



# Impact Assessment

## Profiling and Settlement Review Impact Assessment for a Cost Benefit Analysis: Half-Hourly Settlement for Customers in Profile Classes 5-8

25 August 2010

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This Cost Benefit Analysis forms part of our Profiling and Settlement Review. It will help identify the benefits and barriers to our customers settling volumes of energy on a half-hourly basis as Advanced, half-hourly capable metering systems are installed for customers in Profile Classes 5-8.



You should respond to [BSC.Admin@elexon.co.uk](mailto:BSC.Admin@elexon.co.uk) by 08 October 2010.

### Executive Summary

ELEXON is currently reviewing the profiling and Settlement arrangements for Suppliers of domestic and commercial customers. This is for two reasons — Suppliers' new obligation to install Advanced meters for commercial customers and the work underway on Smart metering for domestic and smaller commercial customers. These meters can record customers' metered data half-hourly — data which has historically been settled on non-half-hourly meter advances using profiles.

We believe the time is right to consider how these changes affect our customers and the wholesale electricity market under the Balancing and Settlement Code (BSC). We also want to identify any improvements or opportunities for our customers, particularly in half-hourly Settlement. This would ensure that the wholesale electricity market and the BSC bring about the most efficient, effective and economic processes.

As part of this review, we have already undertaken a consultation to help understand how Suppliers intend to settle customers, and in particular, for their non-domestic customers (Profile Classes 5-8) who are having their meters replaced with Advanced meters. The main theme from the consultation responses was that there were a number of perceived barriers and issues to half-hourly Settlement, including costs to serve and Distribution charges. To quantify these, we proposed a cost/benefit analysis. We aim to work out these issues in more detail, identify the advantages and disadvantages and costs and impacts of half-hourly Settlement.

We are now asking Parties to respond to questions that form an impact assessment of a defined Settlement scenario. This scenario is part of a cost benefit analysis (CBA) study and is where half-hourly Settlement of all customers in Profile Classes 5-8 by April 2014 is mandated. We aim to clearly set out what it will mean for customers who are currently settled non-half-hourly to move to half-hourly Settlement and identify the associated barriers that the industry must address. We believe that this will provide valuable insight for how Profile Classes 1-4 could be settled half-hourly. Therefore, we are also seeking initial views on half-hourly Settlement for customers with half-hourly capable Smart metering in Profile Classes 1-4.

In this document, we explain the detailed requirements of this CBA scenario and the comparison scenario to the current Settlement requirements.



If you have any questions please contact Justin Andrews, [justin.andrews@elexon.co.uk](mailto:justin.andrews@elexon.co.uk) 0207 380 4364.



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We invite you to reply to questions which are relevant to your organisation. These questions are set out in the second half of this document.

In responding, we ask that you consider the CBA scenario in the ‘Strawman’ and the underlying assumptions.

You should provide your response to [BSC.Admin@elexon.co.uk](mailto:BSC.Admin@elexon.co.uk) by 08 October 2010.

If you have any questions or clarifications on to this Cost/Benefit Analysis, please speak to Justin Andrews, email [justin.andrews@elexon.co.uk](mailto:justin.andrews@elexon.co.uk) or call him on 0207 380 4364.

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## 1 Introduction

Developments in the market have led to Suppliers having to install meters which are capable of recording consumption (and in some cases export) on a half-hourly basis for customers. The Balancing and Settlement Code (BSC) does not require these meters/customers to be settled half-hourly.

Since April 2009 Suppliers, through their licence conditions, must have installed Advanced meters for all non-domestic premises for customers in Profile Classes 5-8 by 6 April 2014. The rollout of these meters is well underway.

The BSC further clarifies the obligation to install Advanced meters across Profile Classes 5-8. The Metering Equipment must comply with Code of Practice 10 (CoP10) at least, which is a half-hourly Metering Equipment standard. This requirement was introduced to help to resolve some of the interoperability issues identified via Modification P230 'Enabling Interoperability through the use of CoP10 and CoP5 Metering'. Therefore, all these Advanced meters will be capable of recording, storing and remotely accessing half-hourly meter data, which could be settled as half-hourly under the BSC.

ELEXON is reviewing the BSC profiling and Settlement arrangements in light of these developments and has completed a consultation to identify issues for non-half-hourly and half-hourly Settlement and the wider industry processes. An expert group has been established (The Profiling and Settlement Review Group (PSRG)), which is considering these issues and consultation responses. The work of the group has given us more insight into the current issues and barriers in the market. We are now undertaking a Cost Benefit Analysis (CBA) to clearly set out what it will mean to settle customers on a half-hourly basis and what barriers to half-hourly Settlement the industry can address.

The costs/impacts and your views will also help us to understand the issues associated with the Settlement of Smart meters.

The next section sets out the main themes from the consultation responses.

## 2 Profiling and Settlement Review Consultation: May 2010

In May 2010, we conducted a consultation to identify the perceived barriers to settling non-half-hourly (NHH) customers in the elective half-hourly (HH) market - customers whose demand is under 100kW — as opposed to the NHH meter advance and profiling processes.

We received 32 responses to our consultation, and were very pleased that responses came from across the industry - from small and large Suppliers, Supplier Agents (Meter Operators, Data Collectors, Data Aggregators), Distributors, consulting organisations, SVG members, Master Registration Agreement Executive Committee (MEC) and Consumer focus.

The main themes from the consultation responses were (see Appendix B for details on responses by question):

- Most Suppliers' responses identified that the main driver for the method of Settlement (NHH or HH) was customer preference
- Supplier Agent costs and DUoS charges were the key barriers to HH Settlement
- Most respondents said that addressing all the barriers identified (the cost to service a customer, including distribution (DUoS) and transmission (TNUoS) charges, HH meter cost, Supplier agent services, Settlement and internal processes/systems impact) would encourage Suppliers to settle half-hourly. The main issues highlighted were the differences in DUoS charges for HH/NHH and Supplier agent costs
- Most respondents felt that the BSC should provide a cost-reflective and effective solution for Advanced and Smart meters. The market should decide and the BSC should not dis-incentivise HH Settlement. However, some respondents believed that HH Settlement should be mandated because it would benefit all parties
- Most respondents said that the Settlement monthly charge per HH meter (the SVA Specified) charge should be calculated as per the NHH market on an energy volume basis, but should be reviewed to find the most cost-effective approach
- Most respondents felt that the current DUoS charging arrangements encourages NHH Settlement
- Most respondents believed that GSP Group Correction (GSPGCF) should be applied to all meters (HH and NHH) at some point
- We received varied responses about when micro-generation would materially affect Settlement. These ranged from now (for smaller Suppliers) to 2015. Respondents said that the requirements were still unclear.

The PSRG considered these responses and agreed that ELEXON undertake a Cost Benefit Analysis (CBA) to identify (and resolve) the issues, advantages/disadvantages, and costs/impacts of mandatory HH Settlement for customers in Profile Classes 5-8. To undertake the CBA, we have developed a scenario (strawman set of requirements) for HH Settlement, which the PSRG has reviewed and agreed. This is set out in the next section and we are seeking impact assessments from all Parties on this.

We are seeking views from all areas of the industry - Suppliers and their agents, Distribution Businesses relating to issues on DUoS charges, National Grid (TNUoS charges), MRASCo on issues relating to registration processes, other industry codes administrators.

The CBA will also identify the transitional issues from the existing NHH Settlement approach. We aim to propose solutions to these issues and find the scale of issues for HH Settlement of customers with Smart meters/Advanced meters in Profile Classes 1-4.

### 3 Overview of the Cost Benefit Analysis

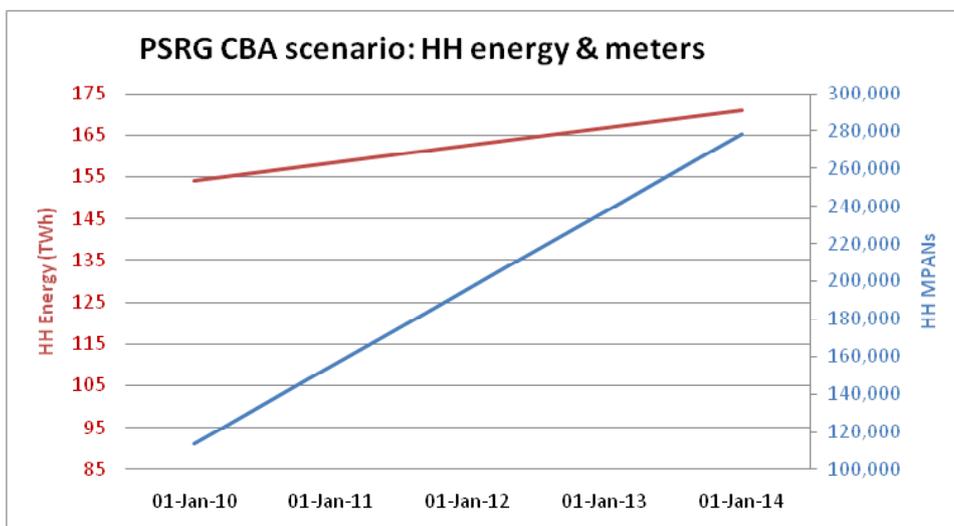
Through the Cost Benefit Analysis we want to estimate the incremental costs and benefits of mandatory half-hourly (HH) Settlement for all non-half-hourly customers currently in Profile Classes (PCs) 5-8.

We propose that all Suppliers will settle their PCs 5-8 customers as HH by April 2014. This deadline is driven by the Supplier's licence requirements to have installed (HH capable) Advanced Meters by 6 April 2014.

The analysis underpinning the CBA is an impact assessment now sought from affected parties; Suppliers, their Agents, Distribution Businesses, National Grid, BSCCo, MRASCo, regulatory/governing and consumer bodies. The CBA will identify costs and impacts due to mandated HH compared with NHH Settlement for all customers in PCs 5-8.

We also aim to identify issues or insight into Settlement of Smart meters for customers in PCs 1-4.

#### Number of HH meters and associated energy volumes



## 4 CBA: Strawman Scenario

This CBA will help us understand the advantages and disadvantages of requiring Half-hourly Settlement for sites with mandatory Advanced metering — that is for customers in Profile Classes 5 to 8.

No.	Requirement	Requirement Detail
1	All customers in Profile Classes 5-8 settled HH by 06 April 2014	With effect from 6 April 2014, the BSC would prohibit the use of non-half-hourly Settlement for customers in Profile Class 5 to 8 with half-hourly capable metering installed. This means Profile Classes 5 to 8 would fall into disuse <sup>1</sup> .
2	Transition to HH: Supplier choice	It would be left to individual Suppliers to choose how they phase in the new requirement before 6 April 2014. For example, some Suppliers might choose to switch customers to Half-hourly Settlement as soon as they install Advanced metering; others might choose to perform a bulk Change of Measurement Class before 6 April 2014.
3	Registered as Measurement Class E only	There would also be a new BSC requirement to register below-100kW Half-hourly capable Metering Systems in Measurement Class 'E', leaving Measurement Class 'C' for 100kW customers only. This is a change from current practice, in which Suppliers are free to choose either Measurement Classes 'C' or 'E' for sub-100kW Half-hourly customers.
4	99% actual HH data at R1 (SPo8c)	The existing Performance Serial SPo8c would be amended. This would require Suppliers to achieve 99% of energy settled on actual data by the First Reconciliation (R1) for Measurement Class 'E' (instead of currently being 99% at Final Reconciliation (RF)).
5	Profiles 5-8 discontinued	The Profile Administrator would discontinue load research for Profile Classes 5 to 8. The regression equations and other profiling deliverables for BSC Year 2014/15 would therefore be 'frozen' and apply to all subsequent years (for the few cases which still need them e.g. Unmetered Supplies and estimation of missing data by Half-hourly Data Collectors).

<sup>1</sup>The only possible exceptions are those customers where the Supplier "has been unable to install or arrange for the installation of appropriate metering at the relevant premises in question despite taking all reasonable steps to do so", and for the Settlement of Unmetered Supplies.

No.	Requirement	Requirement Detail
6	CoP5 and CoP10: no change	No changes would be made to the metering standards for Advanced metering (as specified in CoP5 and CoP10).
7	No Technical Assurance of HH Meters in Measurement Class 'E': no change	Metering Systems in Measurement Class 'E' would not be subject to the Technical Assurance process. This process is defined in BSCP27 ('Technical Assurance of Half-hourly Metering Systems for Settlement Purposes') and is currently not applied to Measurement Class 'E'.
8	Measurement Class E Site visits: no change	Metering Systems in Measurement Class 'E' would still require a site visit every two years (to check the state of the Metering Equipment).
9	HH MOs, HH DCs, HHDA: no change to requirements	Requirements on Half-hourly Data Collectors and Half-hourly Meter Operator Agents would remain unchanged, and would apply to Measurement Class 'E' as well as Measurement Class 'C'. For example, Meter Operator Agents would be required to investigate Metering System faults within 5 Working Days, in accordance with the existing requirements in section 3.4.3 of BSCP502.
10	Change of Measurement Class process: no change	The current Change of Measurement Class (CoMC) process is described in BSCP502 and BSCP514. There will be no change to these requirements. This process currently assumes there is a physical change of meter, even though this may not be the case under the strawman scenario. However, no changes to this approach are proposed and no new bulk CoMC process is suggested.
11	SVA specified charge: no over-recovery	Suppliers would continue to be charged a monthly SVA Specified Charge for each Half-hourly Metering System (in accordance with section 4 of Annex D-3 of the BSC); but the level of the charge would be reduced as the number of Half-hourly Metering Systems increased to avoid any over-recovery <sup>2</sup> .
12	DUoS and TNUoS charges: no change	The current methodologies for calculating Distribution Use of System (DUoS) and Transmission Network Use of System (TNUoS) would remain unchanged (which means that charges for Measurement Classes 'C' and 'E' would be calculated on the same basis).

<sup>2</sup>The basis for the recovery of HH Settlement charges will be reviewed as part of the CBA.

## Rationale for the CBA Strawman Requirements

No.	Requirement	Rationale
1	All customers in Profile Classes 5-8 settled HH by 06 April 2014	We believe that using the HH meter data available from the Advanced meter will enable a Supplier's Settlement bills to accurately reflect the customers true consumption. HH Settlement is more accurate and will avoid the smearing effects of profiling NHH meter data. The date of 06 April 2014 aligns with the date mandated for completing the rollout of Advanced metering for customers in Profile Classes 5-8.
2	Transition to HH: Supplier choice	This gives Suppliers the flexibility to choose how to manage their portfolio and the switch to HH Settlement. There may be a risk that all Suppliers choose to do a bulk change of Measurement Class and agent on the final days leading up to 06 April 2014.
3	Registered as Measurement Class E only	Measurement Class 'E' has been set up for the sub-100kW market. By mandating that Suppliers register their Metering Systems under 'E', it means that costs and benefits can be directly identified. It also allows for future changes such as to Settlement to apply GSP Group Correction Factor to these metering systems and for HH DUoS charges to be appropriately targeted. It also provides extra information to identify and understand the implications for a wider HH market (e.g. PCs 1-4).
4	99% actual HH data at R1 (SPo8c)	While this is more onerous than the current SPo8c requirements of 99% at RF, the current performance achieved by parties shows that HH metering systems have >99% of actual data at SF. Setting this measure at R1 also allows time for the resolution of meter data issues.
5	Profiles 5-8 discontinued	With all PC 5-8 customers being settled HH, there is no need for load research for these profiles in future, which will reduce costs.
6	CoP5 and CoP10: no change	We believe that these current meter standards are enough for the HH proposal. There are existing CoP5 and CoP10 approved meters and changes introduced would have costs and time implications.

No.	Requirement	Rationale
7	No Technical Assurance of HH Meters in Measurement Class 'E': no change	Currently, there are no Technical Assurance visits for Metering Systems in Measurement Class 'E'. This is because of the energy volume associated with each Metering System and the low numbers in this market. For these reasons, we believe no change is required at this time.
8	Measurement Class E Site visits: no change	Site visits help Suppliers meet their BSC obligations. We believe the current BSC requirements are sufficient. Any change would have significant implications and costs. The aim of the CBA is to investigate a 'least change case'.
9	HH MOs, HH DCs, HHDA: no change to requirements	We believe the current BSC requirements for HH agent processes are sufficient. Any change would have significant implications and costs. The aim of the CBA is to investigate a 'least change case'.
10	Change of Measurement Class process: no change	We believe the current BSC requirements are sufficient. Any change would have significant implications and costs. The aim of the CBA is to investigate a 'least change case'.
11	SVA specified charge: no over-recovery	The current principle is that HH SVA costs are recovered on a per Meter basis. A review of this is being undertaken separately to the CBA scenario. Currently, the SVA specified charge is 70p a Meter per month. Based on all PCs 5-8 Metering Systems being settled HH (and assuming current SVA costs remain the same), this would come down to approximately 30p.
12	DUoS and TNUoS charges: no change	For the purpose of the CBA, and to allow parties to respond meaningfully, the charging requirements have been kept the same. However, we recognise that issues exist in the HH DUoS charging regime and we are raising these these separately with Distribution Businesses (e.g. though the DCMF, DCUSA Panel).

We refer to the above requirements as our ‘strawman’ scenario, because they are intended as a clear basis for the CBA and later discussions. They are not recommendations on the best way to introduce the new obligation.

For example, the Profiling and Settlement Review Group (and many of respondents to the consultation) believe that it may not be appropriate to use the same DUoS and TNUoS charging structures for small Half-hourly customers (Measurement Class ‘E’) as larger Half-hourly customers (Measurement Class ‘C’), and the DUoS charging methodologies need reviewing. The strawman scenario assumes keeping the CBA as simple as possible and further investigate the barriers to HH Settlement.

Our CBA will compare the requirements in the ‘strawman’ scenario (in which Profile Classes 5 to 8 are settled Half-hourly) with a ‘base case’ scenario (in which Profile Classes 5 to 8 continue to be settled non-half-hourly). The base case scenario below clearly sets out the baseline for comparison with the CBA strawman scenario.

## 5 Base Case Scenario

To undertake the CBA, we will compare the strawman scenario requirements with a base case scenario. All parties should use these base case requirements when identifying incremental costs and impacts and any relevant issues. These base case requirements are:

No.	Requirement	Requirement Detail
A.	All PC 5-8 customers settled NHH	We assume all customers fitted with Advanced metering under the licence obligation will continue to be settled non-half-hourly. Suppliers will still be able to settle such customers Half-hourly, but the number choosing to do so will be sufficiently small that we assume that they are all settled NHH for the purposes of the CBA. Currently, about 2000 meters are registered as Measurement Class ‘E’.
B.	Measurement Class ‘C’ or ‘E’: Supplier choice	In those few cases where Suppliers do opt for Half-hourly Settlement, they will retain the right to choose whether to register the Metering System under Measurement Classes ‘E’ or ‘C’.
C.	PARMS Serial (SPo8c): No change	The Performance Serial for Measurement Class ‘E’ will remain unchanged i.e. 99% of energy settled on actual data by Final Reconciliation (RF).
D.	Baseline requirements for NHH and HH: No change	No changes to BSC Procedures or Codes of Practice.

## 6 Assumptions

No.	Assumption
1	Volumes: <ul style="list-style-type: none"><li>• Profile Classes 5-8: 164,000 meters and 18TWh of annual energy</li><li>• HH market: 115,000 meters and 154 TWh of annual energy (this includes import and export)</li></ul>
2	The Advanced meter will be either a CoP 5 or CoP10 meter (see definition in glossary)
3	All Advanced meters will be installed by 06 April 2014.

## 7 The Cost Benefit Analyses: Questions for Parties

Please identify in your responses any information or costs that you wish to keep confidential. The questions are listed below for information, but please answer and return the separate Microsoft Word document.

### 7.1 Questions for Suppliers

No.	Question	Response
1.	<p>What are the additional set up costs and impacts (and any lead times) in settling all your Profile Class 5-8 customers HH by 6 April 2014 (assuming that Advanced metering is installed)?</p> <p>Please break down your costs by MPAN (or per portfolio) for:</p> <ul style="list-style-type: none"> <li>a) Internal process and systems</li> <li>b) Supplier Agency costs, Meter Operation, Data Collection, Data Aggregation;</li> <li>c) BSC Settlement costs, e.g. qualification to a HH Supplier or due to increased volumes;</li> <li>d) Any processes to support the increased HH volumes for DUoS and TNUoS charging; and</li> <li>e) Others.</li> </ul> <p>Please provide supporting rationale.</p>	
2.	<p>Provide ongoing operational costs by MPAN or per portfolio for settling all your Profile Class 5-8 customers HH.</p> <p>Please provide supporting rationale.</p>	
3.	<p>What do you believe will be the likely impact in % terms in agency costs (MO, DC, and DA) to serve an MPAN as HH against the existing costs to serve as NHH, taking into account economies of scale and lower performance requirements for Measurement Class 'E'?</p> <p>Please provide rationale.</p>	
4.	<p>Taking into account any increased costs, is there a benefit for a Supplier's processes in HH Settlement (and HH data) for a PC5-8 customer? For example, demand forecasting, reconciliation of purchases and sales, tariff product innovation and carbon benefits?</p> <p>Please provide details and rationale.</p>	

No.	Question	Response
5.	What are the implications for customers if settled HH? Please provide details.	
6.	When do you think an Advanced Meter should be mandated to be settled HH: a) Never (should be Supplier choice as now) b) As soon as an Advanced Meter is installed c) By 6 April 2014 d) Other Please provide rationale.	
7.	Although the CBA is focussed on Profile Classes 5-8, what are the implications or lessons that can be applied to Profile Classes 1-4? Please provide details.	
8.	Do you have any other comments you wish to add?	

## 7.2 Questions for Supplier Agents and Meter Suppliers

No.	Question	Response
9.	<p>What issues do you believe there will be to service an extra 164,000 customers as HH by all service providers by April 2014?</p> <p>Please provide details.</p>	
10.	<p>Can you identify any economies of scale or any system/ data transfer issues associated with an extra 164,000 HH metering systems?</p> <p>Please provide details.</p>	
11.	<p>Although the CBA is focussed on Profile Classes 5-8, what are implications or lessons that can be applied to Profile Classes 1-4?</p>	
12.	<p>Do you have any other comments you wish to add?</p>	

### 7.3 Questions for Distribution Businesses

No.	Question	Response
13.	<p>Please break down your costs (one-off and ongoing operational), timescales and impacts for:</p> <ul style="list-style-type: none"> <li>a) Internal process and systems</li> <li>b) Supplier Meter Registration Service (incl. level of transactions, constraints)</li> <li>c) DUoS Charging, and</li> <li>d) Others.</li> </ul> <p>Please provide rationale.</p>	
14.	<p>What benefits would you consider there to be from having HH data for these 164,000 customers?</p> <p>Please provide details.</p>	
15.	<p>What changes do you believe are necessary to the Common DUoS Charging methodology to address the perceived barriers in HH DUoS charges for customers currently in Profile Classes 5-8 with Advanced Meters (see DUoS charges analysis in Appendix A section 6.1 of the consultation document)?</p> <p>Please give rationale and any cost estimates.</p>	
16.	<p>How would you ensure that you do not over recover HH DUoS charges in light of the increased HH Metering Systems?</p> <p>Please provide details.</p>	
17.	<p>Although the CBA is focussed on Profile Classes 5-8, what are implications or lessons that can be applied to Profile Classes 1-4?</p> <p>Please provide details.</p>	
18.	<p>Do you have any other comments you wish to add?</p>	

## 7.4 Questions for National Grid: TNUoS Charges

No.	Question	Response
19.	<p>What are the costs and impacts if all Profile Class 5-8 customers are settled HH by 6 April 2014?</p> <p>Please break down your costs (one off and ongoing operational), timescales and impacts for:</p> <p>a) Internal process and systems;</p> <p>b) Changes to TNUoS charges; and</p> <p>c) Others.</p> <p>Please provide rationale.</p>	
20.	<p>Are there any changes that you believe are necessary to the TNUoS Charging methodology to address the increased 164,000 Metering Systems in 2014?</p> <p>Please provide details.</p>	
21.	<p>What benefits would you consider there to be from having HH data for these 164,000 customers?</p> <p>Please provide details.</p>	
22.	<p>Although the CBA is focussed on Profile Classes 5-8, what are implications or lessons that can be applied to Profile Classes 1-4?</p> <p>Please provide details.</p>	
23.	<p>Do you have any other comments you wish to add?</p>	

## 7.5 Questions for MRASCo: Registration processes

No.	Question	Response
24.	<p>What are the costs and impacts if all Profile Class 5-8 customers are settled HH by 6 April 2014 on the registration processes governed by the MRA?</p> <p>Please break down your costs (one off and ongoing operational), timescales and impacts for:</p> <ul style="list-style-type: none"> <li>a) Internal process and systems;</li> <li>b) Changes to the MRA; and</li> <li>c) Others.</li> </ul> <p>Please provide rationale.</p>	
25.	<p>Although the CBA is focussed on Profile Classes 5-8, what are implications or lessons that can be applied to Profile Classes 1-4?</p> <p>Please provide details.</p>	
26.	<p>Do you have any other comments you wish to add?</p>	

## 8 Next Steps

Please respond to the questions above by 08 October 2010. Ofgem, DECC and Consumer Focus and any other interested parties are welcome to respond on matters associated with the PSR work and this Cost Benefit Analysis (and will be copied in on this CBA impact assessment).

ELEXON will collate these responses and complete the CBA report along with work, analyses and input from other parties. We will present the finding of the CBA to the PSRG and the SVG in November.

## 9 Glossary

### 100kW market

Those Metering Systems that are 100kW Metering Systems (as defined in the BSC) and must therefore be registered to Measurement Class C (HH metered in 100kW Premises) and settled through HH processes.

### 100kW Metering System

A 100kW Metering System is:

- (i) any Metering System where the average of the maximum monthly electrical demands in the three months of highest maximum demand in:
  - (a) the previous twelve months; or
  - (b) the period since the most recent Significant Change of Demand (whichever is shorter) exceeds 100kW; or
- (ii) any Metering System where the Profile of a Customer's electrical demand implies an average of the maximum monthly electrical demands in the three months of highest maximum demand either in:
  - (a) the previous twelve months; or
  - (b) the period since the most recent Significant Change of Demand (whichever is shorter) exceeding 100kW; or
- (iii) any CVA Metering Systems; or
- (iv) an Unmetered Supply where the relevant Distribution System Operator has agreed that the maximum demand is above 100kW; or
- (v) any Metering System which is for the time being declared by a Supplier in accordance with the relevant BSC Procedure to have a maximum demand in excess of 100kW.

### Advanced meter

As defined in the standard conditions of the gas and electricity supply licence:

'12.19 For the purposes of this condition, an advanced meter is an Electricity Meter that, either on its own or with an ancillary device, and in compliance with the requirements of any relevant Industry Code, is able:

- (a) to provide measured electricity consumption data for multiple time periods, and at least half-hourly; and
- (b) to provide the licensee with remote access to such data.'

### Consumption Component Class (CCC)

There are 35 CCCs and each CCC represents a unique combination of attributes including distinguishing between NHH, HH, import, export, metered/unmetered, actuals/estimates, EAC/AAs and line losses.

### Elective HH or sub-100kW market

Those Metering Systems that are not 100kW Metering Systems (as defined in the BSC), but which the Supplier voluntarily chooses to settle through HH processes. Note that a customer in the Elective HH Market might be registered under Measurement Class C (HH metered in 100kW Premises) or E (HH metered not 100kW Premises). This is because the BSC does not force Suppliers to use E for customers below 100kW.

### Measurement Class C

Is the identifier used to signify a metering system that is HH metered for a 100kW Premise.

### Measurement Class E

Is the identifier used to signify a metering system that is HH metered for sub-100kW Premises.

### MPAN

Meter Point Administration Number (MPAN) identifies the Metering System associated with any point of access to the transmission system or any distribution system.

### non-half-hourly meter

Means a Supplier Volume Allocation (SVA) meter, which provides measurements other than on a half-hourly basis for Settlement purposes.

### Profile Class 1 - Domestic Unrestricted Customers

Customers at a domestic premises, as defined in the terms of the Supply licence, that are on an unrestricted tariff.

### Profile Class 2 - Domestic Economy 7 Customers:

Customers at a domestic premises, as defined in the terms of the Supply licence, that are on a Domestic Economy 7 or similar tariff that have a metering system that is capable of switching load, e.g. Storage and Immersion Heating.

### Profile Class 3 - Non-Domestic Unrestricted Customers

Customers at non-domestic premises, as defined in the terms of the Supply licence, which are on an unrestricted tariff.

### Profile Class 4 - Non-Domestic Economy 7 Customers

Customers at a non-domestic premises, as defined in the terms of the Supply licence, that are on a Non-Domestic Economy 7 or similar tariff that have a metering system that is capable of switching load, e.g. Storage and Immersion Heating.

### Profile Class 5 - Non-Domestic Maximum Demand Customers with a Peak Load Factor between 0-20%

Non-Domestic customers, as defined in the terms of the Supply licence, that have a metering system that records maximum demand and have a calculated peak load factor of between 0-20% based on the annual consumption and annual peak demand that are recorded on the metering system.

### Profile Class 6 - Non-Domestic Maximum Demand Customers with a Peak Load Factor between 20-30%

Non-Domestic customers, as defined in the terms of the Supply licence, that have a metering system that records maximum demand and have a calculated peak load factor of between 20-30% based on the annual consumption and annual peak demand that are recorded on the metering system.

### Profile Class 7 - Non-Domestic Maximum Demand Customers with a Peak Load Factor between 30-40%

Non-Domestic customers, as defined in the terms of the Supply licence, that have a metering system that records maximum demand and have a calculated peak load factor of between 30-40% based on the annual consumption and annual peak demand that are recorded on the metering system.

### Profile Class 8 - Non-Domestic Maximum Demand Customers with a Peak Load Factor of over 40%

Non-Domestic customers, as defined in the terms of the Supply licence, that have a metering system that records maximum demand and have a calculated peak load factor of over 40% based on the annual consumption and annual peak demand that are recorded on the metering system.

### Smart Meter

A meter of the type that the Government proposes to mandate for all domestic customers and smaller non domestic customers by 2020 (except for Profile Class 3-4 customers with an Advanced Meter already installed). Although the technical specifications for such meters are still to be finalised, the Government has indicated that they will allow a Supplier to take remote readings/information and provide a customer with access to information, broken down into multiple time periods, based upon data from those readings and support a range of time of use tariffs.

We anticipate that Smart meters will be required to be remotely configurable, and so require two-way communications to and from the meter, have import/export capability, have capacity to communicate with a micro-generator (and store generation information for billing), have load management capability, provide realtime information to an in-home display and a remote switching capacity for electricity.

## 10 References

Reference 1: ELEXON Profiling and Settlement Review Supplier Consultation see link  
[http://www.elexon.co.uk/documents/consultations/elexon\\_profiling\\_and\\_Settlement\\_review\\_Supplier/elexon\\_profiling\\_and\\_Settlement\\_review\\_Supplier\\_consultation\\_1.o.zip](http://www.elexon.co.uk/documents/consultations/elexon_profiling_and_Settlement_review_Supplier/elexon_profiling_and_Settlement_review_Supplier_consultation_1.o.zip)

## Appendix A:

### SVA processes for Half-Hourly and Non-half-hourly Settlement

This section explains Half-Hourly (HH) and Non-Half-hourly (NHH) Settlement processes and associated costs. It presents both similarities and differences in the two processes to help you understand the differences in cost drivers for Suppliers and Settlement. Suppliers should consider these processes when identifying any perceived barriers to HH Settlement for customers in Profile Classes 5 to 8 in the elective HH market.

## 1 The Basic Processes

For both HH and NHH the basic processes are the same:

- The Supplier registers the customer in the Supplier Metering Registration System (SMRS);
- The Supplier appoints agents (Meter Operator (MOA), Data Collector (DC), Data Aggregator(DA))
- The MOA ensures the customer has an appropriate meter fitted
- The DC collects data from the meter
- The DA aggregates the data collected from the meter and provides the aggregated data to BSC Agents
- The BSC Agents process the data through the Imbalance Settlement processes and undertakes the outcome banking processes.

While the registration processes are fundamentally the same for both HH and NHH Settlement, there are some significant differences in the requirements for each of the subsequent stages. These are discussed further below.

## 2 Supplier Agents

The high level differences in Supplier Agent activities and processes for HH and NHH for each Agent are set out below.

### ***Meter Operators***

Meter Operators are required to fit and maintain metering systems.

Area	Non-half-hourly	Half-Hourly
Metering	Generally cheap whole current metering, although there are some three phase systems that require current transformers (CTs) and Voltage Transformers (VTs). Minimum requirements are for CoP8 and CoP9 metering	HH metering is generally more expensive and requires other ancillary equipment in most cases: Remote communications, CTs and VTs. Minimum requirements are for CoP10
Skill Set	Less complex metering may imply a less skilled Meter Operator could fit majority of NHH Systems.	Higher Level of competence required than for Non-half-hourly meter operations.
Commissioning and Proving of Metering Systems	No significant requirements.	Commissioning and Proving of all HH Metering Systems. However, proving is not required for CoP10 Metering Systems.
Timescales	Less onerous than HH. e.g. 15 WD for meter fault correction.	More onerous than NHH and dependent on the CoP.

### **Data Collectors**

Data Collectors are required to collect and validate information from metering systems.

<b>Area</b>	<b>Non-half-hourly</b>	<b>Half-Hourly</b>
Data Collection	Mostly collected via an 'eye ball' reads of the registers. Some remote collection. This maybe via another third party, e.g. A Data Retriever. Costs around getting to site.	Remotely read. Costs around airtime and dialling costs.
Data Validation	Validation will be modest in most cases. However, can be onerous where issues are identified and may require further site visits.	Initial validation undertaken by dialling system. Exception reporting, investigation, remote diagnostics and re-dialling may be required. Meter Advance Reconciliations maybe required. No MARs for meters with integral modems, e.g. CoP10
System Requirements	NHHDCs require EAC/AA Software developed by BSCCo as well as their own systems.	Usually HHDCs use their own software.
Data Processing and Output	Output as EACs and AAs per meter register. Erroneous values need further investigation.	Output as HH data. This may be based on estimates, e.g. 'E' Flagged.

### **Data Aggregators**

Data Aggregators are required to aggregate meter data provided by the Data Collectors.

<b>Area</b>	<b>Non-half-hourly</b>	<b>Half-Hourly</b>
Aggregation Requirements	Aggregate AAs and EACs by GSP Group, Standard Settlement Configuration, Time Pattern Register and Line Loss Factor Class.	Aggregate HH data by Balancing Measurement Unit Id (BMU_ID) The DA will also apply Line Loss Factors (LLFs).
System Requirements	NHHDAs require NHHDA Software developed by BSCCo as well as their own systems.	HHDA's would normally use their own systems.
Exception Reporting	D0095 reporting to Supplier on issues relating to EACs/AA and appointment anomalies.	D0235 reporting for missing, incorrect, de-energised or wrong Supplier.
Output	Supplier Purchase Matrix of Aggregated AAs and EACs (D0041)	Aggregated Half-Hour Data (D0040)

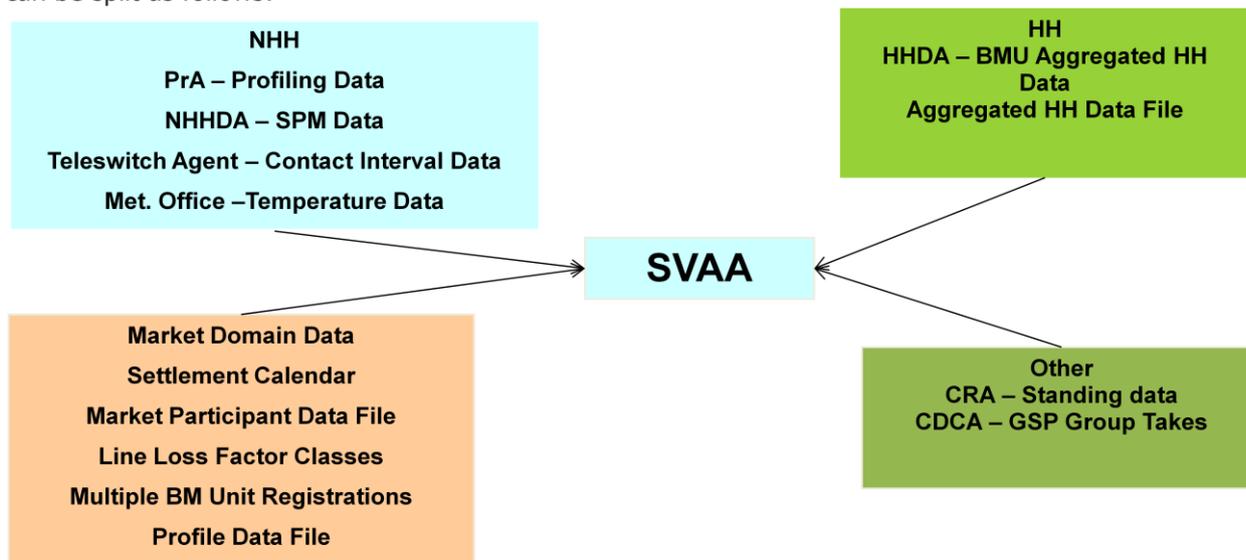
## 2.1 BSC Agents for Supplier Volume Allocation (SVA)

The high level differences in BSC Agent activities and processes for HH and NHH for each Agent are set out below.

### **Supplier Administration Agent (SAA) and the Financial Administration Agent (FAA)**

The process for the Supplier Administration Agent (SAA) and the Financial Administration Agent (FAA) are the same for NHH and HH Settlement.

Data is provided to the Supplier Volume Allocation Agent (SVAA) from a number of sources, which can be split as follows:



### **Profile Administrator (PrA)**

The PrA produces profiling data for use by the Supplier Volume Allocation Agent. Please note that default profile data is made available to HH Supplier agents as well as NHH Supplier agents.

Area	Non-half-hourly	Half-Hourly
Data Requirements	To produce Regression Coefficients and GAACs for use by the SVAA.	To produce Default Profile Coefficients for use by HHDCs.
Operational Requirements	To maintain with the help of Suppliers standing samples of NHH customers.	Not Applicable
Metering Requirements	To fit and maintain appropriate half-hourly capable metering systems for sample participants for which they are responsible.	Not Applicable
Data Collection Requirements	To remotely collect data from metering systems for which the PrA are responsible. To receive HH data direct from Suppliers.	Not Applicable
System Requirements	The PrA requires software developed by BSCCo for Data Analysis and its own systems to collect data from the metering systems.	Not Applicable
Output	Regression Coefficients and Default Profile Coefficients for loading into Market Domain Data (MDD) and SVA Systems.	

### The Teleswitch Agent

The Teleswitch Agent collects information on when Teleswitch Contacts are switched 'on' and 'off' for provision to the SVAA for NHH Settlement.

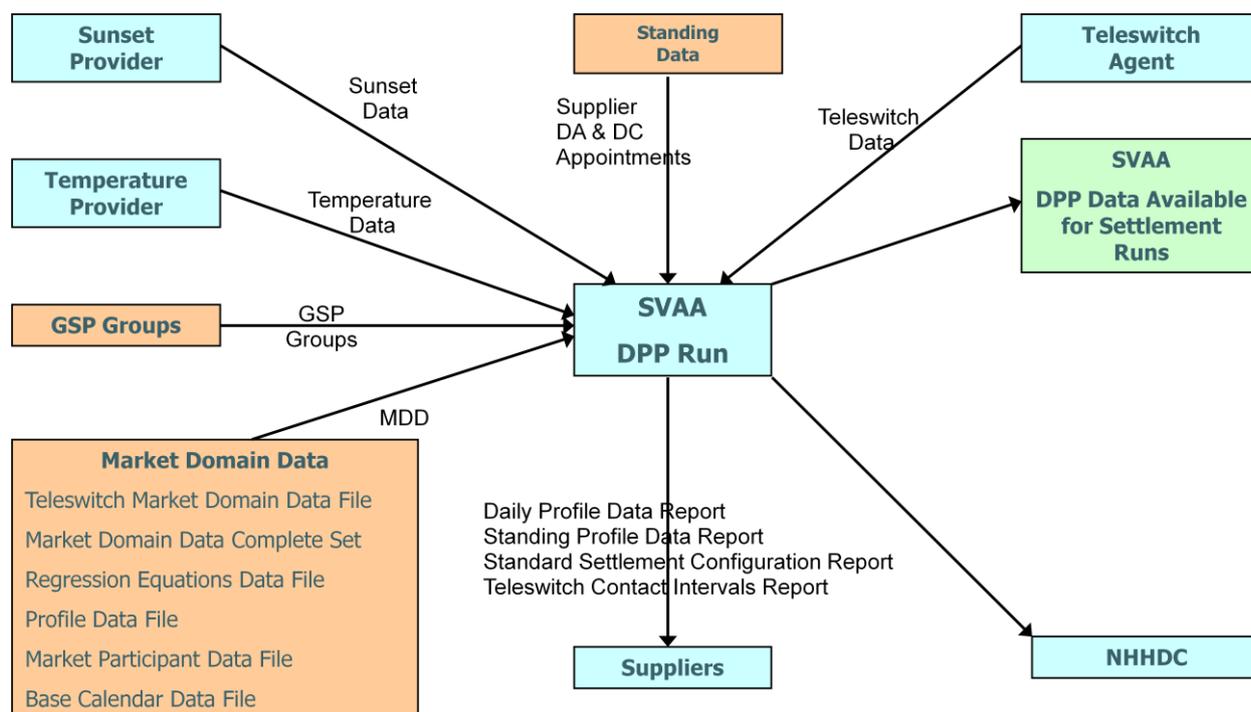
Area	Non-half-hourly	Half-Hourly
Data Requirements	Contact Interval data by Teleswitch User and Teleswitch Group	Not Applicable
System Requirements	The Teleswitch Agent uses its own systems to interrogate the Central Teleswitch Control Unit (CTCU) that is hosted and maintained by National Grid	Not Applicable
Output	Contact Interval Data file (D0277) for use by the SVAA in Daily Profile Production	Not Applicable

### The Supplier Volume Allocation Agent

The SVAA brings together the NHH and HH data. Some of the processes such as the Daily Profile Production run are NHH Specific, as they provide data for use by NHH Data Collectors in the construction of EACs and AAs. The main data inputs and outputs of the SVAA are illustrated below.

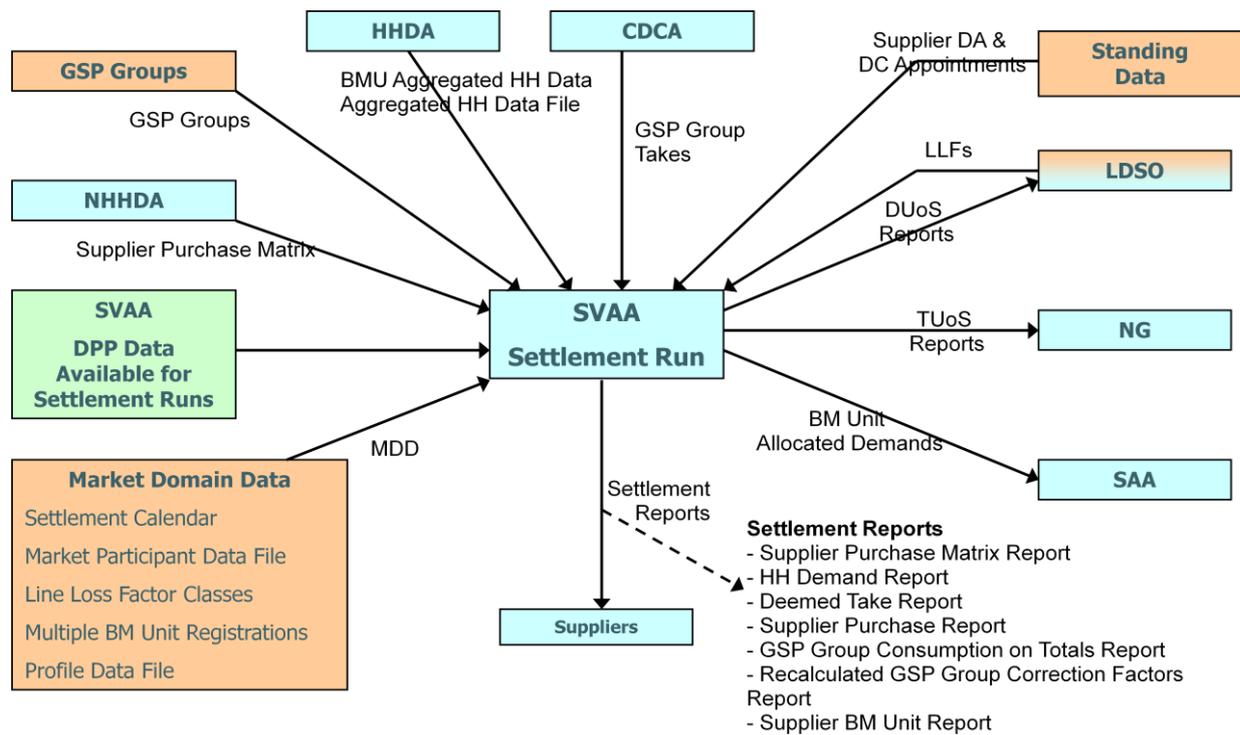
#### SVA: NHH only process - Daily Profile Production

This following diagram shows the process involved for the production of the daily profiles, which are primarily used by NHHDCs in the construction of EACs and AAs.



**SVA: NHH and HH processes - Settlement Run**

The following diagram shows the SVA processes involved in the production of the HH BMU metered volumes for both HH and NHH meters.



In summary, the main processes used for NHH Settlement are; PrA, Teleswitch, EAC/AA and NHHDA software support and SVAA.

## Appendix B: Main themes from responses to Profiling and Settlement Review Consultation (May 2010)

*Consultation issued on 30 April 2010 (responses due 28 May 2010)*

We received 32 responses from the following Parties.

No.	Company	Confidential	Role of Parties/ non-Parties represented
1.	Smartest Energy	-	Supplier/Consolidator
2.	OPUS Energy	-	Supplier
3.	TMA	-	NHH & HH: DC, DA Agents
4.	GazProm	Y	Supplier
5.	E.ON UK	-	Supplier/Consolidator
6.	James Evans, Utilisoft	-	SVG member, Software provider
7.	Haven Power	-	Supplier
8.	Ecotricity	Y	Supplier
9.	Scottish & Southern Electricity	Part	Supplier
10.	G4S Utility Services	-	HH Agents: MO, DC, DA
11.	Scottish Power	-	Supplier
12.	Electricity Network Company	-	Independent distributor
13.	EdF Energy	-	Supplier
14.	IPM Energy Retail	Y	Supplier
15.	Western Power Distribution	-	Distributor
16.	Richard Harrison	-	SVG member
17.	RWE Npower	-	Supplier
18.	CE Electric UK	-	Distributor
19.	UPL	-	NHH Agents: MO,DC,DA
20.	ERA	-	Organisation
21.	Invensys IMServ	-	NHH & HH Agents: MO, DC, DA
22.	EA Technology	-	Organisation
23.	MRA Executive Committee (MEC)	-	Supplier Registration Organisation
24.	Siemens Metering Services	-	CVA MOA; NHH & HH Agents: MO, DC, DA
25.	Logica	-	Organisation
26.	ESTA & Pilot Systems	-	Metering Organisation
27.	Centrica	-	Supplier
28.	EdF Energy Networks	-	Distributor
29.	Power Data Associates	-	Unmetered Supplies Meter Administrator
30.	Consumer Focus	-	Consumer organisation
31.	Scottish & Southern Power Distribution	-	Distributor
32.	Electricity North West Ltd	-	Distributor

**Questions 1 and 2: If you have (or were to have) non-100kW customers with HH-capable metering, what do you take into account when deciding how to settle those customers (i.e. NHH, HH registered to Measurement Class E, or HH registered to Measurement Class C)?**

### Main Themes

No. of Respondents	Theme
7	Customer preference.
4	All elements
3	DUoS charges and differences, incl. Explicit capacity charges levied by DNOs
3	Settlement cost, we would not settle HH unless HH customer specifically asks to be settled on HH basis. 1 non Supplier thought SVA specified charge
2	Shape risk, don't want to bill customers on HH actuals but be exposed to NHH profiles in Settlement or vice versa
2	AMR to help improve our NHH Settlement performance - if these sites were settled HH this would result in a drop in NHH performance
Others	Alignment of billing and Settlement data  Fairer allocation of volumes and costs across Suppliers/Customers  Difference in HH and NHH BSC audit procedures  Not aware of any Supplier who will take a positive decision to do this as a consequence  Use HH data to construct AAs  What previously registered as  Overall cost

**Question 3: Which of the following costs to service a customer as HH, do you believe are barriers to settling HH?**

- **HH meter;**
- **Supplier agent service; Meter Operation, Data Collection, Data Aggregation;**
- **BSC Settlement including recovery of central costs;**
- **Duos, TNUoS;**
- **Internal process/systems; and**
- **Other non-cost barriers, e.g. misalignment of administration codes, agreements and statutes.**

#### Main Themes

No. of Respondents	Response/Rationale
11	Supplier agent service; Meter Operation, Data Collection, Data Aggregation: <ul style="list-style-type: none"> <li>- 8 fold increase for HH</li> <li>- One thought it may have an impact and we need to investigate</li> <li>- Current HH MO secure direct agreements with customers so this may impact</li> <li>- Costs can be reduced through competition</li> <li>- Existing commercial arrangements not appropriate for Smart, needs reviewing</li> </ul>
11	DUoS, TNUoS: <ul style="list-style-type: none"> <li>- Non alignment of DUoS charges</li> <li>- DUoS No tariffs for PCs5-8</li> <li>- DUoS Expect NHH to be higher than HH</li> <li>- Does not facilitate movement from NHH to HH or reflect actual costs</li> <li>- DUoS/TNUoS Review by Ofgem?</li> <li>- TNUoS not an issue</li> </ul>
9	internal process/systems: <ul style="list-style-type: none"> <li>- Potential large volumes if all go HH</li> <li>- Manual processes</li> <li>- Training</li> </ul>
7	HH meter: <ul style="list-style-type: none"> <li>- Stranded asset costs factored in by Meter Asset Providers</li> <li>- Some thought cost passed onto to customer so not an issue</li> <li>- Supplier obligation and Cop10 made it not an issue</li> <li>- Unit costs may come down with economies of scale and innovation</li> <li>- May need new CoP for Smart?</li> </ul>
5	BSC Settlement including recovery of central costs:

No. of Respondents	Response/Rationale
	<ul style="list-style-type: none"> <li>- SVA specified charge needs reviewing especially with increased HH volumes</li> </ul>
4	<p>other non-cost barriers, e.g. misalignment of administration codes, agreements and statutes:</p> <ul style="list-style-type: none"> <li>- safety site visits costs</li> <li>- need to be aware of customer consent for &lt;100kW customer for switch to HH</li> <li>- need to investigate</li> </ul>
Others	<ul style="list-style-type: none"> <li>- felt that DUoS, TNUoS, internal costs and other non cost not an issue</li> <li>- DUoS any party can propose changes to CDCM to improve</li> <li>- HH service cost is in fact lower, CoS and Change of Tenancy easier</li> <li>- Shape risk, cannot price HH from standard tariffs</li> <li>- Need to consider HH in a SMART environment</li> <li>- Need to consider that Supplier qualified as NHH or HH under BSC</li> <li>- Change of Supplier process need to consider change of measurement class</li> </ul>

**Questions 4, 5 and 6: What factors would enable or encourage you to settle a customer with an Advanced meter in Profile Classes 5-8 as half-hourly, PCs 3, 4 and PCs 1,2 ?**

### Main themes

No. of Respondents	Response/Rationale
6	All factors that act as barriers, costs v benefits
4	Create new set of HH aggregate Settlement processes make processes cost effective
3	DUoS charges more favourable or match NHH (what form CDCM take?)
2	Industry mandate (or legislation) on settling as HH if have HH capable meter
2	Customer confidence in accurate billing
2	Greater Settlement accuracy, reduction in Settlement timescales
Other	<p>Reduction in Supplier agent costs, the more HH there are</p> <p>Re-alignment of Settlement standards and performance</p> <p>GSP Group Correction Factor applied to remaining NHH customers</p> <p>Better forecasting, reduce back office costs</p> <p>PCs 1-4: reduction in advanced/Smart meter infrastructure costs</p> <p>PCs1-2: may need new CoP</p> <p>Free market will drive innovation</p> <p>Need to conduct load research on Smart customers</p> <p>Not all advanced meters are HH capable</p> <p>Need to review MRA working practices if large migration</p> <p>Need to do full cost Benefit to work out if want to settle HH</p>

**Question 7: Should the BSC arrangements incentivise Suppliers to settle half-hourly? If so how?**

**Main themes**

No. of Respondents	Response/Rationale
10	Cost reflective, effective: <ul style="list-style-type: none"> <li>- market should make the decision</li> <li>- Should not dis-incentivise HH (using GSP GP correction on NHH will incentivise)</li> <li>- Reviewed after roll-out of Smart metering</li> <li>- Need to review NHH/HH BSC Costs</li> </ul>
4	Yes: <ul style="list-style-type: none"> <li>- Introduce levy on NHH meters</li> <li>- If cost justified</li> <li>- But there are a lot of costs outside BSC</li> </ul>
4	Should be Mandated <ul style="list-style-type: none"> <li>- in line with Advanced meter roll out timescales</li> <li>- would be beneficial for parties</li> <li>- say when 50% of NHH settled sites have HH capable meters</li> </ul>
3	Increase Settlement accuracy and reduced SVA costs
Other	With better HH data should reduce DUoS Charges  Remove the SVA Specified Charge

**Question 8: How should the monthly Settlement charge for HH meters (SVA Specified Charge) be calculated? Should it be on an energy volume instead of per meter basis?**

**Main themes**

No. of Respondents	Response/Rationale
10	Energy volume <ul style="list-style-type: none"> <li>- same as NHH</li> <li>- keep same approach to include HH costs only</li> <li>- no issue as is low</li> </ul>
2	>100kW: per meter basis <100kW: volume basis
Other	Neither basis rationale as Settlement deals with aggregated data, but volume? ELEXON to review Per meter keep as present but review if HH transition NA – not relevant

**Question 9: Do the current charging arrangements for DUoS and TNUoS incentivise Suppliers to settle HH capable meters as HH or NHH?**

**Main themes: DUoS**

No. of Respondents	Response/Rationale
8	<p>NHH:</p> <ul style="list-style-type: none"> <li>- different charging structures create risk</li> <li>- existing arrangements are a barrier</li> <li>- based on ELEXON analysis</li> <li>- need urgent review by Ofgem and DCUSA</li> <li>- no Settlement categories for PCs 5-8 and PCs 1 and 2</li> </ul>
0	HH
2	Depends on the DNO
Other	<p>Inconsequential compared to Supplier agent cost variances</p> <p>Suppliers driven by customer requirements</p> <p>Time will tell on new CDCM arrangements, red, amber, green bands</p> <p>Pass through HH charges through to customers, NHH averaged across portfolio</p> <p>HH should be more accurate to allocate costs</p> <p>Depends on customers usage, say if use majority of/least energy during peaks</p> <p>Treats Elective HH as mandatory HH, costs prohibitive for smaller consumers</p> <p>HH data direct from the Smart meter would enable more accurate billing instead of using profiled demand</p> <p>Should be based on costs not incentivise HH or NHH</p>

**Main themes: TNUoS**

<b>No. of Respondents</b>	<b>Response/Rationale</b>
4	HH: <ul style="list-style-type: none"> <li>- different charging structures create risk</li> <li>- based on ELEXON analysis</li> </ul>
2	NHH: <ul style="list-style-type: none"> <li>- not easy for smaller consumers to understand or avoid Triads</li> <li>- higher tariffs</li> </ul>
2	Both HH and NHH should be based on NHH methodology
Other	<ul style="list-style-type: none"> <li>- not a barrier but compare a number of years</li> <li>- create risk for Suppliers for CoS</li> </ul>

**Question 10: How do you believe GSP Group Correction should be applied to:**

- **HH and NHH metered energy for the rollout of:**
- **Advanced meters over the next 4 years;**
- **SMART meters over the next 10 years;**
- **HH metered energy, if and when all meters are settled as HH?**

**Main themes**

No. of Respondents	Response/Rationale
13	Apply to all meters <ul style="list-style-type: none"> <li>- Left as is then apply to all meters at some point between 2014 and 2020</li> <li>- By absolute volume (generation not netted off demand)</li> <li>- Review yearly/6 monthly</li> <li>- Encourage migration to HH for PCs5-8</li> <li>- Only when significant shift to HH (e.g. 25%, 50%)</li> <li>- Not until excessive high GSPGPCFs</li> <li>- See no justification for applying it only to NHH</li> </ul>
7	Needs further analysis
1	NHH only
Other	<ul style="list-style-type: none"> <li>- Differentiate for meters not settling correctly</li> <li>- Need plan of action out of PSRG review</li> <li>- Not before roll out Smart meters completed, rise in Settlement error during mass roll out expected</li> </ul>

**Question 11: At what point (in terms of time and take-up) do you think the level of micro-generation, resulting from the feed-in tariffs, will have a material effect on the accuracy of profiling and hence Settlement?**

**Main themes**

No. of Respondents	Response/Rationale
9	Impacts: <ul style="list-style-type: none"> <li>- Smaller Suppliers now due to profiling</li> <li>- When 2% of customers have microgen</li> <li>- When 25% domestic properties have microgen</li> <li>- Within 5 years</li> <li>- Unclear</li> <li>- Way off yet</li> <li>- Monitor</li> </ul>
8	Do further analysis: <ul style="list-style-type: none"> <li>- with DECC data (used for FiT consultation process)</li> <li>- for view on volume of micro gen that impact profiles and GSPGCF</li> <li>- see WPD response for simple scenario</li> </ul>
Other	<ul style="list-style-type: none"> <li>- NHH generation profiles less accurate than demand</li> <li>- Ideally should be HH metered, HH cost should be marginal</li> <li>- MEC help co-ordinate any analysis with ELEXON, Ofgem and MCS</li> </ul>

**Question 12: Any other comments you wish to make?****Main themes**

No. of Respondents	Response/Rationale
6	Output of work: How a move to HH world would look like: <ul style="list-style-type: none"> <li>- Timescales</li> <li>- Risks, e.g. more HH more issues may take focus off mandatory HH</li> <li>- Costs</li> <li>- Accuracy on profiles</li> <li>- If optional then cost benefit for Supplier to choose?</li> <li>- Cross subsidies</li> <li>- Incentivise load management</li> <li>- System implications for DC/DA, DTN</li> <li>- Existing AMR installations</li> <li>- <b>Smart metering world and DCC interaction: overall review</b> <ul style="list-style-type: none"> <li>o Learn lessons from other European countries</li> <li>o Smartgrid</li> </ul> </li> <li>- Pan industry groups involvement</li> <li>- CBA for moving Pcs1-4 HH</li> </ul>
3	See questions 1 and 2 for Advantages of HH billing, etc  See Qu. 3 responses re economies of scale for bringing down service agent costs
5	HH Settlement good for distribution <ul style="list-style-type: none"> <li>- Opportunity to look at NHH tariffs again under the CDCM</li> <li>- Impacts on existing flows, EDI billing files</li> <li>- Look at aggregating the data</li> <li>- Impact on DUoS billing systems</li> <li>- Need additional tariffs</li> <li>- More accurate losses calculations</li> <li>- More accurate DUoS billing</li> </ul>
3	Support for reducing Settlement timescales <ul style="list-style-type: none"> <li>- Not support without any evidence</li> <li>- Look at staggering the change</li> <li>- Impact on DUoS billing</li> </ul>
	Qu 7: NHH more deterministic than HH, HH problem for smaller Supplier <ul style="list-style-type: none"> <li>- SME customers no likely to respond to complex HH/STOD tariffs</li> </ul>
	Qu 11: consider other technologies and changes in demand: <ul style="list-style-type: none"> <li>- Solar thermal, ground source heat pumps</li> <li>- Electric vehicles</li> </ul>