

# Smart Metering Prospectus

## RWE Npower Response

### Part 1 (September 2010)

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# 1 CONSUMER EXPERIENCE QUESTIONS

**Q3 Do you have any comments on the proposed approach to ensuring customers have a positive experience of the smart meter rollout (including the required code of practice on installation and preventing unwelcome sales activity and upfront charging)?**

- We support the Code of Practice
- We support the clear definition and prevention of unwelcome sales activity
- We expect to install smart meters free of charge in normal circumstances

As a matter of principle, we are supportive of the aspiration to ensure that the customer experience of the smart meter rollout is a positive one. Indeed, as a supplier we are incentivised to ensure that our customers understand the significance of smart meters and why they are being installed, and thence manage their energy.

A Code of Practice will ensure a uniform and consistent approach to rollout for customers, whilst the associated governance in terms of sales activity will ensure that targeting of customer groups is oriented more to a successful programme than to sales.

It essential that the definition of what is meant by 'unwelcome sales activity' is agreed as soon as possible. We would welcome the opportunity to work with the industry and consumer groups to develop the approach, and are already contributing to the Energy Retail Association (ERA) work on developing a Customer Charter.

The experience of our own smart metering trials has proved the value of good customer engagement and a positive installation experience.

## 2 INDUSTRY ROLES AND RESPONSIBILITIES QUESTIONS

### **Q6 Do you have any comments on the functional requirements for the smart metering system we have set out in the Functional Requirements Catalogue?**

- We are pleased with the Catalogue and have comments on the specifics

We welcome the publication of “The Catalogue” and are, overall pleased with the level of clarity and completeness provided.

There are a number of specific requirements which we feel require further clarification or expansion in order to; i) ensure industry wide compliance and ii) facilitate technical interoperability within the programme. We provide greater detail in our response to question 4 of the Statement of Design Requirements section below.

### **Q7 Do you see any issues with the proposed approach to developing technical specifications for the smart metering system?**

- We see no insurmountable issues, and believe that good governance, recognition of likely EU requirements, and inclusion of all components is important.

We support the proposed approach for Industry to develop the technical specifications. We wish to stress the importance of strong and clear leadership from the governing bodies in the process.

We believe that the SMDG will provide an excellent forum for the required technical and security discussions and once again look to Ofgem to provide strong governance to ensure that the SMDG remains more of a “working group” to work through issues, rather than a discussion forum. At the same time, we recognise that the SMDG has no decision powers, and hence needs clearly to capture arguments and information in a neutral manner, articulated in a form that can inform decisions by Ofgem, DECC and others.

It is our understanding that legislation requires meter manufacturers to complete a lengthy accreditation process, which may be out of keeping with the currently published timeframes.

We also note some timing risk regarding EU approval. Whilst the approval process takes 90 days from submission, we cannot be sure that approval will be given first time round, and objection from any member state would make a further 90 days likely. It is important to be as sure as we can that approval will be received, whilst at the same time, not over-engineering the specification in too conservative a manner. The contingency for lack of first time approval should be recognised in the programme.

We look to Ofgem for clarification on how the specifications will be finalised and accredited, especially with regards to the meter specification.

The minimum functionality specifications of the WAN box and IHD will also require specification. There are some mutual dependencies between the various components, and hence potential delay in final specification for all components.

In addition to this, the overarching security standards will have to be reviewed with all home items (meter, WAN connection, IHD) and external connections (WAN to the Head End).

To avoid asset stranding, the greatest possible certainty on standards must be attained for the interim market before the DCC Go Live. The supply chain will need time to mobilise between the time of final specification accreditation and the onset of the mandated pre DCC rollout.

**Q16 Do you have any comments on the proposals for requiring suppliers to deliver the rollout of smart meters (including the use of targets and potential future obligations on local co-ordination)?**

- Suppliers should indeed deploy the meters
- We support indicative realistic targets post DCC Go-Live, but not in supply licences
- The decoupling of metering and DCC inception challenges the date targets
- We do not support any obligations on coordination. Coordination should happen through commercial incentives

We believe that since energy suppliers have the primary contact with consumers, then they are best placed to install smart meters, directly or via their agents.

We also recognise the value of targets, to engage consumers and the media in the national rollout, to inform policy makers and suppliers and supply chain participants for the purpose of planning, and provide confidence that the pace of rollout will be commensurate with that required to enable the Low Carbon Transition.

At the same time, we believe it to be essential that consumers have meters installed on a voluntary basis, and recognise the flexibility in timing that may be required as a result of assessing consumers' preferences, particularly following publicised experience in the early stages. In the early stages, positive consumer experience is very much more important than rollout pace.

The result of this is that realistic indicative targets are sensible post DCC Go-Live, and it may be appropriate to specify a date at which the programme is substantively complete and at which reasonable steps must have been taken to exchange each meter.

Since we are prepared to support quarterly reporting, then planning can be informed by the projection from the quarterly figures.

It is worth noting that the later stages of the programme are beyond the "tipping point" at which the costs of managing the legacy systems for traditional meters, and the handling of both traditional and smart meters (and reads, etc.) in core systems, becomes prohibitive, and suppliers are strongly incentivised to complete the deployment tail.

Suppliers' billing systems are expensive, complex, and are replaced at intervals. The incorporation of smart (meter reads, billing, customer service, etc.) into the systems and processes must be mindful of the limits to flexibility in the phasing of billing system development. This means that different suppliers will have different paces in the early stages in particular.

We are concerned that the start of the mandated rollout of smart meters has been decoupled from the establishment of the DCC. The very long interim period between smart meter mandation and DCC Go-Live places severe stress on the pace of the first phase of rollout.

As well as stressing delivery in the interim phase, the decoupling of the DCC stresses the migration from the interim communications to the final DCC. Conversely a stable and robust start to the programme could enable rapid ramp up following DCC Go-Live. Therefore interim targets should reflect the S shaped pace of delivery.

We recognise the potential for voluntary local level coordination, and it is in our interests to explore all opportunities to engage local support, for example with local authorities, housing authorities, blocks of flats and neighbourhoods. It may be that we can achieve this at an early stage, but it seems most likely that the pioneer population will be more oriented to individuals than communities. A successful early stage rollout should have a significantly beneficial effect on community engagement in the mid stage of the programme.

We would be very happy to discuss with DECC, Ofgem, DCLG, Local Authorities and any local agencies how delivery coordination may benefit consumers. We would be happy to discuss with other suppliers how we could coordinate, whilst recognising our own need for commercial confidentiality and the requirements that the Competition Act places on structured dialogue with appropriate witnesses in appropriate fora.

It is worth noting that the evolution of the Supplier Hub model in Great Britain has been such that suppliers have commonly engaged metering agents. Where an agent has high geographical density then it is quite possible for the individual supplier contracts to incentivise a coordinated approach by the agent without actually requiring suppliers to communicate directly with each other. We believe therefore that commercial pressures will naturally incentivise coordination. It is possible that commercial innovation, such as inter-agent contracts, may also develop, to the benefit of the consumer.

**Q17 Do you have any comments on our implementation strategy? In particular, do you have any comments on the staged approach, with rollout starting before DCC services are available?**

- We are very concerned about the decoupling of smart meter mandation and DCC Go-Live

In our view the staged approach to implementation introduces a level of cost, risk and customer impact that is not considered in the Impact Assessment. We recommend that this approach is reconsidered.

We believe that the policy goal should be a successful outcome, clear consumer benefit and engagement, and enablement of the low carbon transition with the date 2020 clearly in mind. We believe that any perceived benefit of fast early stage pace is transitory and would compromise achievement of the proper policy targets. We do recognise the benefits that the IHD and monthly accurate reads bring to consumers, and that early rollout can accelerate this. At the same time, positive experience and feedback from the pioneer population, and rapid adaptation by suppliers to early stage lessons in engagement, will increase the benefits for the consumer base at large more than the benefits of a relatively small section of consumers who receive smart metering systems faster in an accelerated first stage.

It is possible that WAN communications installed during the interim period would have to be replaced with DCC accredited equipment once it is established. As well as the costs of replacing the WAN equipment, this would also necessitate a second visit to the customer's premises. This would severely impact the benefits case for smart meters and would be a poor customer experience. We estimate that a requirement for a replacement WAN device and a second visit to the customers' premises could cost around £24 million-£35 million for RWE npower.

The resource requirement arising from the necessity for a second visit would also have a knock on impact to the ability of Suppliers to maintain the rollout programme and could actually lead to an extended rollout period.

The requirement for Suppliers to invest in and develop independent communications solutions for the interim period would create a diversion from the main task of developing the enduring arrangements.

Given the coincidence of extra communications solutions, more deployment resources, and then migration onto the DCC, we do not think a DCC Go-Live coincident with ramp up of installation volumes is viable.

We are also concerned about data security and privacy considerations in the interim period between smart meter mandation and DCC Go-Live.

Finally, we think that the ability of a consumer to change supplier without requiring a meter change, would be highly compromised. We have significant experience in this regard in electricity prepayment meters.

In summary, we believe that it would be more effective to focus industry attention on delivering a DCC enabled market solution as quickly as possible.

If it is that smart meters are mandated ahead of the DCC, then the following principles must be adhered to and delivered against:

- i. Privacy must be safeguarded through all elements of the value chain. A rushed implementation could lead to security issues which would do severe damage to the credibility of the Smart Metering Programme and lead to a consumer and/or media backlash.

- ii. Security must also be safeguarded through all elements of the value chain. We view meters as part of critical national infrastructure and we have carefully considered the risk to various kinds of malicious attack.
- iii. Fraud must also be safeguarded through all elements of the value chain. Different entry points lead to different exposures. We have carefully considered the risk to various kinds of fraud.
- iv. The customer's ability to change supplier must not be compromised through the implementation of the interim mandate. Therefore, robust commercial and technical interoperability must be delivered to support the interim mandate.
- v. No supplier sector should be advantaged or disadvantaged, for example large/small suppliers. An advantage or disadvantage would undermine the competition that benefits consumers
- vi. The right of consumers to consume gas and power from different suppliers must be protected. In particular, the Lead Supplier concept should not reduce the capability of the second supplier to provide services in a reliable manner.
- vii. Contingency measures should be considered and built to accommodate any slippage in the delivery of the DCC.
- viii. The volume of meters to be supported by any interim arrangements should not be excessive, so as to mitigate any requirement for a significant migration exercise to an unproven DCC platform.

**Q18 Do you have any other suggestions on how the rollout could be brought forward? If so, do you have any evidence on how such measures would impact on the time, cost and risk associated with the programme?**

- In the absence of the DCC, no, although early EU approval would help
- Bringing forward the DCC Go-Live could bring forward the ramp up

It is our view that any attempt to bring the start of rollout forward would introduce further risk and may actually prove to be counter productive. The successful implementation and deployment of smart metering is dependant on a number of key deliverables, that have a complex set of interdependencies. For example:

- i) Smart Meter specifications
- ii) Data and Privacy specifications
- iii) Customer charter
- iv) Technical and commercial interoperability
- v) Industry process change and testing
- vi) Smart metering system accreditation processes

If customer confidence in the programme is to be maintained then this must be approached in a robust and sustainable way. This is particularly important as 40% of the benefits identified in the impact assessment are dependent on changes in customer consumption behaviour. Lack of customer confidence could result in customer's refusing to have a smart meter installed at all. In our view, it would be better to start slow and then ramp up volumes once the entire supply chain infrastructure has been proven. This may still enable the industry to meet the Government aspirations to complete the bulk of the rollout process by 2017.

The mobilization of the resources of asset providers, field operators and supply chain processes will pend the sign off of the agreed meter technical specification by the EU in late 2011. Late approval would expose the industry to supply chain constraint.

**Q19 The proposed timeline set out for agreement of the technical specifications is very dependent on industry expertise. Do you think that the technical specifications can be agreed more quickly than the plan currently assumes and, if so, how?**

- Yes – by continuation of the intense consultation phase into 2011, and continued active engagement with the Energy Networks Association

We have been actively involved with the ERA Supplier Requirements for Smart Metering (SRSM) project and its development of a proposed technical specification for Smart Meters. We are pleased to see so many of the SRSM requirements included in the Statement of Design Requirements document.

We believe that industry has the expertise and the commitment to agree the technical specifications in a timely manner. We feel that the main area of risk regarding timescales is the 3 month EU ratification period once the meter specification has been agreed in Great Britain. There appears to be no contingency within Ofgem's programme plan to accommodate the EU rejecting or requesting amendments to the technical specifications.

We will work within the SMDG at every opportunity in order to complete the technical specifications to the timetable, as we believe that this element is on the critical path for the entire Smart Meter Implementation Programme.

We believe that Supplier requirements are well defined and understood for Smart Meter, but network driven requirements are still evolving as a result of an item by item estimation of cost and benefit. Great Britain is almost unique in its separation of supply and distribution and hence the structured engagement between suppliers and distribution companies takes time.

We acknowledge the benefits of future proofing the meter specifications, but also recognise the potential cost of over-engineering and the impact of a cost-benefit evaluation before sign off. Similarly we recognise that the EU sign off will be more dependent on benefits than on cost efficiency. We recommend early submission to the EU, even if this risks required revision to the specification..

We should also strongly note the need to sample test meters. The lead time to do this further increases the need for early finalisation of the meter specification.

**Q20 Do you have any comments on our proposed governance and management principles or on how they can best be delivered in the context of this programme?**

- We are supported of the intensive programme of working groups arranged by Ofgem and DECC
- We have some suggestions for relatively minor adaptations of the working groups



We support managing the programme according to established management principles and we agree with the need for an Implementation Co-Ordination Group, at which we would expect representation from all Suppliers and the ERA.

We also believe it is key to have some form of Supplier representation in both the Consumer Advisory Group (CAG) and Privacy and Security Advisory Group (PSAG) to understand the commercial and technical practicalities of implementation from the parties who will be bound by licence conditions.

We recognise the greater effectiveness of smaller groups and that the addition of the supplier community to CAG and PSAG could make them unwieldy. It is therefore our recommendation, that CAG and PSAG have specified sessions at which suppliers are invited, where supplier expertise is required.

We note also the benefits of bringing programme managers together so that experiences are shared for the benefit of consumers, and the industry can form a common view on how the pace of the programme might respond to experiences. It may therefore be that the ICG develops one arm that is clearly focused on near term implementation issues that require industry discussion with DECC and Ofgem, and an arm that maintains a focus on higher level, longer term, consumer and policy issues, and legislative and regulatory matters.

Given that participation in working groups is necessarily restricted in order to make them manageable, we believe it to be essential that detailed notes are taken at the meetings.

### 3 IMPLEMENTATION STRATEGY QUESTIONS

**Q1 Do you have any comments on our proposed governance and management principles or on how they can best be delivered in the context of this programme?**

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**Q2 Are there other cross-cutting activities that the programme should undertake and, if so, why?**

- Smart grids and smart settlements should be related but not subsumed to the smart metering programme
- Multi-layered messaging by parliament, government and agencies should be constructive and supportive of the programme
- The approach to data should be pragmatic and strategic

We regard the management of demand for networked energy arising from the universal rollout of smart meters as the most critical activity in achieving the low carbon transition. What is enabled by smart meters will develop over the next 10-20 years. For example, in the short term, regular accurate bills based on regular accurate reads, and the increase in energy consumption awareness enabled by the IHD are key. This phase will achieve the greatest difference in gas consumption, and will particularly incentivise energy conservation. Going forward, dynamic energy management, enablement of microgeneration, and national balancing through the use of local energy complexes

(electric vehicle, batteries, heat pumps etc.) will be the key drivers. This will require time of use pricing and highly responsive automated control of devices..

The two programmes that are most closely associated with smart meters are;

- i) settlement systems that will develop such that gas and power are compatible and both can enable settlement at high temporal resolution (halfhourly for power and at least daily for gas)
- ii) smart distribution grids that will develop to accommodate rapidly varying two way flows of power, which will thence enable a high percentage of renewable power in the network

Our view is that both of these developments must coordinate closely with the smart metering programme, but must be separate programmes, so that the smart metering programme does not become unwieldy.

The need for consumer engagement in energy management is recognised by government, government agencies, consumer groups, local authorities, and others. It is essential that the civic responsibility of these organizations is given precedence over their political objectives. In particular, it is essential that consumers receive a clear and compelling message not only to engage with energy management but to engage with their energy suppliers who come to their homes to deliver smart meters and other services. If the most recognised message about energy suppliers is the inappropriate engendering of mistrust, then this challenges the ability of suppliers to engage effectively with consumers. Therefore all elements of multilayered communication by parliament, government and government funded agencies must be consistent and oriented towards positive consumer engagement.

Access to data is an essential component of effective targeting of measures and activity to consumers, and of effective management of the energy complex. On the consumer side, we believe that a pragmatic national approach to data, privacy, and security is essential. From a strategic perspective for an effective social policy, we believe that the connectivity of data about people, consumption, and buildings should be improved greatly, without unnecessary proliferation of databases. So, for example, a national energy efficiency database could be formed by having better and common standards of existing databases such as the electricity meter point administration systems (MPASs), the Home Energy Efficiency Database, and the core databases of the Department of Work and Pensions (DWP) and Her Majesty's Revenue and Customs (HMRC). An example of a basic consistency is a common format for postal address and flat number. In addition to this, we believe that the approach to data ownership and data privacy should be consistent with social policy and effective management of the energy complex. An example is the need for suppliers to use metering information effectively to manage their hedging and balancing positions. We fear that the public politics, media hype and rhetoric about data ownership and privacy gives risk to a set of rules in one place that have consequences in other places that are unforeseen by the author of the rules. The success of the Great British NETA system for electricity in particular is in the strong impetus that it provides for suppliers and thence consumers to anticipate not only their core energy needs, but also to identify the value of flexibility and to plan the provision of flexibility. The transition to smart is more significant than the change from the Pool to NETA, and in particular, the direct role of National Grid in energy management changes significantly, especially at day ahead and the medium term stage. Therefore access by

suppliers to all relevant information about energy flowing through the meters that they provide has an importance beyond their commercial interests, and to the efficient operation of the market, engagement by consumers, and the ability of National Grid to plan and manage capacity and reserve.

The right approach to the provision of information and offerings to consumers about energy tariffs, energy services (demand management, efficiency, microgen, renewable heat etc.), energy surveys and other offerings, is not easy. In one sense it would be ideal for an agent to visit a house, install two meters, an IHD and HAN, a tested WAN, perform an energy survey, advise on insulation and microgen, and offer suitable energy tariffs. There are clearly several reasons why this is neither desirable nor possible, yet the boundary of helpful and appropriate activity is not easy to define. For example, should an electricity engineer who is being trained to fit gas meters also receive training to spot and report different signs of vulnerability, and where does advice stop and unwelcome sales begin.

We continue to believe that there exists possibilities for asset ownership that place capital requirement where it fits most naturally in regulatory asset bases, and there are methods of transition of assets that do not disrupt the programme. We would be happy to discuss these.

**Q3 Do you agree with our proposal for a staged approach to implementation, with the mandated rollout of smart meters starting before the mandated use of DCC for the domestic sector?**

- We are very concerned about the decoupling of smart meter mandation and DCC Go-Live

In our view the staged approach to implementation introduces a level of cost, risk and customer impact that is not considered in the Impact Assessment. We recommend that this approach is reconsidered.

We believe that the policy goal should be a successful outcome, clear consumer benefit and engagement, and enablement of the low carbon transition with the date 2020 clearly in mind. We believe that any perceived benefit of early stage pace is transitory and would compromise achievement of the proper targets.

It is likely that WAN communications installed during the interim period would have to be replaced with DCC accredited equipment once it is established. As well as the costs of replacing the WAN equipment, this would also necessitate a second visit to the customer's premises. This would severely impact the benefits case for smart meters and would be a poor customer experience. We estimate that a requirement for a replacement WAN device and a second visit to the customers' premises would cost around £24 million-£35 million for RWE npower.

The necessity for a second visit would also have a knock on impact to the ability of Suppliers to maintain the rollout programme and could actually lead to an extended rollout period.

The requirement for Suppliers to invest in and develop independent communications solutions for the interim period would create a diversion from the main task of developing the enduring arrangements.

Given the coincidence of extra communications solutions, more deployment resources, and then migration onto the DCC, we do not think a DCC Go-Live coincident with ramp up of installation volumes is viable.

We are also concerned about data security and privacy considerations in the interim period between smart meter mandation and DCC Go-Live.

Finally, we think that the ability of a consumer to change supplier without requiring a meter change, would be highly compromised. We have significant experience in this regard in electricity prepayment meters.

In summary, we believe that it would be more effective to focus industry attention on delivering a DCC enabled market solution as quickly as possible.

If it is that smart meters are mandated ahead of the DCC, then the following principles must be adhered to and delivered against:

- ix. Privacy must be safeguarded through all elements of the value chain. A rushed implementation could lead to security issues which would do untold damage to the credibility of the Smart Metering Programme and lead to a consumer and/or media backlash.
- x. Security must also be safeguarded through all elements of the value chain. We view meters as part of critical national infrastructure and we have carefully considered the risk to various kinds of malicious attack.
- xi. Fraud must also be safeguarded through all elements of the value chain. Different entry points lead to different exposures. We have carefully considered the risk to various kinds of fraud.
- xii. The customer's ability to change supplier must not be compromised through the implementation of the interim mandate. Therefore, robust commercial and technical interoperability must be delivered to support the interim mandate.
- xiii. No supplier sector should be advantaged or disadvantaged, for example large/small suppliers. An advantage or disadvantage would undermine the competition that benefits consumers
- xiv. The right of consumers to consumer gas and power from different suppliers must be protected. In particular, the Lead Supplier concept should not reduce the capability of the second supplier to provide services in a reliable manner.
- xv. Contingency measures should be considered and built to accommodate any slippage in the delivery of the DCC.
- xvi. The volume of meters to be supported by any interim arrangements should not be excessive, so as to mitigate any requirement for a significant migration exercise to an unproven DCC platform.

**Q4 Do you have any comments on the risks we have identified for staged implementation and our proposals on how these could best be managed?**

- Insufficient time to learn lessons, particularly across industry players

- Additional cost and complexity across the whole supply chain
- Significant risk of lost customer confidence
- Security and Data Privacy pre-DCC
- Interim interoperability
- Change of supplier pre-DCC
- Manufacturing supply chain limitations
- Limits to real interim competition in Head End and WAN communications

Learning by doing – A private sector rollout of this scale and complexity is unprecedented. There are risks to a complete stalling of the programme that must be anticipated to the greatest possible extent, dealt with swiftly after the early signs, and the programme reconfigured if necessary. Consumer engagement is essential not only for policy reasons but also because consumer permission and cooperation is the absolute minimum requirement to keep the programme moving. If customers will not make or keep appointments, then no amount of operational planning and technical solutions can overcome this. The international precedent to date has shown these risks quite clearly. The staged rollout gives real risk to poor customer experience, as interoperability failures and the need for repeat visits could be high.

If the interim period between smart meter mandation and DCC Go-Live is to be maintained, then it will be essential for suppliers to provide and to use all available information. It would help if this were facilitated under the auspices of the programme, for example the formation of expert subgroups under the ICG, CAG, PSAG as well as the DCG and SMDG

Supply chain costs – We do recognise some supply chain benefits from slower ramp up that an early start could achieve with a fixed finish date. In addition to this, there are benefits in preventing the standing down of a traditional metering field force with an interval before re-engagement of a smart metering field force. However, a very early start, hard on the heels of specification and manufacture of meters and other hardware, firmware and systems, gives little time to manage teething problems.

If the interim period between smart meter mandation and DCC Go-Live is to be maintained, then it will be essential that suppliers table issues with Ofgem/DECC and that these are responded to – the programme will need to recognise contingencies, and ultimately the target dates may have to change.

Consumer confidence – Consumer confidence is best engendered by a slow initial rollout rate, as this will bring to the fore the consumer facing issues that can then be solved. Early beginning of the programme does help in allowing a slower initial rate. However, we should be mindful that all suppliers are engaged in trials in advance of the mandation, and across the industry these trials are of sufficient volume to establish information if it is shared effectively. So, for example, a million meters is insignificant in programme terms, being as it is around 2% of the programme, but a million meters is a lot to go wrong, and much more than is needed to learn the early lessons.

If the interim period between smart meter mandation and DCC Go-Live is to be maintained, then a politically neutral and proactive activity of multi-layered communications will be needed to give the public a fair view of the issues, and

reassurance that the benefits of smart metering will be achieved, and real problems will be solved.

Privacy – At this point in time, our anecdotal evidence is that the media and some consumer advocates see privacy as a bigger issue than the consumers themselves do. Nevertheless it is the media and consumer advocates that can have the effect of stalling the programme. Views differ as to the extent that accidental or intentional release and subsequent use of a household's consumption is an invasion of privacy (as distinct to personal security, for example, exposure to burglary from knowledge of times of absence from the house).

If the interim period between smart meter mandation and DCC Go-Live is to be maintained, then avoiding knee jerk reactions and party political responses to perceived issues will be essential. Attention should be paid to the exposure to real harm, as distinct for example to potential exposure to unwelcome sales. At the same time a combination of ad hoc solutions will be required such as technical fixes, voluntary codes of practice, and licence condition modifications.

Security – we regard the smart metering system as part of the national critical infrastructure. There are numerous entry points and all nefarious and malicious activities should be considered. There are some benefits to the proliferation of communications solutions in advance of the DCC, as the inevitable security issues will be flushed out quickly. At the same time, the dilution of resource into many rather than one communications solution means that they cannot effectively be fixed as well. The issue here is one of perception. Whilst taking a holistic view would suggest that some security breaches are actually helpful, the publicity surrounding even a handful of cases would have a significant media and political effect on the programme.

If the interim period between smart meter mandation and DCC Go-Live is to be maintained, then rapid detection, diagnosis, elevating, and then fixing will be required.

Interim interoperability – Interim interoperability is highly compromised during the pre-DCC period and in addition to this, the respective needs of interim interoperability and security are partly in conflict. The result would be an apparently smart front end to the consumer but a highly confused and complex back end that exposes the consumer to faults and also to required asset replacement.

If the interim period between smart meter mandation and DCC Go-Live is to be maintained, then it is essential that suppliers commit to maximum interoperability, take seriously any objections made on this subject, and have particular regard to issues of security.

Change of supplier – Change of supplier will be highly compromised during the interim period. The proliferation of technical solutions will have interoperability issues even if basic interoperability is made possible.

If the interim period between smart meter mandation and DCC Go-Live is to be maintained, then suppliers and agents should commit to maximum technical and commercial interoperability.

Whilst a “clunky” change of supplier process in the interim period is an undesirable outcome, this should be viewed in proportion. Only about 16% of consumers switch supplier each year, and the pioneer population with smart meters and that wish to remain with smart meters will in all likelihood have an initially lower switching rate. The worst outcome for the smart consumer who wishes to switch to a smart product with a different supplier, is for the consumer to require a meter exchange. Hopefully this will only be required in the minority of cases.

Supply chain limitations – smart meters will depend on the DCC technical solution as well as EU approval. Manufacturers will not commit to large scale production while considerable uncertainties leave them with the risk of stranded capacity.

If the interim period between smart meter mandation and DCC Go-Live is to be maintained, then the earliest possible EU approval of the meter technical specification should be sought. In addition to this, whilst the final DCC solution may be influenced by incumbent technologies, the long term optimum solution should not be sacrificed to the expedience of the short term gain of ease of transition from an incumbent solution.

Limits to Head End and WAN competition – Vendors will be acutely conscious of the impending monopoly of the DCC. The big prize then is to become part of the DCC solution, rather than to target organic growth from the take up of an effective technology. Added to the requirements for technical and commercial interoperability and the need to maintain security, then the array of WAN and Head End technologies should not be viewed as representative of the possibilities.

If the interim period between smart meter mandation and DCC Go-Live is to be maintained, then vital experience in Wan and Head End must be captured. For example, experiences in communications challenges in particular areas, home types and meter/HAN/WAN location, and latency and scalability of WAN communications, and receipt of signal and translation by Head Ends.

**Q5 Do you have any other suggestions as to how the rollout could be brought forward, including the work to define technical specifications, which relies on industry input?**

- Earlier DCC Go-Live would advance the programme
- The technical specification is probably moving fast, and could go little faster

The DCG and SMDG and the sub groups are already working at full tilt. An increase in the frequency of meetings would compromise the work done between meetings. We believe that the activity in 2010 cannot be accelerated. We do believe that 2011 could begin at a similar pace, and this should enable the flagging of all risks and issues and the possibilities for technical specification. Since the governance arrangements currently do not give these groups decision making authority, the decision making process will need to be built on top, with sufficient clarity and governance to incorporate all the work done by DCG/SMDG and thence feed back initial proposals to these groups. At the same time input from non participants of DCG/SMDG should be facilitated.

In addition to the meter, technical specifications are required for the IHD, HAN, WAN as well as standards for the Head Ends.



Early Requests for Information could indicate the possibilities, and early approximate Cost Benefit Analysis may quickly eliminate some options. However, this should be weighed against the disbenefit of early issue with less information, and of a realistic maximum of two main rounds for service providers.

**Q6 Do you agree with our planning assumption that a period of six months will be needed between the date when supply licence obligations mandating rollout are implemented and the date when they take effect?**

- Energy suppliers have only limited influence on the supply chain

The key dates are the date at which industry participants have sufficient certainty to make and procure meters, and the date on which smart meter mandation commences. Six months is certainly too short for this interval. The more time there is to resolve supply chain issues, the firmer the text of the licence conditions can be.

It should also be noted that the simultaneity of certainty across all suppliers will have the effect of congesting the order books of manufacturers.

**Q7 Do you have any comments on the activities, assumptions, timings and dependencies presented in the high-level implementation plan?**

- Our principal concern is the decoupling of the dates of smart meter mandation and DCC Go-Live
- Our secondary concern is the challenges presented by the Lead Supplier concept

The plan is extremely ambitious and timescales are very tight. The assumptions that underpin the plan need careful review.

**Q8 Do you have any comments on the outputs identified for each of the phases of the programme?**

- We support the outputs identified

## 4 ROLL OUT STRATEGY QUESTIONS

**Q1 Do you believe that the proposed approach provides the right balance between supplier certainty and flexibility to ensure the successful rollout of smart meters? If not, how should this balance be addressed?**

- We welcome the general flexibility given to suppliers
- We think that the Lead Supplier Concept needs further development if it is to be made to work

We appreciate the thought that Ofgem and DECC have gone to in working up the concept of the Lead Supplier. This does indeed provide the key flexibility for consumers and suppliers whilst utilising the direct relationship between supplier and consumer. We believe that the thought process that led to the Lead Supplier concept could be used to adapt this concept to alleviate some of the post-installation difficulties that it presents.

First and foremost, we recognise that consumers are at the heart of the programme, and that the programme will be begun by pioneer consumers. Certainly at the beginning of the programme, we feel that some attempts to coordinate, for example on grounds of policy or cost efficiency from a street by street universal rollout, will give consumers a feeling of having something “done to them” and will not be constructive post installation.

We do believe that the Supplier Hub model, and the ability to subcontract metering services agents, will allow for coordination under the current commercial arrangements, and commercial innovation to increase coordination.

The presence of two fuels (gas and power) with different metering characteristics (powering the meter, safety, metrology, temporal resolution, management of trickle and cessation of energy, etc.), the desirability of the consumer of having one IHD, the home HAN, the HAN-WAN connection and the remote testing of WAN provides challenges at installation and post installation. We recognise that the Lead Supplier concept addresses these issues. At the same time, it leaves some challenges unresolved at this point. The lead supplier is required to maintain operability of an asset (the second meter) over which they have no installation control, and the operation of which they have no visibility. The second supplier is heavily dependent on the lead supplier at installation (in ensuring that the final configuration of assets at the home can be effective) and ongoing (in maintaining the operability). Our experience to date with agents and with the final stages of supply-distribution unbundling, suggests that there will be many situations where it will be very difficult to resolve particular technical challenges even when both parties are willing and responsibilities are clear (which they will not be). The Lead Supplier concept does not cater easily for switching the lead from one meter (and supplier) to the other, even when it is technically advantageous to do so.

We believe that the way to take this forward is to collate the risks and issues relating to the Lead Supplier concept, and work them through. It may be, for example, that the use of the Lead Supplier model is a very helpful starting model to work through the issues but not the final model. At the same time, the discussion will flush out the resolution of priorities, for example the desire of the consumer to minimise the proliferation of devices

in the home, played against the benefits of an easier rollout of one IHD per fuel, with supplier messages going only to the meter assigned to the fuel that they supply. Similarly it could be that security is better managed with either one IHD or two, or it may be possible to separate the technical management of the IHD from the content of the communications to and from it. This is an area in which we have done a considerable amount of research and we would be happy to discuss our findings.

Going forward, as we move beyond the pioneer stage of the programme and after the ramp up, then we do anticipate significant coordination opportunities if the programme has been successful enough to engender consumer pull. A community oriented approach is certainly possible and we welcome any opportunity to consider some practical possibilities.

If the decoupling of smart meter mandation and DDC Go-Live dates is to be retained, then it is imperative that compliant installations are adopted by the DCC, so that if the installation was effectively sending signals to the Head Ends, then the responsibility lies with the DCC to get the data flow (not just the signal) from the WAN module to the suppliers and other parties. This must be achieved with no mandatory exchange of equipment at the home.

We note that the finally agreed requirements will naturally advantage and disadvantage suppliers according to their market share of the single and dual fuel markets, their relative weights of gas and power, and their regional, social and other demographic densities. We note also that the combination of initial position and regulatory requirement will incentivise specific forms of targeting. This is not a bad thing per se, but we believe that regulatory oversight will be necessary to spot any early trends that may have the effect of being deleterious to any consumer group, or deleterious to competition (as this ultimately harms consumers).

**Q2 Would the same approach be appropriate for the non-domestic sector as for the domestic sector?**

- Differences between business and residential sector should be recognised
- Full rollout may be possible with light touch obligations on suppliers or obligations and incentives on businesses

Broadly speaking, we support a smart metering rollout for business customers, and note existing requirements for advanced and halfhourly metering, as well as related regulatory requirements such as the Carbon Reduction Commitment. We are already bound by standard supply licence conditions 12 for electricity meters in profile classes 5-8, and for gas meters in relevant premises where consumption exceeds 732,000 kWh/year.

The nature of the business sector, and the microbusiness sector, is such that the residential smart metering requirements cannot simply be replicated in it. For example, microbusinesses are open in office hours but cannot easily do without gas and power at these times. It is also easier to place obligations and financial incentives on microbusinesses than it is for householders. Since there are few microbusinesses than households, we do expect that a business sector rollout could be achieved relatively quickly if the resource utilization profile complemented rather than conflicted with the residential programme. We also note that it may be that purely private sector solutions

may allow the fully competitive model to achieve a rollout without any mandation. We do believe that the DCC should be obliged to handle business sector two way flows on request.

**Q3 Is there a case for special arrangements for smaller suppliers?**

- No

It is important to keep entry barriers low, and this is primarily because consumers benefit from the innovation that new entrants commonly bring. We do not believe that there is any case to provide special derogations for technology laggards.

We believe that small supplier representation in the debate is essential, and recognise the efforts of Ofgem to include them, and the small suppliers themselves in taking the time to participate fully.

We would also like to take this opportunity to note that we see no case for derogation of other small players such as the independent electricity distribution networks and gas transporters. Consumers on independent networks should not have their choices limited by such derogations, or network code differences that have the effect of derogations.

Having incompatible regimes between different supplier types risks disrupting the change of supplier process, on which the liberalised market is founded.

**Q4 What is the best way to promote consumer engagement in smart metering? As part of broader efforts, do you believe that a national awareness campaign should be established for smart metering? If so, what do you believe should be its scope and what would be the best way to deliver it?**

- Yes – a government led, multilayered communications programme, backed by self consistent statements from parliamentarians, ministries, and government agencies

Notwithstanding any perceived merits of the arguments, it is a fact that government and government agencies have been unhelpful in stirring distrust between consumers and suppliers. This will have a serious negative impact on the smart metering programme. We suggest in public rhetoric a more constructive approach and more accurate representation of the facts.

Whilst a government led national communications campaign would be welcome, we recognise the current budget constraints. There are several low cost ways in which the government can promote the programme. Firstly, there are the established challenges such as provision of information to the various advice centres, and associated information on the internet. Secondly, there is the information that suppliers provide to consumers. Examples include permission and encouragement to use government logos on material, to quote statements from ministries and ministers, and clarity to consumers that suppliers are required to comply with the licence obligations that underpin the programme. This would help greatly, at the first contact point that opens the subject of meter exchange, and thence at the doorstep and in the home.

In addition to this, key generic messages can be made, particularly around the impact one person can make. Suppliers can then reference the national campaign in their customer engagement approaches.

The campaign needs to recognise that a good proportion of customers will not want smart metering or will be agnostic to it and will need to build trust. We would also want to measure and interpret the impact of the campaign on public opinion.

**Q5 How should a code of practice on providing customer information and support be developed and what mechanisms should be in place for updating it over time?**

- We support the Customer Charter being developed by the Energy Retail Association

Through the ERA, npower is working with the industry to develop a smart Customer Charter and associated code of practice. The industry has successfully demonstrated that it can develop, implement and adhere to self governing code of practices.

**Q6 Do you agree with the proposed obligation on suppliers to take all reasonable steps to install smart meters for their customers? How should a completed installation be defined?**

- Yes, we agree – Reasonable Steps in the right approach, and “All” subject to definition
- A completed installation should be a working meter, HAN, WAN, tested at the Head End for the meter installed in the visit

We agree that Reasonable Steps is the right approach because; i) this is the standard method in the other supply licence conditions, ii) unreasonable steps would be bad for customer experience and would add a disproportionate cost to consumers. We would expect to be bound by “All Reasonable Steps”, and it is customary to have clear guidance on what is required for All Reasonable Steps. We would support this if the defined steps are reasonable and consistent with the principles of better regulation and in keeping with costs and activities inferred from the Impact Assessment.

Therefore, whilst we recognise the value of targets, suppliers should not be bound to them, or they would be forced to take unreasonable steps.

We recognise the unfettered discretion that the regulator can take when licence conditions are worded too broadly. Therefore we believe that it behoves the regulator; i) to provide Guidance, as it commonly does on other matters, ii) to consult appropriately in forming this guidance and therefore to form this guidance under the purview of this consultation. It is likely that the Guidance will contain provision for late stage deployment. For example the Prospectus makes it clear that the use of entry under warrant to exchange meters is not proportionate (and is therefore unreasonable), but it is equally clear that in other circumstances, suppliers are indeed required to enter under warrant, inter alia to exchange meters.

A completed installation visit has several aspects.

Firstly the meter must be installed safely and in an appropriate position, with existing standards and codes of practice being the minimum. The communications of the meter to the HAN (and if appropriate to the ultimate destination which could be the WAN module or the Head End) should be tested.

Second the HAN should be tested at an appropriate point of receipt by an IHD. Since the customer may elect not to have an IHD, then IHD testing may not be necessary. Since the customer can subsequently elect to have an IHD then to avoid a visit (costly and inconvenient to the consumer), it would be ideal if the IHD can be taken out of the box to “plug and play”. In any event, every effort should be made to ensure that the consumer has an IHD that is working in situ as intended.

Thirdly, the WAN must work. If the WAN module is inside the house then it should be installed at the visit, but we expect it to be powered by battery (unlikely) and if from the mains this is ideally “upstream” of the meter (so that it is still powered if supply ceases), but “downstream” of the distribution network (for safety and accreditation reasons). In practice this means between the meter tails and the distribution fuse. Accessing this precise point without consumer disruption is potentially very challenging. For this reason, a separate visit may be required, and this should be soon after meter installation. The WAN module has some different skills and will be bound by addition legislation (working at heights, lone working etc.).

For properties on the gas grid, the lead supplier should take reasonable steps to ensure that the meter for the second fuel will be able to communicate with the HAN.

The second supplier should ideally take on faith the correct setup of HAN and WAN tested at the Head End. In practice, in all cases the installer should check that the meter can communicate with the WAN and in addition, the installer would ideally check the WAN connection from the Head End.

**Q7 Do you think that there is a need for interim targets and, if so, at what frequency should they be set?**

- Yes, we agree in national level targets for planning but not for censure
- The key target dates should be end of year, with quarterly monitoring.

We support the idea of intermediate and final targets because it enables planning by all players and allows for policy optimization.

Whilst for initial planning purposes, the key date is the DCC Go-Live, the relevant dates on an ongoing basis will be those that fit participants’ business plans, i.e. ends of calendar quarters, with key targets at the end of calendar years.

Quarterly review will enable a planning response, and revision of annual targets if required (but which are clearly very undesirable).

**Q8 Do you have any views on the form these targets should take and whether they should apply to all suppliers?**

- The targets should be in the form of formal reporting to Ofgem E-serve and DECC
- The reporting requirement should apply to all suppliers

A degree of variation is to be expected in the quarterly targets due to customer churn.

**Q9 What rate of installation of smart meters is achievable and what implications would this have?**

- The installation rate will be different in the three phases
- A best mid phase case of around four dual fuel properties per day. A worst case of about two
- We believe that customer experience takes precedence over pace

At this point in time, we envisage that dual fuel installation capability should be possible, and that this can be accompanied by standardised testing. At this point, we have been unable to determine the likely issues with an external WAN box, in particular relating to connecting it to power.

For installations in a single street, and with perfect schedule and keeping of appointments, we believe that around four properties could be fitted with both fuels in one day. We believe that the scope for improving this number (perhaps by one property) is limited, and in practice that schedule coordination, appointment keeping, lead/second supplier issues, and non standard installations could reduce this number considerably (perhaps by one half in the worst case).

In the late stages (about 15% of meters), installation rate will drop very considerably. Experience with other meter replacement programmes, such as token meters, suggests that entry under warrant will be required in many cases.

Our own analysis has shown that the targets proposed in Appendix 2 of the Rollout Strategy are overly ambitious.

In ramp up the risk is that the rate of accepting and keeping appointments is high. Missed appointments in particular have a very deleterious impact on costs, as the time can commonly not be redeployed. Whilst the most likely business model is one agent fitting two meters, an alternative model is two agents two meters. The latter is particularly sensitive to low rates of appointment keeping, to the degree that the model may not be viable.

Before DCC Go-Live and using the Lead Supplier concept we expect significant installation issues in Head End testing, particularly for the second supplier. We have not been able at this point to quantify the impact on installation rates.

Post DCC Go Live, we expect to be able to utilise learnings from previous programmes as well as the smart meter programme.

Trials in AMR deployment to SME customers and Business-As-Usual recertification and policy exchange (generally at the end of calibration life) meter exchange performance indicate that we may expect a ~70% to 75% first time install success rate.

A key learning from experiences of scaled meter deployment is the need to streamline, with efficient exception handling, for example for failed jobs and data mismatches. Based on our experiences of meter exchange activity on our customer and operational processes, our analysis suggests an adverse impact of £30 to £50 million over the course of the programme if data and process management methods remain as they are.

We should note that the industry is still contending with some aspects of the 1998 supply market liberalisation. The improvements in registration and ongoing monitoring in smart metering will solve this data problem once and for all. There remain relatively large numbers of meters for which the boundary between the network and the supplier is either not clear or is inappropriate from the perspective of customer service. Whilst smart metering will actually remove the problem in many cases (such as meter acceptors that are separated from the fiscal meter), they will finally require rewiring in others or even legislative changes in others where the service termination of the distribution network is too far from the consumer unit.

Our smart trial experience has shown that, of ten jobs that fail to complete as intended, two fail due to the customer not keeping the appointment, four due to problems accessing the meter point (which appears higher for Gas than Electricity and Prepayment), one for technical or safety issues and the remainder for miscellaneous issues. Our experience in the smart meter trials is that most issues relate to existing unsolved issues with the traditional meters.

Our experience in metering, metering agent and related migrations is that despite all attempts to “migrate clean” and therefore not import bad data, that in practice bad data does get through. It is therefore imperative not only to have good exception management processes but to have sufficient time to sort out exceptions within and between suppliers and agents.

In the deployment tail, we will be working partly with situations that are technically hard to solve, and mainly with customers who decline/refuse access and/or who do not keep appointments.

Our experience with meter exchange programmes is that hard to access residences commonly require more than five visits, and in addition require visits, the schedule of which has not been agreed with the customer.

**Q10 Do you have any evidence to show that there are benefits or challenges in prioritising particular consumer groups or meter types?**

- Yes, in CERT delivery and meter exchange

In the delivery of our Carbon Emission Reduction Target (CERT) and Community Energy Savings Programme (CESP), our experience is that even with several million lofts not insulated that we are experiencing declining take up rates. For the Priority Group consumers, we offer services such as loft and cavity wall insulation free and still find frequent refusal.



In our token meter exchange programme, we found that the relatively large number of long term vacant properties made it hard to tell which properties had owners and/or occupiers but which were infrequently occupied. We also found a relatively high preponderance of meter tampering in those homes that we entered under warrant.

In our token meter exchange programme, we found a relatively high reluctance of some customers to have their meter exchanged (for free), despite the fact that the technology was becoming unsupported and the meter would not be able to flow electricity. We expect a similar reaction for smart, and it is essential that consumer serving organizations support suppliers in providing information that encourages them to allow the exchange.

We are also very conscious that older consumers in particular are rightly wary of letting strangers into their homes.

We have participated in the debate about the merits of prioritising or delaying smart meter delivery to the fuel poor and vulnerable groups. We do not favour accelerating or delaying delivery to such groups. Smart meters benefit consumers and they should be free to participate in the benefits. Equally, smart meters are more complex than standard credit meters, and consumers may refuse them if they do not receive proper explanation of how the meters and associated equipment and systems work for them.

**Q11 Do you agree with our proposed approach to requiring suppliers to report on progress with the smart meter rollout? What information should suppliers be obliged to report and how frequently?**

- Yes, we agree
- Key report dates should be annual at the end of the calendar year, with quarterly updates

We agree in principle with the progress reporting. The key reports, on which further reports by Ofgem and DECC are built should be annual at the end of the calendar year. The quarterly updates should have caveats associated with them.

The key figures should be;

- i) Number of meters supplied
- ii) Number of meters exchanged
- ii) Numbers of failures (appointments not kept etc.) with breakdowns of reasons, including those instances where the customer has refused to accept a smart meter

Ideally, and dependent on systems and magnitude of numbers, there should be in addition;

- iv) Percentage of enduring meter population exchanged
- v) Gains exchanged

**Q12 Do you agree that there is already adequate protection in place dealing with onsite security or are there specific aspects that are not adequately addressed?**

- Yes, although it is imperative both to consider all risks and to respond quickly to adverse experiences

We do not underestimate the significance of entry to the homes of consumers, and of activity that may last hours and has some impact on the decoration and fabric of the home. We are also conscious of hiring large numbers of people for positions that may not be long term. We believe at this point that the principal exposure of consumers is not to our agents, but to those who impersonate them. Our experiences to date, for example with Operational Liberal regarding sales people at the door and more recently with prepayment fraud, have alerted us to a number of potential issues, that we work to resolve one by one.

**Q13 Do you agree with our proposal to require suppliers to develop a code of practice around the installation process? Are there any other aspects that should be included in this code of practice?**

- Yes we are supporting the development of the Customer Charter by the ERA
- Additions to the Customer Charter will be added according to what is required and what is precluded from the installation visit

## 5 STATEMENT OF DESIGN REQUIREMENTS QUESTIONS

### Q1 Should the HAN hardware be exchangeable without the need to exchange the meter?

- The existence of the WAN module creates direct tension between mandated technology choice and compromise on security
- A point to point solution from meter to Head End may resolve this issue

The HAN “chip” is an integral part of each element of the smart metering system – including the Home WAN module, gas and electricity smart meters and the IHD.

The HAN chip is not easily separable from the meter. We do not believe this to be feasible.

To move from one HAN standard to another without exchanging the chip is very challenging. Either the chip has open architecture, or the new HAN system must have specific protocol ability to communicate with the existing chip.

In practice it may not be possible to move from one HAN standard to another without replacing the entire smart metering system (two meters, IHD and WAN). Clearly this is an issue if stranding is to be avoided at DCC Go-Live.

There is a tension here between the interoperability of open architecture and the security and privacy compromise that open architecture can present.

We recognise that Ofgem have a challenge in providing technical “certainty” through mandating a specific HAN protocol requirement, whilst continuing to support innovation in Home Energy Services through a variety of HAN protocols. A single HAN protocol mandated by the energy regulator would have the potential to foreclose the market for in-home technologies and disable equipment that can operate effectively other countries. Such as decision extends beyond energy regulation.

We note also that security standards will need to increase as security invasion techniques improve.

We have done significant research in the privacy and security issues. As a result, we believe that they are a “must” rather than a “nice to have”. At this point then, we do not favour open architecture.

We have considered a number of solutions to this;

For example, it is possible to remove the requirement for a home WAN module by the meters WAN communicating directly on a point to point basis with the Head End. This allows one set of security standards across the WAN and a different set of security standards in the HAN. This thence enables open architecture in the HAN without the

need for Ofgem/DECC to pick a winning technology and protocol and thence enforce it. We would certainly expect Ofcom to take a keen interest in such a decision.

It may well be then that a particular technology becomes so successful that the best answer is for it to become standard. It would then be possible to build greater security into it. An examples of technologies/protocols that became standard was VHS. BluRay appears to be on a similar journey

Given the concerns that we have raised about the Lead Supplier concept (whilst recognising the merit of the thought process from which it arose), the point to point solution can do away with the Lead Supplier concept for WAN connectivity. The Lead Supplier concept for a single IHD could be retained or discarded and is in any case simpler for the IHD than the WAN.

A decision on the departure from the Lead Supplier concept, and support for the (technology neutral) point to point method would thence allow the consultation to focus on the functional requirement for the HAN rather than on technology choice.

We recognise the potential alternative solution for the interim arrangements with the gas meter “piggy backing” on the electricity meter by a HAN, and thence the electricity meter WAN communicate on a point to point basis with the Head End. This enables the electricity meter to have the higher necessary security standards whilst having greater HAN flexibility for the gas meter. However, this solution still leaves Lead Supplier issues.

**Q2 Are suitable HAN technologies available that meet the functional requirements?**

- With a separate WAN module, we know of no technology that meets the functional specification with the required degree of security
- We believe that there are HAN technologies that can meet the functional requirements if a point to point technology is used.

There are three particular security requirements;

- i) Relating to money (money flow, money messages, prepayment, account balance)
- ii) Relating to system security
- iii) Relating to the security aspect of privacy (e.g. times of absence from home)

The nature of the housing stock in Great Britain presents unusual challenges due to the preponderance of old buildings. The challenges of security are different to the challenges of signal. So for example a technology may have adequate protocol and encryption for security but have an inadequate in home range, and vice versa. In addition to this, a reliable HAN frequency band is essential, and some aspects of HAN require low power (for example the gas meter), and high signal power.

We are researching HAN technologies that may be able to provide both.

We also support the ERA view that further testing/learning is needed to assure participants of a cost effective solution for all GB property types or the need for

customisation. Regarding account information on the IHD, we think this needs careful thought. There are obvious benefits, and in addition certain information is required to facilitate the meter operating in prepayment mode. Billing systems do not hold daily account balances, nor is it proportionate or beneficial to customers that they do so. Whilst it may be indeed be possible for the most recent account balance to be sent to the IHD, and the IHD calculate the update, there is the challenge of accuracy, and of timely receipt of payment information through the billing system and to the IHD. There is in addition the issue of privacy of the bill payer where there can be several observers.

**Q3    How can the costs of switching between different mobile networks be minimised particularly in relation to the use of SIM cards and avoiding the need change out SIMs?**

- We are concerned that the interim market will impose a cellular solution on the UK as it is the most cost effective short term solution – and could limit the success of the WAN Service Provider procurement process through it's early adoption. I understand that Ofgem are starting to get worried about this
- We believe that the discussion at this time should focus on commercial interoperability, as we do not believe that this matter will be technologically critical

Currently, most smart meter trials focus on GSM and GPRS. We believe that these are unlikely to be workable in the long term, as they there are no cross network agreements in place for data traffic (unlike voice) and data carriers are likely to be viewed as lower priority to voice traffic leading to issues with their support of Smart Grids.

On the specifics of SIMs, the mobile networks have been highly innovative in enhancing interoperability, and it may be that change of network can be achieved without change of SIM.

We note that use of a SIM for a mobile network is no guarantee for sufficient security, and it would be surprising if Public Access Point Names (APN's) as used for mobile internet is deemed to be suitably secure for smart metering / smart grids.. Encryption is equally relevant to WAN as well as for HAN and HAN/WAN.

At this point in time, the technological solution for the DCC is far from determined, and we do not believe that resolution of this particular issue is critical at this point in time. It will be non critical (although somewhat problematic) if the DCC solution is indeed GPRS, it might be resolved anyway by the network providers, and it may not be an issue at all if GPRS is not the technological solution for the DCC.

It is a genuine concern that the formation of the interim smart metering market will impose a GPRS WAN solution onto the industry – as it is the most cost effective available solution today and likely to be utilised by the majority of suppliers. Monopolising this interim market may negatively impact the competitive procurement process by the DCC for the WAN Service Provider as critical mass may already have been reached.

What is worth considering at this stage is the regulation around ensuring that fair commercial terms are passed on during the Change of Supplier process. This has been

discussed at some length in the Interim Implementation Sub Group and the particular issues in gas market have been recognised, as agents are not accredited.

The switching cost could be mitigated by the opportunity to substitute data exchange via GPRS/HSDPA/LTE by connection via the user's broadband internet connection. Providing exchangeable WAN and HAN modules makes it possible to switch to internet communication in the long run. However, at this point we believe that there are unresolved security concerns with this solution. We do believe that the smart meter connection must be "utility robust" and not subject to consumer interference and control. We are working through the technical issues on this point.

Switching of HAN or WAN modules should be plug and play for the customer, so that the customer can install the WAN module of their former provider without the need for a visit by a technician.

Already today, a fixed WAN module does not cover all mobile standards at the same time (GSM, UMTS, LTE). It is not clear which new standards will be developed over the next 5-15 years.

There are important security issues with mobile protocols: For example the current GSM version has been hacked and there is still no future-proof concept for encryption. Over a 15+ year lifetime of a meter, the need to exchange a WAN module also needs to be considered.

**Q4 Do you believe that "The Catalogue" is complete and at the required level of detail to develop the technical specification?**

- We are pleased with The Catalogue, and it has sufficient detail
- It should be a living document and cannot be regarded as complete at this stage

We have performed a detailed review of "The Catalogue" and are in agreement with the majority of the content. We are pleased to note that the SRSN specification is reflected in the catalogue.

We believe that "The Catalogue" should be a "living document" and expect to see updates published after the SMDG and DCG have met more times. We see this initial draft as a solid baseline with the requirements being documented at the appropriate level and in suitable detail.

On a specific matter, we think that battery life of the gas meter is an important matter. In the short term, it may be that the IHD communication frequency could be reduced whilst battery technology develops.

We note the tension between the general desire for the Catalogue to cover all requirements at a functional level, whilst having enough clarity and detail at a technical level.

e.g. if the requirement was more prescriptive and stated;

"to measure, record and store, in non-volatile memory, within the meter, for a period of 1 year, Active Import Energy (kWh) for each Half-Hour period "

we could then be certain that this minimum requirement was met, could therefore be scrutinised under governance - and (minimum) memory requirement would be 'known'

We note that there may be many actors in the HAN space, for which there is jurisdiction binding energy companies but not others. Energy suppliers should not be more restricted than other actors for the same items, and in addition the standards set should not extent inappropriately beyond the natural boundary of energy supply companies and the energy regulator. Too tight standards could prevent the industry from the development of advanced solutions enabling further energy savings.

**Q5 Do you agree that the additional functionalities beyond the high-level list of functional requirements are justified on a cost benefit basis?**

- Yes, with a single question mark, on “last gasp” capability

We are happy to support the inclusion of all the additional functionalities outlined in section 3.37, with one exception that we believes further review - that of “last gasp communications”

Npower, in its work with the ERA, understands that the cost implications of including this functionality into the Smart Electricity meter will be at least £1 (possibly up to £5 per electricity meter depending on WAN communications solution).

Using the assessment criteria for an acceptable result outlined in section 3.35 it appears that even using the cost of £1 per meter for the approx 27 million electricity meters in the UK the cost of this additional functionality exceeds the £10 million threshold that Ofgem deemed acceptable. If the last gasp technology costs the higher end of the estimated range, at £5 per meter, then there seems little need to do further work. At £1, we do believe that the issue is worth looking at in more detail.

We would like to understand the detailed Cost Benefit Analysis calculations used for the inclusion of “last gasp communications” into the minimum metering specification before we can make a firm decision on whether we support this requirement. This requirement will have a direct cost impact on Suppliers with regards to procurement and maintenance of the Smart Meter and we would welcome greater detail on this financial assessment. There are direct consumer benefits for Last Gasp, such as the benefit of warning them about actual or potential supply loss. In addition, the capability may improve Customer Minutes Lost in the distribution networks. Equally, there may be other solutions to achieve a similar outcome, for example in the WAN.

We also believe that the requirement DS.2 requires further clarification. The technicalities of channels and registers allow different interpretations of “12 months of half hourly consumption data”. A precise unequivocal definition will be required to maintain technical interoperability in the interim period before the DCC. Whilst data storage is indeed relatively cheap, there are additional costs such as data processing that must be factored in.

The approach of technical specification agreed multilaterally by the industry that is mandated to provide the infrastructure, is a sensible one that we support. Whilst regulation here should generally be “light touch” rather than prescriptive, regulatory

oversight is important to ensure that licence fees and patents do not create entry barriers that preclude solutions for consumers.

We believe that the regulator should focus more on security and reliability standards for the HAN/WAN connection, than the details of interoperability, which the industry can contend with.

The HAN standards to be admitted should be compatible with home automation solutions as true energy savings are realised rather through intelligent control of energy-consuming devices, not just by a passive energy monitor.

We believe that the standards shall fulfil security standards. This should have strong Media Access Control (MAC) layer encryption plus strong point to point security supporting symmetric and asymmetric encryption. On a more technical level it should be robust against “sniffing” during the key exchange and against replay attacks. Should account information and other money messages be providable over the WAN/HAN (which we do not necessarily support at this stage), then this is a minimum requirement.

Regarding future openness, the standards should support IPV6 communications to all devices.

**Q6 Is there additional or new evidence that should cause those functional requirements that have been included or omitted to be further considered?**

- No. We particularly support the inclusion of the Gas Valve

We broadly support the functional requirements and are particularly delighted to see Ofgem mandate the inclusion of a valve in all Gas Smart meters. We can offer no new evidence for the inclusion or omission of any functional requirements at the time of writing. We will raise any functional requirement issues within the SMDG.

**Q7 Do you agree that the proposed approach to developing technical specifications will deliver the necessary technical certainty and interoperability?**

- Yes – Strong meeting discipline will be required to capture all issues

We support the proposal to allow industry to develop technical specifications via fora such as the SMDG. The technical complexity is such that there exists the continuous risk of lengthy discussion of potential technical solutions (the forum is not for decisions), and firm leadership will be required to ensure that issues are tabled and summarised. We do recognise the technical complexity and note that it took about 18 months of work for the ERA SRSM to collate an agreed specification.

We will work within the SMDG at every opportunity in order to establish technical specifications to the timetable as we believe that this element is on the critical path for the entire Smart Meter Implementation Programme.



**Q8 Do you agree it is necessary for the programme to facilitate and provide leadership through the specification development process? Is there a need for an obligation on suppliers to co-operate with this process?**

- Yes – firm leadership and meeting discipline is required
- Obligations do not need an obligation to cooperate

We firmly believe that in addition to a united effort by all industry participants that is programme governance via Ofgem, which must provide strong and unequivocal leadership throughout the specification development process.

We do not believe that placing a licence obligation on Suppliers would help to facilitate the process in any way and drafting such an obligation would be a wasteful distraction.

We also note that Suppliers are not the only party in this process, and hence an obligation on suppliers to co-operate will not co-opt all necessary parties.

We believe that more than one HAN standard should be admitted, and that the WAN and HAN ports should be clearly separated, with exchangeable modules.

Admitted HAN Radio Frequency (RF) standards should fulfil minimum requirements with respect to security and reliability. Standards not matching these criteria should be excluded from admission in order to prevent blocking of the specification process by promoter of inferior or inadequate standards.

**Q9 Are there any particular technical issues (e.g. associated with the HAN) that could add delay to the timescales?**

- Yes – these need resolving
- It may help to add a sub-group to the SMDG to address this

The earlier the agreement of the smart meter specification, the less risk of delay to HAN specification. We have noted above the conflicting requirements of security and interoperability relating to the HAN and WAN.

A further subgroup of the SMDG could focus on creating a standard HAN specification in order to ensure a guaranteed level of service for all customers. This will help ensure that the Great Britain wide rollout is not impacted by Suppliers installation partners having to train on multiple HAN solutions in order to meet Ofgem's requirements on Lead & Second Supplier obligations. The impact on the second supplier installing their meter and then encountering an IHD that they have not been trained on may lead to the customer being given two IHD's (one per fuel) even if they only want one.

We believe that the issue of battery life and battery usage for the gas meter should be addressed, along with likely development of battery technology.

At the time of writing there is no clear designation of how a customer should be able to access their own data via the HAN. We look to the SMDG to review all of the technical

options for this function whilst bearing in mind the importance of the security of the Smart metering system.

**Q10 Are there steps that could be taken which would enable the functional requirements and technical specifications to be agreed more quickly than the plan currently assumes?**

- Possibly – the pace in 2010 could be maintained in early 2011

We do not believe that in 2010 that there are any further actions that could be taken to accelerate the process outlined in the Statement of Design Requirements document. We do believe that maintaining the pace in early 2011 would help.

We note that in addition to a complete set of final technical specifications there must also be an associated testing plan put in place to ensure that technical interoperability is ensured.

Earlier sign off of meter specification is desirable, as it would reduce the need for contingency in deployment.

## 6 COMMENTS ON DESIGN CATALOGUE

### The Functional Requirements Catalogue

We have a number of minor comments;

Document Location	Comment
<b>1.13</b>	Request clarity with regards to “for a limited time, some aspects of the IHD”
<b>IM.11</b>	Require definition of “Self-Configure”
<b>DS.2</b>	12 months of Half Hourly consumption data, is this for a single import register, or should it include an export register too? Consumption data is only that, and does not include other dynamic data items that could be measured and stored by the meter – e.g. voltage
<b>PC.8</b>	Definition of ‘real time’ required
<b>ES.1</b>	Should refer to ‘enable and disable’

### Glossary

Below are a list of terms that are not referenced in the glossary for which we request further definition.

Defined Term	Comment
<b>Commercial Interoperability</b>	More definition needed than “the terms”
<b>Data Processing</b>	Should explain the specific scope of the role, and how it varies between gas and electricity
<b>Demand-side Management</b>	We assume that this and ‘Demand Response’ are interchangeable. Otherwise definitions would be beneficial
<b>Emergency Credit</b>	More detail is required.
<b>Firmware</b>	More detail is required, specifically in the difference between Firmware & Software
<b>Meter Asset Provider</b>	Please provide definition for completeness
<b>Smart Meter</b>	Would prefer a definition that referred to ‘additional functionalities’ alongside 2 way communications
<b>Software</b>	More detail is required, specifically in the difference between Firmware & Software
<b>Trickle Disconnection</b>	The term “restriction” would be more accurate than “disconnection”

On a minor point, it would be more accurate to use the term “customer premises” rather than the abbreviated “premise”.

## 7 GLOSSARY

AMR	Automatic Meter Reading – Meters that allow remote reading
BluRay	An optical disk storage medium
CAG	Consumer Advisory Group – set up for the prospectus
DCC	DataCommsCo – The Central Communications Provider as per the Prospectus
DCG	Data and Communications Group – set up for the prospectus
DCLG	Department of Communities and Local Government
ERA	Energy Retail Association
GPRS	General Packet Radio Service – A mobile telephony technology
GSM	Global System for Mobile Communications– A mobile telephony technology
HSPA	High Speed Packet Access – a family of high speed 3G digital data services
ICG	Implementation Coordination Group – set up for the prospectus
IHD	In Home Display
IISG	Interim Interoperability Sub Group
LTE	Long Term Evolution – a possible successor to UMTS 3G
NETA	New Electricity Trading Arrangements
PSAG	Privacy and Security Advisory Group – set up for the prospectus
SMDG	Smart Meter Design Group
SME	Small and Medium Enterprise
SRSM	Supplier Requirements for Smart Metering (convened by ERA)
VHS	Video Home System – A videotape standard
UMTS	Universal Mobile Telecommunication System – a 3G technology

