The DCG Community of Technical Experts

Promoting choice and value for all gas and electricity customers

Your Ref:
Our Ref:
Direct Dial: 020 7901 7000
Email: DCG@ofgem.gov.uk

Date: 14 October 2010

Dear Sir/Madam

Smart Metering: DCC Scope Options Information Request

You recently agreed to act as one of the DCG Community of Technical Experts (CoTEs), supporting the Smart Metering Implementation Programme (the Programme) in the development of options for the DataCommsCo (DCC). It is currently proposed, subject to the outcome of the consultation process, that the DCC would be responsible for managing the procurement and contract management of data and communications services that will underpin the smart metering system programme.

As noted in paragraph 2.56 of the Smart Meter Implementation Programme Communications Business Model[1], the Programme is continuing to work with stakeholders to undertake further cost/benefit analysis to analyse the scope of the DCC. As part of this ongoing activity, we are issuing the attached DCC Scope Options Information Request, which seeks information about the likely costs, benefits and timescales associated with establishing DCC under a defined set of scope options.

This Information Request is not part of any procurement process and is specifically being used to provide information that the Programme team can use to assess the most appropriate scope for DCC, at Go Live and subsequently.

The objective of this exercise is to assess the incremental costs and benefits associated with the implementation of DCC under three main scenarios. In responding to this information request, respondents should recognise that the Programme team needs strategic estimates for input to a cost benefit analysis, not detailed prices that might form part of a services contract. Accordingly the relative cost of each scenario – and the drivers of cost differentials – are of significant importance.

As stated in the letter inviting you to join the CoTEs:

1. Responses provided to the information request will be treated as public domain information unless clearly marked as commercially sensitive.

[1] Smart Meter Implementation Programme: Communications Business Model, July 2010, http://www.ofgem.gov.uk/e-serve/sm/Documentation/Documents1/Smart%20Metering%20-%20Communications%20Business%20Model.pdf

2. We will seek to ensure that any published documentation predicated on these responses will be anonymised, subject to contrary legal opinion.

3. Information provided should be clearly labelled as to whether it is a personal opinion or that of a company / organisation.

A query has been raised as to whether Ofgem would have to release any CoTEs submission in response to an FoI request. Responses and any other information provided may be the subject of valid disclosure requests under the Freedom of Information Act and other statutory schemes or in accordance with other legal or regulatory requirements and as a general rule Ofgem has a duty to disclose information held by it if requested. There are statutory exemptions which may mean that Ofgem is not obliged to disclose CoTE submissions under the FoIA, however whether these exemptions apply will depend on the content of the information sought and the circumstances of the information request.

The return date for responses to this information request is 29 October, although earlier responses would be welcomed.

Please can you confirm that you will be responding to DCG@ofgem.gov.uk. Please also use this email address for any questions or requests for clarification.

Yours sincerely,

Dora Guzeleva
Smart Metering
E-Serve, Ofgem

DCC Scope Options - Information Request

Identifies options for DCC's functional scope and seeks views on the likely costs and benefits of each option and the likely deployment timescales	From To cc Date	Ofgem CoTEs members, Energy Suppliers, Network Operators, Central Bodies and Metering Agents 14 October 2010

Contents

1. Context

1. The Smart Meter Implementation Programme (the Programme) Prospectus[2] puts forward proposals for the role and scope of the DataCommsCo (DCC), which, subject to the consultation process, would be responsible for managing the procurement and contract management of data and communications services that will underpin the smart metering system programme.

2. As noted in the Programme's Communications Business Model[3], the Programme is continuing to work with stakeholders to undertake further cost/benefit analysis to confirm the basis for the initial scope of the DCC. The purpose of this document is to request information on costs and benefits under a prescribed set of options for the scope of DCC's activities.

3. Respondents to this Information Request will comprise two groups:

   - members of the COTEs panel whose capabilities align with DCC's service requirements (i.e. systems integration (SI), IT hosting and Business Process Outsourcing (BPO)

   - industry parties (energy suppliers, network operators, 'central bodies' and metering agents) whose existing systems will be impacted by the introduction of smart metering and the establishment of DCC.

4. The information being sought will be used in the Programme's cost benefit analysis model. This model examines the economic costs and benefits associated with smart metering and running the model under a number of scenarios will assist the Programme Team in its assessment of options. In addition to costs and benefits, the Programme Team will consider the merits of each option against three further evaluation criteria:

   - Timeframe

[2] Smart Meter Implementation Programme Prospectus, July 2010, www.ofgem.gov.uk/e-serve/sm/Documentation/Documents1/Smart%20metering%20-%20Prospectus.pdf

[3] See paragraph 2.56 of the Smart Meter Implementation Programme: Communications Business Model, July 2010, www.ofgem.gov.uk/e-serve/sm/Documentation/Documents1/Smart%20Metering%20-%20Communications%20Business%20Model.pdf

- Consumer impact
- Risk

2. Nature of this Information Request

5. As proposed in paragraph 4.21 of the Prospectus, and subject to consultation and further analysis, it is currently envisaged that there will be three major steps to implement the smart metering framework (i.e. in Phase 3 of the implementation programme):

    - Step 1: award of the DCC licence. Ofgem will manage a competitive procurement with the successful bidder being awarded the DCC licence.
    - Step 2: procurement and award of DCC service contracts. The DCC licence-holder will then manage competitive procurements for the services it will be obliged to provide to parties to the Smart Energy Code. The contracts will cover data services (systems integration, IT hosting and BPO) and WAN communications.
    - Step 3: design, build and testing of DCC services and participant systems in preparation for Go Live.

6. This information request is not a formal procurement process and is specifically being used to inform the Programme Team of the broad costs and benefits, and timescales required, to deliver the new industry arrangements.

7. The objective of this exercise is to assess the incremental costs and benefits associated with the establishment of DCC under different scenarios. The current (i.e. 2010) industry arrangements should be taken as a baseline. In responding to this information request, respondents should recognise that the Programme Team needs strategic estimates for input to a cost benefit analysis, not detailed prices that might form part of a service contract. Accordingly the relative cost of each scenario – and the drivers of cost differentials – are of significant importance.

8. Each of the options is likely to imply differential costs and benefits on industry parties. Respondents are therefore requested to state which party their response relates to (i.e. DCC, energy supplier, network operator, 'central body' or metering agent) and confine their cost and benefit estimates to the impact on that party. Members of the COTEs panel should respond under the 'DCC' category.

3. Information Requested

9. In providing the information requested in this DCC Scope Options Information Request it is important that respondents have a consistent understanding of the options to be analysed. For the purposes of this Information Request only, the following main options are to be analysed:

    - Option 1: Minimum scope: This option represents the minimum change to industry systems that would allow DCC to provide centralised communications access to smart meters and is based on the 'Initial scope' defined in paragraph 3.18 of the Prospectus.
    - Option 2: DCC Registration: With this option DCC performs all the activities shown in the 'initial scope' option in the Prospectus, plus registration[4]. Several sub options have been identified which adopt different approaches to migrating meters to the DCC Registration function.

[4] Registration is defined as the process that maps a physical network exit point (i.e. MPAN or MPRN) to a metering system and to the registered supplier.

- Option 3: DCC Registration and Data Processing: With this option DCC performs all the activities for Option 2 and additionally data verification and data aggregation.

10. The options are summarised in Appendix A and described further in Appendix B where sub-options within Options 2 and 3 are defined. These are high level descriptions which set out assumptions to be used for the purposes of responding to this Information Request. The option descriptions do not represent complete sets of business or functional requirements: it is assumed that respondents have a good understanding of the current business processes and systems underpinning the retail electricity and gas markets and can develop their own proposals for the best means of delivering each option. To the extent that respondents require base data (e.g. numbers of sites and meters, roll-out profile), the Prospectus and the DECC Impact Assessment[5] should be used as the primary points of reference.

DCC

11. DCC will be a new organisation which needs to set up a full suite of operational services prior to Go Live. DCC will need:

- WAN services – these services are not covered by this request – they are covered by a separate Information Request
- SI services to build / configure the applications described in Appendix B and to test them in conjunction with external parties (e.g. energy suppliers, network operators)
- IT hosting and application management services to support the operational applications identified above and desktop services to support DCC's staff of 40 permanent employees (this is an indicative number to be used as an estimating assumption only)
- BPO services to handle exceptions and respond to enquiries from industry parties in relation to functions such as registration (these services are currently undertaken by registration agents and would transfer to DCC under Options 2 or 3).

12. For the purposes of this Information Request, it is assumed that the service provider will be responsible for all aspects of the design, build and testing of the required systems, including the purchase of any application software licences. Respondents should assume that the DCC will wish to have its systems up and running in the shortest possible time.

13. It should be assumed that the recurring costs of IT hosting and BPO services cover the depreciation and maintenance of equipment, annual software charges, personnel costs to manage and deliver services and provide technical support to users, the cost of renting and provisioning office space to house the service provider's staff and equipment, and financing charges. The IT facilities should include provision of development and support environments as well as production environments. The IT facilities should also provide appropriate fallback and disaster recovery capabilities as well as the production environment: 99% availability will be required (respondents are invited to comment on the appropriateness of this target). To enable comparison of responses, it should be assumed that the duration of the hosting contract will be 5 years.

[5] DECC Impact Assessment of a GB-wide smart meter roll-out for the domestic sector http://www.ofgem.gov.uk/e-serve/sm/Documentation/Documents1/DECC%20-%20Impact%20assessment%20-%20Domestic.pdf

14. Respondents are asked to complete the tables at Appendix C for each option. These tables include questions for respondents to provide commentary covering:

    - The systems architecture to be developed including identification of any packaged application software that may be used.
    - An indicative project plan (a Gantt chart showing the expected duration of major activities – we would expect to a maximum of 25 activities, including cross-industry trials).
    - Assumptions made in preparing plans and estimates.
    - Implications of the proposed solution on existing industry arrangements (where not already stated in Appendix B).
    - Risks inherent in the proposed approach.

15. Respondents are also invited to comment on how they would propose to manage access control keys as part of the security arrangements for smart metering, and on whether their approach would vary between the options being considered.

Suppliers /shippers

16. Energy suppliers / shippers will need to modify their existing systems and processes to comply with new arrangements mandated through the Smart Energy Code and to take advantage of market opportunities presented by smart metering.

17. The likely costs presented by suppliers should cover the following:

    - One off costs: project costs (internal staff plus external expenditure on systems integrators, software licences, etc) incurred to modify their existing systems and processes to comply with the arrangements specified in the Smart Energy Code and other complementary and supporting documents. These costs should include the costs of participating in industry-wide trials
    - Annual recurring costs: incremental costs associated with operating the new arrangements (by comparison with current 2010 operating costs). Suppliers should include both IT-related costs and business-related costs (e.g. staff)

18. Suppliers are asked to enter cost data into the table at Appendix C and to provide commentary covering the points in paragraph 14 above.

19. The main category of benefits in DECC's Impact Assessment being examined through this Information Request is that relating to customer switching (including consequential benefits in activities such as inbound call handling). The Programme Team wishes to assess the potential scale of this benefit and the extent to which the benefits are contingent on DCC providing a centralised supplier registration system covering both electricity and gas. Suppliers are asked to estimate the value of benefits that could be realised under each option and to comment on the factors which could constrain the realisation of benefits. These benefit estimates should consider the potential benefits of reducing the complexity / cost associated with interfacing with a variety of registration agents (e.g. iGTs and xoserve).

20. Some of the options would result in the transfer of functions from suppliers' agents to DCC (e.g. data processing and aggregation). Under these options, suppliers are asked to estimate the costs that would be avoided and to enter these into the benefits table in Appendix C (incremental costs should be included in the cost table).

21. Finally, energy suppliers are invited to submit estimates and/or commentary on the ways in which DCC's scope of activities may enable or constrain the realisation of other benefits identified in DECC's Impact Assessment. All benefit estimates should be entered into the table at Appendix C.

Network Operators

22. Network operators (i.e. DNO/iDNOs, GT/iGTs) will need to modify their existing systems and processes to comply with the new arrangements mandated by the Smart Energy Code and to take advantage of new facilities presented by smart metering.

23. The likely costs presented by network operators should cover a similar range of headings as for suppliers (see paragraph 17 above). Where an option includes the transfer of supplier registration from DNO/iDNO/iGTs to DCC, the avoided costs should be entered into the benefits table.

24. Network operators are asked to enter cost data into the tables at Appendix C and to provide commentary covering the points in paragraph 14 above.

25. With regard to benefits, network operators are asked to provide evidence (in a similar fashion to suppliers) on the extent to which each option would facilitate the realisation of customer switching and related benefits (e.g. the avoided costs of handling registration-related queries from energy suppliers).

26. Network Operators are also invited to submit estimates and/or commentary on the extent to which each option under consideration would enable or constrain the realisation of benefits from smart grid functions.

Central Bodies (xoserve, Elexon, Electralink, Gemserv)

27. As with energy suppliers and network operators, these organisations may need to modify their systems and processes to comply with the new arrangements mandated by the Smart Energy Code. These organisations also act as administrators to various Agreements and Codes (e.g. MRA, SPAA) and are asked to estimate the costs involved in modifying each instrument to reflect the functions undertaken by DCC.

28. The likely costs submitted by 'central bodies' should be presented in a similar format to those for energy suppliers and network operators. Respondents should indicate the nature of changes that would be required, an indicative plan, assumptions, implications and risks (see paragraph 14). Respondents should also estimate and provide commentary on the ways in which each option would enable or constrain the realisation of benefits.

29. Where an option assumes the transfer of functions (e.g. supplier registration) to DCC, the avoided costs should be shown as a benefit.

Metering Agents

30. These companies may need to modify their existing systems and processes to comply with the new arrangements mandated by the Smart Energy Code.

31. The likely costs presented by metering agents should cover a similar range of headings as for suppliers (see paragraph 17 above). Where an option assumes the transfer of functions from an agent to DCC, the avoided costs should be shown as a benefit. Metering agents are asked to enter cost data into the table at Appendix C and to provide commentary covering the points in paragraph 14 above.

32. With regard to benefits, metering agents are asked to provide evidence (in a similar fashion to suppliers) on the extent to which each option would facilitate the

realisation of customer switching and related benefits (e.g. the avoided costs of functions transferred to DCC).

Data Aggregation

33. We recognise that it is not essential for data validation and data aggregation to be delivered in tandem as proposed in Option 3. Option 3 was constructed in this manner to limit the number of options to be considered and analysed. However we would welcome information on the marginal costs and benefits associated with data aggregation and would be grateful for any cost estimates and commentary on this subject from respondents to the DCC section and for benefit estimates / commentary from energy suppliers and others.

4. Process for responding

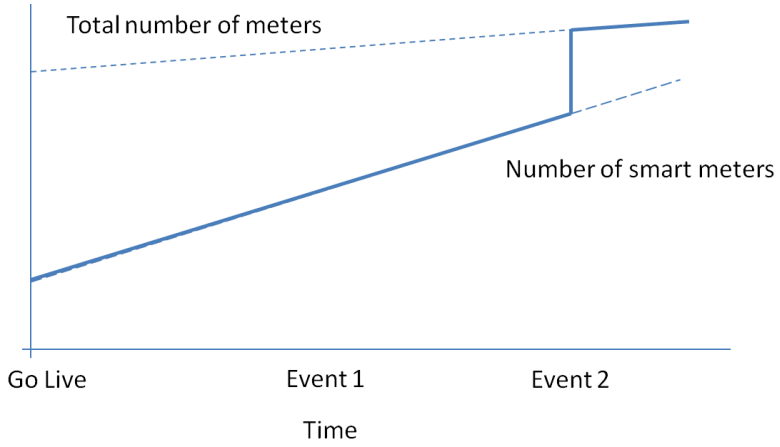
34. Responses to this Information Request must be submitted by noon on Friday, 29 October 2010. Responses should be submitted in Microsoft Word or PDF format to dcg@ofgem.gov.uk.

35. If you have any queries in relation to this Information Request please send an email to dcg@ofgem.gov.uk. If you wish the query to be treated confidentially please indicate so.

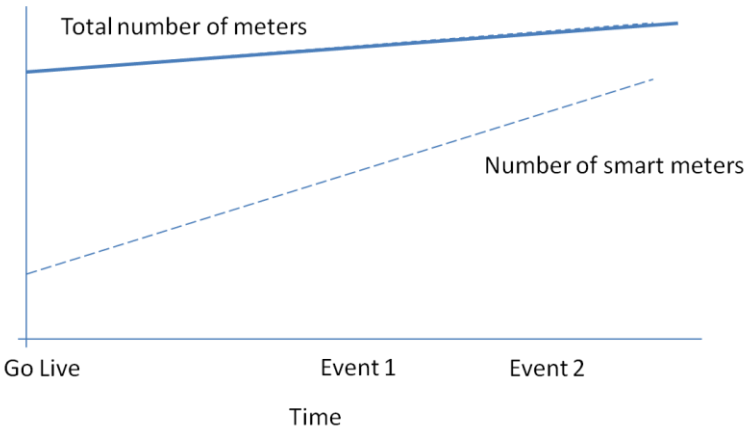
Appendix A – Summary of Options

	Option1: Initial scope as set out in the Prospectus	Option 2: Initial scope plus registration	Option 3: Initial scope plus registration plus data processing
Core option	This option represents the minimum change to industry systems that would allow DCC to provide centralised communications access to smart meters (all domestic sites and non-domestic where the supplier has elected to use DCC).	Under this option DCC performs all the activities shown in the 'initial scope' option in the Prospectus, plus registration. Registration is defined as the process that maps a physical network exit point (i.e. MPAN or MPRN) to a metering system and to the registered supplier. With this option the DCC would eventually hold the master data for all meter registration.	This option builds on Option 2 by adding data processing functions, namely: • Data verification functions and the calculation of EAC/AQ to DCC (from Data Collectors); • Aggregation of consumption volumes to provide input data for settlement (from Data Aggregators). The DCC will maintain a central repository of meter readings and derived information which can be accessed (subject to access rules) by all industry parties.
Sub options		**2A**: Initial activities cover smart metering registration only. Registration of all meters will migrate to DCC when the majority of installed meters are smart (i.e. at Event 2 as depicted in the charts below)). **2B**: DCC's registration activities cover all sites from DCC Go Live. **2C**: DCC initially has no registration capability. At some point after DCC go-live (at Event 1) the DCC's functions would be extended to include registration for all meters. **2D**: This option is the same as 2B but with support for legacy data flows until Event 2.	**3A**: Initial registration and data processing only covers smart meters. Registration of all meters will migrate to DCC when the majority of installed meters are smart (i.e. at Event 2). Data processing functions are only undertaken for Smart Meters. **3B**: Registration activities cover all sites from DCC Go Live. Data processing functions are undertaken for Smart Meters only. **3C**: As 3B but the registration and data processing functions do not come into operation until Event 1. **3D**: As 3B but with support for legacy data message sets until Event 2.

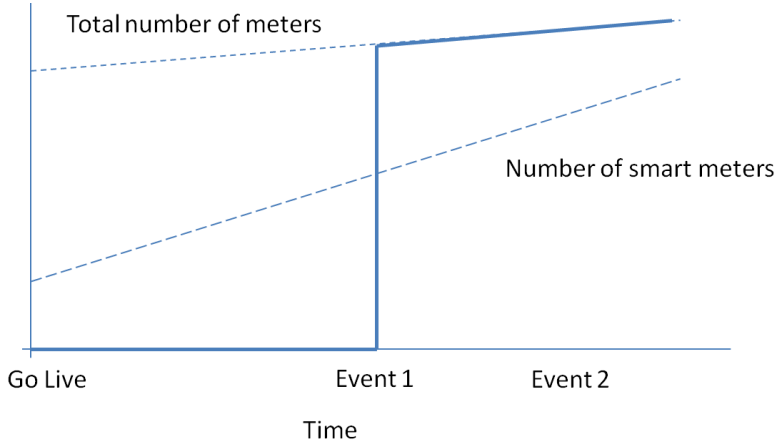
Option 2A



Options 2B & 2D



Option 2C



Ofgem wishes to collect respondent's views on the time required (a) to prepare for Go Live and (b) to undertake subsequent enhancement projects (e.g. to develop the registration process and migrate data from legacy systems). Accordingly respondents are invited to indicate the timetable they consider to be most appropriate to proceed through the different stages (i.e. Go Live and then Events 1 & 2).

For estimating purposes, it should be assumed that there will be a minimum period of 18mths between Go Live and Event 1 and 3yrs between Go Live and Event 2.

Figure 1: Comparison of Option 2 sub-option timings

Appendix B – Option Descriptions

B.1: Option 1: Initial scope

Option 1 – The 'Initial Scope' Option as set out in the Prospectus	
Overview	This option represents the minimum change to industry systems that would allow DCC to provide centralised communications access to smart meters (all domestic sites and non-domestic where the supplier has elected to use DCC). With this option the DCC would act as the Meter Read Agency / Data Retriever for smart meters. The baseline against which future changes should be assessed is the 'as is' arrangements in both electricity and gas as at 2010.
Services supported	All services listed in the Service Catalogue will be supported.
DCC Activities	*Secure access control:* Suppliers (and their agents), network operators and ESCOs will submit service requests which will be validated by DCC. Suppliers will be allowed to access meter points for which they are the registered supplier; agents will be allowed to access meter points for which the supplier has granted them access; network operators will be allowed to access meter points within their distribution areas and connected to their networks; ESCOs will need authorisation from the customer to access a specified meter. Each type of service user will be restricted to a designated set of service requests (e.g. network operators will not be permitted to submit top-ups to a PAYG meter). *Translation:* Service requests will be transmitted to DCC via agreed market messages: it is assumed that these will be carried over a new messaging infrastructure operated by DCC. DCC will operate translation software supplied by meter manufacturers to translate these requests into the proprietary format used by the specified meter. Data received from meters will be translated back into standard market messages for onward transmission to service users. *Scheduled data retrieval:* Service users may submit to DCC a schedule of regular transactions (e.g. monthly meter reads) that DCC will execute. Service users may also submit 'diarised events' (e.g. to update tariffs on a specified date, to perform routine firmware upgrades) which DCC will execute in line with SLAs. *Network management:* As part of its operational management, DCC will also manage traffic to/from meters and to/from service users to as to optimise its use of comms networks: this may require it to 'buffer' data received from meters for onward transmission to service users. For example, data may be buffered until a confirmation has been received from the recipient. DCC will perform security monitoring to provide

Option 1 – The 'Initial Scope' Option as set out in the Prospectus	
	continual assurance of the integrity of the WAN. *Reporting, invoicing and financial management*: DCC will require a suite of 'internal' systems to allow it to manage its operations. These systems will include the preparation of service invoices and management information (e.g. to monitor performance against SLAs), and processing DCC financial transactions and administration. These systems may need to store certain transaction records to allow verification of its charges.
Source of supplier registration data	Under this option DCC will not operate its own supplier registration system and will need to access meter point / supplier registers from external information providers. For electricity, DCC will need to access either the ECOES (electricity) database that provides a 'window' into the registration systems operated by DNOs or to access the DNO registration systems directly. For gas, DCC will need to access the registration data managed by GT's agent and IGTs.
Change of Supplier / Tenancy arrangements	The existing CoS/CoT procedures will remain broadly unchanged although some changes will be required to enable the secure access control arrangements to operate. The meter point record will need to identify that a smart meter has been installed and is being read by DCC rather than by a traditional data retriever.
New connections and disconnections	The existing procedures for issuing MPAN/MPRNs will remain broadly unchanged. All new connections will be fitted with a smart meter. The meter point record will need to identify that a smart meter has been installed and is being read by DCC rather than a traditional data retriever.
Settlements	The existing settlement procedures will remain in operation.
Pay As You Go	DCC will support the PAYG services listed in the Services Catalogue. Suppliers will transmit PAYG messages to DCC and be responsible for recording whether a smart meter is operating in PAYG or credit mode: they will also be responsible for ensuring that PAYG messages (e.g. top-ups) are only sent to meters operating in PAYG mode.
Metering agents	The 'supplier hub' principle will continue to apply with suppliers deciding whether to appoint third party agents or to perform activities through internal business units. Accordingly the DCC may receive service requests either from suppliers or their agents.
Market Messaging	A new market messaging solution will be developed by DCC to handle all messages passed between DCC and service users. The existing market message systems (DTN & iX) will continue to be used for existing data flows (e.g. change of supplier requests) although changes will be required to some message schemas to add new data items.

Option 1 – The 'Initial Scope' Option as set out in the Prospectus	
Smart grid functions	Services to be supported under this option will comprise: • Ad hoc power quality reads (single or aggregate values) • Transfer of alarms to network operators
Industry data for which DCC will hold the master record	Access control information (including type and level of access allowed to each organisation for each meter and associated consent information) Details of all sites where there is at least one smart meter, containing: • The communications address of the WAN communications unit; • The devices attached to this node; • Standing data for each meter / device that is essential for DCC operations (e.g. 'head-end' type); • The 'lead supplier' for the site (i.e. gas or electricity); Message Log for all messages received/transmitted (and messages which fail authentication) excluding transaction data (e.g. meter readings)
Data Migration	In this option there will be no mass migration of data to DCC from the existing registration systems. Sites/devices will be added to DCC's database as and when meters are installed and a 'bulk load' facility may be required to transfer early meters from the interim arrangement
Treatment of 'early smart' meters	'Early smart' meters will have been recorded in the appropriate registration system at the time they were installed. An 'early smart' meter will only be entered into the DCC database when it starts to communicate via DCC (rather than direct to the supplier). Only those 'early smart' meters which comply with the approved technical specification will be eligible for adoption by DCC.
Non-domestic customers	DCC will only act as the communication services provider for non-domestic customers if the supplier elects to use DCC. As for domestic customers, if the supplier uses DCC then DCC will be recorded in the meter point register as the appointed data retriever. If the supplier decides to arrange their own communications service then the data retriever agent field will be coded to reflect this.
Security standards	End to end security between the DCC and the communications module / smart meter is critical. In conjunction with the WAN Services Provider the DCC provider must ensure that appropriate security mechanisms are in place, inter-alia, to protect the confidentiality and integrity of information exchanged with suppliers, third parties, communications modules, meters and other devices within the premise; to authenticate the source of all messages received by the DCC and to ensure that messages issued by the DCC can be authenticated by any party that receives them.
Other features	It should be noted that the DCC will need to support new market entities, such as ESCOs, as well as existing market entities.

B.2: Option 2: Initial scope plus registration

<table>
<tr><th colspan="5">Option 2 – Initial scope plus registration</th></tr>
<tr><td>Overview</td><td colspan="4">Under this option DCC performs all the activities shown in the ‘initial scope’ option in the Prospectus, plus registration.

Registration is defined as the process that maps a physical network exit point (i.e. MPAN or MPRN) to a metering system and to the registered supplier in the settlement system. The DCC will be responsible for:
Initial registration of new sites (including against a new Site Identifier) and network exit points;
For associating suppliers (and other industry parties), metering systems and network exit points;
For maintaining the accuracy of the data in the registration system (note that suppliers and network operators would also have obligations in respect of data accuracy);
For making information in the registration system available to authorised parties.
Once transition has been completed, DCC will act as the registration agent for all network exit points (i.e. including HH / DM and unmetered sites) and suppliers will be mandated to use DCC’s registration service even if they elect not to use DCC to provide WAN services to non-domestic customers.

The baseline against which future changes should be assessed is the ‘as is’ arrangements in both electricity and gas as at 2010.</td></tr>
<tr><td>Sub options</td><td>2A: Phased transition: The initial DCC registration activities will cover smart meters sites only. Sites would only fall within DCC’s scope when a smart meter is installed and legacy arrangements will continue to operate for sites with traditional meters. Over time the number of traditional meters will decline (i.e. ‘withering on the vine’). Under this option all sites (including I&C and unmetered) remaining in the legacy registration systems will be migrated to DCC when a significant majority of domestic sites have</td><td>2B: Immediate transition: DCC’s registration activities will cover all sites from DCC Go Live. This will require a mass migration (and data cleansing) of registration data to DCC prior to DCC Go Live and will require legacy processes (e.g. CoS/CoT) to be modified to follow streamlined CoS/CoT processes from that date.</td><td>2C: Delayed transition: at go-live DCC will have no registration capability (i.e. it would be the same as for Option 1) but would move to full registration of all meters (smart and traditional) at Event 1 – meaning that the end state would be reached before Option 2A but later than Option 2B.</td><td>2D: Immediate transition with legacy support: As option 2B with support for legacy data flows. This will allow suppliers to continue to process CoS and other transactions for traditional meters using legacy data flows. This facility will be withdrawn at Event 2</td></tr>
</table>

Option 2 – Initial scope plus registration				
	smart meters (i.e. at Event 2).			
Services supported	All services listed in the Service Catalogue will be supported.			
DCC Activities	*Secure access control:* Suppliers (and their agents), network operators and ESCOs will submit service requests which will be validated by DCC. Suppliers will be allowed to access meter points for which they are the registered supplier; agents will be allowed to access meter points for which the supplier has granted them access; network operators will be allowed to access meter points within their distribution areas and connected to their networks; ESCOs will need authorisation from the customer to access a specified meter. Each type of service user will be restricted to a designated set of service requests (e.g. network operators will not be permitted to submit top-ups to a PAYG meter). *Translation:* Service requests will be transmitted to DCC via agreed market messages: it is assumed that these will be carried over a new messaging infrastructure operated by DCC. DCC will operate translation software supplied by meter manufacturers to translate these requests into the proprietary format used by the specified meter. Data received from meters will be translated back into standard market messages for onward transmission to service users. *Scheduled data retrieval:* Service users may submit to DCC a schedule of regular transactions (e.g. monthly meter reads) that DCC will execute. Service users may also submit 'diarised events' (e.g. to update tariffs on a specified date, to perform routine firmware upgrades) which DCC will execute in line with SLAs. *Registration:* DCC will be responsible for the industry's 'master data' for sites, meter points and registered suppliers/agents. For those sites covered by DCC's registration activities, modified change of supplier/tenancy and related processes will be developed. These processes will cover both gas and electricity, thus facilitating switching by dual-fuel customers. The DCC's systems should be capable of supporting immediate (i.e. within 24hrs) change of supplier although initially the Smart Energy Code may not require this level of service. DCC will need to provide support services (e.g. enquiry handling) that are currently delivered by network operators registration services. DCC will need to provide access to its registration data to network operators and other parties (i.e. to perform activities unrelated to smart metering). *Network management:* As part of its operational management, DCC will manage traffic to/from meters and to/from service users to as to optimise its use of comms networks: this may require it to 'buffer' data received from meters for onward transmission to service users. For example, data may be buffered until a confirmation has been received from the recipient. DCC will perform security monitoring to provide continual assurance of the integrity of the WAN.			

Option 2 – Initial scope plus registration				
	Reporting, invoicing and financial management: DCC will require a suite of 'internal' systems to allow it to manage its operations. These systems will include the preparation of service invoices and management information (e.g. to monitor performance against SLAs), and processing DCC financial transactions and administration. These systems may need to store certain transaction records to allow verification of its charges.			
Source of supplier registration data	*Option 2A*: Sites with smart meters will be included in DCC's registration function. When a smart meter is installed, DCC will need to update the legacy registration system to show that a smart meter has been installed. All legacy sites (including I&C and unmetered) will be migrated to DCC registration when a significant majority of domestic sites have smart meters (at Event 2).	*Option 2B*: All sites will be included in DCC's registration function.	*Option 2C*: In the period until registration function is operational, registration data will be obtained from legacy systems as for Option 1. Once the DCC registration function is operation, all registration data will be held by DCC.	*Option 2D*: All sites will be included in DCC's registration function.
Change of Supplier / Tenancy arrangements	*Option 2A*: Sites with smart meters will be handled by the DCC's registration function and follow the new CoS/CoT processes. The existing CoS/CoT procedures will remain in operation for sites which do not have a smart meter. The legacy meter point record will need to identify that a smart meter has been installed (see above).	*Option 2B*: All sites will follow the new CoS/CoT processes for smart metering which will facilitate switching by dual fuel customers.	*Option 2C*: Initially as for Option 1. Once the DCC registration capability is operational, as per Option 2B.	*Option 2D*: All sites will follow the new CoS/CoT processes for smart metering. For traditional meters, the legacy arrangements (using legacy dataflows) will continue to be supported until Event 2.

Option 2 – Initial scope plus registration				
New connections & disconnections	*Option 2A*: The existing procedures for issuing MPAN / MPRNs will remain broadly unchanged. When the smart meter is fitted, details will be loaded into the DCC's registration system and the legacy system will be updated to show that a smart meter has been installed.	*Option 2B*: A new process will be devised which allows network operators to manage interactions with developers and to issue MPAN / MPRNs. When the MPAN / MPRN is issued the DCC's registration system will need to be updated by the network operator and the smart meter details will be recorded in the DCC systems when it self-registers.	*Option 2C*: As for Option 1 until the DCC registration function is operational. Once it is operational then this will be the same as for Option 2B.	*Option 2D*: As for 2B with legacy flows for traditional meters until Event 2 (does not apply to new domestic connections which will all have smart meters)
Settlements	The existing settlement procedures will remain broadly unchanged.			
Pay As You Go	DCC will support the PAYG services listed in the Services Catalogue. Suppliers will transmit PAYG messages to DCC and be responsible for recording whether a smart meter is operating in PAYG or credit mode: they will also be responsible for ensuring that PAYG messages (e.g. top-ups) are only sent to meters operating in PAYG mode.			
Metering agents	The 'supplier hub' principle will continue to apply with suppliers deciding whether to appoint third party agents or to perform activities through internal business units. Accordingly the DCC may receive service requests either from suppliers or their agents.			
Market messaging	*Option 2A*: A new market messaging solution will be developed by DCC to handle all messages passed between DCC and service users. The existing market message systems (DTN & iX) will continue to be used for transactions relating to traditional meters until full migration, when the solution will be the same as Option 2B.	*Option 2B*: A new market messaging system will be developed by DCC to handle all messages passed between DCC and service users. The existing market message systems (DTN & iX) will continue in operation for legacy transaction flows (e.g. between suppliers and settlement organisations).	*Option 2C*: Initially as for Option 1. Once the DCC registration capability is operational, as per Option 2B.	*Option 2D*: As for 2B with legacy flows for traditional meters, until Event 2
Smart grid	Services to be supported under this option will comprise:			

<table>
<tr><th colspan="2">Option 2 – Initial scope plus registration</th></tr>
<tr><td>functions</td><td>

- Ad hoc power quality reads (single or aggregate values)
- Transfer of alarms to network operators

</td></tr>
<tr><td>Industry data for which DCC will hold the master record</td><td>

<table>
<tr><th>Data element</th><th>Option 2A</th><th>Option 2B</th><th>Option 2C</th><th>Option 2D</th></tr>
<tr><td>Access control information (including type and level of access allowed to each organisation for each meter and associated consent information)</td><td>Y</td><td>Y</td><td>Y</td><td>Y</td></tr>
<tr><td>Message Log for all messages received/transmitted (and messages which fail authentication) excluding transaction data (e.g. meter readings)</td><td>Y</td><td>Y</td><td>Y</td><td>Y</td></tr>
<tr><td>Registration information
Spatial reference (e.g. Universal Premises Reference Number and associated address)
MPAN/MPRN and associated standing data
The registered supplier / shipper and its agents for each network exit point and other authorised parties (e.g. MAM / MAP)
WAN communications module address information
Device (including meter) identifiers
Meter / device standing data (e.g. ‘head end’ type)
Settlement details needed for registration (e.g. profile class, EAC, AQ)
Customer details (e.g. vulnerable customers) but generally excluding customer name (except when needed for contacting priority customers)
‘Lead supplier’ for the site (i.e. gas or electricity)</td><td>SM only initially</td><td>All meters</td><td>All meters after transition</td><td>All meters</td></tr>
</table>

</td></tr>
</table>

Option 2 – Initial scope plus registration					
	Device (including meter) details • addressing information • manufacturer and type	*All Smart Meters* *Other meters after transition*	*All Smart Meters* *Other meters*	*All Smart Meters after transition* *Other meters after transition*	*All Smart Meters* *Other meters*
Data Migration	*Option 2A*: In this option there will be no mass migration of data to DCC at Go Live although a 'bulk load' facility may be required to handle the transfer of smart meter sites from an interim solution. Sites / devices will be transferred to DCC as and when smart meters are installed (also see below re non-domestic sites). At Event 2 a 'sweep up' migration will be needed to transfer all remaining sites (including unmetered and non-domestic sites) to the DCC registration system.	*Option 2B*: All sites will fall under DCC's scope of activities at DCC Go-Live. This may require data cleansing to be performed and systems / procedures to be developed by suppliers, network operators and others to keep their databases aligned with DCC. This approach may require a 'Big Bang' implementation with significant industry trialling to mitigate the risk of data conversion errors.	*Option 2C*: Prior to DCC registration being operational, there will be no mass migration of data to DCC, although a 'bulk load' facility may be required to handle the transfer of smart meter sites from an interim solution. Sites / devices will be added to DCC's database as and when meters are installed. Once the DCC registration function is operational, this option will be the same as Option 2B.	*Option 2D*: As for 2B.	

Option 2 – Initial scope plus registration				
Treatment of 'early smart' meters	*Option 2A*: 'Early smart' meters will have been recorded in the appropriate registration system at the time they were installed. An 'early smart' meter will only be transferred to DCC when it starts to communicate via DCC (rather than direct to the supplier). Only those 'early smart' meters which comply with the approved technical specification will be eligible for adoption by DCC.	*Option 2B*: 'Early smart' meters will have been recorded in the appropriate registration system at the time they were installed and these details will have been transferred to DCC. When the 'early smart' meter starts to communicate via DCC then its WAN comms address will be loaded into DCC's registration database and it will be treated as fully smart. Prior to this the DCC registration database will treat the meter as 'dumb'. Only those 'early smart' meters which comply with the approved technical specification will be eligible for adoption by DCC.	*Option 2C*: Prior to DCC registration being operational, 'Early smart' meters will have been recorded in the appropriate registration system at the time they were installed. An 'early smart' meter will only be entered into the DCC database when it starts to communicate via DCC (rather than direct to the supplier). Only those 'early smart' meters which comply with the approved technical specification will be eligible for adoption by DCC. Once DCC registration is operational, any 'early smart' meters will be migrated along with the traditional meters as above.	*Option 2D*: As for 2B.
Non-domestic customers	*Option 2A*: DCC will only act as the communication services provider for non-domestic customers if the supplier elects to use DCC. If the supplier uses DCC then the meter will be recorded in DCC's database. When all legacy meters are replaced by smart meters and other sites have been migrated then DCC will become the single registration agent for all sites.	*Option 2B*: DCC will only act as the communication services provider for non-domestic customers if the supplier elects to use DCC. DCC will be the sole provider of registration services and all suppliers will be obliged (via licence condition) to use this service, regardless of whether or not they choose to use DCC's communications services.	*Option 2C*: Prior to the DCC registration function being operational, as described in Option 1 – i.e. DCC will only act as the communication services provider for non-domestic customers if the supplier elects to use DCC. Once the DCC registration function is operational, this will be as for Option 2B.	*Option 2D*: As for 2B.

Option 2 – Initial scope plus registration	
Security standards	End to end security between the DCC and the communications module / smart meter is critical. In conjunction with the WAN Services Provider the DCC provider must ensure that appropriate security mechanisms are in place, inter-alia, to protect the confidentiality and integrity of information exchanged with suppliers, third parties, communications modules, meters and other devices within the premise; to authenticate the source of all messages received by the DCC and to ensure that messages issued by the DCC can be authenticated by any party that receives them.
Other features	It should be noted that the DCC will need to support new market entities, such as ESCOs, as well as existing market entities.

B.3: Option 3: Initial scope plus registration and data processing

<table>
<tr><th colspan="2">Option 3 – Initial scope plus Registration and Data Processing</th></tr>
<tr><td>Overview</td><td>
This option builds on Option 2 by adding data processing functions, so that the DCC functions include:
<table>
<tr>
<td>Electricity
Registration
Meter reading
Data verification functions and the calculation of EAC/AA (i.e Data Collector – DC – functions)
For smart meters: aggregation of consumption volumes to provide input data for settlement (i.e. Data Aggregator – DA – functions)</td>
<td>Gas
Registration
Meter reading
Data verification functions and the calculation of AQ/SOQ</td>
</tr>
</table>
The registration function is as defined in Option 2.

Once transition has been completed, DCC will act as the mandated registration agent for all network exit points (same as Option 2).

As set out in the Prospectus, suppliers to non-domestic sites will be able to elect whether or not to use DCC's services (with the exception of registration which will be mandatory for all metering points). Under Option 3, for electricity DCC will provide DC/DA services for all domestic smart meters and for those non-domestic smart meter sites where the supplier elects to use DCC. For gas, DCC will perform data processing for smart meters and xoserve will perform data processing for all other meters. Respondents are welcome to comment on the benefits that could be realised from mandating DCC to perform DC/DA for all smart electricity meters.

In order to support the data processing functions, DCC will maintain a repository of all meter readings and derived energy use values for a period of up to 5 years. This should be accessible to all industry parties in accordance with the access control model.

The baseline against which future changes should be assessed is the 'as is' arrangements in both electricity and gas as at 2010.
</td></tr>
</table>

<table>
<tr><th colspan="5">Option 3 – Initial scope plus Registration and Data Processing</th></tr>
<tr><td>Sub options</td><td colspan="4"><table>
<tr><td>3A: Phased transition

The initial DCC registration activities will cover smart meters sites only.

Sites would only fall within DCC's scope when a smart meter is installed and legacy registration arrangements will continue to operate for sites with traditional meters.

All legacy sites (including I&C and unmetered) will be migrated to DCC registration when a significant majority of domestic sites have smart meters (i.e. at Event 2).</td><td>3B: Immediate transition

DCC's registration activities would cover all sites from DCC Go Live.

This would require a mass migration (and data cleansing) of registration data to DCC prior to DCC Go-Live and would require legacy processes (e.g. CoS/CoT) to be modified to follow streamlined CoS/CoT processes from that date.</td><td>3C: Delayed transition

At go-live DCC would have no registration or data processing capabilities (i.e. the same as Option 1).

At Event 1 there would be a transition to full registration of all meters (smart and traditional).

With this option the end state would be reached before Option 3A but later than Option 3B.</td><td>3D: Immediate transition with legacy support

As option 3B with support for legacy data flows. This will allow suppliers to continue to process CoS and other transactions for traditional meters using legacy data flows. This facility will be withdrawn at Event 2</td></tr>
<tr><td>Data processing functions will be operational for smart meters from DCC Go-Live.

Traditional meter data processing will remain outside the scope of DCC.</td><td>Data processing functions will be operational for smart meters from DCC Go-Live.

Traditional meter data processing will remain outside the scope of DCC.</td><td>Data processing functions will be operational for smart meters after the transition

Traditional meter data processing will remain outside the scope of DCC.</td><td>As for Option 3B with support for legacy data flows until Event 2</td></tr>
</table></td></tr>
<tr><td>Services supported</td><td colspan="4">All services listed in the Service Catalogue will be supported.</td></tr>
<tr><td>DCC Activities</td><td colspan="4">Secure access control:

Suppliers (and their agents), network operators and ESCOs will submit service requests which will be validated by DCC. Suppliers will be allowed to access meter points for which they are the registered supplier; agents will be allowed to access meter points for which the supplier has granted them access; network operators will be allowed to access meter points within their distribution areas and connected to their networks; ESCOs will need authorisation from the customer to access a specified meter. Each type of service user</td></tr>
</table>

Option 3 – Initial scope plus Registration and Data Processing	
	will be restricted to a designated set of service requests (e.g. network operators will not be permitted to submit top-ups to a PAYG meter). *Translation:* Service requests will be transmitted to DCC via agreed market messages: it is assumed that these will be carried over a new messaging infrastructure operated by DCC. DCC will operate translation software supplied by meter manufacturers to translate these requests into the proprietary format used by the specified meter. Data received from meters will be translated back into standard market messages for onward transmission to service users. *Scheduled data retrieval:* Service users may submit to DCC a schedule of regular transactions (e.g. monthly meter reads) that DCC will execute. Service users may also submit 'diarised events' (e.g. to update tariffs on a specified date, to perform routine firmware upgrades) which DCC will execute in line with SLAs. *Registration:* DCC will be responsible for the industry's 'master data' for sites, meter points and registered suppliers/agents. For those sites covered by DCC's registration activities, modified change of supplier/tenancy and related processes will be developed. These processes will cover both gas and electricity, thus facilitating switching by dual-fuel customers. The DCC's systems should be capable of supporting immediate (i.e. within 24hrs) change of supplier although initially the Smart Energy Code may not require this level of service. DCC will need to provide support services (e.g. enquiry handling) that are currently delivered by network operators registration services. DCC will need to provide access to its registration data to network operators and other parties (i.e. to perform activities unrelated to smart metering). *Data processing:* The DCC will maintain a repository of meter readings and derived energy use values, together with such other information as is required to enable data verification and subsequent data aggregation processing to be undertaken. DCC's data processing activities will only cover sites with smart meters. *Network management:* As part of its operational management, DCC will manage traffic to/from meters and to/from service users to as to optimise its use of comms networks: this may require it to 'buffer' data received from meters for onward transmission to service users. For example, data may be buffered until a confirmation has been received from the recipient. DCC will perform security monitoring to provide continual assurance of the integrity of the WAN. *Reporting, invoicing and financial management*:

Option 3 – Initial scope plus Registration and Data Processing				
	DCC will require a suite of 'internal' systems to allow it to manage its operations. These systems will include the preparation of service invoices and management information (e.g. to monitor performance against SLAs), and processing DCC financial transactions and administration. These systems may need to store certain transaction records to allow verification of its charges.			
Source of supplier registration data	*Option 3A* Sites with smart meters will initially be included in DCC's registration function. When a smart meter is installed, DCC will need to update the legacy registration system to show that a smart meter has been installed. All legacy sites (including I&C and unmetered) will be migrated to DCC registration when a significant majority of domestic sites have smart meters (at Event 2).	*Option 3B* All sites will be included in DCC's registration function.	*Option 3C* In the period until registration function is operational, registration data will be obtained from legacy systems as for Option 1. Once the DCC registration function is operation, all registration data will be held by DCC.	*Option 3D* As for 3B.
Change of Supplier / Tenancy arrangements	*Option 3A* Sites with smart meters will be handled by the DCC's registration function and follow the new CoS/CoT processes. The existing CoS/CoT procedures will remain in operation for sites which do not have a smart meter. The legacy meter point record will need to identify that a smart meter has been installed (see above).	*Option 3B* All sites will follow the new CoS/CoT processes for smart metering which will facilitate switching by dual fuel customers.	*Option 3C* Initially as for Option 1. Once the DCC registration capability is operational, as per Option 3B.	*Option 3D* All sites will follow the new CoS/CoT processes for smart metering. For traditional meters, the legacy arrangements (using legacy dataflows) will continue to be supported until Event 2.

<table>
<tr><th colspan="5">Option 3 – Initial scope plus Registration and Data Processing</th></tr>
<tr><td>New connections / disconnections</td><td>Option 3A
The existing procedures for issuing MPAN / MPRNs will remain broadly unchanged. When the smart meter is fitted, details will be loaded into the DCC's registration system and the legacy system will be updated to show that a smart meter has been installed.</td><td>Option 3B
A new process will be devised which allows network operators to manage interactions with developers and to issue MPAN / MPRNs.
When the MPAN/MPRN is issued the DCC's registration system will need to be updated by the network operator and the smart meter details will be recorded in the DCC systems when it self-registers.</td><td>Option 3C
As for Option 1 until the DCC registration and data processing functions are operational.
Once operational this will be the same as for Option 3B.</td><td>Option 3D
As for 3B with legacy flows for traditional meters until Event 2 (does not apply to new domestic connections which will all have smart meters).</td></tr>
<tr><td>Settlements</td><td colspan="4">For electricity, DCC will act as a data aggregator and provide aggregated data to the settlement agencies. Aggregation of NHH meter readings will continue to be performed as currently. The aggregated data produced by the 'smart' and legacy NHH aggregation systems will both be submitted to the Supplier Volume Allocation Agent.
For gas, DCC will perform data verification and calculation of the AQ/SOQ. xoserve will perform other settlement functions (e.g. gas balancing and invoicing).
Other settlement processes will be broadly unchanged.</td></tr>
<tr><td>Pay As You Go</td><td colspan="4">DCC will support the PAYG services listed in the Services Catalogue. Suppliers will transmit PAYG messages to DCC and be responsible for recording whether a smart meter is operating in PAYG or credit mode: they will also be responsible for ensuring that PAYG messages (e.g. top-ups) are only sent to meters operating in PAYG mode.</td></tr>
<tr><td>Metering agents</td><td colspan="4">The 'supplier hub' principle will continue to apply with suppliers deciding whether to appoint third party agents or to perform activities through internal business units. Accordingly the DCC may receive service requests either from suppliers or their agents.</td></tr>
</table>

Option 3 – Initial scope plus Registration and Data Processing

Market messaging

Option 3A	*Option 3B*	*Option 3C*	*Option 3D*
A new market messaging solution will be developed by DCC to handle all messages passed between DCC and service users. The existing market message systems (DTN & iX) will continue to be used for transactions relating to traditional meters until full migration, when the solution will be the same as Option 3B.	A new market messaging system will be developed by DCC to handle all messages passed between DCC and service users. The existing market message systems (DTN & iX) will continue in operation for legacy transaction flows (e.g. between suppliers and settlement organisations).	Initially as for Option 1. Once the DCC registration capability is operational, as per Option 3B.	As for 3B with legacy flows for traditional meters, until Event 2.

Smart grid functions

Services to be supported under this option will comprise:

- Ad hoc power quality reads (single or aggregate values)
- Transfer of alarms to network operators

Industry data for which DCC will hold the master record

Data element	*Option 3A*	*Option 3B*	*Option 3C*	*Option 3D*
Access control information (including type and level of access allowed to each organisation for each meter and associated consent information)	*Y*	*Y*	*Y*	*Y*
Message Log for all messages received/transmitted (and messages which fail authentication) excluding transaction data (e.g. meter readings)	*Y*	*Y*	*Y*	*Y*

Option 3 – Initial scope plus Registration and Data Processing					
	Registration information • Spatial reference (e.g. Universal Premises Reference Number and associated address) • MPAN/MPRN and associated standing data • The registered supplier / shipper and its agents for each network exit point and other authorised parties (e.g. MAM / MAP) • WAN communications module address information • Device (including meter) identifiers • Meter / device standing data (e.g. 'head end' type) • Settlement details needed for registration (e.g. profile class, EAC, AQ) • Customer details (e.g. vulnerable customers) but generally excluding customer name (except when needed for contacting priority customers) • 'Lead supplier' for the site (i.e. gas or electricity)	*SM only initially*	*All meters*	*All meters after transition*	*All meters*
	Device (including meter) details • addressing information • manufacturer and type	*All Smart Meters* *Other meters after transition*	*All Smart Meters* *Other meters*	*All Smart Meters after transition* *Other meters after transition*	*All Smart Meters* *Other meters*
	Meter readings	*All Smart Meters*	*All Smart Meters*	*All Smart Meters*	*All Smart Meters*

Option 3 – Initial scope plus Registration and Data Processing					
	Calculated Energy use values	*All Smart Meters*	*All Smart Meters*	*All Smart Meters*	*All Smart Meters*
Data Migration	*Option 3A* There will be no mass migration of data to DCC at Go-Live although a 'bulk load' facility may be required to handle the transfer of smart meter sites from an interim solution. Sites / devices will be transferred to DCC as and when smart meters are installed (also see below re non-domestic sites). At Event 2 a 'sweep up' migration will be needed to transfer all remaining sites (including unmetered and non-domestic sites) to the DCC registration system.	*Option 3B* All sites will fall under DCC's scope of activities at DCC Go-Live. This may require data cleansing to be performed and systems / procedures to be developed by suppliers, network operators and others to keep their databases aligned with DCC. This approach may require a 'Big Bang' implementation with significant industry trialling to mitigate the risk of data conversion errors.	*Option 3C* Prior to DCC registration being operational, there will be no mass migration of data to DCC, although a 'bulk load' facility may be required to handle the transfer of smart meter sites from an interim solution. Sites / devices will be added to DCC's database as and when meters are installed. Once the DCC registration function is operational, this option will be the same as Option 3B.	*Option 3D* As for 3B	

Option 3 – Initial scope plus Registration and Data Processing				
Treatment of 'early smart' meters	*Option 3A* 'Early smart' meters will have been recorded in the appropriate registration system at the time they were installed. An 'early smart' meter will only be transferred to DCC when it starts to communicate via DCC (rather than direct to the supplier). Only those 'early smart' meters which comply with the approved technical specification will be eligible for adoption by DCC.	*Option 3B* 'Early smart' meters will have been recorded in the appropriate registration system at the time they were installed and these details will have been transferred to DCC. When the 'early smart' meter starts to communicate via DCC then its WAN communications address will be loaded into DCC's registration database and it will be treated as fully smart. Prior to this the DCC registration database will treat the meter as 'dumb'. Only those 'early smart' meters which comply with the approved technical specification will be eligible for adoption by DCC.	*Option 3C* Prior to DCC registration being operational, 'Early smart' meters will have been recorded in the appropriate registration system at the time they were installed. An 'early smart' meter will only be entered into the DCC database when it starts to communicate via DCC (rather than direct to the supplier). Only those 'early smart' meters which comply with the approved technical specification will be eligible for adoption by DCC. Once DCC registration is operational, any 'early smart' meters will be migrated along with the traditional meters as above.	*Option 3D* As for 3B

<table>
<tr><th colspan="5">Option 3 – Initial scope plus Registration and Data Processing</th></tr>
<tr><td>Non-domestic customers</td><td>Option 3A

DCC will only act as the communication services provider for non-domestic customers if the supplier elects to use DCC.

If the supplier uses DCC then the meter will be recorded in DCC's database. When all legacy meters are replaced by smart meters and other sites have been migrated then DCC will become the single registration agent for all sites.

Non-domestic customers which opt to use DCC WAN services may chose to use DCC data processing capabilities if it is technically feasible to do so.</td><td>Option 3B

DCC will only act as the communication services provider for non-domestic customers if the supplier elects to use DCC.

DCC will be the sole provider of registration services and all suppliers will be obliged (via licence condition) to use this service, regardless of whether or not they choose to use DCC's communications services.

Non-domestic customers which opt to use DCC WAN services may chose to use DCC data processing capabilities if it is technically feasible to do so.</td><td>Option 3C

Prior to the DCC registration function being operational, as described in Option 1 – i.e. DCC will only act as the communication services provider for non-domestic customers if the supplier elects to use DCC. Once the DCC registration function is operational, this will be as for Option 3B.</td><td>Option 3D

As for 3B</td></tr>
<tr><td>Security standards</td><td colspan="4">End to end security between the DCC and the communications module / smart meter is critical. In conjunction with the WAN Services Provider the DCC provider must ensure that appropriate security mechanisms are in place, inter-alia, to protect the confidentiality and integrity of information exchanged with suppliers, third parties, communications modules, meters and other devices within the premise; to authenticate the source of all messages received by the DCC and to ensure that messages issued by the DCC can be authenticated by any party that receives them.</td></tr>
<tr><td>Other features</td><td colspan="4">It should be noted that the DCC will need to support new market entities, such as ESCOs, as well as existing market entities.

For the calculation of data storage requirements it should be assumed that 48 electricity readings will be recorded for each electricity meter every day and that up to five years readings must be held, as well as the associated derived information. For gas it should be assumed that one reading will be taken per day per meter and held for up to five years.</td></tr>
</table>

Appendix C – Response Template

Respondent	*(Company name)*
Completed by	*(Please provide name and contact details)*
Type of Respondent	DCC, Supplier/Shipper, Network Operator, Central Body or Metering Agent *(please state one)*
If Supplier, please state whether your response covers your metering agents	*(State which types of agent are covered by your response)*
Number of electricity metering points	*(This information is required to allow Ofgem to scale up the costs / benefits to GB level)*
Number of gas metering points	*(This information is required to allow Ofgem to scale up the costs / benefits to GB level)*

Option covered by this response	1 / 2A / 2B / 2C / 2D / 3A / 3B / 3C / 3D

Overview of your approach (see paragraph 14):	
a) Please describe the solution that you propose to implement and/or the changes that are required to your legacy systems and processes.	
b) Please state the minimum time you will require to develop and test your solution (assume that your project will start either at the time the Smart Energy Code is approved or – for DCC service providers - at the time that DCC signs a systems integration contract with you). Please also state your preferred timetable for Events 1 & 2.	*(Please include a high level project plan with your response)*
c) Please state the key assumptions that you have made in analysing your solution and in preparing your project plans and cost / benefit estimates.	
d) Please state any implications that you can	

forsee for existing industry arrangements (in addition to those defined in Appendix B).	
e) Please identify key risks inherent in this option or in your proposed approach.	

Additional questions:	
Para 13: Please comment on the appropriateness of the 99% availability requirement for DCC services	*(DCC respondents only)*
Para 15: Please comment on how you would manage access control keys and/or describe the security arrangements that you would propose to deploy	*(DCC respondents only)*
Para 33: Please provide additional information on the marginal costs and benefits associated with Data Aggregation	*(Option 3 only)*

COSTS	
Go Live:	
a) One-off costs associated with preparations for Go Live	*(Please provide a total estimate with a breakdown into major expenditure categories e.g. systems integration, IT equipment, training, legal)*
b) Incremental annual opex following Go Live	*(Please provide a total estimate with a breakdown into major expenditure categories e.g. IT hosting, BPO, customer support staff)*

Event 1 (Only relevant for Options 2C & 3C)	
a) One-off costs associated with preparations for Event 1	*(Please provide a total estimate with a breakdown into major expenditure categories e.g. systems integration, IT equipment, training, legal)*
b) Incremental annual opex following Event 1	*(Please provide a total estimate with a breakdown into major expenditure categories e.g. IT hosting, BPO, customer support staff)*

Event 2 (Only relevant for Options 2A & 3A)	
a) One-off costs associated with preparations for Event 2	*(Please provide a total estimate with a breakdown into major expenditure categories e.g. systems integration, IT equipment, training, legal)*
b) Incremental annual opex following Event 2	*(Please provide a total estimate with a breakdown into major expenditure categories e.g. IT hosting, BPO, customer support staff)*

BENEFITS	
Go Live: annual benefits realised from Go Live in relation to:	*(For each benefit please provide an estimate of the annual benefit plus commentary to explain how the benefit would be realised e.g. staff savings)*
a) Customer switching	
b) Avoided costs	
c) Smart grids	
d) Other	

Event 1 (Options 2C & 3C only): annual benefits realised from Go Live in relation to:	*(For each benefit please provide an estimate of the annual benefit plus commentary to explain how the benefit would be realised e.g. staff savings)*
a) Customer switching	
b) Avoided costs	
c) Smart grids	
d) Other	

Event 2 (Options 2A & 3A only): annual benefits realised from Go Live in relation to:	*(For each benefit please provide an estimate of the annual benefit plus commentary to explain how the benefit would be realised e.g. staff savings)*
a) Customer switching	
b) Avoided costs	
c) Smart grids	
d) Other	

* Where existing costs are reduced (e.g. savings in admin associated with inefficiencies in the customer switching process) or a function is transferred to DCC (e.g. registration, data processing) the reduced / avoided costs should be treated as a benefit (rather than as a negative incremental cost)

All cost and benefit estimates should be presented in £million and expressed in 2010 prices (excluding VAT)