



The DCG Community of Technical Experts

Promoting choice and value for all gas and electricity customers

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Date: 8 October 2010

Dear Sir/Madam

Smart Metering: DCC Wide Area Network Services Information Request

You recently agreed to act as one of the DCG Community of Technical Experts (CoTEs), supporting the Smart Metering Implementation Programme Team (the Programme Team) in the development of options for the DataCommsCo (DCC). It is proposed that, subject to the outcome of the consultation process, 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 Model¹, the Programme Team is continuing to work with stakeholders to undertake further cost/benefit analysis to confirm the basis for the initial scope of the DCC. As part of this ongoing activity, we are issuing the attached DCC Wide Area Network (WAN) Services Information Request, which seeks information about the likely costs and timescales (with supporting technical information) for the proposed implementation and roll out of DCC WAN services.

This Information Request is not part of any procurement process and is solely being used to inform the Programme Team of the broad costs and timescales required to deliver WAN solutions capable of meeting various service levels, so that appropriate user requirements can be identified.

The objective of this exercise is to assess the incremental costs and benefits associated with the implementation of DCC WAN services under three 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 service 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 by the CoTEs to the information requests will be treated as public domain information unless clearly marked as commercially sensitive.
2. We will seek to ensure that any published documentation predicated on these responses will be anonymised, subject to contrary legal opinion.

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>

3. Information provided should be clearly labelled as to whether it is 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 22 October, although earlier responses would be welcomed.

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

Yours sincerely,

Dora Guzeleva
Smart Metering
E-Serve, Ofgem

DCC WAN Services Information Request

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1. Context

- 1.1. The Smart Meter Implementation Programme (the Programme) Prospectus² 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.
- 1.2. As noted in the Programme's Communications Business Model³, 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 note is to request information on the cost of establishing and operating the Wide Area Network (WAN) elements of the DCC communications services.
- 1.3. 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 criteria:
 - a. Timeframe
 - b. Consumer impact
 - c. Risk

² Smart Meter Implementation Programme Prospectus, July 2010, <http://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, <http://www.ofgem.gov.uk/e-serve/sm/Documentation/Documents1/Smart%20Metering%20-%20Communications%20Business%20Model.pdf>

2. Nature of this Information Request

- 2.1. 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):
 - a. Step 1: award of the DCC licence. Ofgem will manage a competitive procurement with the successful bidder being awarded the DCC licence.
 - b. 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 hosting) and WAN communications.
 - c. Step 3: design, build and testing of DCC services and participant systems in preparation for Go Live.
- 2.2. This information request is not part of any procurement process and is solely being used to inform the Programme Team of the broad costs and timescales required to deliver WAN solutions capable of meeting different service levels.
- 2.3. The objective of this exercise is to assess the incremental costs and benefits associated with the implementation of DCC WAN services under three 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 service contract. Accordingly the relative cost of each scenario – and the drivers of cost differentials – are of significant importance.

3. Scope and boundary of the WAN service

- 3.1. In providing the information requested in this DCC WAN Service Information Request it is important that responders have a consistent understanding of the scope and boundary of the WAN services to be provided. Therefore, and for the purposes of this Information Request only, the following assumptions have been made
 - a. The responsibility of the DCC WAN Service Provider extends from the point at which the WAN connection leaves the DCC (assumed to be on the outside of a firewall operated by the DCC Data Centre Service Provider) to the connection to the WAN Communications Module at the Premises, subject to approved arrangements.
 - b. The WAN Communications Module at the premises will be installed, maintained and replaced by the energy supplier, not by the WAN Service Provider.
 - c. The DCC WAN Service Provider is responsible for achieving the WAN service levels, including in particular the time for messages to be transferred from the DCC to the WAN Communications Module. Any delays in transferring information across the HAN, or within the DCC data centre, are not the responsibility of the DCC WAN Service Provider.
- 3.2. If respondents do not agree with any of these assumptions they should explain their views in their response.

4. Information Requested

- 4.1. The key information required is the likely capital and operating costs of the provision of WAN services that are capable of achieving the service levels identified for three scenarios, which are described in Appendix A. The scenarios are primarily differentiated by the service levels for message transfer times for large files and small messages in the context of common requirements for scaling (i.e. number of premises and smart meters), message characteristics and volumes (provided in Appendix B), and service availability. Three availability service levels are identified and information is sought on the way that the cost for each scenario would change for the different availability levels.
- 4.2. The questions in Sections 5 to 9 are targeted primarily at identifying technology options (and their associated costs and deployment timescales) that are capable of providing a WAN Service covering all but the most difficult premises. It is recognised that there may be some technical options which are better suited to particular niches, for example to 'fill in' where technical options capable of national scale WAN service cannot provide coverage. If a respondent wishes to provide information in respect of such a niche or specialist technical option:
 - a. Please state that you are providing information on a niche technical option and identify the characteristics of the niche that it is suited to;
 - b. Please respond to the questions below in the context of the capabilities of the technical option that you are providing information about.
- 4.3. For each scenario, and for the three different levels of availability within each scenario, please provide the information requested in Sections 5 to 9.

5. Technical information

- 5.1. The Government is committed to the rollout of electricity and gas smart meters to all homes in Great Britain. In this context please describe the WAN option that you are providing information about, including:
 - a. What technology would be used to provide coverage at the premises? How would this option ensure connectivity to the WAN Communications Module, and what, if any, additional equipment would be needed for installations in the following locations:
 - i. high rise buildings?
 - ii. banks of meters in communal areas;
 - iii. high density urban environments?
 - iv. suburbs?
 - v. meters separated by large distances at single premises?
 - vi. meters installed in basements?
 - vii. rural areas?
 - b. What communications architecture would be used with this option, for example would concentrators / access points be used and, if so, how would the backhaul communications from the access point to the DCC be provided?
 - c. Would this technical option be capable of achieving the target service levels, and if not, what service levels would it be able to achieve? For Scenario C, please identify the minimum possible small message latency time that would be possible

with this option and what impact achieving this level of performance would have on cost.

- d. How would this option support messages being sent simultaneously to a large proportion of the installed smart meter base (e.g. all smart meters of a specific kind, all smart meters on a particular part of the network, all smart meters for a specific energy retailer)?
- e. How would this technical option be operated and supported to meet the required service levels?
- f. Technical standards and source constraints:
 - i. What technical standards would this option comply with?
 - ii. Which technical standards would this option be certified as complying with?
 - iii. Are any components that this option relies upon single-source?
- g. How mature is this technical option:
 - i. Does it already exist or would it need to be developed specifically to meet this requirement? If so, please provide details.
 - ii. Has it been used on a similar scale and for similar purposes elsewhere? If so, please provide details.
 - iii. If it has not been used on a similar scale and for similar purposes, what evidence is available to provide confidence that it would be capable of being used for a national scale smart metering infrastructure?
 - iv. Would it require any licensing or certification before it can be used in the UK? If so, please provide details.

5.2. Coverage:

- a. What proportion of the population would the technology option described in response to paragraph 5.1 be able to provide services to and what would set this limit? What assumptions, e.g. about meter locations or the use of external antennae, have been made in arriving at this level of coverage?
- b. Please describe what technical options you would suggest to provide WAN services to premises that could not be served by the technology option described in response to paragraph 5.1?
- c. Please identify the proportion of premises that it would not be commercially viable to connect using any WAN technologies.

5.3. Security: End to end security between the DCC and the WAN Communications Module / smart meter is critical. Please can you describe:

- a. Your understanding of the risks to the end to end smart metering system, and between the premises and the DCC in particular;
- b. How the technology option described in response to paragraph 5.1 would protect against these risks;
- c. What assumptions you have made about the security mechanisms provided within the DCC.

5.4. Technical life and innovation:

- a. Please identify the expected technical life of the technology option described in response to paragraph 5.1 and what would limit it, i.e. at what point would significant technical refresh need to be undertaken?
- b. Please identify how technical change would be managed and in particular how the need for any visits to the premises could be minimised;
- c. Please explain your suggested approach to innovation and technology refresh during any contract period.

5.5. Scalability: Please describe how scalable the technology option described in response to paragraph 5.1 would be – how could it be scaled (and what would the approximate change in cost be) to support:

- a. 50% more premises and/or meters and other devices (e.g. because of the widespread introduction of electric vehicles, heat meters, micro-generation, water meters, etc.)?
- b. Twice as many messages as identified in Annex B?
- c. Ten times as many messages as identified in Annex B (for example because of the introduction of novel tariffs or the greater use of load management or to meet smart grid requirements)?

5.6. WAN Communications Module: The WAN Communications Module is the interface between the WAN and the HAN and therefore needs to include HAN connectivity. Please provide the following information on the WAN Communications Module:

- a. In assessing the costs of the WAN Communications Module, what HAN technology option have you assumed and why?
- b. Do you think that it would be technically and commercially viable to use a different HAN option? Are there any HAN options that would not be consistent with the technical option described in response to paragraph 5.1?
- c. What security mechanisms would you suggest should be provided in the WAN Communications Module and what aspects of security would they provide (e.g. authentication of source, integrity, confidentiality, etc.)?
- d. Do you think that it would be possible for the WAN Communications Module to operate with an average power consumption of less than 1W with the technical option described in response to paragraph 5.1? If not, please explain whether you think it would be possible to reduce it to under 1W and what the impact would be of doing so.

5.7. Enhanced Smart Grid support:

- a. Please explain how the technical option described in response to paragraph 5.1 could be utilised to facilitate further smart grid applications, such as substation monitoring.
- b. If you consider that the technical option described in response to paragraph 5.1 has the capability to deliver smart grid functionality could you please describe this functionality and the costs involved in enabling it.

- c. If additionally you consider that this option has development potential to provide smart grid functionality please also provide this information.

6. Commercial information

6.1. Contract lifetime:

- a. What is the minimum contract time for which the technology option described in response to paragraph 5.1 would generally be considered to be commercially viable?
- b. What would the optimum contract duration be and why?
- c. How would the technical option, or the associated costs, change for contract durations of 5, 10 and 15 years?

6.2. Exit: At the end of any contract period, if the DCC were to require any dedicated assets used to provide the WAN service to be transferred to the DCC or another entity, what might be the impact of this requirement on cost?

6.3. Novation: If a contract was awarded by the DCC for the provision of WAN services and the DCC licence holder changed, what would the impact be of providing for novation to a new DCC licensee?

6.4. Charges: What do you believe would be the most appropriate charging model for DCC WAN services? How do you think a WAN service provider could support the onward charging process operated by the DCC?

6.5. Scale of services: What is the minimum number of premises that it would be commercially viable to provide WAN services to using the technology option described in response to paragraph 5.1 and why? Would this number depend on the distribution of premises (e.g. specific geographic region, or low density of premises spread evenly over the UK)?

6.6. Value added services: Do you think that there could be any potential uses of the WAN for value added services, if these can be allowed under the DCC licensing arrangements? If so, please describe them and categorise them as:

- a. Other industry services;
- b. Customer Value Added Services.

6.7. Ownership of the WAN Communications Module: Please identify the respective advantages, disadvantages, costs and benefits of the WAN Communications Module being owned by:

- a. The energy supplier;
- b. The WAN Service Provider.

7. Financial information

7.1. Capital costs: Please identify the major items of capital expenditure that you would expect to be associated with the technical option described in response to paragraph 5.1 and when they would take place. If you think that an existing infrastructure could be used with this option, please identify any additional capital expenditure required to enable the infrastructure to meet the service level requirements. The costs should be broken down to a level that enables the Programme Team to understand what the

major items of spend are, a detailed bill of materials is not needed. As a minimum the costs should include:

- a. Hardware costs;
- b. Software costs;
- c. Spectrum or licensing costs (if appropriate);
- d. Security accreditation;
- e. Testing and acceptance costs;
- f. Installation costs;
- g. Staff costs, including technical, legal and commercial, etc;
- h. Third party costs (please identify);
- i. Other costs (please identify);
- j. WAN Communications Module capital cost (please identify what volume of modules was assumed in estimating the cost).

7.2. Operating costs: Please identify the major items of operating cost and how the cost profile is expected vary over the contract lifetime. The costs should be broken down to a level that enables the Programme to understand what the major items of spend are, a detailed breakdown is not needed. As a minimum the costs should include:

- a. Staff costs with associated indicative staffing model (ie how many people and what they would do);
- b. Hardware or software support / maintenance costs;
- c. Network operations and security;
- d. Facilities related costs;
- e. Rental, licensing or similar costs;
- f. Third party costs, including for example 3rd party costs for backhaul communications (please itemise);
- g. WAN Communications Module operating costs (please identify what number of WAN Communication Modules the cost is based on).

7.3. Cost drivers: Please identify what the major cost drivers are for the technical option described in response to paragraph 5.1. In responding, please identify:

- a. What are the top three cost drivers for capital and operating costs?
- b. Are there are any specific service level requirements that significantly drive cost, and if so, what different service level would maximise the net benefits over the life of the service and why?
- c. Is the cost sensitive to the number or size of messages (e.g. would the cost be affected if the data volume per meter per day was doubled or halved relative to the figures in Appendix B)?

8. Timescales and deployment

8.1. Deployment approach:

- a. Please describe and explain the optimum rollout approach for the technical option described in response to paragraph 5.1;
- b. The Rollout Strategy⁴ supporting document has made the following proposals around the delivery of smart metering:
 - i. Providing suppliers with broad flexibility over the pattern of their installations, in the early stages of the rollout at least;
 - ii. Establishing clear obligations on suppliers to meet any specified rollout targets.

Please comment on how these proposals might impact on the WAN deployment strategy.

8.2. Timescales: Please provide a high level plan that shows the key stages, and associated indicative timings in the implementation and rollout of the technical option described in response to paragraph 5.1 from award of contract, including:

- a. Completion of any design and acceptance testing phases;
- b. Initial availability of services on a limited scale;
- c. Availability of services to 50% of the target premises (i.e. if it can provide coverage of 90% of premises, how long would it take to reach 45% of premises)
- d. Full rollout nationally;
- e. Complete coverage of all premises using core and supplementary technologies;
- f. Any other significant milestones.

8.3. Please identify the minimum realistic time for full deployment and any options for reducing this deployment time.

8.4. If the contract for the provision of DCC WAN Services is awarded in April 2013:

- a. Do you think that it would be possible to provide WAN services by November 2013 using the technical option described in response to paragraph 5.1? If not, please explain.
- b. How would you suggest that the rollout of WAN services should be coordinated with the rollout of Smart Meters?

9. Other information

9.1. Risks: Please identify any risks (cost, timescale or performance) associated with the technical option described in response to paragraph 5.1 and how they could be mitigated.

9.2. Dependencies: Would the technical option described in response to paragraph 5.1 rely upon any decision, resources or other factors that would be outside the control of the service provider? If so, please identify what they are and who might control them?

⁴ <http://www.decc.gov.uk/assets/decc/Consultations/smart-meter-imp-prospectus/228-smart-metering-imp-rollout-strat.pdf>

- 9.3. Other information required: Please identify any additional type or level of information that would need to be provided to enable potential service providers to enable their costing.

10. Process for responding

- 10.1. Please format your response in accordance with the information at Appendix C.
- 10.2. It is important that respondents provide as full a response as possible, particularly in respect of likely costs. However, if for any reason it is not possible for a respondent to provide costing estimates then they are requested to provide indications of the relative costs of the various scenarios and sub-options relative to the Scenario B standard available case.
- 10.3. Responses to this Information Request should be submitted in Microsoft Word or PDF format to [dcb@Ofgem.gov.uk].
- 10.4. If you have any queries in relation to this Information Request please send an email to [dcb@Ofgem.gov.uk].

A. Definition of scenarios

Scenario definitions

A.1. Information is required for the following three scenarios.

a. Scenario A: Base performance

- i. **Small message latency:** This is defined as the time taken for a message to go from the meter, via the DCC and starting to be sent to the intended recipient (e.g. supplier or DNO) at the boundary of the DCC, or from the point at which a message from a supplier or other party reaches the DCC boundary to the time at which the message has been received by the meter. The target performance level is to be met irrespective of the other communications tasks taking place at the same time. The target value is 60s in 95% of cases and 120s for all cases.
- ii. **Large message transfer time:** Measured as the time taken for a message to go from the DCC to being received correctly within the intended smart meter. It should be assumed that the same message is to be transmitted to 30% of Smart Meters within the same time window. The time for file transfer shall be less than 12 hours for a 2MB file in 95% of cases and less than 18 hours for all cases.

b. Scenario B: Medium performance:

- i. **Small message latency:** The target value is 5s in 95% of cases and 10s for all cases.
- ii. **Large message transfer time:** The time for file transfer shall be less than 1 hour for a 2MB file in 95% of cases and less than 2 hours for all cases.

c. Scenario C: High performance:

- i. **Small message latency:** The target value is 0.1s in 95% of cases and 0.2s for all cases.
- ii. **Large message transfer time:** The time for file transfer shall be less than 10 minutes for a 2MB file in 95% of cases and less than 20 minutes for all cases.

Common parameters

A.2. These target levels of communications performance are to be achieved within the context of the following minimum requirements for:

- a. Number of premises and meters;
- b. Message volumes;
- c. Availability.

Numbers of premises and meters

- A.3. For each scenario the WAN service must be capable⁵ of providing reliable communications to the following numbers of premises and meters, distributed across the UK:
- a. Up to 25 million premises;
 - b. Up to 22 million gas meters;
 - c. Up to 28 million electricity meters.
- A.4. Note that in many cases there will be an electricity and a gas meter at the same premises, with both types of energy supplied by one supplier (ie dual fuel) or with separate suppliers for each type of energy. Suppliers may change for one or both types of energy independently and in some premises there may be many meters, or several meters separated by large distances.
- A.5. These numbers for the number of premises and meters are based on the use of the DCC WAN services for domestic customers. As discussed in Section 4 of the Prospectus supporting document on the Non-Domestic Sector⁶, *'The programme does not propose to oblige suppliers or meter service providers in the non-domestic sector to use DCC with respect to meters with smart functionality'* although such organisations may choose to use DCC services if they wish. The number of such consumers is less than 10% of the number of domestic consumers.

Message volumes

- A.6. For each scenario the estimates of the number of messages to be transported and their sizes (in terms of user data with no allowance for communications protocol overheads) shall be assumed to be as in Appendix B. At a high level the flows can be summarised as follows:
- a. The largest data flows are expected to be software and firmware updates, issued from the DCC and intended for large numbers of devices (smart meters or In-Home Displays) of the same type. The files to be transferred may be up to 2MB in size (though there may be smaller files as well) and such files may be issued up to 20 times a year. The large updates, although rare, account for the largest data flows by volume.
 - b. The average number of messages per day from the DCC to a smart meter is estimated to be less than 10, and will probably be less initially as the higher numbers are due to frequent tariff updates and load management messages. The total daily volume, if software updates are discounted, is estimated to be less than 10kB. Most of the messages sent to smart meters are sent to large numbers of meters (e.g. gas calorific update, load management).
 - c. The average number of messages from the meter to the DCC, excluding acknowledgements in response to messages from the DCC, is probably less than 2, based on daily meter read messages together with a number of less common messages (e.g. tamper alarm, electrical quality reads). The messages are generally small (less than 1KB) though the quarterly electrical quality read may be more than 140KB.

⁵ Note that niche providers do not need to provide this number of premises / meters, but should identify the number of premises/meters that they expect to be able to cover.

⁶ See para 4.32 of <http://www.ofgem.gov.uk/e-serve/sm/Documentation/Documents1/Smart%20metering%20-%20Non-Domestic%20Sector.pdf>

Availability

- A.7. The non-availability of WAN services could result in costs for the DCC and for suppliers, potentially in terms of increased call centre call volumes, the inability to access smart meter usage data during discussions with consumers and the reduced productivity for engineers working for suppliers and their agents.
- A.8. **Availability standard case:** When developing the likely costs for each scenario, responding organisations are to base their cost analysis on the following availability requirements:
- a. The availability of the WAN services, averaged across all premises, on a rolling 4 week basis, shall exceed 99.5%;
 - b. No single failure should result in loss of WAN services to more than 2.5% of premises;
 - c. The maximum time to repair for any failure causing loss of WAN services to more than 1000 premises shall be 4 hours;
 - d. No consumer shall be affected by two events which cause loss of WAN services to more than 100 premises in any four week period.
- A.9. For each of the three scenarios, responding organisations should indicate how the technical option identified in response to paragraph 5.1 could be modified, and how the cost would change, if the availability requirements defined above were changed to:
- a. Lower availability case:
 - i. The availability of the WAN services, averaged across all premises, on a rolling 4 week basis, shall exceed 97.5%;
 - ii. No single failure should result in loss of WAN services to more than 2.5% of premises;
 - iii. The maximum time to repair for any failure causing loss of WAN services to more than 1000 premises shall be 24 hours;
 - iv. No consumer shall be affected by two events which cause loss of WAN services to more than 100 premises in any four week period.
 - b. Higher availability case:
 - i. The availability of the WAN services, averaged across all premises, on a rolling 4 week basis, shall exceed 99.9%;
 - ii. No single failure should result in loss of WAN services to more than 2.5% of premises;
 - iii. The maximum time to repair for any failure causing loss of WAN services to more than 1000 premises shall be 30 minutes;
 - iv. No consumer shall be affected by two events which cause loss of WAN services to more than 100 premises in any four week period.

B. Option Descriptions

B.1. The table below provides estimates of the information flows between the DCC and a smart meter. These estimates are still being developed. They are not accurate and should be used only for the purpose of responding to this information request.

B.2. When using these estimates the following factors should be born in mind:

- a. The Statement of Design Requirements (SODR) service references are of the form 1.xx. Where it has been necessary to subdivide services, this has been done by adding a further level of labelling. Thus service 1.77.1 is the first sub-service identified under SODR reference 1.77.
- b. The message sizes identified are broadly user data plus an allowance for security (to provide authentication, integrity and confidentiality). No allowance has been made for communication protocol overheads, as people responding to this request for information will identify the technologies that they plan to use and must take into account the associated protocol overheads in their design considerations.
- c. The target response times identified are round trip times where this is appropriate. As an example, the target response time for an On-Demand meter read (1.65.3) is 10s. But this starts when the Customer Service Representative (CSR) initiates the request for the read and ends when the CSR receives the data. Thus the single trip time in this case is 5s. Note that the target response times are indicative only and do not supersede the Small Message time used in the scenario definitions in Annex A. It should be assumed that any message of around a few hundred bytes listed below may need to be transferred within the Small Message time.

SODR Service Reference	Service description	Variant	% of population	Gas	Electricity	Message size (Bytes)	Target Response (s)	Message Frequency (per annum)		Act required	Initiator	Broadcast/Multicast	Annual volume	Number messages with acks
								Low	High					
1.77.1	Gas calorific value update	Specified date/ time	100%	1	0	160	600	12	365	2	DCC	1	58,400	1095
1.89	Load management (assume 0 to 2/day)		100%	0	1	160	30	0	750	0	DCC	1	120,000	730
1.55	Tamper alarm triggered		10%	1	1	160	600	12	365	1	M	0	5,840	730
1.65.1	Meter read (import & export) eORg	Periodic schedule	100%	1	1	544	21,600	12	365	0	M	0	198,560	365

DCC WAN Services Information Request

SODR Service Reference	Service description	Variant	% of population	Gas	Electricity	Message size (Bytes)	Target Response (s)	Message Frequency (per annum)		Act required	Initiator	Broadcast/Multicast	Annual volume	Number messages with acks
								Low	High					
1.72.1	Tariff update	Specified date/time	100%	1	1	160	600	4	100	2	DCC	1	16,000	300
1.61.1	Message to consumer via IHD	Specified date/time	100%	1	1	256	600	6	52	2	DCC	1	13,312	156
1.80.1	Feed in tariff update	Specified date/time	5%	0	1	160	600	0	52	2	DCC	0	416	156
1.70	PAYG services		30%	1	1	160	120	24	70	1	DCC	0	3,360	140
1.63	Remote configuration of settings	Specified date/time	100%	1	1	1,100	600	24	36	2	DCC	1	39,600	108
1.80.2	Feed in tariff update	On demand	5%	0	1	160	120	0	52	1	DCC	0	416	104
1.57.1	Security or software patch		100%	1	1	400,000	3,600	4	24	2	DCC	1	9,600,000	72
1.83.2	Electricity quality read (on demand)	On demand	10%	0	1	141,472	120	1	12	1	DCC	0	169,766	24
1.79	Read distributed generation data		100%	0	1	282	120	0	12	1	DCC	0	3,384	24
1.61.2	Message to consumer via IHD	On demand	100%	1	1	256	120	1	12	1	DCC	1	3,072	24
1.72.2	Tariff update	On demand	100%	1	1	160	120	1	12	1	DCC	0	1,920	24
1.73	Supply fault alarm triggered		100%	1	1	160	600	6	12	1	M	0	1,920	24
1.74	Maximum demand read		100%	1	1	160	10,800	1	12	1	DCC	0	1,920	24
1.77.2	Gas calorific value update	On demand	100%	1	0	160	120	1	12	1	DCC	0	1,920	24
1.71	Credit balance update		30%	1	1	160	120	12	12	1	DCC	0	576	24
1.68	Consumer meter interaction		100%	1	1	160	120	3	12	0	DCC	0	1,920	12
1.58.2	Diagnostics	Routine	100%	1	1	160	120	3	6	1	DCC	0	960	12
1.63	Remote configuration of settings	On demand	100%	1	1	1,100	120	1	4	1	DCC	0	4,400	8
1.65.2	Meter read (import & export) eORg	Specified date/time	100%	1	1	544	10,800	1	4	1	M	0	2,176	8
1.58.3	Diagnostics	Low priority	100%	1	1	160	10,800	2	4	1	DCC	0	640	8
1.57.2	IHD, meter or comms unit s/w upgrade		100%	1	1	2,000,000	86,400	1	2	2	DCC	1	4,000,000	6

DCC WAN Services Information Request

SODR Service Reference	Service description	Variant	% of population	Gas	Electricity	Message size (Bytes)	Target Response (s)	Message Frequency (per annum)		Act required	Initiator	Broadcast/Multicast	Annual volume	Number messages with acks
								Low	High					
1.83.1	Electricity quality read (programmed)	Periodic schedule	100%	0	1	141,472	21,600	1	4	0	M	0	565,888	4
1.58.1	Diagnostics	High Priority	100%	1	1	160	10	1	2	1	DCC	0	320	4
1.62.1	Download/clear data from meter	Specified date/time	100%	1	1	600	600	0.2	1	2	DCC	0	600	3
1.67.1	Remote dis/enablement of supply	Specified date/time	100%	1	1	160	600	0.2	1	2	DCC	0	160	3
1.69.1	Switch between credit and PAYG	Specified date/time	100%	1	1	160	600	0.2	1	2	DCC	0	160	3
1.62.2	Download/clear data from meter	On demand	100%	1	1	600	120	0.2	1	1	DCC	0	600	2
1.65.3	Meter read (import & export) eORg	On demand	100%	1	1	544	10	0.2	1	1	DCC	0	544	2
1.53	Self registration on installation		100%	1	1	160	120	0.1	1	1	M	0	160	2
1.56	Meter fault alarm triggered		100%	1	1	160	600	0.1	1	1	M	0	160	2
1.66	Energisation status check		100%	1	1	160	120	0.5	1	1	DCC	0	160	2
1.67.2	Remote dis/enablement of supply	On demand	100%	1	1	160	10	0.2	1	1	DCC	0	160	2
1.69.2	Switch between credit and PAYG	On demand	100%	1	1	160	120	0.2	1	1	DCC	0	160	2

C. Response format

C.1. When preparing your response please follow use the following structure.

- a. Introduction
 - i. Name of entity responding and contact details for any clarifications or further questions
 - ii. Statement as to whether the information provided is a personal opinion or that of a company / organisation.
 - iii. Any general comments that you wish to make
 - iv. Assumptions: Please:
 - Confirm that you agree with the assumptions identified in paragraph 9 or elsewhere in this Information Request or explain how the assumptions should be modified or improved;
 - Identify any additional general assumptions that you have had to make to enable you to respond to this information request. Any assumptions that are specific to a particular scenario should be recorded in the part of your response that deals with that scenario.
- b. Scenario A
 - i. Base availability case
 - Technical response
 - Commercial response
 - Financial response
 - Timescales
 - Risks and issues
 - Dependencies
 - ii. Low availability case
 - Please identify any changes to the information provided in respect of the Base availability case resulting from the lower availability service level
 - iii. Higher availability case
 - Please identify any changes to the information provided in respect of the Base availability case resulting from the higher availability service level
- c. Scenario B
 - i. Please use the same structure as for Scenario A response
- d. Scenario C
 - i. Please use the same structure as for Scenario A response
- e. Supporting appendices as required

C.2. All costing information should:

- a. Show all costs in the calendar year in which they would fall based on contract award in 2013 (as an example only);

- b. Exclude VAT;
- c. Be based on expected costs/prices assuming a contract start in 2013;
- d. Not make any assumptions about inflation, i.e. costs should be in constant 2010 pounds;
- e. Not include any assumptions about payment profiles, cost of finance, etc as these are out of the scope of this DCC WAN services information request;
- f. Ideally be provided in the form of three point estimates, or provide some other measure of uncertainty.

C.3. Any description of risks should include:

- a. A description of the risk;
- b. An analysis of the probability of the risk occurring;
- c. An analysis of the impact of the risk if it occurs, in terms of cost, timescale or performance;
- d. A description of recommended risk mitigation activities.