

Appendix 5.3: Half-hourly settlement for profile classes 1 to 4

1. In the Remedies Notice, we invited views from parties on the effectiveness and proportionality of this remedy. We asked:
 - (a) whether this remedy would be effective in stimulating tariff innovation, in particular in terms of time-of-use tariffs;
 - (b) how long the parties should be given to agree a plan for the introduction of half-hourly settlement;
 - (c) what the principle barriers were to the introduction of a cost-effective option to use half-hourly consumption data in electricity settlement for profile classes 1 to 4 and how these could be reduced;
 - (d) whether the use of half-hourly consumption data in settlement for these profile classes (or certain of them) should be optional for energy suppliers, or should be mandatory and what the advantages/disadvantages of each approach were;
 - (e) whether there were any distributional considerations that we should take into account in relation to time-of-use tariffs, for example, vulnerable customers paying more if they fail to change their consumption patterns or if the decline in the required generation capacity outweighs any increase in peak prices; and
 - (f) when the (optional/mandatory) use of half-hourly consumption data should replace settlement based on assumed customer profiles.

Tariff innovation

2. Most respondents¹ said that half-hourly settlement had the potential to stimulate tariff innovation, in particular time-of-use tariffs. First Utility² agreed but said that a plan as described by remedy 13 would not lead to tariff innovation as an end in itself.

¹ Citizens Advice response to Remedies Notice, p58. Co-operative Energy response to Remedies Notice, p23. DECC response to provisional findings and Remedies Notice, p2. EDF Energy response to Remedies Notice, p46. Good Energy response to Remedies Notice, p10. Labrador Ltd response to Remedies Notice, p7. NEA response to provisional findings and Remedies Notice, p11. Northern Powergrid response to provisional findings and Remedies Notice, p3, paragraph 7. Ofgem response to Remedies Notice, p96. RWE response to Remedies Notice, p122. Scottish Power response to Remedies Notice, p47. . University of Exeter response to provisional findings and Remedies Notice, p8.

² First Utility response to provisional findings and Remedies Notice, p49, paragraph 3.134.

3. Gazprom³ was not convinced that half-hourly settlement had the potential to stimulate tariff innovation, in particular time-of-use tariffs, and said that a plan as described by remedy 13 would not lead to tariff innovation as an end in itself.
4. Centrica said that a plan as described by remedy 13 could enable the development of future dynamic time-of-use tariffs, but that these tariffs would only be developed when customers demanded them, and not when they became technically feasible. Centrica also noted that static time-of-use tariff innovation was already possible today.⁴

Agreement on plan to introduce half-hourly settlement

5. Co-operative Energy⁵ said that the plan could be implemented once the smart infrastructure (Data Communications Company/SMETS 2) was in place.
6. E.ON⁶ said that a plan could be agreed within three to six months, but did not think a mandatory plan was essential. Citizens Advice⁷ agreed that a plan should be agreed within six months and First Utility⁸ advocated an obligation to complete the planning work within 12 months.
7. Scottish Power⁹ said that the time until April 2017 should be used to develop a plan. Northern Powergrid¹⁰ believed that introducing the half-hourly settlement mandate should be post 2017 as this should allow for initial problems with the smart roll-out to be resolved and allowed for the 'bedding in' of profile classes 5 to 8 customers moving to half-hourly settlement. Gazprom¹¹ expressed a similar view and said that the industry would be in a better position to review profile classes 1 to 4, once the transition of larger businesses (classes 5 to 8) had been undertaken.
8. RWE¹² said, based on the experience of Nexus and P272, that a minimum of five years was required to agree to a final robust plan before migration to half-hourly settlements could begin and that this would be on the assumption there would be no further delays to smart metering.

³ Gazprom response to Remedies Notice, p20.

⁴ Centrica response to provisional findings and Remedies Notice, p97.

⁵ Co-operative Energy response to Remedies Notice, p23.

⁶ E.ON, response to provisional findings and Remedies Notice, p76.

⁷ Citizens Advice response to Remedies Notice, p59.

⁸ First Utility response to provisional findings and Remedies Notice, p50, paragraph 3.139.

⁹ Scottish Power response to Remedies Notice, p47.

¹⁰ Northern Powergrid response to provisional findings and Remedies Notice, p5, paragraph 18.

¹¹ Gazprom response to Remedies Notice, p20.

¹² RWE response to Remedies Notice, p124.

9. EDF Energy¹³ did not have a firm view about how long parties should have to agree a plan but believed that to ensure successful and timely delivery, sufficient time must be devoted at the start of the programme by DECC, Ofgem and the industry to scope out the end-to-end changes required to various industry processes and industry codes. It added that it was essential that lessons were learnt from recent major changes such as Project Nexus and P272 in order to ensure efficient delivery.
10. Centrica¹⁴ said that a plan could only be agreed once a full cost benefit analysis had been completed and that key to this cost benefit analysis would be identifying the point at which the business case for half-hourly settlement for profile classes 1 to 4 turned positive.

Barriers to the introduction of a cost-effective option to use half-hourly settlement

11. The SLEFs¹⁵ said that a main barrier was storing and processing large amounts of data and the related costs of upgrading both supplier settlement systems and central systems. SSE¹⁶ submitted that a fundamental system redesign was needed to be able to process the large volume of data necessary for half-hourly settlement. EDF Energy¹⁷ also considered that half-hourly settlement of around 30 million customers could not be accommodated by simply scaling up the current processes and would instead require a new set of much more automated processes to be developed to cope with the significant increase in the volume of data flows. Additionally, EDF Energy¹⁸ said that centralised data collection/aggregation/processing through, for example, the Data Communications Company could minimise data flows. E.ON¹⁹ also said that centralised data processing, similar to the approach used in the gas industry could deliver economies of scale and keep costs lower.
12. SSE,²⁰ Centrica,²¹ Scottish Power²² and EDF Energy²³ identified securing customers' agreement to collect half-hourly consumption data from a smart

¹³ EDF Energy response to Remedies Notice, p47.

¹⁴ Centrica response to provisional findings and Remedies Notice, p97.

¹⁵ Centrica response to provisional findings and Remedies Notice, p97. EDF Energy response to Remedies Notice, p46. E.ON, response to provisional findings and Remedies Notice, p76, paragraph 351. RWE response to Remedies Notice, p124. Scottish Power response to Remedies Notice, p47. SSE response to Remedies Notice, p95.

¹⁶ SSE response to Remedies Notice, p95.

¹⁷ EDF Energy response to Remedies Notice, p47.

¹⁸ *ibid*, p47.

¹⁹ E.ON, response to provisional findings and Remedies Notice, p76, paragraph 352.

²⁰ SSE response to Remedies Notice, p95.

²¹ Centrica response to provisional findings and Remedies Notice, p96.

²² Scottish Power response to Remedies Notice, p47.

²³ EDF Energy response to Remedies Notice, p48.

meter as a further barrier (ie privacy concerns).²⁴ SSE²⁵ also said that these concerns would need to be fully reviewed in the context of the Data Protection Act, licence conditions and industry codes.

13. Scottish Power²⁶ and EDF Energy²⁷ said that data estimation rules for half-hourly data when it was unavailable and a robust transition plan to half-hourly settlement were important key developments/prerequisites that needed to take place.
14. First Utility²⁸ said that the tendency for the industry to cover every single possible issue, no matter how material, could be a barrier. It added²⁹ that this could be reduced by phasing in settlement, to the majority initially, and subsequently rolling out settlement to customers with more complex metering configurations. Scottish Power³⁰ identified the timeline for settlement as another issue to be addressed.
15. RWE³¹ said that a large barrier for suppliers was the uncertainty created by the lack of a strategic vision and the instability of the present regulatory arrangements. It added that DECC and Ofgem needed to assure suppliers that targets and objectives around half-hourly settlement would not change unduly once a plan had been agreed.
16. Opus Energy³² said that some market participants lacked the resource to manage multiple IT change projects concurrently and that it would be less risky if an incremental implementation approach was used.
17. Ofgem³³ identified two aspects of existing settlement that might need to change to enable half-hourly settlement. These were the Change of Measurement Class process that is used to transfer sites to half-hourly settlement, and the definition and delivery of data collection and data aggregation.
18. Ofgem,³⁴ and National Grid³⁵ said that managing large amounts of data would be a principal barrier to half-hourly settlement.

²⁴ The Data Access and Privacy Framework for smart metering developed by DECC currently prohibits energy suppliers from collecting data with greater granularity than daily unless the customer has opted in.

²⁵ SSE response to Remedies Notice, p95.

²⁶ Scottish Power response to Remedies Notice, p48.

²⁷ EDF Energy response to Remedies Notice, p47.

²⁸ First Utility response to provisional findings and Remedies Notice, p50, paragraph 3.141.

²⁹ *ibid*, p50, paragraph 3.141.

³⁰ Scottish Power response to Remedies Notice, p47.

³¹ RWE response to Remedies Notice, pp124 & 125.

³² Opus Energy, response to provisional findings and Remedies Notice, p21.

³³ Ofgem response to Remedies Notice, pp96 & 97.

³⁴ *ibid*, page 97.

³⁵ National Grid response to provisional findings and Remedies Notice, p6.

19. Changeworks³⁶ and Drax³⁷ said that the quality of smart meter data could be a barrier. The Information Commissioner's Office³⁸ and SSE³⁹ said that customers could refuse suppliers access to smart meter data under data protection laws.

Optional vs mandatory half-hourly settlement

20. Citizens Advice,⁴⁰ Co-operative Energy,⁴¹ EDF Energy,⁴² Good Energy,⁴³ and Ofgem⁴⁴ advocated mandatory half-hourly settlement. E.ON⁴⁵ and RWE⁴⁶ advocated optional half-hourly settlement. First Utility⁴⁷ and Scottish Power⁴⁸ said that it would be prudent to make half-hourly settlement optional in the first instance.
21. Centrica⁴⁹ submitted that optional half-hourly settlement created the risk of gaming whereby suppliers would settle half-hourly those customers whose difference from a profiled usage benefits the supplier's imbalance and trading position. Centrica,⁵⁰ Citizens Advice,⁵¹ Good Energy⁵² and Ofgem⁵³ all agreed that mandatory half-hourly settlement would reduce this risk.
22. SSE⁵⁴ argued that with optional half-hourly settlement the customer population as a whole would have paid for a system that would only be used by some and that this outcome would negatively impact a cost benefit analysis on moving to universal half-hourly settlement.
23. EDF Energy⁵⁵ and SSE⁵⁶ said that mandatory settlement would eliminate the need to maintain both non half-hourly and half-hourly regimes, which would reduce costs compared to maintaining both regimes. EDF Energy⁵⁷ added

³⁶ Changeworks response to provisional findings and Remedies Notice, p12

³⁷ Drax response to provisional findings, p7.

³⁸ Information Commissioner's Office response to Remedies Notice, pp9 & 10.

³⁹ SSE response to Remedies Notice, p95.

⁴⁰ Citizens Advice response to Remedies Notice, p59.

⁴¹ Co-operative Energy response to Remedies Notice, p23.

⁴² EDF Energy response to Remedies Notice, p48.

⁴³ Good Energy response to Remedies Notice, p10.

⁴⁴ Ofgem response to Remedies Notice, p97.

⁴⁵ E.ON response to provisional findings and Remedies Notice, p76.

⁴⁶ RWE response to Remedies Notice, p125.

⁴⁷ First Utility response to provisional findings and Remedies Notice, p50, paragraph 3.142.

⁴⁸ Scottish Power response to Remedies Notice, p48.

⁴⁹ Centrica response to provisional findings and Remedies Notice, p97.

⁵⁰ *ibid*, p97.

⁵¹ Citizens Advice response to Remedies Notice, p59.

⁵² Good Energy response to Remedies Notice, p10.

⁵³ Ofgem response to Remedies Notice, p97.

⁵⁴ SSE response to Remedies Notice, p96.

⁵⁵ EDF Energy response to Remedies Notice, p48 and EDF Energy response to request for information, half-hourly settlement 30 October 2015.

⁵⁶ SSE response to Remedies Notice, p96.

⁵⁷ EDF Energy response to Remedies Notice, p48.

that maintaining both regimes, ie via elective half-hourly settlement, could become a barrier to switching and would increase costs due to the complex and manually intensive processes for transferring between half-hourly and non-half-hourly settlements.

24. E.ON⁵⁸ said that optional half-hourly settlement would allow the market to meet customer demand as it developed and that mandating half-hourly settlement risked pre-judging technology developments and could result in forcing industry to incur costs that were unnecessary. RWE⁵⁹ said that optional half-hourly settlement would be preferable as: there would always be sites that would be settled on a non-half-hourly basis; it would allow parties to make changes in accordance with their own IT and product programmes, and in response to customers' demands; and it would allow suppliers to differentiate, innovate and reduce risks to consumers.
25. First Utility⁶⁰ said that half-hourly settlement should be optional in an initial phase as this would be more efficient logistically and allow for problems to be identified and resolved within a small group of customers first. It added that once half-hourly capability was delivered and working without issue, it would like to see its use being mandated across all suppliers within a two-year period.
26. Scottish Power⁶¹ considered it unwise to move to mandatory half-hourly settlement for all customers straight away, given the scale of the proposed change. It said that a more prudent approach would involve early tests with opt-in customers then amendments to the data access and privacy framework for smart metering. It also said that whether it was appropriate to make half-hourly settlement mandatory for all customers was a matter that it would be best considered as the detailed plan was developed and there was better sight of the technical issues, rather than now.

⁵⁸ E.ON response to provisional findings and Remedies Notice, p76.

⁵⁹ RWE response to Remedies Notice, p125.

⁶⁰ First Utility response to provisional findings and Remedies Notice, pp50 & 51, paragraph 3.142.

⁶¹ Scottish Power response to Remedies Notice, p48.

Distributional considerations

27. The Behavioural Insights Team,⁶² Citizens Advice,⁶³ Drax,⁶⁴ EDF Energy⁶⁵ and NEA⁶⁶ noted the potential detrimental impact that time-of-use tariffs could have on groups that would find it hard to shift their energy load.
28. Citizens Advice said that there was good reason to believe that the main beneficiaries of time-of-use tariffs would be more affluent and engaged consumers, while vulnerable consumers might lose out. The Behavioural Insights Team said that recent behavioural economics literature suggested that vulnerable customers might be less able to change their energy usage patterns. Gazprom⁶⁷ noted that some domestic and SME customers would not have the flexibility to change their consumption patterns and could face significant increases in energy costs.
29. Co-operative Energy,⁶⁸ EDF Energy,⁶⁹ Northern Powergrid⁷⁰ and SSE⁷¹ raised concerns that time-of-use tariffs might be difficult to understand by certain customer groups, and that they might experience detriment because of a lack of understanding.
30. Centrica,⁷² Drax⁷³ and E.ON⁷⁴ said that some customers might not be able to afford smart appliances that allowed load shifting.
31. Centrica,⁷⁵ instead, believed that the distributional impacts would be negligible overall and that where they occurred it would be dependent on different customers' ability and willingness to shift their consumption in response to the price signals received. Further it considered plausible that those customers able to afford smart appliances would probably be the principal beneficiaries of dynamic time-of-use tariffs. It added that this hypothesis should be tested as part of a cost benefit analysis before any implementation plan was drawn up. It also anticipated that post half-hourly settlement suppliers would

⁶² Behavioural Insights Team response to Remedies Notice, p14.

⁶³ Citizens Advice response to Remedies Notice, p59.

⁶⁴ Drax response to provisional findings, p7.

⁶⁵ EDF Energy response to Remedies Notice, p47.

⁶⁶ NEA response to provisional findings and Remedies Notice, p11.

⁶⁷ Gazprom response to Remedies Notice, p21.

⁶⁸ Co-operative Energy response to Remedies Notice, p24.

⁶⁹ EDF Energy referred specifically to vulnerable customers. It added that there was also a risk that some vulnerable customers, especially those who already restricted their demand, might not be able to alter their demand further to take advantage of cheaper energy at certain times. It considered that in both instances there was a risk that such customers would experience detriment. EDF Energy response to Remedies Notice, p48.

⁷⁰ Northern Powergrid believed that less complex alternatives should always be available. Northern Powergrid response to provisional findings and Remedies Notice, p4, pp10 & 11.

⁷¹ SSE response to Remedies Notice, p96.

⁷² Centrica response to provisional findings and Remedies Notice, p98.

⁷³ Drax response to provisional findings, p7.

⁷⁴ E.ON response to provisional findings and Remedies Notice, p77.

⁷⁵ Centrica response to provisional findings and Remedies Notice, p98.

continue to offer flat rate tariffs and that this could mitigate any distributional impacts.

32. A number of mitigating remedies were suggested to help vulnerable customers. Citizens Advice said that suppliers shouldn't be able to sell time-of-use tariffs during smart meter installation, as customers were unlikely to be able to make an informed decision at that time.⁷⁶ The Behavioural Insights Team suggested that during smart meter installation, advice on how to use the load shifting features of appliances (eg how to set a washing machine on delay) should be given.⁷⁷ RWE⁷⁸ said that in the future world of smart metering the onus would be on the supplier to signal to the customer when demand could be shifted and that all customers, including vulnerable customers, could benefit from this.

When use of half-hourly consumption data should replace settlement based on assumed customer profiles

33. Some parties⁷⁹ expected or advocated a phased roll-out of half-hourly settlement before 2020. Citizens Advice said that a phased roll-out prior to 2020 would deliver the benefits of smart metering earlier and allow data quality issues to be managed more efficiently.⁸⁰ Ofgem⁸¹ said that roll-out just before 2020 would reduce the risk of concurrent regulatory change derailing the roll-out and that the industry would have more resource available at this time.
34. E.ON⁸² said that half-hourly settlement should be optional and that once the smart meter roll-out picked up it expected half-hourly settlement to be phased in as demand for more innovative tariffs grew. It considered that there was no need for targets and dates. Further it argued that if half-hourly settlement was to be mandated, this would be most effective if introduced from 2020, once the smart meter roll-out was complete.
35. EDF Energy⁸³ and RWE⁸⁴ advocated the introduction of half-hourly settlement only after the end of the smart meter roll-out in 2020. EDF Energy⁸⁵ believed

⁷⁶ Citizens Advice response to Remedies Notice, pp61 & 2.

⁷⁷ Behavioural Insights Team response to Remedies Notice, p14.

⁷⁸ RWE response to Remedies Notice, p125.

⁷⁹ Citizens Advice response to Remedies Notice, p62. Co-operative Energy response to Remedies Notice, p24. NEA response to provisional findings and Remedies Notice, p11. Ofgem response to Remedies Notice, p98. Scottish Power response to Remedies Notice, p48.

⁸⁰ Citizens Advice response to Remedies Notice, p62.

⁸¹ Ofgem response to Remedies Notice, p98.

⁸² E.ON response to provisional findings and Remedies Notice, p77.

⁸³ EDF Energy response to Remedies Notice, p47.

⁸⁴ RWE response to Remedies Notice, p126.

⁸⁵ EDF Energy response to Remedies Notice, p48.

that this would be a more efficient process, in particular by ensuring there was a single set of centralised processes, such as smart meter enrolment at the Data Communications Company and centralised Data Processing and Aggregation, before implementation. It also highlighted the risk of implementing such a large and complex change at the same time as the large number of industry reforms currently underway such as smart metering roll-out, next day switching, Data Communications Company development and Project Nexus.

36. Centrica⁸⁶ said that a later implementation of half-hourly settlement would likely be cheaper and have more demand. If elective half-hourly settlement was introduced, it considered that there should be controls against gaming by, for example, preventing suppliers from choosing which sites to nominate for half-hourly settlement and which to keep in the current process.
37. SSE⁸⁷ said that half-hourly settlement should not be rushed through before a significant proportion of customers had smart meters.
38. Scottish Power ⁸⁸said that if the industry could develop its plans and approach up to April 2017, suppliers could then start to roll-out half-hourly settlement in 2018 and 2019. Further, it added, based on its experience of US markets that it might be appropriate for the whole market to move to half-hourly settlement around one year after the completion of smart meter roll-out.

⁸⁶ Centrica response to provisional findings and Remedies Notice, p98.

⁸⁷ SSE response to Remedies Notice, p97.

⁸⁸ Scottish Power response to Remedies Notice, p48.