

PUBLIC

# Market-wide Half-Hourly Settlement

Design Working Group Consultation on  
Skeleton Target Operating Models: Collated  
Responses and Themes

DWG08/02

ELEXON  
Version 1.0  
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# MARKET-WIDE HALF-HOURLY SETTLEMENT

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# MARKET-WIDE HALF-HOURLY SETTLEMENT

## INTRODUCTION

This document summarises the responses to the Design Working Group's consultation on the Skeleton Target Operating Models (TOMs) for Market-wide Half-Hourly Settlement (MHHS).

Nineteen responses were received, none of which were confidential.

No.	Company Name	Role of Parties/non-Parties represented
1.	E.ON Energy Solutions	Supplier, NHH & HH – DC,DA, MOA
2.	Utilita Energy	Supplier
3.	Stark	Energy Data and Services
4.	AIMDA <sup>1</sup>	Association
5.	Opus Energy & Haven Power - part of Drax Group Plc ( <i>joint response</i> )	Non-domestic Suppliers
6.	IMServ	Supplier Agent
7.	ElectraLink	Central Industry Body
8.	ENGIE Power Limited	Supplier
9.	Npower Ltd	Large Supplier, Supplier Agent
10.	EDF Energy	Supplier
11.	Energy Local CIC	Community Energy Organisation
12.	Salient Systems Ltd	Automated Software Product System Solutions Provider – NHHDC/ NHHDR/ NHHMO/ HHDC/ HHDA/ HHMO
13.	Siemens	Supplier Agent – HHDA, HHDC, HHMOA, NHHDA, NHHDC, NHHMOA
14.	TMA Data Management Ltd	Supplier Agent and Shared Services provider
15.	SmartestEnergy ( <i>late response</i> )	Supplier
16.	SSE ( <i>late response</i> )	Supplier
17.	DCC ( <i>late response – received in letter form, see Appendix 2</i> )	Central Industry Body
18.	ScottishPower Energy Retail Ltd & Dataserve Ltd ( <i>late response</i> )	Supplier and HH Agent
19.	British Gas ( <i>late response</i> )	Supplier

<sup>1</sup> IMServ Europe Ltd, Stark Energy, Siemens Managed Services, SMS PLC, Energy Assets Ltd.

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## RESPONSES BY QUESTION

The following are the collated responses to each consultation question:

### Question 1: Are there any Settlement processes or services not identified that should be included as part of the HHS Meter to Bank process?

Question 1	Are there any Settlement processes or services not identified that should be included as part of the HHS Meter to Bank process?	
Respondent	Yes / No / Other	Answer
E.ON Energy Solutions	Potentially	<p>I'm unsure why the CVA market is being excluded from this process. If a single service provider is chosen then incorporating the CVA market could provide additional benefits.</p> <p>The agent of last resort process would need to be reviewed for single service providers to ensure a contingency is in place should an agent enter a position of being unable to fulfil their role.</p>
Utilita Energy	No	We believe all Settlement processes and services have been accurately identified by the Design Working Group (DWG) and captured within the consultation.
Stark	No	<p>Not at this stage.</p> <p>The various designs cover all of the key high-level activities required for Settlement. However, they do not cover any of the low-level detailed processes in Settlement, which we understand will be the primary focus of the DWG's 2nd Stage. It will be easier to provide a complete answer once the output of DWG's 2nd Stage is published and can be reviewed alongside the output of the 1st Stage.</p>
AIMDA	No	All of the necessary services to support HHS have been identified by the DWG; however, we note that the detailed processes that underpin Settlement will only be considered as part of the DWG's 2nd Stage. We cannot provide a complete answer to this question until the output of the 2nd Stage is published.
Opus Energy & Haven Power	No	<p>None identified.</p> <p>At this stage, we have not identified any processes or services not included.</p>
IMServ	No	The DWG appear to have identified all of the components in a half-hourly meter-to-bank process from the settlement perspective, but detailed verification of this will occur in the next stage of design. The knock on implications to processes outside of the direct settlement meter to bank process should be considered at this stage too.
ElectraLink	No	ElectraLink believe that the services outlined in the consultation are all the services required to complete the HHS Meter to Bank process.
ENGIE Power Limited	No	-

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Question 1	Are there any Settlement processes or services not identified that should be included as part of the HHS Meter to Bank process?	
Respondent	Yes / No / Other	Answer
Npower Ltd	Partial yes	<p>We believe the below points will need to be addressed either within stage 1 or early stage 2:</p> <ul style="list-style-type: none"> <li>• Whilst we agree supplier billing should not be a prime consideration for settlements based work, any market design must support simplified data access for billing. For example, it may be useful for suppliers to receive NHH register data directly from the smart agent so it can be validated against the HH settlement data by that agent.</li> <li>• A process for inputting units from confirmed theft will need to be considered within the settlement design work.</li> <li>• Processes will need to be developed for smart sites that have communication issues. In the short term it may be sensible to treat these as non-communicating smart meters, however depending on final settlement run timescales, these sites could switch to a NHH type approach and require a physical meter read for profiling.</li> <li>• When a site moves to HH settlements, the profile class is amended to 00. When all/most sites are settling HH, this field will be largely redundant. We would suggest that the use of the profile class field is expanded to make use of the 91 (09-99) numbers not currently utilised by the traditional profile classes (00-08). This could be used to both distinguish between domestic/non-domestic sites and assign network charges. It has the significant advantage that it is part of the core MPAN on customer bills so could easily be used for a new supplier to provide customers with an accurate quote.</li> <li>• New market domain data will be required to accurately segment customers and allow for accurate profiling processes, should HH data become unavailable for some reason.</li> <li>• It is unclear how group correction factor will be allocated across different customers in a predominantly HH market. There is a risk for customers that choose not to engage with new energy tariffs and retain a NHH type produce will pick up increased costs. This risk may be compounded if an increased volume of currently non-settlement metered export sites become settlement metered or during the transition to market wide settlements when customer types may not be migrated consistently.</li> </ul>

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Question 1	Are there any Settlement processes or services not identified that should be included as part of the HHS Meter to Bank process?	
Respondent	Yes / No / Other	Answer
EDF Energy	No	<p>We have not identified any processes or services that should be included as part of the HHS Meter to Bank process that are not already captured in the document. We would note, however, that there are a number of other processes that any TOM that is selected will need to support that will need to be accounted for.</p> <p>As an example, Suppliers (or the relevant responsible party) need to have visibility of the data that is being processed through the Meter to Bank process on their behalf for the purposes of reconciliation with customer bills. They will also require visibility of this data to support settlement related activities such as forecasting.</p>
Energy Local CIC	No comment.	-
Salient Systems Ltd	-	<p>Offer for consideration 2 new future HHS supporting services and the promotion of a particular and related process subset of each of the proposed Processing and Aggregation Services to produce a pertinent and distinct service in its own right.</p> <p>New Services:</p> <ol style="list-style-type: none"> <li>1. ECVN/MRVN Facilitator Service</li> <li>2. New Business/Market Model validation/testing/monitoring service</li> </ol> <p>Promoted Service:</p> <p>Consumption Data Estimation Service</p> <p>ECVN/MRVN Facilitator Service</p> <ul style="list-style-type: none"> <li>• Implicated Volume Allocation responsible parties are expected to change</li> <li>• Contractual opportunities and complexities between parties will extend in order to take best advantage of refined/new BSC mechanisms that will be positioned to accommodate innovative new business models</li> <li>• Refinement of SVA energy contract model and BM funds administration may be implicated in order to reflect new traded positions, ensure consistent view of positions across parties, administer funds appropriately</li> <li>• Multiple 3rd party trading systems will be delivered to market – risks arising to BM parties and consumers (overall system costs) where externally agreed trades are not reflected adequately at SVA positions, risk of multiple colliding, opaque, conflicting funds administration.</li> <li>• Facilitator service, mapping 3rd party trades to appropriate SVA contract positions, is and will continue to develop in the market as</li> </ul>

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Question 1	Are there any Settlement processes or services not identified that should be included as part of the HHS Meter to Bank process?	
Respondent	Yes / No / Other	Answer
		<p>flexibility options develop.</p> <ul style="list-style-type: none"> <li>Facilitator role/service would benefit from early discrete identification and attention at BSCP and at regulation</li> </ul> <p>New Business/Market Model validation/testing/monitoring Service</p> <ul style="list-style-type: none"> <li>Extension to proposed Ofgem coordinated, Elexon led Sandbox service</li> <li>Not just derogation oriented, but validator of proposed new service delivery models from innovators</li> <li>Persisting service, with ongoing service audit reporting requirements to complement initial validation/testing of new service models</li> <li>Proactive instigator of regulatory or BSC refinements or additions to accommodate innovation, while assuring process integrity</li> <li>Candidate, for example, to evaluate above ECVN/MRVN facilitator services (above), consumption data estimation services (below).</li> </ul> <p>Consumption Data Estimation Service</p> <ul style="list-style-type: none"> <li>Estimation service required at proposed Processing and Aggregation services</li> <li>No reason for Estimation policy applied at Processing and Aggregation services to be different, a distinct Estimation service identification would encourage such policy reinforcement</li> <li>Current BSCP advised estimation policies are limited and no doubt will be refined</li> <li>Opportunity for Suppliers or 3rd parties to improve further upon any baseline estimation policy (accompanied by validation and reconciliation testing/audit) could be encouraged – delivering improved Supplier cash flow and energy forecasting accuracies</li> <li>Consistent and differentiated Supplier approved Estimation policy applied at Processing and Aggregation services, to be validated and authorised at extended Sandbox service (above)</li> </ul>
Siemens	No	We have not identified any Services or processes to support HHS in addition to those described in the Consultation. We note that the detailed processes for Settlement will only be considered at the 2nd Stage of the DWG’s work. Therefore we cannot provide a complete answer to this question at this time.
TMA Data Management Ltd	-	Could the DWG clarify that the Disconnection event and EMR information are included in the “other non-settlement services” in the Data Aggregation Services list?

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Question 1	Are there any Settlement processes or services not identified that should be included as part of the HHS Meter to Bank process?	
Respondent	Yes / No / Other	Answer
SmartestEnergy	No	-
SSE	No	-
DCC	-	See Appendix 2.
ScottishPower	No	None identified.
British Gas	Neutral	<p>We are in broad agreement with the “grouped” settlement processes of Meter Registration, Meter Operations, Data Retrieval, Data Aggregation and Volume Allocation.</p> <p>It is noted that phase 2 will address the detail to support the common advantages to all the TOMs such as:</p> <ul style="list-style-type: none"> <li>• Simplifying Data Aggregation;</li> <li>• Simplifying the Change of Agent/Change of Measurement Class processes;</li> <li>• Improving the Settlement of embedded export;</li> <li>• Improving Settlement timescales.</li> </ul> <p>We await phase 2 of the programme and will work with industry to ensure the detailed processes are fit for purpose.</p>

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### Question 2: Are there any TOMs or aspects of TOM design that would better facilitate the most efficient delivery of the HHS Meter to Bank process?

Question 2	Are there any TOMs or aspects of TOM design that would better facilitate the most efficient delivery of the HHS Meter to Bank process?	
Respondent	Yes / No / Other	Answer
E.ON Energy Solutions	Yes	<p>Please refer to additional paper included in this response [see Appendix 1] but to summarise, after consideration of all TOM's our position would be that any TOM that groups services would support in moving the market forward.</p> <p>In our capacity as a Supplier we feel that TOM's C and E would be our preference however as an Agent our preference would be TOM C.</p> <p>There would be less hand offs between agents but still maintain customer choice (on the basis this would be competitively procured) – this TOM would make customer and supplier provision easier as only one contract would need to be sourced.</p>
Utilita Energy	Yes, in theory and with reservations	<p>We believe the biggest challenge of moving to market-wide Half-Hourly Settlement is the sheer volume of data that will need to be gathered, sent, processed and validated on a daily basis. For this reason, in theory TOM E should enable the most efficient delivery of register reads/settlement period level data being retrieved and sent to the Volume Allocation Service directly where all settlement processes could then take place, reducing the number of actors required within data transfer arrangements. We however have a number of concerns with removing competition in this area of the market, not least the costs to industry and resultant end consumers (as witnessed recently with the introduction of the DCC) and the considerable amount of work and time this would require for benefits we are unable to yet determine at this early stage of the programme.</p>
Stark	Yes	<p>The different groupings of services in the TOMs are essentially superficial and will have little impact on the efficient delivery of HHS. Far more important for efficiency, and irrespective of TOM design, is the chosen delivery model, which is tied to Ofgem Policy Decisions. A competitive delivery model, through market pressures on multiple providers, will tend towards greater efficiency than any model that features single or multiple monopolies. Whilst designs where Retrieval and Processing are combined will offer greater synergies over those where they are separate, it is more important that the services are open to competition to facilitate greater efficiency.</p>

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Question 2	Are there any TOMs or aspects of TOM design that would better facilitate the most efficient delivery of the HHS Meter to Bank process?	
Respondent	Yes / No / Other	Answer
AIMDA	Yes	<p>Given the close similarity between all of the TOMs, they all use the same components and the different groupings are essentially superficial, it is more the delivery model that will determine efficient delivery of HHS. A competitive delivery model, through market pressures on multiple providers, will tend towards greater efficiency than a centralised model. It therefore follows that any component that can sensibly be opened up to competition should be. Whilst designs where Retrieval and Processing are combined (A &amp; C) offer greater synergies over those where they are separate (B &amp; D), it is more important that the services are open to competition to facilitate greater efficiency.</p>
Opus Energy & Haven Power	More detail required to answer	<p>Given the current level of optionality within the TOM designs at this stage, more detail would be required to provide a reasoned answer to this question.</p>
IMServ	Yes	<p>Whilst there is little to fundamentally separate the TOMs (and thus they should all have similar efficiency levels), apart from grouping of functions and the commercial model chosen to deliver those functions, those TOMs that facilitate greater competition will ultimately deliver the greatest efficiency.</p> <p>If efficient delivery is about creating maximum delivery for the lowest effort/cost, then any TOM that promotes long-term and effective competition will become the most efficient. Competition promotes efficiency, whereas a lack of competition promotes waste and inefficiency, despite the efforts of procurement teams to introduce mechanisms to artificially generate competitive forces. It therefore follows that any component that can sensibly be opened up to competition should be, as this will lead to the most efficient solution for that component in the long-term. This will more than match any theoretical efficiency gained by placing functions under monolithic, monopoly structures. As each TOM effectively contains the same components, laid out in the same order, with varying degrees of grouping and/or competition, the order of TOMs in respect of efficiency could be (in descending order): B, D, C, A, E. However, this ordering of TOMs does depend on decisions to be made on whether to allow the individual elements of the TOMs to exist in a distributed competitive form or whether they are procured centrally.</p> <p>Even more efficient would be to retain the current delivery and commercial models for advanced metering. These are mature, work well and are being changed unnecessarily in all of the TOMs. The changes being proposed in this area have no clear rationale and any changes made will decrease efficiency as they will serve to introduce the additional cost of change.</p>

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Question 2	Are there any TOMs or aspects of TOM design that would better facilitate the most efficient delivery of the HHS Meter to Bank process?	
Respondent	Yes / No / Other	Answer
ElectraLink	Yes	<p>ElectraLink believe that to better facilitate the efficient delivery of HHS that Exelon and Ofgem should promote any TOM which improves the competitive provision of settlement services in the market, as this should drive efficiency and cost reductions as it has done so previously within Agent Competition.</p> <p>As TOM D does not group any of the meter to bank services and allows the market to group the services, as appropriate, we believe that TOM D has the most opportunity to facilitate the most efficient provision of settlement services. TOM D gives the opportunity for market participants to explore the models outlined in TOM A, B and C without prescribing them from the outset. Consolidation and differentiation of service provision will result from competition and lead to market efficiency – this has been evidenced through the introduction of Agent competition since 1998 and the cost savings and price reductions this has provided to the market.</p> <p>Agent competition has been operating since 2000 and has delivered significant benefits to the energy industry in terms of process improvement and cost to serve. The current numbers of agents delivering services are 23 in data collection and 12 in data aggregation. This competition has been delivered by both 'in house' vertically integrated agents and independent agents offering services to a range of supplier customers. Where independent agents have been delivering 'bundled' services (data retrieval, data collection, and data aggregation) the cost of these services has decreased significantly since the opening of the competitive market. There is anecdotal evidence that the price paid for validated readings (including aggregation services) has reduced by over 50% between 2000 and 2010. The savings generated to industry will be in the range of £10m-£20m based on the volume of customers in the NHH settlement regime. Whilst it can be argued that these cost reductions have resulted from bundling and, therefore, supports the arguments for the other TOM models, we believe that this price reduction is a result of commercial tension between providers driving innovation in both process and delivery models. These innovations have included the automation of data processes through the introduction of machine learning and the ongoing delivery of complex data cleansing programmes. Whilst the majority of price reductions of this magnitude have been delivered by agents offering large scale national services there is also evidence that agents offering smaller scale services can add value to their offering through performance improvements and additional benefits such as retail invoice validation. Niche services are often valued by smaller suppliers and new entrants to the market as they enable a level of customer focus normally reserved for the 'big 6' retailers who can exercise greater buying power.</p>

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Respondent	Yes / No / Other	Answer
		<p>ElectraLink understands that there may be economies of scale delivered by the introduction of a single central settlement service, as outlined in TOM E, but we would encourage the programme to assess the ability of a single service provider to feel the commercial pressure to deliver constant innovation and how such a service provider would be compelled to meet the needs of smaller customers and new entrants.</p> <p>ElectraLink also believe that there are no other TOM models that need to be considered for the HHS Meter to Bank process.</p>
ENGIE Power Limited	Yes	<p>We believe that the end to end service covering both retrieval and aggregation proposed by both TOMs C and E would offer the most efficient delivery of the HHS settlement process.</p> <p>Having one end to end service limits the amount of data that is being transferred between agents, this reduces the risk of data failing to transfer correctly or incorrect data being sent. In addition, in a competitively procured agent scenario it reduces the number of contracts and third-party relationships a supplier may have to manage.</p>
Npower Ltd	Yes	<p>The main driver for considering market wide HH settlements is the increased installation of meters that are capable of recording and providing HH level data. Whilst the NHH market must change and there will be a cost to this, the traditional HH and AMR market is either already settling or is capable of settling in a HH capacity, therefore must be viewed differently from a change perspective. The traditional HH and AMR markets must see the benefit of change against the status quo, which will still deliver market wide HH settlements. For example:</p> <ul style="list-style-type: none"> <li>• Traditional HH customers understand the market as it operates today and choose agents within a competitive environment.</li> <li>• Suppliers can choose which DA best supports settlement performance.</li> <li>• There may be demand aggregator or Project Terre considerations if the DA role was changed for higher consuming sites.</li> </ul> <p>We believe operating model C is the most efficient as it creates a single new efficient smart agent role that combines DC/DA but has least change to the traditional HH and AMR market. However, we would strongly suggest amending the combined non smart DC/DA role to separate out the DC and DA roles and allow continued choice for DA as we have now.</p> <p>Further, we believe each of the TOMs should have a 'no change' option for the traditional HH and AMR market. Presently:</p> <ul style="list-style-type: none"> <li>• TOM's A, D and E would remove the ability of a supplier to have a dedicated traditional HH data aggregator to support the SP08 measurement class C requirement for settling 99% actual energy at</li> </ul>

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Question 2	Are there any TOMs or aspects of TOM design that would better facilitate the most efficient delivery of the HHS Meter to Bank process?	
Respondent	Yes / No / Other	Answer
		<p>SF. It suggests that in these TOM's, aggregators must be accredited / able to support Smart aggregation in addition to traditional HH. Smart HH and traditional HH are likely to have different settlement performance requirements due to the volume associated to individual sites.</p> <ul style="list-style-type: none"> <li>• TOM's B and C require the data processing and data aggregation functions to merge, again removing the ability of a supplier to have a dedicated HH data aggregator to support the SP08 measurement class C requirement to settle 99% actual energy at SF. Merging these roles may be the right approach for mass market but not for larger consuming HH sites that require more individual attention by suppliers/agents.</li> <li>• Smart DC/DA's may need more flexibility to aggregate customers differently depending on what type of product they choose, for example if a customer has a time of use type product compared to a customer who settles HH with a NHH billed type product. This may be supported by new Consumption Component Classes.</li> </ul>
EDF Energy	Yes	<p>An efficient Meter to Bank process is one that ensures that as much actual (or accurately estimated) HH data as possible is used, with the minimum amount of effort required to achieve this outcome. Any TOM should:</p> <ul style="list-style-type: none"> <li>• Minimise the number of data transfers in the process, or at least ensure that these are designed in such a way as to not create exceptions as a result of the hand-offs.</li> <li>• Minimise the number of interfaces that a service or process requires in order for it to complete.</li> <li>• Minimise the number of times that data is transformed or translated as part of the process.</li> <li>• Not replicate data unnecessarily across multiple services or process.</li> <li>• Enable effective resolution of exceptions where they do occur.</li> </ul> <p>On this basis, the TOMs that combine services and especially that combine Retrieval and Processing, would seem to be those that would better facilitate the most efficient delivery of the HHS Meter to Bank process. This should ensure that as far as possible all of the actual HH data that is retrieved from meters is processed, and that exceptions (such as validation failures) that arise in processing as a result of issues in the retrieval process can be more easily investigated and resolved. This is our experience of the current HH processes, and we believe that the same principles would apply to the new HH processes for smart meters.</p>

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Question 2	Are there any TOMs or aspects of TOM design that would better facilitate the most efficient delivery of the HHS Meter to Bank process?	
Respondent	Yes / No / Other	Answer
Energy Local CIC	Yes	<p>TOM D.</p> <p>We believe that enabling the maximum number of participants in the process will encourage innovation that will enable all parties to be as efficient as possible.</p>
Salient Systems Ltd	Yes	<p>TOM's where Retrieval service is separated from other services and Supplier is wholly responsible for effective and efficient retrieval of all consumption data at appropriate frequencies.</p> <p>All proposed TOM's will positively impact the HHS Meter to Bank efficiency.</p> <p>Consumption data retrieval is the critical starting point at consumption data life cycle. Inefficiencies here will have the biggest impact upon Supplier cash flow and energy forecasting accuracies, consumer bills etc.</p> <p>Responsibility for Retrieval service delivery or nomination of competitive and aligned provider of Retrieval service should sit firmly with lead Supplier.</p>
Siemens	Yes	<p>Given the close similarity between All of the TOMs use the same components with same model representing a different grouping of the components there is little difference between them, It is the delivery model that will determine efficient delivery of HHS. A competitive delivery model, due to demands on multiple providers, should offer greater efficiency than a centralised model. Therefore any component that can be opened up to competition should be. Whilst the TOMs where Retrieval and Processing are combined (A &amp; C) offer greater synergies over those where they are separate (B &amp; D), it is more important that the services are open to competition to facilitate greater efficiency. In the case where services are not combined in advance, market forces lead to efficient combination of services. These forces include buyer preferences regarding the number of entities with which they would prefer to transact and seller prices that are reduced to reflect lower costs when services are bundled efficiently.</p> <p>On practical note. Having the conversion of Register Reads (RR) to Settlement Period (SP) consumption data earlier in the overall process has the potential to improve the overall process. The need to perform this conversion should be on the minority of meters in the market assuming there is access to SP data from the large majority of SMETS meters. Removal of the conversion from the current aggregation processes should result in more efficient Aggregation and Volume Aggregation services with the reduction in complexity of processing, which will in effect be just summation of data to various levels.</p>

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Question 2	Are there any TOMs or aspects of TOM design that would better facilitate the most efficient delivery of the HHS Meter to Bank process?	
Respondent	Yes / No / Other	Answer
TMA Data Management Ltd	Yes	<p>We strongly favour TOMs allowing for competition of Service providers. It has shown to deliver better value for money in the long term and allows innovation as Suppliers have alternative means to obtain data as well as the flexibility to obtain custom made services. Efficiency is also delivered by being responsive to change. A central service provider has proven to be very challenged by change and not allowing the market to improve without bearing huge costs.</p> <p>TOM D is our preferred option keeping the service providers separate and allowing them to compete fully. Service providers already offer some services together, some do not. We do not support the Authority mandating which services should or should not be bundled together.</p>
SmartestEnergy	Yes	<p>TOM E.</p> <p>It is probably not optimal for data held by the DCC not to be fed directly into settlements. If new systems are being built for the aggregation of Smart data it makes sense that they should be centralised as it would be a waste for a lot of private companies to build new systems in an area where there is little competitive element i.e. customers are indifferent to data aggregation.</p>
SSE	Too early to say	Further detail on each TOM will help answer this question. The detail currently is too high level to consider appropriate analysis.
DCC	-	See Appendix 2.
ScottishPower	Yes	<p>Yes – the separation of processes for Advanced and Smart/non-Smart.</p> <p>ScottishPower strongly believe that competition fosters innovation and efficiency and that the MHHS programme provides a once in 20-year opportunity to rationalise the non-advanced meter market (i.e. Smart and non-Smart), introduce half-hourly settlement, lower costs, better quality service for the 'commodity' element of process transactions, while providing opportunity for new parties to develop new 'value-add' services for customers.</p> <p>This model is mature in the existing advanced metering market, with the attendant benefits to customers, so the grouping of services to treat Advanced separately (ref section 15) is welcomed.</p> <p>We should not be carrying forward the complexities of the pre-MHHS era. The current programme should consider wide-scale standardisation of process and data sources for recorded consumption, and avoiding the multiple hand-offs and points of failure arising from the present multiple agent model.</p> <p>SP recognise that in the Business sector, services have evolved over time through the innovation of multiple agents. However it can also foster complexity and process failure if not implemented in the correct manner/</p>

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Question 2	Are there any TOMs or aspects of TOM design that would better facilitate the most efficient delivery of the HHS Meter to Bank process?	
Respondent	Yes / No / Other	Answer
		<p>segments.</p> <p>ScottishPower believes that innovation in the Domestic market should be focussed on developing new services not on competitive tendering for existing 'commodity' transactions where little value is added by service differentiation.</p> <p>For Smart and non-Smart (but not Advanced) meters this should mean that commodity transactions are simple and low-cost, but that add-on services can be developed and delivered by multiple parties.</p>
British Gas	Neutral	<p>All of the TOMs have the ability to facilitate the efficient delivery of the HHS meter to Bank process.</p> <p>Consideration has been made in the Risk log about potential amendments to the Supplier Hub Principle that could alter the assumptions made on how the HHS meter to Bank process is managed.</p> <p>We would suggest that Elexon and Ofgem continue to work in close partnership to ensure settlement reform is aligned with the Future Supply Market Arrangements work.</p>

## MARKET-WIDE HALF-HOURLY SETTLEMENT

### Question 3: Are there any TOMs or aspects of TOM design that would better facilitate the most accurate allocation of energy?

Question 3	Are there any TOMs or aspects of TOM design that would better facilitate the most accurate allocation of energy?	
Respondent	Yes / No / Other	Answer
E.ON Energy Solutions	Yes	<p>The TOM's which include complete or partial grouping of services should provide a reduction in hand off points allowing for more fluid processing of data from the meter into Settlements (TOM's C and E in particular).</p> <p>Also when considering a centralised agent they could facilitate quicker Demand Side Response and provide visibility of a consumer's complete energy history. The later part cannot be achieved through TOMS B &amp; C as they don't have a standalone DA that could provide MPAN level data.</p> <p>It is also worth noting that any failure in a centralised system would impact all parties and could have significant impacts on the market whereas in single systems the impacts would be more localised.</p>
Utilita Energy	Too early to say	<p>We believe it is still too early in the programme to be able to provide a considered view on which TOM would better facilitate the most accurate allocation of energy. Following Stage 2, where we understand the detail behind the skeleton TOMs will be developed, and once Ofgem's decisions have been reached (on access to data and centralising of agent functions) will we be in a better position to make a more informed view of the preferred TOM aspects/design.</p>
Stark	Yes	<p>The TOMs recognise the importance of data quality and timeliness but at this stage do not go into the detailed processes around accurate allocation of energy, making it difficult to comment. However, a competitive model where multiple providers distinguish themselves on Settlement performance and data quality will help facilitate accurate allocation of energy, more so than any centralised model. Moreover, to accurately allocate energy for sites without SP level data, the proposed "Load Shaping Service" needs to use a reliable, varied and current data set that covers every possible meter and customer combination. In the smaller non-domestic sector (PC03-04) this will require input from the Advanced meter population as the relative population of Smart meters in this sector is small and will not be representative of its highly heterogeneous nature. None of the TOMs appear to recognise this.</p>
AIMDA	Yes	<p>Due to the similarities described in Q2, the TOMs themselves will have little bearing on the accurate allocation of energy - it is the party responsible for delivery that will drive accuracy. A competitive model where multiple providers distinguish themselves on performance and data quality will facilitate more accurate allocation of energy than a centralised model, which will have little incentive to achieve high standards. Regulatory change around the settlement of export will also allow for more accurate allocation of energy and is actually a requirement for the innovative settlement services under consideration (EV Charging etc.). Moreover, to accurately allocate energy, the proposed "Load</p>

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Question 3		
Are there any TOMs or aspects of TOM design that would better facilitate the most accurate allocation of energy?		
Respondent	Yes / No / Other	Answer
		Shaping Service” needs to use a reliable, varied and current data set that covers every possible meter and customer combination. In the smaller non-domestic sector (PC03-04), which is highly heterogeneous, this will require input from the Advanced meter population, which none of the TOMs do, as the relative population of Smart meters in this sector is small and will not be representative.
Opus Energy & Haven Power	Potentially, but difficult to say	Potentially TOM B or TOM C.  Whilst we have an initial view, we feel that until there is clearer direction on decisions around access to data and supplier agent functions, it is again difficult to provide a definitive answer at this stage.
IMServ	Yes, indirectly	All of the TOMs are so similar in design that they should deliver similar accuracy levels. Performance frameworks and targets are used by the industry to drive performance/accuracy, as are commercial arrangements with differentiable performance targets and incentives. Therefore, those models that increase competition and drive localised responsibility for performance will drive higher levels of delivery and therefore accuracy.  The most significant advance in the accuracy of settlement can be made through regulation change to make settlement of export at smaller sites mandatory. This would appear to be an essential forerunner of the ability to provide the innovative settlement services that are being considered.
ElectraLink	No	ElectraLink do not believe that there are any other TOMs or aspects of TOM design that would better facilitate the accurate allocation of energy.
ENGIE Power Limited	Yes	We believe that all the TOMs would better facilitate accurate allocation of energy against the NHH baseline. However, the end to end service as proposed by both TOMs C and E would be the most accurate.  As per question 2 we believe that limiting the number of data hand-offs between parties would reduce the risk of failed or inaccurate data transfer. This would increase the overall accuracy of settlement.
Npower Ltd	No	We can't see why accuracy would be different for any of the TOMs. Accuracy is dependent on quality of metering data entered into the system and that processes are followed correctly.  It's possible that TOMs with less data transferred between roles reduces the potential risk of error. TOMs B and D have an additional data retriever role for smart metered sites. It's possible that this additional step to transfer data could introduce additional error.

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Question 3	Are there any TOMs or aspects of TOM design that would better facilitate the most accurate allocation of energy?	
Respondent	Yes / No / Other	Answer
EDF Energy	Yes	<p>The answer to this question is similar to the answer to Question 2, in that accurate allocation of energy is best achieved by a TOM that ensures that as much actual (or accurately estimated) HH data as possible is used in the energy allocation process. The TOMs that combine services and especially that combine Retrieval and Processing, would seem to be those that would better facilitate the accurate allocation of energy as they should minimise the amount of valid actual data that falls out of the process unnecessarily.</p> <p>Another key determinant of accurate allocation of energy will be the Load Shaping Service that will convert NHH reading information into HH settlement data. As this aspect is common to all of the TOMs, it cannot be used to differentiate between them, however, it does mean that the detailed design of this service will be critical to the accurate allocation of energy, especially where a significant proportion of meters are reliant on this Service.</p>
Energy Local CIC	Yes	<p>If access to data for community organisations is ensured, this will/could enable local balancing (see response to Question 12). We believe that this would be best facilitated by TOM D.</p> <p>Multiple small players are more likely to accommodate innovative approaches and work with innovators to tackle practical problems in implementation. Our experience is that larger organisations tend to be less adaptive.</p>
Salient Systems Ltd	Yes	<p>TOM's where Processing and Aggregation services are delivered by the Supplier directly or competitively provided to Supplier to address differentiated Supplier requirements.</p> <p>The potential positioning of value adding extensions to Processing or Aggregation services to accommodate innovation and flexibility extension at the energy market has not been fully uncovered yet; although it has been recognised at the work so far that BSC extensions/refinements will most likely be required.</p> <p>Processing and Aggregation services will likely be implicated in order to accommodate and deliver objectives of new/refined BSC mechanisms.</p> <p>'Vanilla' delivery of future Processing and Aggregation services (and embedded Estimation service) through any centrally delivered service solutions will risk subverting Supplier opportunities to differentiate and assure accurate energy allocations resulting from differentiated service options.</p>

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Question 3		
Are there any TOMs or aspects of TOM design that would better facilitate the most accurate allocation of energy?		
Respondent	Yes / No / Other	Answer
Siemens	Yes	Due to the similarities described in Q2, the TOMs themselves will have little bearing on the accurate allocation of energy - it is the party responsible for service delivery that will drive accuracy. A competitive model where multiple providers distinguish themselves on performance and data quality will facilitate more accurate allocation of energy than a centralised model, which will have less incentive to achieve high standards. Suppliers will tend to buy services that have greater accuracy so as to reduce overall unaccounted for energy, because they bear significant financial responsibility for unaccounted for energy. In addition, more accurate allocation reduces supplier risk. Regulatory change around the settlement of export will also allow for more accurate allocation of energy and is actually a requirement for the innovative settlement services under consideration (EV Charging etc.).
TMA Data Management Ltd	Difficult to say	The accuracy of the data should not be affected by the operating model. The impact on accuracy would be the level of estimation and the accuracy of the estimation. It is difficult to comment on the level of estimation for smart metering where the proportion of fault/missing data is yet unknown.
SmartestEnergy	No	All the TOMs should achieve this.
SSE	Too early to say	The TOM design work after the policy decision for "Settlement Period Level data access and use" will be key to finding the best route to the most accurate allocation of energy. The more limited the model chosen the more limited the design will be in helping more accurate allocation of energy, or overcoming the issue of trying to ensure parties can see the true costs of delivering energy.
DCC	-	See Appendix 2.
ScottishPower	Yes	High levels of actual reads in settlement as provided for by all TOMs.
British Gas	Neutral	Our view is that the TOMs are not significantly different in how they facilitate the accurate allocation of energy into Settlement. The only difference appears to relate to the grouping of services.  Based on our current view that that the difference between the TOMs relate to the entity that the performs the service, there isn't a single TOM that would perform the allocation of energy differently to the other.

# MARKET-WIDE HALF-HOURLY SETTLEMENT

## Question 4: Are there any TOMs or aspects of TOM design that would be less resilient?

Question 4	Are there any TOMs or aspects of TOM design that would be less resilient? e.g. a failure in a Service to be delivered	
Respondent	Yes / No / Other	Answer
E.ON Energy Solutions	-	<p>Not specifically however the impacts on current levels of validation could be reduced through centralisation.</p> <p>Within TOM's B, C and E where Aggregation becomes part of an incumbent process there are risks associated with "less validation". Currently errors between the NHHDC and DA, or between the SVAA and DA are addressed via certain exceptions highlighting validation issues, D0095's as an example. However, if a single agent is using a single system for validation and aggregation this check is lost. It is worth noting that as the HH data would be retrieved directly from the meter then the current levels of DC / DA validation should no longer be required.</p> <p>There needs to also be consideration that through any TOM chosen, the amalgamation of services will lead to a requirement of more targeted BSC auditing to ensure efficiency and compliance in the market more so on centralised agents.</p> <p>There is also an inherent risk with having a single provider as any significant system failure will impact the whole market and not just a handful of serviced parties.</p> <p>As part of the definition of the lower level TOM's, learnings should be taken from the Gas project Nexus for an example of a large scale program of work and potential risks.</p>
Utilita Energy	-	<p>Similarly to question 3, we believe Stage 2 is critical in identifying aspects of each of the TOMs which may risk the overall delivery and efficiency of end-to-end settlements system. Our only comment at this stage is that any model which is based on a centralised monopoly service provider being procured (i.e. under TOM E) should be approached with extreme caution, learning from the lessons of recent major system implementations such as by the DCC which has left industry paying extortionate costs for a currently sub-optimal service, which can only be at end consumers detriment. We therefore maintain the view that competition in the market promotes a higher level of service offering than a market built on monopoly service providers.</p>
Stark	Yes	<p>Whilst TOM E is the only one to specifically include a "single central Settlement service", all TOMs allow for either single or multiple monopolies. Any final design that incorporates single or multiple monopolies for one or more of the relevant services will be intrinsically less resilient than a fully competitive model, which will benefit from greater distribution and redundancy.</p>

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Question 4	Are there any TOMs or aspects of TOM design that would be less resilient? e.g. a failure in a Service to be delivered	
Respondent	Yes / No / Other	Answer
AIMDA	Yes	Whilst TOM E is the only one to specifically include a "single central Settlement service", all TOMs allow for either single or multiple monopolies. Any final design that incorporates single or multiple monopolies for one or more of the relevant services will be intrinsically less resilient than a fully competitive model, which will benefit from greater distribution and redundancy. Single points of failure should be designed out wherever possible and contingency arrangements built into process design wherever possible.
Opus Energy & Haven Power	Yes	TOMs with more heavily centralised services (e.g. TOM E). We believe that although there may be benefits around data quality through the reduction of hand-offs, there is an increased risk of service failure should a centralised service encounter issues that restrict its ability to deliver those services.
IMServ	Yes	Centralisation creates single points of failure in both design and delivery. A distributed model is inherently more robust. Single points of failure should be designed out wherever possible and contingency arrangements (such as data substitution) built into process design wherever possible. Therefore, any TOM that maximises the distribution of activity will be more robust and resilient and any TOM that creates centralisation will be less so.
ElectraLink	No	ElectraLink do not believe that there are any TOMs or aspects of TOM design that would be less resilient. We believe that, as phase 2 progresses, the detail around the key areas that affect the resilience of the models (such as data transfer) will develop and this will enable industry to assess the resilience of individual models.
ENGIE Power Limited	Yes	The separate services scenario proposed by TOM D would be the least resilient. Separating the services would increase the amount of data being sent between parties and thus increase the risk of failed or inaccurate data transfer, thus providing a less resilient service.
Npower Ltd	Partial yes	TOMs A, D and E all have the option for a single centralised market wide data aggregator. This may be less resilient if there was some form of service failure given the volume of data held in one place. Keeping the smart and traditional HH / AMR markets separate for aggregation reduces the risk of a market wide failure.

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Question 4	Are there any TOMs or aspects of TOM design that would be less resilient? e.g. a failure in a Service to be delivered	
Respondent	Yes / No / Other	Answer
EDF Energy	Yes	<p>Any TOM that is reliant on a single provider to deliver a service that is part of the Meter to Bank process would seem to be inherently less resilient. Any failure by that party to provide the service would impact the whole of the market, as would any systematic error made by that party in carrying out that service.</p> <p>That does not mean that TOMs that use (or can use) a single service provider are necessarily less desirable, it may mean that mitigating actions need to be taken to reduce the risks of such failures occurring. It may also mean that using a single service provider might be more appropriate for specific services than for others; for example, the risk associated with centralised aggregation might be lower than centralised retrieval or processing, depending on how and where validated settlement period data is actually stored.</p>
Energy Local CIC	Yes	<p>We believe that TOM E is the least resilient.</p> <p>Combining all aspects from meter to bank into a single centralised service leads to the greatest risk from a single point of failure.</p>
Salient Systems Ltd	Yes	<p>Generally, from a design perspective, the more bundling of services within TOM options the less resilient the overall end to end service architecture will be to accommodate Industry change and to position differentiated requirements efficiently and effectively.</p>
Siemens	Yes	<p>Whilst TOM E is the only one to specifically include a "single central Settlement service", all TOMs allow for either single or multiple monopolies. Any final design that includes single or multiple monopolies for one or more of the relevant services will be intrinsically less resilient than a fully competitive model, which will benefit from greater distribution and redundancy. Purchasers of services from competitive providers also consider resiliency as a benefit in their purchasing decision, thus creating market forces driving greater resiliency. Single points of failure should be designed out wherever possible and contingency arrangements built into process design wherever possible.</p> <p>Our understanding is that Load Shaping Service is proposed to be a single monopoly Service to the whole Industry regardless of which TOM is eventually selected. This will therefore be a potential single point of failure. It is also has the possibility of it being a bottleneck in processing, especially if there is a high volume than anticipated of non-smart and register read meters whose mpans require to use the Load Shaping Service. This might be particularly true in the early years of Market-wide HHS when the take up of SMETS meters is not as rapid as predicted. Also to be taken into consideration is that to accurately allocate energy, the Load Shaping Service needs to use a reliable, varied and current data set that covers every possible meter and customer combination, however in the smaller non-domestic sector (PC3-4), which is highly heterogeneous,</p>

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Question 4	Are there any TOMs or aspects of TOM design that would be less resilient? e.g. a failure in a Service to be delivered	
Respondent	Yes / No / Other	Answer
		<p>this will require input from the Advanced meter population, which none of the TOMs identify, as the relative population of Smart meters in this sector is small and will not be representative.</p> <p>The design of the Load Shaping Service must consider these issues in its design. Failure to perform as required will have a detrimental effect on Settlement.</p>
TMA Data Management Ltd	Yes	TOM E, a central service provider is a single point of failure and therefore less resilient than the other TOMs where there can be multiple service providers.
SmartestEnergy	Yes	<p>Option D.</p> <p>Option D has the greatest number of hand-offs and potential points of failure.</p>
SSE	Yes	<p>TOM's B and D as having a greater number hand-offs that there is a greater possibility of error, than for TOM's A and C.</p> <p>TOM D continues to offer a potential for single point of failure for each chain using each particular link – which if that is a perceived/real issue today, will mean that issue has not been addressed.</p>
DCC	-	See Appendix 2.
ScottishPower	Yes	<p>It is difficult to answer this in any detail since the TOMs are not yet defined in any detail.</p> <p>However in relation to aspects of the current market arrangements there are multiple failure points and SP would like DWG to analyse these and design them out of any enduring MHHS arrangements.</p> <p>For example and to name a few, HHDA data not being submitted, being duplicated, DC data missing from DA files, II runs with inaccurate files, settlement timetables being misunderstood by agents, etc.</p> <p>Where an entity acts as DC and DA the requirement for D19s (and attendant exception handling) should be eliminated.</p> <p>There is also little justification for an HHDA to be different to the HHDC, so provision should be considered to mandate that both services are provided by a single agent (with the process improvements noted in previous paragraph).</p>

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Question 4	Are there any TOMs or aspects of TOM design that would be less resilient? e.g. a failure in a Service to be delivered	
Respondent	Yes / No / Other	Answer
British Gas	Yes	<p>Current analysis supports the view that Market developments, especially the smart meter rollout and market-wide HHS, should reduce the importance of transferring data between parties (hand-offs) as a source of data quality issues.</p> <p>At this stage, it does not appear that there would be particular advantages in reducing the number of hand-offs by introducing a more centralised model ( option E ) as there is a counter view that a single provider increases the material impact of any issues that may arise and could potentially reduce transparency of operations.</p> <p>The DCC will assume the role of data retriever, and there may be a case to also centralise the data aggregation function, to increase process efficiency and reduce operating cost. The roles of data processing and meter operations are points of differentiation in which competition providers add value and prompt innovation.</p> <p>It is noted that OFGEM are in the process of reviewing the principle of centralisation and have recently shared the current position in a paper titled "Supplier Agent Functions Under Market Wide Settlement " and we are fully supporting the analysis in progress.</p>

## MARKET-WIDE HALF-HOURLY SETTLEMENT

### Question 5: Are there any TOMs or aspects of TOM design that would deliver the best result for the end consumer?

Question 5	Are there any TOMs or aspects of TOM design that would deliver the best result for the end consumer?	
Respondent	Yes / No / Other	Answer
E.ON Energy Solutions	-	<p>Consumers are more frequently requesting real time onsite data via different methods through external software providers or directly through their host agents. Any amendments within the Settlements arena need to not restrict or delay end Consumers being able to obtain the data from their meter. As such we feel the best TOM would be the one that provides:</p> <ul style="list-style-type: none"> <li>a) The least cost</li> <li>b) The most timely results</li> <li>c) The most accurate results</li> <li>d) The least impact to the end consumer</li> </ul> <p>A decision would need to be made regarding what type of company a centralised agent would be. Would the tender be for a Profitable venture or a not for profit company to service the industry. Each carries its own risks and benefits which would need assessing. For example, not for profit may have better service and be more transparent whereas a profitable venture may have better efficiencies.</p>
Utilita Energy	-	<p>Although centralising settlement systems should be more efficient and result in cost savings to industry and end consumers, industry have seen the results of introducing a monopoly service provider to deliver smart meter communications. As a result, we support at this stage a model based on offering full market competition of services to ensure flexibility and that high-quality settlements processes are delivered through giving industry choice.</p> <p>It is also important to highlight that customer choice would be significantly impacted through centralising functions for advanced meters. Customers currently often exercise the right of choice to appoint their own agents so we believe taking away this option for customers, needs to be carefully weighed up against the benefits for centralising settlement services under Stage 2.</p>
Stark	Yes	<p>The best result for consumers is a design that supports innovation, independence and value for money. In the absence of competitive pressure, single or multiple monopolies cannot deliver in any of these areas.</p> <p>In a competitive model, customers will benefit from high quality services, delivered at low cost from a selection of providers who are constantly seeking to innovate their offerings. Consumers also find benefit in choosing an agent independently of their supplier; they are free from conflict to provide energy efficiency advice and can represent the</p>

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Question 5	Are there any TOMs or aspects of TOM design that would deliver the best result for the end consumer?	
Respondent	Yes / No / Other	Answer
		customer's best interests operationally. A design that permits multiple, independent and integrated agents to compete will therefore deliver the best result for the end consumer.
AIMDA	Yes	The best result for consumers is a design that supports innovation, independence and value for money. In the absence of competitive pressure, single or multiple monopolies cannot deliver in any of these areas. In a competitive model, customers will benefit from high quality services, delivered at low cost from a selection of providers who are constantly seeking to innovate their offerings. Consumers also find benefit in choosing an agent independently of their supplier; they are free from conflict to provide energy efficiency advice and can represent the customer's best interests operationally. A design that permits multiple, independent and integrated agents to compete will therefore deliver the best result for the end consumer. This is the status quo in the Advanced metering market (NHH & HH), which is working well for consumers and should not be disrupted.
Opus Energy & Haven Power	-	All TOMs appear to give optionality for improving data/lowering costs. Ultimately, a reduction in energy costs for the consumer along with increased flexibility on how & when they choose to use energy (e.g. availability of ToU tariffs).
IMServ	Yes	Particularly in the non-domestic market, end consumer choice in the provision of metering and data collection agents is common place. Any TOM design that erodes or interferes with this well-established principle will diminish end-user choice and the ability to differentiate and add value by choosing metering and data agents. No change at all to the existing half hourly arrangements for advanced metering would be the best decision for the non-domestic end consumer.
ElectraLink	Yes	ElectraLink believe that any TOM design that would promote efficient delivery of HHS would deliver the best result for the end consumer through lowest total cost. Therefore, as per our response in question 2, we believe the TOM D would promote the best outcome for the end consumer.

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Question 5	Are there any TOMs or aspects of TOM design that would deliver the best result for the end consumer?	
Respondent	Yes / No / Other	Answer
ENGIE Power Limited	Yes	<p>TOMS C and E.</p> <p>Although none of the TOMs will directly impact on the customer experience, ensuring settlement is as accurate as possible will drive down costs allowing customers to experience overall less expensive energy bills. As we believe that the end to end service proposed by TOMs C &amp; E will provide the most accurate and efficient settlement service we believe that this will be the best result for the end consumer.</p> <p>In addition, the end to end service will potentially limit the number of different parties suppliers will need to contract with. This will arguably make market entry easier for smaller or challenger suppliers giving consumers more choice of who supplies their energy and providing a more competitive market place.</p>
Npower Ltd	Yes	<p>TOM C.</p> <ul style="list-style-type: none"> <li>• This TOM allow for an option where smart/NHH sites have a centralised data collector and data aggregation role, which is likely to reduce implementation costs of HHS. Traditional HH and AMR sites could continue to operate as they do now.</li> <li>• The vast majority of the markets HH data would not need to be transferred between the DC and DA. As mentioned in response to Q2, traditional HH DC / DA should remain separated.</li> <li>• Smart metered customers could access their data from the same source that validates that data, which may be helpful in developing broad mass market domestic energy tools such as consumption monitoring and demand aggregation. Additional services for suppliers could be developed such as data quality checks for billing, capacity monitoring and consumption trend analysis. The former may be useful where customers retain a NHH type billing product.</li> <li>• There may be some further cost savings achieved in not changing smart agent during a COS for this customer type, again only if this role is centralised.</li> <li>• Large non domestic customers engage with the competitive agent market for traditional HH services. Consideration should be given to the market design to avoid disruption to these customers that currently work with supplier agents on a competitive basis.</li> </ul>
EDF Energy	No	<p>The Meter to Bank process is one that is, and should be, transparent to the end consumer. Consumers will benefit from a TOM that delivers accurate data into the settlement process at the lowest possible cost, as the costs of operating these processes are ultimately borne by consumers.</p>

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Question 5	Are there any TOMs or aspects of TOM design that would deliver the best result for the end consumer?	
Respondent	Yes / No / Other	Answer
		<p>Consumers should benefit from the new products and services that the TOMs are being developed to support, and which are set out in the consultation document. Consumers will benefit from these products and services when the energy that they consume/import (or generate/export) is accurately recorded in the settlement process, and when they can be rewarded for changes in their behaviour. All of the TOMs would seem to achieve this outcome.</p> <p>While it is not directly in scope of the TOM development, which is focussed on the Meter to Bank process, customer billing needs to be a key consideration for all of the TOMs. In the current NHH market the same reading information is used for both billing and settlement purposes, facilitating simple reconciliation between billing and settlement by Suppliers. The impact on this reconciliation process of moving to HH settlement while (most likely) retaining NHH billing will need to be considered.</p> <p>It also needs to be borne in mind that some of the data items that are currently used for NHH settlement purposes, such as SSC and Profile Class, also support accurate customer billing. The SSC allocated to a meter tells any Supplier that gains that meter how it works, and which tariffs they are able to offer to that customer. While SSCs may no longer be required for settlement purposes under HHS, some way of proving information about what tariff the meter is configured to will be required to support accurate customer billing, especially where the customer changes Supplier. This impacts not only non-smart Meters, but also Smart and Advanced meters (those billed on an NHH basis) that cannot be communicated with and re-configured when the CoS event occurs.</p> <p>The other critical customer impacting process that will be impacted by the TOM design will be the CoS process itself. The current NHH CoS processes, and especially the generation of closing bills and the setting up of new accounts are reliant on processes that are defined within the BSC (specifically BSCPs 504 and 514). CoS readings generated by these processes are not only used for settlement but for billing, and ensure that opening and closing readings are the same. Should settlement move away from use of NHH register readings, it will still need to be ensured that customers are billed to the same opening and closing readings.</p> <p>While the TOMs themselves might not be able to cater for these customer-facing issues as they are not directly related to settlement, as part of the transition to any new arrangements these issues that directly impact billing and the customer switching process will need to be addressed.</p>

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Question 5	Are there any TOMs or aspects of TOM design that would deliver the best result for the end consumer?	
Respondent	Yes / No / Other	Answer
Energy Local CIC	Yes	<p>TOM D.</p> <p>It enables the greatest potential for innovation and competition.</p>
Salient Systems Ltd	Yes	<p>TOM's where Retrieval and Processing services are available from competitive service providers, either provided directly from Supplier or from 3rd party competitive providers aligned with Supplier service requirements.</p> <p>Consumers will be better served by Supplier aligned services that are responsive to new retail offers available from the market, including new innovative offers.</p> <p>Processing services, particularly, are expected to play a significant role in the future to deliver value adding data management of consumption data required to align with innovative new service requirements. 'Vanilla' service deliveries from any centralised services will not encourage differentiated service deliveries and change will be hampered by inertia inherent at centralised services.</p> <p>Ofgem consideration of the potential for domestic consumer choice of agent, similar to CPA arrangements at I&amp;C consumers, is long overdue. CPA options available to consumers or groups of consumers will better avoid disruptions to delivery of consumer attractive services on change of supplier events.</p>
Siemens	Yes	<p>The best result for consumers is a design that supports innovation, independence and value for money. In a competitive model, customers will benefit from high quality services, delivered at low cost from a choice of providers who are constantly seeking to innovate their offerings. Consumers also benefit in choosing an agent independently of their supplier; the agent is free from conflict to provide energy efficiency advice and can represent the customer's best interests operationally. A design that permits multiple, independent and integrated agents to compete will therefore deliver the best result for the end consumer. This is the current model in the Advanced metering market (NHH &amp; HH), which is working well for consumers and should not be disrupted.</p> <p>It should be recognised that four meter types, Smart, Advanced, dumb and Unmeasured will endure for the foreseeable future and the models must cater for them all.</p> <p>Another consideration is access to data by consumers or third-party energy service providers. This can be done via a monopoly data hub that has, by definition, a single data interface, or by competitive providers using a data interface meeting a specific industry standard. The U.S.A. offers examples in the Texas (ERCOT) market and PJM, which covers several Mid-Atlantic states. The former has a monopoly hub, Smart Meter Texas, that has proved to be expensive and inflexible; for example, it has</p>

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Question 5	Are there any TOMs or aspects of TOM design that would deliver the best result for the end consumer?	
Respondent	Yes / No / Other	Answer
		taken several years to decide on and implement third party data access (with consumer permissions). The latter relies on a standard developed collaboratively via the North American Energy Standards Board and has evolved into a highly dynamic energy services market with high levels of participation and frequent new entrants.
TMA Data Management Ltd	Yes	The end consumers want value for money and accurate billing. Value for money would be best delivered through competition of service providers and also through innovative processes. Innovative processes are supported by competition. Accurate billing will be delivered by HHS. The TOMs can only deliver the best result for the end consumer when the Service Providers are allowed to fully compete.
SmartestEnergy	Yes	Option E.  Whilst a centralised service on the face of it implies that there may not be a great deal of competition and hence benefits to the consumer, we believe that savings can be made industry-wide not only because of the benefits of scale (i.e. suppliers are not negotiating separately with agents) but also because the service as a whole can be tendered competitively. We do not believe that there will be any adverse effect on competition and there is no need to be concerned about a central function providing data to customers; in the Smart world customers should be able to get their data through their supplier and will take the level of this service into account when choosing their supplier. Customers with AMR meters, however, should be able to retain their relationship with their DC to provide value-added services.
SSE	Too early to say	This will be very much dependent on the policy decision for Settlement Period Level data access and use. The more limited the model chosen, the more there is potential to limit the delivery of the best results for the end consumer. For example, models with limited data access and use may stifle the innovation of relevant customer propositions, i.e. things like reward tariffs or interruptible regimes, or clearer profiling, which can stem from accurate, clear, granular data.
DCC	-	See Appendix 2.
ScottishPower	Yes	Yes – see answer to Q2.

## MARKET-WIDE HALF-HOURLY SETTLEMENT

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Question 5	Are there any TOMs or aspects of TOM design that would deliver the best result for the end consumer?	
Respondent	Yes / No / Other	Answer
British Gas	Neutral	<p>From a settlement perspective, all of the TOMs have the potential to facilitate the HHS meter to bank process and therefore be of similar benefit to the end consumer.</p> <p>The programme to date identifies the industry concerns (such as Meter Registration, Meter Operations, Data Retrieval, Data Aggregation and Volume Allocation) and this is supported. However, comment on the impact on the end user is compromised by pending policy decisions on access to the HH data for non-settlement purposes.</p> <p>Access to data is intrinsically linked to the benefits case of settlement reform and customers should feel in control of it and know what their data is being used for.</p>

## MARKET-WIDE HALF-HOURLY SETTLEMENT

### Question 6: Are there any innovations in technologies or energy services not considered in this document which should be accommodated by the TOMs?

Question 6	Are there any innovations in technologies or energy services not considered in this document which should be accommodated by the TOMs?	
Respondent	Yes / No / Other	Answer
E.ON Energy Solutions	-	<p>Currently customers have an opportunity to select their own agents as service providers for DC / DA. This would need to be fleshed out to ensure this option is still available to the end consumer. If this becomes centralised is the option to an end consumer reduced?</p> <p>There should be a review of the requirements for elective HH in this space. There are still consumers who wish to take this service through traditional HH metering and it needs to ensure consumers are not penalised through site specific DUoS/TNUoS charges.</p>
Utilita Energy	No	We are comfortable the TOM currently accommodates for key areas of innovation within technologies and energy services, however we would like to make sure this is under regular review by the DWG.
Stark	Yes	There is little consideration of technologies such as EV Charging and Heat Networks, which are both nationally transformative. Furthermore, the is no consideration of the energy services currently being provided to the micro-business sector via Advanced metering, which will be significantly disrupted both commercially and operationally should the market design change unnecessarily.
AIMDA	Yes	There is little consideration of technologies such as EV Charging and Heat Networks, which are both nationally transformative. Furthermore, the is no consideration of the energy services currently being provided to the smaller non-domestic sector (PC03-04) via Advanced metering, which will be significantly disrupted both commercially and operationally should the market design change unnecessarily.
Opus Energy & Haven Power	No	<p>None identified.</p> <p>At this stage, we have not identified any further services that are not accommodated.</p>
IMServ	Yes	The TOMs appear to have ignored the energy services that are currently delivered around advanced metering, and by changing delivery models, could fundamentally change the market for these services. This would be an unintentional and adverse consequence due to interference in a market that currently works and does not require change.

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Question 6	Are there any innovations in technologies or energy services not considered in this document which should be accommodated by the TOMs?	
Respondent	Yes / No / Other	Answer
ElectraLink	No	<p>We believe that the TOMs should be flexible enough to accommodate new and emerging business models and actors that may wish to enter the market. We believe that TOM D would best facilitate innovative settlement models.</p> <p>We believe the work in Phase 2 to consider how to integrate future innovation into the settlement process is key to ensuring the future success of the TOM models.</p>
ENGIE Power Limited	No	<p>We cannot immediately identify any innovations that have been missed. However, the Design Working Group should ensure that the final design is flexible enough to allow for any reasonable future innovation.</p>
Npower Ltd	Partial yes	<p>Potentially if Smart CT meters become available it could cut across metering types and processes, which could add complications.</p> <p>The TOM design should as much as possible strike a balance between not hindering future innovation and equally avoiding unnecessary development cost for services that are not yet clear.</p>
EDF Energy	No	<p>We are not currently aware of any specific technologies or energy services that would need to be accommodated by the TOMs. The energy market is constantly evolving, and that evolution is likely to accelerate over the coming years with the rollout of smart meters and associated technologies. It will never be possible to design a TOM that caters for every possible new scenario, it is therefore vital then the design of the new arrangements is undertaken in such a way that enables new innovations to be incorporated in a cost-effective manner. Limiting the number of services that might need to be amended to cater for the impacts of such innovation (for example, by delivering this through the aggregation service) would seem to be an appropriate approach.</p>
Energy Local CIC	Yes	<p>Local balancing and how TOMs can support this should be considered.</p> <p>Half hourly settlement increases the potential for local balancing, which improves network resilience and efficiency.</p>
Salient Systems Ltd	Yes	<p>Although a good census of innovations are presented at the consultation document the nature of innovation is that if encouraged it will persist and further new flexibility options will develop.</p> <p>Encouraging and supporting innovation will require that the end to end HHS business model is fully illuminated through top down decomposition to detail level, describing the service details (business processes decompositions), the data and the intersections (crud) between processes and data. Subsequent foot printing of innovative new services against the appropriate intersects at a decomposed HHS business model blueprint is more easily illuminated. Inappropriate bundling of HHS service model sets of process and particularly data at any resulting</p>

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Question 6	Are there any innovations in technologies or energy services not considered in this document which should be accommodated by the TOMs?	
Respondent	Yes / No / Other	Answer
		physical service delivery solution options will risk compromise to efficient positioning of new innovative services against consumption data at appropriate and undisputed state going forward.
Siemens	Yes	<p>Innovations that are already known about must be considered. There is the potential that they might impact the Settlement process and therefore the TOMs where possible should be designed to accommodate them.</p> <p>Innovations that are currently occurring in the area of Peer-to-Peer (P2P) energy trading, community or district energy and heat schemes and the increase in the use of Electric Vehicles (EV), all of which could 'spill' energy onto the network at various points are nationally transformative and therefore must be taken into consideration in the development of the TOMs. Other innovations within the energy industry such as blockchain (P2P) are already being considered and other innovations will come along. Developing a static model (TOM E and C appear the most static) may prevent the introduction of new technologies.</p> <p>Other Furthermore, there is no consideration of the energy services currently being provided to the smaller non-domestic sector (PC3-4) via Advanced metering, which will be significantly disrupted both commercially and operationally should the market design change unnecessarily.</p>
TMA Data Management Ltd	No comment	-
SmartestEnergy	-	<p>There is scant reference to P332 in the consultation document – the proposed modification (currently in abeyance) to make agents directly responsible for their own performance.</p> <p>This is admittedly a secondary issue, but if, as we believe, the AMR arrangements should be left largely intact, then the P332 proposal is still valid.</p>
SSE	Too early to say	<p>Without the awaited policy decisions associated with MHHS which will further inform the TOM's, it is hard to know which variants of each TOM might better facilitate innovation either in energy services or technology. Therefore, it is still difficult at this stage to answer with full information.</p> <p>SSE believes that delivery of the TOM's for MHHS should not stop future innovation if delivering the core requirements in a timely manner. We believe that the project awareness of the innovations is sufficient. We are keen to see the consultation on the "Settlement Period Level data access and use" to understand if this might limit innovation for forecasting, developing Tariffs or offering Customers energy services on their Settlement data.</p>

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Question 6	Are there any innovations in technologies or energy services not considered in this document which should be accommodated by the TOMs?	
Respondent	Yes / No / Other	Answer
		When the final delivery is approved/confirmed, it would be more appropriate to consider new projects delivering innovation in the right way for Shared Generation, Multiple Supplier engagement etal. Thus, avoiding project scope creep, delays or the potential that the focus on innovation might affect the delivery of accurate MHHS
DCC	-	See Appendix 2.
ScottishPower	Yes	Yes but for Stage 2. I would like to see how a decentralised data model (possibly using Block Chain) might facilitate the simplification of processing and avoid need for holding multiple versions of standing data and consumption
British Gas	Neutral	In principle, all the suggested TOMs would support the known innovations in technologies or energy services and this is reflected in Elexon's recent white paper – Enabling Customer to have multiple suppliers.  Innovative proposals such as blockchain have the may mean that settlement process may need to be reviewed to be accommodated. Blockchain technology may not be mature enough to build the current reform processes around, but any reforms should be mindful of the potential of blockchain to play a role in future settlement reform.

## MARKET-WIDE HALF-HOURLY SETTLEMENT

### Question 7: Are there any specific aspects of TOM design that would present a barrier to new market entrants, technologies or innovations?

Question 7	Are there any specific aspects of TOM design that would present a barrier to new market entrants, technologies or innovations?	
Respondent	Yes / No / Other	Answer
E.ON Energy Solutions	Potentially	<p>This is dependent on the TOM chosen.</p> <p>Depending on the selected TOM, consideration needs to be applied to single service providers and how regularly these would be available for tender. A new market entrant may qualify as an agent but then not have much work until the tender is due. There is also a risk that aside from qualification, this party may not be able to tender at a similar level to established agents because of a lack of experience.</p> <p>Using Single Service Providers (SSP) could result in increased or decreased cost to implement upgrades or system changes. A consideration needs to be outlined for non-mandated changes in the market where a single provider is established. If not all parties are wanting to use a service how are the cost's then recovered by the SSP and could this be considered a barrier if changes are rejected because a majority don't want the update.</p> <p>TOM E could stop agents from being able to enter the market as easily however it could benefit suppliers commercially. TOM D creates the need to have commercial arrangements which could benefit new market entrants.</p> <p>As an agent Advanced Meter market segment needs accreditations by meter type from the manufacturer, to enable them to enter the market they would need the full accreditation across the different services before they could enter the market rather than being able to obtain some of the accreditations whilst trading.</p>
Utilita Energy	Yes	<p>Similarly to our responses to questions 4 and 5 we believe a TOM based on a centralised monopoly service provider being procured has a number of risks, including acting as a potential barrier for new market entrants through increasing operating cost than if the market was left to competitive forces whilst restricting the number of service providers able to innovate and bring new technologies/services to market.</p> <p>Where competition is limited or does not exist within the market place, costs can spiral meaning industry parties responsible for paying for services are faced with higher operating costs which may deter new organisations from entering the market. We also believe competition is a true driver for innovation. Where multiple organisations exist in the market undertaking similar services, such organisations look for new ways to differentiate themselves by offering new services reducing service costs. We also believe new entrants and established market participants should not be restricted in providing their own services where relevant to enable significant cost savings to be made and passed</p>

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Question 7	Are there any specific aspects of TOM design that would present a barrier to new market entrants, technologies or innovations?	
Respondent	Yes / No / Other	Answer
		down to end consumers.
Stark	Yes	Designs based on monopolisation, such as TOM E, will be an absolute barrier to new market entrants in energy services and will stifle innovation. Further, the TOMs potentially put a lot of power in the hands of suppliers, whose profits are directly linked to their customers' energy consumption and so will have little incentive to encourage their customers to reduce consumption or themselves innovate.
AIMDA	No	Designs or delivery models that rely on monopolisation will be an absolute barrier to new market entrants in energy services and will stifle innovation. The TOMs also potentially put a lot of power in the hands of suppliers who will have little incentive to encourage their customers to reduce consumption or themselves innovate; this can be mitigated if independent agents are allowed to continue operating. Any innovations that propose to alter Settlement positions through 'alternative' metered data will need to guarantee the quality of that data is suitable for Settlement and is of a known provenance.
Opus Energy & Haven Power	Potentially	Potentially TOMs with heavily centralised services. Having centralised services may reduce the ability of new entrants to break into single areas of the market. With some services separate, this will allow more opportunity for new entrants to compete in specific areas. Contrary to this, a more centralised service may reduce barriers to new suppliers by only having to deal with one central service.
IMServ	No	Any TOM that promotes a centralised, fixed business model will serve to stifle innovation and reduce the potential for new market entrants. If we are going to use other metered data to manipulate/alter the data that us used in settlement, we need to consider that the data used is of a similar quality and is of known provenance.
ElectraLink	No	ElectraLink do not know of any aspects of the TOM design that would present a barrier to new entrants; however, we do believe that the TOMs should be flexible enough to accommodate new and emerging business models, innovations and actors that may wish to enter the market which is why we believe the less prescriptive model (TOM D) is the best fit for the market in its current transitional state.
ENGIE Power Limited	Yes	The separate services proposed by TOM D (Assuming agents are competitively procured). In a competitively procured scenario, splitting all the services out may result in new entrants having to contract with multiple parties. This would make market entrance more complex.

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Question 7	Are there any specific aspects of TOM design that would present a barrier to new market entrants, technologies or innovations?	
Respondent	Yes / No / Other	Answer
Npower Ltd	No	<p>We are not aware of any new market entrants, technologies or innovations that would be hindered by the TOM designs.</p> <ul style="list-style-type: none"> <li>If a centralised smart data collection / data aggregation services is developed, there may be possible benefit from accepting (at a cost) HH data from a variety of sources (data retrievers), which would allow the market to develop over time.</li> <li>The BSC (P362) sandbox process if approved is may be a less disruptive option for new innovation.</li> </ul>
EDF Energy	No	At this early stage we have not identified any specific aspects of TOM design that would present a barrier to new market entrants, technologies or innovations.
Energy Local CIC	Potentially	<p>The combining of multiple processes into a single service, particularly under TOM E, could create a barrier to entry for new entrants and reduce innovation.</p> <p>The market would be relying on a single large player to innovate. Without competition there is little incentive to do this and if they need to focus on multiple processes within their core function, it may be harder for them to experiment with new technologies or methods.</p>
Salient Systems Ltd	Yes	<p>Inappropriately bundled services within TOM options, particularly where physical delivery of services is via centralised positioning of function and data.</p> <p>At Supplier, or future equivalent/proxy new market entrants the possible provision of centralised HHS services may be considered initially as an attractive contributor to minimising start up, mobilisation and perhaps (unknown) operational costs. However, if the business case at the new Supplier is predominated by the objective to compete with incumbents on price against an established and centralised set of services then it may be expected that incumbents will be better placed to react and frustrate.</p> <p>New Supplier role entrants will be expected to be driven more often in the future by opportunities to excel at niche service opportunities or at innovative flexibility service options. Responsive and entrant aligned service deliveries from competitive and differentiated service providers will likely be more attractive services into such motivated new supplier entrants to the market.</p> <p>Quite obviously any implemented TOM that delivers shared centralised services will immediately subvert incentives to others to deliver particular improved or differentiated service offers to market, irrespective of perhaps significant data management process experience or available service collateral. Even where services provided by adopted TOM may be competitively procured any prescribed bundling of services that must be delivered together, and presumably will be subject to industry</p>

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Question 7	Are there any specific aspects of TOM design that would present a barrier to new market entrants, technologies or innovations?	
Respondent	Yes / No / Other	Answer
		<p>qualification of the service package as a whole, may frustrate potential delivery of service sub sets to market from otherwise competent parties.</p> <p>It is anticipated that technological and innovative new business model complements will share a common requirement – the requirement to share or interface with interval consumption data within HHS service domains as easily as possible. New product applications will implement product functionality and manage product configuration and action data within their own specific product domain, ideally loosely coupled with data stored at known status within HHS service domains. Impacts of new product outcomes will be similarly shared/interfaced/audited within appropriate HHS data domain(s). Appropriate mechanisms at responsive HHS service implementations will typically employ existing, refined or new BSC 'hooks' to provide the necessary views upon consumption data groupings that will be required at Aggregation service onwards in order to assure new product expected outcomes at settlements, BM and funds administration.</p> <p>Consequently, an HHS service model where services are centralised or indeed unnecessarily bundled too tightly will place much more significant demands upon successfully and efficiently achieving the necessary distributed applications and data architectures required to deliver innovation alongside appropriate sub sets of the HHS service model.</p>
Siemens	Yes	<p>We believe that TOM E with its centralised monopoly would be a barrier to new market entrants in energy services and will stifle innovation. Monopolies in this space tend to be expensive unless significant scale economies can be demonstrated; for these services, which are IT-driven, scale economies are limited and typically more than offset by higher governance costs and higher implementation costs that result from a lack of competition once the initial service is created. From the experience of working with an Industry centralised body to get a modest change made Siemens has observed that it is a lengthy and potentially expensive exercise. This contradicts the argument that centralisation improves speed of response for change and reduces cost. We also note other instances within the Energy Industry and other Sectors where centralised system solutions have failed to deliver either in terms of time or cost, and the resulting system has failed to produce the predicated cost savings and have been restrictive to further change or innovation.</p> <p>TOMs A, C, and E also potentially put a lot of power in the hands of suppliers who will have little incentive to encourage their customers to reduce consumption or themselves innovate; this is not the case if independent agents are allowed to continue operating.</p>

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Question 7		
Are there any specific aspects of TOM design that would present a barrier to new market entrants, technologies or innovations?		
Respondent	Yes / No / Other	Answer
TMA Data Management Ltd	Yes	<p>Monopoly of any kind be it regional or national (i.e. one central service provider or several monopoly service providers) are a major barrier to innovation.</p> <p>The costs associated with regional or national monopolies will, likely, be higher than the costs associated with competitive Service Providers. No matter how stringent the contract clauses are, they cannot deliver what competition can. The lowering of the costs experienced in NHH and HH service provision in the past decade was possible because of technological advances and competition. This higher cost would be a barrier, especially for smaller Suppliers, reducing further the possibility of challenge to the established Large Suppliers.</p>
SmartestEnergy	No	<p>We can see the argument that Option A gives the flexibility for peer-to-peer arrangements. However, it is important that even the data retrieval and processing would need to be overseen with some kind of performance assurance regime and it is important that default suppliers are not just lumbered with the remaining costs while "innovators" make little contribution.</p> <p>The greatest barrier, as ever, is the need to set up systems to become a participant in the market, but it is important for competition that there should be no free-riding.</p>
SSE	No	<p>We cannot see any aspects of the TOM design presenting barriers. The potential in the right variant of the TOM going forward is that several may present a better way of managing settlements for market participants and industry. It is not clear that the proposal on the table will simplify arrangements on their own, since this is dependent on Smart Metering being installed for a large portion of NHH Settled Customers to avoid running different processes for each.</p>
DCC	-	See Appendix 2.
ScottishPower	No comment.	-
British Gas	No	<p>Based on the evidence reviewed, none of the TOMs proposed present a barrier to new market entrants, technologies or innovations and would suggest that the consultation responses to the "ELEXON White Paper - Enabling customers to buy power from multiple providers" is incorporated into how settlement reform develops.</p>

## MARKET-WIDE HALF-HOURLY SETTLEMENT

### Question 8: Do you have a preference for any of the TOMs and why?

Question 8	Do you have a preference for any of the TOMs and why?	
Respondent	Yes / No / Other	Answer
E.ON Energy Solutions	Yes	<p>Our preference as a Supplier would be TOM E followed closely by TOM C. As an agent we prefer TOM's C and D with more preference on C.</p> <p>In summary we would choose TOM's E and C to progress for further evaluation and consideration in the market and to progress to the next level.</p> <p>Both C and E help to streamline the market and reduce the number of hand off points which should bring with it an efficiency in processing. TOM E would also allow for a greater level of centralised information which could allow innovation to evolve and would help reporting and identifying any issues at a granular level.</p> <p>However as an agent TOMs C and D still allow the consumer flexibility to procure their own services and protects consumers with a single point of failure.</p>
Utilita Energy	Too early to say	<p>We believe it is still too early within the programme to make a considered view to which TOM can provide the most benefits to industry and end consumers. Only when the detailed design of each TOM under Stage 2 is completed and when Ofgem's decisions around access to data and centralising agent functions, will we be in a position to provide a preferred TOM.</p> <p>As stated in previous questions, we believe careful consideration should be given the challenges that will be faced with the sheer volume of data and how that can be dealt with most efficiently and cost effectively within the settlements system. We would also like to reiterate that any TOM chosen should provide for maximum flexibility into how services are delivered and who can deliver these services. We have a number of concerns with any TOM based on introducing a further centralised monopoly service provider into the market and would urge the DWG to learn from recent large-scale system implementations such as the DCC and Project Nexus which were extremely costly and subject to large delays.</p>
Stark	Yes	<p>With so many different permutations of each TOM and uncertainty around Ofgem's Policy Decision on whether to centralise supplier agent functions, it is very difficult to give a preference at this point. That said, any model that preserves competition in the Advanced Metering market and maximises competition in the Smart metering market is preferable.</p>

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Question 8	Do you have a preference for any of the TOMs and why?	
Respondent	Yes / No / Other	Answer
AIMDA	Yes	With so many different permutations of each TOM and uncertainty around Ofgem's Policy Decision on whether to centralise supplier agent functions, it is very difficult to give a preference at this point. The similarity between each of the TOMs compounds this. That said, our preference would be for a model that preserves competition in the Advanced metering market and maximises competition in the Smart metering market.
Opus Energy & Haven Power	Yes	Potentially TOM B or TOM C.  As per Q3, whilst we have an initial view, we feel that until there is clearer direction on decisions around access to data and supplier agent functions, it is again difficult to provide a definitive answer at this stage.
IMServ	Yes	We have a preference for any TOM that preserves and maximises competition, but all TOMs could be improved further by leaving the advanced metering segment alone and continuing with it as is with its current operating model. We see no rationale for change in this large area of the market.
ElectraLink	Yes	Our preferred TOM is TOM D.  TOM D will allow the market to group the services as appropriate; therefore, this will allow the market actors to decide the most effective model to provide settlement information to ELEXON for them. Moreover, it will allow service providers to differentiate and provide value-add services (as outlined in Question 2).
ENGIE Power Limited	Yes	TOM C.  As discussed above we prefer the end to end service models. We prefer TOM C to TOM E as maintaining a separate aggregation provider for the AMR sector would allow a specialist service for this area where the larger supplies which have a greater risk to settlement are contained. It also allows for the potential design of different data processing systems across the two sectors which may provide greater flexibility.
Npower Ltd	Yes	TOM C.  <ul style="list-style-type: none"> <li>• The operating models are very similar and the model that will be appropriate for market wide HH settlements depends on wider Ofgem policy decisions on centralisation of supplier agents and access to data, for example: <ul style="list-style-type: none"> <li>○ If Ofgem were to pursue a centralised market wide DA option, only TOM's A,D and E would be able to support this.</li> <li>○ There may be access to data benefits if domestic customer HH data is both validated and aggregated by a single market role, rather than moving significant volumes of HH data between two roles. This is best supported by TOM's B and C.</li> </ul> </li> </ul>

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Question 8	Do you have a preference for any of the TOMs and why?	
Respondent	Yes / No / Other	Answer
		<ul style="list-style-type: none"> <li>○ We do not believe there is a benefit in implementing a single market data aggregation role if Ofgem do not choose to centralise this function. If an organisation wishes to aggregate both traditional HH and smart HH data, it could simply apply for both market roles. By combining the roles, traditional HH data aggregators may be required to undergo both accreditation and system change for no benefit.</li> <li>○ TOM E assumes Ofgem policy decisions in advance.</li> <li>• General preferences:               <ul style="list-style-type: none"> <li>○ We do not see the benefit in allowing additional smart data retriever roles as suggested in operating models B and D. This additional step may add error.</li> <li>○ We do not see the benefit in combining smart services from data retrieval through to volume aggregation as suggested in TOM E, once the data is aggregated moving this data between roles becomes simpler.</li> </ul> </li> <li>• Given the above our preferred TOM is C, with amendments as noted in our response to Question 2 and above. This would be least disruptive to traditional HH roles, but and allow a new centralised smart role to develop. If the Ofgem policy decision is to centralise aggregation services, our preference would be for TOM A.</li> </ul>
EDF Energy	Yes	<p>While the TOMs are defined at a very high level and a lot of more detailed work is required before any decisions are made, our current preference would be for TOM A. We would like to note, however, that this preference is relatively marginal, and that we believe that all of the TOMs are feasible and that none should be ruled out at this stage.</p> <p>We currently have a preference for TOM A because:</p> <ul style="list-style-type: none"> <li>• We believe that it makes sense to combine the retrieval and processing services. This not only reduces the likelihood of errors being created by having a hand-off between these two services, but enables exceptions that might arise in the processing service that are related to data retrieval to be more easily investigated.</li> <li>• TOM A provides Suppliers with the flexibility to implement the arrangements in a number of different ways which serve their needs, using both internal and external services. As noted previously, Suppliers need to be informed of the outputs of the data processing service, and the data that is being passed into the aggregation and volume allocation services on their behalf. TOM A enables Suppliers to implement this in the way that best suits them, as opposed to a centralised service over which they would have less control.</li> <li>• TOM A enables the introduction of a centralised aggregation service,</li> </ul>

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Question 8	Do you have a preference for any of the TOMs and why?	
Respondent	Yes / No / Other	Answer
		<p>which we believe is required to support the implementation of new technologies and business models. This centralisation does not necessarily need to occur on a national basis, it could be done on a regional (GSP Group) or super-regional basis. Our current view is that the aggregation service will have access to all of the validated HH data across the market and, in combination with reference data about metering points provided by the registration service, will be able to undertake the complex calculations required to provide appropriate data to the volume allocation service, and any other services that might require it. Centralised aggregation could also facilitate Ofgem's goal of allowing 3rd parties access to HH data. This model is likely to provide the simplest and most effective solution to the market. It would also address 3rd party concerns that they would have to ask Suppliers or their agents for access to customer data.</p> <p>Despite this, cost-effectiveness remains the prime concern when it comes to selecting any TOM. As long as a TOM can meet all of the requirements of all of the stakeholders involved in the settlement process (Suppliers, LDSOs, Generators etc.) then the main driver for selecting a specific TOM will be the cost of implementing and operating the TOM.</p>
Energy Local CIC	Yes	<p>Our preference is for TOM D because it is the most resilient, enables the greatest level of flexibility and increases the potential for innovation.</p> <p>Maintaining separate services for each process from meter to bank should increase the number of organisations operating in the market. It also increases the likelihood that these will be nimble organisations that are willing to engage with community energy organisations and be open to new ideas about how things could be done better. Our experience engaging with industry participants to date, is that we have had far more success and openness to trialling innovative ideas from smaller players.</p>
Salient Systems Ltd	Yes	<p>TOM D preferred.</p> <ul style="list-style-type: none"> <li>• TOM D achieves the key improvements to proposed HHS regime at least as effectively as all other TOM options – the generation of interval data from all MS segments at Processing service and prior to Aggregation and the appropriate positioning of Profiling service.</li> <li>• This service model mirrors most closely the service model options already available at the market for services <ul style="list-style-type: none"> <li>○ Achieving refinements at the current model will be quicker and less costly than achieving any other TOM variant</li> <li>○ Innovation and coupling of new business model complements is already happening and will continue to progress at the existing model, investment decisions will be reinforced and protected</li> <li>○ HHS coupled distributed applications architectures required to join effectively both with Supplier side business model</li> </ul> </li> </ul>

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Question 8	Do you have a preference for any of the TOMs and why?	
Respondent	Yes / No / Other	Answer
		<p>components and innovator products will be delivered more effectively and efficiently at this model.</p> <ul style="list-style-type: none"> <li>○ This model is positioned pragmatically to support targeted and discrete delivery of differentiated services or service sub sets to market most effectively, through competition.</li> <li>○ The consumer benefits attached to assuring competition across service deliveries will be protected, complemented (hopefully) by Ofgem effective positioning of the consumer at the heart of a future HHS hub.</li> </ul>
Siemens	Yes	<p>With so many different permutations of each TOM and their similarity, plus the uncertainty around Ofgem’s Policy Decision on whether to centralise supplier agent functions, it is very difficult to give a preference. Our preference would be for a model that preserves competition in the Advanced metering market and maximises competition in the Smart metering market. We understand that TOMs B and D would maximise competition and, therefore, would be our preference.</p> <p>TOM B:</p> <ul style="list-style-type: none"> <li>• Encourages competition and innovation</li> <li>• Recognises the difference between the C+I market and the Domestic from a retrieval and processing perspective</li> <li>• Maximises economies of scope from existing service providers</li> <li>• Least development effort to improve speed to market and facilitate new entrants</li> </ul> <p>TOM D – in addition to the above:</p> <ul style="list-style-type: none"> <li>• Opportunities from economies of scale in aggregation</li> </ul> <p>TOMs B &amp; D should cause the minimum impact on the existing C+I AMR market, there being minimal change to the existing Settlement Process for HH AMR meters, which although low in numbers account for approximately 50% of the total energy that is Settled. Therefore it can be argued that the existing processes for HH AMR should be left as is because it minimises the risk to Settlement as identified in Risk 01.</p>

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Question 8	Do you have a preference for any of the TOMs and why?	
Respondent	Yes / No / Other	Answer
TMA Data Management Ltd	Yes	<p>We support TOM D as it keeps all services as standalone services. We support TOM D when all service providers are fully competing.</p> <p>We previously stated that we do not Support the Authority mandating which services should be provided together or not. Currently, some service providers provide all services, others choose to provide only a subset of services, some use a different system for each service, other use one system for a couple of their services. It should not be mandated how the services should be bundled. Let the service providers have the flexibility to find the best way to provide the services. That is where innovation and best value for money will be found.</p>
SmartestEnergy	Yes	<p>TOM E.</p> <p>We like the idea of centralisation for Smart aspect of TOM E coupled with the separation of AMR, with the two coming together at Volume Allocation. However, having separate data aggregation for AMR is not a die-in-the-ditch issue for us; centralised aggregation would mean some contractual changes for customers who pay for a joint DC/DA service directly to their Agent. However, the advantages of centralised DA need to be demonstrably greater than the inconvenience of having to make changes to data aggregators' and customers' contracts.</p>
SSE	Yes	<p>SSE prefers and continues to support the development and consideration of TOM's A and C.</p> <p>These are the most sensible collection of service functions, deliver HH settlements and reduce hand-offs, we believe that TOMs A and C will minimise/limit the list of potential errors.</p>
DCC	-	See Appendix 2.
ScottishPower	Too early to say	<p>At this stage it is too early to put a preference to any one of the TOMs as there is insufficient detail.</p> <p>However as indicated in previous answers, ScottishPower would like to see a continued competitive advanced metering market; choices for business customers to install advanced meters even in PC1 – 4 Whole Current; simplification of existing advanced metering DC/DA arrangements so that it can be provided by a single entity without the overhead of dataflow requirements; and simplification of the low-value commodity processes in non-advanced metering processes with a central agent but open access to data for legitimate interests.</p>
British Gas	No	<p>No preference identified to date.</p> <p>Our current view is that that the main difference between the TOMs relate to the entity that the performs the service and we envisage that once more detail of how each model will practically impact suppliers and the propositions they deliver to customers is made available, then we will be in a position to share a preference.</p>

## MARKET-WIDE HALF-HOURLY SETTLEMENT

### Question 9: Do you agree with the DWG's initial assessment against the Design Principles? Are there any points not identified by the DWG?

Question 9	Do you agree with the DWG's initial assessment against the Design Principles? Are there any points not identified by the DWG?	
Respondent	Yes / No / Other	Answer
E.ON Energy Solutions	Yes	Yes we agree with the initial assessment.
Utilita Energy	Yes	We agree with the initial assessments given by the DWG however only under Stage 2 will each TOM be in a better position to be fully assessed against Ofgem's Design Principles.
Stark	Partly	Assessment of the TOMS against half of the Design Principles (1, 2, 4 and 8) is stated to occur as part of Stage 2 so we cannot comment. The assessment that has been carried out against the remaining Design Principles (3, 5, 6, 7 & 9) appears to be mostly satisfactory. However, in Design Principle 2, the assessment offers no reassurance that the principle of "avoiding the potential to stifle innovation and competition" in Retrieval and Processing has been considered and the statement that a simple and cost-effective estimation process would lower barriers to entry is not explained. Furthermore, Design Principle 9 is not addressed fully, with the assessment suggesting that there will be little interaction between new technologies and the Settlement system, which could be short-sighted.
AIMDA	Partly	Assessment of the TOMS against half of the Design Principles (1, 2, 4 and 8) is stated to occur as part of Stage 2 so we cannot comment. The assessment that has been carried out against the remaining Design Principles (3, 5, 6, 7 & 9) appears to be weak. For instance, the assessment of Design Principle 2 (Retrieval, Processing and Validation) offers no evidence that the principle of "avoiding the potential to stifle innovation and competition" in Retrieval and Processing has been followed and the statement that a simple and cost-effective estimation process would lower barriers to entry is not explained or explored. Furthermore, Design Principle 9 (Innovation) is not addressed fully, with the assessment suggesting that there will be little interaction between new technologies and the Settlement system, which we think could be short-sighted. Without analysis of these points and others it is difficult to understand how the DWG has formed any opinions about the collective merits of the different TOMs.
Opus Energy & Haven Power	-	We have not identified any additional points at this stage. Some assessment criteria will need to be addressed further following progress on Stage 2 design work.

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Question 9	Do you agree with the DWG's initial assessment against the Design Principles? Are there any points not identified by the DWG?	
Respondent	Yes / No / Other	Answer
IMServ	No and Yes	<p>IMServ considers the DWG's assessment of the TOMs against the Design Principles to be only partly formed and lacking rigor. In part that is because the Design Principles and Criteria lack specificity, but also because at various points opinions are stated as fact, without evidence or substantiation.</p> <p>For example, in the section that considers 'Data retrieval, processing and validation' there is no analysis of the question of the need to avoid 'the potential to stifle innovation and competition'. Without analysis of these points and others it is difficult to understand how the DWG has formed any opinions about the collective merits of the different TOMs. Further on in the same section, there is an implied link between 'simple and cost-effective' data estimation and 'barriers to entry for new entrants' that is neither explained nor explored.</p> <p>In the section on 'Treatment of NHH settled customers' the statement is made that 'significant cost efficiencies are gained by not having dual processes'. This statement is made as if it is a proven fact, but there is no logical explanation, analysis or evidence to support it.</p> <p>There are many other examples of this kind of thinking in this section of the document. The DWG should spend more time undertaking a thorough and evidence based-analysis of the TOMs against the design criteria.</p> <p>From this, IMServ concludes that at this time the process of evaluating the merits of the TOMs against clear, transparent design criteria is flawed and potentially misleading.</p>
ElectraLink	Yes	ElectraLink agree with the initial assessment of the Design Principles.
ENGIE Power Limited	Yes	-
Npower Ltd	Yes	<p>Yes, we broadly support the initial assessment, but have some comments below.</p> <ol style="list-style-type: none"> <li><u>Settlement Timescales.</u> Agree that this is a stage 2 activity. The industry should consider how this functionality could be introduced at the right time from the perspective of smart metering rollout and data quality. It may be better to delay for a short period until the earlier settlement run data quality has improved and NHH profiling related error has reduced.</li> <li><u>Data retrieval, processing and validation.</u> Smart data estimation is not clear. The processes will need to be different due to how data can be retrieved from the meter i.e. hand held data downloads are generally only for traditional HH meters and smart estimation may need to take into account register reads provided by customers.</li> </ol>

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Question 9	Do you agree with the DWG's initial assessment against the Design Principles? Are there any points not identified by the DWG?	
Respondent	Yes / No / Other	Answer
		<p>3. <u>Treatment of non-half hourly (NHH) settled customers.</u> Group correction processes have not yet been developed. It may be beneficial to discuss this at an early stage:</p> <ul style="list-style-type: none"> <li>a. Which parts of the market will be responsible for what level of GCF error in the future and is this fair?</li> <li>b. Will this need to be changed at intervals during the transition to HH?</li> <li>c. Does this depend upon what volume remains NHH after the rollout of smart metering?</li> <li>d. Are Elexon able to estimate potential GCF changes t as a result of transition to HH, perhaps building on market wide understanding from P272?</li> <li>e. Have related changes to the GCF volume been taken into consideration e.g. any potential future requirement to settle export data when a smart meter is installed?</li> </ul> <p>4. <u>Change of Measurement Class (CoMC).</u> We need to take into account how CoMC may be different for Smart compared to AMR metered sites due to new technology and homogeneous metering types. It's possible that a centralised smart data collection / data aggregation role could take on a greater role in the smart CoMC process. There may need to be a CoMC process to take into account customers moving from AMR HH to Smart HH (and possibly Smart HH to AMR HH).</p> <p>5. <u>Settlement of export.</u> No comment.</p> <p>6. <u>Unmetered supplies.</u> We believe UMS should be considered for centralisation alongside smart metered sites. It's possible that UMS accuracy could be increased if greater information is provided by the UMSO and individual sites are settled closer to their actual HH usage, particularly for seasonal UMS.</p> <p>7. <u>Network Charging.</u> When a site moves to HH settlements, the profile class is amended to 00. When all/most sites are settling HH, this field will be largely redundant. We would suggest that the use of the profile class field is expanded to make use of the 91 numbers not currently utilised by the traditional profile classes (00-08). This could be used to both distinguish between domestic/non-domestic sites and assign network charges. It has the significant advantage that it is part of the core MPAN on customer bills so could easily be used for a new supplier to provide customers with an accurate quote.</p> <p>8. <u>Transition.</u> No comment. As the market moves to HH settlement existing NHH profiles may become less reflective of actual customer</p>

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Question 9	Do you agree with the DWG's initial assessment against the Design Principles? Are there any points not identified by the DWG?	
Respondent	Yes / No / Other	Answer
		<p>consumption.</p> <p>9. <u>Innovation</u>. The TOM design should as much as possible not hinder future innovation and be open to future adaptation. However, the working must be mindful that unnecessary industry resource / cost is not spent developing the TOMs to take into account services that have not yet developed.</p>
EDF Energy	Yes	<p>While we broadly agree with the DWG's initial assessment against the Design Principles, we would like to note the following points:</p> <ul style="list-style-type: none"> <li>Settlement timetable – the ability to shorten the settlement timetable will depend on the volume of meters that are not able to be communicated with, and which will require manual readings, and how HH data is created for these meters. Any increase to the frequency of manual meter readings will have an impact on cost as well as the customer experience – an appropriate approach for this segment of the market will need to found if settlement timescales are to be reduced.</li> <li>Treatment of NHH settled customers – what the TOMs do not seem to address currently is the treatment of customers for whom no actual reading data is ever available. The assumption seems to be that HH data will be able to be derived from register reads by the Load Shaping Service; however, there are a number of NHH sites for which it may be extremely difficult to obtain regular readings (the Hard to Read sites referenced in BSC Modification P366). These would currently be settled on an EAC rather than an AA, how these sites will be settled on estimated HH data will need to be considered.</li> </ul>
Energy Local CIC	No comment	-
Salient Systems Ltd	No comment	No comment and no significant objections.
Siemens	Partly	<p>As the assessment of the TOMS against half of the Design Principles (1, 2, 4 and 8) is to occur as part of Stage 2 so we cannot comment. The assessment that has been carried out against the remaining Design Principles (3, 5, 6, 7 &amp; 9) appears to be lacking. For instance, Design Principle 9 (Innovation) is not addressed fully, with the assessment suggesting that there will be little interaction between new technologies and the Settlement system, which could be short-sighted. Without full analysis of these points and others it is difficult to understand how the DWG will form any opinions about the merits of the different TOMs. The key is to ensure innovation, value and competition remain at the heart of any decisions made.</p>

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Question 9	Do you agree with the DWG's initial assessment against the Design Principles? Are there any points not identified by the DWG?	
Respondent	Yes / No / Other	Answer
TMA Data Management Ltd	No	<p>We do not support the principle that the estimation requires a Load Shaping service provider.</p> <p>We would like to explore other means of keeping estimating non smart meters as well as estimating missing data for Smart Meters. Load shaping or profiling, no matter how it is done is prone to inaccuracy and might not provide any more accurate profile than using the profile of a similar site. We would be fully supportive of a process where Load Shaping, as an ongoing task, no longer exists. The load shaping service does not meet the "simple and cost effective" criteria.</p> <p>We do not agree that TOM E supports innovation with a central service provider for data retrieval, processing and Aggregation for Smart Meters, it also creates a single point of failure which is by definition bad design.</p>
SmartestEnergy	Yes	<p>We have no issues with the DWG's initial assessment against the design principles. Clearly, one of the most important decision criteria is the cost benefit analysis. It is important for any future RFIs to be meaningful that the number of options is small (two or three max) and simple in format. However, it is important that more than one option is assessed against costs. Lessons should be learnt from the Switching RFI which was very lengthy and time-consuming for all concerned.</p>
SSE	Yes	<p>Yes, we agree with the DWG's initial assessment against the Design Principles.</p> <p>No there are no points unidentified by the DWG to the best of our knowledge. Additional points might become apparent as the design progresses and refines through Stage 2.</p>
DCC	-	See Appendix 2.
ScottishPower	Yes	-
British Gas	Yes	We acknowledge the DWG's findings and have not identified any further observations to share to date.

## MARKET-WIDE HALF-HOURLY SETTLEMENT

### Question 10: Do you agree with the DWG's initial evaluation against the evaluation criteria?

Question 10	Do you agree with the DWG's initial evaluation against the evaluation criteria?	
Respondent	Yes / No / Other	Answer
E.ON Energy Solutions	Yes	-
Utilita Energy	-	<p>Although we are largely supportive of the DWG's initial review against the evaluation criteria, the TOMs have assumed all SMETS1 meters will be enrolled and adopted under the DCC or replaced with SMETS2 meters to enable a single smart meter retrieval service which we still do not know to be the case. Therefore, we would query this assumption and the allocation of the 'strongly supports' status of all TOMs for meter types coverage.</p> <p>We would also query how a 'strong supports' status has been given to impacts on new entrants or smaller market participants without the detailed work of Stage 2 been undertaken and if this can be said true for TOM 5 which from our experience may lead to higher supplier operating costs from the introduction of a monopoly service provider.</p>
Stark	No	<p>We find the evaluation criteria difficult to understand and are not convinced of the value in trying to evaluate the TOMs as a whole rather than individually. Furthermore, the interaction between the two sets of criteria (Design Principles and Evaluation Criteria) is unclear and could potentially be contradictory. For instance, the TOMs are said to "completely deliver" against the "Supports New Technologies and Innovation" evaluation criteria but against Design Principle 9 (Innovation) it is noted that the TOMs will have little impact on new technologies because they are beyond the settlement system. Similarly, the TOMs are said to "deliver mostly" against the "Timing" criterion, specifically whether they support reducing the Settlement timetable, but against Design Principle 1 (Settlement Timetable) it is stated that assessment in this area will be part of Stage 2. This suggests that the evaluation process is flawed and disjointed.</p>
AIMDA	No	<p>The evaluation criteria are difficult to understand and we are not convinced of the value in trying to evaluate the TOMs as a whole rather than individually. Furthermore, the interaction between the two sets of criteria (Design Principles and Evaluation Criteria) is unclear and in some cases contradictory. For instance, the TOMs are said to "completely deliver" against the "Supports New Technologies and Innovation" Evaluation Criteria but against Design Principle 9 (Innovation) it is noted that the TOMs will have little impact on new technologies because they are beyond the Settlement system. Similarly, the TOMs are said to "deliver mostly" against the "Timing" criterion, specifically whether they support reducing the Settlement timetable, but against Design Principle 1 (Settlement Timetable) it is stated that assessment in this area will be part of Stage 2. This reveals flaws in the evaluation process, which could be misleading.</p>

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Question 10	Do you agree with the DWG's initial evaluation against the evaluation criteria?	
Respondent	Yes / No / Other	Answer
Opus Energy & Haven Power	-	Evaluation is currently based on a high-level view of TOM options. Some criteria will require further evaluation following progress of Stage 2 design work.
IMServ	No	It is not clear how the DWG's secondary set of evaluation criteria link to Ofgem's Design Principles and Criteria.  It is not clear how the list of criteria was established, or whether the list is complete. The presented evaluation against these criteria is totally subjective and does not differentiate between TOMs. This appears to be an insubstantive evaluation.
ElectraLink	Yes	ElectraLink agree with the initial assessment of the evaluation criteria.
ENGIE Power Limited	Yes	-
Npower Ltd	Broadly yes	Further comments below:  1. <u>Coverage</u> . Disagree on UMS as less developed than other market areas. Would say 'supports' rather than strongly supports.  2. <u>Cost reflectivity</u> . Network charging is not yet clear. How Group Correction Factor (GCF) error is allocated is not yet clear so would say 'supports' rather than strongly supports.  3. <u>Timing</u> . Agree.  4. <u>Design Simplicity</u> . Agree  5. <u>Design Flexibility</u> . Difficult to say give we can't be certain on what changes are coming. No disagreement though.  6. <u>Impact on small / new entrants</u> . Agree  7. <u>New tech &amp; innovation</u> . Agree.
EDF Energy	No	While we broadly agree with the DWG's initial evaluation against the evaluation criteria, we would like to note the following points:  <ul style="list-style-type: none"> <li>Export coverage – It is not clear why the TOMs are only shown to support, rather than strongly support, export coverage, as in the Design Principles section the same services and processes would apply for export as for import under all of the TOMs.</li> <li>Customer billing interaction – as noted in our response to Question 5, we do not believe that the TOMs have been shown to fully address the relationship between settlement and customer billing. The issue is not just whether data is available for customer billing, but how Suppliers would be able to reconcile the amount of energy being billed to that being settled, and how readings would be generated in the event of a scenario such as Change of Supplier.</li> <li>Design flexibility – it is not clear that the reliance on transfer of</li> </ul>

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Question 10	Do you agree with the DWG's initial evaluation against the evaluation criteria?	
Respondent	Yes / No / Other	Answer
		historic data will be removed under any of the TOMs as it is has not yet been determined what (if any) data may need to be transferred in order enable a new Supplier/Agent to be able to carry out specific functions – for example, accurate estimation. We suggest this point cannot be assessed at this stage.
Energy Local CIC	No comment	-
Salient Systems Ltd	No comment	No comment and no significant objections.
Siemens	No	<p>The evaluation criteria are not easy to understand and we are unsure of the value in trying to evaluate the TOMs as a group rather than individually.</p> <p>It is unclear how the conclusions have been arrived at. For example, the TOMs are said to "deliver mostly" against the "Timing" criterion, specifically whether they support reducing the Settlement timetable, but against Design Principle 1 (Settlement Timetable) it is stated that assessment in this area will be part of Stage 2. This shows that the evaluation process could be misleading.</p>
TMA Data Management Ltd	No	Response as in Q9.
SmartestEnergy	Yes	-
SSE	Yes	-
DCC	-	See Appendix 2.
ScottishPower	Yes	-
British Gas	Yes	We support the DWG's initial views against the evaluation criteria.

## MARKET-WIDE HALF-HOURLY SETTLEMENT

### Question 11: Are there any Risks, Assumptions, Issues or Dependencies not identified by the DWG that should be included in the RAID log?

Question 11	Are there any Risks, Assumptions, Issues or Dependencies not identified by the DWG that should be included in the RAID log?	
Respondent	Yes / No / Other	Rationale
E.ON Energy Solutions	No	<p>We understand that I03 is being addressed by the Faster and More Reliable Switching Programme.</p> <p>Although the DWG group has considered the risks with certain developments in the industry, the exact detail of the changes might create unforeseen implementation challenges and therefore present risks. Additional items that will need to be closely monitored would be:</p> <ul style="list-style-type: none"> <li>• Remote EV Charging including chargeable roads as being tested in the USA</li> <li>• Peer to Peer Trading (Elexon White Paper)</li> <li>• 15 minute Settlement.</li> </ul>
Utilita Energy	No	<p>Not at this stage, however we believe there will be severe risks to the TOM designs where some of the assumptions do not take place/become true i.e. all smart meters being serviced by the DCC or the DCC is unable to handle the volume of data required.</p>
Stark	Yes	<p>The RAID log does not identify any risks to consumers. For example, the risk of reduced consumer choice and increased costs should centralisation occur, this is particularly relevant for the smaller non-domestic market where customer appointed agents are commonplace. Similarly, there is a risk that consumers could be mis-sold TOU tariffs if data access guidelines aren't clear or that responding to price signals will put them at risk (e.g. vulnerable consumers with electric heating). Finally, we would argue that reputational damage to the SMIP is a risk to the implementation of MHHS as this will have a direct impact on the number of Smart meters deployed.</p>
AIMDA	Yes	<p>The RAID log does not identify any risks to consumers. For example, the risk of reduced consumer choice should centralisation occur, which is particularly relevant for the smaller non-domestic market (PC03-04) where customer appointed agents is an established practice. Similarly, there is a risk that consumers could be mis-sold TOU tariffs if data access guidelines aren't clear or that responding to price signals will put them at risk (e.g. vulnerable consumers with electric heating). Furthermore, there are no captured assumptions about implementation processes; i.e. that a process can be found to transition to the chose TOM that minimises risk to Settlement during the transition period. Finally, we would argue that reputational damage to the SMIP is a risk to the implementation of MHHS as this will have a direct impact on the number of Smart meters deployed.</p>

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Question 11	Are there any Risks, Assumptions, Issues or Dependencies not identified by the DWG that should be included in the RAID log?	
Respondent	Yes / No / Other	Rationale
Opus Energy & Haven Power	No	We have not identified any further points at this stage. Further Risks, Issues, Dependencies may be identified at a later stage.
IMServ	Yes	There are no captured assumptions about implementation processes; i.e. that a process can be found to transition to the chosen TOM that minimises risk to the Settlement process during the transition period.
ElectraLink	Yes	ElectraLink agree with the initial Risks, Assumptions, Issues and Dependencies outlined within the RAID log.
ENGIE Power Limited	No	-
Npower Ltd	Yes	It's unclear how Group Correction Factor error will be allocated across customer types and suppliers as the market migrates to HHS. Could there be an impact to the central switching service if industry DC / DA roles are merged?
EDF Energy	-	We would welcome further clarity on how the Risks, Assumptions, Issues and Dependencies are being managed. As an example, in regards to the single risk that has been identified to date it is not clear what the impact of this risk materialising would be, what actions are being taken to mitigate this risk, and by whom. Similarly, actions need to be taken to validate the Assumptions that have been noted, especially those that are critical to the programme. The assumptions that HH data from smart meters is suitable for HH settlement, and that DCC will be able to meet its SLAs in enabling access to HH data on smart meters, are critical and need to be confirmed.  In regards to the specific RAID items:  A08 – Would it be more appropriate to make an assumption that all smart meters will be operated as 'smart' by the Supplier in the target end state, as it is not yet clear that this will be via the DCC for all meters?  I02 – Is this an issue that needs to be referred to the Ofgem Switching Programme which is considering related MPANs?  I03 – We would welcome clarity on why identifying types of customers and metering at the point of sale would be an issue for the settlement process. Should this be required then again this should be something that is referred to the Ofgem Switching Programme or the joint SPAA/MRA group looking at development of a Market Intelligence Service based on ECOES and DES.
Energy Local CIC	No comment	-
Salient Systems Ltd	No comment	-

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Question 11	Are there any Risks, Assumptions, Issues or Dependencies not identified by the DWG that should be included in the RAID log?	
Respondent	Yes / No / Other	Rationale
Siemens	Yes	<p>The RAID log does not identify any risks to consumers. For example, the risk of reduced consumer choice should centralisation occur, which is particularly relevant for the smaller non-domestic market (PC3-4) and in the AMR HH commercial &amp; industry sector where customer appointed agents is an established practice. If the role of Supplier Agent is removed or its functionality is restricted it could result in increased cost to the consumers due to lack of competition. Currently non-domestic consumers have the option to select the Agents (MO, DC &amp; DA) of their choice, not the preferred Agents of the Supplier. The benefits to the consumer of competition is potential cost reduction plus the Agent providing additional services to those required to fulfil its Settlement obligations; for example energy management and forecasting. Although Suppliers can already offer these additional services and probably will continue to do so in the future, the removal of independent Supplier Agents to provide an alternative service would restrict the choice currently available to businesses and could add additional costs to manage energy requirements.</p> <p>Similarly, there is a risk that consumers could be mis-sold TOU tariffs if data access guidelines aren't clear or that responding to price signals will put them at risk (e.g. vulnerable consumers with electric heating). Also there are no identified assumptions about the implementation processes; i.e. that a process can be found to transition to the chosen TOM that minimises risk to Settlement during the transition period.</p> <p>We also would argue that reputational damage to the SMIP which results in a lower number of Smart meters being installed is a risk to the implementation of MHHS.</p>
TMA Data Management Ltd	No.	D03 is one of the most important dependencies. If access to period data is not provided, HHS cannot be delivered.
SmartestEnergy	Yes	There seems to be a general assumption that all data streams should come together at the DA stage. However, for ease of keeping Smart and AMR separate (and this is important for existing customer/DCDA relationships) we feel that it would be better if everything could come together at the Volume Allocation stage. Clearly, this needs to be weighed up against any possible advantages for drilling down to MPAN level. These advantages need to be laid out clearly during the decision-making process.
SSE	Yes	<p>We are concerned that the following might not be appropriately identified/managed:</p> <ul style="list-style-type: none"> <li>Assumptions that all Smart meters deal equally with Import and Export – there is a limitation in the current SMETS/GBCS specifications which need to be better understood by the MHHS</li> </ul>

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Question 11	Are there any Risks, Assumptions, Issues or Dependencies not identified by the DWG that should be included in the RAID log?	
Respondent	Yes / No / Other	Rationale
		<p>project, to avoid risks.</p> <ul style="list-style-type: none"> <li>• Risk: DCC current defined licence/architecture/model cannot support the role of Other User to carry out a Meter Reading Service role on behalf of Suppliers.</li> <li>• Risk: to overall SEC end to end security if allowing all Meter Reading Services to use the Other User Role to collect Critical Command Service Requests for daily retrieval of Settlement Level Data.</li> <li>• Risk: lack of understanding about the portion of NHH settled Meter Points which need to be operating compliant Smart Metering Systems for a new Smart HH Settlement regime to be economically viable to set up and providing benefits to end consumers.</li> <li>• Risk: if the scope is widened too early in the process, e.g. to include innovations in new technologies and Energy Services, that the focus is reduced to deliver the core requirements for HHS, which can delay the timely move to the next stage.</li> <li>• Risk: if the scope changes, that the project delivery may significantly overrun, by which time technology has moved on and better solutions may have emerged. resulting in implementation of an obsolete/out of date solution.</li> <li>• Risk: a single Service Provider appointment for the E2E process may provide an overall benefit. However, it carries the risk that if the single Service Provider fails, then the whole process fails, resulting in a greater overall effect on Settlements.</li> <li>• Issue: formal definition for Smart Metered "HH Settlements" is required, to ensure the TOM's are clear in what they cover and that there may be variations in HH Settlement provision for existing HH, existing AMR and the new mandated HHS.</li> <li>• Dependency: for the MHHS project to engage with TABASC expertise during MHHS TOM Stage 2 to understand limitations of Smart, assumptions, gaps.</li> <li>• Dependency: for OFGEM to seek engagement with BEIS and GCHQ regarding the proposal. To avoid any late considerations which may materially change the proposal and appropriateness of considering one TOM over another. Which may also impact the economic business case or the efficiency of certain models.</li> <li>• Dependency: on the confirmation of the outstanding policies for MHHS.</li> </ul>
DCC	-	See Appendix 2.

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Question 11	Are there any Risks, Assumptions, Issues or Dependencies not identified by the DWG that should be included in the RAID log?	
Respondent	Yes / No / Other	Rationale
ScottishPower	Yes	<p>SMETS1 migration to DCC;</p> <p>Extent of SMETS penetration impeding business case delivery</p> <p>Appetite for load shifting restricting business case delivery</p> <p>Customer contracts with agents must be accommodated</p> <p>OFGEM's reserved policy decisions (central agent and DAPF) need to be informed by the findings of DWG and TOM design needs informed by the responses to OFGEM's RFIs – i.e. joined up policy and design.</p>
British Gas	No	<p>We feel that the DWG has included the known Risks, Assumptions, Issues and Dependencies and recognise that these will be reviewed on a regular basis.</p>

## MARKET-WIDE HALF-HOURLY SETTLEMENT

### Question 12: Do you have any further comments?

Question 12	Do you have any further comments?	
Respondent	Yes / No / Other	Answer
E.ON Energy Solutions	No	-
Utilita Energy	No	-
Stark	Yes	Whilst we understand that Ofgem Policy Decisions are being considered separately, their implications make it very difficult to properly analyse the TOMs. It is important that Ofgem provide clarity on the future of supplier agent functions and access to data soon to dispel any certainty and allow industry to make meaningful progress on TOM design. We expect any analysis by Ofgem on centralisation or monopolisation of agent functions to be well balanced and properly consider the potential inefficiencies and costs associated with such models.
AIMDA	Yes	Whilst we understand that Ofgem Policy Decisions are being considered separately, their implications make it very difficult to properly analyse the TOMs. It is important that Ofgem provide clarity on the future of supplier agent functions and access to data soon to dispel any certainty and allow industry to make meaningful progress on TOM design. We expect any analysis on the monopolisation of agent functions to be well balanced and properly consider the potential inefficiencies and costs associated with such models.
Opus Energy & Haven Power	Yes	A common theme in the answers submitted to this consultation is around the level of detail currently available to provide definitive comments to the questions posed.  Once outcomes of policy work around Access to Data and Supplier agent functions are known, and following more detailed cost assessments & the Outline Business Case in the Summer, this will enable better assessment of operational impacts for suppliers and allow opportunity for more constructive feedback on the design process.
IMServ	Yes	It is very challenging to evaluate these TOMs against the backdrop Ofgem's decision on the future of agent roles in the market. The TOMs are so dependent on this policy decision, then IMServ feels that this decision is urgently needed to make substantive further progress on process design.

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Question 12		Do you have any further comments?
Respondent	Yes / No / Other	Answer
ElectraLink	Yes	<p>ElectraLink would welcome the opportunity to expand our involvement in the market-wide half hourly settlement programme.</p> <p>ElectraLink have been supporting the delivery of settlement for the past 20 years and we will continue to support the industry with the transition to half-hourly settlement, through our work on the Data Transfer Service and DCUSA. With proven experience in successfully supporting the industry to deliver transformative changes, including P272, we believe that it is important that ElectraLink is involved in the DWG, as the HHS design work enters the pivotal phase of detailed design, to have our expertise in the programme.</p> <p>This introduction of half-hourly settlement on a market wide scale is also important to ElectraLink as we deliver the Data Transfer Service (DTS) on behalf of the industry. ElectraLink is in the process of evolving the DTS to provide the Energy Market Data Hub. The Hub will build on the solid foundation of the DTS, which currently transfers all electricity settlements, supplier hub, gas retail and renewable generation flows, by adding new services, such as the ability to access market data directly in a secure, self-service data portal.</p> <p>Our vision for the Energy Market Data Hub is a natural evolution of the DTS, opening up transparency of industry data to inform business process improvement for new and legacy market participants. We expect that the requirements of half hourly settlement programme will feed into our innovation.</p>
ENGIE Power Limited	No	-
Npower Ltd	Yes	<p>We believe that Elexon and the DWG have produced a comprehensive first stage document and we are supportive of this work.</p> <p>As detail is added to the underlying processes it may be prudent to revisit the market design work to confirm it is still fit for purpose.</p> <p>In the HH market EACs are still used to estimate or load shape HH readings in some scenarios. The D0289 provides profile class and EAC to help estimate consumption. However in the Baseline Principles (section 9 on page 9) 'iv)' states the aim to eliminate the need for EACs and AAs, some estimation and load shaping will still be required and therefore EACs may need to be retained.</p>
EDF Energy	No	-

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Question 12		Do you have any further comments?
Respondent	Yes / No / Other	Answer
Energy Local CIC	Yes	<p>It is important that whichever TOM is ultimately chosen, that data be made available to community organisations and those that wish to innovate in local balancing and/or support consumers in improving energy efficiency. The data should be made available in as close to real time as possible and for small clusters of meters (not just for broadcast signals).</p> <p>Market wide half hourly settlement would increase the opportunity for consumers to shift or reduce demand, whether individually or as part of a collective scheme, in a way which improves the efficiency and resilience of the whole network.</p> <p>For example, the Energy Local model seeks to encourage consumers to match local generation thus balancing the network at a local level.</p> <p>By ensuring that communities and individuals can access this data as close to real time as possible, this will increase the potential for innovative methods of achieving this to be developed.</p>
Salient Systems Ltd	Yes	<p>Firstly, I would like to express our appreciation and thanks to the DWG for the considerable and valuable work done so far.</p> <p>Once the next phase of detailed design work starts we would urge the DWG to prioritise attention to the Supplier and Innovator side impacts attached to delivering effective distributed applications architectures that will benefit from coupling with any proposed HHS services model.</p>
Siemens	Yes	<p>Whilst we understand that Ofgem Policy Decisions are being considered separately, their implications make it very difficult to properly analyse the TOMs. It is important that Ofgem provide as soon as possible clarity on the future of supplier agent functions to dispel any certainty and allow industry to make meaningful progress on TOM design.</p> <p>Ofgem have mention the concept of a 'Data Lake' – Although this may provide the data that is required to provide additional services (eg energy management and visualisation) for use by multiple parties there are questions around who would use it. Data processors or Suppliers receiving consumption from the DCC could argue that the Data Lake is a duplication of the data that they already have. Then there are questions around the timeliness of data in any 'Data Lake', and importantly who would pay for its development, maintenance and use – ultimately it will be borne by the consumer.</p>

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Question 12	Do you have any further comments?	
Respondent	Yes / No / Other	Answer
TMA Data Management Ltd	Yes	<p>We are unsure of the description of responsibilities for the Data Retrieval service for Smart Meters as provided in the Consultation.</p> <p>It states that the Service will be provided by the DCC for retrieving period data as well as retrieving the TOU and Register Readings for active import and active export but the DCC is not specifically listed as the service provider to fulfil the Data Retrieval function of providing access to the Data Processing Service.</p> <p>It is unlikely that any service provider other than the DCC would be able to fulfil that function.</p> <p>Could the DWG clarify how it is expected to work?</p> <p>We would like to have more information on the New Load Shaping service to take over from the complex NHH profiling, more specifically information on how it improves and simplifies the current arrangements.</p> <p>We understand that having the data at period level from earlier allows for a simplified aggregation but we do not understand how creating a new service will make it easier compared to the current arrangement.</p> <p>We would like the DWG to be more daring in exploring the possibility for estimation.</p> <p>For Smart Meter sites, the hierarchy of using same day last week, 2 weeks ago, last month as is currently used in HH settlement would be a good match.</p> <p>For non-Smart Meters and Smart Meters with more long term issues, the Data Processing service could use data for similar sites and use a set of default profiles where no similar sites can be identified.</p> <p>For instance default profiles for Summer week day/weekend, Spring Weekday weekend, Autumn weekday/weekend and winter weekday weekend with special profiling for the main bank Holidays would be needed. It would be around 14 profiles and no need for an enduring profiling service. There must be enough information in the current profiling service to build good average load shapes.</p> <p>The balance between cost and accuracy is critical; the new Load Shaping Service tips the balance on cost without any proven requirement for it.</p> <p>There might not be a need for a separate load shaping service, that possibility must be explored fully.</p>

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Question 12		Do you have any further comments?
Respondent	Yes / No / Other	Answer
SmartestEnergy	Yes	<p>We have an inclination to favour Option E as the industry, whether big or small, is all in the same boat i.e. changes will have to be made to systems, but the market is new. Data could be provided to customers via the supplier and this would provide the competitive element for service. However, we would be very concerned about extending centralisation to the traditional half hourly market as this is already established with DC to customer relationships where data is provided direct.</p> <p>It was asserted at the HH Settlement Design Workshop at Elexon on 15th May that having all meter reads half hourly simplifies the aggregation process. Our view is that this should not be used as an excuse to combine Smart and AMR in the same DA function as it is probably more natural to keep Smart DA and AMR DA separate, unless there are compelling reasons to do otherwise.</p> <p>It was also stated at the HH Settlement Design Workshop at Elexon on 15th May that it was not currently clear whether export data will be mandated in. We think this is probably a good idea for microgeneration with Smart meters but we would be very concerned if generation meters with AMR were mandated into the DCC.</p>
SSE	Yes	<p>We are keen to see the other consultations and policies associated with MHHS; Consumer Protection, Access to Settlement Data and MHHS Agent Functions. The policy refinement in these areas are key to reducing the number of options on the table, as currently there are variants of each TOM corresponding to the variations in the potential policy outcomes. With the definitions of the policies will come focused, more detailed responses from market participants setting out what they can foresee positively, efficiently, economically achieving the outcomes set out in the OFGEM Business Case for MWHHS.</p> <p>We hope that before long the DWG can determine, given the policies, which TOM's should be removed from assessment, otherwise there is a danger that the DWG will not be able to provide enough detail to OFGEM for an autumn consideration and determination of the final TOM for a clear January 2019 TOM policy.</p> <p>We look forward to the provision of a paper from OFGEM on the credible future scenarios, to help with the evaluation of the TOMs for future proofing for innovation.</p>
DCC	-	See Appendix 2.
ScottishPower	No	-
British Gas	Yes	We would like to be closely involved as this programme develops to ensure a balance is struck between enabling innovation and ensuring other BSC parties do not face new risks that they cannot manage or have an unintentional detrimental impact on the customers' experience.

## MARKET-WIDE HALF-HOURLY SETTLEMENT

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Question 12	Do you have any further comments?	
Respondent	Yes / No / Other	Answer
		<p>We would recommend that decisions made regarding the following are considered during the next stages of the programme:</p> <ul style="list-style-type: none"><li>• Access to HH data</li></ul> <p>It is noted that having a HH settlement market without explicit access to validate the HH data will cause greater risk to settlement as errors will not be easily identifiable.</p> <ul style="list-style-type: none"><li>• Estimation Methodology</li></ul> <p>We are keen to review the methodology considered to determine how customers with register readings get their meter advances changed into settlement periods and how estimation will work.</p>

# MARKET-WIDE HALF-HOURLY SETTLEMENT

## KEY THEMES

The following key themes for each question have been identified:

<b>Q1 Are there any Settlement processes or services not identified that should be included as part of the HHS Meter to Bank process?</b>			
<b>No.</b>	<b>Response</b>	<b>Rationale</b>	<b>Market Role</b>
13	No/Neutral	At this stage everything covered for Meter to Bank process	Various
1	Potentially	<p>Unsure why the CVA market is being excluded from this process. If a single service provider is chosen then incorporating the CVA market could provide additional benefits.</p> <p>The agent of last resort process would need to be reviewed for single service providers to ensure a contingency is in place should an agent enter a position of being unable to fulfil their role.</p>	Supplier with Agents
1	Yes	<p>We believe the below points will need to be addressed either within stage 1 or early stage 2:</p> <ul style="list-style-type: none"> <li>• Whilst we agree supplier billing..... validated against the HH settlement data by that agent.</li> <li>• A process for inputting units from confirmed theft</li> <li>• Processes will need to be developed for smart sites that have communication issues.</li> <li>• When a site moves to HH settlements, the profile class is amended to 00. When all/most sites are settling HH, this field will be largely redundant. We would suggest that the use of the profile class field is expanded to make use of the 91 (09-99) numbers not currently utilised by the traditional profile classes (00-08).</li> <li>• New market domain data will be required.</li> <li>• It is unclear how group correction factor will be allocated across different customers in a predominantly HH market. types may not be migrated consistently.</li> </ul>	Supplier with Agent
1	Offer for consideration	<p>Offer for consideration 2 new future HHS supporting services and the promotion of a particular and related process subset of each of the proposed Processing and Aggregation Services to produce a pertinent and distinct service in its own right.</p> <p>New Services:</p> <ol style="list-style-type: none"> <li>1. ECVN/MRVN Facilitator Service</li> <li>2. New Business/Market Model validation/testing/monitoring service</li> </ol> <p>Promoted Service:</p> <p>Consumption Data Estimation Service</p>	Agent Software Provider

## MARKET-WIDE HALF-HOURLY SETTLEMENT

<b>Q1 Are there any Settlement processes or services not identified that should be included as part of the HHS Meter to Bank process?</b>			
No.	Response	Rationale	Market Role
1	Clarification required	Could the DWG clarify that the Disconnection event and EMR information are included in the "other non-settlement services" in the Data Aggregation Services list?	Supplier Agent
1	No Comment		Community Energy

<b>Q2 Are there any TOMs or aspects of TOM design that would better facilitate the most efficient delivery of the HHS Meter to Bank process?</b>			
No.	Response	Rationale	Market Role
2	TOM C and E	Data transfer efficiency - See also paper in Appendix 1	Supplier with Agents, Smaller Supplier
2	TOM E	Should enable most efficient delivery (competition concerns though), central Settlement aggregation optimal.	Smaller Suppliers
1	TOMs A and C	Better than B & D as Retrieval and Processing combined	Big Supplier
2	More detail required		Big Supplier, Smaller Supplier
1	Little to separate at this stage	Efficiency in descending order B,D,C A and E.	Supplier Agent
3	TOM D	Most efficient as no grouping, maximises participation/competition	Central Industry Body, Supplier Agent, Community Energy
4	TOMs B and D (dups?)	Better than TOMs A and C as maximises competition	Supplier Agents
1	Tom C	Creates single new efficient smart agent role	Big Supplier
1	Yes	We should not be carrying forward the complexities of the pre-MHHS era. The current programme should consider wide-scale standardisation of process and data sources for recorded consumption, and avoiding the multiple hand-offs and points of failure arising from the present multiple agent model.	Big Supplier
1	Neutral	We would suggest that Elexon and OFGEM continue to work in close partnership to ensure settlement reform is aligned with the Future Supply Market Arrangements work.	Big Supplier

## MARKET-WIDE HALF-HOURLY SETTLEMENT

<b>Q3</b>			
<b>Are there any TOMs or aspects of TOM design that would better facilitate the most accurate allocation of energy?</b>			
<b>No.</b>	<b>Response</b>	<b>Rationale</b>	<b>Market Role</b>
2	TOMs C and E	More fluid processing...end to end Services	Big Supplier with Agents, Smaller Supplier
2	Too early	Need to understand detailed processes	Smaller Supplier, Big Supplier
4 (dups?)	Competitive models	Distinguish themselves on Settlement performance and data quality	Supplier Agents
1	Potentially TOMs B or C	But .....need to get decisions about access to data and Supplier agent functions	Smaller Supplier
3	All the same	No TOM more accurate than any other	Supplier Agents
1	All the same	But TOMs B and D have separate retrieval role which could impact accuracy	Big Supplier
1	Combined services are best	Where Retrieval and Processing combined.....dependency on Load Shaping Service	Big Supplier
1	TOM D	Multiple small players are more innovative.	Community Energy
1	TOMs where Processing and Aggregation combined	.....but not centralised.	Software Provider
1	Dependent on access to SP level data	Dependency on Ofgem Policy decision	Big Supplier
1	Yes (all)	High levels of actual reads in settlement as provided for by all TOMs.	Big Supplier

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Q4 Are there any TOMs or aspects of TOM design that would be less resilient? e.g. a failure in a Service to be delivered			
No.	Response	Rationale	Market Role
1	Not specifically	Inherent risk of central provider.....but current levels of validation could be reduced by central provider. Learn from project nexus	Big Supplier with Agent
9	Caution on centralised monopoly (TOM E)	Caution with TOM E and learn from DCC costs, single pint of failure	Various
1	No	Need to identify resilience issues in Stage 2.	Central Industry Body
2	TOM D least resilient	Separating Services increases risk of failed or inaccurate data transfer.	Smaller Suppliers
1	TOMs A, D and E less resilient	Risk of single centralised market-wide aggregation with data in one place.	Big Supplier
1	Bundled services	..are less resilient	Software provider
1	TOMs B and D	Due to separate Retrieval service	Big Supplier
2	Yes	<p>It does not appear that there would be advantages in reducing the number of hand-offs by introducing a more centralised model ( option E ) as there is a counter view that a single provider increases the material impact of any issues that may arise and could potentially reduce transparency of operations.</p> <p>In relation to aspects of the current market arrangements there are multiple failure points. DWG should to analyse these and design them out of any enduring MHHS arrangements.</p>	Big Suppliers

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Q5 Are there any TOMs or aspects of TOM design that would deliver the best result for the end consumer?			
No.	Response	Rationale	Market Role
1	The TOM which provides....	Least cost, most timely, accurate and least impact end consumer.	Big Supplier with Agent
1	Centralising trade offs..	More efficient and lower costs v customer choice.	Smaller Supplier
5	Competitive models (some dups?)	Consumer choice of agents, supports innovation and independence. No change at all to HH arrangements for advanced would be best.	Supplier Agents
3	All TOMs	Appear to give optionality for improving data/ lowering costs  From a settlement perspective, all of the TOMs have the potential to facilitate the HHS meter to bank process and therefore be of similar benefit to the end consumer  All TOMs would seem to achieve this outcome.	Smaller Supplier  Big Suppliers
2	TOM D	Would promote best outcome for the end consumer	Community Energy and Supplier Agent
1	TOM C and E	End to end Services are most efficient for Settlement and provide best result for end consumer.	Smaller Supplier
1	TOM C	Centralised version reduce implementation costs, no data transfer between agents no need to change agents on CoS.	Big Supplier with Agents
1	TOM with Retrieval and processing are competitive	Consumers better served by Supplier aligned Services, retail offerings and innovative offers.	Software Provider
1	TOM E	Suppliers are not negotiating separately with Agents, no adverse effect on competition ( <i>in supply</i> ).	Smaller Supplier
1	Dependent on the policy decision for Settlement Period Level data access and use.	More limited the model chosen, the more there is potential to limit the delivery of the best results for the end consumer. i.e. things like reward tariffs or interruptible regimes, or clearer profiling, which can stem from accurate, clear, granular data	Big Supplier
1	Yes	Innovation in the Domestic market should be focussed on developing new services not on competitive tendering for existing 'commodity' transactions where little value is added by service differentiation.  For Smart and non-Smart (but not Advanced) meters this should mean that commodity transactions are simple and low-cost, but that add-on services can be developed and delivered by multiple parties.	Big Supplier

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Q6 Are there any innovations in technologies or energy services not considered in this document which should be accommodated by the TOMs?			
No.	Response	Rationale	Market Role
1	Customer Agents	Currently customers have an opportunity to select their own agents as service providers for DC / DA. There are still consumers who wish to take this service through traditional HH metering and it needs to ensure consumers are not penalised through site specific DUoS/TNUoS charges.	Big Supplier with Agents
5	No	The TOM currently accommodates for key areas of innovation within technologies and energy services.	Various
3	Yes	There is little consideration of technologies such as EV Charging and Heat Networks, which are both nationally transformative, energy services currently being provided to the micro-business sector via Advanced metering.	Supplier Agents
1	Partial yes.	Potentially if Smart CT meters become available it could cut across metering types and processes, which could add complications.	Big Supplier with Agents
1	Local balancing	Half hourly settlement increases the potential for local balancing, which improves network resilience and efficiency.	Community Energy
1	Yes	A good census of innovations are presented at the consultation document the nature of innovation is that it if encouraged it will persist and further new flexibility options will develop.  Inappropriate bundling of HHS service model sets of process and particularly data at any resulting physical service delivery solution options will risk compromise to efficient positioning of new innovative services against consumption data at appropriate and undisputed state going forward.	Software Provider
1	Yes	Innovations that are currently occurring in the area of Peer-to-Peer (P2P) energy trading, community or district energy and heat schemes and the increase in the use of Electric Vehicles (EV), all of which could 'spill' energy onto the network at various points are nationally transformative and therefore must be taken into consideration in the development of the TOMs. Other innovations within the energy industry such as blockchain (P2P) are already being considered and other innovations will come along.	Supplier Agent
1	No comment		Supplier Agent
1	P332	This is admittedly a secondary issue, but if, as we believe, the AMR arrangements should be left largely intact, then the P332 proposal is still valid.	Smaller Supplier

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Q6 Are there any innovations in technologies or energy services not considered in this document which should be accommodated by the TOMs?			
No.	Response	Rationale	Market Role
1	It is still difficult at this stage to answer with full information.	Without the awaited policy decisions associated with MHHS which will further inform the TOM's, it is hard to know which variants of each TOM might better facilitate innovation either in energy services or technology.	Big Supplier
2	Blockchain	<p>I would like to see how a decentralised data model (possibly using Block Chain) might facilitate the simplification of processing and avoid need for holding multiple versions of standing data and consumption</p> <p>Innovative proposals such as blockchain have the may mean that settlement process may need to be reviewed to be accommodated. Blockchain technology may not be mature enough to build the current reform processes around, but any reforms should be mindful of the potential of blockchain to play a role in future settlement reform.</p>	Big Suppliers

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Q7 Are there any specific aspects of TOM design that would present a barrier to new market entrants, technologies or innovations?			
No.	Response	Rationale	Market Role
1	Dependent on the TOM chosen	<p>Depending on the selected TOM, consideration needs to be applied to single service providers and how regularly these would be available for tender</p> <p>Using Single Service Providers (SSP) could result in increased or decreased cost to implement upgrades or system changes.</p> <p>TOM E could stop agents from being able to enter the market as easily however it could benefit suppliers commercially. TOM D creates the need to have commercial arrangements which could benefit new market entrants.</p>	Big Supplier with Agent
2	a TOM based on a centralised monopoly service	<p>a TOM based on a centralised monopoly service provider being procured has a number of risks, including acting as a potential barrier for new market entrants,</p> <p>Contrary to this, a more centralised service may reduce barriers to new suppliers by only having to deal with one central service.</p>	
6	Centralised TOMs (1 confidential)	Designs based on monopolisation, such as TOM E, will be an absolute barrier to new market entrants in energy services and will stifle innovation.	Various
7	No	<p>We do not know of any aspects of the TOM design that would present a barrier to new entrants; however, we do believe that the TOMs should be flexible enough to accommodate new and emerging business models, innovations and actors that may wish to enter the market.</p> <p>We are not aware of any new market entrants, technologies or innovations that would be hindered by the TOM designs.</p> <ul style="list-style-type: none"> <li>• If a centralised smart data collection / data aggregation services is developed, there may be possible benefit from accepting (at a cost) HH data from a variety of sources (data retrievers), which would allow the market to develop over time.</li> <li>• The BSC (P362) sandbox process if approved is may be a less disruptive option for new innovation.</li> </ul> <p>We can see the argument that Option A gives the flexibility for peer-to-peer arrangements. data retrieval and processing would need to be overseen with some kind of performance assurance regime and it is important that default suppliers are not just lumbered with the remaining costs while “innovators” make little contribution.</p> <p>Based on the evidence reviewed, none of the TOMs proposed present a barrier to new market entrants, technologies or innovations and would suggest that the consultation responses to the “ELEXON White Paper - Enabling customers to buy power from multiple providers” is</p>	Various

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Q7 Are there any specific aspects of TOM design that would present a barrier to new market entrants, technologies or innovations?			
No.	Response	Rationale	Market Role
		incorporated into how settlement reform develops.	
1	The separate services proposed by TOM D	In a competitively procured scenario, splitting all the services out may result in new entrants having to contract with multiple parties. This would make market entrance more complex.	Smaller Supplier
1	No Comment		Big Supplier

Q8 Do you have a preference for any of the TOMs and why?			
No.	Response	Rationale	Market Role
1	TOM E followed closely by TOM C.	Both C and E help to streamline the market and reduce the number of hand off points which should bring with it an efficiency in processing. TOM E would also allow for a greater level of centralised information which could allow innovation to evolve and would help reporting and identifying any issues at a granular level.  However as an agent TOMs C and D still allow the consumer flexibility to procure their own services and protects consumers with a single point of failure.	Big Supplier with Agent
2	No	Too early  Our current view is that that the main difference between the TOMs relate to the entity that the performs the service and we envisage that once more detail of how each model will practically impact suppliers and the propositions they deliver to customers is made available, then we will be in a position to share a preference.	Smaller Supplier, Big Suppliers
2	TOM C	Our preferred TOM is C, with amendments This would be least disruptive to traditional HH roles, but and allow a new centralised smart role to develop. If the Ofgem policy decision is to centralise aggregation services, our preference would be for TOM A.  Ee prefer the end to end service models. We prefer TOM C to TOM E as maintaining a separate aggregation provider for the AMR sector would allow a specialist service for this area where the larger supplies which have a greater risk to settlement are contained. It also allows for the potential design of different data processing systems across the two sectors which may provide greater flexibility.	Big Supplier, Smaller Supplier
1	Potentially TOM B or TOM C	We have an initial view, we feel that until there is clearer direction on decisions around access to data and supplier agent functions, it is again difficult to provide a definitive answer at this stage.	Smaller Supplier

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Q8 Do you have a preference for any of the TOMs and why?			
No.	Response	Rationale	Market Role
4	Competitive TOMs	We have a preference for any TOM that preserves and maximises competition, but all TOMs could be improved further by leaving the advanced metering segment alone and continuing with it as is with its current operating model. We see no rationale for change in this large area of the market.	Supplier Agent
4	TOM D	<p>Our preferred TOM is TOM D. TOM D will allow the market to group the services as appropriate; therefore, this will allow the market actors to decide the most effective model to provide settlement information to ELEXON for them.</p> <p>Maintaining separate services for each process from meter to bank should increase the number of organisations operating in the market. It also increases the likelihood that these will be nimble organisations that are willing to engage with community energy organisations and be open to new ideas about how things could be done better. Our experience engaging with industry participants to date, is that we have had far more success and openness to trialling innovative ideas from smaller players.</p> <p>TOM D achieves the key improvements to proposed HHS regime at least as effectively as all other TOM options – the generation of interval data from all MS segments at Processing service and prior to Aggregation and the appropriate positioning of Profiling service.</p> <p>We support TOM D as it keeps all services as standalone services. We support TOM D when all service providers are fully competing.</p>	Software Supplier, Supplier Agents, Community Energy
1	TOM A	<p>We currently have a preference for TOM A because:</p> <ul style="list-style-type: none"> <li>• We believe that it makes sense to combine the retrieval and processing services.</li> <li>• TOM A provides Suppliers with the flexibility to implement the arrangements in a number of different ways which serve their needs, using both internal and external services.</li> <li>• TOM A enables the introduction of a centralised aggregation service, which we believe is required to support the implementation of new technologies and business models.</li> </ul>	Big Supplier

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Q8 Do you have a preference for any of the TOMs and why?			
No.	Response	Rationale	Market Role
1	TOM B or TOM D	<p>With so many different permutations of each TOM and their similarity, plus the uncertainty around Ofgem’s Policy Decision on whether to centralise supplier agent functions, it is very difficult to give a preference., Our preference would be for a model that preserves competition in the Advanced metering market and</p> <p><b>TOM B</b></p> <ul style="list-style-type: none"> <li>• Encourages competition and innovation</li> <li>• Recognises the difference between the C+I market and the Domestic from a retrieval and processing perspective</li> <li>• Maximises economies of scope from existing service providers</li> <li>• Least development effort to improve speed to market and facilitate new entrants</li> </ul> <p><b>TOM D – in addition to the above</b></p> <ul style="list-style-type: none"> <li>• Opportunities from economies of scale in aggregation</li> </ul> <p>TOMs B &amp; D should cause the minimum impact on the existing C+I AMR market, there being minimal change to the existing Settlement Process for HH AMR meters, which although low in numbers account for approximately 50% of the total energy that is Settled. Therefore it can be argued that the existing processes for HH AMR should be left as is because it minimises the risk to Settlement as identified in Risk 01.</p>	Supplier Agent
1	TOM E	<p>We like the idea of centralisation for Smart aspect of TOM E coupled with the separation of AMR, with the two coming together at Volume Allocation. However, having separate data aggregation for AMR is not a die-in-the-ditch issue for us; centralised aggregation would mean some contractual changes for customers who pay for a joint DC/DA service directly to their Agent. However, the advantages of centralised DA need to be demonstrably greater than the inconvenience of having to make changes to data aggregators’ and customers’ contracts.</p>	Smaller Supplier
1	TOM’s A and C.	<p>These are the most sensible collection of service functions, deliver HH settlements and reduce hand-offs, we believe that TOMs A and C will minimise/limit the list of potential errors.</p>	Big Supplier

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Q9 Do you agree with the DWG's initial assessment against the Design Principles? Are there any points not identified by the DWG?			
No.	Response	Rationale	Market Role
11	Yes	<p>We agree with the initial assessments given by the DWG however only under Stage 2 will each TOM be in a better position to be fully assessed against Ofgem's Design Principles.</p> <p>We acknowledge the DWG's findings and have not identified any further observations to share to date.</p>	Various
3	Partly	<p>Assessment of the TOMS against half of the Design Principles (1, 2, 4 and 8) is stated to occur as part of Stage 2 so we cannot comment. The assessment that has been carried out against the remaining Design Principles (3, 5, 6, 7 &amp; 9) appears to be mostly satisfactory. However, in Design Principle 2, the assessment offers no reassurance that the principle of "avoiding the potential to stifle innovation and competition" in Retrieval and Processing has been considered and the statement that a simple and cost-effective estimation process would lower barriers to entry is not explained. Furthermore, Design Principle 9 is not addressed fully, with the assessment suggesting that there will be little interaction between new technologies and the Settlement system, which could be short-sighted.</p>	Supplier Agents
1	No and Yes	<p>We consider the DWG's assessment of the TOMs against the Design Principles to be only partly formed and lacking rigor. In part that is because the Design Principles and Criteria lack specificity, but also because at various points opinions are stated as fact, without evidence or substantiation.</p> <p>We conclude that at this time the process of evaluating the merits of the TOMs against clear, transparent design criteria is flawed and potentially misleading.</p>	Supplier Agent
2	No comment	NA	Software Provider, Community Energy
1	No	<p>The load shaping service does not meet the "simple and cost effective" criteria.</p> <p>We do not agree that TOM E supports innovation and Aggregation for Smart Meters, it also creates a single point of failure which is by definition bad design.</p> <p>We do not support the principle that the estimation requires a Load Shaping service provider.</p> <p>We would like to explore other means of keeping estimating non smart meters as well as estimating missing data for Smart Meters. Load shaping or profiling, no matter how it is done is prone to inaccuracy and might not provide any more accurate profile than using the profile of a similar site. We would be fully supportive of a process where Load Shaping, as an ongoing task, no longer exists.</p>	Supplier Agent

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Q9 Do you agree with the DWG's initial assessment against the Design Principles? Are there any points not identified by the DWG?			
No.	Response	Rationale	Market Role
		We do not agree that TOM E supports innovation with a central service provider for data retrieval, processing and Aggregation for Smart Meters, it also creates a single point of failure which is by definition bad design.	

Q10 Do you agree with the DWG's initial evaluation against the evaluation criteria?			
No.	Response	Rationale	Market Role
5	Yes	NA	Various
1	Partly	Although we are largely supportive of the DWG's initial review against the evaluation criteria, the TOMs have assumed all SMETS1 meters will be enrolled and adopted under the DCC or replaced with SMETS2 meters to enable a single smart meter retrieval service which we still do not know to be the case. Therefore, we would query this assumption and the allocation of the 'strongly supports' status of all TOMs for meter types coverage.	Smaller Supplier
2	No	We find the evaluation criteria difficult to understand and are not convinced of the value in trying to evaluate the TOMs as a whole rather than individually. Furthermore, the interaction between the two sets of criteria (Design Principles and Evaluation Criteria) is unclear and could potentially be contradictory. For instance, the TOMs are said to "completely deliver" against the "Supports New Technologies and Innovation" evaluation criteria but against Design Principle 9 (Innovation) it is noted that the TOMs will have little impact on new technologies because they are beyond the settlement system. Similarly, the TOMs are said to "deliver mostly" against the "Timing" criterion, specifically whether they support reducing the Settlement timetable, but against Design Principle 1 (Settlement Timetable) it is stated that assessment in this area will be part of Stage 2. This suggests that the evaluation process is flawed and disjointed.	Supplier Agents
1	Too early	Evaluation is currently based on a high-level view of TOM options. Some criteria will require further evaluation following progress of Stage 2 design work.	Smaller Supplier

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Q10 Do you agree with the DWG's initial evaluation against the evaluation criteria?			
No.	Response	Rationale	Market Role
2	No	<p>It is not clear how the DWG's secondary set of evaluation criteria link to Ofgem's Design Principles and Criteria.</p> <p>It is not clear how the list of criteria was established, or whether the list is complete. The presented evaluation against these criteria is totally subjective and does not differentiate between TOMs. This appears to be an insubstantive evaluation.</p>	Supplier Agents
1	Broadly yes,	<ol style="list-style-type: none"> <li>Coverage. Disagree on UMS as less developed than other market areas. Would say 'supports' rather than strongly supports.</li> <li>Cost reflectivity. Network charging is not yet clear. How Group Correction Factor (GCF) error is allocated is not yet clear so would say 'supports' rather than strongly supports.</li> <li>Design Flexibility. Difficult to say give we can't be certain on what changes are coming. No disagreement though.</li> </ol>	Big Supplier with Agents
1	No	<p>While we broadly agree with the DWG's initial evaluation against the evaluation criteria, we would like to note the following points:</p> <ul style="list-style-type: none"> <li>Export coverage – It is not clear why the TOMs are only shown to support, rather than strongly support, export coverage, as in the Design Principles section the same services and processes would apply for export as for import under all of the TOMs.</li> <li>Customer billing interaction – as noted in our response to Question 5, we do not believe that the TOMs have been shown to fully address the relationship between settlement and customer billing. The issue is not just whether data is available for customer billing, but how Suppliers would be able to reconcile the amount of energy being billed to that being settled, and how readings would be generated in the event of a scenario such as Change of Supplier.</li> <li>Design flexibility – it is not clear that the reliance on transfer of historic data will be removed under any of the TOMs as it is has not yet been determined what (if any) data may need to be transferred in order enable a new Supplier/Agent to be able to carry out specific functions – for example, accurate estimation. We suggest this point cannot be assessed at this stage.</li> </ul>	Big Supplier
2	No comment		Software Provider, Community Energy

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Q10 Do you agree with the DWG's initial evaluation against the evaluation criteria?			
No.	Response	Rationale	Market Role
1	No	<p>The load shaping service does not meet the "simple and cost effective" criteria.</p> <p>We do not agree that TOM E supports innovation and Aggregation for Smart Meters, it also creates a single point of failure which is by definition bad design.</p> <p>We do not support the principle that the estimation requires a Load Shaping service provider.</p> <p>We would like to explore other means of keeping estimating non smart meters as well as estimating missing data for Smart Meters. Load shaping or profiling, no matter how it is done is prone to inaccuracy and might not provide any more accurate profile than using the profile of a similar site. We would be fully supportive of a process where Load Shaping, as an ongoing task, no longer exists.</p> <p>We do not agree that TOM E supports innovation with a central service provider for data retrieval, processing and</p> <p>Aggregation for Smart Meters, it also creates a single point of failure which is by definition bad design.</p>	Supplier Agent
2	Yes	We support the DWG's initial views against the evaluation criteria.	Big Suppliers

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Q11 Are there any Risks, Assumptions, Issues or Dependencies not identified by the DWG that should be included in the RAID log?			
No.	Response	Rationale	Market Role
1	No	<p>We understand that I03 is being addressed by the Faster and More Reliable Switching Programme.</p> <p>Although the DWG group has considered the risks with certain developments in the industry, the exact detail of the changes might create unforeseen implementation challenges and therefore present risks. Additional items that will need to be closely monitored would be:</p> <ul style="list-style-type: none"> <li>• Remote EV Charging including chargeable roads as being tested in the USA</li> <li>• Peer to Peer Trading (Elexon White Paper)</li> <li>• 15 minute Settlement</li> </ul>	Big Supplier with Agent
5	Not at this stage		
3	Yes	<p>The RAID log does not identify any risks to consumers. For example, the risk of reduced consumer choice and increased costs should centralisation occur, this is particularly relevant for the smaller non-domestic market where customer appointed agents are commonplace. Similarly, there is a risk that consumers could be mis-sold TOU tariffs if data access guidelines aren't clear or that responding to price signals will put them at risk (e.g. vulnerable consumers with electric heating). Finally, we would argue that reputational damage to the SMIP is a risk to the implementation of MHHS as this will have a direct impact on the number of Smart meters deployed.</p>	Supplier Agents
1	Yes	<p>There are no captured assumptions about implementation processes; i.e. that a process can be found to transition to the chosen TOM that minimises risk to the Settlement process during the transition period.</p>	Supplier Agent
2	Yes	<ul style="list-style-type: none"> <li>• It's unclear how Group Correction Factor error will be allocated across customer types and suppliers as the market migrates to HHS.</li> <li>• Could there be an impact to the central switching service if industry DC / DA roles are merged?</li> </ul> <p>SMETS1 migration to DCC;</p> <p>Extent of SMETS penetration impeding business case delivery</p> <p>Appetite for load shifting restricting business case delivery</p> <p>Customer contracts with agents must be accommodated</p> <p>OFGEM's reserved policy decisions (central agent and DAPF) need to be informed by the findings of DWG and TOM design needs informed by the responses to OFGEM's RFIs – i.e. joined up policy and design.</p>	<p>Big Supplier with Agent</p> <p>Big Supplier</p>

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Q11 Are there any Risks, Assumptions, Issues or Dependencies not identified by the DWG that should be included in the RAID log?			
No.	Response	Rationale	Market Role
1	NA	<p>We would welcome further clarity on how the Risks, Assumptions, Issues and Dependencies are being managed. As an example, in regards to the single risk that has been identified to date it is not clear what the impact of this risk materialising would be, what actions are being taken to mitigate this risk, and by whom. Similarly, actions need to be taken to validate the Assumptions that have been noted, especially those that are critical to the programme. The assumptions that HH data from smart meters is suitable for HH settlement, and that DCC will be able to meet its SLAs in enabling access to HH data on smart meters, are critical and need to be confirmed.</p> <p>In regards to the specific RAID items:</p> <p>A08 – Would it be more appropriate to make an assumption that all smart meters will be operated as ‘smart’ by the Supplier in the target end state, as it is not yet clear that this will be via the DCC for all meters?</p> <p>I02 – Is this an issue that needs to be referred to the Ofgem Switching Programme which is considering related MPANs?</p> <p>I03 – We would welcome clarity on why identifying types of customers and metering at the point of sale would be an issue for the settlement process. Should this be required then again this should be something that is referred to the Ofgem Switching Programme or the joint SPAA/MRA group looking at development of a Market Intelligence Service based on ECOES and DES.</p>	Big Supplier
2	No comment		Software Provider, Community Energy
1	No	D03 is one of the most important dependencies. If access to period data is not provided, HHS cannot be delivered	Supplier Agent
1	Yes	There seems to be a general assumption that all data streams should come together at the DA stage. However, for ease of keeping Smart and AMR separate (and this is important for existing customer/DCDA relationships) we feel that it would be better if everything could come together at the Volume Allocation stage. Clearly, this needs to be weighed up against any possible advantages for drilling down to MPAN level. These advantages need to be laid out clearly during the decision-making process.	Smaller Supplier

## MARKET-WIDE HALF-HOURLY SETTLEMENT

Q11 Are there any Risks, Assumptions, Issues or Dependencies not identified by the DWG that should be included in the RAID log?			
No.	Response	Rationale	Market Role
1	No	<p>We are concerned that the following might not be appropriately identified/managed;</p> <p>Assumptions that all Smart meters deal equally with Import and Export – there is a limitation in the current SMETS/GBCS specifications which need to be better understood by the MHHS project, to avoid risks.</p> <ul style="list-style-type: none"> <li>• Risk: DCC current defined licence/architecture/model cannot support the role of Other User to carry out a</li> <li>• Meter Reading Service role on behalf of Suppliers</li> <li>• Risk: to overall SEC end to end security if allowing all Meter Reading Services to use the Other User Role to collect Critical Command Service Requests for daily retrieval of Settlement Level Data.</li> <li>• Risk: lack of understanding about the portion of NHH settled Meter Points which need to be operating compliant Smart Metering Systems for a new Smart HH Settlement regime to be economically viable to set up and providing benefits to end consumers.</li> <li>• Risk: if the scope is widened too early in the process, e.g. to include innovations in new technologies and Energy Services, that the focus is reduced to deliver the core requirements for HHS, which can delay the timely move to the next stage.</li> <li>• Risk: if the scope changes, that the project delivery may significantly overrun, by which time technology has moved on and better solutions may have emerged. resulting in implementation of an obsolete/out of date solution.</li> <li>• Risk: a single Service Provider appointment for the E2E process may provide an overall benefit. However, it carries the risk that if the single Service Provider fails, then the whole process fails, resulting in a greater overall effect on Settlements.</li> <li>• Issue: formal definition for Smart Metered “HH Settlements” is required, to ensure the TOM’s are clear in what they cover and that there may be variations in HH Settlement provision for existing HH, existing AMR and the new mandated HHS.</li> <li>• Dependency: for the MHHS project to engage with TABASC expertise during MHHS TOM Stage 2 to understand limitations of Smart, assumptions, gaps.</li> <li>• Dependency: for OFGEM to seek engagement with BEIS and GCHQ regarding the proposal. To avoid any late considerations which may materially change the proposal and appropriateness of considering one TOM over another. Which may also impact the economic business case or the efficiency of certain models.</li> <li>• Dependency: on the confirmation of the outstanding policies for MHHS.</li> </ul>	Big Supplier

# MARKET-WIDE HALF-HOURLY SETTLEMENT

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## APPENDIX 1: E.ON ANALYSIS - MHHS TOM PROS & CONS

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### TOM A: COMBINED RETRIEVAL AND PROCESSING WITH SEPARATE AGGREGATION

#### Description of TOM A

The basis of this TOM is that Retrieval and Processing are bundled into a single service, one variant for Smart (including non-smart) and one for Advanced. This reflects the different ways of communicating with these Meters and the different Meter functionality and configurations. The Retrieval and Processing Service (smart and non-smart) will also apply conversion where Settlement Period level data is not available before providing access to Settlement Period data to the Aggregation Service that covers all market Segments. The Aggregation Service will sum up the data provided for all market Segments before providing access to aggregated volumes to a single Volume Allocation Service.

#### Pros

- Separate DA means extra rigour/validation.
- Help facilitate DSR as it has a single view of all the Smart/AMR (NHH/HH) data.
- Will have less of a stress/effect on parties from a PAF/Audit position.

#### Cons

- Will hinder faster/rapid switching.
- If aggregation service company goes into administration, will there be an aggregator of last resort.
- May have to break contractual obligations with agents/customers where there are long standing contracts.

### TOM B: COMBINED PROCESSING AND AGGREGATION WITH SEPARATE RETRIEVAL

#### Description of TOM B

The basis of this TOM is that the Processing and Aggregation are bundled into a single service for Smart (and non-smart) Meters. The retrieval of readings via the Data and Communications Company (DCC) is separated out to allow more flexibility in who might deliver that Retrieval Service.

With Aggregation done as part of Processing, it means that with multiple Processing Services operating the data will be aggregated first before reaching the Volume Allocation Service which covers the whole market. That would mean that there is no single view of MPAN level data across Suppliers.

#### Pros

- Will have less of a stress/effect on parties from a PAF/Audit position.

#### Cons

- Could be anti-competitive as the DA would be all internal. If the customer appointed a DC, then they would also be the DA (which the supplier may not prefer).
- With no separate DA means less rigour/validation.
- Will hinder faster/rapid switching.
- Addition of UMS – new process and more costs.
- If aggregation service company goes into administration, will there be an aggregator of last resort.

# MARKET-WIDE HALF-HOURLY SETTLEMENT

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- May have to break contractual obligations with agents/customers where there are long standing contracts.

## TOM C: END-TO-END SERVICE COVERING RETRIEVAL THROUGH TO AGGREGATION

### Description of TOM C

The basis of this TOM is that Retrieval, Processing and Aggregation are bundled into a single service, one variant for Smart (including non-smart) and one for Advanced Metering Systems. This reflects the different ways of communicating with these Meters. The Retrieval, Processing and Aggregation Services will sum up the data provided before providing access to aggregated volumes to a single Volume Allocation Service.

With Aggregation done together with Retrieval and Processing, it means that with multiple Retrieval, Processing and Aggregation Services operating the data will be aggregated before reaching the Volume Allocation Service which covers the whole market. There is no single Market Segment-wide view of Meter level data.

The key feature of this model is the reduction in defined interfaces between services. Meter level data is accessed once for Settlement, validated then aggregated with the aggregated data going straight into the Volume Allocation Service.

### Pros

- Only one point to gain customer consent and not have to “prove” this consent to the other services.
- Will have less of a stress/effect on parties from a PAF/Audit position.
- Will help faster/rapid switching.

### Cons

- With no separate DC/DA have less rigour/validation.
- Any signification system outage will have a greater effect on the market.
- Addition of UMS – new process and more costs.
- If aggregation service company goes into administration, will there be an aggregator of last resort.
- May have to break contractual obligations with agents/customers where there are long standing contracts.
- Potentially floored as there isn't a single MPAN level view of consumer consumption. The single market view wouldn't be available until the SVAA which would be a total aggregate position not MPAN specific.

## TOM D: SEPARATE SERVICES

### Description of TOM D

The basis of this TOM is that Retrieval, Processing and Aggregation are kept as separate services. Smart (including non-smart) and Advanced Metering Systems are also separated, reflecting the different ways of communicating with these Meters. The retrieval of readings via the Data and Communications Company (DCC) is also separated out which allows more flexibility in who might deliver that Retrieval Service.

The Smart Meter (and non-smart Meter) Processing Service will also apply conversion where Settlement Period level data is not available before providing access to Settlement Period level data to the Aggregation Service that covers all market Segments. The Aggregation Service will sum up the data provided before providing access to aggregated volumes to a single Volume Allocation Service.

# MARKET-WIDE HALF-HOURLY SETTLEMENT

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## Pros

- Separate services have extra rigour/validation.
- Help facilitate DSR as it has a single view of all the Smart/AMR (NHH/HH) data.

## Cons

- More barriers for entry to the market – PV & Battery companies have the MOP and Agents as barriers as well as the cost barriers of registering export MPANs.
- More touch points to potentially have to “prove” customer consent to access data.
- More hand-offs which introduces more risk.
- Could hinder faster/rapid switching.
- If aggregation service company goes into administration, will there be an aggregator of last resort.

## TOM E: SINGLE CENTRAL SERVICE COVERING RETRIEVAL THROUGH TO VOLUME ALLOCATION

### Description of TOM E

The basis of this TOM is that Retrieval, Processing, Aggregation and Volume Allocation are all provided by a single central Service for Smart and non-smart Meters. Retrieval and Processing for Advanced Meters and Unmetered Supplies are left separate with the option that these services could be competitively or centrally procured.

The central Retrieval and Processing Service will also apply conversion where Settlement Period level data is not available before providing access to Settlement Period level data to the internal Aggregation Service that covers all market Segments. The central Aggregation Service will sum up the data provided before providing access, to aggregated volumes, to the associated Volume Allocation Service.

This TOM has the fewest defined interfaces for the transfer of Meter data.

This TOM is dependent on Ofgem making a policy decision to have single central Settlement service for Smart and non-Smart Meters. Ofgem’s consideration of whether to centralise supplier agent functions is being considered separately to the DWG design work.

## Pros

- Less barriers for entry to the market – PV & Battery companies have the MOP and Agents as barriers as well as the cost barriers of registering export MPANs.
- Least hand offs and provides the greatest level of information to be made available which I think might be useful in the future for allowing innovation to evolve.
- Help facilitate DSR as it has a single view of all the Smart/AMR (NHH/HH) data.
- Will have less of a stress/effect on parties from a PAF/Audit position.
- Will help faster/rapid switching.
- Easier and cheaper reporting as all data is held in one service.
- Combined data could help provide granular data, potentially to a feeder status to assist in the detection of theft or metering issues. This has a potential to help facilitate the future.

# MARKET-WIDE HALF-HOURLY SETTLEMENT

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## Cons

- No separate services potentially mean less rigour/validation.
- Any signification system outage will have a greater effect on the market.
- Would this inclusion of the SVAA into the pot require a re-tendering for this service?
- More work to implement this amount of change.
- May have to break contractual obligations with agents/customers where there are long standing contracts.
- If all reporting is produced from the same central service, there needs to be a way for Suppliers / parties to validate potentially even to a degree of having an external audit for validation purposes.

## Other considerations

- If HH data is taken directly from the metering, current levels of DC/DA validation should no longer be required.
- Cost – single service cost (for the better or worse?) may be absorbed by the market (market share?) with reduced competition that it couldn't be outsourced to a cheaper company.
- In a centralised/end-to-end world – if a company such as Ubertricity brought a solution to market, would they bear the full cost and other companies reap the benefit? Or would there be “bolt on” charges for different companies/solutions – which adds complexity.
- Non-mandated changes – who would bear the cost if certain companies don't want it? What if the change is rejected – does this become a barrier to the other companies that did want it?
- Will all services be signatories? And be entitled to a vote on changes. What about engagement from other companies? Will votes be weighted? If large suppliers don't want a change which get voted through by the smaller companies – the bigger companies will bear the biggest cost?
- Mods obligations vs system changes – if something requires both being changed, would this need to get voted twice like the Gas market? – If so it will add more complexity. This also adds conflict of intent – if the obligation is voted through it could get voted out at system change.
- We would want full testing of end to end processing including invoicing etc. to highlight any system bugs and to provide some assurances on accuracy. The cost of this testing for single service providers could be significant.
- Will require a robust change process with fair voting and contract responsibilities of who pays for what.
- Would the SVAA come up for tender?

# MARKET-WIDE HALF-HOURLY SETTLEMENT

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## APPENDIX 2: DCC RESPONSE

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### Market Half Hourly Settlement (HHS) – Consultation on Target Operating Models

Smart DCC Ltd (DCC) is pleased to submit this response to Ofgem and Elexon's consultation on the Skeleton Target Operating Models for Market Wide Half Hourly Settlement.

#### About DCC

DCC is an experienced and highly skilled delivery body that provides services on behalf of the energy sector. We are responsible for delivering and operating the smart meter data and communication service - a critical part of the Smart Metering Implementation Programme- enabling energy suppliers to install smart meters in 30 million homes and small businesses across Great Britain by the end of 2020.

Working in partnership with the energy industry, the SEC Panel, BEIS and Ofgem, we play a key role in ensuring consumers will benefit from smart meters and a smarter, more flexible energy market. To deliver the smart meter communication service, we have built and implemented a brand new, nationwide, highly secure data and communications infrastructure. This connects smart meters to the business systems of our customers: energy suppliers, network operators and other authorised users, such as third party intermediaries.

It offers a centralised, consistent service for our customers and avoids the complexity and duplicated costs of energy suppliers procuring their own communications networks. The service is critical to the way our customers operate. The DCC infrastructure allows suppliers to remotely carry out crucial functions such as collecting meter readings and updating tariffs and will allow networks to receive power outage alerts.

It also allows price comparison websites to help consumers find the best deal based on their actual energy consumption. It will provide the information that will enable DCC customers to develop innovative new services and products for consumers and enable greater flexibility in the energy system.

Beyond delivering an efficient, economical and secure smart metering communications infrastructure the DCC is obligated to 'Carry on the Mandatory Business in the manner that is most likely to facilitate effective competition between persons engaged in, or in Commercial Activities connected with, the Supply of Energy under the Principal Energy Legislation.' DCC believe that HHS is in line with this obligation by enabling Time of Use tariffs, flexing the demand where it is price sensitive, and in doing so develop a new dimension where service providers can compete. HHS will also allow better matching of retail price with energy generation prices, which will reflect actual costs in end user invoices.

#### DCC Services

DCC operates a highly secure data and communications infrastructure that connects our customer's systems to smart meters. The standardisation, security and consistency of the smart metering system will enable the industry to develop innovative new services and products as part of a rapidly evolving energy system.

At scale, our systems and services will provide:

- Consistent wide area network connectivity with 99.25% in south and central UK, and 99.5% in the north.
- Expansive digital communication services - with capacity to handle an expected 70 million messages per day across over 100 million devices within 30 million premises
- A robust, NCSC (spell it out) endorsed end-to-end security model to encrypt messaging – the largest Public Key Infrastructure in Europe
- Extensive testing facilities supporting the needs of DCC customers, service partners, device manufacturers and wider industry as a platform for innovation

# MARKET-WIDE HALF-HOURLY SETTLEMENT

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Beyond our core services, we are:

- Establishing further market capability that will enable greater security, connectivity, interoperability, functionality and better management of SMETS1 meters
- Supporting Ofgem with the implementation and operation of a Centralised Registration Service which will enable delivery of reliable next working day switching.
- Explore opportunities to enable further innovation and competition in the market, including supporting the work on HHS.

## **DCC position on HHS**

DCC are supportive of Ofgem's ambition to move towards HHS for the domestic market. HHS will provide suppliers with the true cost of their customers' usage in half-hourly periods and incentivise them to take steps to help their customers move their consumption to times of the day when electricity is cheaper to generate. This will build on the platform provided by smart metering to enable a smarter, more flexible energy system that lowers bills, reduces carbon emissions and enhances security of supply. DCC envisage that its data and communications infrastructure will have a central role to play in retrieving the data to underpin the new HHS arrangements. In parallel, we remain focussed on delivering our core services and ensuring that the Smart Metering roll out is complete by 2020.

## **Responding to the consultation**

DCC recognise the hard work undertaken by Elexon and the Design Working Group to develop the skeleton Target Operating Model and we are grateful for the opportunity to respond to the consultation. Having reviewed the consultation questions and Target Operating Models in detail, DCC have chosen to provide an overarching response to the consultation that sets out our key areas of feedback and recommendations. DCC look forward to being part of stage 2 of the Target Operating Model Design Working Groups where greater detail of the services will be developed.

## **Target Operating Models**

DCC welcomes the use of services as the foundation for defining the Target Operating Models, as it provides greater clarity on the activities and roles required to implement HHS, and allows for flexibility in implementation. DCC see advantages in having fewer organisational boundaries within the ecosystem, because a greater number of service boundaries will result in more copies of data being distributed, which will introduce risk to data quality. A more complex model will also introduce more hand over point, increasing the number of potential points of failure. More service providers within the ecosystem may also reduce overall cost effectiveness, due to the requirements for service integration.

DCC recommend that the future procurement approach of HHS services should be considered carefully to reach a more cost effective solution. The choice of TOM should optimise cost and operational effectiveness while keeping flexibility in the commercial approach. DCC are working hard to ensure that flexibility is built in to our commercial approach for CRS procurement and are able to advise on this approach.

## **HHS service definitions**

### *Retrieval service*

In all TOM variants, DCC systems will be fundamental to the Retrieval Service. DCC believe that the design of the retrieval service should take in to consideration the security architecture of the Smart Metering Infrastructure, which allows for Meter reads to be delivered directly to the appropriate persons. DCC recommends that providing access to the retrieved data should therefore form part of the Processing Service, allowing the processing service to directly obtain the data required and remove the need for additional storage of data.

# MARKET-WIDE HALF-HOURLY SETTLEMENT

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## *Processing Service*

DCC agrees with the definition of the processing service, with the exception of the point noted for Retrieval Service. DCC sees advantages to a central Processing Service, as this would ensure standardisation and economies of scale. This will also provide opportunity for a national view of data to be made available for public interest.

## *Aggregation Service*

DCC consider that it is unlikely to be economical for the Aggregation Service to be stand alone. Aggregation should occur close to the source of the data, or at the point when the data is consumed, to remove unnecessary hand offs and risk to data quality. The Aggregation Service should therefore be included as part of the Processing Service or Volume Allocation Service within the next stage of the Target Operating Model design work.

## *Load Shaping Service*

DCC believe that this service would benefit from the use of actual and recent Smart data for settlement purposes, rather than estimates. At the moment Load Shaping uses 2 year old data which may no longer represent current usage in an ever changing energy market.

## **Impact on DCC**

Regardless of the TOM deployed, the implementation of HHS is likely to result in a significant increase in the amount of data transmitted across DCC Systems compared to current forecasts. DCC Systems have been built to accommodate the volume of data originally identified by BEIS in its Volume Projection analysis. Whilst a phased increase in capacity is planned, this is only intended to accommodate the forecast increase in the number of meters connecting to DCC Systems.

The impact on DCC Systems will take the form of an increase in the volume of data traffic and/or increased volatility of demand. These impacts will largely be dictated by two key factors:

- the frequency with which suppliers retrieve meter reads; and
- the method by which suppliers request meter reads.

DCC envisage that the introduction of HHS would increase demand for meter reads beyond the ISFT contracted volumes, and that additional capacity would be required within DCC systems. It would be advantageous for HHS to include a solution that schedules reads at the DCCs Data Service Provider to enable distribution across the day, so that DCC system reliability and resilience can be maintained.

## **Final Comments**

DCC are committed to working with Ofgem and Elexon to further develop the Target Operating Models, as well as ensuring that the new HHS process is cost effective and maximises the existing investment in Smart Metering. We are keen to represent our customers' interests during the upcoming Design Working Groups.

Yours sincerely,

Fabienne Dischamps

Chief Strategy and Product Management Officer