DCC SCOPE OPTIONS - INFORMATION REQUEST

Context

1. The Smart Metering 'Prospectus' published in July 2010 set out Ofgem and DECC's proposals for the policy framework within which smart metering would be implemented. The Prospectus is a formal consultation document inviting views from all interested parties.

2. The Prospectus defines the role and scope of the DataCommsCo (DCC), which will procure the central information and communications services required to enable the required interactions between energy retailers, their agents and other parties, and the smart meter devices installed in consumers' homes

3. In addition to responses to the Prospectus, Ofgem wishes to collect further evidence on the costs and benefits that would be associated with the establishment and operation of DCC as a new actor in the gas and electricity industries. The purpose of this document is to request cost and benefit information under a prescribed set of options for the scope of DCC's activities.

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

    - companies who are interested in providing systems integration and IT hosting services to DCC

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

5. The information being sought will be used in Ofgem'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 team in its assessment of options. In addition to costs and benefits, Ofgem and DECC will consider the merits of each option against three further evaluation criteria:

    - Timeframe

    - Consumer impact

    - Risk

Nature of this Information Request

6. As described in the Prospectus, 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 and IT hosting) and WAN communications.

    - Step 3: design, build and testing of DCC services and participant systems in preparation for Go Live.

7. This information request is not a formal procurement process and is solely being used to inform Ofgem and DECC of the broad costs and timescales required to deliver the new industry arrangements.

8. The costs and benefits associated with the establishment of DCC should be estimated on an incremental basis, taking the current (2010) industry arrangements as a baseline. In preparing estimates, respondents should be mindful that the objective is to determine 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.

9. 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, or 'central body') and confine their cost and benefit estimates to the impact on that party. It is expected that systems integrators and providers of IT hosting services will respond under the 'DCC' category.

Information Requested

10. Appendix A summarises three core options under consideration: these are described further in Appendices B1, B2 & B3. Clearly these are high level descriptions, not full sets of requirements: we assume that respondents will 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.

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 exercise – they will be 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 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)

12. For the purposes of this exercise, it will be assumed that SI services are provided on a 'turnkey' basis: i.e. that the systems integrator will carry responsibility for all aspects of the design, build and testing of the required systems, including the purchase of any application software licences. The one-off cost is assumed to be equal to the total price of the turnkey contract. DCC's permanent staff will witness tests undertaken by the systems integrator and check that all test issues have been resolved. Systems integrators 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 IT hosting services will be charged on an annual basis and that this charge will represent DCC's total IT operating costs. The annual charge should cover the depreciation and maintenance of equipment, annual software charges, personnel costs to manage the environments 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 facilities must include the provision of development and support environments as well as production environments. The IT facilities should include appropriate fallback and disaster

recovery facilities as well as the production environment: 99.999% availability will be required. It should be assumed that the hosting contract will be for a duration of 5 years.

14. Respondents are asked to complete the table at Appendix C for each option. In addition respondents are invited 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 estimates (e.g. use of offshore resources)
    - Implications of the proposed solution on existing industry arrangements (where not already stated in Appendix B)
    - Risks inherent in the proposed approach

Suppliers

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

16. Cost estimates presented by suppliers should cover the following:

    - Total project costs (internal staff plus external expenditure on systems integrators, software licences, etc) incurred to modify their existing systems 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
    - Incremental operating costs (which may be negative) from operating the new arrangements by comparison with current operating costs. Suppliers should include both IT-related costs and business-related costs (e.g. staff)
    - Stage 2 project costs – one-off costs: Option 3 envisages two steps in the development process (i.e. Go Live with 'initial scope' and add registration later). In order that costs can be discounted correctly it will be necessary to assign the costs associated with the second step to the correct year, hence the need to separate the costs associated with the two steps
    - Stage 2 – incremental operating costs: as above, this should identify incremental (or decremental) costs associated with the second step in the implementation programme

17. As for DCC systems integrators, suppliers are asked to enter cost data into the table at Appendix C and to provide commentary covering the points in paragraph 14 above.

18. The main area of benefits being examined through this Information Request is that relating to customer switching (including consequential benefits/costs in activities such as inbound call handling). We wish 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 benefit that could be realised under each option and to comment on the factors which could constrain the realisation of benefits.

19. Some of the options, or variants, will 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.

20. 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.

Network Operators

21. Network operators (i.e DNO/iDNOs, GT/iGTs – not xoserve) will need to modify their existing systems to comply with the new arrangements mandated by the Smart Energy Code and to take advantage of new facilities presented by smart metering.

22. Cost estimates presented by network operators should cover a similar range of headings as for suppliers (see paragraph 16 above). Where an option includes the transfer of supplier registration from DNO/iDNO/iGTs to DCC, the avoided costs should be shown as a negative incremental cost to the network operator.

23. As for DCC systems integrators, network operators are asked to enter cost data into the table at Appendix C and to provide commentary covering the points in paragraph 14 above.

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

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

Central Bodies (xoserve, Elexon, Electralink)

26. As with suppliers and network operators, these organisations may need to modify their systems to comply with the new arrangements mandated by the Smart Energy Code.

27. Cost estimates should be presented in a similar format to those for suppliers and network operators. Respondents should indicate the nature of changes that will be required, an indicative plan, assumptions, implications and risks (see paragraph14). Respondents should also estimate and provide commentary on the ways in which each option will enable or constrain the realisation of benefits.

28. For xoserve, where an option includes the transfer of supplier registration from xoserve to DCC, the avoided costs should be shown as a negative incremental cost to xoserve.

Variants

29. Options 1-3 are primarily concerned with the analysis of whether / when registration should be included within DCC's scope of activities. In addition we have identified a series of 'variants'. These variants represent sub-options which could apply to more than one of the primary options under consideration. Accordingly they could significantly increase the number of options if all permutations are considered. Rather than increasing the number of options and making the evidence collection unwieldy, respondents are asked to consider each of the 'variants' and provide estimates and/or commentary under the following headings:

    - Impact on industry processes: what impact would the variant have on the configuration of industry processes and would there be a differential impact under the main options being considered?

- Impact on DCC costs: what would the likely impact be on DCC's set up or operating costs?

- Impact on benefits: what incremental (or decremental) benefits would be realised if the variant were implemented?

- Implications for timescales and risk: would the implementation timescale or risk profile change if the variant were implemented?

30. The variants are described at Appendix B4 and are summarised as follows:

    - Data processing and aggregation – transfer of these activities from existing agents / operators to DCC

    - Data storage – creation in DCC of a repository of meter reads which could be accessed by all authorised parties

Process for responding

31. 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.

32. 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 and our response to remain private please indicate, otherwise we will circulate queries and responses to all organisations involved in this Information Request process.

Appendix A – Summary of Options

Option1	Option 2	Option 3
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. The scope of DCC's registration function varies between sub-options 2A and 2B as follows: • 2A: DCC's registration activities cover smart metering sites only. This would allow sites to fall under DCC's scope when a smart meter is installed and for legacy arrangements to continue to operate for sites with traditional meters (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 smart meters (e.g. in 2018) • 2B: DCC's registration activities 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. Both 2A and 2B will result in the same outcome by [2018] – the difference between them is the method and timing of data migration from legacy registration systems.	This option involves two stages of industry change: • Stage 1: at Go Live DCC's activities are limited to those identified in the 'initial scope' option of the Prospectus (i.e. as described in Option 1) • Stage 2: [2-3] years after Go Live, DCC's activities are extended to include registration. This stage includes streamlining the change of supplier and other industry processes, thus facilitating switching by dual fuel customers. The stage also includes the transfer of all registration data from legacy registration systems to DCC – including unmetered and non-domestic sites (i.e. comparable to option 2B) The key distinction between this option and 2A is the timing of the 'sweep up migration'. In Option 2A it is assumed that migration only happens when a significant majority of domestic sites have smart meters (e.g. 2018) whereas in Option 3, migration would happen earlier (e.g. 2015/6).

Appendix B – Option Descriptions

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). 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 with the exception of 'evolved smart grid' services (e.g. remote management of smart appliances).
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; 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 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 in operation. 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 Collector.
New connections and disconnections:	The existing procedures for issuing MPAN/MPRNs will remain broadly unchanged -all new connections will need to 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 Collector.
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.
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:	DCC will maintain a database of all sites where there is at least one smart meter. This database will maintain: • The comms address of the WAN comms unit • The devices attached to this node • Technical details of each device that are essential for DCC operations (e.g. 'head-end' type) • The 'lead supplier' for the site (i.e. gas or electricity) DCC will retain records of messages received / transmitted (including requests which fail authentication) so that it can provide audit information on requests / responses but it will not retain any 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 comms service then the data retriever agent field will be coded to reflect this.
Security standards:	To be completed
Other features:	?

Option 2 – DCC to include Registration at Go Live As shown below this option includes sub-options 2A and 2B (i.e. registration to cover smart meter sites only or all sites)	
Overview:	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. The scope of DCC's registration function varies between sub-options 2A and 2B as follows: • 2A: DCC's registration activities cover smart metering sites only. This would allow sites to fall under DCC's scope when a smart meter is installed and for legacy arrangements to continue to operate for sites with traditional meters (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 smart meters (e.g. in 2018) • 2B: DCC's registration activities 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. Both 2A and 2B will result in the same outcome by [2018] – the difference between them is the method and timing of data migration from legacy registration systems. 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 with the exception of 'evolved smart grid' services (e.g. remote management of smart appliances).
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; 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

<table>
<tr><td></td><td colspan="2">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 data to be managed by the DCC registration system will include:

• Spatial reference (i.e. site ID and/or address) and MPAN/MPRN
• The registered supplier / shipper and its agents
• Meter device details
• Settlement details (e.g. profile class)
• WAN unit network address
• Customer type

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:
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.</td></tr>
<tr><td rowspan="2">Source of supplier registration data:</td><td>2A</td><td>2B</td></tr>
<tr><td>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.</td><td>All sites will be included in DCC's registration function.</td></tr>
<tr><td rowspan="2">Change of Supplier / Tenancy arrangements</td><td>2A</td><td>2B</td></tr>
<tr><td>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).</td><td>All sites will follow the new CoS/CoT processes for smart metering which will facilitate switching by dual fuel customers.</td></tr>
<tr><td rowspan="2">New connections and disconnections:</td><td>2A</td><td>2B</td></tr>
<tr><td>The existing procedures for issuing MPAN/MPRNs will remain broadly unchanged. When the smart meter is fitteddetails 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>A new process will be devised which allows network operators to manage interactions with developers and to issue MPAN/MPRNss. 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></tr>
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<tr><td>Settlements:</td><td colspan="2">The existing settlement procedures will remain broadly unchanged albeit that under option 2A settlement data will be extracted from both the ‘smart’ and legacy systems whereas under 2B it will all be provided by the ‘smart’ systems.</td></tr>
<tr><td>Pay As You Go</td><td colspan="2">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="2">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>
<tr><td rowspan="2">Market messaging</td><td>2A</td><td>2B</td></tr>
<tr><td>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.</td><td>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)</td></tr>
<tr><td>Smart grid functions:</td><td colspan="2">Services to be supported under this option will comprise:
Ad hoc power quality reads (single or aggregate values)
Transfer of alarms to network operators</td></tr>
<tr><td rowspan="3">Industry data for which DCC will hold the master record:</td><td>2A</td><td>2B</td></tr>
<tr><td>DCC’s registration system will record the following information for all sites with a smart meter:
Spatial reference and MPAN/SPN
Supplier/agents
Meter devices
Settlement details
WAN comms address
Customer type
‘Lead supplier’ for the site (i.e. gas or electricity)
Access control information</td><td>DCC’s registration system will record the following information for all sites:
Spatial reference and MPAN/SPN
Supplier/agents
Meters & devices
Settlement details
WAN comms address
Customer type
‘Lead supplier’ for the site (i.e. gas or electricity)
Access control information</td></tr>
<tr><td colspan="2">DCC will retain records of messages received / transmitted (including requests which fail authentication) so that it can provide audit information on requests / responses but it will not retain any transaction data (e.g. meter readings).</td></tr>
</table>

Data Migration	**2A**	**2B**
	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). In [2018] a 'sweep up' migration will be needed to transfer all remaining sites (including unmetered and non-domestic sites) to the DCC registration system.	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.
Treatment of 'early smart' meters	**2A**	**2B**
	'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.	'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.
Non-domestic customers:	**2A**	**2B**
	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.	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.
Security standards:	To be completed	
Other features:	?	

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<tr><th colspan="3">Option 3 – At Go Live DCC performs 'Initial Scope' activities: Registration is added [2-3]yrs later</th></tr>
<tr><td>Overview:</td><td colspan="2">This option involves two stages of industry change:

• Stage 1: at Go Live DCC's activities are limited to those identified in the 'initial scope' option of the Prospectus (i.e. as described in Option 1)

• Stage 2: [2-3] years after Go Live, DCC's activities are extended to include registration. This stage includes streamlining the change of supplier and other industry processes, thus facilitating switching by dual fuel customers. The stage also includes the transfer of all registration data from legacy registration systems to DCC – including unmetered and non-domestic sites (i.e. comparable to option 2B)

The key distinction between this option and 2A is the timing of the 'sweep up migration'. In Option 2A it is assumed that migration only happens when a significant majority of domestic sites have smart meters (e.g. 2018) whereas in Option 3, migration would happen earlier (e.g. 2015/6).

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>Services supported:</td><td colspan="2">All services listed in the Service Catalogue will be supported with the exception of 'evolved smart grid' services (e.g. remote management of smart appliances).</td></tr>
<tr><td rowspan="2">DCC Activities:</td><td>Stage 1</td><td>Stage 2</td></tr>
<tr><td>As described in Option 1 – namely:
• Secure access control
• Translation
• Scheduled data retrieval
• Network management
• Reporting, invoicing and financial management</td><td>Stage 1 plus:
• Registration

(i.e. as Option 2B)</td></tr>
<tr><td rowspan="2">Source of supplier registration data:</td><td>Stage 1</td><td>Stage 2</td></tr>
<tr><td>As described in Option 1 – i.e. DCC to access legacy databases</td><td>DCC maintains industry registration database covering all sites (i.e. as Option 2B)</td></tr>
<tr><td rowspan="2">Change of Supplier / Tenancy arrangements</td><td>Stage 1</td><td>Stage 2</td></tr>
<tr><td>As described in Option 1 – i.e. existing CoS/CoT procedures are used with legacy registration databases identifying sites where smart meters have been installed</td><td>All sites will follow the new CoS/CoT processes for smart metering which will facilitate switching by dual fuel customers (i.e. as Option 2B)</td></tr>
<tr><td rowspan="2">New connections:</td><td>Stage 1</td><td>Stage 2</td></tr>
<tr><td>As described in Option 1 – i.e. existing procedures for issuing MPAN/SPNs will remain in operation. When a smart meter is fitted the legacy registration system will be updated to show that a smart meter has been installed.</td><td>A new process will be devised which allows network operators to manage interactions with developers and to issue MPAN/SPNs. When the MPAN/SPN is issued the DCC's registration system will be updated by the network operator and the smart meter details will be recorded in the DCC systems when it self-registers (i.e. as Option 2B)</td></tr>
</table>

<table>
<tr><td>Settlements:</td><td colspan="2">The existing settlement procedures will remain broadly unchanged albeit that under option 2A settlement data will be extracted from both the ‘smart’ and legacy systems whereas under 2B it will all be provided by the ‘smart’ systems.</td></tr>
<tr><td>Pay As You Go</td><td colspan="2">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="2">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>
<tr><td rowspan="2">Market messaging</td><td>Stage 1</td><td>Stage 2</td></tr>
<tr><td>As described in Option 1 – i.e. 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.</td><td>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 surviving legacy transaction flows (e.g. between suppliers and settlement organisations) – i.e. as Option 2B</td></tr>
<tr><td>Smart grid functions:</td><td colspan="2">Services to be supported under this option will comprise:
Ad hoc power quality reads (single or aggregate values)
Transfer of alarms to network operators</td></tr>
<tr><td rowspan="3">Industry data for which DCC will hold the master record:</td><td>Stage 1</td><td>Stage 2</td></tr>
<tr><td>As described in Option 1 – i.e. DCC will maintain a database of sites where there is at least one smart meter and will record:
WAN comms address
Devices attached to this node
Technical details for smart meter operation
‘Lead supplier’ for the site (i.e. gas or electricity)
Access control information</td><td>DCC’s registration system will record the following information for all sites:
Spatial reference and MPAN/SPN
Supplier/agents
Meters & devices
Settlement details
WAN comms address
Customer type
‘Lead supplier’ for the site (i.e. gas or electricity)
Access control information
i.e. as Option 2B</td></tr>
<tr><td colspan="2">At both stages, DCC will retain records of messages received / transmitted (including requests which fail authentication) so that it can provide audit information on requests / responses but it will not retain any transaction data (e.g. meter readings).</td></tr>
</table>

Data Migration	**Stage 1**	**Stage 2**
	As described in Option 1 – i.e. at this stage 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	At this stage DCC's initial database of smart meters will be extended into a full registration database and all remaining sites/meters will be migrated to DCC. This will 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 is akin to Option 2B.
Treatment of 'early smart' meters	**Stage 1**	**Stage 2**
	'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.	Any 'early smart' meters still in operation by this stage will be migrated along with the traditional meters as above.
Non-domestic customers:	**Stage 1**	**Stage 2**
	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	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 (i.e. as option 2B)
Security standards:	To be completed	
Other features:	?	

Appendix B4 – Variants to be considered	
A. Data Processing and Aggregation	This variant applies to those options where the DCC is responsible for registration of all meter points. It represents the transfer of data verification functions and the calculation of EAC/AQ to DCC (from Data Collectors). This variant includes transferring the aggregation of consumption volumes to DCC (from Data Aggregators) to provide input data for settlement.
B. Data Storage	This variant could be applied to all main options. It would involve the DCC maintaining a database of all meter readings it receives and acting as a central repository which could be accessed (subject to appropriate authorisation) by all industry parties.

Appendix C – Response Template

Respondent Name:

Type of Respondent: DCC, Energy Supplier, Network Operator or Central Body

	Option 1	Option 2A	Option 2B	Option 3
Project costs to prepare for Go Live				
Incremental opex from Go Live				
Project costs to prepare for Stage 2				
Incremental opex from Stage 2				
Estimated Go Live date (based on award of DCC licence in Q3/2012				
Estimated benefits: a) Customer switching b) Avoided costs c) Smart grids (network operators only) d) Other				