DCC WIDE AREA NETWORK SERVICES - 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 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.

4. 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:

    a. Timeframe

    b. Consumer impact

    c. Risk

Nature of this Information Request

5. 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):

    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.

6. This information request is not part of any procurement process and is solely being used to inform Ofgem and DECC of the broad costs and timescales required to deliver WAN solutions capable of meeting different service levels, so that appropriate user requirements can be determined.

7. The objective of this exercise is to assess the incremental costs and benefits associated with the implementation of DCC WAN services under a number of specified scenarios. In responding to this information request, 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.

Scope and boundary of the WAN service

8. In providing the information requested in this DCC WAN Service Information Request it is important that responders and Ofgem have a consistent understanding of the scope and boundary of the WAN services to be provided.

9. In preparing this Information Request, the following assumptions have been made:

   a. The responsibility of the DCC WAN Service Provider extends from:

      i. 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);

      ii. The connection to the Communications Module within the Premise. It is assumed that:

         - For wireless technologies, the WAN Service Provider will be responsible for providing an agreed signal strength at the Premise, but will not have any need to access the premise;

         - For wired technologies, the WAN Service Provider will be responsible for providing the physical connection to the Communications module.

   b. The WAN communications module within the premise will be installed, maintained and replaced by the energy supplier, not the WAN Service Provider.

   c. The WAN Service Provider is responsible for transferring data from the meter to the DCC and vice-versa, within agreed timescales and without modification.

   d. DCC will not rely on the WAN Service Provider's data transmission security mechanisms for message integrity, confidentiality and proof of origin. Additional security mechanisms will be implemented by the DCC (e.g. data encryption, digital signatures) to protect messages over and above what the WAN provider offers (e.g. GPRS encryption, https, etc.).

10. If respondents do not agree with any of these assumptions they should comment accordingly in their response.

Information Requested

11. The key information required is an estimate of the capital and operating cost 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.

12. The questions below are targeted at respondents that wish to provide a WAN Service covering all but the most difficult premises. If you are a niche provider and only wish to offer WAN services in specific contexts, for example to 'fill in' where a national scale WAN service cannot provide coverage, please:

a. Please state that you wish to be considered as a niche provider of WAN services and identify the characteristics of the niche that you offer services for;

b. Please respond to the questions below in the context of your offering.

13. For each scenario, and for the three different levels of availability within each scenario, please provide the following information:

Technical information

a. The Government's ambition/ vision is for 100% coverage of GB. In this context pPlease describe your main WAN solution, ~~that you would propose to deploy which should be designed to reach as close to 100% of the smart meter installations as possible(i.e. the solution that would provide WAN services to the majority of premises)~~, including:

i. What technology would be used to provide ~~the link to~~coverage of the premise? How ~~well is this suited~~you do you propose to ensure that this solution provides connectivity to the WAN module, and will any additional equipment be needed, for installations in the following:

- ~~to premises in~~ high rise buildings?
- ~~,~~ high density urban environments?
- ~~,~~ suburbs?
- meters installed in basements?
- ~~and~~ rural areas?

ii. What communications architecture is proposed, for example will concentrators / access points be used and, if so, how would the backhaul communications from the access point to the DCC be provided?

iii. Will the technical solution be capable of achieving the target service levels, and if not, what service levels will it be able to achieve? For Scenario C, please identify the minimum possible small message latency time that is possible with your solution and what impact achieving this level of performance would have on the cost of your solution.

iv. How does your solution 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)?What security mechanisms or features does your WAN solution provide?

v. How will the technical solution be operated and supported to meet the required service levels ~~of availability and security~~?

vi. Technical standards: What technical standards does your solution comply with? Which of these is it certified as complying with?

~~vi.~~vii. How mature is your technical solution:

- Does it already exist or will it need to be developed specifically to meet this requirement? If so, please provide details.
- Has it been used on a similar scale and for similar purposes elsewhere? If so, please provide details.

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- If it has not been used on a similar scale and for similar purposes, what evidence is available to provide confidence that it is capable of being used for a national scale smart metering infrastructure?
- Does it require any licensing or certification before it can be used in the UK? If so, please provide details.
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b. Coverage:

i. What proportion of the population will the main technical solution be able to provide services to and what is it that sets 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?

ii. Please describe what solution(s) you propose to use to provide WAN services to premises that cannot be served by your main solution?

iii. Please identify the proportion of premises that it would not be commercially viable to connect using any WAN technologies.

c. Security: End to end security between the DCC and the communications module / smart meter is critical. Please can you describe:

i. Your understanding of the threats to the ~~DCC and smart meter related equipment with the premise via the WAN and to the WAN itself~~end to end smart metering system, and between the premises and the DCC in particular;

ii. How will your proposed solution ~~will~~ protect against these threats;

iii. What assumptions you have made about the security mechanisms provided within the DCC as part of your solution.

d. Technical life and innovation:

i. Please identify the expected technical life~~time~~ of your solution and what will limit it, i.e. at what point would significant technical refresh need to be undertaken?

ii. Please identify how you would manage technical change during the life of the contract, and in particular how you would minimise the need for any visits to the premise;

~~c.~~iii. Please explain your approach to innovation and technology refresh during the contract period.

~~d.~~e. Scalability: Please describe scalable your solution will be – how would it be scaled (and what would the rough change in cost be) to support:

i. 50% more meters (e.g. because of the widespread introduction of electric vehicles, heat meter, water meters, etc.)?

ii. Twice as many messages as identified in Annex B?

iii. 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)?

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f. Communications Module: The communications module is the interface between the WAN and the HAN. Please provide the following information on the communications module ~~that you would propose~~:

i. What HAN solution would ~~you propose to use~~be suitable for use with your WAN solution and why?

ii. Would you be prepared to ~~provide~~use ~~a~~ a different HAN solution if requested to do so? Are there any HAN solutions that you would not be able to ~~provide~~use as part of your communications ~~module~~solution?

iii. What security mechanisms would you provide in the communications module and what aspects of security will they ~~provide~~utilise (eg authentication of source, integrity, confidentiality, etc)?

~~iii.~~iv. What is the estimated power consumption of your proposed communications module? If more than 2.5W, please explain whether it would be possible to reduce it to under 2.5W and what the impact would be of doing so.

Commercial information

~~e.~~g. Contract lifetime:

i. What is the minimum contract time for which your WAN solution would be commercially viable?

ii. What would the optimum contract duration be and why?

iii. How would your solution, or the associated costs, change for contract durations of 5, 10 and 15 years?

h. Exit: At the end of any contract period the DCC may require any assets used to provide the ~~DCC~~ WAN service to be transferred to the DCC or another entity. Please comment on any impact of this requirement.

i. Novation: If you were awarded a contract by the DCC and the DCC licence holder changed, what would your view be of your contract being novated to ~~the~~a new DCC licencee?

j. Charges: What do you believe would be the most appropriate charging model for DCC WAN services?

~~f.~~k. Scale of services: What is the minimum number of premises that it would be commercially viable for you to provide services to and why? Does this number depend on the distribution of premises (e.g. specific geographic region, or low density of premises spread evenly over the UK)?

~~g.~~l. Value added services: Have you identified any potential for the use of the WAN for non-regulated value added services, if these can be allowed under the DCC licensing arrangements? If so, please describe them.

~~h.~~m. Ownership of the Communications Module: Please identify the respective costs and benefits of the Communications Module being owned by:

i. The supplier;

ii. The WAN Service Provider.

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Financial information

~~i.~~n. Capital costs: Please identify the major items of capital expenditure and when they would take place. Where an existing infrastructure is used 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 Ofgem to understand what the major items of spend are, a detailed bill of materials is not needed. As a minimum the costs should include:

i. Hardware costs;

ii. Software costs;

iii. Spectrum or licensing costs (if appropriate);

~~iii.~~iv. Security accreditation;

~~iv.~~v. Testing and acceptance costs;

~~v.~~vi. Installation costs;

~~vi.~~vii. Staff costs, including technical, legal and commercial, etc;

~~vii.~~viii. Third party costs (please identify);

~~viii.~~ix. Other costs (please identify);

~~ix.~~x. WAN communications module capital cost (please identify what volume the cost is based on).

~~j.~~o. 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 Ofgem to understand what the major items of spend are, a detailed bill of materials is not needed. As a minimum the costs should include:

i. Staff costs with associated indicative staffing model (ie how many people, where they will be located, what they will do);

ii. Hardware or software support / maintenance costs;

iii. Network operations and security;

iv. Facilities related costs;

v. Rental, licensing or similar costs;

vi. Third party costs, including for example 3rd party costs for backhaul communications (please itemise);

vii. WAN communications module operating costs (please identify what volume the cost is based on).

~~k.~~p. Cost drivers: Please identify what the major cost drivers are for your solution. In responding, please identify:

i. What are the top three cost drivers for capital and operating costs for your solution?

ii. Are there are any specific service level requirements that significantly drive cost, and if so, what different service level would provide the best cost / benefit trade off and why?

iii. 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)?

Timescales and deployment

~~l.~~g. Deployment approach:

i. Please describe and explain the optimum roll out approach for your solution;

ii. The Smart Meter Implementation Roll Out Strategy[1] states that the proposed strategy for the delivery of rollout is as follows:

- Providing suppliers with broad flexibility over the pattern of their installations, in the early stages of the rollout at least;
- Establishing clear obligations on suppliers to meet specified rollout targets;
- Regular reporting by suppliers, with publication of reported progress;
- Establishing an industry code of practice around the installation process and with potential additional consumer protection in key areas such as sales during the installation visit;
- A review of suppliers˜ progress against targets and programme objectives at an appropriate point and, if necessary, modification of the rollout strategy at that time.

The details of the roll out derived from this strategy have yet to be defined. ~~It is possible that suppliers may be required to roll out smart meters on an area by area basis.~~ Please comment on how this constraint would impact on your proposed WAN deployment strategy.

~~m.~~r. Deployment timescales: Please provide a high level plan that shows the key stages, and associated indicative timings in the implementation and roll out of your solution from award of contract, including:

i. Completion of any design and acceptance testing phases;

ii. Initial availability of services on a limited scale;

iii. Availability of services to 50% of the target premises (i.e. if the solution can provide coverage of 90% of premises, how long will it take to reach 45% of premises)

iv. Full roll out of core technical solution nationally;

v. Complete coverage of all premises using core and supplementary technologies;

vi. Any other significant milestones.

[1] http://www.decc.gov.uk/assets/decc/Consultations/smart-meter-imp-prospectus/228-smart-metering-imp-rollout-strat.pdf

~~n.~~s. Please identify the minimum realistic time for full deployment and any options for reducing this deployment time.

Risks and issues

~~o.~~t. Risks: Please identify any risks (cost, timescale or performance) associated with your proposed technical solution and how you would mitigate them.

Dependencies

~~p.~~u. Does your proposed solution rely upon any decision, resources or other factors that are outside your control? If so, please identify what they are and who controls them?

14. Please format your response in accordance with the information at Appendix C.

15. 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.

Process for responding

16. Responses to this Information Request must be submitted by noon on Friday, 22 October 2010. Responses should be submitted in Microsoft Word or PDF format to [dcg@ofgem.gov.uk] in the format specified in Appendix C.

17. 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: Definition of scenarios

Scenario definitions

18. Outline solutions and estimated costs are 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 being 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

19. 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

20. For each scenario the WAN service must be capable[2] 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.

21. 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.

    ~~c.~~

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Message volumes:

~~21.~~22. 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 are 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 Interactive 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.

Availability

~~22.~~23. The non-availability of WAN services will result in costs for the DCC and for suppliers, 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. There is also the risk that Pay As You Go consumers will not be able to have their supply re-energised without suppliers resorting to manually intensive fall back processes.

[2] Note that niche providers do not need to provide this number of premises / meters, but should identity the number of premises/meters that they expect to be able to cover.~~,~~

~~23.~~24. **Availability standard case**: When developing the cost estimates for each scenario, responding organisations are to prepare estimates based 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.

~~24.~~25. For each of the three scenarios, responding organisations should indicate how their solution would 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.

Appendix B – Option Descriptions

The table below provides estimates of the information flows between the DCC and a smart meter. These estimates are still being refined and should be taken as indicative only, not as accurate.

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.

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
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

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					
1.80.1	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
1.83.1	Electricity quality read (programmed)	Periodic schedule	100%	0	1	141,472	21,600	1	4	0	M	0	565,888	4

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					
1.58.1	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
1.75	Notification of failure to obtain reading		100%	1	1	160	600	0.2	1	1	M	0	160	2
1.54	Check accuracy of master clock		100%	1	1	160	600	0.2	1	1	DCC	1	160	2
1.59	Test meter communications line		100%	1	1	160	120	0.2	1	0	DCC	0	160	1
1.60	Service life notification		100%	1	1	160	600	0.2	1	0	M	0	160	1

Annex C – Response format

~~25.~~26. 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

b. Assumptions: Please:

   i. 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;

   ii. 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.

c. 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

d. Scenario B

   i. Please use the same structure as for Scenario A response

e. Scenario C

   i. Please use the same structure as for Scenario A response

f. Supporting appendices as required

~~26.~~27. All costing information should:

a. Exclude VAT;

b. Be based on expected costs/prices assuming a contract start in 2013;

c. Not make any assumptions about inflation, i.e. costs should be in constant 2013 pounds;

d. 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;

e. Ideally be provided in the form of three point estimates, or at least provide some other measure of uncertainty.

~~27.~~28. Any description of risks should include:

a. A description of the risk;

b. An estimate of the probability of the risk occurring;

c. An estimate of the impact of the risk if it occurs, in terms of cost, timescale or performance;

d. A description of recommended risk mitigation activities.