collection and Data Aggregation. We will continue to engage with this initiative to understand industry's requirements and to consider how DCC can best support the successful and cost-effective delivery of this cross-industry change.

DCC will also monitor the outcome of the Competition and Market Authority's Energy Market Investigation to identify any implications for DCC service provision. We will continue to monitor developments relating to potential changes to the Imbalance Settlement Period being considered by the Agency for the Cooperation of Energy Regulators (ACER).

We also recognise that any opportunities to provide DCC Services to non-energy industries or markets will be influenced by policy in those areas.

6.2   Technology

New and evolving technologies will provide the platform for driving consumer and energy industry benefits from the smart metering system, DCC Services and their integration into a smarter energy system.

Smart meters will provide consumers with detailed, near real time information about their energy consumption. The development of consumer technology that interacts with this information, including the broader evolution of the Internet of Things, will be an important factor in the future development of DCC Services.

Developments in consumer technology that connects to the Communication Hub may influence the level of demand for DCC Services. For example, new technologies may trigger Service Requests sent over the DCC SM WAN, they may draw information from the meter via the HAN, or they may be based on data that a User has already retrieved via the DCC network. The evolution of consumer technology may also lead to a requirement for DCC to develop new messaging services. The availability of radio spectrum to support wireless devices will also affect the development and take-up of these technologies.

The growth in consumer-owned micro-generation and storage technologies that enable a 'pro-sumer' relationship with energy suppliers and dynamic interaction with energy networks may also lead to different requirements of DCC Services in future. For example, new messaging services might be developed to support consumer decisions about when to use locally-generated energy, draw from a local battery or use energy from the grid.

The interoperability of new technologies with the smart metering network, in particular with the Communications Hub that provides the HAN, will be an important factor in the development of energy-sensitive consumer technology and the role of DCC Services in enabling consumers to benefit from innovative new devices. Protocols that support the Internet of Things are still evolving and there is not currently an established standard. We will continue to monitor protocol development and consider the cost, benefit and longevity of standards that could be adopted as part of the smart metering ecosystem in future.

More widely, the development of storage and demand-side response technology that enables the move to a more flexible energy system will influence the development of DCC's services. The energy system will become increasingly dynamic and complex as a

result of the growth in distribution generation and the intermittent supply associated with renewable energy. We will remain engaged in this area to understand how DCC can best support the evolution of a smarter and more responsive energy system.

The future development of DCC Services and the wider smart metering ecosystem will need to take account of the following technology considerations:

- future iterations of technical standards, such as GBCS, SMETS, which are currently governed by DECC and will subsequently transfer to SEC governance

- reach of the smart metering solution, in terms of:

  - WAN coverage, including the of cost effective technology for extending network coverage beyond its contracted maximum levels

  - HAN suitability for different property types

- capacity of the smart metering solution, in terms of

  - DCC systems and infrastructure

  - HAN, including ability to support additional devices

- interoperability of:

  - communications protocols used by existing and new devices

  - new technology solutions

- adaptability of the smart metering solution, including ability to reconfigure and deliver changes to functionality to meet new requirements.

We will need to monitor and manage technology risks and opportunities through design and continuous improvement activity. This includes optimising the design of the current solution; the development of future releases to enhance the solution; upgrade and optimisation of DCC's current solution infrastructure; and development of new DCC Services.

7 Objectives and Strategic Priorities

7.1 General Objectives

Our Development Approach is designed to ensure that development and improvement activities are at all times focused on securing achievement of DCC's General Objectives[21], outlined below.

General Objective	Detail
Interim General Objective	Achievement of a full, timely, efficient, economical, and secure Completion of Implementation
First General Objective	Development, operation and maintenance of an efficient, economical, coordinated, and secure system for the provision of Mandatory Business Services
Second General Objective	Deliver Mandatory Business in a manner that is most likely to facilitate: • **effective competition** between persons engaged in, or commercial activities connected with, the Supply of Energy • **innovation** in the design and operation of Energy Networks • reduction (by virtue of benefits arising from the provision of Value Added Services) of the charges payable for Mandatory Business Services.

Table 4 – DCC's General Objectives (paraphrased)

7.2 Strategic Priorities

Our development activities will be based on four strategic priorities. These have been formulated in line with the General Objectives, our analysis of strategic drivers affecting the future direction of DCC Services and feedback from energy industry stakeholders, including discussion with industry stakeholders through DCC's Development Forum, which is open to all SEC Parties.

We consider that these priorities continue to reflect the industry's expectations of DCC's role over the next five years.

1. **Secure the efficient and effective rollout of smart meters** – the successful rollout of smart meters is a key objective for government and industry and will be a crucial enabler for the development of a smarter, more responsive energy system

2. **Execute initiatives that will improve the performance and cost effectiveness of DCC Services** – we must ensure that we continue to provide services in an economic and efficient manner and that we learn from the actual usage of DCC Services to improve their reliability, performance and efficiency

3. **Support programmes that will enable a transformation in the supply of energy and operation of networks for the benefit of the consumer** – to realise the industry and consumer benefits associated with the rollout of smart meters, DCC must support the evolution of the energy industry, including changes to the

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[21] Smart Meter Communication Licence – Condition 5. General Objectives of the Licensee

relationship between energy services providers and consumers and the evolution of a smarter, more flexible energy system

4. **Deliver value for money for the consumer and the energy industry by maximising the utility of DCC Services** – this remains a strategic priority for DCC's development and we will continue to review with industry when it is the right time for DCC to consider diversifying its services.

The alignment of our strategic priorities with our Licence Objectives is summarised in the table below.

Strategic Priority	Interim General Objective	First General Objective	Second General Objective
1. Secure the efficient and effective rollout of smart meters	✓	✓	
2. Execute initiatives that will improve the performance and cost effectiveness of DCC Services		✓	
3. Support programmes that will enable a transformation in the supply of energy and operation of networks for the benefit of the consumer			✓
4. Deliver value for money for the consumer and the energy industry by maximising the utility of DCC Services		✓	✓

Table 5 – Alignment of strategic priorities with General Objectives

8 Service Development Roadmap

8.1 Roadmap

Our service development roadmap (illustrated below) provides a current snapshot of DCC's planned development activities and initiatives. Due to the responsive nature of much of our service development activity, it is not possible to set out detailed year-by-year plans for all of our development priorities.
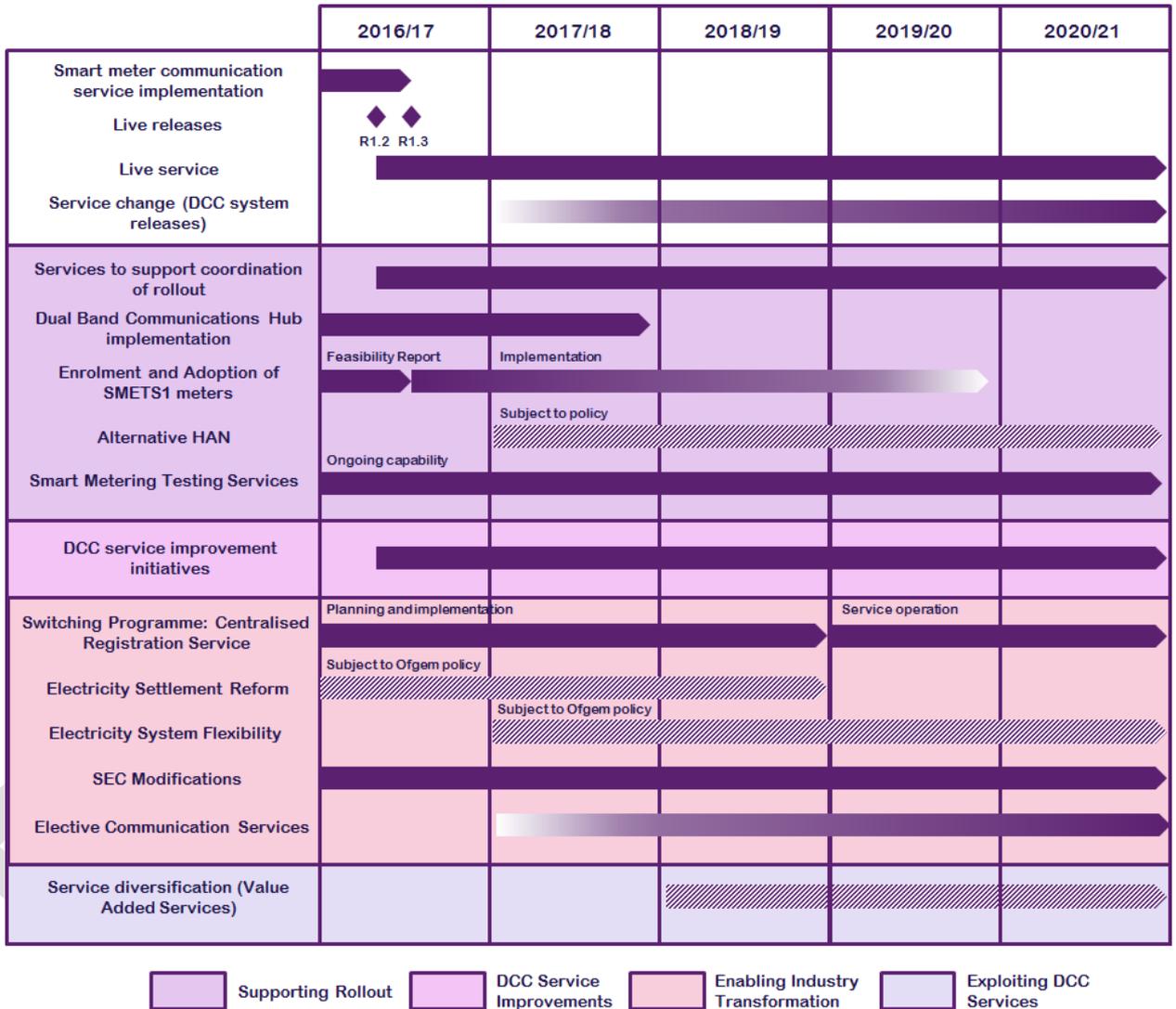

Figure 4 – Service Development Roadmap

8.2 Programmes

To deliver against our strategic priorities, we have structured DCC's service development activities into four programmes of work:

1. Supporting Rollout

2. DCC Service Improvement

3.   Enabling Industry Transformation

4.   Exploiting DCC Services.

DCC's forward-looking roadmap relating to these programmes is explained in more detail below. Our progress to date in delivering against our strategic priorities through these programmes is outlined in Section 3 – Development Activities in 2015/16.

8.2.1   Supporting Rollout

Supporting Rollout relates to the development of services that will support the achievement of Strategic Priority 1 – to secure the efficient and effective rollout of smart meters. It focuses on the identification, assessment and execution of services that will support industry to maximise the efficiency, effectiveness and reach of rollout. Delivery of the core data communications solution for SMETS2 meters remains DCC's immediate priority.

The Supporting Rollout programme consists of the following key areas of work:

- providing the infrastructure, systems and processes to support rollout of SMETS2 meters at scale

- extending the reach of the smart meter communication network to maximise the number of properties with which Users are able to communicate

- providing data communications services for SMETS1 meters

- identifying and providing additional services to support the efficiency of rollout.

DCC's planned development activities in support of Priority 1 are outlined below.

Extending the reach of the network

Beyond DCC Live, DCC recognises that energy suppliers face a variety of Home Area Network (HAN) related challenges that they must overcome to introduce smart meters to the widest possible consumer base. The core 2.4GHz solution is expected to be capable of providing a HAN in the majority of premises without the need for range-extending equipment. An 868MHz solution together with the 2.4GHz solution is expected to be suitable for providing a HAN in a very high proportion of premises. Alternative HAN solutions will be required to provide a HAN in the remaining premises.

Dual Band Communications Hub – This summer we will conclude on our consultation on the sizing of the Dual Band Communications Hub. Our CSPs will commence work on hardware development, in advance of the ZigBee standard becoming available in the summer, which will allow the CSPs to commence firmware design activities. The availability of ZigBee v0.7 is a key dependency on the critical path of Dual Band Communications Hub development activities. We will shortly issue the Change Request to the CSPs to develop detailed delivery plans and associated costs. Subject to the completion of the impact assessment, we currently expect to introduce the Dual Band Communications Hub in the spring of 2018.

Alternative HAN – DCC recognises that the availability of a HAN solution that is suitable for premises not served by the 2.4GHz and 868MHz solutions will be key to maximising

the reach of the smart meter rollout. We will support industry-led arrangements to implement Alternative HAN solutions where a standard or Dual Band Communications Hub is not suitable.

WAN coverage – During 2018/19 our Communication Services Providers will be approaching contracted maximum Wide Area Network coverage levels across Great Britain. We will explore how to extend coverage in a cost effective way to the remaining properties that do not have a signal.

Enrolment and Adoption of SMETS1 meters

SMETS1 meters contribute to the overall delivery of the smart metering rollout. We recognise the potential benefits of DCC being able to provide data communications services for SMETS1 meters. Recognising our Licence requirements[22] to offer terms for the enrolment and adoption of SMETS1 systems, we regard the development and execution of this programme of work as an essential component in the achievement of DCC's General Objectives.

In summer 2016 DCC will publish a Feasibility Report to assess options for how we could provide a smart metering service for SMETS1 meters already being installed by energy suppliers.

The Feasibility Report is a complex piece of analysis which takes into account technical, commercial, financial, operational, security and implementation considerations across a number of different existing SMETS1 smart meter solutions. It will set out the feasibility, costs and risks of different options for providing a DCC smart meter communication service for SMETS1 meters.

We will consult on the draft Feasibility Report in summer 2016 before submitting it to the Secretary of State, who will then direct DCC to implement one or more options.

Subject to the outcome of the Feasibility Report, during 2017/18 we will develop a SMETS1 smart meter communication service that enables efficient and effective switching for customers with eligible SMETS1 meters. Given that we are still preparing the Feasibility Report, we do not yet have a clear view of the solutions we will be directed to take forward or exactly when implementation will take place. However, we currently expect that implementation will take place during 2018/19.

Additional services to support the efficiency of rollout

Coordination of rollout – the rollout of smart meters is supplier-led. We recognise that successful rollout will be predicated upon the effective interaction of suppliers, networks, Smart Energy GB, DCC itself and a wide range of other parties including government, Ofgem and representative organisations.

We will continue to work with industry and government to identify opportunities for DCC to support rollout through initiatives which will be in the interests of consumers and within our regulatory framework.

Smart Metering Testing Services (SMTS) – DCC has been working to identify opportunities to provide a wider range of testing services to SEC Parties (and third party

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[22] Smart Meter Communication Licence – Condition 16 Appendix 1. Adoption of Energy Supplier Contracts

service providers) that will de-risk delivery of the Smart Metering Implementation Programme and support mitigation of operational supplier risks[23] during rollout. Additional Smart Metering Testing Services identified to date are outlined in Section 3 – Development Activities in 2015/16. DCC will continue to consider whether there are further opportunities to expand the range of testing services available to SEC Parties and other providers.

8.2.2 DCC Service Improvement

DCC Service Improvement is the vehicle through which we will execute initiatives that will improve to improve the efficiency, performance and operational risk of DCC Services.

Our service improvement activities will cover operational service delivery, system and process performance and the commercial framework within which we provide services.

In the early period of live operations, continuous improvement activities focused on service management activities will aim to reduce the cost per transaction, improve the speed per transaction and ultimately reduce resolution times.

We will monitor the performance of the network and systems via diagnostic tools in order to identify repeat issues, discover the root cause and identify fixes. If a system change is required, we will develop and consult on a proposal through the process outlined in Section 5.3 – Engaging in change.

Following DCC Live, there will be opportunities for Users to raise suggestions for improvements during monthly operations performance reviews. We will also welcome improvement proposals from SEC Parties, Service Providers and other parties, such as those involved in the delivery of smart metering services.

We will also review the performance of the network and ensure this meets User business needs. For example, we have been working closely with network operators and CSPs to assess the options in relation to power alerts and this joint effort resulted in clarity relating to performance at DCC Live. In addition, we will carry out a joint two year study of the performance of these alerts during the early period of live operations in order to maximise performance from the investment in the infrastructure.

8.2.3 Enabling Industry Transformation

Enabling Industry Transformation covers the development of services that will support achievement of Strategic Priority 3 – to support programmes that will enable a transformation in the supply of energy and operation of networks for the benefit of the consumer. It focuses on the scoping and delivery of programmes that will introduce new services or transform existing services within the energy industry and shape how the DCC Services can support the development of a smarter, more flexible energy system.

- **Switching Programme** – DCC has mobilised a dedicated team to provide input into Ofgem's Switching Programme. DCC is providing resource into the Blueprint phase of the Switching programme, including to bring in external thinking and lessons from other sectors and to provide specialist expertise. During 2016, DCC will continue to provide input to the Blueprint Phase. DCC is preparing to support Ofgem during subsequent phases of the programme, including the development of detailed level

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[23] Availability of meters, interchangeability and interoperability

specifications and the procurement of the Centralised Registration Service that will underpin the new switching arrangements. DCC will then be responsible for delivering and operating the Centralised Registration Service. Ofgem's aim is for the new switching arrangements to be in place by 2019.

- **Electricity Settlement Reform** – DCC has engaged with Ofgem's work in moving towards elective and mandatory half-hourly settlement and considers that DCC's support of this initiative aligns with our Licence Objective to facilitate competition in the supply of energy. The introduction of half-hourly settlement may influence the volume, frequency and timing of demand for DCC Services as a result of Users requesting half-hourly consumption data. It may also lead to DCC taking on additional functions relating to Data Collection and Data Aggregation. DCC looks forward to engaging fully with Ofgem and industry to understand industry's requirements and to consider how DCC can best support the successful and cost-effective delivery of this cross-industry change.

- **Electricity System Flexibility** – we recognise that the DCC infrastructure, as part of the wider smart metering system, offers opportunities to enable a transformed energy system that will deliver benefits for consumers, networks and generators through a more dynamic interaction of energy supply and demand. DCC will actively participate in energy industry, government and market initiatives, including Ofgem's Flexibility project, to realise the potential of the DCC infrastructure to enable demand-side response capabilities and active network management. This aligns with our Licence Objective to support innovation in the development of energy networks.

- **SEC Modifications** – we will continue to support the Modifications process. In particular, we look forward to changes that will facilitate the developing relationship between energy services providers and consumers and that support the evolution of a smarter, more flexible energy system.

- **Elective Communication Services** – once Elective Communication Services are activated, we look forward to engaging with SEC Parties to support the development of new bilateral services that will facilitate increased completion and innovation in the energy retail market and energy systems.

8.2.4 Exploiting DCC Services

Exploiting DCC Services relates to the development of services that will support achievement of Strategic Priority 4 – to deliver value for money for the consumer and the Industry by maximising the utility of DCC Services.

Once implemented, the DCC infrastructure offers a GB-wide capability that can be used in additional sectors. The DCC infrastructure will enable organisations to interact with devices in geographically specified locations with a high degree of security provided by the DCC's Public Key Infrastructure.

Diversification of services across different sectors by re-using the DCC infrastructure (Value Added Services) can enable a reduction in the ongoing cost of operating the DCC Services that is currently borne exclusively by the energy industry and consumers.

We recognise that our Licence obligations place paramount importance upon providing services to the energy industry, and this will continue to be our focus. Notwithstanding this, we will engage with the energy, wider utility and non-utility sectors to identify potential

alternative uses of the DCC infrastructure that can be considered over the term of the Licence[24]. DCC recognises that the development of Value Added Services must not compromise other priority initiatives and as such DCC will only commence development of Value Added Services with the agreement of the energy industry.

Where an opportunity is identified to provide DCC Services to a new sector, this will be managed through the Value Added Service process detailed within the Licence.

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[24] Smart Meter Communication Licence – Condition 17. Requirements for the provision of Services