

Electricity settlement – progressing reform from Q2 2014

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1. Paper objectives

1.01 The objective of the paper is to seek views from the Smarter Markets Coordination Group (SMCG) on the objectives, scope and approach for the next phase of the settlement project under the Smarter Markets Programme ('the Programme'), which we propose should commence from Q2 2014.

2. Structure of the paper

2.01 This paper contains the following sections:

- Section 3 – sets out the questions we are seeking SMCG's views on
- Section 4 – provides background information on the settlement project
- Section 5 – summarises the conclusions from our analysis over 2013 and the progress we have made since the last SMCG meeting
- Section 6 – outlines our proposals regarding the objectives and scope of the next phase of the settlement project, as well as our intended approach to progressing work
- Section 7 – explains how we plan to use SMCG's feedback and our next steps.

3. Questions for SMCG

3.01 We would appreciate SMCG's views on the next stage of the settlement project, specifically:

- our proposed objectives for the project
- the proposed scope of the project
- our proposal on the project's approach.

3.02 We have also circulated this paper for comment to persons who attended a settlement workshop held on 14 November 2013 whose organisations are not represented on SMCG.

4. Background

- 4.01 The roll-out of smart and advanced metering presents an opportunity to improve the settlement process, which is set out in the Balancing and Settlement Code (BSC).¹ The settlement project under the Programme seeks to realise this opportunity. Our work focuses on one aspect of settlement, namely the arrangements for determining how much electricity is used by each supplier's customers in each settlement period (defined as a period of 30 minutes). These arrangements are called the 'Supplier Volume Allocation' (SVA) arrangements. Our longer-term objective is to have in place arrangements that use smart metering data to allocate energy in an accurate, timely and cost-effective way.
- 4.02 During 2013 until now, the project has been in a scoping phase, assessing the problem that may require changes to the existing settlement arrangements and considering the most effective approach for taking forward any reforms to address this problem. We are now approaching the end of the scoping phase and this paper describes how we plan to progress work from Q2 2014.
- 4.03 Outside of the Programme, we published an impact assessment on BSC Modification Proposal 272 ('P272'), which would mandate that larger non-domestic consumers are settled using actual half-hourly (HH) consumption data from April 2015.² This impact assessment set out that we were minded to approve P272. It should be noted that this paper focuses solely on the settlement project under the Programme and does not further consider P272.

5. Overview of scoping phase

- 5.01 In October, we provided an update on our scoping work to SMCG. Members were supportive of our key findings that:
- the current arrangements, primarily because of profiling, are unlikely to support the realisation of our vision for smarter energy markets or wider changes in the electricity market
 - the next phase of the settlement project should focus on exploring options for using HH consumption data from smart meters in settlement and how this might be achieved.
- 5.02 As part of our scoping work, we examined how the SVA arrangements (and processes linked to them) affect market operation at present and what benefits smart metering could deliver. This involved bilateral discussions with external stakeholders as well as two workshops held in July and November 2013. We identified that the most significant impact on market operation comes from the non-half-hourly (NHH) arrangements.
- 5.03 For NHH consumers, consumption in each half hour is estimated using load profiles based on meter readings spanning longer periods.³ Over 29 million sites are settled in this way, making up more than half of the annual energy settled through the SVA arrangements. Profiling insulates suppliers from the true costs of their customers' consumption, which in turn dampens incentives on them to innovate in new products and services that can help consumers use energy more efficiently, including those that encourage demand-side response. Profiling is also complex and costly to manage, which can deter entry and raise costs to serve for suppliers.
- 5.04 As well as profiling, stakeholders also emphasised that the current long timescales for settlement (14 months) create costs for suppliers and risks for new entrants.

¹ For the purposes of this paper, when we refer to smart meters or smart metering this encompasses smart and advanced metering.

² The impact assessment is available on the [Ofgem website](#).

³ Load profiles are created using sample data and estimate the HH shape of consumption of the average consumer.

- 5.05 Our analysis suggests that the roll-out of smart metering can deliver some improvements in settlement accuracy within the current arrangements.⁴ However, without reform, the biggest source of inaccuracy and complexity in settlement – profiling – would remain.
- 5.06 Therefore, we concluded that the current settlement arrangements are unlikely to support the realisation of our vision for smarter markets that are more efficient, dynamic and competitive. Furthermore, the current arrangements could also impact on settlement’s role in supporting other market reforms, including:
- changes to support more efficient use of the distribution network, because one way in which this can be achieved is by providing stronger price signals through network tariffs that rely on consumption data from settlement to calculate charges
 - strengthening security of supply and the efficiency of balancing through Ofgem’s Electricity Balancing Significant Code Review (EBSCR), because suppliers’ behaviour in the wholesale market is influenced by the cash-out price (the focus of the EBSCR) and the volumes they are allocated through settlement.
- 5.07 Based on our analysis to date, we consider that settling consumers using HH data (rather than estimates) is likely to benefit consumers and is an important part of the transition to smarter markets. In the next phase of work, we propose to examine this viewpoint by identifying and assessing the options for using HH data from smart meters in settlement.
- 5.08 Since the last SMCG meeting, we have further developed our plans for the next phase of work. To inform our thinking, we sought views at a workshop in November 2013 that was well attended by a range of interested stakeholders.⁵ The next section sets out our latest proposal for the next phase.

6. Next phase of the settlement project

- 6.01 This section outlines our latest proposal for the next phase of the settlement project. It sets out our proposed objective, scope and approach.

6.1 Objective

- 6.02 The overall objective of the next phase of work is to undertake an initial assessment of the options for settling consumers using HH data. This will allow us to test how use of HH data in settlement could be delivered and the benefits it could bring for consumers. We will not consider how profiling could be improved on the back of the roll-out of smart metering.

- 6.03 We envisage the outputs from our work will be:

- a shortlist of options for using HH data from smart metering in settlement
- an assessment of how these options can deliver benefits for consumers and support the transition to smarter markets.

- 6.04 We are aiming to complete the next phase of work by the end of this year. (This is an initial estimate and is subject to detailed planning that we will undertake over the coming months).

6.2 Scope

- 6.05 In relation to the scope of the next phase of the settlement project, the focus will remain on the SVA arrangements. Other aspects of the trading arrangements set out in the BSC will lie outside the scope of

⁴ For example, the remote capability of smart meters may help to improve data quality by making it easier for suppliers to identify and resolve errors in consumption data (such as those caused by a faulty meter).

⁵ A note of the discussion can be found on the [Ofgem website](#).

the project, including the Central Volume Allocation arrangements⁶, the length of the settlement period and the arrangements for calculating imbalance prices. However, we recognise that we will need to consider the implications of any changes to the SVA arrangements on other aspects of imbalance settlement.

- 6.06 Closely linked to the SVA arrangements are the Performance Assurance Framework (PAF)⁷ and the rules relating to the posting of credit. We do not plan to examine the options for changing either in the next phase of work (with the exception of the PAF rules regarding the volume of energy that needs to be settled on actual meter readings, as described in Table 1 below). We recognise that our work will need to identify implications for the existing PAF and credit rules. However, our view is that work to consider changes in these areas will flow from any decision regarding the use of HH data in settlement. We also note that, as part of our work to consider the options for using HH data in settlement, we plan to examine the options for shortening settlement timescales (see below). This could help to reduce the amount of credit that suppliers need to lodge.
- 6.07 Under the SVA arrangements, there are different arrangements for settling energy that is used ('import') or generated ('export'), depending on how it is metered. We propose that the focus of the settlement project should be on metered sites (both import and export) that are currently settled using estimates under the NHH arrangements.
- 6.08 As such, we propose that unmetered sites will be outside the scope of our work. Unmetered sites are not covered by the roll-out. Moreover, the magnitude of benefits that can be realised from improving the accuracy of settlement for these sites will be much less than for NHH metered sites because they make up a small proportion of annual energy that is settled.
- 6.09 Also out of scope will be metered consumers that are currently settled using HH data. These consumers can already access the benefits that using HH data can bring. Moreover, we did not identify a need to reform the existing settlement process for these sites.
- 6.10 While we propose that unmetered and HH sites are out of scope, we recognise that the settlement project could have implications for both. In particular, our work to consider the options for using HH data in settlement for sites settled NHH at present could identify potential improvements to the current process for settling HH sites.

6.3 Approach

- 6.11 To realise our objective, we will need to: identify options; and then undertake an initial assessment of these options. Below we outline how we intend to approach these tasks. We also highlight the main interactions that the project will need to manage, to ensure it aligns with ongoing changes to other aspects of the regulatory framework.

Identifying reform options

- 6.12 In identifying options for using HH data in settlement, the project will focus on two overarching areas that can be varied: the process of obtaining and preparing consumption data for settlement; and the method and timing of the transition to a new set of arrangements.

Process of settlement

- 6.13 Within the SVA arrangements, there is already a process in place for settling consumers using HH data. This is used to settle 120,000 of the largest sites connected to the distribution network. Using the existing process as a starting point, our project will consider how it could be improved such that it can accommodate larger numbers of sites than at present.

⁶ The Central Volume Allocation arrangements determine volumes for sites connected to the transmission network.

⁷ Among other things, the PAF is designed to provide assurance that energy is allocated to suppliers efficiently, correctly and accurately.

6.14 Attendees at the November workshop suggested Ofgem develop criteria to identify the aspects of the existing HH process that it could consider in developing options. Following this feedback we developed the following criteria to inform our decision making:

- potential to have a material impact on consumers
- relevant to the roll-out of smart metering
- impact on project timescales
- complimentary to work of other parties.

6.15 Table 1 below lists the aspect of the settlement process that we plan to focus on initially.

Table 1 – Elements of the process for using HH data in settlement for consideration

For consideration	Assessment
Centralisation of agents responsible for data processing (DP) and aggregation (DA)	At present, suppliers appoint agents to prepare data for settlement. The creation of the Data and Communications Company (DCC) as part of the roll-out of smart metering presents an opportunity to centralise DA and DP functions. ⁸ In the next phase of work, we will examine the potential for centralisation of these functions to decrease the costs of managing the settlement process. ⁹
Methodology for estimating consumption for each half hour when no meter data is available	Instances could arise where HH data is unavailable for some sites, for instance if the communications network is down. Currently, the SVA arrangements set out rules for estimating consumption for HH sites when data is not available. However, these rules rely on manual processes and hence may not be appropriate for settling larger number of sites using HH data. In the next phase we plan to consider the options for estimating consumption when data is not available.
Number and timing of settlement runs	The remote capability of smart metering presents an opportunity to shorten settlement timescales by reducing the number of runs and/or moving the runs closer to real time. As described above, the length of the settlement process has implications for the risks and costs of operating in the market. In the next phase, we plan to examine the options for reducing the number and timing of settlement runs.
Performance standards in relation to submission of consumption data	The remote capability of smart metering presents an opportunity to assess the performance standards placed on suppliers relating to the volume of energy that is settled on actual meter readings at different settlement runs. This has implications for the costs suppliers incur in managing the settlement process. In the next phase of the project, we will consider the options around performance standards as part of our work to examine the number and timing of settlement runs.

6.16 Table 2 in Annex 1 lists out other elements of the process for using HH data in settlement that stakeholders suggested could be considered. We do not plan to focus on these elements initially. However, we recognise that our thinking could have knock-on implications for these areas and they may need to be considered at a later stage (for example, in implementing any changes).

6.17 In identifying options for the process of settlement, attendees at the November 2013 workshop highlighted the interaction between using HH data in settlement and the data access and privacy framework. This framework requires that suppliers obtain opt-in consent for domestic consumers with smart meters to access HH data. The framework also applies to micro-businesses in Profile Classes 3 and 4, specifying that suppliers can obtain HH data provided the consumer does not opt out. We will take into account this framework in developing options. For example, we will explore options for making consumption data

⁸ The DCC will be responsible for managing all the messages and data transferred between domestic consumers’ smart meters and suppliers or other authorised parties.

⁹ Initially, consideration of centralisation of DP and DA was assigned to the change of supplier project under the Smarter Markets Programme. However, this project has provisionally concluded that centralisation is not required to improve the speed and reliability of the transfer process. In Spring 2014, the change of supplier project will consult on its proposals. Subject to this and the settlement project’s assessment of the potential benefits of DP and DA centralisation for settlement, we will consider how best to progress any work on centralising these functions.

anonymous that addresses concerns around data privacy. We will also consider options where the framework is changed to allow suppliers to access HH data for the purposes of settlement.

Transition

- 6.18 There are two interlinked factors that are relevant to the transition of NHH consumers to settlement using actual HH data:
- the method of transition, in terms of whether suppliers can elect to settle consumers using HH data or are mandated to do so
 - the timing of transition, in terms of when to implement any changes to the settlement arrangements.
- 6.19 The combination of different options for the method (elective or mandatory) and timing of transition have implications for the impact of using HH data in settlement on consumers. Our project will aim to identify and assess these impacts.

Assessing reform options

- 6.20 In undertaking an initial assessment of the options developed, we will:
- create a framework for assessing the costs and benefits of the options relating to the process and transition for using HH data in settlement, with a view to analysing how each can contribute to our vision for smarter markets and deliver in the interests of consumers
 - assess and rank the options against this framework, identifying those with the most potential to deliver benefits.
- 6.21 Among other things, our assessment will consider the impact on consumers of different options for when and how the transition to settlement using HH data could be realised. This will include consideration of the risks for those that move last or continue to be settled on estimates (for example, if they do not have a smart meter).

Managing interactions

- 6.22 Our project in the next phase will have two main interactions with other work to change the regulatory framework, namely:
- the work programme of the Profiling and Settlement Review Group (PSRG)
 - modifications to the Distribution Connection and Use of System Agreement (DCUSA).
- 6.23 The PSRG reports to the BSC Panel and is tasked with maintaining the integrity of the settlement arrangements in the short to medium term as smart meters are rolled out. In February 2014, ELEXON will commence a project (reporting to PSRG) to examine how to shorten the timescales of the current settlement process. We recognise the importance of coordinating across our work and that of the PSRG. Both Ofgem and ELEXON are committed to sharing information and project plans, and meeting regularly to avoid duplication of effort and to ensure the outcomes of the respective projects align.
- 6.24 Stakeholders have consistently emphasised the interaction between distribution charging arrangements and settlement. Through modifications to the DCUSA, work is ongoing to put in place new charging arrangements for sites settled using HH data. This could have implications for the design of the settlement process. We will monitor this work and take account of proposals as they develop.

7. Next steps

- 7.01 Following SMCG's feedback, we will further refine and develop our plan for the next phase of work with a view to publishing a launch statement at the end of March. The launch statement will set out the scope, objectives, approach and timetable for our work.
- 7.02 Should any SMCG member wish to discuss the project further, we are open to meeting stakeholders bilaterally between now and March.

Annex 1 – Other elements of process for using HH data in settlement

Table 2 below lists the elements of the process for using HH data that we do not propose to consider initially. It also explains the rationale behind our view, as assessed against the criteria listed in paragraph 6.14.

Table 2 – Elements of the process for using HH data in settlement that we do not plan to consider initially

Element of process	Assessment
Process for registering sites in settlement	Suppliers must register sites for settlement. This process relies on the registration services currently managed by distribution network operators (DNOs). The opportunity that the creation of DCC presents to centralise the role of registration provider is being considered by the change of supplier project under the Smarter Markets Programme. We will monitor this work and consider any implications for our project.
Centralisation of data retrieval	In putting in place the regulatory framework for smart metering, the Department of Energy and Climate Change (DECC) decided that the DCC should be responsible for data retrieval for all domestic consumers. DECC also decided not to mandate that DCC be responsible for data retrieval for non-domestic consumers (although it can offer terms for this service). As centralisation of data retrieval has recently been considered for domestic and non-domestic consumers, we do not intend to revisit this issue. However, we recognise that we may need to consider implications for the data retrieval role from potential centralisation of data processing and aggregation for non-domestic consumers that do not use the DCC.
Methodology used by agents to prepare data for settlement (excluding estimation methodology)	The BSC defines methodologies that agents follow in performing DP and DA functions. We do not intend to consider the detail of these methodologies in the next phase of work. We plan to focus on the potential for centralisation of DP and DA functions in the first instance. Centralisation presents the greatest opportunity for delivering benefits for consumers by potentially reducing the costs of using HH data in settlement for a larger number of sites than at present. The detailed methodologies that underpin these functions are secondary to an assessment of the potential for centralisation, have little scope for change that will materially benefit consumers and could lengthen project timescales.
Estimation of network losses	As part of the settlement process, the volumes allocated to suppliers are scaled to take account of losses on the network. DNOs provide the factors that are used to scale energy, which are based on settlement data and are approved by ELEXON. Our view is that consideration of how calculation of these factors could be improved may flow from any decision regarding the use of HH data in settlement.
Allocation of error	A Grid Supply Point (GSP) is a point of connection from the electricity transmission system to a distribution network, large power station or non-embedded consumer. These are grouped into 14 GSP Groups for settlement purposes. GSP Group Correction Factors (GCFs) are used to scale suppliers' consumption volumes up or down to smear across suppliers any error derived from the difference between the amount of energy entering a GSP Group and the amount that is allocated. We do not plan to consider detailed changes to the methodology for calculating GSP GCFs. The principle of allocating all energy is fundamental to settlement. Moreover, by exploring the potential for using HH data in settlement we are addressing the biggest cause of error in settlement – profiling. We recognise that the allocation of error at regional level could have implications for local balancing of supply and demand. We will keep this under review.
Length of the billing period	At present, suppliers' settlement charges are billed on a daily basis. Lengthening the billing period (eg to a week or month) could lower costs by reducing the number of bills that suppliers need to process. At the same time, the period covering charges incurred but not paid gets longer. Therefore, suppliers may need to post more credit cover. Additionally, lengthening the billing period could mean generators that provide services in the Balancing Mechanism have to wait for longer before being billed. This may have cash flow implications for generators. On balance, we do not propose to examine the length of the billing period in the next phase of work.