DEPARTMENT OF ENERGY & CLIMATE CHANGE

Project Information Memorandum for the Procurement of Data and Communication Services

Smart Metering Implementation Programme

7 June 2011

Project Information Memorandum

This project information memorandum (PIM) has been issued by the smart metering implementation programme (SMIP) to provide prospective bidders and other interested parties with information about the developing procurement strategy for smart metering services. It includes a questionnaire to assist the SMIP in finalising the procurement strategy for data and communication services.

1. Introduction

1.1. The roll-out of smart meters will be a major national project. It will involve a visit to every home and many businesses in Great Britain and the replacement of around 53 million gas and electricity meters.

1.2. Smart meters can pave the way for a transformation in the way energy is supplied and used. They will provide consumers with near real-time information about energy use, enabling them to monitor and manage their use. Consumers will receive more accurate bills. The information provided by smart meters will help consumers to better manage and reduce energy use and potentially save money, and switching between energy suppliers will be smoother and faster. Energy suppliers will be able to offer a wider range of services and tariffs to manage their customer relationships better. Smart meters will also be an important step towards the development of a smart grid, delivering improved network efficiency and responsiveness.

1.3. Smart meters will play an important role in our transition to a low-carbon economy. They will help us meet some of the long-term challenges we face in ensuring that Great Britain has an affordable, secure and sustainable energy supply.

1.4. A central change programme has been established to design and implement new cross-industry arrangements for smart metering, in co-ordination with the change programmes that industry participants will need to implement themselves.

Data and Communications Company

1.5. Communication of data to and from smart meters in the domestic sector will be managed centrally by a new, GB-wide function covering both the electricity and gas sectors. We refer to this new function as the central data and communications company (DCC).

1.6. The new central data and communications function will provide a two-way communications channel between smart meters and a central communications hub to which smart meter data users (energy suppliers, network companies and other authorised third parties) will have access for specified purposes.

1.7. In order for DCC to provide services to its users it will be required to contract for a number of IT (data) and communication services.

Purpose of this document

1.8. The aim of this document is to seek input from interested parties in order to inform the procurement strategy ahead of commencing a formal procurement. This document is being sent to respondents to the prior information notice (PIN) for data and communications services and will be published on DECC's website for wider access.

Disclaimer

1.9. The content of this document is based on a working draft of the SMIP's DCC Services Procurement Strategy, the final version of the strategy will be developed by the SMIP with input from key stakeholders.

1.10. **This document should not be read in isolation.** Readers should familiarise themselves with the Government's response to prospectus consultation[1] to ensure they have the full context for the decisions that have been made by the Government to date.

1.11. This document does not formally signify the beginning of a procurement and does not constitute a commitment by DECC to undertake any procurement exercise or to follow the process contained within. In the event that DECC decides to formally commence the procurement of data and communications services under the SMIP a separate contract notice will be issued in the Official Journal of the European Union.

[1] http://www.decc.gov.uk/en/content/cms/consultations/smart_mtr_imp/smart_mtr_imp.aspx

2. Smart Metering Implementation Programme (SMIP)

2.1. The Government is committed to every home in Great Britain having smart energy meters, empowering people to manage their energy consumption and reduce their carbon emissions. Businesses and public sector users will also have smart or advanced energy metering suited to their needs. The rollout of smart meters will play an important role in Great Britain's transition to a low-carbon economy, and help us meet some of the long-term challenges we face in ensuring an affordable, secure and sustainable energy supply.

2.2. The key elements of the Government's approach for delivering smart metering are as follows:

2.2.1. Putting consumers' interests at the heart of the programme. This involves empowering consumers to better manage their energy use, engaging consumers to raise awareness and understanding of the benefits that smart metering will enable, and protecting their interests through introducing additional safeguards where necessary;

2.2.2. Setting requirements for the smart metering system against which all parties will be required to deliver. These will be based on open, non-proprietary standards in order to promote competition, control costs over time and enable future developments; and

2.2.3. Making structural changes to the energy supply industry to support the new functions being delivered efficiently and in a manner consistent with the protection of existing and future consumers and the ongoing effective operation of the competitive energy sector.

2.3. To implement this approach, the Government has established a central change programme (the SMIP). The SMIP is responsible for overseeing the development and implementation of the policy design, including establishing the commercial and regulatory framework to facilitate the rollout.

2.4. The Government has confirmed its commitment to the rollout of electricity and gas smart meters to all homes in Great Britain and to the broad framework for delivering that rollout, key aspects of which include:

2.4.1. Requiring energy suppliers to install, within a specified timescale, smart meters at domestic and smaller non-domestic sites that comply with a set of minimum functional requirements and technical specifications;

2.4.2. Granting a licence to a new GB-wide entity (DCC) to centrally coordinate communications and data management for smart meters in the domestic sector;

2.4.3. Requiring energy suppliers to provide their domestic customers with a standalone display device capable of delivering near real-time information on their energy consumption in a readily accessible form; and

2.4.4. Putting in place a new industry code, which will set out detailed industry arrangements relating to smart metering and will have governance arrangements to facilitate the development of industry rules and processes.

The consumer experience

2.5. Consumers' interests are central to the smart metering programme. The introduction of smart metering will deliver important benefits for domestic and smaller non-domestic consumers. This includes near real-time information to help understand and manage energy use, thereby helping them save money and play their part in reducing carbon emissions. Smart metering will also open up new products and services, such as the provision of tailored energy efficiency advice and more innovative tariffs.

2.6. Consumer take-up of the opportunities facilitated by smart meters and consumers' ability to use effectively the information that meters provide will be vital to the success of the programme. It is important that consumers can take advantage of the benefits of smart metering and that the rollout is delivered in an efficient and effective manner.

2.7. Smart metering will result in a step change in the amount of data available from gas and electricity meters. This will in principle enable energy consumption to be analysed in more detail by consumers (or other authorised parties) and to be 'read' more frequently by energy suppliers. Smart meters will allow consumers to view their consumption history and compare usage over different periods.

2.8. The Government response to the prospectus recognised the potential sensitivity of data on consumers' energy usage and the potential to raise privacy concerns for individuals. Previous phases of the programme have taken a rigorous and systematic approach to assessing and managing the important issues of data privacy and the SMIP will continue to do so in the next stages of the work.

2.9. In order to guarantee data privacy in line with the Government's approach to privacy, it is imperative that the smart metering system is secure. Building on best practice, the programme has looked at the privacy and security issues across the end-to-end metering system. The SMIP will develop the more detailed requirements for how these risks should be addressed, which will then be reflected in the technical specifications that the industry, including DCC, will be required to adopt.

The establishment of DCC and its services

2.10. The establishment of DCC and its services will involve creating a new GB-wide entity with reach into every home, which has the potential for significant growth of its services. The programme received a range of responses (to the prospectus) on the timescales required to establish DCC's services to an appropriate degree of robustness. The programme worked closely with industry and potential service providers to inform its analysis of the process and timescale for establishment of these services.

2.11. The Government is committed to delivering a robust procurement strategy for DCC and its services. To deliver the early establishment of DCC's services, the Government has decided that it will initiate procurement of service provider contracts in parallel with the DCC licence application process. This will bring forward the date at which DCC services can be provided, thereby reducing risks to the consumer experience and potential impacts on competition in the market for WAN communications services.

2.12. The SMIP is continuing to develop the strategy for the procurement of DCC services; information provided by prospective users of DCC's services and other stakeholders will contribute to the process of defining the functional requirements that will underpin the procurement of service providers.

2.13. The Government response to the prospectus set out the following anticipated milestones for the establishment of DCC services:

- DCC services contract award – Q4 2012;
- DCC licence award – Q4 2012; and
- DCC services go-live – Q2 2014.

Rollout

2.14. Energy suppliers will be responsible for the deployment of smart meters. The Government expects energy suppliers to use their relationships with consumers to deliver an effective and efficient rollout of smart meters and to help consumers achieve the intended benefits.

2.15. Given the need to visit over 30 million households and businesses, the rollout of smart metering across Great Britain will take place over a number of years. Some consumers will receive smart meters relatively quickly, while others will not do so for several years.

2.16. Smart metering will help to enable innovation in both energy demand management (e.g. smart grids and smart appliances) and energy supply (e.g. new tariffs). Introducing smart metering will require a major change to industry processes and practices. The Government's aim is to create a regime in which there is certainty on what needs to happen in the shorter term, while providing flexibility for market development and innovation in the longer term. The Government's overall approach will be to place obligations on industry parties to deliver the objectives of the programme, while providing an environment that encourages technology and product innovation.

2.17. The rollout of smart metering will involve the introduction of a range of new equipment into consumers' premises:

2.17.1. Gas and electricity meters with smart functionality;

2.17.2. An in home display (IHD) for domestic consumers;

2.17.3. A wide area network (WAN) module (some property types may require multiple WAN modules) to connect to the central communications provider(s); and

2.17.4. A home area network (HAN) to link different meters within consumer premises, the WAN module and the IHD (and potentially other consumer devices, such as micro-generation and load control devices).

2.18. This equipment represents the smart metering system within each consumer's premises. Once connected together through a central communications function, this will form the end-to-end smart metering system.

2.19. DCC will be required to adopt communications contracts associated with compliant meters installed before its services are available, subject to these contracts meeting pre-defined criteria. There is likely to be a limit on the number of contracts that DCC would guarantee to accept, subject to the adoption criteria being met. DCC will have the discretion to adopt contracts in excess of this limit where it is satisfied this is consistent with the objectives set out in its licence. The SMIP is working with stakeholders to develop appropriate adoption criteria and adoption limit, seeking to provide certainty for energy suppliers as they finalise their rollout strategies.

3. DCC Objectives and Scope

DCC objectives

3.1. DCC will have a set of key objectives under its licence. The SMIP is engaging with stakeholders in its consideration of what those objectives should be. Objectives under consideration include requiring DCC to:

3.1.1. discharge efficiently the obligations under its licence;

3.1.2. promote the effectiveness and efficiency of smart metering through the development, maintenance and operation of efficient, coordinated and economical smart metering data and communications services;

3.1.3. promote effective competition in the market for the provision of data and communications services to DCC's users and facilitate effective competition in the supply of electricity and gas, so far as DCC's activities can potentially impact on this competition, and not restrict, distort or prevent competition in the distribution (or supply) of electricity and gas;

3.1.4. undertake its activities in such a manner as to support DCC's users in protecting consumer interests, including the delivery of a high quality consumer experience of smart metering;

3.1.5. protect the security and privacy of smart metering data by undertaking its activities in a manner which conforms to and supports the wider smart metering security requirements and data privacy framework; and

3.1.6. promote the provision of data and communications services in a non-discriminatory manner, and have due regard to environmental issues associated with the provision of these services.

3.2. Flowing from its general objectives DCC is likely to be required to apply a number of specific objectives to the procurement of data and communications services. The SMIP is engaging with stakeholders in its consideration of what those specific procurement objectives should be. Objectives under consideration include to:

3.2.1. deliver a functional and secure end-to-end technical solution for smart metering data and communications services that is effective, efficient, economical, and coordinated at the outset and over time;

3.2.2. accommodate, at a cost not likely to be disproportionate to any associated benefit, flexibility to adapt to changing requirements over time, including where such changes are required as a result of an amendment to the applicable regulatory framework;

3.2.3. adopt, where relevant, best industry practice approaches to the procurement and management of its service provider contracts; and

3.2.4. provide for the continuity of service in the event of financial or operational failure of, or on the expiry or early termination of DCC or its service provider contracts.

DCC scope

3.3. This document sets out the outline requirements for DCC services as currently envisaged. Detailed requirements are currently in development by the joint SMIP/industry working groups that have been established.

3.4. The scope of DCC's activities and services will be limited initially to those functions that are essential for the effective transfer of smart metering data, including secure communications, access control, scheduled data retrieval and translation services (where necessary). Changes to the scope of DCC services and associated user requirements will be governed by the framework and processes set out in the future Smart Energy Code.

3.5. Centralisation of meter registration is excluded from the scope of DCC services initially, however it will be brought into scope of the data/communications services at a later point post the appointment of the DCC licensee. The inclusion of registration may be subject to a separate procurement event and may be provided by a different service provider than those in place at that time.

3.6. Smart metering will help facilitate the development of smart grids. As part of its activities, DCC will facilitate access to smart meters by network operators. From the outset, DCC will support some smart grid-related functions required to provide better network data to inform planning and investment decisions. As network requirements evolve, DCC will be able to enhance communications services, including by upgrading the WAN communications specification at the point contracts are retendered, should that be required.

3.7. DCC, operating in the capacity of procurement and contract management body for smart metering data and communication services, will need the support of externally provided services in order to provide the required functionality and meet the service requirements of the users. These services can be categorised as:

3.7.1. IT/data services – provision and operation of the IT services needed to support the smart metering system;

3.7.2. Communications services – provision and operation of wide area networking to connect smart metering IT/data services to the smart metering system in the premises;

3.7.3. Business process outsourcing services – management and resolution of data exceptions and access control issues, expected to include a service desk facility, associated IT systems and resources; and

3.7.4. Assurance services – security audit and assurance service to ensure compliance with security framework.

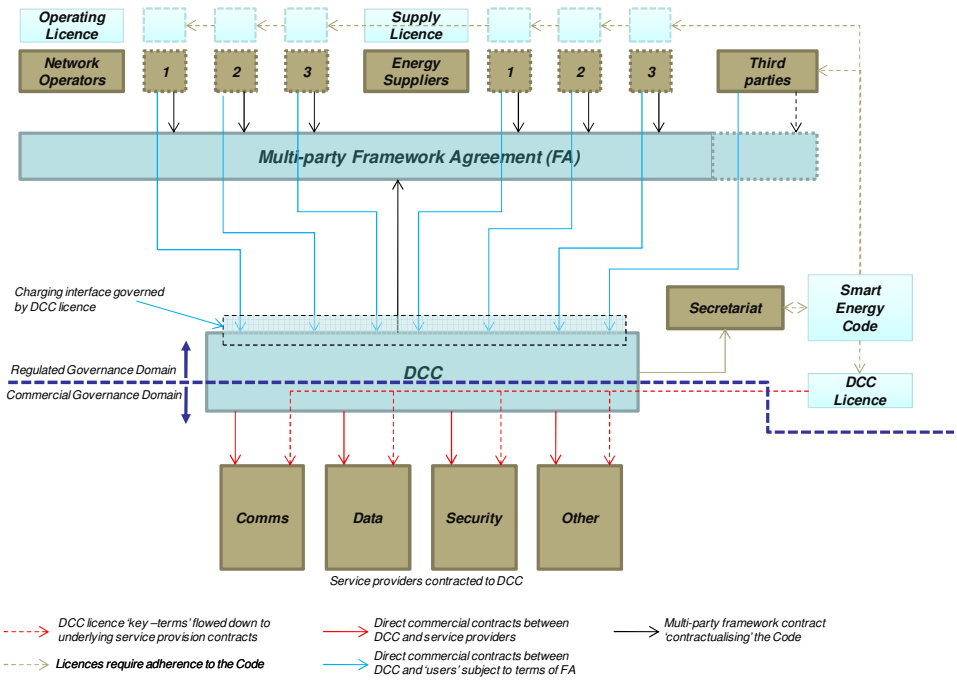


Figure 1: DCC ecosystem

3.8. In order to assure the timely establishment of DCC and realisation of the benefits of smart metering, the Government has decided to follow a parallel procurement approach whereby it will initiate procurement of service provider contracts in parallel with the DCC licence applications process.

3.9. The outline requirements described in this section of the paper will be further developed in conjunction with the users of DCC services in order that detailed and accurate requirements are able to be put to the service provider market at the appropriate points within the procurement process.

Functional scope

3.10. The Government has confirmed that the smart metering system will support the high-level functions set out in the table below. The main features are as follows:

3.10.1. All electricity meters and domestic gas meters should be required to have functionality to support remote enablement and disablement of supply;

3.10.2. The HAN should use open standards and protocols so as to achieve interoperability and enable innovation by equipment manufacturers;

3.10.3. IHDs should be connected to gas and electricity meters through the HAN; and

3.10.4. The WAN module should be capable of being separated from the meter to enable the module to be upgraded without exchanging the meter.

	High-level functionality	Electricity	Gas
A	Remote provision of accurate reads/information for defined time periods - delivery of information to consumers, energy suppliers and other designated market organisations	✓	✓
B	Two way communications to the meter system • communications between the meter and energy supplier or other designated market organisation • upload and download data through a link to the wide area network, transfer data at defined periods, remote configuration and diagnostics, software and firmware changes • facilitation of prepayment transactions	✓	✓
C	Home area network based on open standards and protocols • provide 'real time' information to an in-home display • enable other devices to link to the meter system	✓	✓
D	Support for a range of time of use tariffs • multiple registers within the meter for billing purposes	✓	✓
E	Load management capability to deliver demand side management • ability to remotely control electricity load for more sophisticated control of devices in the home	✓	
F	Remote disablement and enablement of supply • that will support remote switching between credit and prepayment modes	✓	✓
G	Exported electricity measurement • measure net export	✓	
H	Capacity to communicate with a measurement device within a micro-generator • receive, store and communicate total generation for billing	✓	

3.11. Building on the functional requirements outlined above, the Government has concluded that technical specifications should also be mandated, based on open, non-proprietary standards. These specifications are considered important to provide for the technical interoperability of all metering equipment such that equipment at consumer premises does not need to change with a change of energy supplier. The standards will provide certainty to meter manufacturers, energy suppliers and service providers.

3.12. The SMIP will therefore oversee the work of the Smart Metering Design Expert Group (comprised of industry and consumer groups) to convert the functional requirements into technical specifications against which meters can be manufactured and the data and communications services designed.

Service scope

3.13. The DCC service scope includes the services described below which have been categorised as: data, communications, business process outsourcing, and assurance. However, at this point in the programme the SMIP does not expect to initiate the procurement of business process outsourcing and assurance services.

3.14. Security is inherent in the data and communications services. The Security Requirements document is currently under development and will be available shortly to provide further information.

3.15. In addition to the services described below, there will also be a requirement for the provision of communications between the smart metering data translation service and the users, this is likely to take the form of a data portal type service rather than discrete communications links and as such is not considered part of the communications service scope. Provision of this functionality is dependent upon the type of interface provided on the user side of the DCC data services and may therefore be procured as part of the data services or as a standalone service.

Data

3.16. The data services scope is centred around those smart metering software solutions/ applications required to provide a secure data interface between the meter data, read directly from the meter (via the communications services), and the users of such data, namely the energy suppliers, network operators and authorised third parties.

3.17. The smart metering software solutions will be required to provide such functionality as:

3.17.1. Access control – validating that the party requesting access to a meter is authorised to make such access, for example ensuring that only the registered energy supplier issues meter reading requests;

3.17.2. Translation – the requirement for translation will vary according to whether a common 'language' is adopted or whether manufacturer-specific protocols are used. In either event DCC will be required to translate messages from an industry standard form (e.g. DTC data flows) to the meter protocol so that small energy suppliers do not have to invest in 'head end' systems;

3.17.3. Scheduled data retrieval – DCC will need to maintain and execute commands according to schedules submitted by users, for example to perform daily meter reads or to schedule a special meter read when a forthcoming change of tenancy is due; and

3.17.4. DCC user services – user focused services such as applications for performance management, reporting and billing;

DCC enterprise services and standard enterprise applications (e.g. finance and HR) are excluded from the scope of data services as they are expected to be provided by the DCC licensee.

3.18. The services that the data services provider(s) will be required to perform are likely to include:

3.18.1. System integration services – integration of the various software solutions and communications solutions required for DCC to meet its requirement of providing access control, translation and scheduling. The integration services to be provided will include technical design of the DCC's systems, configuration and/or build of the software applications and testing of the solution, including cross-industry testing (testing processes and procedures to be developed) to prove that DCC's systems will inter-operate with the systems of other industry parties;

3.18.2. IT infrastructure services – the provision of the infrastructure upon which the required software solutions / applications will run; and

3.18.3. Application management services – the provision of services to maintain and support the software solutions / applications and IT infrastructure.

3.19. The DCC licensee could take on the integration task (and associated risk) of bringing together the required solutions and infrastructure; however this would conflict with the aim of keeping DCC a procurement and contract management entity. The DCC Services Procurement Strategy will therefore seek to package the required services up in such a way that they may be procured from competitive markets.

3.20. The data services scope for DCC could be segregated into generic IT services available in the IT services market:

3.20.1. Systems Integration – IT system integration services to develop and integrate the required software solutions/ applications;

3.20.2. IT Hosting – The provision of IT infrastructure (data centres, computer servers etc.) on a managed service basis (hosting provider owns, maintains and operates the computing infrastructure and provides it to DCC on managed service terms);

3.20.3. Application Management Services (AMS) – The support and maintenance of the software solutions/ applications once they have been implemented by the Systems Integrator; and

3.20.4. Systems Implementation – The implementation and testing of the data systems including the integration between the communications and data services.

Communications

3.21. The communications services scope is centred on the provision of communications services between the IT infrastructure hosting the data applications above and the metering system in each consumer premises. The communications services are therefore likely to include:

3.21.1. Communications infrastructure access (right of access and capacity);

3.21.2. Managed communications services (provision of managed services across the communications infrastructure); and

3.21.3. WAN module supply.

3.22. Installation and subsequent home visits will be conducted by the meter installers (on behalf of the energy suppliers) and as such will be out of scope of the DCC communications service contract(s).

3.23. In order to achieve GB-wide coverage there may need to be more than one technology. There could therefore be a requirement to integrate communications services to some extent. Dependent upon the mix of technologies and level of integration required this requirement may sit best with those parties providing integration services within the data domain or the communications domain.

3.24. The ability to achieve GB-wide coverage is likely to be influenced by factors such as geographic conditions, population densities, meter location, property type etc. Overcoming these factors will need to be balanced against cost in providing the communication services.

Question

1. **What variation in coverage including cost of coverage do you expect between different DNO regions in Great Britain? Please support your answer with evidence where possible.**

DNO region[2]	Main solution technology	Main solution cost	Main solution % coverage	Infill solution(s) technology (identify the coverage issue it addresses)	Infill solution(s) cost	Infill solution(s) % coverage	Issues addressed by infill (regions/ property types/ etc.)
North Scotland	[describe technology]	[unit cost per WAN connection]	[% coverage able to be provided by main solution technology]	[describe technology]	[unit cost per WAN connection]	[additional % coverage provided by infill solution(s) technology]	[extent of issue it addresses and how it addresses it]
South Scotland							
North East England							
North West England							
Yorkshire							
East Midlands							
West Midlands							
Eastern England							
South Wales							
Southern England							
London							
South East England							
South West England							
North Wales, Merseyside and Cheshire							

Question

2. **What do you consider to be the major influencing factors on the economics of providing meter coverage (e.g. geographic conditions, premises type, population density etc)? Please support your answer with evidence where possible.**

Question

3. **In your estimation what proportion of the total number of households are likely to involve an average cost per premises of greater than the estimate contained in the Impact Assessment published in July 2010 (i.e. £5.30 per annum)? Please provide rationale for your answer.**

[2] http://en.wikipedia.org/wiki/Distribution_Network_Operator

Business process outsourcing

3.25. The business process outsourcing (BPO) service scope is to provide the first line IT support function required to manage the resolution of issues across multiple providers (applications management, IT hosting, communications etc.).

Assurance

3.26. The assurance scope is to provide independent audit and assurance services to ensure that all relevant parties are complying with the security framework. The service provider for this service would not be permitted to provide any of the other data or communications services. This function would also likely act as technical design authority for the security framework.

WAN module

3.27. The WAN module will need to conform to certain technical standards regarding performance and interface requirements for the HAN but is fundamentally linked to the WAN communications technologies deployed.

3.28. One option under consideration is the provision of a communications hub in the consumer's premises that would comprise:

3.28.1. WAN module – for connecting the smart metering system in the premises to the DCC data services;

3.28.2. HAN module – for connecting the smart metering system in the premises to other components in the premises e.g. the IHD;

3.28.3. common functionality – core to the smart metering system; and

3.28.4. extended functionality – e.g. for demand side management.

3.29. The SMIP is considering where the demarcation of the DCC service providers' responsibility in the communications hub should lie.

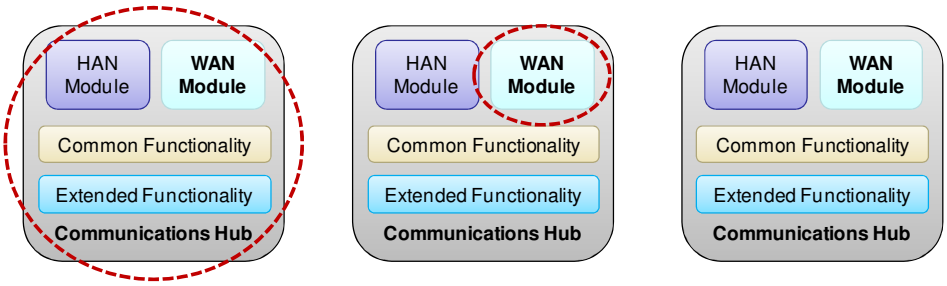
3.30. It is possible that the WAN module (including any HAN functionality that may or may not be included) could be procured and supplied by the communications services provider or it could be procured separately by the SMIP/DCC.

3.31. Options are being considered by the SMIP around the demarcation of responsibility within the communications hub. As illustrated in Figure 2, these options include:

3.31.1. The DCC service providers taking responsibility for the full communications hub;

3.31.2. The DCC service providers taking responsibility for the WAN module only; and

3.31.3. The DCC services providers not taking responsibility for any element of the communications hub.



1) DCC service providers responsible for full communications hub

2) DCC service providers responsible for WAN module only

3) DCC service providers are not responsible for any element of the communications hub

Figure 2: Communications hub functional responsibilities

Question	
4.	**What are the integration risks, delivery practicalities, effects on the timing of procurement and cost impacts of:** • **DCC service providers being responsible for the full communications hub;** • **DCC service providers being responsible for the WAN module only; and** • **DCC service providers not being responsible for any communications components at the premises?** **Are there any other approaches that should be considered? Please provide rationale.**
Question	
5.	**For each of the three communications hub demarcation options who (e.g. communications service provider, other DCC service provider, energy supplier etc.) is best placed to take responsibility for the design, procurement, ownership and refresh of each of the functional components? Please provide rationale for your answer.**
Question	
6.	**For each of the three communications hub demarcation options who (e.g. communications service provider, other DCC service provider, energy supplier etc.) is best placed to take responsibility for the operational management of each of the functional components? Please provide rationale for your answer.**

3.32. A function of the communications service will be to support effective routing of messages both to and from the DCC to meters and other devices on the smart meter HAN. It is expected that the communications service scope will include the provision of a suitable network addressing scheme that will support end-to-end communications within the smart meter system.

Question	
7.	**What networking layer protocols would your solution support? Are these protocols based on open standards? What would be the impact of the SMIP imposing a standard protocol?**

DCC services user requirements (energy suppliers, network operators and authorised third parties)

3.33. Whilst the SMIP has an initial view of the key requirements for the data and communications services, further work is required to develop the detailed requirements that will be needed to undertake the procurement of services. This work has been commenced by the joint SMIP/industry working groups established by the SMIP.

3.34. A specification for the data and communications services will be prepared and structured to allow various functional elements to be independently packaged. The specification will be issued to selected candidates for the DCC services in order that they may develop their outline technical solutions.

3.35. Whilst the likely messaging flows for smart metering were set out in the WAN request of information[3] (RFI) issued by Ofgem in the previous phase of the programme, we need to examine whether the implementation of smart grids will place additional/enhanced requirements on the communications

[3] http://bit.ly/WANRFI

services. In order to inform our analysis around the impact of smart grids on the DCC services we have developed three messaging flow scenarios in respect of which we would like to address the following questions.

Please see appendix for smart meter/grid messaging scenarios.

Question	
8.	**For each of the four messaging scenarios (A/B/C/D) what would be the impact (e.g. technical – ability to meet performance and capacity requirements, commercial – cost of any functional or technical enhancements to meet requirements) on potential solutions?** **In your response please also describe how flexible/scalable potential solutions would be to future changes in messaging requirements. For example moving from scenario A to B, D to C etc. or to other yet to be determined requirements?**
Question	
9.	**Within the individual scenarios, please identify any particular messages or aspects of messages that you consider to be significant drivers of costs within potential communications solutions (e.g. latency, message size, message frequency, overall capacity etc.).**

3.36. Whilst the main focus of the SMIP is smart metering in the electricity and gas sectors, there is the potential for water metering to be included at some point. In answering the above questions, respondents should focus their answers on the electricity and gas metering requirements, however if they consider that water meters present a different set of issues in respect of a particular question they should provide a brief response on those issues.

3.37. A key requirement of the smart metering system is likely to be the identification of loss of (power) supply within the electricity distribution networks via alert messages generated in the smart meter system. In addressing the questions below please consider the following scenarios:

	Scenario	Number of households impacted	Required percentage of alert messages delivered to DCC	Typical annual event volume
1	Loss of supply impacting a single household	1	100%	154,000
2	Loss of supply impacting a small number of households in close geographical proximity to each other (on the same LV distribution substation)	2-10	100%	
3	Loss of supply to all or a number of households on the same LV distribution substation	50-500	25%	
4	Loss of supply at a primary distribution station	5,000 – 30,000	n/a	31,000
5	A loss of supply affecting the main power grid	50,000-125,000	n/a	3,000

3.38. Note that, for low-order failures (scenarios 1 and 2), it is desirable that 100% of messages are received by the DCC to support fault resolution. For higher-order failures (scenarios 4 and 5), it can be assumed that DNO SCADA systems will identify loss of supply and therefore smart meter system alerts do not

have a requirement for 100% delivery (although the metering systems will still originate loss of power messages).

Question	
10.	**In your view, which component of the smart meter system (e.g. meter, WAN module, communications system) is best suited to identify a loss of mains power (to the premises) event and send an alert message to the DCC data services provider? Please provide rationale for your answer.**
Question	
11.	**What are the likely impacts (technically and cost) of providing support for the power outage notification scenarios listed and of meeting the required percentage delivery targets for alert messages?**
Question	
12.	**What would the cost drivers be of being able to distinguish between a power outage versus an outage of the communications service?**
Question	
13.	**What would be the technical impact and cost of handling the potential volume of alert messages generated under each loss of power scenario including the volume of messages generated by the smart meter solution following power restoration?**

4. Contracting/Commercial Approach

Contracting approach

General

4.1. A balance is required between maintaining a satisfactory level of competition and designing a procurement process which institutes undesirable levels of complexity. The procurement process and subsequent contact(s) must keep in mind the need to protect consumer interests and so deliver the proposed benefits of the programme.

4.2. Whilst the centralised nature of DCC suits a GB-wide contracting approach for data services the communications infrastructure and service management could be let through a single national contract or multiple contracts.

4.3. The SMIP has considered letting multiple communication services contracts on a technology basis whereby DCC would be responsible for ensuring that the right technology mix was available to meet coverage targets. This approach was not expected to be consistent with the decision that DCC should solely be a procurement and contract management body.

4.4. An alternative approach would be to let communications services contracts on a regional basis. If multiple regional contracts for communications were adopted, the SMIP would look to appoint a prime contractor, in each region, who would be responsible for managing any subcontractors and delivering an integrated solution meeting the required coverage targets. In such a scenario, DCC could require visibility of and step-in rights over key subcontractors.

4.5. In order to benefit from synergy efficiencies across data and communications lots it is likely that the common service management functions required for both data and communications services will be consolidated into the business process outsourcing (BPO) scope, which will be specified as a standalone lot. This would allow the BPO provider to manage the initial spike in activity during rollout, with the opportunity for the DCC to in-source this activity later.

4.6. Assurance services are also likely to be let as a separate contract(s). However we believe the timescales for procuring assurance services are such that this could be let by the DCC rather than be initiated by the SMIP and could therefore be conducted under a separate procurement event.

4.7. The analysis to be conducted by the SMIP will include factors such as:

4.7.1. Competition – maintaining competition to ensure value for money and preventing ‘lock in’ to the detriment of new market entrants;

4.7.2. Complexity – avoiding a high degree of complexity and so cost incurred in evaluating numerous bids and ongoing service management; and

4.7.3. Technology neutrality – maintaining an optimum number of contracts that create a level playing field for all technologies without creating an unbalanced market.

Data

4.8. With the exception of systems integration the services are enduring ones for which DCC will always need to contract. Systems integration however will be a one off activity to setup the services which will then be managed through the other service categories (although there may be subsequent separate procurement events in this category should DCC’s requirements change materially over time and new functionality is required).

4.9. There currently exists a competitive market for all categories of services described in 3.20 above, comprising of service providers able to cover the full range of services and those that specialise in just certain areas.

4.10. The service categories could be independently delivered, although there are clearly some interdependencies (e.g. AMS will need access to IT hosting infrastructure in order to support systems),

but more importantly there exist opportunities for optimisation of process and cost across multiple categories (e.g. optimisation of AMS maintenance/ upgrade processes could reduce IT Hosting costs).

Communications

4.11. There exists a market for the provision of certain commodity communications services (e.g. public cellular wireless operators) and an appetite from new entrants to deliver communications services potentially suitable for smart metering communications. In Phase 1 the programme issued (October 2010) an RFI[4] to industry and service providers which sought information in relation to certain areas of the communications scope. The level of interest from the service provision market to this RFI and the wider consultation on the Prospectus led us to believe that there exists a pool of service providers who are able and interested to provide these services to DCC.

4.12. There are options available for the procurement of the WAN module. The WAN module could be procured as part of the overall communications service (i.e. from the WAN service provider), or the WAN module could be procured separately from the communications service (e.g. from a specialist device provider).

Question	
14.	**In the context of the DCC services, what do you consider to be the trade offs of procuring the WAN module separately or as part of the overall communications service?**

Contract structure

General

4.13. The procurement strategy for data and communications services adopted by the SMIP will seek to package the required services in such a way as they may be effectively and competitively procured. There are a number of constraints/ factors which we have considered as to how the required services might be 'bundled' and subsequently contracted for, these include:

4.13.1. Market alignment – ability/ appetite of supply market to provide services as 'bundled';

4.13.2. Competitive tension – grouping the required services into specific service packages or 'bundles' may have the effect of reducing the size of the pool of potential service providers (due to the extent of their established service offers), also larger bundles restrict the ability to selectively re-procure service categories later in the contract lifecycle;

4.13.3. Relative values – the likely cost (to DCC) of the various service packages could vary considerably. If low-cost services are grouped with high-cost services then the service provider's focus is likely to naturally fall to the higher cost elements, potentially resulting in a sub-optimal approach to the lower cost (but not necessarily lower value) services;

4.13.4. Selective sourcing – grouping of services into a larger number of smaller packages makes it easier to selectively procure best of breed providers, the grouping of multiple services together encourages consortia to form which may not comprise the best fit providers for each element; and

4.13.5. Geographical constraints – some areas of GB are inherently harder for certain technologies to deliver against coverage and performance requirements due to geographical constraints. There are also infrastructure roll-out and commercial considerations which need to be taken at a regional level.

[4] http://bit.ly/WANRFI

Data

4.14. The data services scope can be categorised by service; systems integration, IT hosting and application management.

4.15. Potential options under consideration for the contractual structure of the data services include:

4.15.1. Tendering for systems integration, IT hosting and application management as three separate contracts which may be awarded to separate service providers or a single service provider / consortium. This approach would likely introduce competition into the supply chain for the duration of the contract avoiding the risk of 'lock in' at the end of the contract term. However it may present a continuity risk when systems are handed over to application management;

4.15.2. Tendering for systems integration, IT hosting and application management as a single contract to be awarded to a single service provider/consortium. This approach may benefit from increased economies of scale however it presents a risk that DCC could be 'locked in' to the services making them difficult to retender; and

4.15.3. Tendering for systems integration, IT hosting and application management as a single contract with multiple lots to be awarded to a single service provider/consortium, but with a performance related break clause between the systems integration and application management lots. This approach may benefit from increased economies of scale as above but reduces 'lock in' risk if the provider fails to deliver the systems integration services satisfactorily.

4.16. When central registration (of meters) is added to the scope of DCC during the term of the data contract(s) the scope of hosting and application management is likely to be expanded to cover the additional requirements of registration and a separate competitive procurement undertaken for the associated systems integration.

Question	
15.	**What are relative advantages or disadvantages of each of the above contracting options for data services? Please provide evidence for your response where available.**
Question	
16.	**Are there any other contracting options that we should consider? Please support any alternative options with analysis of relative advantages or disadvantages compared with the options above.**

Communications

4.17. Communications services could be let as a single national contract or on a regional basis. A regional approach may enable more competition, create an internal market to allow benchmarking and address geographical differences.

4.18. In the event that a regional split is adopted, this may be defined by the DNO regional boundaries since this would not preclude the use of certain technologies already in use or contemplated by other smart metering implementations outside of GB. A regional split may include the grouping of multiple DNO regions to form a single communications service region.

4.19. Service providers bidding for the communications service lots would be responsible for defining the technology mix best suited to meet the requirements for each regional lot.

4.20. A regional approach would not preclude a single service provider from being awarded the contracts for all regions, and the evaluation methodology would be developed to ensure that all regions benefit from a credible communications service and that value for money is delivered for GB as a whole.

4.21. The SMIP is analysing the pros and cons of potential approaches – this analysis will be informed by input from the service provision market. Three possible scenarios have been constructed (which may or may not be the final defined lots in the tender documentation) for the communications services contract(s). Since there are 14 DNO licence areas options could range between 1 and 14 communications contracts. The possible scenarios highlighted below group the DNO licence areas to provide a broadly equal number of smart meters in each region, whilst taking note of topographical similarities:

- 9 regional contracts: Scotland; North East; North West and Yorkshire; Central; Wales; South and South West; East; London; South East;
- 3 regional contracts: Scotland and North England; Wales, Central and East; South West, South, London and South East; or
- 1 national contract.

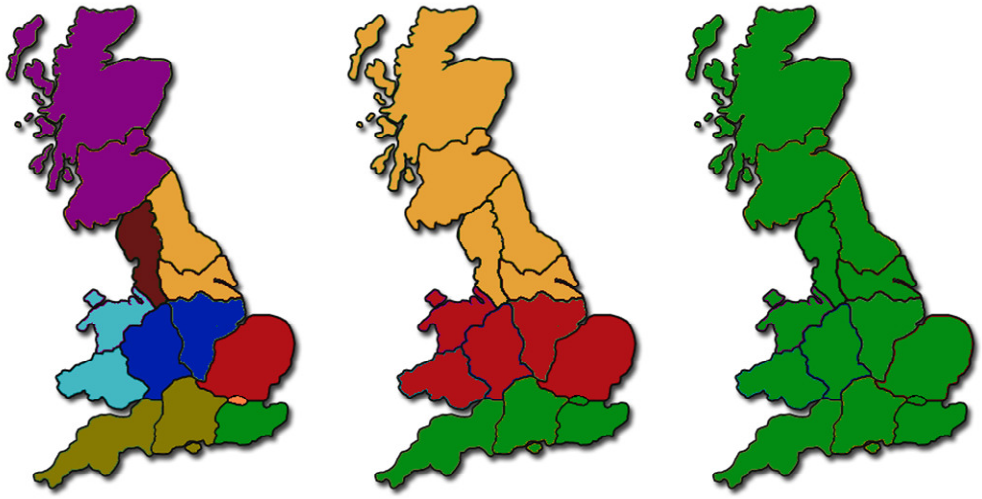


Figure 3: Illustration of possible regional splits with DNO boundaries identified

Question	
17.	**Are the drivers we have used in developing the possible regional split (number of meters; topography and DNO boundaries) the most appropriate to make a decision on the division of communication services contracts? Are there other drivers that we should consider? Please provide rationale for your response.**
Question	
18.	**Are any technical solutions disadvantaged by splitting the solution into separate regions? Or do you consider that this approach is necessary to create an environment for the optimal solution to emerge? Please provide rationale for your response.**
Question	
19.	**Is there another scenario for regional contracts we should consider? Please provide any other evidence you believe we should take account of in deciding on the split of the communications contracts.**
Question	
20.	**What are the benefits, or impacts (e.g. time, cost and performance) of the three scenarios (plus any scenarios proposed in answer to the question above) on potential solutions? Please support your answer with evidence where available.**

Question	
21.	**If you are a potential communications service provider are there any aspects of the potential communication services scope (such as a particular region) that would be undesirable for your solution? Please provide rationale for your response.**

Business process outsourcing

4.22. A BPO/service management function will be required to provide first line support and integration across all the services comprised by the data services and communications services. This could be contracted to one of the service providers or separately. Contracting with one or other of the service providers may allow closer integration with the service packages, however contracting with a separate specialist service provider may provide greater independence to the service management function. A specialist service provider could bring expertise and best practice to the role as well as possible economies of scale gained from delivering similar services.

4.23. We anticipate that the timing of the DCC licence application process and the procurement of DCC services (initiated by the SMIP) will allow DCC sufficient time to define and procure the necessary BPO services following award of the licence.

Question	
22.	**What are the significant risks (if any) associated with leaving the procurement of the BPO service to the DCC once it is appointed?**

Assurance services

4.24. Assurance services will be required to audit and provide assurance that the overall solution complies with the security framework and other relevant standards for smart metering services. Therefore it is important that the provider of such services is separate from those providers delivering the systems integration, IT hosting and application management, or indeed any of the communications services.

4.25. The timing of the DCC licence application process and the procurement of DCC services (initiated by the SMIP) may allow DCC sufficient time to define and procure the necessary assurance services following award of the licence.

Question	
23.	**What are the significant risks (if any) associated with leaving the procurement of the assurance services to the DCC once it is appointed?**

Contract term

4.26. In developing the positions below the SMIP has considered a number of influencing factors regarding the optimum contract term, including:

4.26.1. The likely economic life of the assets being used to deliver the contracted services;

4.26.2. The period for which the cost base of the contracted services can be foreseen;

4.26.3. The period for which the technical/ functional requirements can be foreseen;

4.26.4. The need to balance flexibility and ability to sustain competition through re-procurement with the effort, expense and distraction of conducting frequent and multiple re-procurements;

4.26.5. Those responsible for funding assets need to be given sufficient time to recover investment through the charging structure; and

4.26.6. Longevity of right of access to infrastructure.

4.27. For information, the DCC licensee will initially be appointed a ten year licence term.

Data

4.28. The data services bundles considered, namely systems integration, IT hosting and application management are all relatively standard market offerings and the factors that determine the appropriate contract length are well understood. The services are available from a mature IT service provision market where there are recognised approaches to balancing the need to recover upfront costs and stability of operation with the competition and innovation benefits that come from retendering.

4.29. An option under consideration for the data services is:

4.29.1. Application development, as this is a setup activity, could be let for a duration which allows the required applications to be developed, tested and operated for the period of development (estimated at 18 months) plus initial running/warranty (estimated at 6 months), following which the developed solution will be handed over to application management; and

4.29.2. Application management and IT hosting contracts could be let for an initial duration of between four and five years (from the commencement of service provision).

Question	
24.	**What do you consider to be the advantages or disadvantages of the described approach to the duration of the data services contracts? Please support your answer with evidence where available.**

Communications

4.30. Identifying an appropriate contract length for the communications service bundles, namely communications infrastructure, service management and communications module supply, is potentially more challenging because of the range of technical solutions that could be involved. In addition, the SMIP needs to balance the need for flexibility to accommodate evolving requirements versus value for money.

4.31. It is not desirable for initial communications service provision contracts to fall due for retendering during the rollout period (due to disruption that this would cause to rollout). Communications service providers are also likely to prefer a period of steady state operation post rollout. Contracts for communications infrastructure and service management would therefore need to be established to allow for a rollout phase followed by a set (initial) term of operational running. This term could commence at say 85%-95% of roll-out completed (with safeguards for delay) and would run for a further period of three to four years.

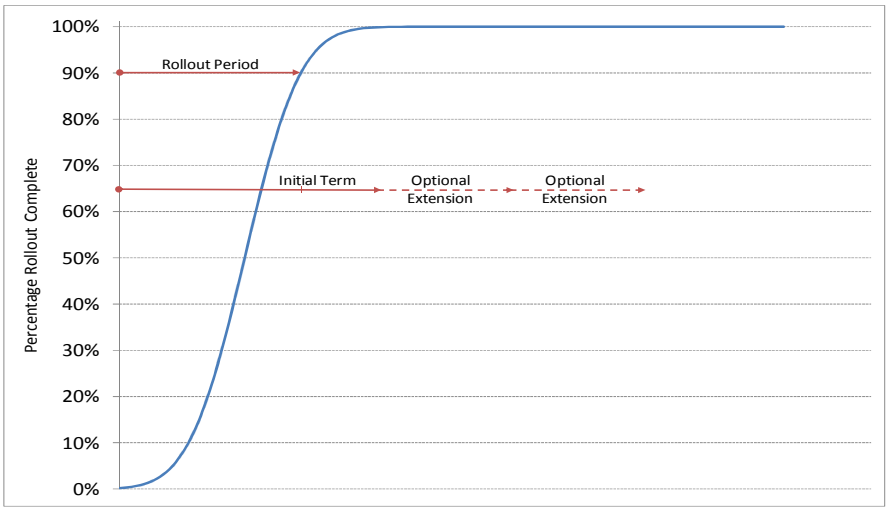


Figure 4: Contract Term linkage to Roll-out

Question	
25.	**What do you consider to be the advantages or disadvantages of the described approach for defining the duration of the communications services contract(s)? Please support your answer with evidence where available.**
Question	
26.	**What would you consider to be the optimal contract length for communications services? Please provide rationale for your answer.**

Commercial approach

4.32. DCC service provision contracts will be a major component of the cost of smart metering services. The adopted procurement strategy should seek to deliver value for money throughout the contract life.

4.33. The SMIP has defined 'value for money' in this context as:

> "To achieve the optimum balance between benefit and cost associated with the procured services".

4.34. The procurement strategy should ensure that a competitive market for service provision exists at the point of initial procurement, through the life of the contract and when retendering the DCC service provision contracts. This will be achieved through contract structures and terms which encourage competition.

4.35. The procurement strategy should ensure that the risks associated with:

4.35.1. commercial obsolescence – the emergence of lower cost solutions in the market i.e. current solution no longer represents value for money; and

4.35.2. technical obsolescence – components of the technical solution reach operational life with no economic replacements, or installed technology not capable of meeting future user requirements,

are mitigated.

4.36. The procurement strategy should ensure an effective balance of risk between the users and service providers. Service providers will need to have sufficient capability to deliver the required specification.

4.37. Although the specific pricing approach for each service provision contract will be dependent upon the scope of the contract lot concerned, the pricing principles adopted for the service provision lots need to support those pricing principles incumbent on DCC.

4.38. Service providers will be incentivised to meet certain performance targets in their delivery of the scope of services. These measurements are likely to include a service level regime which rewards successful delivery whilst discouraging poor performance.

4.39. Service providers will be expected to fund any asset investment required over the term of their contract(s) and recover such through amortised service charges.

Question	
27.	**Given the challenges faced by the programme in balancing value for money against flexibility to meet evolving requirements, how could the DCC service providers help mitigate the risks surrounding commercial and technical obsolescence?**
Question	
28.	**Are there any other cost or risk drivers that we have not considered? Please explain your answer.**

5. Implementation

Transition of compliant smart meters

5.1. To provide greater certainty to energy suppliers and so facilitate early rollout benefits, the Government has concluded that DCC should be required to adopt communications contracts associated with compliant metering systems installed before DCC services are available, subject to the contracts meeting agreed pre-defined criteria.

5.2. There is likely to be a limit on the number of communications connections associated with these communications contracts that DCC would guarantee to adopt. DCC will have the discretion to adopt contracts in excess of this number where it is satisfied this is consistent with the objectives set out in its licence. On adopting these contracts, DCC may elect to take on the existing communications contracts (either on an enduring basis or with an intent to cease and re-provide) or may request that its service providers accept a novation of the existing contracts.

5.3. It is possible that the cost and commercial viability of certain potential solutions for the DCC communication services could be affected if DCC were required to adopt significant numbers of communications connections. The extent of this impact depends on the communications technologies concerned. The number of communications connections/contracts that DCC would guarantee to adopt needs, therefore, to be set at a level that avoids the potential foreclosure of what could otherwise be the most effective and efficient enduring communications solutions.

5.4. To give effect to its conclusions on adoption criteria and volume, the Government will:

5.4.1. include a condition in DCC's licence that requires DCC to adopt communications contracts associated with compliant metering systems if these satisfy pre-defined criteria and the volume of contracts adopted is consistent with the limit set by Government; and

5.4.2. include an obligation in the energy suppliers' licences that, if the communications contract associated with a compliant smart metering system does not satisfy the criteria for adoption or exceeds the limit, the energy supplier must replace the WAN module when requested to do so by DCC. The cost of replacement in this case would fall to the energy supplier.

5.5. DCC adoption criteria and volume would impact on the overall programme benefits and costs. As such, they must be set together, based on the best information available. Full, reliable information is not likely to be available until DCC's communications service providers have been selected. However, the Government recognises that energy suppliers would benefit from an early indication of the adoption criteria and volume, so they can make robust investment decisions. The Government has therefore concluded that the following approach should be taken in setting the adoption criteria and volume:

5.5.1. In parallel with the early stages of the procurement process for DCC communications services, the SMIP may issue a request for information to potential communication service providers;

5.5.2. At the same time, the SMIP will work with stakeholders to develop appropriate adoption criteria; and

5.5.3. The adoption criteria and volume identified by these processes will be implemented through the DCC licence conditions and be informed by the relevant consultation processes.

Question	
29.	**What is the impact, and the drivers for that impact, of** **a) integrating compliant pre-DCC smart meters into potential communications solutions for each of the scenarios below OR** **b) a change in scope reducing the number of meters to be served by the volumes below?** **Scenarios to consider in this question are:** • **2.7m installed compliant meters (1.5m WAN connections, 5% of total)** • **4.0m installed compliant meters (2.2m WAN connections, 8% of total)** • **6.5m installed compliant meters (3.6m WAN connections, 13% of total)** • **9.0m installed compliant meters (5.0m WAN connections, 18% of total).** **Please take the following in to account in preparing your response:** • **assume pro-rated percentages across all regions** • **assume that one predominant technology is adopted by energy suppliers for smart meter communications during the foundation stage and state the technology you have assumed in your response.**

Coordination with meter rollout

5.6. The Government has decided that energy suppliers will be responsible for delivering smart metering to domestic and smaller non-domestic consumers in Great Britain. Regulatory obligations will help make sure energy suppliers do what is necessary to deliver the rollout in a way that meets the SMIP's objectives. This includes the important period before the market is ready for the mass rollout to commence.

5.7. The Government will bring forward a proposal to require energy suppliers to take all reasonable steps to complete the rollout for their domestic customers by the end of 2019. The Government has also concluded that larger energy suppliers should be required to have in place a plan realistically capable of fulfilling their obligation to complete the rollout. Energy suppliers will be required to submit these plans to Ofgem, to report on progress against them on a regular basis and to submit updated plans annually.

5.8. The Government has concluded that by the start of the mass rollout, there should be an obligation that any meter installed in domestic and non-domestic sites, whether new or replacement[5], must comply with the relevant technical specifications. It is currently envisaged that the market will be ready for the mass rollout from the start of the second quarter of 2014.

5.9. As a result of the above obligations on energy suppliers to only install compliant smart meters from the start of mass rollout there could be a need for DCC's communications service provider to coordinate the implementation of their communications solutions with the meter rollout profile adopted by energy suppliers, such that DCC would be in position to support communications to meters at this point.

[5] New and replacement meters are expected to account for around 5% of the total meter population annually.

Question	
30.	**Based on the following projected rollout scenarios:**

% Meters Installed	Low case	Central case	High case
Dec-16	49%	57%	70%
Dec-17	66%	77%	90%
Dec-18	83%	91%	97%
Dec-19	94%	97%	100%
Dec-20	98%	100%	100%

What do you consider to be the relative advantages and disadvantages of the following meter rollout coordination approaches:

- **Energy supplier led - the communications provider is obliged to provide a connection to all new and replacement meters from the start of mass rollout**
- **Partial integration - the communications provider to provide temporary or 'infill' solutions for new and replacement meters (outside of their communications network rollout plans) from the start of mass rollout**
- **Communications provider constrained - the rollout of new and replacement meters is constrained by the capabilities of the communications network rollout. Energy suppliers would continue to provide foundation meter solutions outside of the communications network rollout capability**

Please support your answer with evidence where possible.

Question	
31.	**Are there any other approaches to coordinating meter rollout with the provision of communications services and what would be their respective advantages and disadvantages?**

Question	
32.	**If you are a potential communications service provider, how long from the start of rollout would you anticipate that it would take to rollout out all of your primary technology and how much longer to rollout any infill required to meet your coverage targets? Please give an indication of percentage rollout completed per quarter.**

6. Process

Procurement process

6.1. The overriding objective for the procurement process is to source the solution(s) that best meet the requirements (from technical and commercial perspectives). In doing so the process should be fair, transparent and auditable.

6.2. The SMIP intends to undertake a number of activities to engage the market for provision of data and communications services, including:

6.2.1. Producing clear 'Rules of Engagement' for engagement with service users, service providers and DCC proponents;

6.2.2. Issuing a Prior Information Notice (PIN) to inform the market of the forthcoming procurement event(s) prior to the issue of the formal Contract Notice – the PIN was issued on 9 May 2011 (ref. 148947-2011);

6.2.3. Issuing a market sounding questionnaire to explore service provider interest in the programme and invite their qualified input into the procurement strategy – contained within this document;

6.2.4. Organising an 'industry day' to communicate and generate interest in the procurement event; and

6.2.5. Developing a comprehensive competitive dialogue based procurement process.

6.3. The SMIP is considering running two separate procurement events, one for the data services contract(s) and one for the communications service contract(s). We anticipate that the procurement process for data services could take less time than the process for communications services, so separating the two events should allow implementation of the data services to commence as early as possible.

Question	
33.	**What are the technical, commercial and contractual impacts (either positive or negative) of separating the communications and data procurements into separate events? Please support your answer with evidence where available.**

6.4. The SMIP anticipates running the procurement events in accordance with the competitive dialogue process as described in the Public Contract Regulations 2006. An indicative high level Gantt chart is provided at paragraph 6.26 with the key stages in this process being:

Stage
Issue (OJEU) contract notice
Issue pre-qualification questionnaire (PQQ)
Select bidders for the 'long list'
Issue invitation to participate in dialogue (ITPD)
Commence dialogue
Issue invitation to submit outline solutions (ISOS)
Assess outline solutions (bidders may be short listed)

Stage
Issue invitation to submit detailed solutions (ISDS)
Assess detailed solutions (bidders may be short listed)
Close dialogue and issue invitation to submit final tender (ITSFT)
Bidders submit final tenders
Evaluate final tenders and select preferred bidder(s)
Award contract

Evidence requirements

6.5. Evidence will be required that the solutions proposed by prospective service providers are both commercially and technically viable.

6.6. A number of prospective service providers are already engaged in trials within the energy industry, others have set up specific technology Proof-of-Concept (PoC) pilots.

6.7. It is anticipated that varying degrees of evidence will be required to substantiate potential service providers' proposals throughout the procurement process in order to provide the confidence that they are able to meet the SMIP's requirements.

6.8. Increasing levels of confidence may be required as the number of bidders remaining in the procurement process reduces such that at the point of preferred service provider(s) selection the SMIP and DCC are confident in the chosen service providers' ability to deliver.

6.9. It is likely that this is best achieved by seeking differing levels of assurance at the relevant points in the procurement cycle, for example:

6.9.1. Pre-qualification (PQQ) – bidders to provide evidence of where they have provided similar services elsewhere and to provide a credible plan of how they will meet later evidence requirements;

6.9.2. Response to Invitation to Submit Outline Solutions (ISOS) – bidders to provide evidence of how key aspects of their solution will meet requirements, drawing on evidence from pilots and trials as appropriate; and

6.9.3. Response to Invitation to Submit Detailed Solutions (ISDS) / Invitation to Submit Final Tender (ITSFT) – results of industry trials or dedicated (specific) pilots to be reviewed with the SMIP procurement evaluation team.

Question	
34.	**Do you think that the approach described for providing the evidence set out in paragraph 6.9 at various stages of the procurement process is appropriate? Please provide your reasoning or outline any alternative strategy to meet the needs described.**
Question	
35.	**What are the cost drivers and their likely magnitude in meeting the incremental evidence requirements set out? Please explain your answer.**

Access to non-owned assets

6.10. In developing solutions for the SMIP, service providers may require access to assets that they do not currently hold (including non-physical assets such as spectrum or intellectual property). In addition, it may be necessary for services providers to have access to such assets in order to satisfy the evidence requirements mentioned above.

Question	
36.	**Would your solution require access to assets that you do not currently hold (including non-physical assets such as spectrum or intellectual property)? If so, please indicate the nature of these assets and to what extent your solution is dependent on them.**

Stakeholder engagement

6.11. The SMIP is in the process of finalising the procurement strategy and is seeking input from both potential users of DCC services, via advisory and working groups, and potential providers of services to DCC, via this Project Information Memorandum and the questions within.

DCC services questionnaire

6.12. The questions set out in this document are designed to help close out those issues which remain open in the procurement strategy.

6.13. We would like to solicit responses from potential service providers and other interested parties. Respondents should provide evidence to support their assertions where appropriate. We wish to avoid any bias being introduced into the procurement strategy, as such any sales related material or statements will not be accepted and may result in the entire questionnaire response being disregarded for that organisation.

6.14. Responses to the questions should be in the format provided in the annex (DCC Services Questionnaire Response Card) to this document. Respondents may wish only to respond to questions that are relevant to their organisation, however they are welcome to respond to as many or as few questions as desired. However, there are several questions at the start of the questionnaire that all respondents are required to complete.

6.15. Responses to the DCC Services Questionnaire may be subject to disclosure in accordance with the Freedom of Information Act. If you want information that you provide to be treated as confidential please say so clearly in writing when you send your response to the questionnaire. However, we cannot give an assurance that confidentiality can be maintained in all circumstances.

6.16. Potential bidders for the DCC services will not be prejudiced by any response to the DCC services questionnaire or by failure to respond. Other than informing the procurement strategy, no material or responses provided will be carried through to a subsequent procurement.

6.17. The SMIP will not be formally responding to any questions or issues raised in response to the DCC services questionnaire.

6.18. All questionnaire responses must be received by **28 June 2011** and should be submitted to dcc.services.procurement@decc.gsi.gov.uk.

Question	
37.	**Is there anything else you would like to raise that may have a significant impact on the SMIP's procurement strategy that has not been covered by this PIM?**

Industry day

6.19. An industry day is being planned to provide an opportunity for industry and other interested parties to provide direct feedback on the questions outlined in this PIM and help develop the procurement strategy further.

6.20. The aim of the 'industry day' is to brief the markets on the PIM and DCC Services Questionnaire.

6.21. The industry day will be held in the morning of **17 June 2011** at the Westminster Conference Centre, 1 Victoria Street, London SW1H 0ET.

6.22. Due to capacity restrictions at the venue and the high response received to the PIN, we may have to restrict the number of delegates from each organisation.

6.23. To register for the industry day please email dcc.services.procurement@decc.gsi.gov.uk stating your delegate's name by **13 June 2011**.

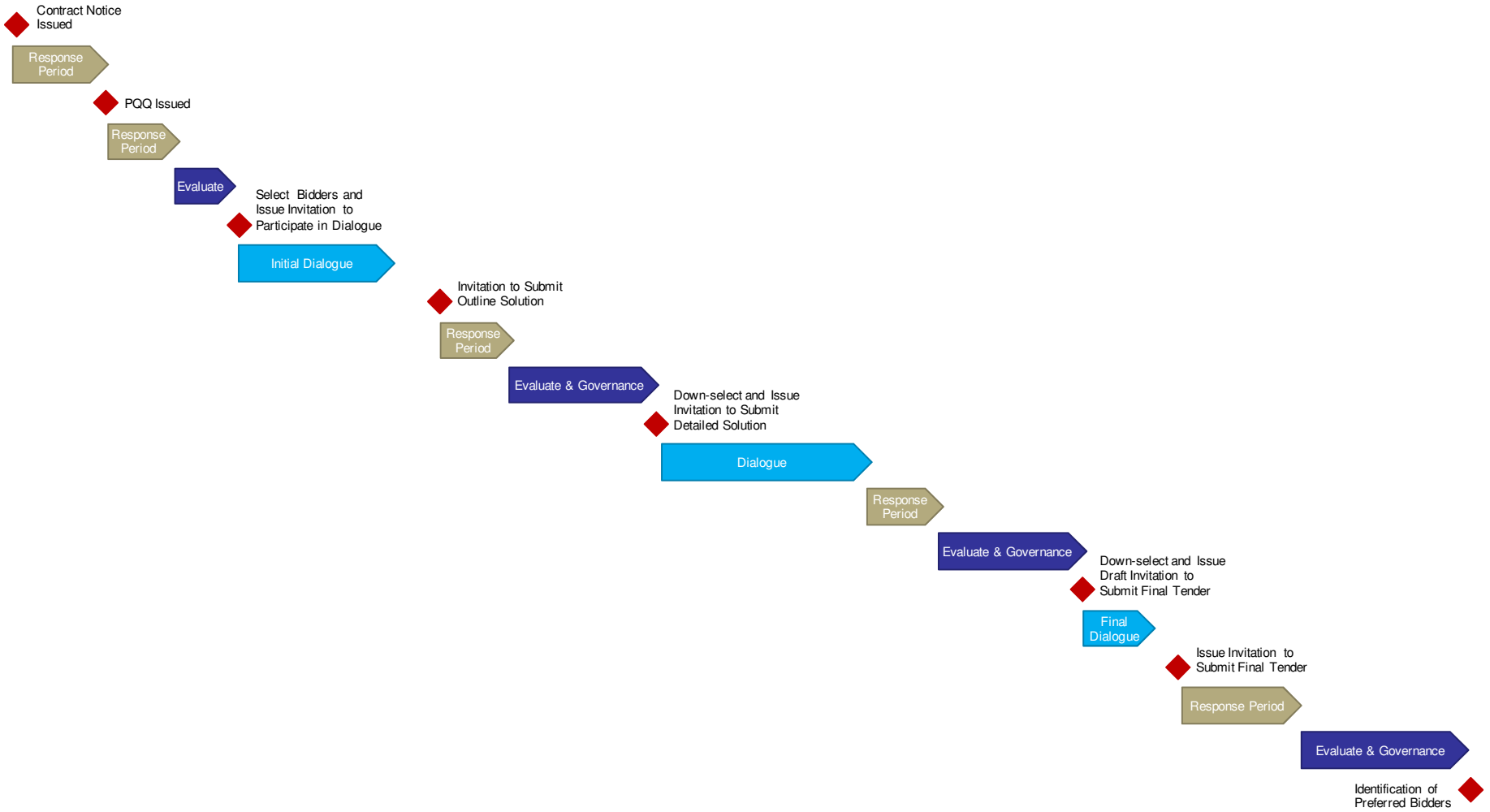
Rules of engagement

6.24. The SMIP will follow the Public Contracts Regulations 2006 and as such we are adopting a formal and equitable approach to communications with all potential bidders.

6.25. Lobbying by potential service providers to DCC of members of the SMIP or persons associated with the programme is discouraged, any necessary correspondence should be addressed to the procurement team via the above email address.

Procurement timetable

6.26. The potential procurement timetable is described at a high-level in the diagram below:



Appendix: Smart Meter/Grid Messaging Scenarios

Scenario A

Service description	Variant	% of population	Gas	Electricity	Message size (Bytes)	Target Response (s)	Message Frequency (per annum)		Ack required	Initiator	Broadcast/ Multicast	Annual volume	Number messages with acks	Small messages	Small messages volume	Large messages volume
							Low	High								
Gas calorific value update	Specified date/ time	100%	1	0	160	600	12	365	2	DCC	1	58,400	1,095	Yes	58,400	0
Tamper alarm triggered (and reset)		10%	1	1	160	600	12	365	1	M	0	5,840	730	Yes	5,840	0
Meter read (import & export) eORg	Periodic schedule	100%	1	1	544	21,600	12	365	0	M	0	198,560	365	Yes	198,560	0
Tariff update	Specified date/time	100%	1	1	160	600	4	100	2	DCC	1	16,000	300	Yes	16,000	0
Message to consumer via IHD	Specified date/time	100%	1	1	256	600	6	52	2	DCC	1	13,312	156	Yes	13,312	0
Feed in tariff update	Specified date/time	5%	0	1	160	600	0	52	2	DCC	0	416	156	Yes	416	0
PAYG services		30%	1	1	160	120	24	70	1	DCC	0	3,360	140	Yes	3,360	0
Remote configuration of settings	Specified date/time	100%	1	1	1,100	600	24	36	2	DCC	1	39,600	108	No	0	39,600
Feed in tariff update	On demand	5%	0	1	160	120	0	52	1	DCC	0	416	104	Yes	416	0
Security or software patch		100%	1	1	400,000	3,600	4	24	2	DCC	1	9,600,000	72	No	0	9,600,000
Message to consumer via IHD	On demand	100%	1	1	256	120	1	12	1	DCC	1	3,072	24	Yes	3,072	0
Tariff update	On demand	100%	1	1	160	120	1	12	1	DCC	0	1,920	24	Yes	1,920	0
Maximum demand read		100%	1	1	160	10,800	1	12	1	DCC	0	1,920	24	Yes	1,920	0
Gas calorific value update	On demand	100%	1	0	160	120	1	12	1	DCC	0	1,920	24	Yes	1,920	0
Credit balance update		30%	1	1	160	120	12	12	1	DCC	0	576	24	Yes	576	0
Consumer meter interaction		100%	1	1	160	120	3	12	0	DCC	0	1,920	12	Yes	1,920	0
Diagnostics	Routine	100%	1	1	160	120	3	6	1	DCC	0	960	12	Yes	960	0
Remote configuration of settings	On demand	100%	1	1	1,100	120	1	4	1	DCC	0	4,400	8	No	0	4,400
Meter read (import & export) eORg	Specified date/time	100%	1	1	544	10,800	1	4	1	M	0	2,176	8	Yes	2,176	0
Diagnostics	Low priority	100%	1	1	160	10,800	2	4	1	DCC	0	640	8	Yes	640	0
IHD, meter or comms unit s/w upgrade		100%	1	1	2,000,000	86,400	1	2	2	DCC	1	4,000,000	6	No	0	4,000,000
Diagnostics	High Priority	100%	1	1	160	10	1	2	1	DCC	0	320	4	Yes	320	0
Download/clear data from meter	Specified date/time	100%	1	1	600	600	0.2	1	2	DCC	0	600	3	Yes	600	0
Remote dis/enablement of supply	Specified date/time	100%	1	1	160	600	0.2	1	2	DCC	0	160	3	Yes	160	0
Switch between credit and PAYG	Specified date/time	100%	1	1	160	600	0.2	1	2	DCC	0	160	3	Yes	160	0
Download/clear data from meter	On demand	100%	1	1	600	120	0.2	1	1	DCC	0	600	2	Yes	600	0
Meter read (import & export) eORg	On demand	100%	1	1	544	10	0.2	1	1	DCC	0	544	2	Yes	544	0
Self registration on installation		100%	1	1	160	120	0.1	1	1	M	0	160	2	Yes	160	0
Meter fault alarm triggered		100%	1	1	160	600	0.1	1	1	M	0	160	2	Yes	160	0
Energisation status check		100%	1	1	160	120	0.5	1	1	DCC	0	160	2	Yes	160	0
Remote dis/enablement of supply	On demand	100%	1	1	160	10	0.2	1	1	DCC	0	160	2	Yes	160	0
Switch between credit and PAYG	On demand	100%	1	1	160	120	0.2	1	1	DCC	0	160	2	Yes	160	0
Load management (assume 0 to 2/day)		100%	0	1	160	30	0	730	0	DCC	1	116,800	730	Yes	116,800	0
Electricity quality read (on demand)	On demand	10%	0	1	141,472	30	1	12	1	DCC	0	169,766	24	No	0	169,766
Read distributed generation data		100%	0	1	282	120	0	12	1	DCC	0	3,384	24	Yes	3,384	0
Supply fault alarm triggered		100%	1	1	160	600	25	50	1	M	0	8,000	100	Yes	8,000	0
Electricity quality read (programmed)	Periodic schedule (selectable coverage)	10%	0	1	141,472	300	1	4	0	M	0	56,588	4	No	0	56,588
Over/under voltage alarm		100%	0	1	160	5	25	50	1	M	0	8,000	100	Yes	8,000	0
Voltage sag/swell alarm		100%	0	1	160	30	25	50	1	M	0	8,000	100	Yes	8,000	0
New device added to HAN		100%	1	1	160	600	1	4	1	M	0	640	8	Yes	640	0
Query devices on HAN		100%	1	1	544	120	1	12	1	DCC	0	6,528	24	Yes	6,528	0

Scenario B

Service description	Variant	% of population	Gas	Electricity	Message size (Bytes)	Target Response (s)	Message Frequency (per annum)		Ack required	Initiator	Broadcast/ Multicast	Annual volume	Number messages with acks	Small messages	Small messages volume	Large messages volume
							Low	High								
Gas calorific value update	Specified date/ time	100%	1	0	160	600	12	365	2	DCC	1	58,400	1,095	Yes	58,400	0
Tamper alarm triggered (and reset)		10%	1	1	160	600	12	365	1	M	0	5,840	730	Yes	5,840	0
Meter read (import & export) eORg	Periodic schedule	100%	1	1	544	21,600	12	365	0	M	0	198,560	365	Yes	198,560	0
Tariff update	Specified date/time	100%	1	1	160	600	4	100	2	DCC	1	16,000	300	Yes	16,000	0
Message to consumer via IHD	Specified date/time	100%	1	1	256	600	6	52	2	DCC	1	13,312	156	Yes	13,312	0
Feed in tariff update	Specified date/time	5%	0	1	160	600	0	52	2	DCC	0	416	156	Yes	416	0
PAYG services		30%	1	1	160	120	24	70	1	DCC	0	3,360	140	Yes	3,360	0
Remote configuration of settings	Specified date/time	100%	1	1	1,100	600	24	36	2	DCC	1	39,600	108	No	0	39,600
Feed in tariff update	On demand	5%	0	1	160	120	0	52	1	DCC	0	416	104	Yes	416	0
Security or software patch		100%	1	1	400,000	3,600	4	24	2	DCC	1	9,600,000	72	No	0	9,600,000
Message to consumer via IHD	On demand	100%	1	1	256	120	1	12	1	DCC	1	3,072	24	Yes	3,072	0
Tariff update	On demand	100%	1	1	160	120	1	12	1	DCC	0	1,920	24	Yes	1,920	0
Maximum demand read		100%	1	1	160	10,800	1	12	1	DCC	0	1,920	24	Yes	1,920	0
Gas calorific value update	On demand	100%	1	0	160	120	1	12	1	DCC	0	1,920	24	Yes	1,920	0
Credit balance update		30%	1	1	160	120	12	12	1	DCC	0	576	24	Yes	576	0
Consumer meter interaction		100%	1	1	160	120	3	12	0	DCC	0	1,920	12	Yes	1,920	0
Diagnostics	Routine	100%	1	1	160	120	3	6	1	DCC	0	960	12	Yes	960	0
Remote configuration of settings	On demand	100%	1	1	1,100	120	1	4	1	DCC	0	4,400	8	No	0	4,400
Meter read (import & export) eORg	Specified date/time	100%	1	1	544	10,800	1	4	1	M	0	2,176	8	Yes	2,176	0
Diagnostics	Low priority	100%	1	1	160	10,800	2	4	1	DCC	0	640	8	Yes	640	0
IHD, meter or comms unit s/w upgrade		100%	1	1	2,000,000	86,400	1	2	2	DCC	1	4,000,000	6	No	0	4,000,000
Diagnostics	High Priority	100%	1	1	160	10	1	2	1	DCC	0	320	4	Yes	320	0
Download/clear data from meter	Specified date/time	100%	1	1	600	600	0.2	1	2	DCC	0	600	3	Yes	600	0
Remote dis/enablement of supply	Specified date/time	100%	1	1	160	600	0.2	1	2	DCC	0	160	3	Yes	160	0
Switch between credit and PAYG	Specified date/time	100%	1	1	160	600	0.2	1	2	DCC	0	160	3	Yes	160	0
Download/clear data from meter	On demand	100%	1	1	600	120	0.2	1	1	DCC	0	600	2	Yes	600	0
Meter read (import & export) eORg	On demand	100%	1	1	544	10	0.2	1	1	DCC	0	544	2	Yes	544	0
Self registration on installation		100%	1	1	160	120	0.1	1	1	M	0	160	2	Yes	160	0
Meter fault alarm triggered		100%	1	1	160	600	0.1	1	1	M	0	160	2	Yes	160	0
Energisation status check		100%	1	1	160	120	0.5	1	1	DCC	0	160	2	Yes	160	0
Remote dis/enablement of supply	On demand	100%	1	1	160	10	0.2	1	1	DCC	0	160	2	Yes	160	0
Switch between credit and PAYG	On demand	100%	1	1	160	120	0.2	1	1	DCC	0	160	2	Yes	160	0
Load management (assume 0 to 4/day)		100%	0	1	160	30	0	1460	0	DCC	1	233,600	1,460	Yes	233,600	0
Electricity quality read (on demand)	On demand	10%	0	1	141,472	30	1	12	1	DCC	0	169,766	24	No	0	169,766
Read distributed generation data		100%	0	1	282	120	0	12	1	DCC	0	3,384	24	Yes	3,384	0
Supply fault alarm triggered		100%	1	1	160	600	25	50	1	M	0	8,000	100	Yes	8,000	0
Electricity quality read DG (programmed - max/min)	Periodic schedule	10%	0	1	141,472	600	52	365	0	M	0	5,163,728	365	No	0	5,163,728
Electricity quality read (programmed)	Periodic schedule (selectable coverage)	10%	0	1	141,472	300	2190	8760	0	M	0	123,929,472	8,760	No	0	123,929,472
Over/under voltage alarm		100%	0	1	160	5	25	50	1	M	0	8,000	100	Yes	8,000	0
Voltage sag/swell alarm		100%	0	1	160	30	25	50	1	M	0	8,000	100	Yes	8,000	0
New device added to HAN		100%	1	1	160	600	1	4	1	M	0	640	8	Yes	640	0
Query devices on HAN		100%	1	1	544	120	1	12	1	DCC	0	6,528	24	Yes	6,528	0

Scenario C

Service description	Variant	% of population	Gas	Electricity	Message size (Bytes)	Target Response (s)	Message Frequency (per annum)		Ack required	Initiator	Broadcast/ Multicast	Annual volume	Number messages with acks	Small messages	Small messages volume	Large messages volume
							Low	High								
Gas calorific value update	Specified date/ time	100%	1	0	160	600	12	365	2	DCC	1	58,400	1,095	Yes	58,400	0
Tamper alarm triggered (and reset)		10%	1	1	160	600	12	365	1	M	0	5,840	730	Yes	5,840	0
Meter read (import & export) eORg	Periodic schedule	100%	1	1	544	600	365	17520	0	M	0	9,530,880	17,520	Yes	9,530,880	0
Tariff update	Specified date/time	100%	1	1	160	600	4	100	2	DCC	1	16,000	300	Yes	16,000	0
Message to consumer via IHD	Specified date/time	100%	1	1	256	600	6	52	2	DCC	1	13,312	156	Yes	13,312	0
Feed in tariff update	Specified date/time	5%	0	1	160	600	0	52	2	DCC	0	416	156	Yes	416	0
PAYG services		30%	1	1	160	120	24	70	1	DCC	0	3,360	140	Yes	3,360	0
Remote configuration of settings	Specified date/time	100%	1	1	1,100	600	24	36	2	DCC	1	39,600	108	No	0	39,600
Feed in tariff update	On demand	5%	0	1	160	120	0	52	1	DCC	0	416	104	Yes	416	0
Security or software patch		100%	1	1	400,000	3,600	4	24	2	DCC	1	9,600,000	72	No	0	9,600,000
Message to consumer via IHD	On demand	100%	1	1	256	120	1	12	1	DCC	1	3,072	24	Yes	3,072	0
Tariff update	On demand	100%	1	1	160	120	1	12	1	DCC	0	1,920	24	Yes	1,920	0
Maximum demand read		100%	1	1	160	10,800	1	12	1	DCC	0	1,920	24	Yes	1,920	0
Gas calorific value update	On demand	100%	1	0	160	120	1	12	1	DCC	0	1,920	24	Yes	1,920	0
Credit balance update		30%	1	1	160	120	12	12	1	DCC	0	576	24	Yes	576	0
Consumer meter interaction		100%	1	1	160	120	3	12	0	DCC	0	1,920	12	Yes	1,920	0
Diagnostics	Routine	100%	1	1	160	120	3	6	1	DCC	0	960	12	Yes	960	0
Remote configuration of settings	On demand	100%	1	1	1,100	120	1	4	1	DCC	0	4,400	8	No	0	4,400
Meter read (import & export) eORg	Specified date/time	100%	1	1	544	10,800	1	4	1	M	0	2,176	8	Yes	2,176	0
Diagnostics	Low priority	100%	1	1	160	10,800	2	4	1	DCC	0	640	8	Yes	640	0
IHD, meter or comms unit s/w upgrade		100%	1	1	2,000,000	86,400	1	2	2	DCC	1	4,000,000	6	No	0	4,000,000
Diagnostics	High Priority	100%	1	1	160	10	1	2	1	DCC	0	320	4	Yes	320	0
Download/clear data from meter	Specified date/time	100%	1	1	600	600	0.2	1	2	DCC	0	600	3	Yes	600	0
Remote dis/enablement of supply	Specified date/time	100%	1	1	160	600	0.2	1	2	DCC	0	160	3	Yes	160	0
Switch between credit and PAYG	Specified date/time	100%	1	1	160	600	0.2	1	2	DCC	0	160	3	Yes	160	0
Download/clear data from meter	On demand	100%	1	1	600	120	0.2	1	1	DCC	0	600	2	Yes	600	0
Meter read (import & export) eORg	On demand	100%	1	1	544	10	0.2	1	1	DCC	0	544	2	Yes	544	0
Self registration on installation		100%	1	1	160	120	0.1	1	1	M	0	160	2	Yes	160	0
Meter fault alarm triggered		100%	1	1	160	600	0.1	1	1	M	0	160	2	Yes	160	0
Energisation status check		100%	1	1	160	120	0.5	1	1	DCC	0	160	2	Yes	160	0
Remote dis/enablement of supply	On demand	100%	1	1	160	10	0.2	1	1	DCC	0	160	2	Yes	160	0
Switch between credit and PAYG	On demand	100%	1	1	160	120	0.2	1	1	DCC	0	160	2	Yes	160	0
Load management (assume 0 to 6/day)		100%	0	1	160	30	0	2190	0	DCC	1	350,400	2,190	Yes	350,400	0
Electricity quality read (on demand)	On demand	10%	0	1	141,472	30	1	12	1	DCC	0	169,766	24	No	0	169,766
Read distributed generation data		100%	0	1	282	120	0	12	1	DCC	0	3,384	24	Yes	3,384	0
Supply fault alarm triggered		100%	1	1	160	600	25	50	1	M	0	8,000	100	Yes	8,000	0
Electricity quality read DG (programmed - max/min)	Periodic schedule	10%	0	1	141,472	600	365	1460	0	M	0	20,654,912	1,460	No	0	20,654,912
Electricity quality read (programmed)	Periodic schedule (selectable coverage)	10%	0	1	141,472	30	2190	17520	0	M	0	247,858,944	17,520	No	0	247,858,944
Over/under voltage alarm		100%	0	1	160	5	25	50	1	M	0	8,000	100	Yes	8,000	0
Voltage sag/swell alarm		100%	0	1	160	30	25	50	1	M	0	8,000	100	Yes	8,000	0
New device added to HAN		100%	1	1	160	600	1	4	1	M	0	640	8	Yes	640	0
Query devices on HAN		100%	1	1	544	120	1	12	1	DCC	0	6,528	24	Yes	6,528	0
Real-time rewards/penalties information		100%	1	1	2,048	600		2190	1	DCC	0	4,485,120	4,380	No	0	4,485,120

Signalling:																
Reduce all non-essential loads		50%	0	1	160	30		1825	0	DCC	1	146,000	1,825	Yes	146,000	0
Switch on immersion heaters		50%	0	1	160	30		730	0	DCC	1	58,400	730	Yes	58,400	0
Charge EVs now		50%	0	1	160	30		730	0	DCC	1	58,400	730	Yes	58,400	0
Small-scale generation management		10%	0	1	160	30		1825	1	DCC	1	29,200	3,650	Yes	29,200	0
Managing 415V generation		10%	0	1	160	5		4380	1	DCC	0	70,080	8,760	Yes	70,080	0
V2G support (bids)		50%	0	1	160	30		2190	1	DCC	1	175,200	4,380	Yes	175,200	0
Re-synchronization of "islands"		10%	0	1	160	5		12	1	DCC	0	192	24	Yes	192	0
Managing consumer demand		100%	0	1	160	30		3650	0	DCC	0	584,000	3,650	Yes	584,000	0
415V load mediation:																
EVs		50%	0	1	160	5		4380	1	DCC	0	350,400	8,760	Yes	350,400	0
Heating		100%	0	1	160	5		4380	1	DCC	0	700,800	8,760	Yes	700,800	0
Localized weather forecast reports		20%	1	1	1,024	600		1460	0	DCC	1	299,008	1,460	No	0	299,008
Smart Appliance downloads																
Security or software patch		20%	1	1	400,000	3,600		24	2	DCC	1	1,920,000	72	No	0	1,920,000
Software upgrade		20%	1	1	2,000,000	86,400		2	2	DCC	1	800,000	6	No	0	800,000

Scenario D

Service description	Variant	% of population	Gas	Electricity	Message size (Bytes)	Target Response (s)	Message Frequency (per annum)		Ack required	Initiator	Broadcast/ Multicast	Annual volume	Number messages with acks	Small messages	Small messages volume	Large messages volume
							Low	High								
Gas calorific value update	Specified date/ time	100%	1	0	160	600	12	365	2	DCC	1	58,400	1,095	Yes	58,400	0
Tamper alarm triggered (and reset)		10%	1	1	160	600	12	365	1	M	0	5,840	730	Yes	5,840	0
Meter read (import & export) eORg	Periodic schedule	100%	1	1	544	600	365	17520	0	M	0	9,530,880	17,520	Yes	9,530,880	0
Tariff update	Specified date/time	100%	1	1	160	600	4	100	2	DCC	1	16,000	300	Yes	16,000	0
Message to consumer via IHD	Specified date/time	100%	1	1	256	600	6	52	2	DCC	1	13,312	156	Yes	13,312	0
Feed in tariff update	Specified date/time	5%	0	1	160	600	0	52	2	DCC	0	416	156	Yes	416	0
PAYG services		30%	1	1	160	120	24	70	1	DCC	0	3,360	140	Yes	3,360	0
Remote configuration of settings	Specified date/time	100%	1	1	1,100	600	24	36	2	DCC	1	39,600	108	No	0	39,600
Feed in tariff update	On demand	5%	0	1	160	120	0	52	1	DCC	0	416	104	Yes	416	0
Security or software patch		100%	1	1	400,000	3,600	4	24	2	DCC	1	9,600,000	72	No	0	9,600,000
Message to consumer via IHD	On demand	100%	1	1	256	120	1	12	1	DCC	1	3,072	24	Yes	3,072	0
Tariff update	On demand	100%	1	1	160	120	1	12	1	DCC	0	1,920	24	Yes	1,920	0
Maximum demand read		100%	1	1	160	10,800	1	12	1	DCC	0	1,920	24	Yes	1,920	0
Gas calorific value update	On demand	100%	1	0	160	120	1	12	1	DCC	0	1,920	24	Yes	1,920	0
Credit balance update		30%	1	1	160	120	12	12	1	DCC	0	576	24	Yes	576	0
Consumer meter interaction		100%	1	1	160	120	3	12	0	DCC	0	1,920	12	Yes	1,920	0
Diagnostics	Routine	100%	1	1	160	120	3	6	1	DCC	0	960	12	Yes	960	0
Remote configuration of settings	On demand	100%	1	1	1,100	120	1	4	1	DCC	0	4,400	8	No	0	4,400
Meter read (import & export) eORg	Specified date/time	100%	1	1	544	10,800	1	4	1	M	0	2,176	8	Yes	2,176	0
Diagnostics	Low priority	100%	1	1	160	10,800	2	4	1	DCC	0	640	8	Yes	640	0
IHD, meter or comms unit s/w upgrade		100%	1	1	2,000,000	86,400	1	2	2	DCC	1	4,000,000	6	No	0	4,000,000
Diagnostics	High Priority	100%	1	1	160	10	1	2	1	DCC	0	320	4	Yes	320	0
Download/clear data from meter	Specified date/time	100%	1	1	600	600	0.2	1	2	DCC	0	600	3	Yes	600	0
Remote dis/enablement of supply	Specified date/time	100%	1	1	160	600	0.2	1	2	DCC	0	160	3	Yes	160	0
Switch between credit and PAYG	Specified date/time	100%	1	1	160	600	0.2	1	2	DCC	0	160	3	Yes	160	0
Download/clear data from meter	On demand	100%	1	1	600	120	0.2	1	1	DCC	0	600	2	Yes	600	0
Meter read (import & export) eORg	On demand	100%	1	1	544	10	0.2	1	1	DCC	0	544	2	Yes	544	0
Self registration on installation		100%	1	1	160	120	0.1	1	1	M	0	160	2	Yes	160	0
Meter fault alarm triggered		100%	1	1	160	600	0.1	1	1	M	0	160	2	Yes	160	0
Energisation status check		100%	1	1	160	120	0.5	1	1	DCC	0	160	2	Yes	160	0
Remote dis/enablement of supply	On demand	100%	1	1	160	10	0.2	1	1	DCC	0	160	2	Yes	160	0
Switch between credit and PAYG	On demand	100%	1	1	160	120	0.2	1	1	DCC	0	160	2	Yes	160	0
Load management (assume 0 to 24/day)		100%	0	1	160	5	0	8760	0	DCC	1	1,401,600	8,760	Yes	1,401,600	0
Load curtailment for frequency response	automated command	100%	0	1	160	0.5	1	12	1	DCC	0	1,920	24	Yes	1,920	0
Electricity quality read (on demand)	On demand	10%	0	1	141,472	30	1	12	1	DCC	0	169,766	24	No	0	169,766
Read distributed generation data		100%	0	1	282	120	0	12	1	DCC	0	3,384	24	Yes	3,384	0
Supply fault alarm triggered		100%	1	1	160	600	25	50	1	M	0	8,000	100	Yes	8,000	0
Electricity quality read DG (programmed - max/min)	Periodic schedule	10%	0	1	141,472	30	365	1460	0	M	0	20,654,912	1,460	No	0	20,654,912
Electricity quality read (programmed)	Periodic schedule (selectable coverage)	10%	0	1	141,472	30	2190	17520	0	M	0	247,858,944	17,520	No	0	247,858,944
Over/under voltage alarm		100%	0	1	160	5	25	50	1	M	0	8,000	100	Yes	8,000	0
Voltage sag/swell alarm		100%	0	1	160	30	25	50	1	M	0	8,000	100	Yes	8,000	0
New device added to HAN		100%	1	1	160	600	1	4	1	M	0	640	8	Yes	640	0
Query devices on HAN		100%	1	1	544	120	1	12	1	M	0	6,528	24	Yes	6,528	0

rms voltage read for LV network voltage control		10%	0	1	17,684	15	4380	21900		M						
Real-time rewards/penalties information		100%	1	1	2,048	600		2190	1	DCC	0	4,485,120	4,380	No	0	4,485,120
Signalling:																
Reduce all non-essential loads		100%	0	1	160	15		2920	0	DCC	1	467,200	2,920	Yes	467,200	0
Switch on / off immersion heaters		100%	0	1	160	15		1460	0	DCC	1	233,600	1,460	Yes	233,600	0
Switch on / off heat pumps		100%	0	1	160	15		2920	0	DCC	1					
Switch on / off EV chargers		100%	0	1	160	15		2190	0	DCC	1	350,400	2,190	Yes	350,400	0
Curtail microgeneration		100%	0	1	160	5		2190	1	DCC	1	350,400	4,380	Yes	350,400	0
Despatch / curtail 400V generation		50%	0	1	160	5		4380	1	DCC	0	350,400	8,760	Yes	350,400	0
V2G support (bids)		50%	0	1	160	30		2190	1	DCC	1	175,200	4,380	Yes	175,200	0
Re-synchronization of "islands"		10%	0	1	160	5		12	1	DCC	0	192	24	Yes	192	0
Managing consumer demand		100%	0	1	160	5		3650	0	DCC	0	584,000	3,650	Yes	584,000	0
400V load mediation:																
EVs		100%	0	1	160	5		4380	1	DCC	0	700,800	8,760	Yes	700,800	0
Heating		100%	0	1	160	5		4380	1	DCC	0	700,800	8,760	Yes	700,800	0
Localized weather forecast reports		20%	1	1	1,024	600		1460	0	DCC	1	299,008	1,460	No	0	299,008
Smart Appliance downloads																
Security or software patch		60%	1	1	400,000	3,600		24	2	DCC	1	5,760,000	72	No	0	5,760,000
Software upgrade		60%	1	1	2,000,000	86,400		2	2	DCC	1	2,400,000	6	No	0	2,400,000

Glossary

AMS	Application management services
BPO	Business process outsourcing
Communications hub	The combined functionality comprising the WAN module, HAN module, common functionality and extended functionality
Consumer	Person or organisation using electricity or gas at a meter point
DCC	Data and communications company – The new entity that will be created and licensed to deliver central data and communications activities. DCC will be responsible for the procurement and contract management of data and communications services that will underpin the smart metering system
DCC licensee	The company awarded a licence to operate as the DCC
DECC	The Department of Energy and Climate Change was created in October 2008, to bring together energy policy (previously with BERR, which is now BIS - the Department for Business, Innovation and Skills), and climate change mitigation policy (previously with Defra - the Department for Environment, Food and Rural Affairs).
DNO	Distribution network operator – The companies that are licensed by Ofgem to maintain and manage the electricity and gas networks in Great Britain
Energy supplier	A company licensed by Ofgem to sell energy to and bill customers in Great Britain
HAN	Home area network – The smart metering HAN will be used for communication between smart meters, IHDs and other devices in consumers' premises
IHD	In home display – an electronic device, linked to a smart meter, which provides information on a customer's energy consumption
Meter registration	The database(s) containing details of where energy meters are held and the associated suppliers
PIM	Project information memorandum – this document
PIN	Prior information notice – a notice issued through the Official Journal of the European Union
SCADA	Supervisory control and data acquisition
Smart appliance	An appliance that can alter the way in which it uses energy (consumption level or time of use) in response to an external signal, eg a price signal
Smart Energy Code	The proposed new industry code that will cover both gas and electricity and will contain the detailed regulatory, commercial and technical arrangements applicable to smart metering during rollout and on an enduring basis
Smart grids	As part of an electricity power system, a smart grid can intelligently integrate the actions of all users connected to it - generators, consumers and those that do both - in order to efficiently deliver sustainable, economic and secure electricity supplies
Smart meter	A meter which, in addition to traditional metering functionality (measuring and registering the amount of energy which passes through it) is capable of providing additional functionality for example two-way communication allowing it to transmit meter reads and receive data remotely

Smart Metering Design Expert Group	One of several expert groups established by the programme, following publication of the Prospectus, to draw on the experience of industry and other stakeholders. SMDG has considered functional requirements for smart metering equipment
Smart metering system	The end-to-end smart metering system covers all equipment, communication links and connections from every customer through DCC to suppliers, network operators and authorised third-party service providers
SMIP	Smart metering implementation programme – the central change programme established by the Government. It is responsible for overseeing the development and implementation of the policy design, including establishing the commercial and regulatory framework to facilitate the rollout. DECC is directly responsible for managing the programme during the implementation phase.
Translation services	Centralised services that ensure messages between authorised users and smart metering systems are translated into formats that can be interpreted by the smart metering system or user in a consistent manner
WAN	Wide area network – The smart metering WAN will be used for two-way communication between smart meters and DCC (via the WAN module in the consumer's premises)
WAN module	The WAN module connects the meter to DCC
Smaller non-domestic sector	For the purposes of this document, smaller non-domestic electricity and gas sites are those sites in electricity profile groups 3 and 4 and those non-domestic gas sites with consumption of less than 732 MWh per annum
Ofgem	The Office of the Gas and Electricity Markets (Ofgem) is responsible for protecting gas and electricity consumers in Great Britain. It does this by promoting competition, wherever appropriate, and regulating the monopoly companies that run the gas and electricity networks. Ofgem is governed by the Gas and Electricity Markets Authority
Installer	Person or persons appointed by the suppler who physically installs, configures, commissions or repairs equipment, as appropriate, in a consumer's premises
Gas meter	A measuring instrument that records the volume of gas supplied
Electricity meter	A measuring instrument that records the quantity of electricity supplied
Communications service providers	Providers of communications services that will enable the transfer of data to and from smart meters
Data service providers	Providers of any data service to DCC, including systems integration, IT hosting and application management

DCC Services Questionnaire Response Card

Please provide the responses to the questions contained within this document using the following template.

As a guide, the following table indicates the questions that may be of particular interest to potential data service providers and potential communications service providers:

Question	Data	Comms	Question	Data	Comms	Question	Data	Comms
1		•	14		•	27	•	•
2		•	15	•		28	•	•
3		•	16	•		29		•
4	•	•	17		•	30		•
5	•	•	18		•	31		•
6	•	•	19		•	32		•
7		•	20		•	33	•	•
8	•	•	21		•	34	•	•
9		•	22	•	•	35	•	•
10	•	•	23	•	•	36	•	•
11	•	•	24	•		37	•	•
12	•	•	25		•			
13	•	•	26		•			

Question: What is the name of the company that you are completing this questionnaire on behalf of?

Response

Question: If you are considering applying to be a provider of DCC services please state which services you will be bidding for when the SMIP issues the relevant contract notice(s).

Response

1. What variation in coverage including cost of coverage do you expect between different DNO regions in Great Britain? Please support your answer with evidence where possible.

Response

DNO region	Main solution technology	Main solution cost	Main solution % coverage	Infill solution(s) technology (identify the coverage issue it addresses)	Infill solution(s) cost	Infill solution(s) % coverage	Issues addressed by infill (regions/ property types/ etc.)
North Scotland	[describe technology]	[unit cost per WAN connection]	[% coverage able to be provided by main solution technology]	[describe technology]	[unit cost per WAN connection]	[additional % coverage provided by infill solution(s) technology]	[extent of issue it addresses and how it addresses it]
South Scotland							
North East England							
North West England							

Yorkshire							
East Midlands							
West Midlands							
Eastern England							
South Wales							
Southern England							
London							
South East England							
South West England							
North Wales, Merseyside and Cheshire							

2. What do you consider to be the major influencing factors on the economics of providing meter coverage (e.g. geographic conditions, premises type, population density etc)? Please support your answer with evidence where possible.

Response

3. In your estimation what proportion of the total number of households are likely to involve an average cost per premises of greater than the estimate contained in the Impact Assessment published in July 2010 (i.e. £5.30 per annum)? Please provide rationale for your answer.

Response

4. What are the integration risks, delivery practicalities, effects on the timing of procurement and cost impacts of:

- **DCC service providers being responsible for the full communications hub;**
- **DCC service providers being responsible for the WAN module only; and**
- **DCC service providers not being responsible for any communications components at the premises?**

Are there any other approaches that should be considered? Please provide rationale.

Response

5. For each of the three communications hub demarcation options who (e.g. communications service provider, other DCC service provider, energy supplier etc.) is best placed to take responsibility for the design, procurement, ownership and refresh of each of the functional components? Please provide rationale for your answer.

Response

6. For each of the three communications hub demarcation options who (e.g. communications service

provider, other DCC service provider, energy supplier etc.) is best placed to take responsibility for the operational management of each of the functional components? Please provide rationale for your answer.
Response

7. What networking layer protocols would your solution support? Are these protocols based on open standards? What would be the impact of the SMIP imposing a standard protocol?
Response

8. For each of the four messaging scenarios (A/B/C/D) what would be the impact (e.g. technical – ability to meet performance and capacity requirements, commercial – cost of any functional or technical enhancements to meet requirements) on potential solutions? In your response please also describe how flexible/scalable potential solutions would be to future changes in messaging requirements. For example moving from scenario A to B, D to C etc. or to other yet to be determined requirements?
Response

9. Within the individual scenarios, please identify any particular messages or aspects of messages that you consider to be significant drivers of costs within potential communications solutions (e.g. latency, message size, message frequency, overall capacity etc.).
Response

10. In your view, which component of the smart meter system (e.g. meter, WAN module, communications system) is best suited to identify a loss of mains power (to the premises) event and send an alert message to the DCC data services provider? Please provide rationale for your answer.
Response

11. What are the likely impacts (technically and cost) of providing support for the power outage notification scenarios listed and of meeting the required percentage delivery targets for alert messages?
Response

12. What would the cost drivers be of being able to distinguish between a power outage versus an outage of the communications service?
Response

13. What would be the technical impact and cost of handling the potential volume of alert messages generated under each loss of power scenario including the volume of messages generated by the smart meter solution following power restoration?
Response

14. In the context of the DCC services, what do you consider to be the trade offs of procuring the WAN module separately or as part of the overall communications service?
Response

15. What are relative advantages or disadvantages of each of the above contracting options for data services? Please provide evidence for your response where available.
Response

16. Are there any other contracting options that we should consider? Please support any alternative options with analysis of relative advantages or disadvantages compared with the options above.
Response

17. Are the drivers we have used in developing the possible regional split (number of meters; topography and DNO boundaries) the most appropriate to make a decision on the division of communication services contracts? Are there other drivers that we should consider? Please provide rationale for your response.
Response

18. Are any technical solutions disadvantaged by splitting the solution into separate regions? Or do you consider that this approach is necessary to create an environment for the optimal solution to emerge? Please provide rationale for your response.
Response

19. Is there another scenario for regional contracts we should consider? Please provide any other evidence you believe we should take account of in deciding on the split of the communications contracts.
Response

20. What are the benefits, or impacts (e.g. time, cost and performance) of the three scenarios (plus any scenarios proposed in answer to the question above) on potential solutions? Please support your

answer with evidence where available.
Response

21. If you are a potential communications service provider are there any aspects of the potential communication services scope (such as a particular region) that would be undesirable for your solution? Please provide rationale for your response.
Response

22. What are the significant risks (if any) associated with leaving the procurement of the BPO service to the DCC once it is appointed?
Response

23. What are the significant risks (if any) associated with leaving the procurement of the assurance services to the DCC once it is appointed?
Response

24. What do you consider to be the advantages or disadvantages of the described approach to the duration of the data services contracts? Please support your answer with evidence where available.
Response

25. What do you consider to be the advantages or disadvantages of the described approach for defining the duration of the communications services contract(s)? Please support your answer with evidence where available.
Response

26. What would you consider to be the optimal contract length for communications services? Please provide rationale for your answer.
Response

27. Given the challenges faced by the programme in balancing value for money against flexibility to meet evolving requirements, how could the DCC service providers help mitigate the risks surrounding commercial and technical obsolescence?
Response

28. Are there any other cost or risk drivers that we have not considered? Please explain your answer.

Response

29. What is the impact, and the drivers for that impact, of

a) integrating compliant pre-DCC smart meters into potential communications solutions for each of the scenarios below OR

b) a change in scope reducing the number of meters to be served by the volumes below?

Scenarios to consider in this question are:

- **2.7m installed compliant meters (1.5m WAN connections, 5% of total)**
- **4.0m installed compliant meters (2.2m WAN connections, 8% of total)**
- **6.5m installed compliant meters (3.6m WAN connections, 13% of total)**
- **9.0m installed compliant meters (5.0m WAN connections, 18% of total).**

Please take the following in to account in preparing your response:

- **assume pro-rated percentages across all regions**
- **assume that one predominant technology is adopted by energy suppliers for smart meter communications during the foundation stage and state the technology you have assumed in your response.**

Response

30. Based on the following projected rollout scenarios:

% Meters Installed	Low case	Central case	High case
Dec-16	49%	57%	70%
Dec-17	66%	77%	90%
Dec-18	83%	91%	97%
Dec-19	94%	97%	100%
Dec-20	98%	100%	100%

What do you consider to be the relative advantages and disadvantages of the following meter rollout coordination approaches:

- **Energy supplier led - the communications provider is obliged to provide a connection to all new and replacement meters from the start of mass rollout**
- **Partial integration - the communications provider to provide temporary or 'infill' solutions for new and replacement meters (outside of their communications network rollout plans) from the start of mass rollout**
- **Communications provider constrained - the rollout of new and replacement meters is constrained by the capabilities of the communications network rollout. Energy suppliers would continue to provide foundation meter solutions outside of the communications network rollout capability**

Please support your answer with evidence where possible.

Response

31. Are there any other approaches to coordinating meter rollout with the provision of communications services and what would be their respective advantages and disadvantages?

Response

32. If you are a potential communications service provider, how long from the start of rollout would you anticipate that it would take to rollout out all of your primary technology and how much longer to rollout any infill required to meet your coverage targets? Please give an indication of percentage rollout completed per quarter.
Response

33. What are the technical, commercial and contractual impacts (either positive or negative) of separating the communications and data procurements into separate events? Please support your answer with evidence where available.
Response

34. Do you think that the approach described for providing the evidence set out in paragraph 6.9 at various stages of the procurement process is appropriate? Please provide your reasoning or outline any alternative strategy to meet the needs described.
Response

35. What are the cost drivers and their likely magnitude in meeting the incremental evidence requirements set out? Please explain your answer.
Response

36. Would your solution require access to assets that you do not currently hold (including non-physical assets such as spectrum or intellectual property)? If so, please indicate the nature of these assets and to what extent your solution is dependent on them.
Response

37. Is there anything else you would like to raise that may have a significant impact on the SMIP's procurement strategy that has not been covered by this PIM?
Response

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