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13<sup>th</sup> October 2011

**Call For Evidence on Data Access and Privacy Consultation Consolidated Document – Smart Metering Implementation Programme**

RWE npower is pleased to have the opportunity to respond to this consultation. Our answers are attached, and we would like here to make some high level points

The use of granular consumption data – In this context, this essentially means half hourly for electricity and daily for gas, with later possibility of within day data for gas. We remain concerned that the benefits case for smart metering would be undermined if the build of regulations, and associated industry systems and processes crystallise long term inability to manage granular consumption data. Whilst recognising the legitimacy of concerns about the inappropriate use of consumption data, we believe that the need to reduce consumer bills through driving energy cost efficiency is given insufficient weight in the debate. We believe that solutions can be worked through which enable cost efficiency and medium/long term development of smart tariffs, and which protect privacy through anonymisation, sampling, encryption, aggregation, heuristic generalisation and other methods. The regulatory design should be made on the basis that these challenges will be met with success rather than failure.

Privacy and security – These remain distinct and related issues, with failures of either being particularly closely related. We support the Privacy Charter of the Energy Retail Association and believe in general that any approach to privacy must codify the Data Protection Act in the setting of energy supply, and not seek to bypass the proper process for changes to primary legislation by going beyond the Act.

Programme risk – What is essential is not that the data rules are excessively restrictive but that there are no failures against the rules. It is the publicity around failure events (e.g. inadvertent bulk release of private data) that would undermine public confidence in data management. International experience in smart metering suggests that there will be events that will need to be weathered, and it is essential that the risk and consequences of such events is kept to an absolute minimum. This requires the greatest attention to be on security.

Customer experience – The data held by the energy supply industry are considerably less personal than are commonly accepted by consumers in areas such as mobile telephony, supermarkets and social media. Public acceptance has been readily achieved as the benefits have been apparent and the extension of data capture has been incremental. This public acceptance could be extended to the energy industry

if costs are optimised, customer choices are honoured and information pertaining to customers is kept robustly secure.

This response is not confidential

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## Question 1

**Please submit any further evidence, such as surveys or consumer research, regarding privacy issues and smart metering. In particular is there evidence available about the effects of the availability and aggregation levels of more granular data (for example daily)?**

*Our evidence is anecdotal rather than specific, and nevertheless provides useful insights into customer opinions on privacy*

Our experience - For a pioneer population of consumers we have conducted a number of smart meter trials with different products. These involve us having different degrees of data opted in as part of the trial. We have not conducted specific surveys regarding these customers attitudes to privacy, for example why those customers with whom we shared granular data felt comfortable in doing so initially, or whether they become uncomfortable after time. Where customers declined to take part in the trials, it was mainly for reasons of wanting to avoid the inconvenience of the meter install process or a lack of understanding of the benefits of a smart meter. Data access concerns were not cited as a reason for refusal. We can further add that that in the narrative feedback provided by our customers, the issue of privacy has barely featured and we have had no complaints. Our best understanding from the trials is that whilst the *prospect* of supplier access to detailed consumption data is of minimal concern and that the priority for customers is in saving more money.

Our approach - At this point, our approach to data has been cautious. For example we have not sought to use data, even on an opt-in basis, for customer propositioning purposes. We have used the information to measure and monitor the impact of the specific products and interventions being trialled on customer consumption behaviour. This was with the view to understanding which types of products and interventions were most effective in changing customer behaviour. One reason for this is that the institutional arrangements as they stand do not provide peak price signals sharp enough for consumers to be able to use them to make material savings from load shifting. At the same time we should note that our trials did demonstrate that gas consumers in particular could use smart meters to make material savings without highly granular consumption data, through reduced average demand.

Regarding ways of reducing the privacy impact of consumption data, we do believe that there are a number of methods. We discuss these throughout this consultation, as we believe the application of such methods depend on the purpose for which the data is intended. A "one size fits all" approach will not deliver the level of benefits, in terms of carbon reduction savings, that the Government is seeking.

## Question 2

**To what extent would different rules for access to data between suppliers and third parties be expected to impact on the development of an energy services market (in terms of product and tariff innovation and / or entry to the energy market by third parties)?**

*In terms of tariff innovation, only energy suppliers can set energy tariffs and therefore common rules between suppliers should exist.*

*We believe it to be important that the playing field is not only level, but seen to be level, as a vibrant market in information provision will drive up innovation and choice for consumers, and drive costs down.*

Unfair competition – For the avoidance of doubt, we do not believe that suppliers have a legitimate right to preferential access to consumer information for propositioning purposes. We believe that all parties should be subject to the same robust rules and governance in respect of access to customer data for propositioning purposes. This will ensure assurance of security and privacy controls to build and retain consumer trust.

Customer choice - Customers have the right to allow access to their information through choice mechanisms. We believe these choices should be upheld and honoured by all parties in the market. We recognise that there may be circumstances where the customer will directly download information through the HAN and provide it direct. We do not believe it would be possible to place controls on these transactions but we do believe consumers can be made aware of any associated privacy risks in doing so, for example through an industry agreed Privacy Charter.

Arrangement governance and obligations – To ensure consistent governance and monitoring, all parties operating in this market should be signatories to a single version of the SEC if the intention is to retrieve consumption data via the DCC. At the same time, we do not believe that third party access should be cross subsidised by suppliers, for example by suppliers proving the data storage and handling capability for third parties.

Accountability risks – Suppliers will have obligations to install and maintain a secure HAN within consumer premises. However, the security architecture has not yet identified a clear manner in which any consumer bridging device could be securely attached to the HAN. The energy services market could potentially give rise to devices that have the capability to breach security controls. Suppliers should not be held accountable for consequences arising as a direct result of customer interaction with the HAN.

### **What are the particular data uses to which these concerns apply?**

Tariff innovation - It is important to be quite specific about “access”. The half hourly consumption at each meter point is the inventory of the supplier, and necessary to optimise supplier costs, which drives customer tariff. The data for settlement of energy and related costs (use of system, environmental costs, levies etc.) do not in themselves constitute personal data, and we explore these concepts further in our response to questions 7, 8 and 9 of this consultation.

Rights of access - Whilst it is easy to understand the principle that only suppliers should have access to the energy inventory but that more actors may have legitimate

need/rights of access (particularly with consumer opt in) for information, it is extremely hard to make this work in practice. Our belief then is that it is quite proper for suppliers to have the capability to hold historical half hourly consumption data for any meter point on their information technology (IT) “estate”, but for the rules for “access”, i.e. use for the provision of information, to be dependent on the rules/regulations and the customer opting status.

It is also important to recognise the effect of the passage of time on the sensitivity and usefulness of data. Concerns have been expressed that analysis of consumption data may be used for malicious purposes. Over time, this information becomes less informative about the personal activity of the householder but is increasingly beneficial when understanding and tracking long term consumption behaviour.

Data responsibilities – With rights of access for any party comes the responsibility for ensuring appropriate data retrieval, secure data storage, and a data retention policy that is proportionate to the purpose for which the data was retrieved. All parties operating in the market should promote and comply with these responsibilities. We believe this will be done most consistently through industry adoption of the Privacy Charter drafted by the Energy Retail Association.

### Question 3

**Are there any data uses, apart from those set out below, where the arrangements for access to data could have an impact on the benefits of the programme.**

*No - We believe the list in the consultation is sufficiently comprehensive for this stage of the programme but additional benefits could arise in the longer term*

Supplier benefits – The availability of meter reads that have low transactional costs, frequency of about monthly, and on demand for change of supplier/tenant or billing queries, reduce supplier costs as was identified in the impact assessment. Benefits of higher frequency information are consumer benefits (albeit that settlement cost benefits flow first to the supplier and thence the consumer)

Consumer benefits – The potential for greater consumer benefits from more data are considerable when we look forward to smart homes. For example, very high temporal resolution consumption can be used with heuristic algorithms to interpret device level consumption, and thence home automation to optimise both service and cost. Different types of data such as voltage and reactive power can be used to diagnose device functions (e.g. washing machine faults). These will develop over the long term (post 2020) and will entail develop of smart meter technology for later versions. These benefits are additional to those quantified in the impact assessment and can only be realised if the data rules, architecture and infrastructure are properly scoped at this stage (this will automatically be the case if half hourly consumption data are properly scoped and automatically be precluded if they are not).

Smart Grid – The Smart Grid and Smart Meter programmes are distinct and related. Whilst there is considerable work to do, the smart grid developments can be based on the status quo of smart meters (assuming that halfhourly consumption data is properly available), and further developments can envisage the likely developments of smart meters, as well as other items such as in home communications and automation.

### **How does this analysis differ for the gas market?**

*The list within the consultation is equally applicable in gas in principle, though the granularity of the data may differ*

Carbon benefits – at a customer level, there are greater carbon benefits for gas. We undertook some small-scale trials using smart meters. Where gas and electricity were both trialled in the same property, customers saved more energy (and therefore carbon) on gas.

Public safety – theft detection is more imperative in the case of gas as safety risks apply to those (i.e. by explosion) beyond the residence where the theft is taking place

#### Question 4

**What types of energy services and energy advice could be provided by the market (by suppliers and / or ESCOs / potential new entrants) that require access to specific levels of data?**

*Data will be required to support broadly tariff comparisons and energy efficiency measures*

Tariff comparisons – we would expect a growth in the scope of tariff comparisons, given the expected growth in products within the market. The data required for this should be proportional to the tariff; for example, a customer wanting to know how a Time Of Use tariff may help them would need to allow the retrieval of within-day data.

Energy Efficiency advice – we would expect energy efficiency advice to become more tailored and applicable to individual households.

**What level of data granularity (frequency, time-lag) are needed to provide such services and what is the potential impact of these services in terms of percentage energy savings?**

*The data requirements should be proportional to the products and services on offer.*

**Please provide empirical examples and explain the basis of any assumptions and distinguish between gas and electricity.**

This is an emerging market and we do not have any direct evidence to contribute at this stage.

## Question 5

**Should theft management be considered a regulated duty for which suppliers should have access to a certain level of smart metering data?**

Yes

**What level of data would be required and how would this be used to manage theft? Please provide practical examples.**

Unexpected consumption – supplier already monitor consumption pattern changes through billing reads. Changes outside of expected tolerances trigger exceptions for further investigation. The use of more granular (e.g. daily) and timely data will help expedite this process.

Alerts and alarm management – identification of potential irregular activity at the meter will be prompted by the receipt of appropriate alarms and alerts, which will in turn trigger an investigation. However, it should be noted that any illegal extraction not involving the metering equipment will not trigger the appropriate alarms or alerts.

Public safety – Energy theft is potentially a dangerous act, and especially in the case of gas, exposes those (i.e. by explosion) beyond the residence where the theft is taking place. This is the primary reason for theft detection.

Supplier responsibilities – Whilst it is not particularly in the spirit of the Supplier Hub model for suppliers to play a substantive role in the physical resilience and risk of the energy system, we recognize that through its knowledge of consumption and its physical responsibilities to provide and manage meters, that suppliers roles are in fact substantial. At the same time it is important to recognize the limits of what suppliers can do, the role of other bodies, and the trade off between the need to detect theft (for safety and consumer cost reasons) and the physical and data intrusion on consumers against which there is only indicative evidence.

Meter technology – There is a potentially wide variety of capabilities at the meter, from simple detection of compromise of physical integrity of the meter, to changes to metrology, analysis of flow, and other features. Broadly speaking, we believe that the draft technical specification is fit for purpose, and that learnings can be used for subsequent generations of meters

Automation – Smart meters do provided some capability to curtail supply on detection of certain tamper events. Whilst we support this, we are mindful of the limits to suppliers powers and responsibilities, as well as the potential impact of flow curtailment where there has been no wrong on the part of the consumer, and flow curtailment in winter even when there has been wrong.

Regulation – Suppliers may only disconnect for non payment, and recent events in prepayment meters have shown that the laws and regulations do not knit together well regarding consumption where there is no apparent intent to pay. Minor amendments to primary and secondary legislation are likely to be required to ensure that the public interest can be catered for regarding theft and tampering.

Use of consumption information to detect theft – Whilst we can assume that a tamper event has a consumption signature, it is far from easy for a supplier to incorporate such detection into its business-as-usual processes, particularly since the consumption information has resolution and is personal and sensitive.



The Data Protection Act – Whilst we do believe that the Data Protection Act is fit for purpose, it is broadly drawn. It (rightly) does not provide the fine judgement between the need for privacy and the public interest for different degrees of safety risk. This is an example for which the licence conditions regarding privacy should codify the Act in a specific setting.

Data – The gas and electricity supply sectors are both highly exposed to poor reconciliation between energy volumes at transmission exit and energy flowing through meters. Whilst there are compounding factors such as unmetered supplies, gas leaks and electricity losses, smart meters will nevertheless add considerably to the ability to find “non technical” losses of power and gas. This requires the capture and storage of consumption data at high temporal resolution.

The socialization of costs – The Supplier Hub design necessitated a high degree of smearing and socialization of costs. With regard to theft, this socialization is handling by Group Correction Factor and Line Loss Factors (electricity) and Reconciliation by Difference (gas). There is currently the issue that no sector has sufficient commercial incentive to minimise these socialised costs. Improved reconciliation between transmission exit and end point consumption will improve these incentives.

Remote access – The degree to which physical confirmation of tamper (i.e. a visit, possibly under warrant) is required prior to remote activity such as supply curtailment, has not yet been discussed in detail.

The distribution companies – Particularly in gas, we believe that the distribution companies must remain the principal guardians of system safety. This requires them to act on the consumption information that they have at their lowest level network metering, using information provided by suppliers, and working together on using energy reconciliation to detect theft.

## Question 6

**Does data need to be collected from all customers all of the time, for theft management, or could there be a trigger for accessing more detailed data (for example where theft is suspected)?**

*Real time data is not required for theft management purposes, but more granular data (e.g. daily) may be retrieved for investigative processes where instances of theft are suspected.*

Physical tamper alerts – These are at the meter and should be always on. They should send information to the DCC immediately on detection.

Use of a trigger for more detailed investigative work is dependent on the approach to privacy, and the amount of data and information held by suppliers (itself highly dependent on the approach to privacy). Broadly speaking, our view is that routine approaches using all data from all consumers is unlikely to be a useful trigger for investigative work. Consumption interrogation where there is a reason to review an account/meter could well be effective. For example, “no vend” reports on prepayment (conducted for welfare reasons), establishing whether residences with no billing income or vacant, and other business-as-usual process, could be extended for theft detection.

## Question 7

### **What level of take-up of time-of-use tariffs could be expected under different scenarios for access to data?**

*Very little in the short term. More widespread in the longer term*

Customer take-up – The consultation states “benefits are only delivered if these tariffs are taken up by consumers who will actually shift their load and not simply customers who already have a flatter profile”. Whilst correct at national level, it is important to note that in unwinding the cross subsidy from flat profile consumer to peak profile consumer, that the peaky profile consumer is then stimulated to respond.

Tariff suitability – The success of time-of-use tariffs will be dependent on the ability for customers to understand and take advantage of pricing signals. This will not be an option for all customers as even if all customers understand the tariff complexity, not everybody will have lifestyles that will enable load shifting.

Trial results – When we conducted a small-scale time-of-use trial, we targeted customers who we believed had a lifestyle that would enable them to shift their consumption away from peak periods (e.g. customers who are generally home during the day). The results were positive in terms of shifting demand and 75% of trial customers would recommend the tariff to friends and family<sup>1</sup> on the basis of financial savings. However, we note that these customers opted into a time of use trial, which may have introduced a bias that may not be representative of the wider population.

Intermediate development – Economy 7 is an established tariff that can adequately be handled with current meters and settlement systems. The declining use is a result of low day/night price differentials, as well as the current (but reducing in future) dominant use of gas for space and water heating. The first step then is not specifically a smart meter step – it is the enablement of wider cost day/night cost differentials to suppliers, for example in use of system charging.

Further requirements – Significant advance in the privacy debate is a necessary but not sufficient condition for enabling consumers to benefit from time of use tariffs. There needs also to be the settlement systems that can manage high resolution data, a regulatory design that charges capacity according to actual capacity use, a regulatory commitment gradually to unpick the plethora of inefficient cross subsidies, and a recognition that fuel poverty is not best solved by cross subsidised unit costs of energy.

With the privacy debate as it stands, suppliers are very unlikely to invest in billing systems capable of highly configurable time-of-use tariffs to large volumes of consumers. We believe that this outcome is to the considerable detriment of public policy, the ability to accommodate renewables on the grid, the ability to maintain resilience and adequacy of gas and electricity supply, and the ability to manage affordability of energy bills.

Gas – Consumer costs can be reduced if suppliers “swing” costs of very cold conditions are reduced. This in turn requires tariffs which differ at least at monthly resolution. Whilst behavioural changes such as reduced heating in unoccupied

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<sup>1</sup> Source: npower Time Of Use Trial Topline Findings Report, February 2011

rooms, or during periods of absence, are very helpful, there are welfare risks that arise from an ineffective consumer response to structured tariffs. For example, a consumer may reduce the temperature in occupied rooms rather than only unoccupied rooms. At this point in time, we do not envisage significant growth in structured gas tariffs, and instead focus on general consumption reduction, particularly by insulation. We do believe that whole house management of heating will play a significant role, and that this will be reinforced by the salience of monthly energy account (the direct connection between energy use and energy cost) rather than structured tariffs.

**What information is needed to design time of use tariffs? In particular would sample or anonymised data be sufficient?**

*For electricity – half hourly consumption*

*For gas – likely to be daily, with potential for within-day data in the longer term*

Competition - We do not believe having access to data to help build energy tariffs is anti-competitive; suppliers would only have access to data belonging to their own customers. Third parties should not be able to offer core energy tariffs as this is the role of a licenced supplier; we anticipate market growth in this area to be for energy services.

For the avoidance of doubt, we would not use consumption data that has not been subject to opt in / out arrangements for the design of energy service products. We therefore believe this will maintain and stimulate competition in both supply and ESCO markets.

ToU tariffs will evolve over time, from simple fixed-band periods of time, through to more dynamic movable periods of time. Further, as generation mixes in the supply markets change to emphasise renewable energy, pricing signals could be given so that demand matches supply accordingly. This would be facilitated by smart grids, but also through the appropriate tariff signals in core energy products. From a tariff design perspective, data would be increasingly essential to facilitate the interactions between wholesale and retail markets in order to provide meaningful and representative pricing signals.

Data access policy timing – Since we have no doubt that the achievement of policy goals and lower consumer bills depends on the capture and use of granular consumption data, the key question is the comparison to access now and access later. Our concern about access later is that, without a clear plan or date, then all infrastructure will be built on the assumption of no access within investment timeframes, and hence the optimal policy solution would be precluded. This would restrict the quantity of qualitative informed research the industry could conduct to identify the appropriate time to take a policy decision

Sampling – whilst this is very much a second best option to all data, and has infrastructure costs of its own, a sampling approach is better than nothing. A suitably sized and statistically significant sample of disaggregated HH level data would be sufficient to inform the design of any new tariffs, not just ToU. The sample must be representative of the supplier's portfolio and therefore defined by the supplier. It should not be anonymised as the supplier needs to link energy behaviour with other customer characteristics to inform product design. Our responses in Questions 8 and 9 suggest a sample of data could be used to inform purchasing and settlement decisions for cost efficiency; the same sample could be applied here as it would not be used for targeting, marketing and sales.

Data anonymisation- While anonymisation could be used, this would limit the supplier's ability to link usage to other customer characteristics and design tariffs that are appropriate and relevant to customers. Lifestyle factors play a strong role in whether a customer can take advantage of ToU and therefore achieve the benefits associated with the tariffs; suppliers need to link behaviour and lifestyles together to maximise benefit.

Data aggregation – Aggregate information can be useful for suppliers in designing the products that suit best the needs of consumers. However, when providing tariffs to individual consumers, the less suppliers can access the consumption specific to the meter point, the greater the risk that the difference between a customer's actual consumption and their assumed norm, that the bills increase from a smarter tariff.

Other required information – Whilst energy is the dominant variable cost in energy supply, network costs and other costs (such as capacity obligations) that depend on peak usage are also important. The long term construction of time of use tariffs also depends on these factors.

Wholesale markets – Developments of the power generation mix (especially wind generation) and in grids, will require and support "smart consumption" using smart tariffs. In the best possible world, we can estimate the take up of time of use tariffs by assuming that demand side response provides the great majority of the price elasticity of the production/consumption system. For this to occur requires that there is no artificial suppression of price signals, for example through a capacity mechanism of poor design. We explore the interaction between retail and wholesale markets further in our response to question 9.

## Question 8

**Do you agree that individual half-hourly data is not currently required for suppliers to meet their obligations in relation to settlement?**

No

Any site can be settled as elective half hourly and this requires site specific data. While operational and cost barriers prevent this being practicable for the domestic and SME market, the rules do not prevent it.

**Over what timescale are any changes to settlement likely to take place and what might the implications be in terms of data requirements?**

*With development of regulation now – five years or so, having reached a critical mass of smart meters during rollout*

*Without timely development of regulation – after 2020*

*Supplier requirements follow settlement capability*

Settlement resolution – Whilst the inefficiency of current settlement arrangements will increase as demand response continues, the gradual development towards full half-hourly settlement can be done in increments. For example, addition of standard registers such as economy 7 (whilst adding the smallest possible number of beginning and ending of periods, e.g. midnight and 7 am), and elective half hourly settlement of some meters using the existing half hourly settlement system but not reconciling as frequently.

Profiling – The industry currently settles on a small number of profiles. This assumes that all consumers are more or less identical, and cross subsidises individual differences. It is an axiom of the smart meter programme that consumption patterns will change and that they will change on an individual basis, and it is therefore axiomatically incorrect to continue with the prevailing assumptions and cross subsidy.

The development of profiling – Not only should smart metering achieve a desired outcome of changing aggregate consumption profiles, it should also change the dynamism of response to price. This will not only make the profiles incorrect (steady trends can be tracked by data logging) but permanently incorrect if price response is not combined with weather correction.

Updating of profiles - ELEXON and the industry have been looking at proposals to reduce the time between profiling calculations. Currently, profiles are based on data that was gathered two years previously using secondary metering for a relatively small number of sites. Reducing this time gap will allow settlement profiles to adapt and reflect changing demand markets. The use of data from smart meters will mean that any samples are more statistically significant as well as removing costs associated with the installation and maintenance of secondary metering

Consumer costs – Whilst the individual commercial on suppliers to change the settlement system is weak (sustaining as it does costs across the whole supply base, which flow to consumers), we believe that suppliers have a responsibility to their consumers to drive their costs down, as reduced supplier costs flow to consumers. It is not disputed that individual suppliers could reduce their settlement costs by higher resolution settlement.

Data sampling - Samples of data could be used, but these should be representative of suppliers' portfolios and statistically significant. Supplier portfolios are different and therefore the term "representative" will have different results. Suppliers should be able to determine the requirements for a sample, and change them over time. In addition, opt in or opt out arrangements could introduce a sample bias and could mean that some customer groups are not represented.

Supplier-specific samples allow a greater transparency of correlations between customer usage and direct costs (including settlement, balancing, distribution etc of energy). This will lead to a greater degree of cost reflectivity in tariffing in all products, although this increases with more complex products.

Data aggregation - Aggregated data would need to be done in such a manner that cost reflectivity and transparency is better facilitated; cross-subsidisation should be minimised. This could be done by allowing suppliers to identify their own specific "clusters" of customers, appropriate to their portfolio and product mix, for example, to retain clarity of understanding and avoid the "netting" effects of aggregation.

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## Question 9

**How far would aggregated or sample data provide suppliers' with what they need in the area of wholesale hedging?**

**Please provide examples of how the data would be used and where possible quantify potential benefits and costs.**

Suppliers consumption accounts, which are used for hedging, differ from the volumes actually consumed by their consumers. This is for a number of reasons, such as profiling, system nomination, and smearing factors. Suppliers' estimated the biases in evaluating their hedge requirements. The consumption inaccuracy inherent in the current arrangements flows through to the hedge requirement, and the costs of the inaccuracies (theft, system balancing, system forecast errors) are socialised and flow to consumers.

System operator forecasting – The difference between the ex ante and ex post demand forecasts of the system operator causes short term costs (inefficient loading) and long term costs (excess capacity), which are ultimately paid for by consumers. Whilst we recognise the need for National Grid to forecast in the medium and long term, and sense check in the short term, we believe that the Physical Notifications of suppliers should be the predominant short term demand forecast, as this best takes into account the idiosyncrasies of the response of individual consumers to factors such as price, weather, process disruptions and economic conditions. Since the Physical Notification is the culmination of the hedge process then it is imperative to encourage the development of accurate hedging.

Aggregation – Suppliers currently hedge on the basis of the estimated total energy submitted by the Data Aggregators. It is disaggregation that allows suppliers to hedge differentially according to groups of customers.

System nomination – Suppliers need to anticipate the difference between the system operators' ex ante estimates of their consumption, their ex post settlement volumes, and the system bias overall (balancing long or short). Whilst settling on profiles, the incentive on suppliers to forecast accurately (and hence reduce system costs) is

Consumer hedging – As the factor costs of energy supply increase, consumers pay increasing attention to hedging, and we expect the take up of unbundled contracts (with energy and network costs separated from supplier costs) to continue to increase. It is therefore important for business consumers to have confidence in the wholesale market and in particular for "basis cost" (the difference between the hedgeable factor and the supply cost factor) to be minimised.

The business sector – The issues for small and medium enterprises and for large enterprises with multiple sites, are very similar to those in residential. Given that the largest consumption points already have metering and settlement arrangements that are envisaged for smaller consumers, then experience to date in this sector is instructive. It should be noted however that the demand response of large energy intensive users is quite different to that of smaller business sectors, due to the different load discretion, management systems, and instrumentation.

Imbalance costs – We are committed to the development of deep liquid wholesale markets. An active wholesale market reduces supplier imbalance costs, and this is particularly true in the short term



Changes in the wholesale market - The nature of the generation market will change as Great Britain responds to increasingly challenging energy sustainability and carbon agendas and targets. Price volatility could change in nature, particularly if unpredictable generation methods take priority (e.g. wind generated load). This will introduce different volatilities for suppliers to hedge against.

The nature of the demand markets will change with smart.

Cost exposure risks – All markets have higher volatility for short term contracts than for long term contracts, and this effect is pronounced for electricity due to the difficulties in storing electricity. High volatility is associated with high hedging costs, and changes to forecast cause re-hedging costs. Restriction in volume data for suppliers reduces their hedge accuracy and thence increases hedging costs. In addition, the system forecast errors increase the system imbalance costs. If changing consumption is understood, particularly for within-day shape risk, the supplier may be able to cover the required energy through trades made further out in time.

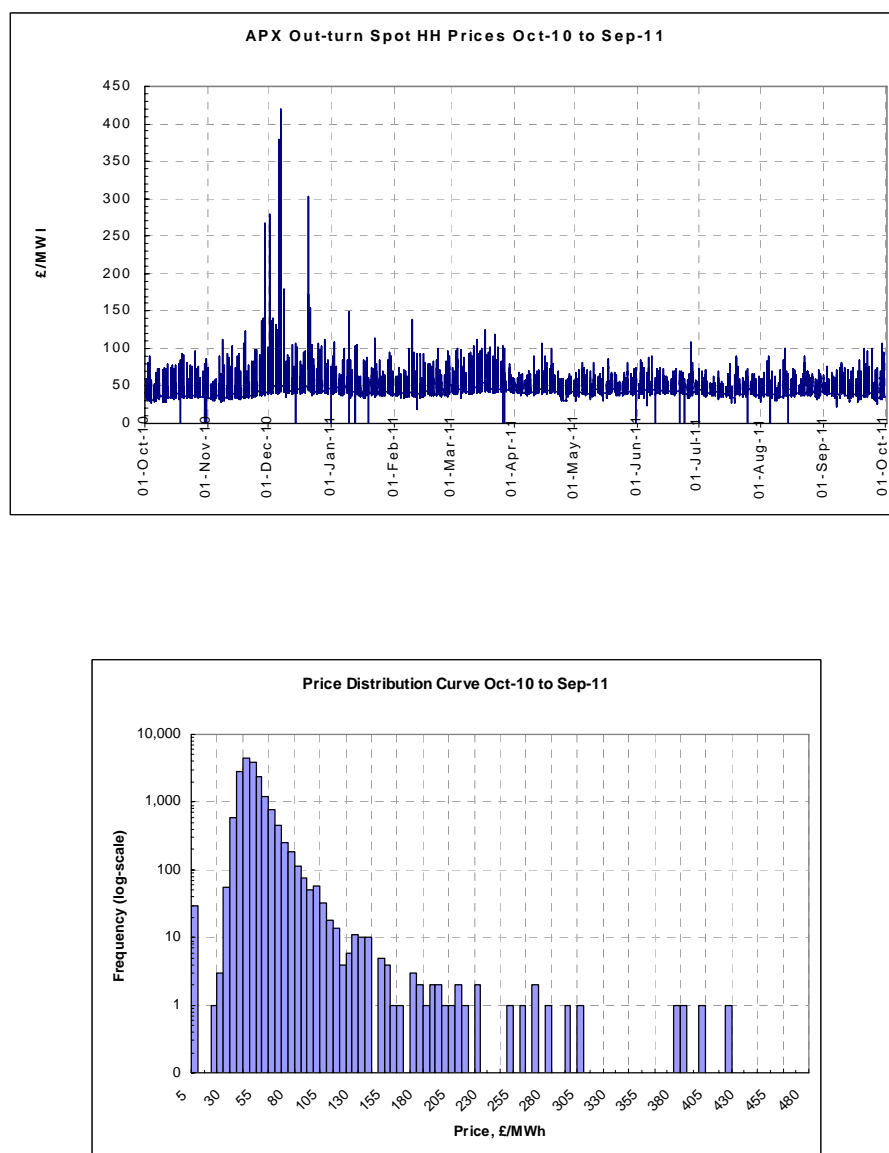


Figure 1. The volatile nature of prices on the spot market. Source APX

Figure 2. the spread of prices within the wholesale market for the twelve months from October 2010. Source APX

Demand stimuli are not always introduced by the supplier - New entrants are being encouraged, particularly new Energy Services Companies (ESCOs), who could offer a range of products and services to help change energy usage for the customers' financial benefit. This activity would not require supplier intervention and therefore the energy usage change drivers would not be known to the supplier

Data gives understanding of usage - If the supplier does not have the within-day data to gain understanding of consumption changes brought by smart, risk management cannot be optimised and cost exposure will be increased. Ultimately the associated benefits would be eroded, undermining consumer confidence.

Industry profiles - Within day, where suppliers accurately forecast the industry profile shapes consumption is given, imbalance exposure can be managed. As smarter products and services change consumer behaviour within day, the assumed industry shapes may not be reflective of actual usage. Under these circumstances, two socialised costs (system balancing costs<sup>2</sup> and Group Correction Factor<sup>3</sup>) are incurred by suppliers, which in turn impact tariffs. Without accessing granular data (i.e, half hourly), the industry profile shapes will not be accurately informed and changed.

Data aggregation – Aggregated data would have limited value in terms of understanding actual behaviour. Groups of customers have a netting effect on the demand position. This is why profiles work at a portfolio level but less so when we consider fewer customers, or even individual customers. Aggregation may be appropriate for the whole population, but to maximise benefit, understanding must be identified through disaggregated data.

Sampling - As per our response in questions 7 and 8, any sample would need to be statistically significant and representative of a supplier's portfolio (and therefore chosen by the supplier and changeable). Opt in / out arrangements are not appropriate as this may introduce a bias.

In using a sample, the supplier would need to identify correlating factors in customer characteristics other than usage to group similar customers in the wider population and aggregate data accordingly. Anonymisation may be suitable, depending on its extent.

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<sup>2</sup> During the twelve months from September 2010, the largest within-day spread of prices occurred on 29<sup>th</sup> November 2010 where prices ranged from £0.52/MWh to £6.78/MWh. Source: *actual out-turn balancing prices*.

<sup>3</sup> A recent study by the Profiling and Settlement Review Group under ELEXON valued the quantity of profiling error within the Group Correction Factor at £200m per year. Source report: [http://www.elexon.co.uk/Pages/profilingandsettlementreviewgroup\(psrg\).aspx](http://www.elexon.co.uk/Pages/profilingandsettlementreviewgroup(psrg).aspx)

## Question 10

**What level of data would be required and how would this be used to manage debt?**

*Daily reads would us to design and run optimal debt management services*

**Please provide practical examples.**

Suppliers managing customer's debt – As suppliers, we have done, and will continue to do everything possible to help customers remain out of debt with regards their energy usage. We welcome the fact that smart metering (and ability to obtain more frequent accurate readings) will improve suppliers abilities to keep customers informed more accurately in relation to their energy consumption and associated spend allowing them to make more informed decisions about their energy and payment thereof. However, energy suppliers do not have the capability to prevent a customer getting into debt; they can only provide as much information as is available to them in order to allow the customer to make their own decision as to whether to prevent themselves from going into debt.

Prevention and management - Believe that the real benefit will be debt prevention rather than debt management as prevention is better than cure. There are some activities that suppliers will be able to perform using data from the SMS that will aid customers in preventing themselves from going into debt (detailed below). It is felt that to assist in debt prevention, weekly readings are adequate in order to project usage over time. For debt management weekly readings may be adequate for the majority, however, there will be times where more granular data is needed in order to understand and advise the customer better and so the supplier may request for e.g. daily readings over a short period of time for a given customer from the DCC on an ad hoc basis.

Aiding struggling consumers – If customers inform us that they are having (or envisage having) payment difficulty, more frequent, accurate reads will help suppliers communicate with customers and inform them more effectively and timely if they are heading towards a debt situation. It will therefore help suppliers offer constructive and tailored advice to better help with debt prevention for that customer through offering better payment methods and/or tariffs for that customer.

Direct Debit – More frequent , accurate data will help with timelier direct debit adjustments to prevent getting into arrears. This could result in more minor adjustments rather than infrequent reactionary “shocks” therefore improving the customers overall credit/ debt management experience.

Tailored advice – More frequent, accurate data will help suppliers give much more tailored help and advice and anecdotal evidence suggests that customers respond more when they feel services have been tailored for them.

## Question 11

**How would suppliers envisage using daily data to support debt management and what evidence do they have to support claims of additional savings that could be achieved with access to daily data as opposed to less frequent data?**

Debt prevention – We believe that the real benefit will be debt prevention rather than debt management.

Reducing energy bills – Not only is it in the suppliers commercial interests to reduce the ongoing energy cost of customers in debt, but it is their social responsibility. In addition there are various requirement in licence regarding advice and support for customers in debt. Looking forward, we can envisage a situation in which a contact centre adviser can pull up the consumption pattern of a customer on the telephone and make preliminary and qualified advice regarding potential measures that a customer could enact or engage. However, debt is the trigger for the customer contact rather than specifically being the vehicle that engages bill reduction.

No vend – We recognize that the ability of smart meters to operate in prepayment and credit mode, and the ability to switch mode remotely, raises the issue of the welfare of vulnerable consumers. We also recognize that whilst the greatest benefit of pay-as-you-go is in budget management and the avoidance of debt, that there are circumstances where a consumer cannot pay, needs the energy, and experiences curtailment from the meter. Currently suppliers attempt to track this through “no vend” but this process is crude, mixed up with a lot of other information, and not timely. Smart provides the ability to track “no consumption”, which is a more reliable indicator than no vend. Whilst noting that it takes time and cost to develop systems and processes. Since the majority of no vend is for normal reasons such as vacation and change of occupancy and because action following no consumption while needed should be timely it is in practice hard to analyse no vend data in a manner that is timely whilst not using personal data and information. This is matter of balance. Much of the activity will depend on privacy arguments not closely associated with smart metering, such as the recording of “tick box” and subjective information regarding potential vulnerability.

Direct debit and regular payment. Whilst these are useful to consumers in terms of ease of use, and best synchronization with income, these methods do entail a varying of account balance as energy consumption fluctuates and allow the cost signal to be less salient in terms of call to action. It is for suppliers to find ways to use their communication media, including the IHD, to maintain awareness of account balance and of energy costs. Smart meters do provide the ability to communicate on a daily basis, but it will also be important not to incur excess transactional charging to consumers for information polling, and to avoid implying that the IHD can hold an accurate account balance without such polling.

Cost reduction – the improved regularity and accuracy of bills due to the ability to rely on accurate meter readings, should reduce significantly the inconvenience to consumers and the cost to suppliers of debt enquiries that arise from uncertainties in account balance.

## Question 12

**How could smart metering data be used to identify and protect vulnerable consumers?**

*In isolation, we do not believe that consumption data from smart meters can be used to identify vulnerable customers, and therefore be used to protect them.*

**Should such activity be considered a regulated duty and are any licence changes needed to create particular duties on suppliers in this area?**

*No*

There is already a regulated duty to identify and protect vulnerable customers and we do not feel there is a need to adopt new duties specifically relating to the use of smart data to achieve this.

There are already processes in place to do this and it should be at the suppliers discretion as to whether or not they use smart data to help identify and protect their customers going forward. Please note also that it is very unlikely that smart data alone will allow this to be achieved.

### **Question 13**

**Do you consider that use of data by network companies to support them in maintaining an efficient and economic network should be considered a regulated duty?**

Yes.

Access to data by Network Companies and Gas Transporters that will allow them to operate, plan and expand their infrastructure in a robust and economic manner should be considered one of their regulated duties.

#### **Question 14**

**Do you agree with the requirement for such data to be anonymised or aggregated wherever possible, and how should this be monitored?**

Network companies and Gas Transporters are best placed to provide details of their requirements for data from smart meters and whether anonymised or aggregated data will meet those requirements

### Question 15

**Would suppliers be expected to advise consumers of network company usage of data given network companies do not have a direct relationship with customers?**

Yes

We recognise the fact that network operators and gas transporters do not have a direct relationship with customers and we currently notify customers, via our Terms & Conditions that pertinent information is shared with network companies.

We expect that with the introduction of Smart Metering and the Privacy Charter, our Terms and Conditions will need to be amended to reflect and actively explain any network company and/or Gas Transporter usage of a customer's data.



## **Question 16**

**Are there any alternatives to a basic opt-in or opt-out approach to consumer choice such as some form of prompted choice?**

*We believe that there is no viable alternative to an opt-in/opt-out approach.*

We believe that due to the need for provide absolute clarity to consumers, the widely used and familiar practice (within other industries, Finance, telecoms, etc) of opt-in/opt-out arrangement removes any ambiguity.

**What are the practical and consumer protection considerations in relation to different options(for example when and how)?**

Consumers must have confidence that there is no “loop hole” open to any industry participant who wish to access customer data

Using complex communication methods for matters of ‘consent’ only adds confusion and could potentially undermine customer confidence in Smart metering and the overall programme

Another key consideration is that the customer must understand that some data must be collected by suppliers (if that information is required to allow the supplier to fulfil their regulatory obligations) and that any opt-in/opt-out consent will not prevent a supplier from collecting this data.

**From a consumer perspective what alternative approaches and vehicles (for example letter, email, phone) to seek customer consent are there?**

We believe there is no viable alternative to an opt-in/out approach. We strongly support the use of opt in or opt out arrangements for all communication mechanisms.

### **Question 17**

**What evidence is there of likely take-up rates that could be achieved through different approaches to consumer choice?**

Our experience is limited to that of our smart metering trials, which involves some 4,000 customers. The approach here was to recruit customers directly by telephone interview. We have no other practical experience of using other approaches to capture customer consent with regard to collection and usage of customer consumption data. Therefore, we are unable to offer any material evidence to this consultation.

## **Question 18**

### **What current and future technical options exist for energy consumption data minimisation / privacy enhancing technologies?**

*We have no direct experience or evidence of this type of technology.*

### **How might aggregated or anonymised data be provided in practice?**

*Definitions of aggregated or anonymised data are interpretable and dependent on the purpose the data applies to and what aspect of privacy is being covered*

Customer identification – Aggregation or anonymisation is applied to preserve privacy so that the data cannot be used to identify “a living individual”. This could be achieved by the prevention of such consumption data being linked to a customer name where it is operationally practical.

Applicability of minimisation – Some purposes carried out using detailed consumption data require links to individual customers. It is not appropriate to use aggregated or anonymised data for billing or customer services purposes, for example. Data minimisation techniques should be considered in terms of the purposes the data is intended for rather than a universal application.

### **Would this imply additional services to be provided by DCC?**

*Greater potential in the longer term*

Supplier Hub – We recognise the potential for growth in DCC services in the longer term, for example to support Settlement services. Aggregation is currently undertaken by accredited Agents in a competitive services market, which facilitates the Supplier Hub market structure. DCC service scope to facilitate aggregation or anonymisation would erode this principle.

## Question 19

**What parts of the privacy policy framework do you think should be delivered by regulation and why?**

*We are already bound by primary legislation, and these frameworks are sufficient if properly used, measured and monitored*

Data Protection Act – Suppliers are already required to adhere to primary legislation in the form of the Data Protection Act. However, as stated in question 5, examples exist where licences could codify the Act in specific settings to clarify its application.

Penalties – Breaches in security or privacy will threaten consumer trust in the Smart solution and could have significant impacts on the consumer engagement needed to realise the full potential of smart benefits. Penalties of breaches to the Data Protection Act are currently assessed and levied by the Information Commissioner's Office. Supplier regulatory frameworks include additional penalties, including the confiscation of a licence. Breaches in privacy frameworks should carry penalties proportional to the magnitude of the breach.

## Question 20

**What is the most effective way to set out any sector specific protections around privacy (e.g. licence conditions or other alternatives)?**

*Customer experience and understanding of data privacy rights should be applicable to all markets and sectors to avoid confusion.*

Consistency – Anecdotal evidence has suggested that the majority of consumers are not fully cognisant of their rights under the Data Protection Act. This is an issue for all industries that are data centric, not just the energy industry. Application of sector specific rules could lead to customer confusion.

Clarity of definitions – The Programme is considering data use for “regulated duties” while the legal frameworks for privacy consider data use for “legitimate purpose” and the two are not completely compatible. In question 9, we discussed the use of data for the control of market risk and costs that drive customer tariffs. This is not explicitly listed in licence obligations but is a legitimate purpose of a licenced supplier acting in a competitive market. Sector specific protections should seek to clarify such legitimate purposes which should then be linked to licenced suppliers.

## Question 21

**What practical options for authentication would provide the right balance between allowing easy access to consumer data in the home while providing the necessary privacy protection?**

*A technical solution needs to be delivered to allow a customer to carry out their own authentication process without compromising their privacy or the security of the Smart solution*

Pairing devices – Access to consumer data within the home can be done through “bridging” devices. These should be paired to the consumer’s metering system and not to that of their neighbours. Such technical solutions must be developed in accordance with the relevant security, business process and DCC requirements.

Industry discussion – The technical options to access consumer data within the home is being discussed within the ODAG Sub-Group for Data Access. We fully support this collaborative approach to consider the potential options.

**Are there any other issues or options that the programme should be considering in developing the approach in this area?**

Responsibility and accountability – Suppliers are not responsible for any authentication process within the home.

Customer risk – Any solution in this area should determine the level of risk it is attempting to address. The energy market cannot, and should not, seek to absolve all customers of all risks. We can not underwrite the risks associated with the choices customers may make over the use of their consumption data.

## Question 22

**Are there other issues that need to be considered to make using the HAN a viable route for access to data in the home, from either a process or consumer perspective?**

Yes

There are a number of outstanding issues that will impact the capability to make the HAN a viable route for access to data in the home, without which we cannot provide a meaningful answer to this question.

**Outstanding SMETS decisions** – The most significant issue is the lack of a clear decision on the selection of a HAN for compliant smart meters. This is key to achieving interoperability in the home and Suppliers will have an obligation to maintain a secure smart metering HAN. If there are multiple HAN options then this will impact the ability for access to data within the home. We are supportive of the work currently ongoing in the industry, primarily within the ERA, to identify a process by which a decision on a HAN technology can be made, but ongoing uncertainty will impact the Supply Chain, as manufacturers will not know which HAN technology to include in their equipment. For further information on our views regarding the selection of a single HAN technology, please see our responses to questions 39 to 42 inclusive of the Technical Specification and Rollout Consultation.

**Bridging Devices** – This has been agreed as the method by which the customer will access their data in the home. Those manufacturers that will produce the bridging devices by which the customer will access their data also need a decision on the HAN. It is essential that such devices meet the agreed HAN standard and associated security requirement, otherwise there is a risk of a privacy breach for which Suppliers could not be held accountable.

**Security Architecture** – The work of the Security Technical Expert Group (STEG) has not yet reached any conclusions on how customers can access their data in a way that does not compromise the security of the HAN.

**Property Types** – Work completed by the industry to date has already identified the propensity for difficult property types, where achieving and maintaining a robust HAN signal within the property will be challenging. This may make it difficult for the customer to access their data

**Customer Issues** – clear processes are needed to support change of tenancy scenarios. When a new customer moves into a property, measures will be needed to ensure that they cannot access the consumption information relating to the previous occupier.

## Question 23

**What sort of arrangements would provide an appropriate balance between providing ease of access for consumers seeking to sign up to new services and adequate protection for consumers' data when accessed via DCC?**

Arrangements for customer access or that of third parties acting on their behalf, to the DCC should be the responsibility of the DCC. The underlying premise is that customers do not need to contact their supplier in order to access that data. In particular, we believe that the supplier should not be responsible for providing or managing any authentication, such as issuing and management of a customer PIN code to the bill payer, for accessing data within the home. Therefore we would recommend the development of a technical solution needs to be developed to enable access to the data through the DCC

Any party wishing to access data through the DCC should be full signatories to the SEC and permissions audited.

Any technical solution needs to be developed in conjunction with the relevant security, business process and DCCG requirements.

This is the approach being currently discussed in the ODAG sub-group on data access and privacy. We support this and are providing resource to input into discussions.

**Do you have any suggestions for alternative approaches?**

Third Party Access to DCC - As noted above, the alternative approach for obtaining access to data is that third parties who have explicit, informed consumer consent would be able to access data via DCC. This arrangement would allow new services to develop but would also recognise the importance of having appropriate arrangements in place to protect consumers' data. Further thinking has been done through BPDG on how this could work in practice and what the extent of DCC's role in validation and authentication should be.

Customer Right to Cancel – Mechanisms must be developed to enable the customer to revoke permission to any third party. Further thinking has been done through BPDG on so how to cancel the arrangement.



## **Question 24**

**Are there other issues or options that the programme should be thinking about for the Foundation Stage or for non-domestic customers to facilitate access to data?**

Yes

Whilst the provision of consumption management services and access to data is already well established in the non-domestic market, there is no concept of interoperability. These services can be provided by Suppliers but customers can also contract directly with Metering Service Providers (MSPs). There is no obligation to provide non-domestic customers with an IHD, although it may be something that smaller non-domestic customers may request.

It is far more likely that there will be metering variants in the non-domestic market and that the customer may have an advanced metering solution, rather than smart meter. This is likely to lead to a requirement for a continuation of the bespoke on-line solutions available today, rather than the use of a bridging device that would be used by domestic consumers. However, should a non-domestic consumer have a smart meter and wish to use a suitable bridging device then, subject to the security architecture constraints raised in our response to Q23, this should be possible.

## **Question 25**

**Do you have any suggestions as to how the Foundation Stage can be used to further learn about our approach to data access and privacy?**

The primary purpose of the Foundation Stage is for testing and trialling of the technology. It is an opportunity to ensure that any process and system issues are resolved and ready to scale in readiness for the start of mass rollout.

A positive consumer experience is essential during Foundation. There is already intense scrutiny on the industry and its relationship with consumers. There is a real risk that any adverse consumer experience during that time could escalate and ultimately compromise the mass rollout. Therefore, introducing early complexity may be counter-productive. Whilst there is clearly an opportunity to learn valuable lessons in respect of data access and privacy, this must be in the context of the primary aims of the Foundation Stage.

Clear messaging from Government on the broader policy objectives of smart metering, coupled with reassurance as to the measures that have been put in place in terms of security and privacy, would go a long way to mitigating any potential concerns from consumers.