

Project Objectives and Assessment Options for the market-wide half-hourly settlement Business Case

On 24 July 2017 we launched the Electricity Settlement Reform Significant Code Review¹ with the aim of developing and (subject to an Impact Assessment, as part of the Business Case) implementing an enduring process to enable half-hourly settlement of domestic and smaller non-domestic consumers' electricity usage.

We are using HM Treasury best practice guidance to develop the Business Case for the move to market-wide half-hourly settlement (HHS). This Business Case will use the Five Case Model methodology² to examine the strategic rationale for change, the potential impacts of settlement reform and how to best manage and deliver reform. This includes an Impact Assessment, which will form the economic case of the Business Case.

This document outlines the work undertaken on the Business Case so far. This began with identification of the objectives for the project and then continued with the identification of options to achieve those objectives. This document details the process of identifying the Project Objectives and longlist options, and explains the qualitative process undertaken so far to narrow down a shortlist of options for assessment.

These options will feed into the economic assessment in the Outline Business Case. The options will be developed iteratively as more is known about the design of the Target Operating Model, and decisions are taken regarding key policy questions including access to half-hourly data for settlement purposes and whether or not to centralise functions currently performed by supplier agents.

1. Project Objectives

- 1.1. The Project Objectives set out in Figure 1 describe the expected outcomes of the project - a key element of the case for change within the strategic case of the business case. They have been developed through a set of Ofgem workshops and incorporate stakeholder views.

No.	Project Objective	Measures
RELEVANT WIDER OFGEM OBJECTIVES		
1	To promote an electricity system that delivers the Government and Ofgem's objectives in a cost-effective manner, minimising the overall cost to current and future consumers of moving to a low-carbon electricity system while maintaining security of supply and system efficiency by:	
A	Minimising the need for infrastructure investment.	Lower 'peak' demand (either national or local) in comparison to what would otherwise be the case
B	Facilitating more efficient use of generation assets and network assets.	Increase in use of low-carbon assets measured against predicted baseline.
OBJECTIVES SPECIFIC TO SETTLEMENT ARRANGEMENTS		

¹ See: <https://www.ofgem.gov.uk/publications-and-updates/electricity-settlement-reform-significant-code-review-launch-statement-revised-timetable-and-request-applications-membership-target-operating-model-design-working-group>

² Further information can be found in the Green Book supplementary guidance on delivering public value from spending proposals: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/469317/green_book_guidance_public_sector_business_cases_2015_update.pdf

No.	Project Objective	Measures
2	To develop settlement arrangements that incentivise all retailers and suppliers (current and future) to encourage customer behaviour (electricity demand) that contributes to a more cost-effective electricity system by:	
A	Linking future retailers' costs to their customers' actual consumption within the course of a day.	The proportion of customers settled in a manner that specifically links retailers' settled costs to customers' consumption.
B	Encouraging new and disruptive business models (from current retailers or new entrants) through settlement arrangements that facilitate competition in new areas.	Evidence of new/changing retail offerings or business models that can be specifically identified as being dependent on settlement costs that vary with customers' consumption.
3	To minimise undesirable distributional effects on consumers	

Figure 1: Project Objectives

2. Assessment Options

- 2.1. The 'options framework' demonstrates consideration of a wide range of options that could potentially deliver the agreed Project Objectives.
- 2.2. The options development process within the economic case is shown in Figure 2. The longlist options are identified and then narrowed down through a process of qualitative analysis to reach a shortlist of options. This shortlist of options including a 'preferred way forward' is then subjected to quantitative cost benefit analysis to determine a preferred option.

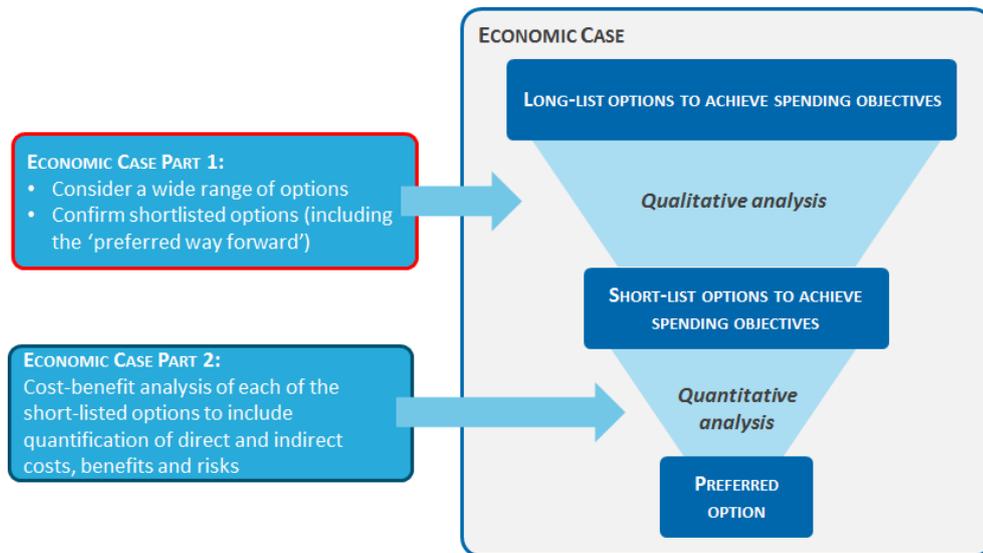


Figure 2: Assessment process in the Economic Case

- 2.3. A longlist of options was first developed against five categories of choice:
 - service scope (the 'what' in terms of services and coverage of settlement reform);
 - service solution (the practical approach to 'how' settlement reform will be delivered);
 - service delivery ('who' will deliver the required services for settlement reform);
 - implementation options (the 'when' in terms of timing and phasing of delivery of settlement reform); and
 - funding of the investment.

- 2.4. This longlist of options has been developed through a set of internal and external workshops at the start of 2017. The options were first developed by the Ofgem Settlement Reform team and then tested and refined both with our internal Project Board and with a set of external stakeholders in a workshop held in March 2017.
- 2.5. Options in each category of choice were qualitatively assessed against both the Project Objectives and a set of Critical Success Factors (see Figure 3). This qualitative assessment determined which of the options is preferred, which should be carried forward for assessment and which should be discounted in order to draw up a shortlist for economic assessment.

No.	Critical Success Factor	Relevant questions – How well does the option..? / Is the option...?
1	Strategic fit and business needs	<ul style="list-style-type: none"> – satisfy the investment objectives and business needs? – optimise the identified benefits? – align with and promote the national, regional and local strategies?
2	Value for money	<ul style="list-style-type: none"> – optimise available resources and provide value for money?
3	Potential achievability	<ul style="list-style-type: none"> – acceptable to key stakeholders? – politically acceptable? – operationally and physically achievable?
4	Supply-side capacity and capability	<ul style="list-style-type: none"> – attractive to potential suppliers to deliver the requirements?
5	Potential affordability	<ul style="list-style-type: none"> – affordable within the forecasted capital and revenue of the organisation?

Figure 3: Critical Success Factors

- 2.6. The options framework so far is set out in Figure 4 overleaf. The options are set out against each category of choice, split into sub-categories to capture different sub-options in each category. Options are presented according to the extent of difference from the status quo.
- 2.7. Options coloured **Green** represent the current preferred option and options coloured **Red** represent options that have been discounted at this stage. Options coloured **Amber** are (at least at this stage) to be carried forward for assessment as further development of policy or design is needed before enough is known to either discount them or choose them as the preferred way forward. This assessment has been made based on the information we currently have available to us. Options that at this stage are either preferred or discounted may be reassessed as the Target Operating Model design work progresses, if there is a case to do so.

Choices – what implementation options are available?		Extent of difference from status quo				
		➔				
Service Scope (WHAT?) – Coverage	1. Who will be covered	Small subset of consumers (eg based on technology/ consumption/DNO region)	A larger subset of consumers	All consumers		
	2. Metering	Just SMETS2 smart meters	All SMETS smart meters (1&2)	All advanced and smart meters		
Service Solution (HOW?)	3. Policy approach	Settlement incentives on suppliers delivered through encouraging 'chunking'	More promotion of elective (voluntary + incentives)	Market-wide		
	4. Granularity of settlement period	Half-hourly		Flexible to reasonable future systems		
	5. Approach to data access ³	Access to data subject to existing data access rules (i.e. consumer consent required) ⁴	HH data available for settlement purposes only with an option for consumers to opt-out	HH data is available for settlement purposes only	HH data is available for settlement only, following pseudonymisation or anonymisation	
	6. Approach to agent functions	Retain existing competitive supplier agent market	Retain competitive supplier agent market with reform	Central agent		
	7. Approach to policy communications	Individual suppliers lead communication	Coordinated approach (Ofgem, industry and BEIS)	Ofgem or government led		
	Service Delivery (WHO?)	8. Policy approach	Ofgem			
9. Design of Target Operating Model		Industry led by Ofgem		Industry led by Elexon		
Implementation (WHEN?)	10. Commencement	Slower commencement		Faster commencement		
	11. Phasing	Slow phase	Fast phase	Big bang		
	12. Period for systems changes	18 months	12 months	6 months		

Figure 4: Options framework

³ Where options enable access to half-hourly data without consumer consent this data would only be available to be used for settlement purposes. Consideration of rules on access to data for any other purpose, including marketing, are out of scope of the half-hourly settlement project. Further consideration will need to be given as to any bespoke rules which may be necessary for consumers with a smart meter installed prior to the point at which any regulatory or code changes are made.

⁴ In accordance with Part B of electricity supply standard licence condition 47, suppliers can obtain electricity consumption data from microbusinesses relating to a period of less than one month on an opt-out basis. This means that opt-out is the status quo for this group.

3. Options development

The options set out above represent our and stakeholders' current views on each of the categories of choice, given the information we have at this point in time.

Options have only been identified as discounted or preferred where there is a clear rationale to do so, and where this rationale has been tested and discussed. The record of the rationale behind the options chosen and the current rating of those options is set out below. These options as currently presented do not in themselves represent a firm Ofgem view or statement on policy and are subject to change as further policy and design work is progressed.

Many of the options presented are contingent on the design of the Target Operating Model. The information from this design work will therefore feed into these options to refine them over time and allow us to discount options and select preferred options.

We have proposed that ELEXON lead a Design Working Group to deliver recommendations on the Target Operating Model to Ofgem for a decision. For this reason, we have identified an ELEXON-led approach to design of the operating model as the preferred option and have discounted an Ofgem-led approach, subject to any stakeholder feedback to our recent Significant Code Review Launch Statement. For the avoidance of doubt, decisions and overall oversight of the development of the Target Operating Model will remain with us under this model.

The policy framework for HHS will also remain with us, including policy on access to half-hourly data and whether or not to centralise functions currently performed by supplier agents.

As the design and policy work progresses, we will continue to refine these options and welcome any views from stakeholders. The options will feed into the economic assessment in the Outline Business Case, and then into the Full Business Case.

Service Scope

Coverage and metering

- 3.1. Stakeholders have told us that a critical mass of half-hourly settled consumers will be required to deliver the full potential benefits of settlement reform. It is therefore likely that market-wide HHS would optimise value for money and best meet the Project Objectives, so coverage of all eligible⁵ consumers and all Profile Class 1-4 meters was identified as the preferred way forward.
- 3.2. Partial coverage of either consumers or meters has been retained at this stage for analysis in the business case of the costs and benefits of this approach.

Service Solution

Policy approach

- 3.3. Options around promoting the uptake of elective HHS and facilitating time of use tariffs through 'chunking' were considered alongside market-wide HHS. Chunking involves using dual register meters to meter consumption over two

⁵ For example, an ineligible consumer may not have a smart meter or may not be able to be settled half-hourly because of rules relating to access to half-hourly electricity consumption data for settlement purposes.

time periods over 24 hours and construct estimated profiles to reward load shifting behaviour.

- 3.4. Chunking would not specifically introduce an incentive for retailers to help their customers to shift the time of their consumption, as suppliers would still have to voluntarily opt for such settlement arrangements.
- 3.5. The elective HHS arrangements represent the status quo. We see elective HHS as an important first step to encourage a market-led approach to HHS, facilitating innovation by early movers and providing real-world experience to inform further work. Under the elective arrangements alone however, suppliers will be incentivised to introduce HHS for customers who consume relatively less at peak periods but to leave those customers who consume relatively more at peak periods under the non-half hourly arrangements. We have always said that we expect that we will need to mandate all suppliers to settle their customers on a half-hourly basis to realise the full benefits by exposing suppliers to the true cost of supplying their customers in every half-hour period.
- 3.6. These options were therefore discounted on the basis that they don't sufficiently meet the Project Objectives and the Critical Success Factors. Market-wide HHS was selected as the preferred way forward.

Granularity of settlement period

- 3.7. Settlement arrangements that accommodate a half-hourly settlement period was identified as a preferred way forward, given the functionality of smart metering and the design of GB wholesale market arrangements. An option was however taken forward to consider design of settlement arrangements with 'flexibility to accommodate the reasonable needs of future systems', for example given the European Commission proposal to balance EU Member States' electricity systems based on a fifteen-minute settlement period. Given that this proposal is still being negotiated and it is currently unclear what the final form of this proposal will be, we consider it is appropriate to retain a 'future flexibility' option.

Approach to data access

- 3.8. As part of our work to consider a move to market-wide HHS we are considering the rules relating to access to consumers' half-hourly electricity consumption data for settlement purposes.
- 3.9. A consumer's half-hourly electricity consumption data is stored on their smart meter. The options considered for access to half-hourly data relate to the collection and use of this data for settlement purposes only. Our proposals will therefore not impact wider access to smart metering data as set out under the smart metering Data Access and Privacy Framework⁶.
- 3.10. We are currently evaluating the following options:
 1. Access to half-hourly data subject to existing data access rules (opt-in) (the status quo)

⁶ Further details of this framework are available here: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/43046/7225-gov-resp-sm-data-access-privacy.pdf

2. Half-hourly data is available for settlement purposes only with an option for consumers to opt-out
 3. Half-hourly data is available for settlement purposes only
 4. Half-hourly data is available for settlement purposes only, following pseudonymisation or anonymisation
- 3.11. All of these options are to be carried forward, with no option either discounted or preferred before further policy development. If additional options which appear to have merit emerge during our policy evaluation period then we will be willing to consider these. Further consideration will need to be given as to any bespoke rules which may be necessary for consumers with a smart meter installed prior to the point at which any regulatory or code changes are made.

Privacy by Design

- 3.12. Ofgem is taking a privacy by design approach to considering access to data for settlement. We have therefore taken forward the full range of data options for further assessment, including pseudonymisation and anonymisation. We are working with ELEXON to assess whether these approaches to settlement would be feasible and whether they would offer value for money and deliver overall benefits to consumers.

Approach

- 3.13. We will be gathering evidence over the coming months to assist with a Privacy Impact Assessment (PIA) to support our assessment of the access to data options. We will also undertake a broader assessment of the implications of each option under consideration. As our work progresses, we will be seeking views from consumer groups and industry stakeholders through bilateral meetings and workshops. As set out in appendix 1 of our SCR launch documentation, following this period of evidence gathering and the completion of our draft PIA we plan to consult on access to data for settlement in Spring 2018.

Approach to agent functions

- 3.14. We are considering the question of whether or not to centralise functions currently performed by supplier agents, in particular whether or not to introduce a central agent to carry out Data Collection and Data Aggregation.
- 3.15. We are evaluating the following options:
1. Retain existing competitive supplier agent market (the status quo)
 2. Retain competitive supplier agent market with reform
 3. Central agent for Data Collection and/or Aggregation
- 3.16. The question of whether or not to centralise Data Collection and Data Aggregation is important. We do not have a preferred option, and are carrying forward all options (including the status quo) at this stage before further policy development. Ultimately, we want to come to an evidence-based decision about which option is in the best interests of consumers.

Approach to policy communications

- 3.17. This option relates to communication of the products and innovation resulting from settlement reform to consumers, rather than communications to industry and other key stakeholders (for which Ofgem will continue to play a key role). Options considered range from a supplier-led approach to an Ofgem and/or government-led approach to these communications to consumers.
- 3.18. We consider suppliers to be best placed to communicate these changes to consumers given their expertise in this area and knowledge of their customers. We have therefore discounted a solely Ofgem and/or government-led approach.
- 3.19. We recognise though that there could be a case for an Ofgem and/or government role in these communications. A supplier-led approach is the preferred way forward, but a coordinated, hybrid approach is also carried forward for further consideration and assessment.

Service Delivery

Policy approach

- 3.20. Stakeholders considered that given Ofgem's role as regulator of the GB electricity and gas markets, the only acceptable choice was for Ofgem to determine the policy approach, therefore no further options were considered for this sub-element.

Design of Target Operating Model

- 3.21. We have proposed that ELEXON should lead a Design Working Group to develop the Target Operating Model, given their settlement expertise and role as the administrator for the Balancing and Settlement Code. Under this proposal, the Design Working Group will develop options and recommendations for design of the Target Operating Model, which will be escalated to Ofgem for our decision. Decisions on the design of the Target Operating Model will ultimately be made by the Ofgem Senior Responsible Owner for the project, supported by a Design Advisory Board which will provide strategic advice on the products delivered by the Design Working Group. Further information on this proposal for the development of the Target Operating Model is set out in the Electricity Settlement Reform Significant Code Review Launch Statement⁷.
- 3.22. We have discounted the other option (industry working group led by Ofgem) at this stage. Our preferred way forward is for ELEXON to lead an industry working group to develop the Target Operating Model. We consulted on the governance arrangements to support this model through the Launch Statement and will publish the final model for this based on the the feedback we received.

⁷ For further information see: <https://www.ofgem.gov.uk/publications-and-updates/electricity-settlement-reform-significant-code-review-launch-statement-revised-timetable-and-request-applications-membership-target-operating-model-design-working-group>

Implementation

Commencement

- 3.23. The optimal timing for commencement of implementation of settlement reform will depend on a number of factors including the design of the Target Operating Model, competing industry priorities and concurrent regulatory change and dependencies related to the rollout of smart metering.
- 3.24. At this stage, options for both a faster or slower commencement of implementation are carried forward for assessment in the future. These options will be made more specific and narrowed down once more is known about the design of the Target Operating Model.

Phasing

- 3.25. The implementation of settlement reform can either be through a phased approach where meters are progressively migrated over to HHS or through a 'big-bang' approach where all meters are simultaneously migrated.
- 3.26. A 'big-bang' approach has been discounted given the risks that come with such an approach and the lessons learned from previous similar projects. This approach also fails to meet a number of the Critical Success Factors.
- 3.27. A phased approach is therefore the preferred way forward, with both a 'slow' phase and 'fast' phase (with these timeframes as yet unspecified) carried forward for further assessment.

Period for systems changes

- 3.28. Three plausible implementation timeframes for systems changes are shown for consideration but at this stage these are 'best estimates', given that the Target Operating Model for settlement reform is as yet undefined.
- 3.29. Without more detail on the Target Operating Model for settlement reform it isn't possible to identify a preferred way forward. However, a 6-month timeframe for implementation has been discounted on the basis that this would be too short for ELEXON and suppliers to make the necessary systems changes and therefore wouldn't meet the Critical Success Factors around supply side capability and achievability.