

Profiling and Settlement Review Supplier Consultation

30 April 2010

Our consultation is part of the Profiling and Settlement Review, and will help to identify benefits for our customers in light of recent changes in the metering market.

1 Executive Summary

ELEXON is reviewing the profiling and settlement arrangements. This is for two reasons — Suppliers' new obligation to install advanced meters for large commercial customers and the work underway on smart metering for domestic and smaller commercial customers. These meters can record half-hourly data for customers historically 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 BSC. We also want to identify any improvements or opportunities for our customers, particularly in settling half-hourly data. This would ensure that the wholesale electricity market and the Balancing and Settlement Code (BSC) facilitates the most efficient, effective and economic processes.

We are asking Suppliers and other interested parties for their views on the perceived barriers to settling customers in the elective half-hourly market — customers whose demand or generation is under 100kW — as opposed to the non-half-hourly meter advance processes.

In particular, we'd like to know how you settle or intend to settle customers in the rollout of Advanced (AMR) meters for maximum demand, non-domestic customers (Profile Classes 5-8). We're also asking about settling customers in the rollout of SMART meters for domestic and smaller non-domestic customers (Profile Classes 1-4).

Your views will help us to understand how the elective half-hourly market is likely to grow and whether the current BSC settlement arrangements need to be changed. The ELEXON-led Profiling and Settlement Review Group (PSRG) will consider your views, progress this review and recommend changes to the Supplier Volume Allocation Group to consider and approve.



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How can I contribute?

Suppliers and other interested parties are invited to consider the issues raised and provide a response to the consultation questions by 5pm on Friday 28 May 2010.



Visit our website:
www.elexon.co.uk

2 Introduction

2.1 Rollout of Advanced Meters

Developments in the market have led to Suppliers having to install meters capable of recording consumption (and in some cases export) on a half-hourly basis. Since April 2009, Suppliers must, through their licence, have installed Advanced meters for all non-domestic premises for customers in Profile Classes (PC) 5-8 by April 2014. The rollout of these meters is well underway.

The BSC further clarifies the obligation to install Advanced meters across PCs 5-8. The meter must be compliant with Code of Practice 10 (CoP10) at least, which is a half-hourly meter standard. This requirement was introduced to reduce interoperability issues with Modification P230 'Enabling Interoperability through the use of CoP10 and CoP5 Metering'. Therefore, all these Advanced meters will be capable of recording, storing and issuing half-hourly data. All these meters could be settled as elective half-hourly under the BSC.

Currently in Profile Classes 5-8, there are approximately 164,000 customers with a total energy of 18TWh, broken down as follows.

Profile Class	Profile Class Name	MSIDs	Annual Energy (MWh)
5	Non-Domestic MD Customers Peak LF <20%	37,882	2,807,792
6	Non-Domestic MD Customers Peak LF between 20 and 30%	53,328	5,450,406
7	Non-Domestic MD Customers Peak LF between 30 and 40%	25,681	3,160,311
8	Non-Domestic MD Customers Peak LF >40%	47,514	6,278,405
Total	-	164,405	17,696,914

In the half-hourly market there are about 115,000 meters settled on half-hourly basis (with an annual energy of 155,000,000 MWh), and around 2,500 are in the elective HH sector. There is the potential for significant change to the HH market and settlement.

There has been considerable rollout of Advanced meters already in PCs 5-8 and, we believe, that Suppliers are 'front-loading' the rollout before the end date of April 2014. Up to 80,000 Advanced meters could be installed by Summer 2010 in PCs 5-8.

2.2 Smart Meters

In October 2008 the Government announced that all smaller non-domestic and domestic customers should have a Smart meter by 2020. The Department of Energy and Climate Change (DECC) confirmed this in its consultation of May 2009 and in its consultation response of December 2009. These stated that "the legal implementation of new rules will ... ultimately be made through a combination of requirements within supply licences and additions to industry codes, made under the powers in the Energy Act 2008".

Through these intended requirements, we believe that Suppliers will have to install Smart meters for all domestic and smaller non-domestic customers registered in Profile Classes 1-4 by 2020. Although the final specification of a Smart meter is not yet agreed, the meter will be able to record energy consumption (and/or generation) on a half-hourly basis.

There are approximately 29 million customers in Profile Classes 1-4. Depending on the agreement of the final specification for the Smart meter, all these customers could

be settled half-hourly. So, again, the HH market and therefore settlement could change significantly.

2.3 Profiling and Settlement Review

Recognising these developments, ELEXON took a proposal to the Supplier Volume Allocation Group (SVG) to review the current arrangements, and to set up an expert group (the PSRG) to progress the review. The aim is to identify how the profiling and settlement processes could be modified to account for the developments in the use of Advanced and Smart meters in the current non-half-hourly market (SVG109/07).

The PSRG review will recommend to the SVG how the existing profiling and settlement processes could be changed. This will include high-level solutions which can be progressed as Modifications or Change Proposals. The PSRG has met twice and has identified a number of issues and potential solutions. The Group knows of other current changes to the profiling and settlement processes such as the operation of the new P223 'Improvements to the Profile Administrator Service' processes and the assessment of P255 'Profile Administrator: creating flexibility in discharging the service'.

To validate these issues and solutions, ELEXON is asking Suppliers and other interested parties about the future implications for half-hourly and non half-hourly settlement. A key area is to better understand how Suppliers see the merits of, or any barriers to, half-hourly settlement. This will help the PSRG to develop solutions to ensure optimum wholesale electricity arrangements under the BSC.

2.4 Document structure

The next section covers the discussions of the PSRG with regards to the issues they have identified and discussions held, with reference to areas of elective HH and non half-hourly (NHH) settlement. Supplier and other interested parties views are sought through one or more questions highlighted at the end of each issue.

To help Suppliers identify the drivers/issues for settling a customer either half-hourly or NHH, Appendix A describes the main elements of the HH and NHH settlement processes. It also sets out the associated settlement costs/charges and previous work undertaken by ELEXON on other requirements and cost drivers including supplier agents.

3 Issues raised by PSRG work

The PSRG has considered the elements of the Supplier Volume Allocation (SVA) processes and the developments in the HH/NHH market. See Appendix A for further detail of processes. The PSRG has raised a number of issues for Suppliers to consider why a Supplier may choose to settle a customer with a half-hourly capable meter either HH or NHH. The main issues are described in the sections below.

3.1 Perceived barriers to HH settlement

The PSRG reviewed the work undertaken by ELEXON in May 2007 which looked at the issues and potential barriers to HH settlement for Advanced and Smart meters, see Appendix A. The Group considered the costs of participating in the HH market quoted in 2007 of approximately £250-£300 for agency services. It was believed that these costs and the costs of an HH meter had significantly reduced.

The Group noted the view that NHH settlement was a temporary approach required in 1998 to open the supply market for all domestic and non-domestic customers with NHH meters. With the rollout of HH-capable Advanced meters and Smart meters, the PSRG questioned

whether it would be more efficient to have HH settlement only.

The PSRG noted that, where a HH-capable meter is installed for a non-100kW Metering System, Suppliers and their customers can choose to settle half-hourly. This choice may also be separate to how the Supplier bills the customer e.g. on a HH or NHH tariff.

The PSRG also noted that currently in the elective¹ HH market, Suppliers and their customers can choose to settle half-hourly and, separately, the customer could be on a HH or NHH tariff. There was a discussion around whether HH meter readings should be submitted into settlement if available. This would be more accurate than using meter advance and being profiled. Further issues may arise which impact Suppliers and their customers if they still had NHH meters. However, the PSRG noted the BSC should facilitate the settlement of both types of meter and that HH settlement was only mandated to >100kW market.

With the rollout of Advanced Meters well underway in Profile Classes 5-8, and required to be complete by April 2014, the PSRG wanted to understand the likely impacts on settlement. In particular, the PSRG wanted to be able to identify any improvements to the BSC to facilitate this. To better develop targeted solutions, the PSRG is asking Suppliers for their views on the elective HH market and whether Suppliers perceived any barriers to this. The following questions are put forward:

- Q1. If you have non-100kW customers with HH-capable metering, what factors 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)?
- Q2. If you were to have non-100kW customers with HH-capable metering, what factors do you take into account when deciding how to settle those customers?
- Q3. 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, such as misalignment of administration codes, agreements and statutes.
- Q4. What would enable or encourage you to settle a customer with an Advanced meter in Profile Classes 5-8 as half-hourly?
- Q5. What would enable or encourage you to settle a non-domestic customer with a Smart meter in Profile Classes 3-4 as half-hourly?
- Q6. What would enable or encourage you to settle a domestic customer with a Smart meter in Profile Classes 1-2 as half-hourly?

¹ The term 'elective HH' refers to non-100kW Metering Systems that are voluntarily settled through HH processes. Elective HH Metering Systems may, if the Supplier chooses, be registered under Measurement Class 'E' to indicate that they are HH-settled on an elective - rather than mandatory, Measurement Class 'C' - basis.

3.2 Settling a customer HH or NHH

There are two distinct sets of processes for the settlement of HH and NHH meters (see Appendix A). Both require Suppliers to appoint agents to install and maintain the meter, collect meter readings and process and aggregate them to submit into settlement. If customers wish to procure their own meter and maintenance services directly, a Supplier would have to recognise this relationship.

The PSRG recognised the differences with NHH settlement and the greater infrastructure/more processes and effort/costs required, such as:

- Application of profiles to convert the NHH meter advances to half-hourly values for settlement. This includes:
 - Profile Administration to produce the eight profiles required from load research samples;
 - Process required by the NHHDC to convert meter advances into EAC/AAs;
- 14-month reconciliation process to support the submission of NHH meter data (for meter advances over 1, 3, 6 and 12 month periods). This includes both effort and costs of central settlement and Supplier and their agent costs to support these processes;
- Change of Supplier (CoS) Process including deemed meter readings and processes such as Gross Volume corrections. The PSRG believed that the CoS process for HH meters was less prone to error and simpler. Some of the most common errors for NHH are Suppliers not registering all the right meters, picking up incorrect ones or double counting. Accurate address data, and accurate and realistic consumption history for comparison can help to avoid these errors;
- Teleswitch Agent costs, including processing the switching signals in settlement; and
- Associated issues with NHH performance in the market, including Erroneously Large EAC/AAs, and Long Term Vacant Sites.

The PSRG felt that efficiencies and savings could be achieved if all meters were settled HH, both centrally and with BSC Parties. In particular the Group felt that the reconciliation timetable could be shortened for HH settlement e.g. R1 becoming the final reconciliation run for HH meters. This approach could reduce the significant number of settlement cashflows between the initial settlement (SF) and final (RF) reconciliation runs. Removing this would mean less Supplier internal financial and settlement processes, and could also help Suppliers in their financial planning.

The PSRG noted the current BSC criteria and processes for elective HH settlement, and there are further details in Appendix A. The Group believed that the elective HH settlement process was straightforward. Its main features are:

- The HH meter must comply with Code of Practice (CoP) 10. This is less onerous than the requirements for >100kW market, such as CoP 5. Key differences are no pulse outputs, fewer security levels, exemption from proving tests and no Meter Advance Reconciliations (MARs);
- Because Suppliers can choose to settle a customer as elective HH, the 100kW maximum demand criteria for the 100kW market HH do not apply. Also, all meter readings do not need to be submitted to settlement for SF. For the 100kW market, 99% of half-hourly energy must be settled on metered data for SF; and

- The PARMS performance standard SPo8c of 99% at RF would apply, which is the percentage of non-mandatory HH Energy Settled on Actual Readings. Therefore, Suppliers have until RF to submit all their elective HH meter readings. This is similar to the NHH performance standard of 97% at RF.

Q7. Should the BSC arrangements incentivise Suppliers to settle half-hourly? If so how?

3.3 Recovering Supplier Volume Allocation Costs

The central costs of running the Supplier Volume Allocation (SVA) processes are currently budgeted as £4.94m. The recovery of these costs are equally split between Generators and Suppliers, and the 50% allocated to Suppliers is split between HH and NHH Suppliers. HH Suppliers are charged £0.70 per meter per month (the SVA Specified Charge), whereas NHH charges are based on meter volumes. The calculation of SVA Specified Charge was last updated in 2008 and HH Suppliers do not pay for costs which are only incurred for NHH settlement, e.g. Profile Administration, Teleswitch Agent, EAC/AA and NHHDA software maintenance and support costs.

The PSRG noted the difference in the recovery of costs for Suppliers with HH and NHH meters, where HH is allocated in proportion to the number of meters (MPANs) and NHH is allocated in proportion to energy. The Group believed that this could create artificial incentives to settle certain customers on a NHH rather than a HH basis and that it would be fairer to base both sets of costs on metered energy. This approach could impact smaller Suppliers.

When comparing costs on a meter basis, it showed that for a NHH meter the equivalent cost to the SVA Specified Charge of £0.70 would work out to approximately 0.5p. The PSRG noted that a Modification would be required to change the basis of HH cost recovery, but that a paper put to the Panel for decision would be able to change the £0.70 SVA Specified Charge.

Appendix A gives further detail on the allocation of SVA costs.

Q8. 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?

3.4 Contractual relationship between the Supplier, its agents and the customer

The PSRG noted that, historically, the customer is more likely to have a relationship with the HH Meter Operator (MO) than a NHH MO. Also, the customer can procure its own meter and data retrieval/processing services for both NHH and HH, but a customer with a HH capable meter is currently more likely to do this.

A non-domestic customer is more interested in its energy consumption in the HH world due to size and value of the energy consumed. However, with the developments in the market and technology advances, more and more customers (including domestic customers) are interested in the value of their energy and are seeking services from energy data and management companies.

The PSRG felt that there were no issues with change of agent for a HH meter. There are open protocols for HH Data Collectors and the process for passing meter readings from the old to new DC was straightforward. However, the PSRG noted concerns on the NHH side that there was more scope for problems, as meter reading history was required to calculate EACs and AAs for settlement.

3.5 Interaction with distribution and transmission use of system charges

The PSRG noted the different charging arrangements for HH and NHH settled customers for both Distribution Use of System (DUoS) and Transmission Network Use of System (TNUoS). They felt that these charges may create incentives to settle customers with HH-capable meters through the HH or NHH settlement processes. Appendix A describes charges and gives worked examples.

Based on the worked examples in Appendix A:

- On average across Profile Classes 5-8, DUoS charges are higher for customers settled HH than for NHH (approx £100 greater for HH), exceptions are that:
 - Eastern and Northern GSP Groups have lower HH charges;
 - PC7 has lower HH charges in 5 out of 14 GSP Groups;
 - PC8 has lower HH charges in 9 out of 14 GSP Groups; and
- On average across Profile Classes 5-8, TNUoS charges are lower for customers settled HH than for NHH (approx £150 lower for HH).

Q9. Do the current charging arrangements for DUoS and TNUoS incentivise Suppliers to settle HH capable meters as HH or NHH?

3.6 Application of GSP Group Correction Factor

Currently GSP Group Correction Factor (GSPGCF) is only applied to non half metered energy on a settlement period basis (not applied to HH). GSP Group correction scales Suppliers' NHH energy up or down, so the total NHH and HH energy in that GSP Group for that half hour equals the total energy for the GSP Group. The reason for this is the fact that settlement period values for NHH energy are an approximation, because of the profiling approach.

However, meter errors, estimation errors, errors in line loss factors also exist in the HH market, and under the current arrangements these are allocated to NHH Suppliers. The PSRG noted the view that the HH market should pick up some element of GSP Group Correction, but to a lesser extent than the NHH market. The Group noted that the BSC arrangements can allow the amount of GSP Group correction applied to the HH and NHH markets to be tuned with a 'weighting factor' (currently set to zero for the HH market).

If in future all meters are settled half-hourly, consideration needs to be given to what energy quantities GSPGCF is applied to. Furthermore, in the transition to a total HH settled market there will be a point where GSPGCF should be applied to HH energy as well as NHH energy. This would be in order to maintain an equitable treatment and avoid the Supplier of the last NHH customer receiving the total allocation of GSPGCF which could result in a significant generation or demand being associated with that customer.

Q10. 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.

3.7 Feed in Tariffs and microgeneration

The government introduced the Feed in Tariff (FIT) scheme in February 2010, and it came into force in April 2010. It allows households and communities small wind turbines, solar panels and other generating technologies to claim payments for the low-carbon electricity they produce.

Ofgem will administer the FIT scheme and Suppliers will pay customers for what they produce. The PSRG noted that FITs would stimulate the amount of microgeneration in the market. This may have an impact on the settlement arrangements, and in particular, how accurate NHH settlement is. This includes how representative profiles are and the effect on GSP Group Correction, especially if there was a lot of unrecorded 'spill'.

The PSRG noted that as microgeneration became more widespread, data could be sourced and used to help to construct profiles. Additionally, there may be impacts on Suppliers' systems to manage customers with microgeneration. Some of these issues would be resolved if the microgeneration and associated customer demand was settled HH.

Q11. At what point, in terms of time and take-up, do you think the level of microgeneration resulting from the feed-in tariffs will materially affect the accuracy of profiling and therefore settlement?

4 Next Steps

When Suppliers and other interested parties have responded, the PSRG will review these at its next meeting on 8 June 2010 and consider the way forward. ELEXON will then present the findings to the SVG meeting on 30 June 2010.

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.

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 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.

MPAN

Meter Point Administration Number identifies the Metering System associated with any point of access to the transmission system or any distribution system (see [MPAN definition link](#)).

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 an 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, that 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 an 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. Although the technical specifications for such meters are still to be defined, the Government has indicated that they will allow a Supplier to take remote readings and provide a customer with access to information, broken down into multiple time periods, based upon data from those readings.

We anticipate that smart meters will be required to be remotely configurable, and so require two-way communications to and from the meter, and would have import/export capability and a remote switching capacity for electricity. See Appendix A, section 6.3 for a definition of Smart meter high-level functionality.

Profiling and Settlement Review Supplier Consultation

Appendix A - Supporting information

SVA processes for Half-Hourly and Non Half-Hourly Settlement

This section presents a high level overview of Half-Hourly (HH) and Non-Half Hourly (NHH) Settlement processes and associated costs. It presents both similarities and differences in the two processes to facilitate an understanding of the differences in cost drivers for Suppliers and Settlement. Consideration of the processes should be undertaken in identifying any perceived barriers to HH Settlement by Suppliers 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; and
- 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 with 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.	High 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.

Area	Non Half-Hourly	Half-Hourly
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 or that provided by the meter manufacturers.
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 data provided by the Data Collectors.

Area	Non Half-Hourly	Half-Hourly
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	NHHDA require NHHDA Software developed by BSCCo as well as their own systems.	HHDCs 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)

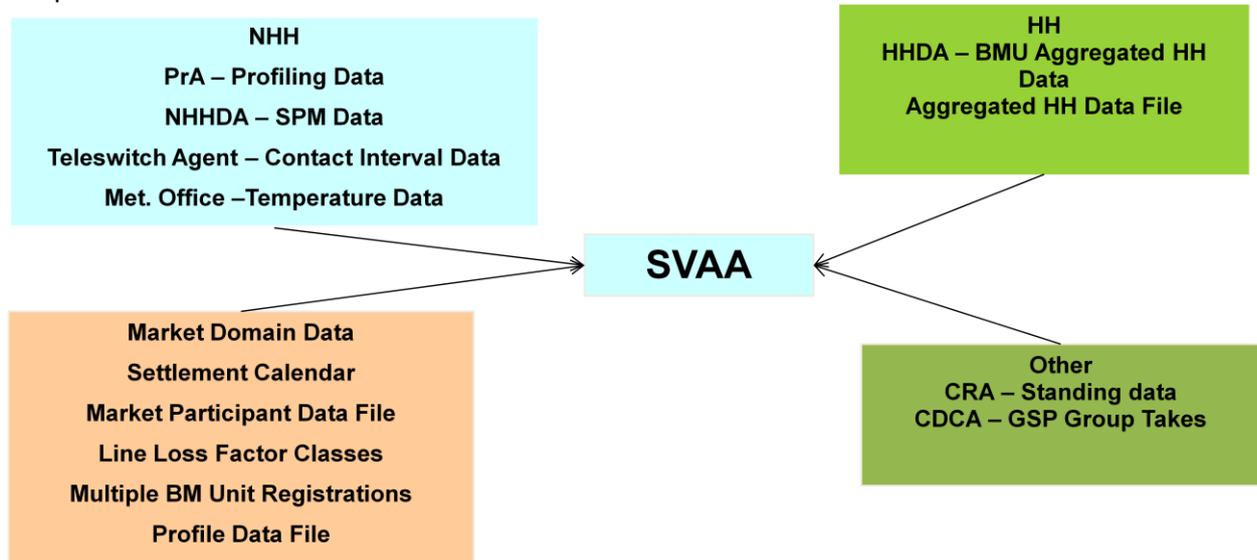
2.1 BSC Agents for Supplier Volume Allocation (SVA)

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.

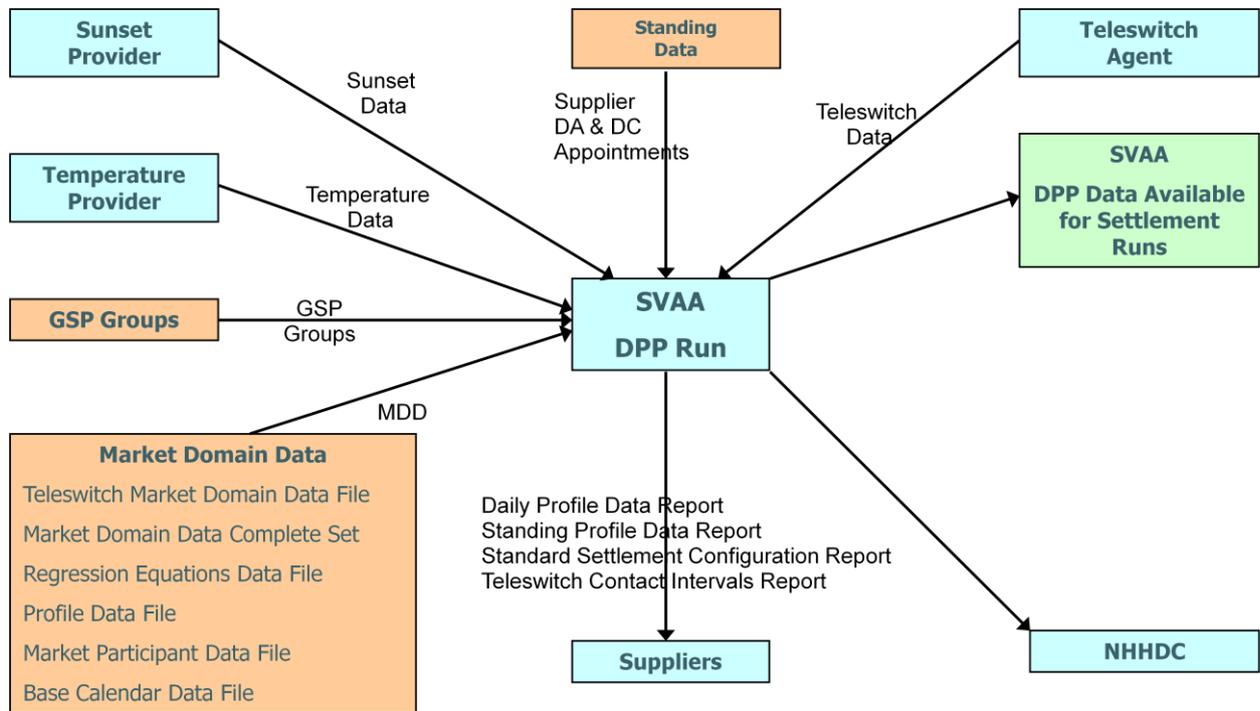
Area	Non Half-Hourly	Half-Hourly
Data Requirements	Contact Interval data by Teleswitch User and Teleswitch Group	Not Applicable
System Requirements	The Teleswitch Agent uses its own systems to interrogate the Central Teleswitch Control Unit (CTCU) that is hosted and maintained by National Grid	Not Applicable
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.

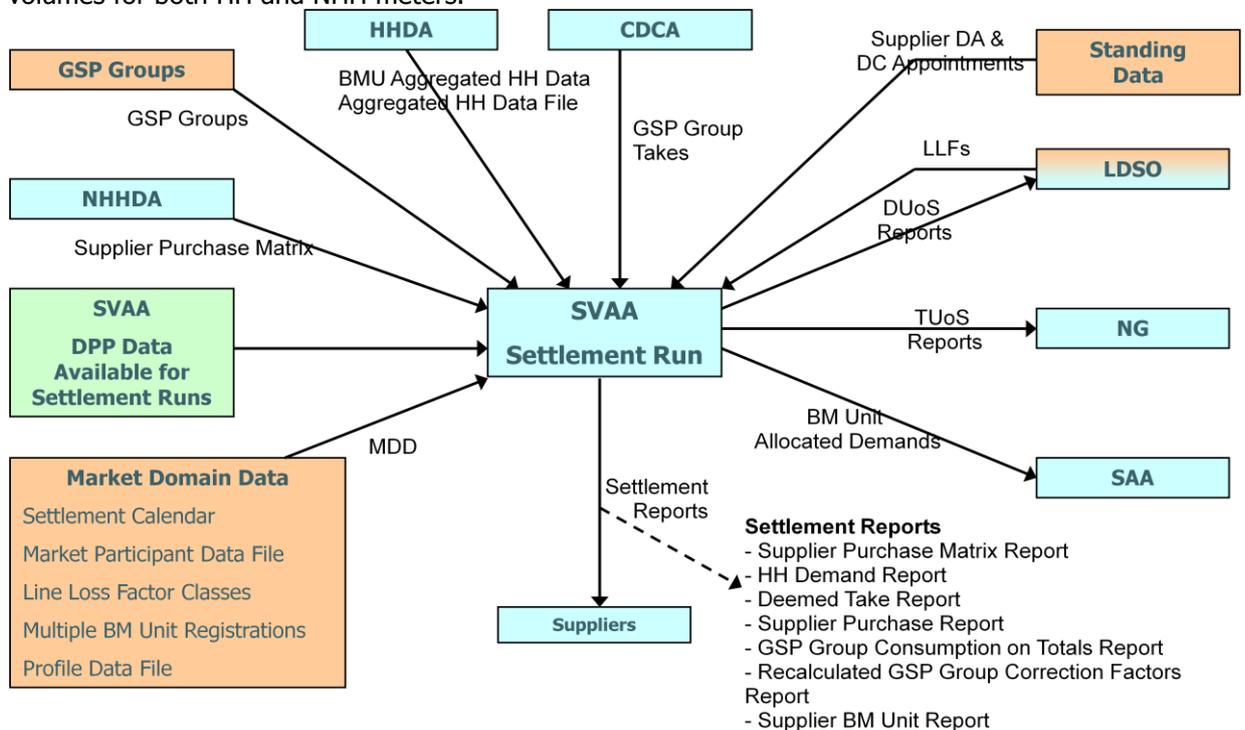
SVA: NHH only process - Daily Profile Production

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.

3 GSP Group Correction Factors and sources of error

There are two main types of error which feed into GSP Group Correction:

1. Volume Error. This is where volume is incorrect over a year's period; and
2. Volume Allocation Error, or error that varies by settlement period (half hourly). This is where the volume is correct over a year but has been wrongly allocated to the half hour period.

There are many causes for these types of error as described below.

3.1 Volume Errors, yearly variation:

- Faulty metering, where the meter is recording the wrong value. This can affect both HH and NHH meters;
- Faulty metering data both HH and NHH, e.g. where the meter has been read incorrectly;
- Line loss factors both HH and NHH. The calculation is an estimate of the losses for the next year and may include inaccurate estimates of non-technical losses, e.g. theft;
- Data Issues in the market such as Erroneously Large EACs and AAs (NHH), Long Term Vacant (NHH) Sites, and Incorrect Energisation Status (NHH and HH);
- Erroneous HH data, including CVA data (GSP Group Takes) and SVA HH data with inaccurate estimates;
- Undetected theft not settled;
- Detected theft that is either not settled or settled as an estimate;
- Unmetered Supplies. Main source of error is in the inventory data, affecting both NHH and HH; and
- Default values, such as defaulting data applied by the NHH Data Aggregator.

3.2 Volume Allocation Error, settlement period variation

These include putting the wrong volume in the wrong time period, but over the year the volume is correct, such as:

- Deemed meter readings, e.g. on Change of Supplier. These can also cause Volume Error;
- Gross Volume Correction, NHH only; and
- Profiling errors, NHH only.

Profiling errors may be made up of:

- Sampling Errors in the load research sample, e.g. sample does not reflect true population;
- Inherent error with the calculation methodology, e.g. regression error;
- Process Errors, e.g. introduced by the Profile Administrator;

- National Profiles that are applied to regional level, e.g. GSPs;
- Profiles calculated based on 2 years' previous historic data where there are different temperatures, different holiday profiles;
- Legacy Errors: Equated Rate Customers, where customers have no storage heating load are included in the construction of the switched load profile;
- Bank holidays, e.g. Easter and Xmas;
- Seasonal Shoulders, approximation to the behaviour of customers around the Xmas bank holidays;
- Tele-switch Profiling Methodology where half hourly rounding over specific minute switching times and the application of algorithmic profiling;
- Extrapolation to temperatures outside experience of data used in construction of profiles;
- Real Change in Customer Behaviour, e.g. due to unusual weather patterns, topical events;
- Incorrect profile class allocation; and
- Micro-generation and approximations made to the profiling approach.

4 Recovery of SVA costs

4.1 Background

The costs recovery of the SVA costs is described in Section D of the BSC (Annex D-3, 4.1). Currently these SVA costs are split 50:50 between Generators and Suppliers. The Suppliers' 50% is further allocated between HH and NHH Suppliers as follows:

- SVA Specified Charge – currently £0.70 per HH MSID per month. With approximately 110,000 HH MSIDs this recovers approximately £0.9m a year; and
- The rest of the Suppliers' half of SVA costs is allocated using Non Half Hourly MWh metered energy.

The SVA Specified Charge was last reviewed in Jan-March 2008 where it was changed from £1.25 to £0.70 (Review of SVA Specified Charge, Panel 135/08).

4.2 Review of SVA specified Charge (HH monthly charge per meter) March 2008

Main points of the review:

- Reviewed last in Jan-March 2008;
- Changed from £1.25 to £0.70 per meter to reflect lower SVA costs and increase in number of meters being settled half hourly since 2001;
- Current Agreed approach:
 - SVA Costs are shared between Generators and Suppliers, 50:50;

- the 50% Supplier share of SVA costs are then split between HH and NHH Suppliers;
- NHH Suppliers pay for NHH processes which are:
 - Profiling Agent costs;
 - Teleswitch Agent costs;
 - EAC/AA and NHHDA software maintenance and support costs; and
- NHH and HH Suppliers share the rest of the SVA costs according to HH/NHH energy volume ratio, approx. 50:50 (back in 2008)

4.3 Example calculation for 2008 costs

In 2008, when the SVA Specified Charge was last reviewed:

Total SVA costs = £5.13m

Total NHH direct costs = £0.65m (PrA) + £0.08m (Teleswitch) + £0.76m (EAC/AA and NHHDA)
= £1.49m

Shared SVA Costs = £5.13m - £1.49m
= £3.64m

Supplier Shared SVA costs = half of Shared SVA costs
= 0.5 x £3.64m [Generators pay 50%]
= £1.82m

Supplier HH costs = 0.5 x £1.82m [based on HH/NHH energy volume ratio]
= £0.91m

SVA Specified Charge = £0.91m/110,000*12 [HH MSIDs/12 months]
= £0.69 HH cost per meter per month

Supplier NHH costs = 0.5 x (£1.49m + £1.82m) [Total NHH direct costs + Supplier Shared SVA costs]
= £1.66m

[this would equate to a 0.5p charge per meter per month (1.66m/ 29 million meter/ 12 months)]

Generator SVA Costs = 0.5 x £5.13m
= £2.57m

4.4 Equation

The SVA Specified Charge = HH Supplier Costs/number of HH metering systems

Where HH Supplier Costs = $0.5 * (((\text{Total HH Volume})/(\text{Total Volume})) * (\text{Total SVA Costs} - \text{Profile Administrator costs} - \text{Teleswitch Agent costs} - \text{EAC/AA and NHHDA maintenance and support costs}))$

4.5 Current Criteria for the recovery of SVA costs

The following criteria are used in the recovery of SVA costs:

1. SVA Costs split 50:50 between Generators and Suppliers;
2. NHH Suppliers pay for NHH Costs only, e.g. PrA, Teleswitch Agent, EAC/AA, NHHDA software; and
3. Supplier HH Costs is based on HH/NHH energy volume ratio, approx. 50:50.

4.6 BSC Year 2010/11 Example Calculation

The calculation below shows how the SVA Specified Charge could be calculated using the latest budget figures for the BSC Year 2010/11. The main difference is due to lower total SVA costs of £4.94m. Based on the costs below it may be appropriate to revise the charge.

Total SVA costs = £4.94m

Total NHH direct costs = £1.11m (PrA) + £0.08m (Teleswitch) + £0.28m (EAC/AA and NHHDA)
= £1.47m

Shared SVA Costs = £4.94m - £1.47m
= £3.47m

Supplier Shared SVA costs = half of Shared SVA costs
= $0.5 \times £3.47\text{m}$ [Generators pay 50%]
= £1.74m

Supplier HH costs = $0.5 \times £1.74\text{m}$ [based on HH/NHH energy volume ratio of 50:50]
= £0.87m

SVA Specified Charge = $£0.87\text{m}/113,200 \times 12$ [HH MSIDs/12 months]
= £0.64 HH cost per meter per month

5 BSC HH requirements

ELEXON investigated the issues associated with AMR and SMART metering in May 2007 reporting the findings to the SVG (SVG76/04). The following section is an extract of the findings with regards to BSC requirements for HH settlement (with updates for 2010) and provides a basis for discussion on perceived barriers for HH.

5.1 Current Situation

The activities associated with HH BSC requirements are typically more involved and onerous than the activities associated with NHH requirements. Key differences include:

- Proving Tests (as described in PSL110 and BSCP502). However, these have been removed for elective HH;
- Meter Advance Reconciliations for metering systems with a separate outstation (as described in BSCP502);
- Mini MARs (as described in BSCP502);
- Codes of Practice (as described in CoP1, CoP2, CoP3, CoP4, CoP5 and now CoP10);
- Performance (as described in the Serials in Annex S1 of the BSC);
- Estimating Requirement (as described in BSCP502); and
- Technical Assurance Checks for 100kW metering systems (as described in BSCP535).

Performance requirements are relaxed and Technical Assurance checks are not conducted for metering systems that are registered as being under 100kW (measurement class E). However, it is believed that agents do not currently offer different service levels based on this. So Suppliers tend to register all HH metering systems as above 100kW so that they do not have to make what would otherwise be an unnecessary change should the metering system subsequently exceed the 100kW threshold.

5.2 Potential Issue

The cost of participating in the HH market is typically higher than in the NHH market. There are several reasons for this. These include:

- the cost of the HH meter rental and maintenance which in 2007 was quoted to be of the order of £250-£300 per year for a CoP5 meter including communications equipment. However, views have been expressed to ELEXON where the costs have reduced;
- the cost of agency services (data collection and data aggregation) which are of the order of £200-£250 per year for HH as opposed to £85 per year in the NHH monthly read sector and £20 in the quarterly / six monthly read sector. Again with experience to data in the roll out of AMR meters in PCs 5-8, costs have been said to have been dramatically reduced;

The HH market processes lend themselves to Smart metering and AMR as they overcome many of the issues that the NHH processes do not currently address. However, the marginal costs may inhibit Suppliers (and customers) from using this market.

One reason for the higher agency costs is the smaller number of metering systems bearing the overall cost of the service. Another could have been because of the more onerous BSC requirements – however with the introduction of CoP10, some of these requirements were relaxed. There is a question of whether the limited reduction in costs that were achieved by relaxing the BSC HH requirements could trigger iterative costs reductions. This is by increasing the number of HH metering systems, which would further reduce the cost, which would increase the number of metering systems etc. However, it is anticipated that the market could achieve this for itself should Suppliers and the providers of HH agency services so wish.

6 DUoS and TNUoS charges

The PSRG is interested to understand the extent to which Distribution Use of System (DUoS) and Transmission Network Use of System (TNUoS) charges may create incentives to settle customers with HH-capable meters through either the HH or NHH settlement processes.

6.1 DUoS Charges

Prior to April 2010, each LDSO was free to establish their own structure for DUoS tariffs (subject to the requirements of their licence and approval by Ofgem). As a result, the relative attractiveness of HH settlement versus NHH settlement is likely to have differed from one Distribution Services Area to another. For example, in areas where HH settled meters incurred a relatively high standing charge (per MPAN) and a relatively low energy charge (per unit), this could have been a disincentive to use of the elective HH market for smaller customers (such as those in Profile Classes 1 to 4).

With the introduction of the Common Distribution Charging Methodology (CDCM) in April 2010, all LDSOs will move to the same tariff structure. For example:

- NHH-settled customers on Profile Classes 5 to 8 will pay a two-rate (day and night unit charge), and a standing charge (per MPAN per day); and
- HH-settled customers will pay unit charges (for a number of time bands), a standing charge (per site per day), a capacity charge (per kVA per day), and a reactive power charge.

Full details of the CDCM and the charges calculated by each LDSO are available on the [EN A website](#).

6.1.1 DUoS Example calculation

In order to quantify whether CDCM DUoS Charges might incentivise Suppliers to settle NHH rather than HH (or vice versa), we have calculated HH and NHH DUoS charges for average customers in Profile Classes 5, 6, 7 and 8 (using the 2010/11 Statements of Charges published by the DNO in each GSP Group):

GSP Group	Customer with PC5 Profile		Customer with PC6 Profile		Customer with PC7 Profile		Customer with PC8 Profile	
	NHH	HH	NHH	HH	NHH	HH	NHH	HH
Eastern (_A)	£1,706	£1,503	£1,649	£1,373	£2,055	£1,632	£2,545	£1,957
East Midlands (_B)	£1,295	£1,491	£1,249	£1,341	£1,564	£1,584	£1,928	£1,841
London (_C)	£1,432	£1,906	£1,384	£1,699	£1,733	£1,966	£2,157	£2,275
Merseyside and North Wales (_D)	£1,797	£1,909	£1,732	£1,770	£2,180	£2,173	£2,707	£2,618
Midlands (_E)	£1,417	£1,747	£1,366	£1,549	£1,710	£1,781	£2,108	£2,051
Northern (_F)	£1,943	£1,860	£1,879	£1,716	£2,348	£2,065	£2,926	£2,467
North Western (_G)	£1,275	£1,658	£1,231	£1,458	£1,535	£1,654	£1,892	£1,880
Southern (_H)	£1,374	£1,755	£1,329	£1,572	£1,659	£1,831	£2,062	£2,135
South Eastern (_J)	£951	£1,295	£919	£1,171	£1,139	£1,371	£1,398	£1,627
South Wales (_K)	£2,105	£2,158	£2,031	£2,018	£2,543	£2,520	£3,145	£3,097
South Western (_L)	£1,753	£1,833	£1,693	£1,704	£2,117	£2,145	£2,624	£2,603
Yorkshire (_M)	£1,642	£1,738	£1,585	£1,609	£1,983	£1,968	£2,449	£2,345
South Scotland (_N)	£1,501	£2,067	£1,448	£1,906	£1,815	£2,314	£2,248	£2,773
North Scotland (_P)	£2,547	£3,098	£2,462	£2,817	£3,071	£3,309	£3,807	£3,939
AVERAGE	£1,624	£1,859	£1,568	£1,693	£1,961	£2,022	£2,428	£2,401
Difference (+ve for HH higher)	£235		£125		£61		£-27	

In each case, the unit charges were calculated by evaluating the 2008/09 group demands for the relevant Profile Class. For NHH charges the customer was assumed to be paying the night rate between 00:00 and 07:00 GMT. For HH charges the relevant rate (red, amber or green) was applied to each Settlement Period in accordance with the charging statement for each DNO.

For purposes of calculating HH charges, a nominal capacity was calculated from the average kW demand over the year, and an appropriate Load Factor. The Load Factors used were 20%, 25%, 35% and 45% (for Profile Classes 5, 6, 7 and 8 respectively).

6.2 TNUoS Charges

TNUoS charges are levied by National Grid (as Transmission System Operator) in accordance with their approved Use of System Charging [methodology](#). The basis of charging is different for HH-settled and NHH-settled customers:

- TNUoS charges for HH-settled customers are based on demand in the Triad periods (i.e. the three Settlement Periods separated from each other by at least 10 days that have the highest demand). Triad periods are not known in advance, although Suppliers may attempt to forecast them;
- TNUoS charges for NHH-settled customers are based on total demand between 16:00 and 19:00 over the entire year; and
- It therefore seems likely that TNUoS charges for a customer with HH-capable metering may be easier to predict if they are settled through NHH processes.

6.2.1 TNUoS Example calculation

In order to quantify whether TNUoS Charges might incentivise Suppliers to settle NHH rather than HH (or vice versa), we have calculated HH and NHH TNUoS charges for average customers in Profile Classes 5, 6, 7 and 8 (using the 2010/11 [Statement of Charges](#) published by National Grid). It is recognised HH charges are in effect site specific, but to give an overall perspective average rates in the example are used.

GSP Group	Customer with PC5 Profile		Customer with PC6 Profile		Customer with PC7 Profile		Customer with PC8 Profile	
	NHH	HH	NHH	HH	NHH	HH	NHH	HH
Eastern (_A)	£458	£359	£455	£344	£636	£469	£780	£576
East Midlands (_B)	£437	£344	£434	£330	£606	£449	£744	£552
London (_C)	£546	£440	£541	£421	£757	£574	£928	£706
Merseyside and North Wales (_D)	£398	£311	£395	£297	£552	£406	£677	£498
Midlands (_E)	£482	£373	£479	£357	£669	£487	£821	£598
Northern (_F)	£302	£239	£300	£229	£419	£312	£514	£383
North Western (_G)	£387	£303	£384	£290	£536	£396	£658	£486
Southern (_H)	£536	£419	£532	£401	£743	£547	£911	£672
South Eastern (_J)	£512	£405	£508	£388	£710	£529	£870	£650
South Wales (_K)	£459	£370	£455	£355	£636	£484	£780	£594
South Western (_L)	£538	£428	£534	£410	£747	£559	£916	£687
Yorkshire (_M)	£382	£302	£379	£289	£530	£394	£650	£484
South Scotland (_N)	£234	£184	£233	£177	£325	£241	£399	£296
North Scotland (_P)	£120	£96	£119	£92	£166	£126	£204	£155
AVERAGE	£414	£327	£410	£313	£574	£427	£780	£524
Difference (+ve for HH higher)		-£87		-£97		-£147		-£256

In each case, the charges were calculated by evaluating the 2008/09 group demands for the relevant Profile Class. NHH charges were calculated by applying the published kWh tariff to the total kWh in the relevant time block (i.e. 16:00-19:00 UK clock time). HH charges were calculated by applying the

published kW tariff to the average kW demand in the 2008/09 Triad (i.e. period 36 on 1 December 2008, 15 December 2008 and 6 January 2009).

6.3 Smart Meter High-Level Functionality

From the DECC consultation 'Consultation on Smart Metering for electricity and gas', (May 2009) (Reference Number: 09D/834)

Functionality		Electricity	Gas
A	Remote provision of accurate reads/information for defined time periods - delivery of information to customers, suppliers and other designated market organisation	Y	Y
B	Two way communications to the meter system - communications between the meter and energy supplier or other designated market organisation - upload and download data through a link to the wider area network, transfer data at defined periods, remote configuration and diagnostics, software and firmware changes.	Y	Y
C	Home area network based on open standards and protocols - provide "real time" information to an in-home display, other devices to link to the meter system	Y	Y
D	Support for a range of time of use tariffs - multiple registers within the meter for billing purposes	Y	Y
E	Load management capability to deliver demand side management - ability to remotely control electricity load for more sophisticated control of devices in the home	Y	
F	Remote disablement and enablement of supply - that will support remote switching between credit and pre-payment	Y	Y
G	Exported electricity measurement - Measure net export	Y	
H	Capacity to communicate with a measurement device within a microgenerator - receive, store, communicate total generation for billing	Y	

