

PUBLIC

# Design Working Group

DWG04/01 - Draft Target Operating  
Models: Finalisation Paper



ELEXON

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# DESIGN WORKING GROUP

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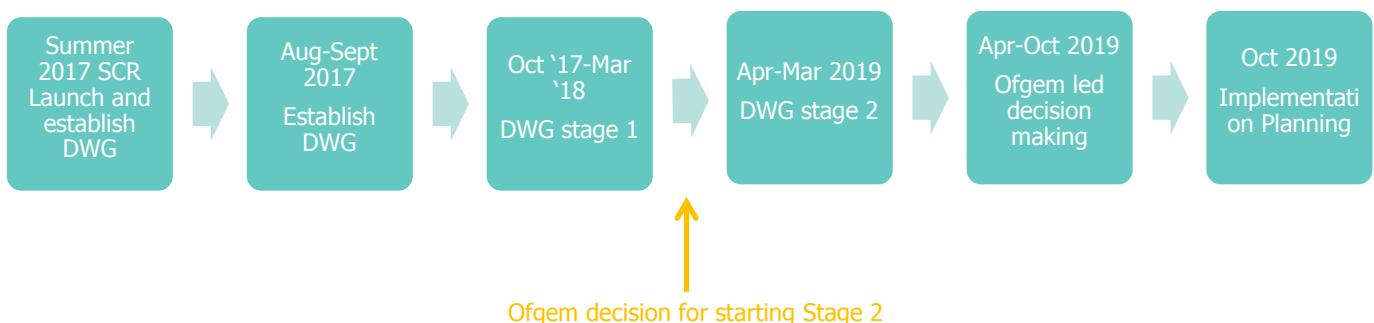
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# DWG: TOM DEVELOPMENT DESIGN WORKING GROUP

## INTRODUCTION

This paper sets out the Target Operating Models (TOMs) development work to date. This work is being undertaken by the ELEXON led Design Working Group (DWG) that is supporting the Ofgem led Significant Code Review (SCR) on Market-wide Half-Hourly Settlement (MHHS).

This paper sets out the DWG approach to development of the TOMs and the rationale for the approach undertaken in TOM development. This paper is presented in report format, as it will form the basis for the final report for Ofgem on Phase 1 of the SCR process. The detailed timeline for the project can be found in the Ofgem SCR Launch Statement [Appendix 1](#). The high level timetable for this project is as follows:



This document covers the key discussions and agreements of three meetings of the DWG (see [ELEXON website DWG](#) for further details on the meetings). It sets out the TOM baseline principles agreed by the DWG and used to develop the TOM service groupings and then the draft TOMs.

## 1. What is a Target Operating Model (TOM) for MHHS?

A TOM for MHHS is a set of services and processes required to deliver Settlement Period (SP) level data from a Meter to a central Settlement body to enable the calculation of the amount of energy a Suppliers customers have consumed for each Settlement Day (SD). This calculation is then used in the Imbalance Settlement process which compares the Suppliers contracted purchases of energy to the amounts deemed to have been consumed (sales) by each Supplier's customers. In optimising the TOMs there will be consideration of the additional benefits that can be realised by having access to such data: for example, for smart grid development, innovation or flexibility offerings. Additionally, it is intended that the TOMs will allow for Settlement timescales to be reduced to provide further benefits (e.g. reduction in credit cover).

## 2. What is the Objective for Stage 1 of the DWG work

Stage 1 of the DWG work is to develop several potential TOMs (Skeleton TOMs) for the end state when most customers will have a Meter capable of delivering SP level data for Settlement purposes. These TOMs will be evaluated to identify the TOM which maximises the benefits and delivers the best fit with the [Design Principles](#) set out by Ofgem.

The evaluated TOMs will then feed into an industry wide consultation which will seek to identify any further detail that can be fed into the evaluations of the optimum TOM.

Stage 1 will not seek to consider the low level detailed processes. For example, such as how data is validated, or how data is estimated when data is missing or invalid. Detailed design will be considered as part of DWG Stage 2.

Additionally Stage 2 will deliver detailed transitional arrangements to the TOMs. This will be consulted on as part of Stage 2.

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## 3. What are the high level steps in the TOM development process for Stage 1

The high level steps as follows and progress so far is set out in this document:

- Step 1:** Define all the processes that are required to deliver MHHS;
- Step 2:** Group the defined process in to high level activities;
- Step 3:** Identify the high level type of Service required to deliver the high level activities;
- Step 4:** Identify ways in which Services could be group for delivery by a Market Role;
- Step 5:** Define a set of TOMs that can be evaluated; and
- Step 6:** Evaluate each TOM against the Evaluation Criteria and Design Principles.

The evaluated TOMs will be the final deliverable for Ofgem for DWG Stage 1. It will also be used for the consultation in Stage 2.

## 4. Strawman TOMs: Initial presentation to the DWG

As part of the preliminary TOM development work, ELEXON developed a number of strawman TOMs for illustration purposes and discussion by the DWG. An example strawman for a TOM with a 'smart agent' role (covers both NHH and HH settlement processes) is shown below in Figure 1.

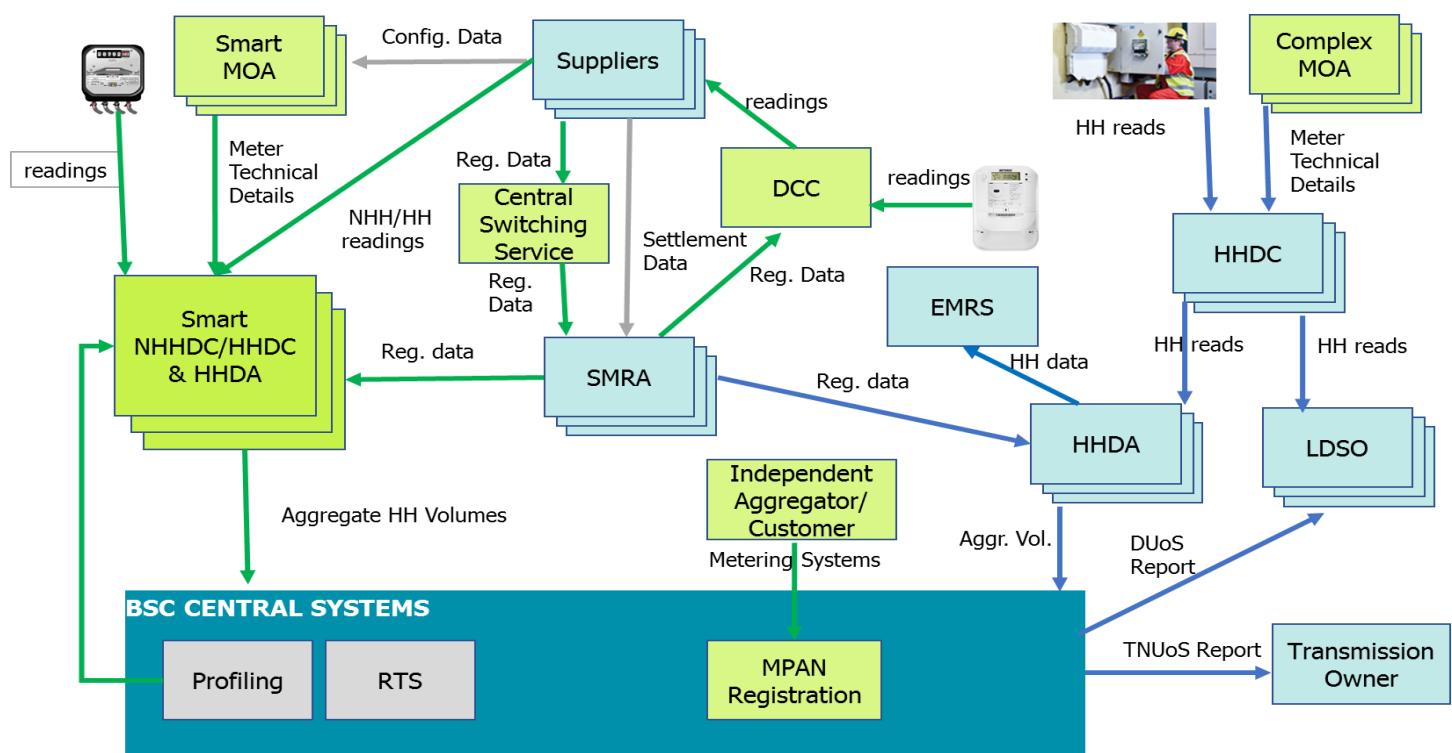


Figure 1: Example Strawman TOM

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## DWG MEETING SUMMARIES

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### 5. DWG Meeting 1, 11 October 2017

At the first meeting ELEXON presented the Terms of Reference for the DWG and the [Design Principles](#) set out by Ofgem in the SCR Launch. ELEXON also presented a number of working documents for use by the DWG in the TOM development.

ELEXON presented an initial set of five strawmen TOMs for illustration and discussion. The DWG noted a separate TOM has been developed for unmetered supplies. The draft strawmen and descriptions can be found in Attachment A to this paper.

The DWG discussed the strawmen TOMs. The DWG decided to take a step back and start from first principles when designing the TOM and it was agreed that the way to do this would be done through a 'use case' model for each of the five market segments:

- a) Smart meter with Settlement Period (HH) data available;
- b) Smart meter without HH data available;
- c) non-smart meter without HH capability;
- d) traditional HH (advanced meters); and
- e) unmetered supplies.

These categories cover all Meter and data combinations that exist in the current arrangements that any TOM will need to accommodate. The DWG also agreed some amendments to the [Settlement Roles and Responsibilities](#) document that mapped existing processes to current roles.

The DWG asked ELEXON to present a 'use case' approach, starting from a first principles approach to identify the draft viable strawman TOMs with the DWG.

Following the first meeting ELEXON set out the key processes grouped by activity classification for each of the market segments such that the use cases for each could be assessed.

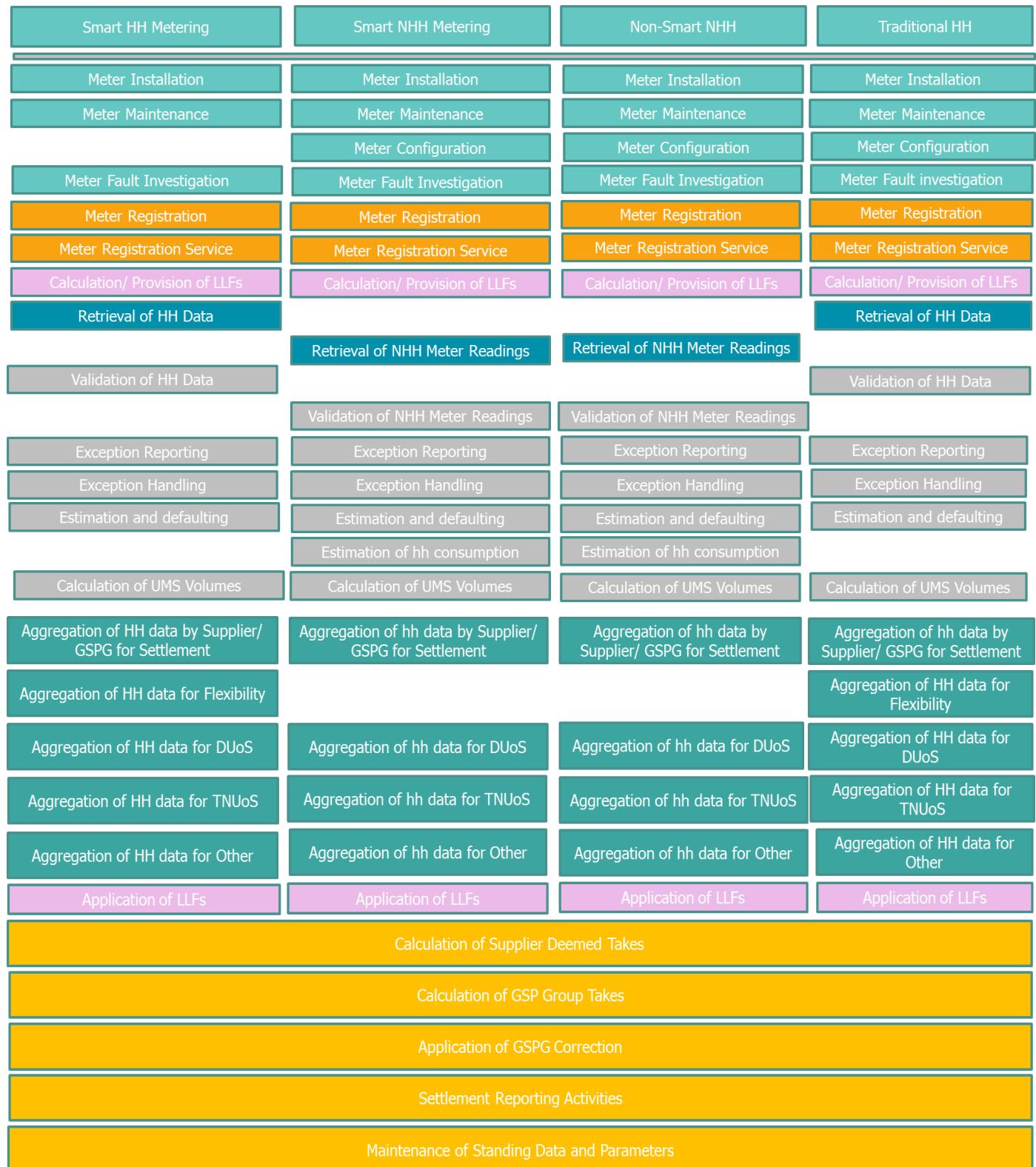
#### Key to Process Map

The following colour key has been used for the existing process map:



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The process map for each sector can be seen in Figure 2 below.



**Figure 2: MHHS process mapping by market segment**

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## 6. DWG Meeting 2, 15 November 2017

At the second meeting, ELEXON presented a number of potential services that could deliver the processes set out in Figure 2. Generic terminology is being used for these services (so they do not get confused with existing BSC services, current agent roles and service providers):

Key	
"Market Service"	
"Supplier"	Red
"Registration Service"	Yellow
"Metering Service"	Yellow
"Data Processing Service"	Green
"Aggregation Service"	Blue
"Volume Allocation Service"	Blue
"Standing Data Service"	Orange
"Distribution Losses Service"	Dark Blue
"Load Shape Service"	Purple

ELEXON presented options for mapping these services to the market activities defined for smart Meters with Settlement Period (SP) data. The DWG agreed the potential mappings of the Services to activities, see Figure 3 below:

Registration Activities	Responsible Party					
Meter Registration	Red					
Appoint Supplier Services	Red					
Provide Registration Service		Yellow				Orange
Maintenance of Standing Data		Yellow		Green		Orange
Calculation/ Provision of LLFs					Orange	Dark Blue

Metering Activities	Responsible Party					
Meter Installation			Yellow			
Meter Maintenance			Yellow			
Remote Meter Configuration	Red					
On-Site Meter Configuration			Yellow			
Meter Fault Investigation			Yellow			

Data Retrieval Activities	Responsible Party					
Retrieval of Register Readings	Red			Green		
Retrieval of Period Data	Red			Green		

Data Processing Activities	Responsible Party					
Validation of Data	Red			Green		
Exception Reporting				Green		
Exception Handling	Red			Green		
Estimation and Substitution	Red			Green		
Conversion to 'HH-Derived' Consumption				White		

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Aggregation Activities	Responsible Party			
Settlement Exception Reporting			Green	Blue
Aggregation of HH data for Settlement			Green	Blue
Aggregation of HH data for Flexibility			Green	Blue
Aggregation of HH data for DUoS			Green	Blue
Aggregation of HH data for TNUoS			Green	Blue
Aggregation of HH data for Other			Green	Blue
Application of LLFs			Green	Blue

Volume Allocation Activities	Responsible Party			
Calculation of Supplier Deemed Take				Blue
Calculation of GSP Group Takes				Blue
Application of GSPG Correction				Blue
Settlement Reporting Activities				Blue
Maintenance of Standing Data				Blue

**Figure 3: Potential mappings of the MHHS services to activities**

## DWG Group workshop on 'Use Case' for other Meters by data collection method

The DWG split into three subgroups and each subgroup identified the optionality for process activities within each of the other segments. ELEXON presented the findings of the workshops. The DWG noted that some activities had single 'Use Case' such as Registration and Metering Services, i.e. there was only a single service or service combination that could deliver these Services. It was noted that there was commonality of optionality for process activities between the Smart Meter Settlement Period segment and the Smart Meter with Register Reads segment simply because the Meter was the same in both sectors. The DWG agreed that the differentiation was mainly around the following activities:

- data retrieval;
- data processing; and
- data aggregation activities.

## Use Case: collation and DWG walkthrough

ELEXON collated the workshopped activities and presented them back to the DWG. The key findings were that the mappings of some market services to activities were common to all segments (Registration, Metering Services and Volume Allocation activities). The DWG discussed standing data requirements in context of Meter registration data or other standing data that would be required for Settlement purposes. It was agreed it meant standing data for registration was 'data that was required in relation to a metering point'.

The DWG discussed potential groupings of data processing activities noting that sub-processes such as validation and estimation varied by sector, noting that these would be discussed in detail as part of Stage 2. The output from the workshop can be seen in Figure 4 below.

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Activity	"Smart SP-Level"	"Smart RR-Level"	"Non-Smart RR"	"Advanced SP"	Unique Use Cases
<b>Registration Activities</b>					
Meter Registration	Supplier	Supplier	Supplier	Supplier	1
Appoint Supplier Services	Supplier	Supplier	Supplier	Supplier	1
Provide Registration Service	Registration Service	Registration Service	Registration Service	Registration Service	1
Maintenance of Registration Data	Registration Service	Registration Service	Registration Service	Registration Service	1
Maintenance of Reference Data	SDS	SDS	SDS	SDS	1
Calculation/ Provision of LLFs	DLS / SDS	DLS / SDS	DLS / SDS	DLS / SDS	1
<b>Metering Activities</b>					
Meter Installation	Metering Service	Metering Service	Metering Service	Metering Service	1
Meter Maintenance	Metering Service	Metering Service	Metering Service	Metering Service	1
Maintain Meter Asset Data	MS / RS	MS / RS	MS / RS	MS / RS	1
Remote Meter Configuration	N/A	Supplier	N/A	Metering Service	2
Commissioning, Proving and Maintenance	Metering Service	Metering Service	Metering Service	Metering Service	1
On-Site Meter Configuration	N/A	N/A	Metering Service	Metering Service	1
Meter Fault Investigation	Metering Service	Metering Service	Metering Service	Metering Service	1
<b>Data Retrieval Activities</b>					
Retrieval of Register Readings	N/A	Supplier / Data Service	Supplier / Data Service	N/A	1
Retrieval of Period Data	Supplier / Data Service	N/A	N/A	Data Service	2
<b>Data Processing Activities</b>					
Validation of Data	Data Service	Data Service	Data Service	Data Service	2
Exception Reporting	Data Service	Data Service	Data Service	Data Service	2
Exception Handling	Supplier / Data Service	1			
Estimation and Substitution	Data Service	Data Service	Data Service	Data Service	1
Conversion to 'HH-Derived' Consumption	N/A	Data Service, LSS	Data Service, LSS	Data Service, LSS	1
<b>Aggregation Activities</b>					
Settlement Exception Reporting	Aggregation Service	Aggregation Service	Aggregation Service	Aggregation Service	1
Aggregation of HH data for Settlement	Aggregation Service	Aggregation Service	Aggregation Service	Aggregation Service	1
Aggregation of HH data for Flexibility	Aggregation Service	Limited?	Limited?	Aggregation Service	2
Aggregation of HH data for DUoS	Aggregation Service	Aggregation Service	Aggregation Service	Aggregation Service	1
Aggregation of HH data for TNUs	Aggregation Service	Aggregation Service	Aggregation Service	Aggregation Service	1
Aggregation of HH data for Other	Aggregation Service	Aggregation Service	Aggregation Service	Aggregation Service	1
Application of LLFs	Aggregation Service	Aggregation Service	Aggregation Service	Aggregation Service	1
<b>Supplier Volume Allocation</b>					
Calculation of Supplier Deemed Take	Volume Allocation Service	Volume Allocation Service	Volume Allocation Service	Volume Allocation Service	1
Calculation of GSP Group Takes	Volume Allocation Service	Volume Allocation Service	Volume Allocation Service	Volume Allocation Service	1
Application of GSPG Correction	Volume Allocation Service	Volume Allocation Service	Volume Allocation Service	Volume Allocation Service	1
Settlement Reporting Activities	Volume Allocation Service	Volume Allocation Service	Volume Allocation Service	Volume Allocation Service	1
Provision of Load Shape Services	LSS	LSS	LSS	LSS	1

**Figure 4: DWG Workshop mapping MHHS Services to Activities**

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## 7. DWG Meeting 3, 13 December 2017

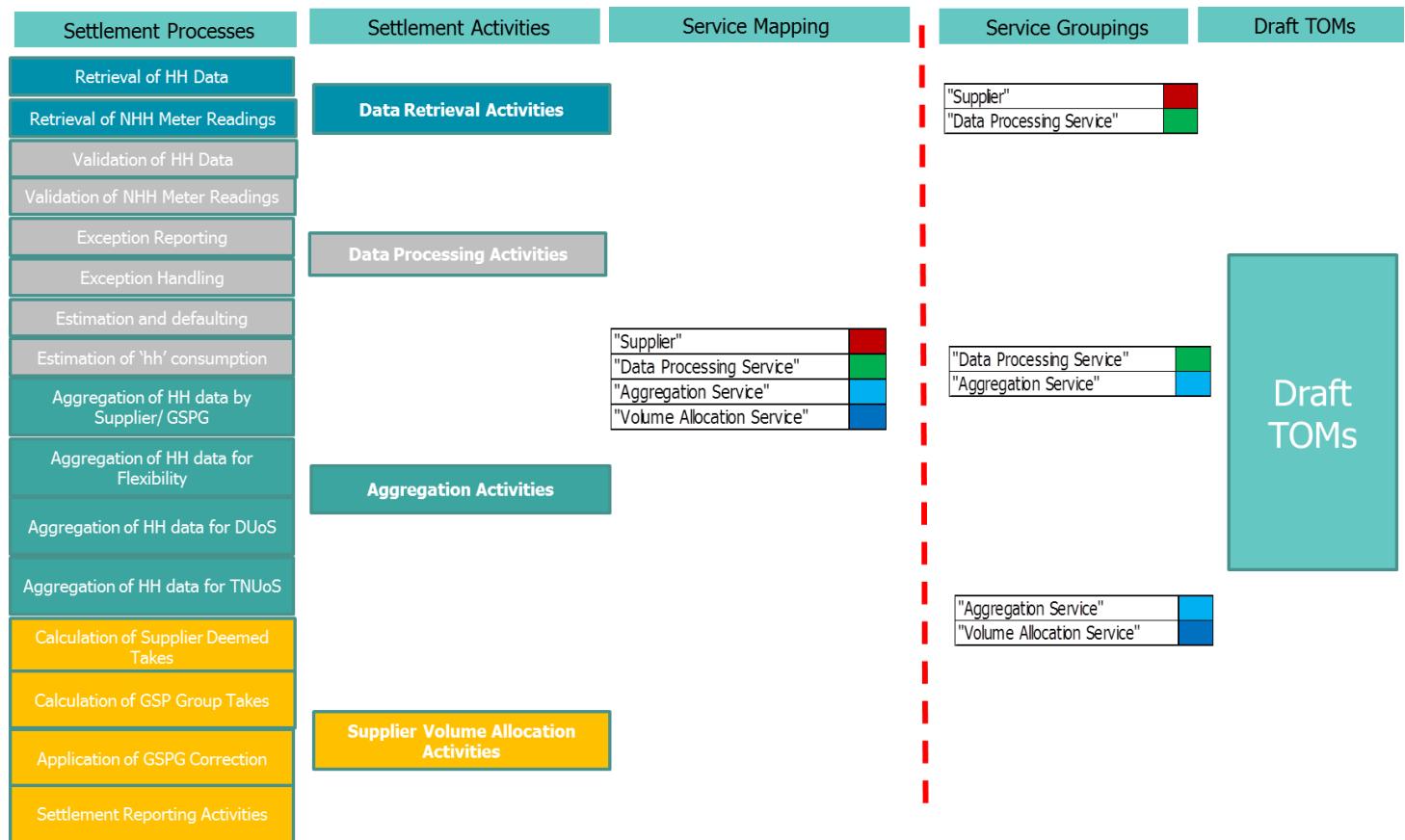
### TOM Baseline Principles: Foundation for development

ELEXON proposed a number of 'agreements in principle' for the DWG to use in the development of strawman TOMs. This helped the DWG consider how services could be grouped and to discount certain options (e.g. the retention of existing NHH processes). The DWG agreed the proposed agreements in principle with a few amendments. The baseline principles agreed by the DWG; are that the Market-wide Half-Hourly Settlement (MHHS) TOMs will:

1. be optimised for the longer term 'target state' where the majority of meters will be Smart or Advanced meters. Any meter not either of these should be managed as part of the transitional arrangements;
2. only consider as transitional states (and not the final TOM option) any designs that use the existing Elective HH and Non Half Hourly (NHH) settlement arrangements;
3. cover HH meter data (Active Import and Active Export) for Settlement purposes only. While non-settlement activities (such as billing) are out of scope, the design will aim not to be actively detrimental to these;
4. aim to design out elements of the existing Non-Half Hourly (NHH) profiling process such as the use of Annualised Advances (AAs) and EACs (EACs) in aggregation;
5. aim to have at least one TOM aligning with the policy developments for data privacy and consideration of agent functions;
6. not consider technology or architecture factors at this stage;
7. consider any new Unmetered Supplies arrangements only once a framework is in place for the metered segments of the market so as not to constrain the possibilities for the TOM design; and
8. not consider Settlement timescales until TOM options have been further developed.

The DWG then agreed the following approach to be taken at the meeting to develop the TOM options for Service Groupings. This is best illustrated by the following example showing the journey from process and activities to service mappings (see Figure 5 below):

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**Figure 5: MHH Settlement Processes to Service Groupings**

## TOM Options: Service Groupings

The service mapping exercise provided an insight into which services were likely to be provided by a single service 'type'. For example, all metering activities could be provided by a Metering Service rather than a combination of Services. Some services needed greater detail on the rest of the TOM areas, for example data hand-offs for such services could not be identified at this stage. Services with single use cases or ones that needed other services to be defined first and were not considered in development of the Service Groupings.

These included:

"Registration Service"	Yellow
"Metering Service"	Yellow
"Distribution Losses Service"	Dark Blue
"Unmetered Supplies Service"	Purple
"Standing Data Service"	Orange
"Load Shaping Service"	Black

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The DWG were asked to define the options for grouping services for Meter to Bank (MtoB) for each of the segments based on a matrix setting out the process activities from retrieval to volume allocation. ELEXON presented the following example matrix to the DWG can be seen in Figure 6 below:

M2B 4x4	Retrieval Service	Processing Service	Aggregation Service	Volume Allocation Service
Smart Meter (whole current, DCC serviced)	Retrieve Period Data	Validate period data Correct errors replace missing data	Report exceptions Produce HH aggregation files Send Settlement Reports	Get GSPG metering Calculate deemed takes Apply losses and corrections Send reports
Smart Meter (whole current, DCC serviced)	Retrieve Register Readings	Validate readings Get load shape data Derive period data	Report exceptions Produce HH aggregation files Send Settlement Reports	Get GSPG metering Calculate deemed takes Apply losses and corrections Send reports
Advanced Meter (CT)	Retrieve Period Data	Validate period data Correct errors replace missing data	Report exceptions Produce HH aggregation files Send Settlement Reports	Get GSPG metering Calculate deemed takes Apply losses and corrections Send reports
Non-Smart NHH Meter	Visually Read Meter Registers	Validate readings Get load shape data Derive period data	Report exceptions Produce HH aggregation files Send Settlement Reports	Get GSPG metering Calculate deemed takes Apply losses and corrections Send reports

**Figure 6: Example Meter to Bank process Service Grouping**

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## HIGH LEVEL TOMS: DWG MEETING 3 TOM OUTPUT

### DWG considerations when identifying where services can be grouped or separated

At the third DWG meeting the DWG considered the service groupings to construct the draft TOMs. This section provides a summary of these considerations.

The DWG started from the basis that the Services from the earlier Activity mapping exercise would be separately defined so that market participants would have maximum freedom in how these might be organised and delivered. Another reason was the fact that retrieval of HH data from Smart meters could be separated from the processing of that data, a separation that was not possible under the existing Agent role definitions, where a HH Data Collector is responsible for obtaining meter readings and validating, processing or estimating the HH advances.

In considering a TOM with four separately defined Services, the DWG noted that Aggregation (as currently defined) in the traditional (Advanced) HH market is an extension of Processing. Therefore, there was less justification for maintaining this as a separate service, if it was simply the aggregated output from individual Processing services. Any defined Aggregation Service would best sit across the whole HHS market, with MPAN level meter data as input.

The DWG also approached the Advanced HH market segment with the principle that any change from the current baseline would largely be driven by the design choices taken in the Smart Meter segment. That is, the DWG felt that there was little reason for changing the process to address any obvious defects. However, the DWG noted that the existing split of HHDC and HHDA into separate roles was not necessary for the MHHS TOMs. Previously, the NHH arrangements required this split because NHHDAs use common ELEXON-provided software and therefore there is a clearly defined interface between NHHDCs and NHHDAs. Furthermore, in some cases NHHDAs hold data for more than one NHHDC for the same settlement dates. As the new TOMs propose to dispense with EACs and AAs, the Aggregation service will largely be a summation across the MPAN portfolio held by the Data Processing service in a set of defined categories.

For the centralised options (TOMs D and E), the DWG noted that a single 'Retrieval to Volume Allocation' service was possible for Smart Meters, but that this option had less clear benefits from the Advanced HH market where competitive Data Processing services already exist. Therefore, any TOM based on a centralised model would need to integrate the Advanced segment in a way that left the existing 'Retrieval + Processing' services intact. Such a TOM would then need to use common market-wide Aggregation and Volume Allocation for both segments.

When considering services across market segments, the DWG felt that, even though some services like Processing could look very similar for Smart with HH data and Advanced meters as many of the rules would be common, it was safer to leave these as separate services until the detailed requirements for each service became clearer. For TOMs which combined Retrieval and Processing, this automatically separated the Smart and Advanced segments as the rules for retrieving settlement data from meters was almost certain to differ due to the former using the DCC.

When considering which of the separately developed Advanced meter TOMs would fit best with the Smart Meter ones, the DWG chose only those which were consistent with the service grouping decisions taken for the latter. Consequently there is typically only one Advanced TOM that is compatible with each Smart Meter TOM as the others apply fundamentally different groupings or definitions of services that do not align with those for Smart meters.

The following section depicts the high level TOMs in diagrammatical form developed at the third DWG meeting. These include the service grouping diagrams together with commentaries and a business process model depiction for each TOM.

### For DWG meeting 4 agreement

The DWG is invited to agree this is an accurate reflection of the considerations to date of the DWG development of the draft TOMs.

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## TOM A: Combined Retrieval and Processing with Market Wide Aggregation

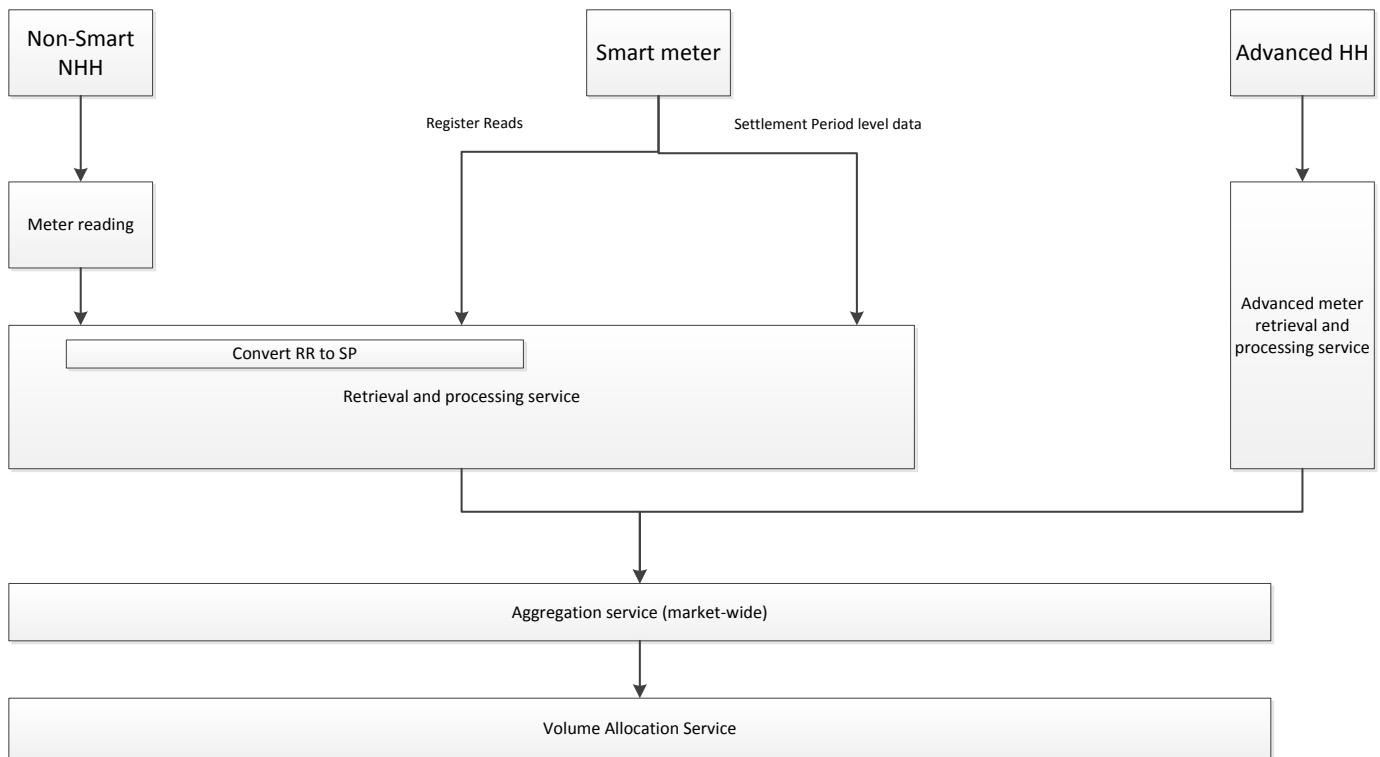
M2B TOM A	Retrieval Service	Processing Service	Aggregation Service	Volume Allocation Service
Smart Meter with HH data				
Smart Meter without HH data		Smart Meter Retrieval and Processing Service	Aggregation Service (Market Wide)	Volume Allocation Service
Advanced Meter TOM I	Advanced Meter Retrieval and Processing Service			

### DWG discussion on TOM A

- The basis of this TOM is that Retrieval and Processing are bundled into a single service, one for Smart and one for Advanced, reflecting the different ways of communicating with these meters. The Smart service will also apply conversion where HH data is not available before outputting HH-level data to a market wide Aggregator, who will sum up the data across the whole market before feeding aggregated volumes to a single Volume Allocation Service.
- While much of the Processing of HH data is likely to be similar between the Smart and Advanced meter segments, these are also defined separately because of the need to convert meter or register advances into HH period data for SMETS meters (e.g. for opt out customers) which is not required for Advanced.
- This TOM means would mean a minor change to the existing HH market, as the Data Aggregation function at a Supplier level would no longer be the route into settlement. However, the Retrieval/Processing service will still be able to provide aggregated volume reports to Suppliers for non-Settlement purposes such as billing reconciliation.
- The DWG also noted that a variant on this service grouping could be where retrieving and processing Smart meters without HH data is separated out as a distinct service, leaving Smart with HH data closely aligned with Advanced. The conversion of register reading data into HH period data is likely to be a relatively small, distinct subset of Smart Meter Processing, and so the DWG felt that it may not require defining this as a wholly separate service.

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## TOM A: Business process model: Combined Retrieval and Processing with Market Wide Aggregation



### Features:

- A single aggregation service (subject to Ofgem policy decisions) means all the SP-level data would be aggregated centrally, thus facilitating independent aggregators (demand-side response), peer-to-peer, system operation by DNOs, data for network charging
- The significant difference from the status quo is the centralisation of the aggregation service. All other functions could easily be performed by existing providers.

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## TOM B: Combined Processing and Aggregation with Retrieval as a separate service

M2B TOM B	Retrieval Service	Processing Service	Aggregation Service	Volume Allocation Service
Smart Meter with HH data				
Smart Meter without HH data	Smart Meter Retrieval Service		Smart Meter Processing and Aggregation Service	Volume Allocation Service
Advanced Meter TOM II		Advanced Meter Retrieval, Processing and Aggregation Service		

### DWG discussion on TOM B

The basis of this TOM is that Processing and Aggregation are bundled into a single service for Smart meters, with retrieval of readings via the DCC being separated out to allow more flexibility in who might deliver that service.

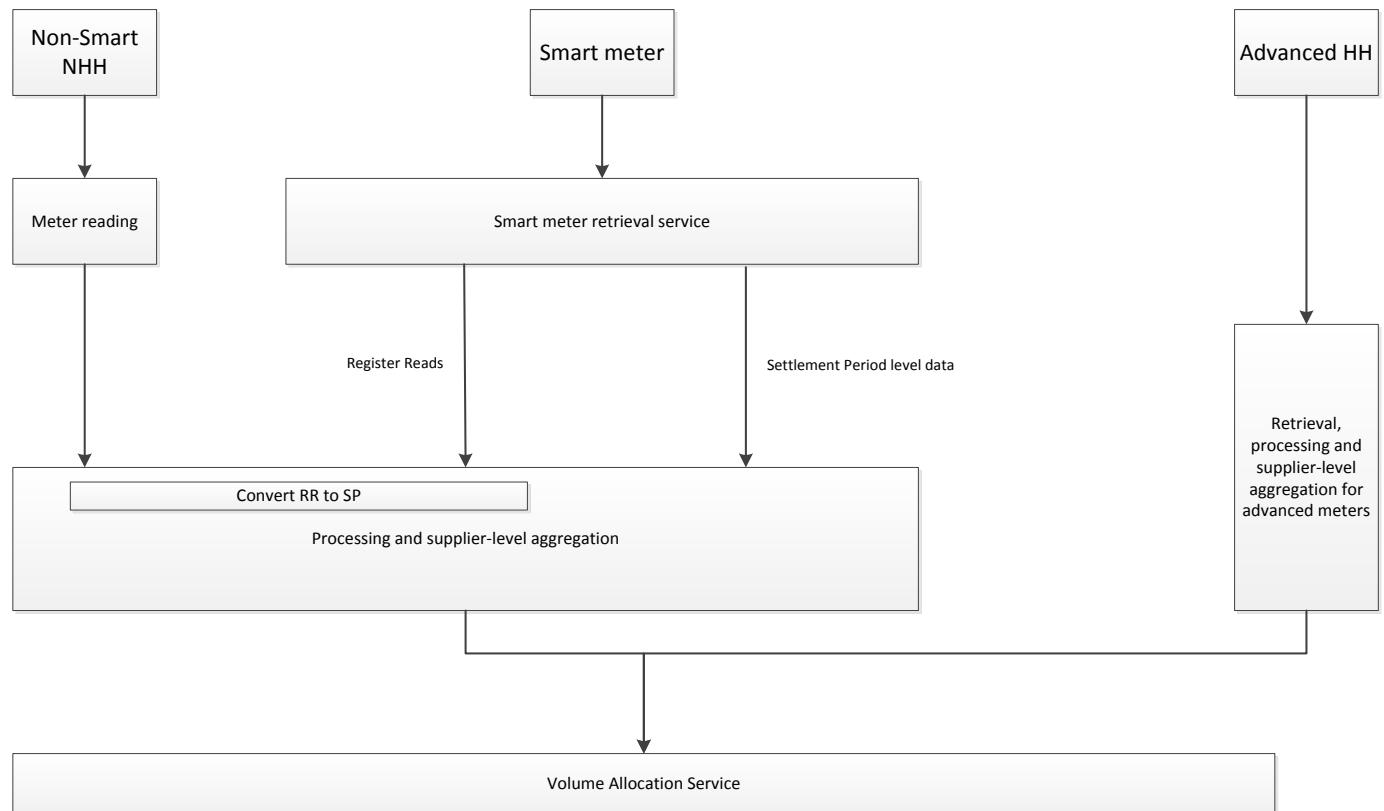
With Aggregation done as part of Processing, it means that with multiple Processing Services operating the data will be aggregated first before reaching the Volume Allocation Service which covers the whole market. That would mean that there is no single market wide view of MPAN-level data should it be required for demand-side response or other activities that require access to this data. To mitigate this, a separate view of market-wide MPAN level data would have to be obtained or accessed from all the Processing services operating in the market.

As with TOM A, the Smart Processing and Aggregation service will apply conversion where HH data is not available but in this TOM will aggregate data for the Volume Allocation service. Advanced metering is left more or less as the status quo, but with collection and aggregation combined.

This TOM could also be varied to split the service that processes register readings from the one that does HH data.

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## TOM B: Business process model: Combined Processing and Aggregation with Retrieval as a separate service



### Features:

- Volume Allocation service is procured centrally.
- No significant differences in market structure from the status quo hence functions could easily be performed by existing providers.

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## TOM C: Single E2E service covering Retrieval through to Aggregation

M2B TOM C	Retrieval Service	Processing Service	Aggregation Service	Volume Allocation Service
Smart Meter with HH data				
Smart Meter without HH data		Smart Meter Retrieval, Processing and Aggregation Service		Volume Allocation Service
Advanced Meter TOM II		Advanced Meter Retrieval, Processing and Aggregation Service		

### DWG discussion on TOM C

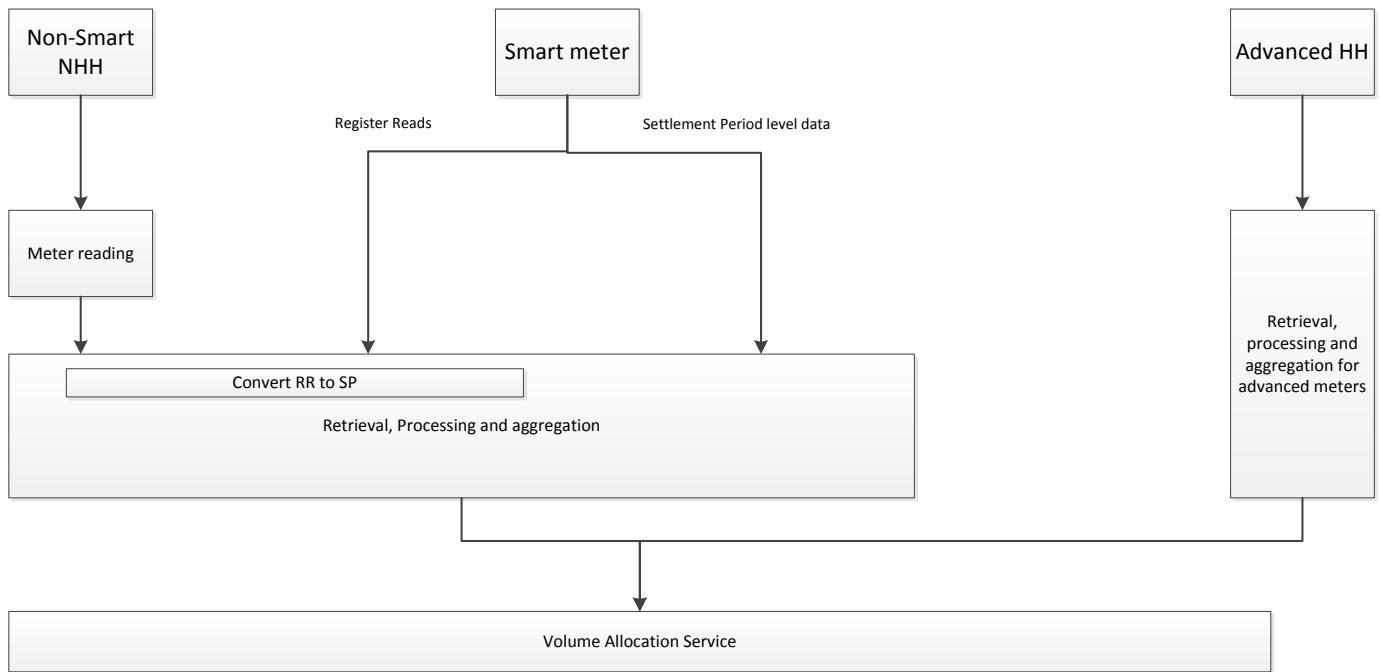
The basis of TOM C is that there is a recognition that the current market roles of Data Collection (including Retrieval) and Aggregation are most commonly done by the same organisation in the existing HH Advanced market. The 'DC/DA split' was largely a function of the NHH market where aggregation was done using complex rules and using instructions from the NHHDC containing Annualised Advanced and Estimated Annual Consumption. NHHDAs also use the Party Agent software supplied by ELEXON and so there was a natural separation on that basis as well. However, in an all HH market, that split is less significant, and so the natural consequence is a combined DC/DA (DR/DP/DA) service.

TOM C also offers the fewest handoffs between service providers as they are likely to be done within the same organisation (although some might outsource Smart Meter Retrieval while still being the official Retrieval service).

Again, the DWG noted that TOM C could be varied to split the service for register readings from that for HH data.

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## TOM C: Business process model: Single E2E service covering Retrieval through to Aggregation



### Features:

- Combination of Retrieval, Processing and Aggregation reduces hand-offs, potentially reducing data quality issues.
- Volume Allocation service is procured centrally.
- Combining retrieval, processing and aggregation service means a provider must be responsible for all three services.

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## TOM D: Separate services for maximum optionality with Market Wide Aggregation

M2B TOM D	Retrieval Service	Processing Service	Aggregation Service	Volume Allocation Service
Smart Meter with HH data				
Smart Meter without HH data	Smart Meter Retrieval Service	Smart Meter Processing Service	Aggregation Service (Market Wide)	Volume Allocation Service
Advanced Meter TOM I	Advanced Meter Retrieval and Processing Service			

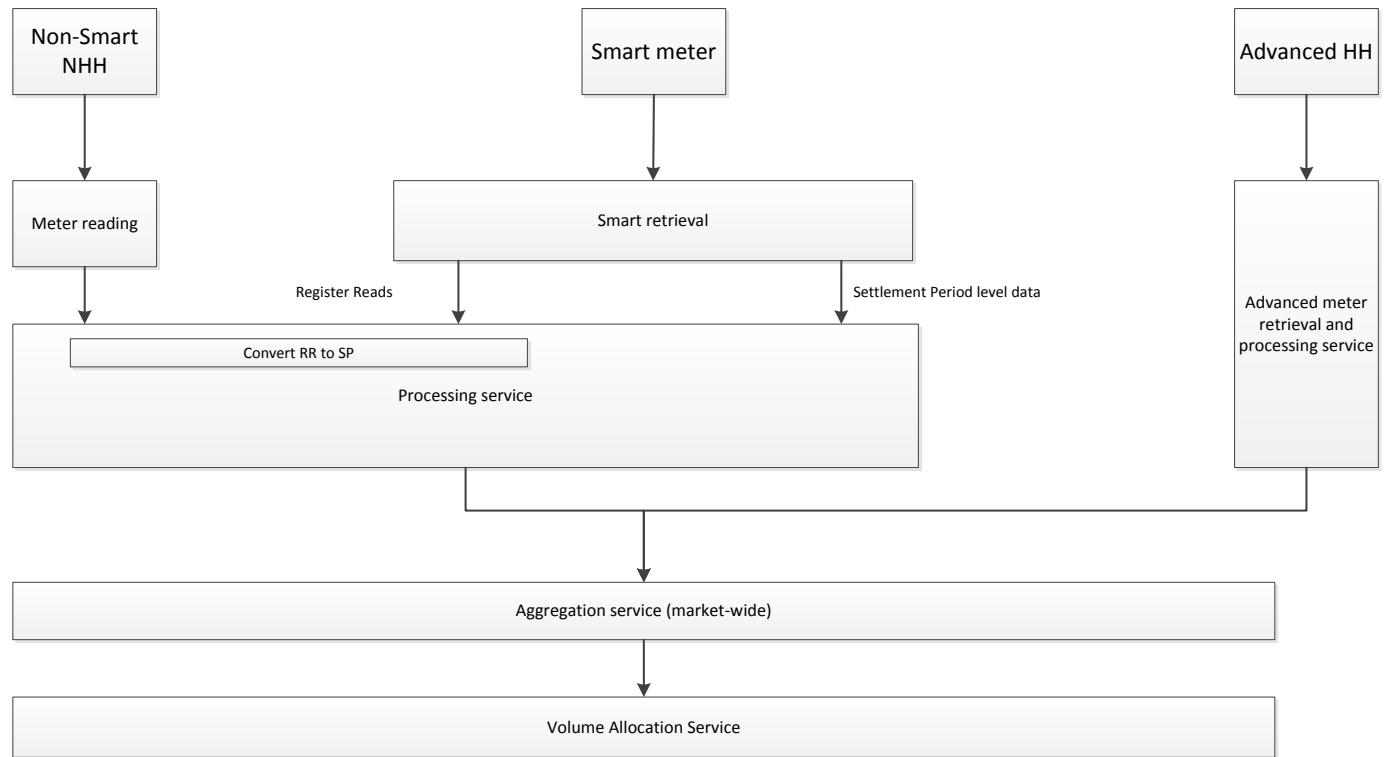
### DWG discussion on TOM D

The basis of this TOM is that the four essential 'Meter to Bank' services identified in meeting 2 are all left separate to allow the maximum amount of optionality in how these are delivered in a new 'all-HH' market. As a consequence of this, Aggregation has been explicitly defined as a Market Wide service only. The DWG noted that the Smart Meter Processing Service could further be split into two services on the basis that the conversion of register or meter read advances into HH data was a bespoke activity, without which the Smart segment would look quite similar to the Advanced HH processes.

However, the DWG felt that separating Retrieval from Processing in the Advanced meter segment was not practical as processor needs access to the Meter for validation purposes. Equally, because Smart meters are read via the DCC and access is governed under the Smart Energy Code (SEC), the DWG felt that by making Retrieval a defined service under the BSC, it would offer flexibility should the eventual providers of that service need to accede to the SEC. This TOM would also support a market wide Retrieval service that is independent of Processing.

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## TOM D: Business process model: Separate services for maximum optionality with Market Wide Aggregation



### Features:

- Centralised aggregation means all the SP-level data would be aggregated centrally, thus facilitating independent aggregators (demand-side response), peer-to-peer, system operation by DNOs, data for network charging.
- Market-wide services (Aggregation and Volume Allocation) require centralisation however minimal grouping means maximum opportunity for competition in the provision of the other services.
- The significant difference from the status quo is the centralisation of the aggregation service.

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## TOM E: Single E2E central service covering Retrieval through to Volume Allocation

M2B TOM E	Retrieval Service	Processing Service	Aggregation Service	Volume Allocation Service
<b>Smart Meter with HH data</b>				
<b>Smart Meter without HH data</b>	Smart Meter Centralised Retrieval, Processing and Aggregation Service (Market Wide, Single instance)			Single Central Aggregation and Volume Allocation Service (Market Wide)
<b>Advanced Meter TOM III</b>	Advanced Meter Retrieval and Processing Service			

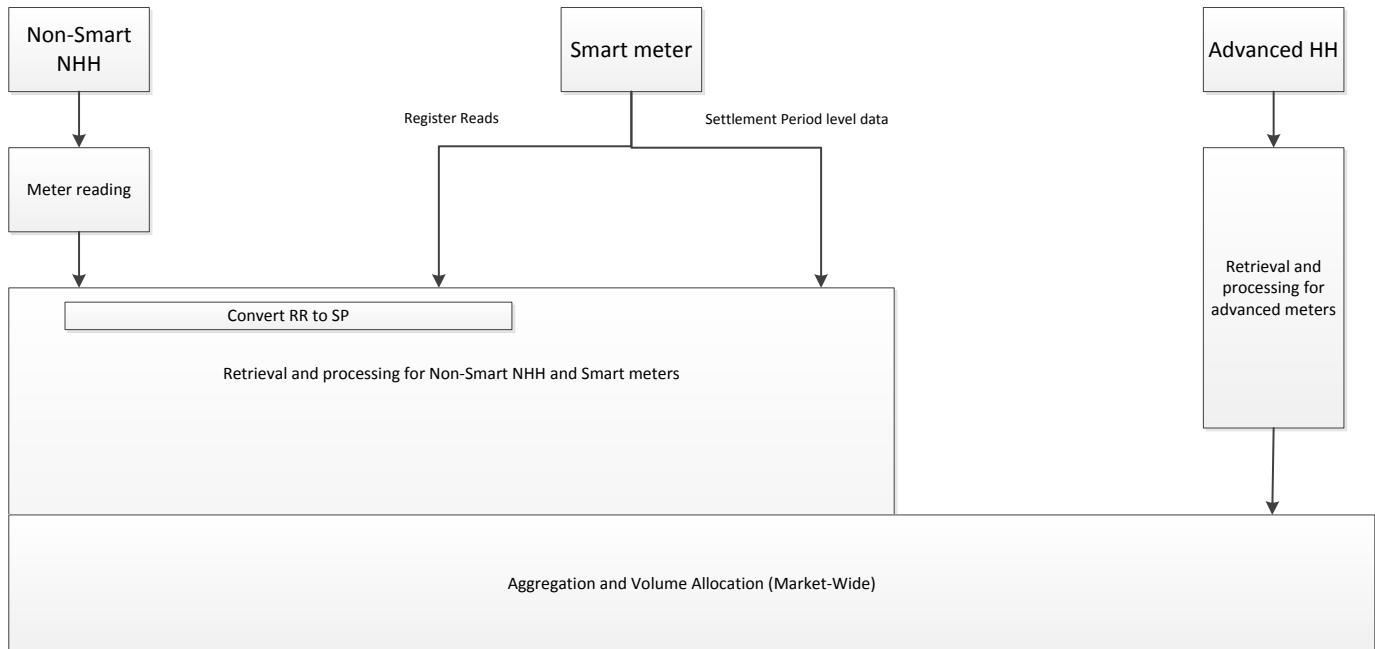
### DWG discussion on TOM E

This TOM is based on a single central service for Smart Meters that could retrieve readings via the DCC, process, aggregate and provide Volume Allocation services. For Advanced Meters, the DWG didn't think this E2E option was practical, but agreed that the Aggregation and Volume Allocation elements of the single central service could be used for Advanced meters, leaving Retrieval and Processing similar to what HHDCs currently do in this sector.

As with any centralised option, the DWG noted that controls would have to be in place to ensure that data access and security concerns were addressed.

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## TOM E: Business process model: Single E2E central service covering Retrieval through to Volume Allocation



### Features:

- Centralised aggregation means all the SP-level data would be aggregated centrally, thus facilitating independent aggregators (demand-side response), peer-to-peer, system operation by DNOs, data for network charging...
- Combination of Retrieval, Processing, Aggregation and Volume Allocation reduces hand-offs, potentially reducing data quality issues.
- Market-wide services (Aggregation and Volume Allocation) require centralisation so combining this with data retrieval and processing for smart/non-smart meters reduces options for competition in the provision of these services.
- This TOM requires one centralised provider executing data retrieval, processing, aggregation and volume allocation services.