

Elective half-hourly settlement: conclusions paper

Conclusions paper

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Overview:

Enabling suppliers to choose to use actual half-hourly data from domestic and smaller non-domestic customers within the electricity industry volume allocation processes could help to deliver a more flexible, innovative and efficient electricity market.

We have sought to understand the barriers to this being a cost-effective option for suppliers. In December 2015, we wrote an open letter asking stakeholders to indicate these barriers. This paper presents our conclusions on the issues raised, and indicates how these could be addressed by industry.

The three main problems are: the process for moving into (and out of) the arrangements using actual half-hourly data, the requirements on how rapidly suppliers have to provide consumption data into the central systems, and overcharging for transmission charges in the year a customer moves into the arrangements using actual half-hourly data.

We are unable to raise changes to the industry code arrangements ourselves. Following this document, we think that code administrators, suppliers, and other industry parties should work together to raise and progress changes for introduction by early 2017.

Context

Ofgem has a long-standing interest in using actual half-hourly data for settlement. For example, we ran a Settlement Expert Group in 2014. We think that half-hourly settlement can help to achieve the outcomes we want to see for consumers: lower bills, reduced environmental impacts, enhanced security of supply and a better quality of service.

In December 2015, we published an open letter setting out our plans for a project to introduce half-hourly settlement for domestic and smaller non-domestic electricity customers. We explained that we think the right first step is to remove the barriers to suppliers electing to settle customers half-hourly. This conclusions paper forms part of this elective workstream. However, we also indicated that in the longer-term, we expect that we will need to mandate all suppliers to settle their customers on a half-hourly basis to realise the full benefits.

Associated documents

Half-hourly settlement (HHS): the way forward (17 December 2015)

https://www.ofgem.gov.uk/sites/default/files/docs/final_open_letter_on_hhs.pdf

Elective half-hourly settlement: publication of responses to December open letter (7 March 2016)

https://www.ofgem.gov.uk/system/files/docs/2016/03/hhs_-_response_overview_letter_0.pdf

Elective half-hourly settlement: stakeholder workshop (27 April 2016)

https://www.ofgem.gov.uk/system/files/docs/2016/04/elective_stakeholder_workshop_note_5_april_2016.pdf

Contents

Executive Summary	4
1. Introduction	5
Rationale for cost-effective elective half-hourly settlement	5
Structure of the market	8
Process to date	9
2. Change of Measurement Class	10
Overall Issue	10
Basic Change of Measurement Class: NHH to HH	11
Reverse CoMC: HH to NHH	15
CoMC with concurrent Change of Supplier	16
3. Ongoing supplier agent costs	19
Introduction	19
Data retrieval	20
Relaxing read performance requirements	21
Data processing	25
4. Network charging	27
Transmission charging	27
Distribution charging	32
5. Other BSC and related issues	34
Group Correction Factor	34
BSC specified charges	36
Other issues raised	40
6. Further issues	41
Customer-facing issues	41
Data privacy	43
DCC/smart metering issues	44
Other issues raised	45
7. Next steps	46
Immediate action	46
Change process	46
Appendices	49
Appendix 1 – Timescales	50
Appendix 2 - Glossary	51

Executive Summary

Settlement reconciles discrepancies between a supplier's contractual purchases of electricity and the actual demand of its customers. A key aspect is identifying how much consumers use in each half-hour. Using actual half-hourly data in settlement is known as half-hourly settlement (HHS). This is the alternative to the current method of estimating usage patterns using profiles of average consumers.

HHS can help to deliver a more flexible, innovative and efficient electricity market. However, there are barriers to this being a cost-effective option for domestic and smaller business consumers. We think that the right first step towards using half-hourly (HH) smart meter data to settle all customers is to remove these barriers. We have agreed with the Secretary of State for Energy and Climate Change that we will remove the barriers to cost-effective elective HHS by early 2017 as part of a market-led approach to settlement reform.

Our December open letter on HHS asked industry to tell us about barriers to elective HHS. After feedback and discussions, we have identified a number of barriers. The changes to address these now need to be progressed through the usual industry governance process. This relies on industry parties and code administrators playing a full and constructive role, including by raising changes. Recognising the importance of this work to both Ofgem and DECC, we will provide particularly close oversight of the progress of the changes.

The priority areas and our conclusions are:

- **Change of Measurement Class:** The process for moving customers into and out of HHS is complex. ELEXON has developed a revised process for smart meters. This will make the process simpler, faster and more coordinated. We think ELEXON or another industry party should raise change proposals for this revised process, after the details are developed with the help of a cross-code working group.
- **Ongoing supplier agent costs:** Supplier agents carry out functions related to settlement for suppliers. We understand that these services cost more under HHS. Stakeholders told us one reason is the requirement for HH data to be submitted into settlement more quickly. We think an industry party should raise a modification to relax these requirements for domestic and smaller non-domestic HH customers.
- **Transmission charging:** There can be overcharging for transmission charges in the year a customer moves to HHS. We think that National Grid or another industry party should raise a modification to extend the existing non-half hourly (NHH) transmission charging structure to domestic and smaller non-domestic HH customers, in order to prevent overcharging.

We also think that changes should be raised to the process for reconciling consumption at a regional level (GSP Group Correction Factor) and the methodology for paying Balancing and Settlement Code administrative costs. In addition, we have commented on the range of other issues raised by stakeholders. The Settlement Reform Advisory Group previously recommended other changes – ELEXON and industry are already progressing these.

1. Introduction

Chapter Summary

We explain the rationale for half-hourly settlement: both in general, and elective half-hourly settlement specifically. We also provide a brief overview of the process we have followed.

Rationale for cost-effective elective half-hourly settlement

What is half-hourly settlement?

- 1.1. The electricity market operates in half-hourly increments of time. Before a given half-hour, a supplier generally buys electricity to meet the expected demand of its customers in that period. However, in reality, its customers may consume more or less energy than expected. Settlement is the process used to reconcile these discrepancies between a supplier's contractual purchases of electricity and its customers' actual demand.¹
- 1.2. A key part of the settlement process is identifying how much consumers use in each half-hour. Most consumers do not have meters that can record consumption in each half-hour. For these sites, a meter reading may only be taken once or twice a year. This only provides information about the total consumption since the last meter read. For settlement, this figure needs to be translated into estimates of the consumption in each half-hour. This is done using profiles, representing the demand patterns of average consumers. This process is known as 'non-half hourly' (NHH) settlement.
- 1.3. Larger non-domestic consumers already have meters which record consumption in each half-hour. This allows actual half-hourly consumption data to be used in settlement, and means that estimation using profiles is not required. These customers are settled 'half-hourly' (HH).
- 1.4. Smart meters record the amount of energy consumed or exported within every half-hour period, and this data can be provided to or collected by energy suppliers remotely. Suppliers must take all reasonable steps to install smart meters in every home and small business premises by 2020. Once a smart meter is installed, it becomes technically possible for a site to move to half-hourly settlement (HHS).

¹ The settlement process works in an equivalent way for generators, who may produce more or less electricity in a given half-hour than they have sold.

What is the rationale for half-hourly settlement in general?

- 1.5. As stated in previous publications,² we think it is in consumers' interests to be settled using their HH consumption data.
- 1.6. HHS will help create the right environment for more demand-side response (DSR). The cost of generating and transporting electricity varies over time. However, for a NHH customer, there is little³ incentive on a supplier to encourage its customers to use electricity at times when it is less expensive – a customer's demand is allocated between periods using profiles, regardless of their actual usage pattern. HHS will address this defect, and allow suppliers to help customers move load to periods when electricity is cheapest.⁴ This will lead to a more efficient energy system.
- 1.7. Linked to this, HHS will promote innovation and competition in the energy market. It will help with the introduction of new types of 'smart' tariffs, such as dynamic time of use tariffs, which reflect the times when electricity is more or less expensive. It will also support new business models which may seek to use these price signals alongside new technologies such as: electric vehicles, heat pumps, storage, or micro-Combined Heat and Power. These give suppliers and others the opportunity to engage consumers, which in turn can improve competition.
- 1.8. HHS will make the settlement process itself faster and more efficient, removing some of the barriers to entering the market. For example, it may eventually be possible to shorten the settlement process, so suppliers can be certain about their energy allocation at an earlier stage. This could reduce a supplier's requirements to maintain credit during this process, reducing a potential barrier to entry and expansion.
- 1.9. Together, these will help the energy market to deliver the outcomes we wish to see for consumers: lower bills, reduced environmental impacts, enhanced security of supply and a better quality of service.
- 1.10. The potential benefits of HHS are widely recognised. The CMA has provisionally found that *"the absence of a plan for moving to half-hourly settlement for domestic customers is a feature that gives rise to an AEC [Adverse Effect on Competition] in the domestic retail electricity market through the distortion of suppliers' incentives to encourage their customers to change their consumption profile, which overall reduces the efficiency and, therefore, the competitiveness of domestic retail electricity supply."*⁵

² Eg: <https://www.ofgem.gov.uk/ofgem-publications/87053/electricitysettlementlaunchstatement-pdf>

³ Some customers already have time of use products, such as Economy 7.

⁴ Customers may also export when it is beneficial to the system.

⁵ https://assets.digital.cabinet-office.gov.uk/media/559aacbee5274a1559000017/EMI_Notice_of_PFs.pdf

Our work on mandatory half-hourly settlement

1.11. We are progressing our work on half-hourly settlement in two stages, elective HHS and then mandatory HHS. Our December open letter explained that we would be taking forward work on mandatory HHS.⁶ We consulted on our intention to launch a Significant Code Review through our draft forward work programme.⁷

What is the rationale for cost-effective elective half-hourly settlement?

1.12. At present, suppliers can theoretically choose to settle any site HH, provided that it has appropriate metering. However, we understand that this is not cost-effective for smaller customers.⁸ We have sought to understand the barriers to cost-effective elective HHS. We consider that the right first step is to remove them, to enable HHS for domestic and smaller non-domestic customers who wish to select products linked to it.

1.13. Cost-effective elective HHS will allow suppliers who choose to use it to offer new products and services. This innovation will add a new form of competition to the retail market. This is a direct benefit from elective HHS, which can start being realised as soon as suppliers offer new products.

1.14. We are adopting a market-led approach. By reducing barriers we anticipate suppliers identifying commercial opportunities to offer time of use and other smart tariffs. Making a number of relatively minor changes to the existing arrangements to support elective HHS can be achieved much more quickly than the necessary changes for mandatory HHS, which would involve every party upgrading their IT systems and a co-ordinated, programme-managed approach. This will enable us bring the benefits of HHS more quickly to consumers.

1.15. Reflecting our approach to achieving cost-effective elective HHS, and to help us make the necessary trade-offs, we have considered our conclusions in light of the following three criteria:

- Being able to implement the changes quickly so consumers can realise the early benefits of HHS.
- Avoiding, where possible, impacts on suppliers who do not choose to settle their customers on a HH basis.
- Limiting overall system changes and costs, given these are targeted changes designed to achieve quick wins.

⁶ https://www.ofgem.gov.uk/sites/default/files/docs/final_open_letter_on_hhs.pdf

⁷ https://www.ofgem.gov.uk/sites/default/files/docs/draft_forward_work_programme_2016-17.pdf

⁸ A particular absolute (£/meter) cost might not be material for a large industrial HH customer, but could be material for a smaller customer.

- 1.16. There will also be indirect benefits, in the context of our further work on mandatory HHS. To implement mandatory HHS, the HHS process will need to work effectively for small sites. Elective HHS will show us exactly how the settlement process works for domestic and smaller non-domestic customers in practice. In addition, elective HHS will help us learn about the types of products that suppliers offer in response to the new arrangements, and in turn how consumers react to them. This will be one source of evidence to inform our decision on mandatory HHS.
- 1.17. The government fully supports this approach. We have agreed with the Secretary of State for Energy and Climate Change that we will remove the barriers to cost-effective elective HHS by early 2017.

Structure of the market

- 1.18. There are some concepts which are important background for understanding the following chapters. The first is a measurement class. All meters are allocated to a measurement class for settlement purposes based on their type (metered or unmetered) and how they are settled (HH or NHH). For this paper, the key measurement classes are those for HH customers with a maximum demand below 100kW. There are three of these:
- Measurement class E – for non-domestic customers with Current Transformer (CT) meters.
 - Measurement class F – for domestic customers.
 - Measurement class G – for non-domestic customers with Whole Current (WC) meters.
- 1.19. Another important concept is a profile class. NHH customers are allocated to one of eight profile classes. The average load shape in a profile class is used to allocate demand between settlement periods for customers in that profile class. HH customers are settled based on actual consumption data, and so do not have a specific profile class.
- 1.20. Customers in profile classes 5-8 with advanced meters are being moved to HHS under Balancing and Settlement Code (BSC) modifications P272 and P322. This expansion is being implemented between 5 November 2015 and 31 March 2017. This means that the focus of our work is the remaining domestic and smaller non-domestic customers in profile classes 1-4.
- 1.21. NHH domestic customers (in profile classes 1-2) moving to HHS will be placed in measurement class F. For NHH non-domestic customers (in profile classes 3-4) moving to HHS, the measurement class they are placed in will depend on whether they have a WC or a CT meter. However, the

vast majority of profile class 3-4 customers have WC meters,⁹ and so would be placed in measurement class G. This means that measurement class G is the focus of our interest for enabling elective HHS for smaller non-domestic customers.

Process to date

- 1.22. There have been several pieces of work on HHS over the past few years. Most recently, ELEXON organised the Settlement Reform Advisory Group (SRAG). This is particularly relevant, as it sought specifically to investigate barriers to elective HHS. The SRAG reported in February 2016.¹⁰
- 1.23. ELEXON and industry are now taking forward the SRAG's recommendations. In our December open letter, we explained that these are the first batch of work on elective HHS. These recommendations need to proceed through the industry change process, and no decisions have been made. However, to avoid duplication, this paper does not generally revisit the changes recommended by the SRAG. We expect industry to make quick progress in considering and agreeing these changes.
- 1.24. Our December open letter included a call for industry to tell us about additional barriers to elective HHS beyond the SRAG's work. We said that we would address such barriers as part of a second batch of work on elective HHS. The responses to the open letter are on our website.¹¹ We have also published a short summary of the issues raised.¹²
- 1.25. Beyond written responses, we have discussed the issues extensively. We spoke to a wide range of stakeholders through bilateral meetings and calls. We also held a well-attended workshop on 5 April 2016.¹³ This has allowed us to benefit from the expertise of suppliers, supplier agents, Distribution Network Operators (DNOs), National Grid, Citizens Advice and others. We are grateful to everyone who has taken the time to speak to us and provide us with comments. We have also received ongoing valuable support from ELEXON.

⁹ Data provided under Distribution Connection and Use of System Agreement (DCUSA) CP 179 indicated that there were around 2.2 million customers in profile classes 3 and 4 with whole current meters (who would move to measurement class G), compared to only around 42,000 customers with current transformer meters (who would move to measurement class E). See attachment 9 of:

<https://www.dcuda.co.uk/Documents/DCP%20179%20Change%20Report%20v1%200.zip>.

¹⁰ https://www.ELEXON.co.uk/wp-content/uploads/2015/10/27_249_13A_SRAG_Report_PUBLIC2.pdf

¹¹ <https://www.ofgem.gov.uk/publications-and-updates/half-hourly-settlement-way-forward>

¹² https://www.ofgem.gov.uk/system/files/docs/2016/03/hhs_-_response_overview_letter_0.pdf

¹³ <https://www.ofgem.gov.uk/publications-and-updates/elective-half-hourly-settlement-stakeholder-workshop>

2. Change of Measurement Class

Chapter Summary

We explain the problems with the process for moving customers between non-half hourly and half-hourly settlement. We discuss in turn the cases where a customer moves to half-hourly settlement, from half-hourly settlement and switches supplier at the same time. In each case, we provide conclusions.

Overall Issue

- 2.1. When a meter moves between NHH and HH settlement, it undergoes a process known as Change of Measurement Class (CoMC). There are separate measurement classes for NHH and HH meters – so moving between NHH and HH involves a CoMC.
- 2.2. This process fulfils a number of functions, including:
 - Transferring responsibility for the meter between NHH and HH supplier agents (by appointing and de-appointing them).
 - Ensuring that a suitable meter is in place (in particular to facilitate HHS), configuring it, and establishing communications with it.
 - Taking a meter read at the point of CoMC.
 - Communicating the change to various parties.
- 2.3. Many feel the CoMC process could be improved. Several respondents to the open letter told us that it needs to be made more efficient. This was reinforced in subsequent discussions with stakeholders. The SRAG also recognised CoMC for smart meters as an issue for further consideration.
- 2.4. We understand that there are many challenges associated with CoMC including:
 - **Site visits:** There are staff costs if a site visit is needed to change the meter. A site visit also adds the potential for delay, for example if the customer is not available on the planned CoMC date.
 - **Manual aspect:** CoMC can involve other manual intervention, in addition to site visits. This could make it difficult to carry out at scale.
 - **Transitions between agents:** Even when using an existing meter, there can be interoperability problems on CoMC, where a new supplier agent may not be immediately able to read the meter.
 - **Timescales:** The numerous interactions between parties mean that CoMC takes a long time. ELEXON has provided guidance that

suppliers should give their agents a month's notice before a CoMC.¹⁴ The whole process currently can take up to 33 working days.¹⁵

- **Information transfer:** The transfer of information between parties (eg Meter Technical Details (MTDs)) may not work effectively, for example because the information is sometimes missing or incorrect.
- 2.5. Some of the current CoMC issues may be mitigated or resolved when the process is applied to smart meters. In particular, a change of meter should not be required as part of a CoMC, as a smart meter can be installed earlier. This should reduce cost and complexity. The new supplier agent will not have to establish direct contact with the meter, as the meter will be served via the Data and Communications Company (DCC) or a Smart Meter System Operator (SMSO).¹⁶ This should remove questions about whether it is possible to communicate with the meter. However, more can be done.
- 2.6. As in other areas, the industry has already taken some steps to improve the process. For example, the CoMC process was examined by BSC Issue Group 49. This led to Change Proposal (CP) 1409, which made incremental changes to make the CoMC process more efficient.¹⁷ A further change (CP1440) removed proving tests for domestic HH customers with DCC-enrolled smart meters. The SRAG has recommended that the same change is also applied to smaller non-domestic customers in measurement class G.

Basic Change of Measurement Class: NHH to HH

- 2.7. Our starting point is CoMC from NHH to HH. Improving this process will help to enable cost-effective HHS for domestic and smaller non-domestic customers. We first focus on the simpler case where a customer is moving to HHS with their existing supplier. ELEXON developed a strawman for this revised process. This was discussed with stakeholders at our April workshop. An updated version of the strawman process is published alongside this document – the changes from the current process are also summarised below.

¹⁴ <https://www.ELEXON.co.uk/news/p272-migration/>

¹⁵ Balancing and Settlement Code Procedure (BSCP) 514, 7.1.

¹⁶ The DCC's services will be in operation ('live') from 2016. Suppliers will be able to install and commission SMETS2 meters on the DCC network once it goes live; SMETS1 meters will be enrolled with the DCC at a later date. Until that point, an SMSO will provide the communications service for SMETS1 meters.

¹⁷ For example, adding the first HH meter read time to data flows (as well as the date).

Table 1 – Summary of strawman CoMC process changes

Stage of CoMC process	Main changes in strawman process compared to current process
Appointing agents	Limited - only potential change is to the reading schedule
Exchange of data	Meter Technical Details held by supplier and sent to agents directly (rather than being exchanged between agents)
Day of CoMC	Initial/final readings taken and sent by supplier, rather than the Meter Operator (MOA)
Information distribution after CoMC	Information distributed by supplier, rather than MOA

2.8. The revised process has a number of advantages compared with the current process. These advantages should help to make the revised process both cheaper and faster than the current CoMC process.

- It is driven by the supplier, helping to improve coordination. Under the revised process, the supplier can carry out many of the steps currently performed by a MOA.
- It cuts the number of times information needs to be passed between parties ('hand-offs'), reducing the potential for error and delay. (For example, under the current CoMC process, the supplier has to instruct the NHHMOA to send MTDs to the HHMOA, and the NHHMOA then needs to send them. If the supplier can hold the MTDs, then it can send them to the HHMOA directly). The working group¹⁸ will need to consider precise timings for the revised process, but we expect that, due to fewer hand-offs, the process should be shorter.
- It streamlines Meter Technical Details (MTDs) into a single data flow which contains all relevant information, can be used by everyone, and can be used for a CoMC in both directions.
- It retains existing data flows where change is not required, helping to ensure proportionate implementation costs.

Design considerations

2.9. **Coverage:** The new process would apply to DCC-enrolled smart meters. We consider it would also apply to smart meters where data is being

¹⁸ See conclusion below.

collected through an SMSO. We appreciate that the latter group will be more heterogeneous – however we consider that the overriding priority is to ensure that there is a suitable CoMC process for all smart meters.

- 2.10. However, it is not possible to apply the new process to customers with advanced meters, because responsibility for data retrieval will change on CoMC. Data is retrieved from these meters by the Data Collector (DC), and so responsibility for data retrieval would move on CoMC from the NHHDC to the HHDC. The HHDC would need the information in the current process to contact the meter. Suppliers with advanced meters will therefore need to use the existing CoMC process.¹⁹
- 2.11. **Meter:** A functioning smart meter is a prerequisite for the revised CoMC process. If one is not present, the supplier needs to install one or make the necessary commercial arrangements with the SMSO to operate a previously-installed meter, before the CoMC process starts.
- 2.12. **Meter Technical Details:** The proposed process includes a new data flow for MTDs. This would consolidate existing data items to create a single flow applicable to both NHH and HH MTDs. It would bring together information currently transmitted through the flows for HH MTDs (D0268), NHH MTDs (D0150) and Notification of Mapping Details (D0149). The new flow would also incorporate any relevant information from the Auxiliary Meter Technical Details (D0313) flow, although this is designed for advanced meters. It would not include information on customer details, which would be kept on the existing data flow (D0302). It would also not include information on Site Technical Details, which would be kept on the existing data flow (D0215), as these would need to be requested from the DNO.
- 2.13. The precise question of which data items should be included in the new flow should be resolved through an industry issues group led by ELEXON under cross code governance of the BSC and the Master Registration Agreement (MRA). This will allow those who will be using the new flow to provide their expertise.
- 2.14. At the workshop, some stakeholders suggested that, instead of introducing a new flow, it might be possible to adapt the existing HH MTDs flow (D0268) by making fewer fields mandatory, and allowing the supplier to send it. After examining the affected data flows in conjunction with ELEXON, we note that there are a number of data items which are included in the NHH MTDs flow (D0150) but not in the HH one. We therefore think that a new single flow is likely to be required, including to allow the CoMC process to operate more efficiently in both directions.
- 2.15. Suppliers looking to offer elective HHS would need to adapt their systems to use this new flow. These suppliers would also be required to hold the MTDs for smart meters (rather than MOAs as at present). This would be part of their commercial decision on whether to offer elective HHS.

¹⁹ The new process will be additional. We are not envisaging changes to the existing CoMC process set out in BSCP 514.

Developing a new flow, rather than amending an existing one, means that there would be no effect on suppliers who choose not to offer elective HHS.²⁰

- 2.16. Workshop attendees noted that any changes would affect supplier agents, who would need to change their systems. We think that this could be avoided if the revised process was marked optional, so that only supplier agents appointed by suppliers who want to use it need to change their systems. Even if this is not possible, we still think it is acceptable to require all supplier agents to make changes, given that the flow would be a collection of existing data items.
- 2.17. At the workshop, one stakeholder asked if the new flow could be useful for the enduring mandatory HHS process. ELEXON said that this would depend on the mandatory HHS design, though the flow could be adapted if needed.
- 2.18. **SRAG recommendations:** At the workshop, stakeholders commented on the SRAG's recommendation to reverse the direction of the flow which transmits the meter reading schedule (D0012). Some stakeholders suggested that the supplier would instead be able to send this information to the agent using the service reference item in another flow (D0155). ELEXON has already raised the SRAG recommendations under the MRA, and the options will continue to be discussed as part of the change process. The precise solution²¹ adopted will need to be reflected in the new CoMC process, though this will not affect the overall design.
- 2.19. Likewise, there was discussion at the workshop about the SRAG recommendations on the revised end-to-end process for getting HH smart meter data into settlement. This does not directly relate to CoMC, and so we do not consider it further here. We would encourage stakeholders with views on this to participate in discussions about the relevant BSC CP.
- 2.20. **Guidance:** One stakeholder said that it would be helpful to have guidance about the CoMC process. We would expect ELEXON to update its guidance on CoMC in light of any changes to the underlying process.

Conclusion

- 2.21. As an immediate step, we have asked ELEXON to run a cross-code (BSC and MRA) working group. This will add detail to the strawman process, so that it is ready to be raised as a CP.
- 2.22. Once this is complete, we think ELEXON or another industry party should raise a BSC CP to introduce the new NHH to HH CoMC process for smart

²⁰ See below for discussion of CoMC at the same time that a customer switches supplier.

²¹ It may be possible to give suppliers the choice of more than one option.

meters.²² We think ELEXON or another industry party should raise the new MTDs flow through a MRA Data Transfer Catalogue change.

- 2.23. We think this process should be raised as a way of making CoMC cheaper and faster, contributing to our goal of cost-effective elective HHS. By retaining the existing data flows where change is not required the change can be implemented more swiftly, and with less disruption to overall systems (including systems of suppliers not offering elective HHS), than if the process was redesigned from scratch.

Reverse CoMC: HH to NHH

- 2.24. The process above is designed to allow customers to move from NHH to HH settlement. However, we think that elective HH customers should be free to move back to NHH arrangements, in order to access the full range of products available in the market. This is for a number of reasons:

- At one extreme, a customer might never have selected a product linked to HHS, if they moved into a property that had already been transferred to HHS. The new occupier might have different preferences or consumption patterns. However, any given HH supplier might not offer all standard products to HH customers, due to the costs that it could incur. We would not want a customer's choices to be restricted by decisions made by a previous occupant.
- A customer's circumstances may change, leading them to want a different type of product. In a situation where moving to HHS was irreversible, a consumer would be likely to think twice about trying a product linked to HHS. This could create a barrier to HHS, as well as being of concern from a consumer's perspective.
- A reverse CoMC will be necessary where the supplier loses access to the customer's HH consumption data. This could result from the customer changing their data preferences. It could also be because of an enduring communications fault with the meter.

- 2.25. The process developed by ELEXON will work in reverse. We therefore think that the reverse CoMC process should be included in the package raised. The new MTDs data flow will help, as it can be sent in both directions.

- 2.26. The reverse CoMC process may not be required under mandatory HHS. There will need to be enduring arrangements for sites where it is not possible to retrieve HH data – but it may not be necessary to maintain separate measurement classes to enable this. Reverse CoMC is therefore required specifically to enable elective HHS.

²² We think that this should be introduced as a new section to BSCP 514.

Conclusion

2.27. We think the reverse process for the HH to NHH CoMC for smart meters should be discussed by the cross-code working group and then included in the same BSC CP mentioned above. The rationale is the same as above.

CoMC with concurrent Change of Supplier

Specific issue

- 2.28. A customer might want to change supplier at the same time as selecting a product linked to HH or NHH settlement. For example, a HH customer might want to transfer to a standard product linked to NHH settlement with another supplier. Several respondents to the open letter said that this freedom was important. As a principle, we agree that elective HH customers should retain the ability to switch to any product in the market.
- 2.29. There is an existing process for CoMC with concurrent Change of Supplier (CoS). However, this has the standard problems of the current CoMC process, with additional complexity of managing interactions between suppliers (and their agents). In any case, some revisions might be needed to take into account the different allocation of responsibilities for smart meters.²³

High-level solution

- 2.30. One option would be to develop a revised process for CoMC with concurrent CoS at this stage. However, we consider that the immediate focus should be on introducing the basic process (without concurrent CoS), which is essential for enabling HHS. We are also conscious that a new process for CoMC with concurrent CoS would need to be implemented by all suppliers. This could require systems changes (for example if they have to be able to process the new MTDs data flow). At the workshop, some stakeholders said that we should not propose changes which would require all suppliers to change their systems to allow them to use a revised CoMC process, regardless of whether they elect to offer HHS.
- 2.31. At this stage, we consider that the most proportionate option is a two-step process. This would help to avoid NHH suppliers needing to make systems changes to support CoMC, and would minimise overall changes to settlement, while allowing customers to receive the benefits of elective HHS at an early stage. On CoS, the losing HH supplier would first be required to return the customer to NHH arrangements.²⁴ The customer could then be switched between suppliers following the usual process.

²³ For example, smart meters will be configured by the supplier, rather than the MOA.

²⁴ The customer's previous NHH profile class (if known).

- 2.32. We recognise that this places the onus on suppliers offering HHS (when they lose customers), and could make them incur costs. However, such suppliers would need to be able to manage the reverse CoMC process in any case. (For example, if a customer chose to move to a standard product linked to NHH settlement, or removed consent for the use of their HH data). Likewise, the losing HH supplier would also need to be able to support the relevant NHH data flows.²⁵ This means that there would be no additional systems changes for these suppliers. We expect that the incremental cost would therefore be low, given these suppliers would need to be able to carry out a reverse CoMC anyway.
- 2.33. We understand that there is a precedent for this kind of approach under the Foundation Interim Operating Model for smart meters. Under this, it is the responsibility of the losing supplier of a prepayment customer to move the meter to credit mode before the CoS.²⁶
- 2.34. CoMC with concurrent CoS could also occur in the other direction, when a customer is moving from NHH to HH. We think it is workable that a supplier offering a product linked to HHS should gain the customer first, on NHH arrangements, and then carry out the CoMC process internally.

Design considerations

- 2.35. **Switching between HH suppliers:** As an initial step, we think that the requirement to perform a CoMC before a CoS should apply to all HH smart meter customers. This includes when a customer transfers onto a HH product with the gaining supplier, because the losing supplier will not know about the customer's new product. A meter in this situation would need to undergo CoMC twice to maintain it on HH arrangements. (The customer would undergo CoMC to NHH arrangements with its existing supplier, would be switched as a NHH customer, and then would undergo another CoMC to move it to HH arrangements with its new supplier). However, any alternative would require the gaining supplier to send a new piece of information to the losing supplier indicating whether it wanted the customer to remain HH or not. Introducing this could have costs for all suppliers, and add complexity. Industry parties could raise changes to improve this in future, to make it easier for suppliers looking to offer HHS.
- 2.36. In the short term, many of the meters which could move to HHS will be non-DCC enrolled SMETS1 meters or advanced meters. There are separate issues with the ability of gaining suppliers to maintain the smart capability of these meters, which is a prerequisite for HHS.
- 2.37. **Effect on Change of Supplier process:** We recognise that the proposed solution could lengthen the switching process for elective HH customers in

²⁵ Eg D0149/D0150.

²⁶ Foundation Interim Operating Model Process - Prepayment Requirements. Available at: <https://www.mrasco.com/admin/documents/FIOM%20Guidance%20Documents.zip>. This process is being expanded to all smart prepayment customers through changes to the MRA (and Supply Point Administration Agreement for gas).

general. We think this is acceptable in the initial stages of HHS, as it would only affect a small number of customers at first. We expect suppliers to take reasonable steps to let customers know how long the switch would take in this situation. We will consider the interactions between HHS and switching further in the run-up to the introduction of faster, more reliable switching.

- 2.38. The proposed approach would enhance the ability of the losing supplier to potentially delay a customer's switch. We expect the losing supplier to behave appropriately and ensure that switches are not delayed. For example, we would expect the losing supplier to start the CoMC process as soon as it was informed of the customer's intention to switch, and to abide by the timescales set out in the revised CoMC process. Problems with switching could affect customer confidence in products linked to HHS, which could affect all elective HH suppliers.

Conclusion

- 2.39. We do not necessarily see the 'two-step' proposal for CoMC and CoS as a long-term solution. However, it is the most practical means of enabling elective HHS for early 2017. After this, industry could consider introducing a process for CoMC with concurrent CoS, building on the revised process for the simple case.
- 2.40. Subject to discussions with the cross-code working group, we think a BSC CP should be raised to clarify that, for the near-term, there is no process for CoMC with concurrent CoS for smart meters, and that the HH supplier is instead responsible for returning a customer to NHH arrangements before the CoS process. This includes requiring the losing supplier to follow the timescales set out in the BSCP.
- 2.41. We think this change should be raised because it helps to avoid impacts on industry parties who do not choose to adopt elective HHS. This also helps to allow the changes to be implemented swiftly.

3. Ongoing supplier agent costs

Chapter Summary

We discuss the functions performed by supplier agents (specifically Half-Hourly Data Collectors). In particular, we focus on the requirements on how fast half-hourly consumption data must be provided into settlement. We explore how these could be relaxed to reduce the costs of half-hourly settlement.

Introduction

- 3.1. Under the BSC, electricity suppliers appoint supplier agents to carry out certain functions related to settlement. In responses to the December open letter, some stakeholders told us that the higher ongoing costs of HH supplier agent services (relative to their NHH equivalents) form a barrier to elective HHS. The increase in supplier agent costs as a result of moving to HHS was previously recognised as part of P272.²⁷
- 3.2. There are three HH supplier agent roles: meter operator (MOA), data collector (DC) and data aggregator (DA). We have focused on DC issues, which were more prominent in responses to our open letter. One stakeholder told us that annual DC costs were around £50/meter for HH customers, compared to around £2/meter for NHH customers.²⁸ In contrast, even when a stakeholder raised MOA costs as an issue, it attributed this to a lack of competitive pressure, rather than barriers caused by the industry rules. Workshop attendees agreed that DC should be our focus. The HHDC role can be broken down further into data retrieval (DR) and data processing (DP). We examine these separately below.
- 3.3. The costs of supplier agent services may change in future. For example, having more HH customers may lead to economies of scale. At the workshop, stakeholders said that with small volumes, agents' processes are more likely to be manual, which makes them costlier than might be possible at larger scale using computer programs and automated systems. However, such an effect would not reduce costs for early adopters.
- 3.4. HHS requires a significant increase in the number of meter readings taken and processed through settlement: from perhaps one or two NHH readings a year at present,²⁹ up to 17,520 HH readings. It seems reasonable that

²⁷ The draft Impact Assessment for P272 estimated that the incremental annual ongoing cost to suppliers from moving to HHS was £45/meter. (Paragraph 6.10 of: <https://www.ofgem.gov.uk/sites/default/files/docs/2013/10/balancingsettlementcodemodificationproposal272draftia.pdf>). Supplier agent costs were the largest contributors to the ongoing supplier costs, according to the figures provided by industry. (See pages 20-21 of Attachment A to the P272 Assessment Report (November 2012): <https://www.elexon.co.uk/wp-content/uploads/2012/02/P272-Assessment-Report-v2.0.zip>)

²⁸ https://www.ofgem.gov.uk/system/files/docs/2016/03/ovo_response_dec_15_open_letter.pdf

²⁹ Once a customer has a smart meter, the supplier would be able to take meter reads

supplier agents would face some additional costs in handling this extra data. There are therefore competing forces which could affect future HH supplier agent costs.

- 3.5. Beyond any inherent factors, the incremental cost of HHS may also be affected by differences in the BSC requirements for NHH and HH supplier agents. These requirements may change over time – for example as a result of the SRAG’s recommendations. If such changes simplify the requirements, we would expect competitive pressure to drive down the costs of supplier agent services.

Data retrieval

- 3.6. With a smart or advanced meter, the usual process will be to retrieve data from the meter remotely. The supplier needs to pay for a communications service: either the DCC, or a commercially-procured service from the SMSO or other communications provider.
- 3.7. We understand that communications are an important part of existing HHDC costs. However, these costs will change with the introduction of the DCC, for those meters enrolled in the DCC. There is currently no difference in the DCC costs incurred by a supplier whether a meter is settled HH or NHH – there is simply a flat fee per meter, with the value of the charge per service request set to zero.³⁰ This charging structure could change over time – but there is currently no barrier to elective HHS.
- 3.8. For non-DCC-enrolled meters, our work will not be able to influence the costs of the communications technology, or contracts which suppliers have already agreed.³¹ However, we can try to ensure that the settlement rules give suppliers flexibility in how frequently they collect meter reads. This will allow them to negotiate the most efficient commercial solution.
- 3.9. For existing HH meters, when the remote communications do not work, a HHDC needs to collect a manual meter read by visiting the site. It is important for settlement accuracy that meters with high levels of consumption are settled based on actual data rather than estimates. We

remotely, whether a customer is HH or NHH settled.

³⁰ Settling a customer HH could be associated with taking more frequent meter readings than settling a customer NHH, which would require a greater number of service requests. The DCC charging statement is available at: https://www.smartdcc.co.uk/media/362268/charging_statement_for_the_regulatory_year_ending_31_march_2017_issue_1.0.pdf

³¹ By the end of June 2015, there were 1.19 million smart meters installed at domestic premises and 0.54 million smart and advanced meters installed at non-domestic premises. (https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/477258/Smart_Meters_Implementation_Programme_Annual_Report_2015.pdf) As the DCC is not currently operational, all the smart meters are currently non-DCC-enrolled (SMETS1). Some of the advanced meters are installed for larger non-domestic customers in profile classes 5-8 (or who have since moved to HHS under P272); the remainder are in profile classes 3-4.

understand that if a site visit is required, this contributes significantly to the cost of supplier agent services.

- 3.10. A HHDC would use a different method to collect a meter read on a site visit to a smart meter than for an existing HH meter.³² If the communications are not working, a site visit by the HHMOA may be needed to address the issue and re-establish remote data retrieval (or replace the meter if it is faulty), rather than to collect meter reads manually. In either case there would be costs to a site visit. A fallback alternative would be to migrate an elective site with a permanent communications problem back to NHH settlement. This is not an option for existing mandatory HH sites.
- 3.11. However, a site visit for a HH site may cost more than a visit to a NHH site. A site visit is likely to be required for a HH customer in isolated cases³³ – in contrast, a supplier agent may be able to coordinate its NHH site visits to achieve economies of scale (eg by reducing the travel time between sites).
- 3.12. In the next section, we focus on the potential for relaxing read performance requirements, including to reduce costs from site visits.

Relaxing read performance requirements

High-level concept

- 3.13. The performance requirements under the BSC are more stringent for HH than for NHH sites. For HH sites below the 100kW threshold,³⁴ suppliers must settle 99% of volumes based on actual meter reads by the first reconciliation run (R1, around two months after delivery). This is the standard that would currently be applied to elective HH customers. In contrast, a supplier only needs to settle 30% of NHH volumes based on actual reads at the same stage.³⁵ This reflects that NHH sites have historically required a site visit to read the meter.³⁶
- 3.14. Relaxing the rules on how frequently HH data must be submitted into settlement could potentially reduce the costs of HHS. Several parties mentioned this in response to our December open letter. Subsequent meetings also supported this. At the workshop, there was broad agreement that read performance requirements should be relaxed, at least in the short term. One stakeholder noted that HH supplier agent costs quoted are much higher than NHH, and that supplier agents refer to the BSC read

³² Smart meters do not have an optical port which an agent can use to read the HH consumption data stored in the profile data log at the site. An agent will however be able to connect a Consumer Access Device to the Home Area Network and retrieve HH data with the necessary permissions. For SMETS2 meters, an agent will also be able to obtain HH consumption data at the site using a hand-held terminal.

³³ Unless there was a major outage of the communications infrastructure in a given area.

³⁴ Measurement classes E, F and G.

³⁵ BSC Section S, Annex S-1.

³⁶ Some customers now read their own meter and provide this to their supplier online.

performance requirements as a source. They said that relaxing the read performance requirements could help to make elective HHS cost-effective.

- 3.15. Failing to meet the read performance requirements is primarily an issue of compliance with the BSC, rather than one with direct financial consequences.³⁷ When a supplier fails to meet certain BSC performance measures, it will incur supplier charges. These compensate other suppliers for the costs of the failure. However, the performance requirement for HH sites below the 100kW threshold only attracts supplier charges at the final reconciliation run (RF, around 14 months after delivery).³⁸
- 3.16. Relaxing the read performance requirements could have several potential benefits for suppliers offering elective HHS and their agents:
- It would make it less urgent for supplier agents to visit sites. At the workshop, one stakeholder said that a lower performance requirement could allow repairs to be made next time there was a van in the area, which would cost less than a specific trip. Equally a missing read could be the result of an intermittent communication signal which over time improves without the need for a further site visit.
 - It could allow optimisation of how frequently remote reads are taken from advanced or non-DCC-enrolled SMETS1 meters, to manage communications costs.³⁹
 - It could allow more time to manage exceptions in data validation.
 - It could help manage any temporary uncertainty about the performance of smart meters, particularly in the early stages of the roll-out. One stakeholder told us that, based on their experience with advanced meters, more evidence will be needed about how smart meters perform in practice.
- 3.17. Performance requirements are already lower for HH customers below the 100kW threshold compared to those above it. Some parties told us this has already contributed to lower supplier agent costs for these customers.
- 3.18. The SRAG did not recommend any changes to the read performance requirements.⁴⁰ The SRAG's report stated that it should be possible to get data remotely from the smart meter in time to meet the requirements. In

³⁷ Although any enforcement action related to a licence breach of a requirement to comply with codes could have financial consequences.

³⁸ BSC Section S, Annex S-1, paragraph 3.4.1.

³⁹ At present, supplier agents may read meters on a frequency which leaves them time to fix any failed readings before the relevant settlement run. With a lower read performance requirement, any failed reads could be addressed at a later stage.

⁴⁰ Section 8 of: https://www.elexon.co.uk/wp-content/uploads/2015/10/27_249_13A_SRAG_Report_PUBLIC2.pdf

theory, it is correct to expect the technology to allow this. However, we want to ensure that as much as possible is done to reduce the costs of supplier agent services, including when there are problems with meter technology or communications.

- 3.19. The read performance requirements exist for an important reason – to help protect the accuracy of settlement. We see HHS as an opportunity to make settlement more accurate. Changes to the read performance requirements are intended to support early take-up of elective HHS. Any immediate risks to settlement would be largely mitigated by the small initial number of elective HH customers and low volumes of energy. In any event, the settlement performance from these customers would be higher than if they remained NHH. Over time, the read performance requirements can be revisited, in the light of the evidence available. In the longer term, this might be necessary to support reductions in settlement timescales as part of mandatory HHS.
- 3.20. Any change would only affect the minimum performance standards that suppliers (and their agents) have to meet. Suppliers would be free to agree a higher level of performance with their agents, which might be for a number of reasons.⁴¹ We simply want to ensure that the minimum standard is not a barrier to elective HHS.
- 3.21. One stakeholder told us that there was no need to relax read performance requirements, because the energy volumes from elective HH sites would be small at first, and so the amount of energy not settled on actual reads would be low in comparison with the volumes from other HH sites. The current performance requirement applies to sub-100kW sites, so volumes from HH sites above this threshold would not be relevant. For a supplier with many P272 customers, adding a few elective HH customers would only slightly affect their ability to meet the requirement. But this would not apply to a domestic-only supplier looking to offer HHS.

Design considerations

- 3.22. **New standard:** There are various options for relaxing the performance standard. The percentage read performance standards could be reduced, or the requirements could be delayed to a later settlement run. There could also be different read performance requirements at different settlement runs. We have considered what changes might be needed to the existing read performance requirement for HH sites below the 100kW threshold (99% at R1).

⁴¹ Suppliers might want to get regular data to help avoid having to provide estimates at the first settlement run (SF). Another reason could be technology – one stakeholder told us that suppliers might want to collect data every day, as a short call to collect a small amount of data was more reliable than a longer call. Collecting data more frequently could also be motivated by factors beyond settlement – for example consumer expectations about the service their smart meter provides, whether for simple services like accurate billing, or for more complex energy management products.

- 3.23. We want a performance standard which reduces the costs of HH supplier agent services. At the same time, relaxing the requirement beyond the point where it has any effect on costs would not be necessary, and could affect the accuracy of settlement. For example, this could reduce the incentives to replace defective meters.
- 3.24. We discussed the options at the workshop. One stakeholder suggested read performance requirements should be relaxed to a standard of 90% at R1. Others agreed that this was achievable and acceptable. Although it is not an equivalent metric, previous data presented to the Settlement Expert Group indicated that the success rate for connection to HH meters was between 94% and 95%, with a further small proportion of collected reads that failed validation.⁴² On this basis, we consider that a 90% requirement at R1 is a sensible starting point for discussion. The precise figure can be determined through the modification workgroup process.
- 3.25. The workshop proposal was for a single performance standard, which would not increase beyond R1. This could leave up to 10% of volumes settled on estimates. One stakeholder said that settling 90% of volumes based on actual HH data would be better than the current final NHH requirement of settling 97% of volumes based on profiled NHH data. The estimated data could be based on a customer's previous consumption history, which could be more accurate than profiling.
- 3.26. We do not have a view on whether an additional performance requirement would be needed beyond R1. The workgroup could consider this, as long as it took care not to delay the reform or introduce a barrier to elective HHS. Any requirement at the final reconciliation run (RF, 14 months after delivery) would also need to take into account that smart meters are only required to store 13 months' worth of HH import data⁴³ – although we do not expect that suppliers would want to collect data this infrequently.
- 3.27. **Coverage:** We think that the read performance requirements should be relaxed for both domestic and smaller non-domestic customers (measurement classes F and G). As a first preference, we would not include larger non-domestic customers in measurement class E, as only a small number of elective customers would join this measurement class. The solution would also apply to P272 customers in measurement class G, but would not mandate any changes for these customers, as a supplier would be free to continue to meet a higher performance requirement. It could help to reduce implementation costs for these customers.
- 3.28. Implementing this coverage depends on the modification recommended by the SRAG to create new Consumption Component Classes (CCCs) for each sub-100kW measurement class.⁴⁴ This is because ELEXON receives data by CCC, and there is currently only a single CCC that captures measurement

⁴² https://www.ofgem.gov.uk/sites/default/files/docs/2014/07/meeting2utilita_0.pdf

⁴³ For export, smart meters are only required to store six months of HH data. As these are minimum requirements, certain meter types may be able to store more data.

⁴⁴ This has been raised as BSC modification P339 (Introduction of new Consumption Component Classes for Measurement Classes E-G).

class E alongside F and G. To enable the relaxation of read performance requirements as soon as possible, the solution should also be applied to measurement class E for any interim period before the new CCCs are available. It should also be applied to measurement class E if the new CCCs are not introduced.

- 3.29. The change would cover all customers in these measurement classes, whether DCC-enrolled or not, and whether they have smart or advanced meters. This would include P272 customers in measurement class G, but would not mandate any changes for them, as a supplier would be free to continue to meet a higher performance requirement. At the workshop, one stakeholder asked if relaxing read performance requirements would lower costs for non-DCC-enrolled SMETS1 meters. Others suggested that it would. This is helpful in allowing more customers to benefit from elective HHS.
- 3.30. **Implementation:** The Performance Assurance Reporting and Monitoring System (PARMS) may need changing. This helps give ELEXON and the Performance Assurance Board information. ELEXON would only be able to report performance separately for each of measurement classes E to G if new CCCs were introduced. If this was in place, ELEXON told us that changing the read performance requirements would only mean small changes to the charts it prepares showing settlement performance. As supplier charges only apply at the final reconciliation run (RF), there would not need to be any changes to the metrics used to calculate such charges (known as serials).

Conclusion

- 3.31. We think an industry party should raise a BSC modification to relax the read performance requirements for HH customers in measurement classes F and G (and E, in any interim period before new CCCs are introduced, or if new CCCs are not introduced).
- 3.32. We think this should be raised as a way of reducing supplier agent costs, and hence enabling cost-effective elective HHS. It would be a targeted quick win, which would not have significant effects on the settlement system in general.

Data processing

Data validation

- 3.33. The SRAG recently considered how data validation should occur for smart meter customers. This included considering the data validation steps⁴⁵ in

⁴⁵ As prescribed by BSCP 502, appendix 4.1.

detail.⁴⁶ It recommended removing requirements that would be irrelevant – such as meter advance reconciliations.⁴⁷

- 3.34. The SRAG recommended that certain steps could be carried out by the supplier rather than the HHDC. This reflects that the supplier would be the party receiving certain alerts from a smart meter. Transferring responsibility for certain functions should reduce HHDC costs – although this may be offset by increased internal costs for suppliers. These proposals will be considered through the CP process to implement the SRAG's recommendations.
- 3.35. We have therefore not identified any further changes to data validation requirements which could reduce ongoing supplier agent costs. At the workshop, stakeholders generally agreed.

Data estimation

- 3.36. The SRAG has already recommended some changes to data estimation. These will remove requirements irrelevant for customers with smart meters (such as references to reactive energy). These will also allow the HHDC to use data from a NHH profile class that is appropriate to the customer type for the backstop estimation process.⁴⁸ These steps should help to make the estimation process more suitable for domestic and smaller non-domestic customers.
- 3.37. There does not appear to be an obvious way to simplify data estimation further to reduce costs. The process has a hierarchy of different ways of estimating data – but this allows the use of the best information available. It would theoretically be possible to select a 'lowest common denominator' option, such as using Default Period Profile Class Coefficients (DPPCCs) for all estimation for small sites. This might simplify the process. However, it seems better to take advantage of the information available about the actual historical consumption of a site, which is likely to be more accurate, thereby reducing risks to suppliers when data is unavailable.⁴⁹
- 3.38. We also received little feedback that data estimation is a barrier to cost-effective elective HHS. We therefore consider no further change is required to data estimation at this stage. At the workshop, stakeholders agreed.

⁴⁶ See for example: https://www.elexon.co.uk/wp-content/uploads/2015/11/HH_Validation_BSCP_Service_request_and_alerts_match.xlsx

⁴⁷ These cross-check consumption data against the meter register.

⁴⁸ Instead of using profile class 6 data as at present. This would include creating new Default Period Profile Class Coefficients for profile classes 2 and 4.

⁴⁹ The first customers using elective HHS might be expected to be those with a flatter than average profile, or with a greater ability to shift load. These customers would be allocated more volume using the DPPCCs than they actually consumed.

4. Network charging

Chapter Summary

We explain the issue of suppliers being overcharged for transmission charges in the year a customer moves to half-hourly settlement, and explain how this could be addressed. We also briefly cover distribution charging.

Transmission charging

Issue

- 4.1. From April 2017 customers moving from NHH to HH settlement will, under the current arrangements, be overcharged for transmission charges in the year that they migrate. This is an unintended consequence of the arrangements, rather than deliberate, but is still a problem.
- 4.2. There are different arrangements for transmission charging for NHH and HH customers. NHH transmission charges (£/kWh) are based on the cumulative volume consumed between 4pm and 7pm over the course of the year. HH transmission charges (£/kW) are based on the consumer's average demand during the three 'Triad' periods between November and February.⁵⁰
- 4.3. HH transmission charges for the entire year are determined during a particular period of the year. This opens up the prospect of overcharging, which forms a barrier to elective HHS. For example, a consumer moving to HHS on 1 August would already have incurred four months of NHH transmission charges. Their HH transmission charges would then be determined during the Triad periods between November and February. These HH charges will be calculated in exactly the same way as a consumer who began the year on HHS, with no discount to reflect the NHH charges already paid.

Figure 1 – Determining NHH and HH transmission charges



⁵⁰ Transmission charges are determined on a regional basis and invoiced to the supplier, rather than being calculated for individual consumers. However, the underlying drivers apply equally at the level of an individual consumer.

- 4.4. This is a known issue, which was first considered in the context of P272. It was examined and addressed temporarily through two modifications to the Connection and Use of System Code (CUSC).⁵¹ In broad terms, the transitional solution is to charge HH customers below the 100kW threshold using the NHH methodology, until the end of the P272 migration. There is therefore currently no overcharging for customers in profile classes 5-8 moving to HHS under P272. However, the transitional solution expires at the end of the P272 migration in March 2017. This did not address the root cause, which is that HH and NHH transmission charges are set over different parts of the year.
- 4.5. The extent of any overcharging depends on the point in the year at which the consumer moves to HHS, as this determines how many months of NHH charges they have already paid. Although the size of the impact may not be material at certain times of year, it would be unrealistic to expect suppliers to only migrate customers to HHS in one part of the year. This could limit suppliers' ability to develop and market products linked to HHS.
- 4.6. We estimate that removing this barrier could be worth up to around £17 for a customer migrating to HHS.⁵² This figure is based on the additional NHH charges that a customer would have paid in 2015-16. It assumes that the customer migrates the day before the first Triad.⁵³

Transmission charging in the longer term

- 4.7. In responses, several stakeholders said that the introduction of HHS would make it important to review the charging arrangements. In particular, one said that Triad charging was not appropriate for domestic customers.
- 4.8. Through this paper, we are not expressing a view on the correct form of charging arrangements in the long run. In particular, we do not have a presumption as to whether Triad charging is appropriate for domestic customers or not. This is an important question, but one that will require extensive work from us and others in the future. Our narrow focus is on removing short-term barriers to cost-effective elective HHS – and we have not seen evidence that the existing HH charging arrangements pose barriers to cost-effective elective HHS, beyond the overcharging point identified above.⁵⁴ National Grid has started scoping a review of commercial arrangements linked to transmission charging,⁵⁵ which will

⁵¹ CUSC modification proposals (CMP) 241 and 247. The current rules can be found in section 14 of the CUSC.

⁵² NHH demand transmission charges are set by region. The figure quoted is the median across all regions. In the region with the highest transmission charges (Southern), the equivalent figure would be around £19.

⁵³ The amount of overcharging faced by the supplier should decline if a customer migrates to HHS after one or more Triads, as that customer would not have been contributing to HH demand at the time of the Triad. The first Triad in 2015-16 was on 25 November.

⁵⁴ Workgroup discussions during CMP 241 suggested that NHH and HH transmission tariffs are 'relatively similar'. CMP 241 Final Modification Report, paragraph 4.6.

⁵⁵ <http://www2.nationalgrid.com/WorkArea/DownloadAsset.aspx?id=40277>

⁵⁵ <http://www2.nationalgrid.com/WorkArea/DownloadAsset.aspx?id=8589934794>

provide a means for stakeholders to discuss longer-term issues. At the workshop, stakeholders agreed that this is right.

High-level solution

- 4.9. We identified two main options to ensure that a customer only pays one set of transmission charges in the year they move to HHS:
- A customer pays NHH charges for the entire year that they move to HHS, and then pays HH charges thereafter; or
 - The customer remains on NHH charges until all customers move to HHS.⁵⁶
- 4.10. In each case, the NHH transmission charges would be determined between 4 and 7pm (as under the current NHH arrangements), but based on an elective HH consumer's actual, rather than profiled, demand. This replicates the transitional solution during the P272 migration.
- 4.11. In principle, we would prefer the most targeted solution that resolves the overcharging issue, minimising the disruption to the charging arrangements. The first option could help to do this.
- 4.12. At the workshop, stakeholders noted that there were practical issues with the first option. Transmission charging relies on the data that ELEXON can provide, and ELEXON does not currently receive consumption data split by whether customers underwent a CoMC in the last year. Introducing this would need a new data item to identify whether a customer had undergone a CoMC in the last year. This would then need to be used to split all flows of consumption data. This would require changes to the systems of all data collectors and data aggregators, as well as ELEXON's central systems. This may not be proportionate.
- 4.13. The second option would apply NHH transmission charges to certain HH sites (potentially including non-domestic sites migrated to HHS under P272) until all customers move to HHS. This would resolve the overcharging issue, as the customer would face the same charging structure (4-7pm), whether it was HH or NHH. It would also help customers moving to HHS as part of a mandatory transition. At the workshop, stakeholders broadly supported this.
- 4.14. However, the second option would influence the price signals provided to affected customers. Affected customers would not face the price signals under the HH charging arrangements. This could affect suppliers looking to offer products to encourage consumers to shift load ('Triad avoidance'). However, customers paying NHH charges would still have incentives to

⁵⁶ Further work would be needed to determine transmission charging arrangements beyond this.

shift load – they could save up to 6p/kWh in some regions if they were able to move load outside the 4-7pm period where NHH charges are determined⁵⁷ (and if this was reflected in the tariff they paid). This is substantial compared to the cost of electricity to a domestic consumer.⁵⁸

- 4.15. We understand that the second option could still require National Grid to make some systems changes. Under the transitional P272 solution (which the second option resembles), National Grid receives a separate data file with demand from HH customers below the 100kW threshold, and then manually adjusts the standard data (P210 file) received from ELEXON. National Grid told us that this arrangement was established as a temporary solution. If a similar solution is required for a longer transitional period involving greater data volumes, such as that potentially required in this elective work, that may necessitate the need to make systems changes to remove the need for manual intervention. As any systems change is unlikely by early 2017, the feasibility of a similar manual workaround would need to be considered in the short term.
- 4.16. On balance, we consider that the second option is preferable.

Design considerations

- 4.17. **Coverage:** At a minimum, the solution to overcharging of customers remaining on NHH charges until all customers move to HHS can be applied to domestic HH customers (measurement class F). Applying the solution to smaller non-domestic customers is less straightforward, because it would also impact customers migrated to HHS under P272.
- 4.18. For ELEXON to be able to provide the data to National Grid, the solution would need to be applied to an existing defined group. The obvious choice is by measurement class. As noted above, this would depend on the modification recommended by the SRAG to introduce new CCCs associated with each measurement class.
- 4.19. As noted in the introduction, most smaller non-domestic customers in profile classes 3 and 4 have WC meters and would therefore move into measurement class G. Not applying the solution to measurement class E (and therefore maintaining these customers on HH charging arrangements) would help to keep the solution as targeted as possible. Within measurement class G, there would be elective HH customers, as well as some transferred under P272. This means that the solution will affect both sets of customers.
- 4.20. There is an unavoidable trade-off. Removing over charging for smaller non-domestic customers in measurement class G will also commit P272

⁵⁷ <http://www2.nationalgrid.com/WorkArea/DownloadAsset.aspx?id=43163>

⁵⁸ As an indicative comparison, the average electricity price for domestic consumers in 2014 was around 14p/kWh. See figure 4.1 of: https://www.ofgem.gov.uk/sites/default/files/docs/2015/09/retail_energy_markets_in_2015_report_0.pdf

customers in this measurement class to NHH charging for the next few years. This would prevent them from managing their load under the HH charging arrangements, and would mean a further change to transmission charging for these customers. However, if HH charging is retained for elective HH customers in measurement class G, then this could open up the risk of suppliers moving customers in and out of HHS at different points in order to avoid Triads completely. On balance, we think that the barrier should be removed for smaller non-domestic customers as well as domestic customers.

- 4.21. If the new CCCs are not available for the start of the 2017-18 charging year in April 2017, then we think the modification should also be applied to measurement class E as well, until the next charging year when the new CCCs are available. If the new CCCs are not introduced, the modification would continue to apply to measurement class E.
- 4.22. **Optionality:** Adding optionality to the solution would allow customers to choose to pay HH transmission charges instead of NHH. This would allow suppliers to offer products with sharper incentives to shift load away from peak times.
- 4.23. The key question is the administrative cost of allowing this optionality, and whether this would be proportionate. There is currently a small amount of optionality in the existing arrangements, which is open to the approximately 3,000 customers who were electively HH before P272. Optionality was restricted to these customers through modification CMP 247 – as part of this modification, the cost of developing the systems changes to provide this option for a much larger number of customers was estimated to be around £2million.⁵⁹
- 4.24. There is currently an open modification to introduce optionality for P272 customers during the 2016-17 charging year (CMP 260). Work on this modification may yield insights into whether offering optionality for smaller non-domestic customers is viable.
- 4.25. We are open to the workgroup considering optionality, provided this does not slow down the timescale for decision.⁶⁰ However, at this stage, our current view is that we would need to be persuaded that any additional administrative costs and complexity are justified.
- 4.26. **Implementation:** ELEXON would need to make changes to BSC reporting to provide the relevant data for transmission charging.

⁵⁹ CMP 247 Final Modification Report, annex 1, page 18.

<http://www2.nationalgrid.com/WorkArea/DownloadAsset.aspx?id=43208>

⁶⁰ Eg investigating whether it would be possible to use Line Loss Factor Classes (LLFCs) to identify customers opting into HH transmission charging. We note that this would have some complexities – for example, the LLFCs vary between regions (GSP Groups).

Conclusion

- 4.27. Given the points above, it is clear that each solution has some potential drawbacks. Nevertheless, we consider that this barrier is important enough for a modification to be taken forward and considered further. The modification process will allow the proposed solution to be refined, and the impacts evaluated (and quantified where possible). This will let the Authority make an informed decision on whether the proposal is better than the current situation.
- 4.28. During the workgroup process, we are open to discussions about moving away from our default position that the modification should apply to smaller non-domestic customers with WC meters (i.e. in measurement class G). We are also open to discussions on whether optionality should be added. However, such discussions should not slow down the progress of the modification. As a target, we think this change should be in place for April 2017.
- 4.29. We think National Grid or another industry party should raise a CUSC modification to extend the existing NHH transmission charging structure to HH domestic and smaller non-domestic customers with WC meters (measurement classes F and G).
- 4.30. We think that this should be raised as it would help to avoid overcharging for transmission charges, hence contributing to our goal of cost-effective elective HHS. We think this is the most targeted solution which avoids significant changes to settlement data.

Distribution charging

- 4.31. The overcharging issue above occurs because NHH and HH transmission charges are determined over different parts of the year. There is no equivalent issue for distribution charges, because both NHH and HH distribution charges are determined over the course of the entire year.
- 4.32. We also do not think there are any other immediate barriers to elective HHS from the distribution charging arrangements. Work carried out alongside the introduction of P272⁶¹ has introduced HH tariffs designed for small sites, and with aggregated billing. These were designed to align with NHH charging,⁶² meaning that the impact for an average customer moving from NHH to HH settlement should be small. For an individual customer, the change in distribution charges on moving to HHS will vary, depending on their individual load shape – but this is an inevitable consequence of moving away from profiling, rather than a result of the distribution charging arrangements.

⁶¹ Through DCUSA CP (DCP) 179.

⁶² Paragraph 10.3 of the DCP 179 Change Report:

<https://www.dcusa.co.uk/Documents/DCP%20179%20Change%20Report%20v1%200.zip>

- 4.33. A Distribution Connection and Use of System Agreement change proposal (DCP 268) has been raised to introduce time band distribution charging for NHH customers, using their profiled consumption data. This would harmonise NHH and HH arrangements. Discussion of this modification is ongoing. Even under this modification, the amount an NHH customer pays in distribution charges could still change on a move to HHS, due to the switch from profiled to actual data.
- 4.34. One stakeholder told us that it had faced problems with sites being assigned a much larger maximum demand than their actual maximum demand. The new distribution tariffs introduced for customers in measurement classes F and G do not have capacity charges based on maximum demand, so this is no longer an issue.

5. Other BSC and related issues

Chapter Summary

We discuss the arrangements for reconciling demand at a regional level. We also consider the way that suppliers pay for the costs of the Balancing and Settlement Code (BSC). In each case, we provide conclusions. We also touch on some other issues related to the BSC.

Group Correction Factor

Issue

- 5.1. Grid Supply Point (GSP) Group Correction Factor (GCF) is a way to ensure that the amount of energy allocated to suppliers through settlement (bottom-up) matches the amount recorded entering a distribution region. It is a multiplier applied to the bottom-up estimate. There is a different GCF for each region in each settlement period. GCF is currently applied to NHH sites only. One reason is that the profiling process is a key source of errors. As an indication, profiling accounts for around 80% of the misallocation of volumes between periods.⁶³
- 5.2. More recently, the rapid increase in Feed-in Tariff (FiT) generation has affected the GCF. The majority of microgeneration export is not included in settlement. Instead, it is spilled onto the distribution network, and becomes one of the factors included in the GCF. This spilled export depresses the GCF at the times when microgeneration is exporting, reducing the amount of energy allocated to suppliers.
- 5.3. The cost of paying microgenerators for their exported volumes is covered by the FiT levelisation process, which applies to both HH and NHH suppliers. A NHH supplier will have a benefit from the GCF, and a cost through FiT levelisation – these two effects will largely offset each other.⁶⁴ In contrast, a HH supplier would only face the cost of FiT levelisation, without the GCF benefit. This could be a barrier to elective HHS.
- 5.4. One stakeholder told us that the foregone GCF would be worth around 1% of commodity costs to a domestic customer moving to HHS.⁶⁵ This appears to be broadly correct. As the amount of FiT generation grows, there are

⁶³ Slide 29 of: https://www.ofgem.gov.uk/sites/default/files/docs/2014/10/ofgem_slides_6.pdf. As well as shape error (misallocation of volumes between periods), there can also be volume error (due to outright errors in the amount of consumption, rather than issues with attributing consumption between periods).

⁶⁴ GCF and FiT levelisation will not offset each other exactly because the calculations are different. GCF is calculated for every settlement period for every region – so a supplier's benefit (through GCF) will depend on its regional demand in particular settlement periods. In contrast, FiT levelisation is based on annual national demand.

⁶⁵ https://www.ofgem.gov.uk/system/files/docs/2016/03/ovo_response_-_dec_15_open_letter.pdf

expected to be larger effects on GCF.⁶⁶ This means that the barrier would grow. The size of the barrier would also vary between regions, with a larger foregone benefit in regions with large amounts of FiT generation (eg the South West).

High-level solution

- 5.5. If export from FiT generation was metered and settled, then there would be no spilled energy and therefore no impact on GCF. The barrier would be eliminated. In response to the open letter, a couple of stakeholders told us that export from small-scale generation should be metered and settled. This is a longer-term consideration – for example, it would rely on FiT sites having smart meters to record export. In August 2015, DECC consulted on two options for requiring FiT sites to accept a smart meter.⁶⁷ It has decided against taking immediate action, although its response to the consultation reiterated its aim of ending deemed export.⁶⁸
- 5.6. In the short-term, an alternative way to remove the cost differential between NHH and HH sites would be to apply GCF to small HH sites, in the same way as for NHH sites (with the scaling weight set to one).⁶⁹ This would remove the barrier to elective HHS. In response to the open letter, some stakeholders suggested this approach, which also received broad support at our stakeholder workshop. The Settlement Reform Advisory Group also recommended that ELEXON should carry out a review of applying GCF to HH sites.⁷⁰ We consider that it may be worth allowing HH domestic sites to benefit from this incremental gain from GCF.
- 5.7. Unavoidably, this would also mean exposing HH suppliers to the volatility between settlement periods caused by other sources, especially profiling. HH customers would be exposed to a risk that they did not create. Applying GCF to certain HH customers is a way of addressing the impact of microgeneration, rather than an attempt to reflect the contribution of such customers to GCF.
- 5.8. Due to these trade-offs, we think that any change (if implemented) should be kept under review. For example, this review could take place a year after implementation.

⁶⁶ https://www.elexon.co.uk/wp-content/uploads/2013/01/PSRG25_02.pdf

⁶⁷ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/469476/Consultation_on_a_Review_of_feed-in_tariff_scheme.pdf

⁶⁸ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/487300/FITs_Review_Govt_response_Final.pdf

⁶⁹ The scaling weight allows different proportions of GCF to be applied to different categories. (For example, at present there is a larger scaling weight for NHH line losses than for NHH consumption). Setting the scaling weight equal to one means that small HH sites would receive the same amount of GCF as NHH sites.

⁷⁰ https://www.elexon.co.uk/wp-content/uploads/2015/10/27_249_13A_SRAG_Report_PUBLIC2.pdf

Design considerations

- 5.9. **Coverage:** To remove barriers to elective HHS for domestic customers, we think that the GCF could be applied to measurement class F. As with other areas, this would require new CCCs. For this issue, we think that implementation could wait until these new CCCs are available.
- 5.10. The cost barrier linked to GCF would apply in the same way for domestic and smaller non-domestic customers. However, some existing HH non-domestic suppliers may need to adapt their HH systems to forecast GCF. There would also be an effect on HH non-domestic customers migrated under P272. We therefore think that the GCF could be applied to domestic customers in measurement class F only, so that the implementation costs are proportionate.
- 5.11. **Longer-term impacts:** As customers move to HHS and are settled on actual half-hourly data, the amount of profiling error should decrease. However, there are some types of error which will not be affected by a move to HHS (eg meter faults). Without changes to the current structure of the GCF, as the number of NHH customers decreases, each remaining NHH customer will pick up a greater proportion of these errors. This could lead to an increase in bills, although the effect would be small initially. In responses to the open letter, several stakeholders noted this potential impact. One stakeholder said that GCF should be applied to HH sites in order to mitigate this. This was also noted at the workshop. Applying GCF to HH domestic sites would therefore help to mitigate any impact of elective HHS (through the GCF) on the remaining NHH customers.

Conclusion

- 5.12. We think applying GSP Group Correction Factor to HH domestic customers (measurement class F) should be considered as part of the modification raised to introduce new CCCs. This would be a way of addressing the impact of microgeneration which is not metered or settled, as a targeted change helping to contribute to our goal of cost-effective elective HHS. If new CCCs are introduced, ELEXON would then be able to raise a Market Domain Data change to apply GCF to measurement class F. We think that this area should be kept under review.

BSC specified charges

Issue

- 5.13. BSC specified charges are used to recover some of the costs of running the BSC. These charges vary between HH and NHH sites:
- One of the BSC specified charges relates to HH metering systems. This is the SVA (Supplier Volume Allocation) specified charge, which

is charged per HH meter. It is intended "to recover Suppliers' share of the HH related SVA costs".⁷¹

- SVA costs related to NHH sites are recovered through the 'Annual Consumption Charging Net SVA Costs'.⁷² This is based on a supplier's NHH volumes, rather than being charged per meter.

5.14. Small sites moving to HHS would see an increase in BSC costs. This is because the HH charges are set per meter. In responses, several stakeholders mentioned BSC specified charges as an issue for consideration. One respondent to the open letter said that the costs for elective HH customers should be set equal to those for NHH customers.

5.15. The BSC Panel has just reduced the value of the SVA specified charge to reflect the number of customers moving to HHS under P272.⁷³ ELEXON is planning to review the value of the charge again in April 2017, alongside the introduction of P272.⁷⁴ Following this, the potential barrier should fall to around £2 per year for a domestic customer.⁷⁵ (Based on the current value of the SVA specified charge, the barrier is currently around £3.50 per year). The cost difference would fall further as more sites elected to settle HH – the question is whether the remaining cost difference should be eliminated to remove barriers to the first customers electing to settle HH.

5.16. At the workshop, the general sense was that stakeholders were open to change in this area, but that it is not hugely material or urgent. Some stakeholders said that the barrier is not significant enough to justify action, but one stakeholder said the change could still be made if it was simple.

High-level solution

5.17. Removing the remaining cost difference would require a change to the structure of the charges, rather than simply reviewing the values of charges. The current structure of the SVA specified charge (a single value, set on a per meter basis) does not lend itself to providing a solution that works for both large industrial sites and an elective domestic HH customer.

⁷¹ https://www.elexon.co.uk/wp-content/uploads/2014/10/235_11_Review_Specified_Charges-V1.1.pdf

⁷² Page 2 of: https://www.elexon.co.uk/wp-content/uploads/2014/07/section_d_simple_guide_v18.0.pdf

⁷³ https://www.elexon.co.uk/wp-content/uploads/2015/10/41_250_14_Review_Specified_Charges_PUBLIC.pdf; Paragraph 10a of: https://www.elexon.co.uk/wp-content/uploads/2015/10/BSC_Panel_250_Headline-Report_v1.0.pdf

⁷⁴ This was a recommendation from the SRAG. Paragraph 13.2 of: https://www.elexon.co.uk/wp-content/uploads/2015/10/27_249_13A_SRAG_Report_PUBLIC2.pdf

⁷⁵ ELEXON estimates that the SVA specified charge could fall to £0.24/meter/month once P272 is fully implemented in April 2017. ELEXON estimates that the equivalent cost for a NHH meter would be around £0.06/meter/month. (Paragraph 13.1 of: https://www.elexon.co.uk/wp-content/uploads/2015/10/27_249_13A_SRAG_Report_PUBLIC2.pdf).

- 5.18. The SVA specified charge is intended to be cost-reflective. A small HH site might potentially have a lower impact on the HH-related SVA costs than a large one. This would provide an argument for setting a lower charge for small HH sites. However, if the HH-related SVA costs are largely fixed (eg systems costs), then allocating an equal fraction to each HH meter may be the correct approach from a cost-reflectivity perspective.⁷⁶ One stakeholder told us that any industry costs of elective HHS should be paid by those using it.
- 5.19. Changing the structure of charges could have small knock-on effects on the charges paid by existing (mandatory) HH sites. However, our particular focus is on the barriers to cost-effective elective HHS.

Design considerations

- 5.20. **Coverage:** For consistency with other areas, we think that charges could be applied by measurement class. The revised arrangements would therefore apply to domestic and smaller non-domestic customers in measurement classes F and G. As noted above, this would require new CCCs. The revised arrangements could be introduced alongside the new CCCs, if they are introduced. If the new CCCs are not introduced, the solution could be applied to measurement classes E-G.
- 5.21. **Structure of charges:** There are various ways in which the structure of charges could be adapted to remove the barrier for elective HH customers:
- Recover all consumption SVA charges through a per unit charge.
 - Create two SVA specified charges: one for larger HH customers, and another for measurement classes F and G, setting the second charge as some fraction of the first.
 - Maintain the existing SVA specified charge, but limit this to larger HH customers. Charge customers in measurement classes F and G on a uniform per unit basis, just like NHH customers.
- 5.22. The first option would be the simplest, and make sure NHH and HH customers are treated the same. However, it would be a substantial disruption to the current situation. It would remove the element of cost-reflectivity. It could also increase charges for large industrial sites (as they use the most energy).
- 5.23. The second option would be more incremental. It would maintain the principle that HH charges recover HH-related SVA costs, and would also be less likely to increase charges for larger industrial customers. However, it would create a greater need for ongoing review, as the number of

⁷⁶ Cost-reflectivity may not however be the only consideration in recovering fixed costs.

electively HH-settled customers increases. It would also involve a judgement call to set the relative size of the two SVA specified charges.

- 5.24. The third option would be a hybrid approach. It would be similar to the charging structure for customers at present⁷⁷ – which would mitigate the risk of significant changes in charges. Larger industrial sites would not face an increase in charges – though they might not see the reduction⁷⁸ that they would have expected as a result of P272. The charges for domestic and smaller non-domestic customers would be the same across HH and NHH, which would remove any barrier to HHS. It would also avoid the remaining NHH customers paying a higher level of charges in future as customers migrated to HHS.⁷⁹ However, this would be at the expense of cost-reflectivity – this could make it more difficult to know how to set charges in future. At present, this appears to be the best option.
- 5.25. **Systems impacts:** We recognise that a change to the structure of charges could have an impact on the systems of suppliers and ELEXON.⁸⁰ Given that the size of the barrier is relatively small, if there is evidence that the implementation costs are significant, it may not be proportionate to make this change. Affected parties will have the opportunity to provide evidence through the modification process.
- 5.26. **Change process:** The BSC Panel sets the values of the specified charges. However, the structure of BSC cost recovery is set out in the BSC itself.⁸¹ Changes to this structure would therefore require a code modification.

Conclusion

- 5.27. We think an industry party should raise a BSC modification to amend the structure of BSC charges by charging customers in measurement classes F and G for BSC costs on a per MWh unit basis, in the same way as NHH customers. This will allow for more evidence to be brought forward to improve understanding on the implementation costs.
- 5.28. We think this change should be raised as a way of contributing to our goal of cost-effective elective HHS. If this can be designed in a targeted way, it would reduce costs to settlement systems.

⁷⁷ Charging the largest sites on a per meter basis, and the remaining sites per unit.

⁷⁸ Compared to their current level of charges, due to the anticipated revision of the SVA specified charge.

⁷⁹ Under the current arrangements, if more customers moved away from NHH, the same total cost would still need to be recovered from the remaining NHH customers.

⁸⁰ ELEXON calculates BSC charges using information from PARMS. Changes to BSC charges would therefore need to follow any changes to PARMS as a result of the modification to introduce new CCCs.

⁸¹ Section D of the BSC.

Other issues raised

- 5.29. In response to the open letter, a stakeholder suggested that we should consider barriers to local consolidation of generation and supply (as a potential application of HHS). Although we understand the intent and are aware of parties looking at local consolidation models, this is not a straightforward issue. For example, it raises wider considerations beyond the BSC about how such local units should be charged for use of the distribution network. Given that this does not form a barrier to elective HHS itself, we have not made a conclusion in this area.
- 5.30. Several stakeholders also referred to the potential for European-level changes to the length of the imbalance settlement period (eg to 15 minutes). We note that the European process is ongoing, and has a range of potential outcomes. These would have wider impacts on the GB market, beyond elective HHS. We will continue to pay attention to this process – but it should not be seen as a reason to pause work on elective HHS, because, as noted above, there is a range of potential outcomes.
- 5.31. One respondent raised concerns about whether central systems would be able to cope with a significant take-up of elective HHS. At the workshop, ELEXON said that it would not anticipate changes being required, as central systems use aggregated data.

6. Further issues

Chapter Summary

We consider how elective half-hourly settlement could affect customers. We then discuss the rules about data privacy. We also cover issues relating to smart meters and the DCC, as well as some other points raised.

Customer-facing issues

- 6.1. In itself, settlement is about how suppliers are billed for their obligations – it does not have a direct role for consumers. However, realising the benefits of HHS will rely on suppliers offering new products linked to HHS. There is therefore an important consumer dimension.

Innovation and customer protection

- 6.2. In responses to the open letter, stakeholders noted that new products linked to HHS could have an impact on a variety of interactions with consumers, including information provision and billing. One stakeholder suggested steps that could be taken to protect consumers, for example, preventing suppliers from charging exit fees on Time of Use products, a phased implementation of more complex products, and preventing customers from becoming worse-off after moving to HHS.
- 6.3. Through enabling cost-effective elective HHS, we want to allow suppliers to offer innovative products to consumers. However, it is crucial that these consumers continue to receive an appropriate level of protection when moving to new products linked to HHS.
- 6.4. We have existing tools which we can use to protect consumers from the start of the move to elective HHS. In particular, the Customer Objective and Standards of Conduct⁸² will continue to apply to the same customers as currently. As an example, suppliers are required to communicate information to customers in plain and intelligible language. Suppliers wanting to offer products linked to HHS will need to ensure that they are compliant with this licence condition, which is enforceable by Ofgem.
- 6.5. We consider that the Standards of Conduct are an appropriate way of delivering consumer protection, and at the same time permitting innovation. This approach is aligned with our move towards a greater use of principles.⁸³ Stakeholders at our workshop agreed that this was the correct way forward, and that prescription would be both difficult and undesirable.

⁸² Electricity Supply Licence Condition 25C.

⁸³ <https://www.ofgem.gov.uk/gas/retail-market/market-review-and-reform/future-retail-market-regulation>

- 6.6. We consider that the concept of treating customers fairly is clear in itself, and the plan-monitor-adapt cycle⁸⁴ should help suppliers in doing this. However, we will consider whether any specific guidance or case studies might be appropriate to help clarify the application of Standards of Conduct in the very new area of products linked to HHS. When making decisions about guidance, we will take into account any general revisions to our approach through our work on Future Retail Regulation.
- 6.7. We will look to speak to suppliers seeking to offer new products. These discussions will allow us to refine our understanding of the types of products being offered, and help us spot potential issues. As the market for new products linked to HHS develops, we will continue to monitor the situation. This will feed into our work on mandatory HHS, although we would not rule out taking action sooner, if necessary.

RMR rules

- 6.8. Several respondents to our open letter said that the tariff cap introduced under the Retail Market Review was a barrier to offering new products. The CMA has provisionally recommended the removal of certain rules introduced as part of RMR, including the four tariff cap. We subsequently issued our own open letter, indicating that we do not generally envisage that it would be appropriate to take enforcement action in relation to the specific rules mentioned by the CMA in its Provisional Decision.⁸⁵

Price Comparison Websites

- 6.9. A number of stakeholders said that there would be impacts on Price Comparison Websites (PCWs). We agree that introduction of new products linked to HHS would be a noticeable change for PCWs. In this world, PCWs could have a particular role in helping customers to make an informed decision between different types of products. As part of this, PCWs may feel it necessary to find ways to access consumers' HH data,⁸⁶ and develop more sophisticated systems to process the HH data in a useful way for consumers.
- 6.10. However, the role for PCWs is likely to expand over time, as more suppliers adopt HHS. We do not think it is essential that adapted PCWs are in place for the very first products linked to HHS. In the second half of this year, we will look to speak to PCWs, in order to understand their level of interest in this area, and the potential issues which might be encountered.

⁸⁴ See page 9 of: <https://www.ofgem.gov.uk/ofgem-publications/89753/enforcementguidelines12september2014publishedversion.pdf>

⁸⁵ https://www.ofgem.gov.uk/system/files/docs/2016/04/supplier_letter-removal_of_simpler_rmr_rules_14.04_0.pdf

⁸⁶ For example, by registering as an 'Other User' under the DCC.

Data privacy

General approach

- 6.11. HH settlement requires HH consumption data from a customer's meter. Under the current Data Access and Privacy Framework,⁸⁷ a customer needs to opt-in for their supplier to access HH consumption data.⁸⁸ This means that a supplier would be unable to settle a customer HH unless the customer had opted-in. Stakeholders noted that the data privacy rules determined how suppliers could get access to HH consumption data for use in settlement.
- 6.12. This Framework is compatible with elective HHS. A supplier will need to develop an offer which clearly outlines the benefits available for consumers, in return for access to their data. The supplier will also need to explain clearly what the data will be used for. Some suppliers are already seeking (and receiving) opt-ins from customers to access their HH data for other purposes, so new products linked to HHS should provide an added inducement for customers to opt-in.
- 6.13. A supplier looking to move a customer onto a new product linked to HHS would in any event need to get the customer to sign-up to this product. We appreciate that the supplier might want to persuade the customer to opt-in at an earlier stage for other reasons – for example to provide a customer with a more accurate view of how their bill could change on a time of use tariff. However, again, at this stage, we think it is up to the supplier to make the case to a customer about the potential benefits it could receive from giving the supplier access to their HH data.

Change of Tenancy

- 6.14. A couple of stakeholders said that there could be specific issues with data privacy around the time of a Change of Tenancy (CoT). We understand that this would occur where the outgoing occupier has previously provided consent for the supplier to access their data, but where neither the outgoing nor the incoming occupier informs the supplier of the CoT. The supplier could therefore continue collecting data, inadvertently without the consent of the incoming occupier. We note that this issue is not specific to HHS – a supplier collecting HH data for other purposes would be placed in the same position if not informed of a CoT.
- 6.15. The Smart Energy Code requires that a supplier restricts access to historical data "as soon as reasonably practical" as it "becomes aware of a change of occupancy".⁸⁹ However, the Framework in the supply licence does not refer to the point at which the supplier becomes aware.

⁸⁷ Electricity Supply Licence Condition 47.

⁸⁸ This also applies to any consumption data that is more granular than daily.

⁸⁹ Smart Energy Code, section H3.17.

- 6.16. At the workshop, a supplier suggested that it would be helpful if the Information Commissioner's Office (ICO) and Ofgem could issue a statement saying that, if suppliers take reasonable steps when they are notified of CoT, they will not be held accountable in cases where they have not been notified.
- 6.17. We would make a decision on whether to launch licence enforcement action in line with our Enforcement Guidelines.⁹⁰ This notes that we will make decisions on a case-by-case basis. The Enforcement Guidelines include a non-exhaustive list of factors that we will generally take into account when deciding whether to open a case.⁹¹ To help us make a decision, one question we will generally consider is "Is it a priority matter for us, due to its apparent seriousness and impact, or potential impact, on consumers or competition?"
- 6.18. Given the situation described above, we would give careful consideration before opening an enforcement case in this area. We would be likely to take into consideration whether the supplier should reasonably have been expected to know about the CoT. We have briefed the ICO on this point. The ICO has indicated that it would always give careful consideration to the circumstances in any particular case when deciding whether to take enforcement action over a breach of the Data Protection Act 1998, in line with its Regulatory Action Policy.⁹²
- 6.19. This only applies before a supplier has been informed of a CoT. Once a supplier is aware of a CoT, we would expect them to comply with the Framework. This applies even where a supplier is seeking new occupier's consent to access their HH data.

DCC/smart metering issues

- 6.20. Some respondents made points about the underlying smart metering and DCC infrastructure, and how these might interact with a move to HHS. For example, the coverage of the DCC's network could affect which customers are able to elect to be settled HH. Smart or advanced meters are clearly a prerequisite for elective HHS. However, while important, technical aspects of smart metering and the organisation of the smart meter roll-out are outside the scope of this project.
- 6.21. A couple of stakeholders told us that it was important to consider how HHS can work for SMETS1 smart meters before they are enrolled with the DCC. We have considered this throughout the paper.

⁹⁰ <https://www.ofgem.gov.uk/ofgem-publications/89753/enforcementguidelines12september2014publishedversion.pdf>

⁹¹ Paragraphs 3.31 to 3.42 of the Enforcement Guidelines.

⁹² <https://ico.org.uk/media/about-the-ico/policies-and-procedures/1853/data-protection-regulatory-action-policy.pdf>

- 6.22. In its response, the DCC told us that supporting HHS is central to DCC's delivery of future benefits to the energy industry and the consumer; however, if the associated demand for DCC capacity is not managed efficiently, this could potentially increase the financial burden on the consumer. We understand that HHS was considered in the initial scoping of the DCC. However, as suppliers fit DCC-enrolled meters and more information becomes available, it will be important to ensure that the increased demand on the DCC's systems is managed in a cost-effective way that ensures there is no detrimental impact on the smart metering communication service (for example by using scheduled rather than on demand reads).

Other issues raised

- 6.23. Several stakeholders said that we should consider the impact of a move towards HHS on customers who remain on NHH arrangements. At a high level, the first customers moving to elective HHS will have a limited impact on the remainder. This is because there are around 30 million domestic and smaller non-domestic customers.⁹³ This will mitigate the impact on the remaining HH customers, even if the first customers to move to HHS have flatter than average demand.
- 6.24. A number of stakeholders also told us that there would be costs to suppliers from changing their systems in order to offer HHS. Suppliers will be able to choose whether or not to offer elective HHS, based on a commercial decision, including consideration of systems costs. Throughout this paper, we have sought to avoid solutions requiring significant systems changes to be made by suppliers who do not elect to offer HHS.

⁹³ Page 4 of: <https://www.ofgem.gov.uk/sites/default/files/docs/2013/10/balancingsettlementcodemodificationproposal272draftia.pdf>

7. Next steps

Chapter Summary

We set out the next steps for industry following this document: both immediate and beyond that. We also explain our role going forward.

Immediate action

- 7.1. This paper sets out our view on the barriers to cost-effective elective HHS for domestic and smaller non-domestic customers. It also provides our conclusions for how these can be addressed.
- 7.2. The first step is for changes to be raised. We are unable to raise changes ourselves, given that this is not a Significant Code Review,⁹⁴ so this step relies on industry. We would encourage market participants to progress this as quickly as possible.
- 7.3. If you are interested in following up this document, please contact half-hourlysettlement@ofgem.gov.uk.

Change process

High-level position

- 7.4. Once changes are raised, they will be progressed through the usual industry change process. This will provide the opportunity for assessment of the changes, and will allow stakeholders to provide further input. We are not holding a separate consultation on this paper, as this would duplicate the industry change process, which has to be followed in any case.
- 7.5. Ultimately, decisions on the changes proposed will need to be taken using all the evidence available, including any new information gathered during the change process. This applies equally to changes which come to the Authority for decision (modifications).⁹⁵ Our priority is for changes to be discussed speedily, with the necessary evidence and robust analysis to be provided as required, so that the relevant body is in a position to decide.

⁹⁴ We have not used an SCR for elective HHS. We did not consider that the SCR was the right tool to use in this circumstance, especially given our timescales. We consider that industry is capable of bringing forward the necessary changes to address these barriers.

⁹⁵ For the avoidance of doubt, our decision on any particular code modification would be made at the time it was recommended to us by the Panel.

Timescales

- 7.6. **Our ambition remains for cost-effective elective HHS to be enabled by early 2017.** As noted in the open letter, the precise implementation timing will depend on practical factors such as the BSC release schedule. Appendix 1 shows the decision timescales that we think would need to be met in order to achieve this.
- 7.7. We recognise that the change process may provide further information affecting implementation timescales. In any event, we think that the changes should be examined swiftly, so as to allow more time for implementation if required.
- 7.8. We think that the priority changes are the SRAG recommendations on the revised end-to-end process and new CCCs, and our conclusions on the CoMC process for smart meters, the relaxation of read performance requirements, and to address overcharging for transmission charges.

Roles

- 7.9. We have recently issued final proposals under the latest phase of our Code Governance Review.⁹⁶ This identifies a number of changes that we consider will make code administration, and the process for delivering code change, more effective. For example, the code administrators have developed a new process to enable the code bodies to more effectively lead and manage cross code change.⁹⁷ Elective HHS will require timely and coordinated change across multiple codes, and so we expect the relevant code administrators (ELEXON for the BSC, Gemserv for the MRA, and National Grid for the CUSC) to take a leading role, drawing on this process. This is a step towards a position where code administrators take greater responsibility for managing code change.
- 7.10. However, recognising the importance of this project to both Ofgem and DECC, and the timescales involved, we will be looking to supplement this process by providing a greater degree of oversight than we would otherwise. We will pay particularly close attention to the progress of the changes.
- 7.11. We are also aware that there are a number of changes involved, making it potentially challenging for individual parties to keep track of all the changes they might be interested in. We will therefore:
- Publish a tracker on our website to consolidate information about the changes, and update this regularly.

⁹⁶ https://www.ofgem.gov.uk/system/files/docs/2016/03/code_governance_review_phase_3_final_proposals_2.pdf

⁹⁷ <https://www.elexon.co.uk/wp-content/uploads/2011/10/CA-JWP.pdf>

- Trial a monthly teleconference with industry to discuss progress.

7.12. Whilst we are relying on code administrators to coordinate and manage the process effectively across codes, we expect industry parties to play a full and constructive role. Industry parties who are interested in elective HHS should make sure that they contribute to the industry change process. Beyond this, we will remain open to industry parties for meetings during the second half of the year. We will be particularly interested in discussing the consumer experience of elective HHS, and any associated policy issues.

Appendices

Index

Appendix	Name of Appendix	Page Number
1	Timescales	50
2	Glossary	51

Appendix 1 – Timescales

Change	Raised by	Milestones to decision
SRAG – Revised end to end process	ELEXON	BSC and Data Transfer Catalogue (DTC) changes raised – June 2016 Decisions – September 2016
SRAG – Increased HH data precision	ELEXON	BSC and DTC changes raised – May 2016 Decisions – August 2016 (DTC), September 2016 (BSC)
SRAG – New Consumption Component Classes (CCCs)	Ovo Energy	Modification raised – May 2016 Decision – November 2016
Additional CoMC process for smart meters	ELEXON or another industry party	Cross-code working group led by ELEXON – June-August 2016 BSC and DTC changes raised – August 2016 Decisions – November 2016
Relaxation of read performance requirements	Industry party	Modification raised – as soon as possible after conclusions paper Decision – November 2016
Addressing overcharging for transmission charges	National Grid or another industry party	Modification raised – as soon as possible after conclusions paper Decision – November 2016
Applying Group Correction Factor to certain HH sites	Considered within CCC modification	See timescales for CCC modification
BSC specified charges	Industry party	Modification raised – as soon as possible after conclusions paper Decision – November 2016

Appendix 2 - Glossary

A

Advanced meter

As defined in Standard Licence Condition 39.15 of the Electricity Supply Licence. ("An Electricity Meter which satisfies the definition of 'advanced meter' in paragraph 12.19 of standard condition 12 (Matters relating to Electricity Meters) but which does not form part of a Smart Metering System").

B

Balancing and Settlement Code (BSC)

The BSC contains the governance arrangements for electricity balancing and settlement in Great Britain.

Balancing and Settlement Code (BSC) Panel

The BSC Panel is established and constituted pursuant to and in accordance with Section B of the BSC. It is responsible for ensuring that the provisions of the BSC are given effect: fully, promptly, fairly, economically, efficiently, transparently and in such a manner as will promote effective competition in the generation, supply, sale and purchase of electricity. See also Balancing and Settlement Code.

C

Change of Supplier

The process which allows a consumer to switch from one supplier to another.

Consumption Component Class (CCC)

A category for consumption data. Data Aggregators provide data to ELEXON aggregated by CCC.

Current Transformer (CT) meter

A meter used for a site where it would not be possible to route the whole current through the meter. The meter multiplier determines the relationship between the current in the circuit used for the meter, and the main current. Alternative to a Whole Current (WC) meter.

D

Data Collector

As part of the settlement process, the party appointed by an electricity supplier to retrieve and process meter readings to meet the requirements set out in the Balancing and Settlement Code. The party can be HH-qualified (HHDC) or NHH-qualified (NHHDC).

Data Aggregator

As part of the settlement process, the party appointed by an electricity supplier to package up consumption data to meet the requirements set out in the Balancing and Settlement Code. The party can be HH-qualified (HHDA) or NHH-qualified (NHHDA).

Data and Communications Company (DCC)

This is a company that manages the data and communications to and from domestic consumers' smart meters.

Data Flow

A type of message which is sent between industry participants over the Data Transfer Network. Data flows are defined in the Data Transfer Catalogue, which sits under the Master Registration Agreement.

Data Transfer Network (DTN)

The DTN provides a managed data transfer process for market participants.

Default Period Profile Class Coefficients (DPPCCs)

A type of profile coefficient used for estimation for HH sites, in order to allocate volume between settlement periods.

Demand-side response (DSR)

Changes in energy use by consumers at particular times in response to a signal, such as a price.

Department for Energy and Climate Change (DECC)

The UK government department responsible for energy and climate change policy.

Distribution Connection and Use of System Agreement (DCUSA)

A multi-party contract between the distribution network operators, suppliers and generators that relates to the connection to and use of the distribution networks. It includes the distribution network charging methodologies.

Distribution Network Operator (DNO)

The companies that are licensed by Ofgem to maintain and manage the electricity distribution networks in Great Britain.

Dynamic time-of-use (ToU) tariff

A time-of-use tariff that provides for price or pricing structures to vary at short notice in response to market events, subject to contractual terms.

E

Electricity supplier

A company licensed by Ofgem to sell energy to and bill customers in Great Britain.

ELEXON

The organisation responsible for administering the Balancing and Settlement Code. The role and powers, functions and responsibilities of ELEXON are set out in Section C of the BSC.

G

Grid Supply Point Group

A distribution network region, as defined under the BSC.

Grid Supply Point Group Correction Scaling Factor (GGCSF)

As part of the settlement process, GGCSF is used to adjust all suppliers' volumes up or down to ensure that all energy is allocated.

H

Half-hourly (HH) settlement

As part of the settlement process, the arrangements for using actual HH meter readings to determine how much a supplier's consumers use in each settlement period.

M

Measurement class

For the purposes of the settlement process, all sites are assigned to a measurement class based on their type (metered or unmetered) and how they are settled (half-hourly or non-half-hourly).

Measurement class E

Measurement class for half-hourly settled non-domestic meters with: a maximum demand below 100kW and Current Transformer meters.

Measurement class F

Measurement class for half-hourly settled domestic meters.

Measurement class G

Measurement class for non-domestic meters with: a maximum demand below 100kW and Whole Current meters.

Meter Operator (MOA)

As part of the settlement process, the party appointed by an electricity supplier to install and maintain a meter to meet the requirements set out in the Balancing and Settlement Code. The party can be HH-qualified (HHMOA) or NHH-qualified (NHHMOA).

Meter Technical Details (MTDs)

Technical details for a meter, as defined under the BSC.

N

National Grid Electricity Transmission (NGET)

NGET is the system operator for the electricity transmission system in Great Britain, with responsibility for making sure that electricity supply and demand stay in balance and the system remains within safe technical and operating limits.

Non-half-hourly (NHH) settlement

As part of the settlement process, the arrangements for estimating how much a supplier's consumers use in each settlement period based on meter readings spanning longer intervals. These consumers are not settled using actual HH meter readings.

P

Profile Class

Consumers that are not settled using actual meter readings for each settlement period are grouped into one of eight Profile Classes. For each Profile Class, a load profile is created that estimates the consumption shape of the average consumer. This load profile (or variations of it) is used to determine the consumption in each half hour for all consumers assigned to the Profile Class.

S

Settlement period

The period over which contracted and metered volumes are reconciled. This is defined as a period of 30 minutes. See also settlement process.

Settlement process

Settlement places incentives on suppliers (and other market participants) to contract sufficiently to meet the needs of consumers. For suppliers, it operates by charging for any difference between the volume of electricity that they buy and the volume that their customers' consume.

Smart meter

A meter which, in addition to traditional metering functionality (measuring and registering the amount of energy which passes through it) is capable of providing additional functionality, for example two way communication allowing it to transmit meter reads and receive data remotely. It must also comply with the technical specification set out by the Smart Metering Programme.

See the definition of Smart Metering System in Standard Licence Condition 1 of the Electricity Supply Licence.

Smart Meter System Operator (SMSO)

Term commonly used for a third party who provides a service to communicate with meters that are not served by the DCC.

SMETS1 meter

A first generation smart meter, complying with the first version of the Smart Metering Equipment Technical Specifications.

SMETS2 meter

A second generation smart meter, complying with the second version of the Smart Metering Equipment Technical Specifications.

Supplier Agent

A party appointed by a supplier to maintain a meter or to collect and prepare data for settlement. Some consumers agree with their supplier to appoint their own agents. See also Data Collector and Data Aggregator.

T

Time of use (ToU) tariffs

Energy tariffs that charge different prices at different times of the day, week, month or year.

Triads

The three half-hours with the largest system demand (measured between November and February, and at least ten days apart). They are used to determine HH transmission charges.

W

Whole Current (WC) meter

A meter where the whole current runs through the meter. Alternative to a Current Transformer (CT) meter.