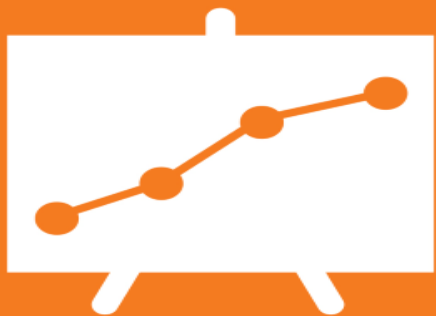


Design Advisory Board

Meeting 6



Anna Stacey
27/11/2018

1. Welcome & meeting overview (Ofgem)
2. Update on action items from the previous meeting (Ofgem)
3. Network charging and TOM interaction (Ofgem)
4. Review of the DWG evaluation of the TOM option/outlining the preferred TOM (ELEXON)

Lunch

6. Architecture options (ELEXON)
7. The starting point for transition (ELEXON)

- Update the DAB on the TOM design work
- Update the DAB on future network charging options and the interaction with the TOM
- Review of the DWGs preferred TOM option
- A presentation on architecture options
- A discussion on the starting point for transition

Update on action items

Action item	Status
Ofgem to meet with Chris Allanson to discuss how to manage interaction between DSO transition and settlement reform	To be completed
ELEXON to send the DAB updated feed in tariff (FIT) PV spill model using 2018 FIT data	Completed
Ofgem to organize a discussion with the DAB to have a talk on future technology (including blockchain) and how they could interact or be used in settlement	To be completed
The DAB to discuss the starting point for the transition to the TOM in the next meeting	Update to be provided in this meeting
The next DAB meeting to include an item on the interaction between settlement reform and the Charging Futures Forum	Update to be provided in this meeting

Update on action items

Action item	Status
Ofgem and ELEXON to consider how technology can reduce the timing for the first settlement run (below ten days) and if this is not possible, how a reduced timing could be transitioned into using a phased approach at the end state	To be completed
Consider if statistical approaches can reduce how much data is needed to create load shapes for forecasting (i.e. is 1/30 th of all consumption data enough – will it be useful to treat the load shape as a deviation from the long-run average rather than creating from scratch each day?) and discuss with Graham Oakes	To be completed
ELEXON to look into whether dispute run data can help inform consideration on the appropriate settlement timetable	To be completed

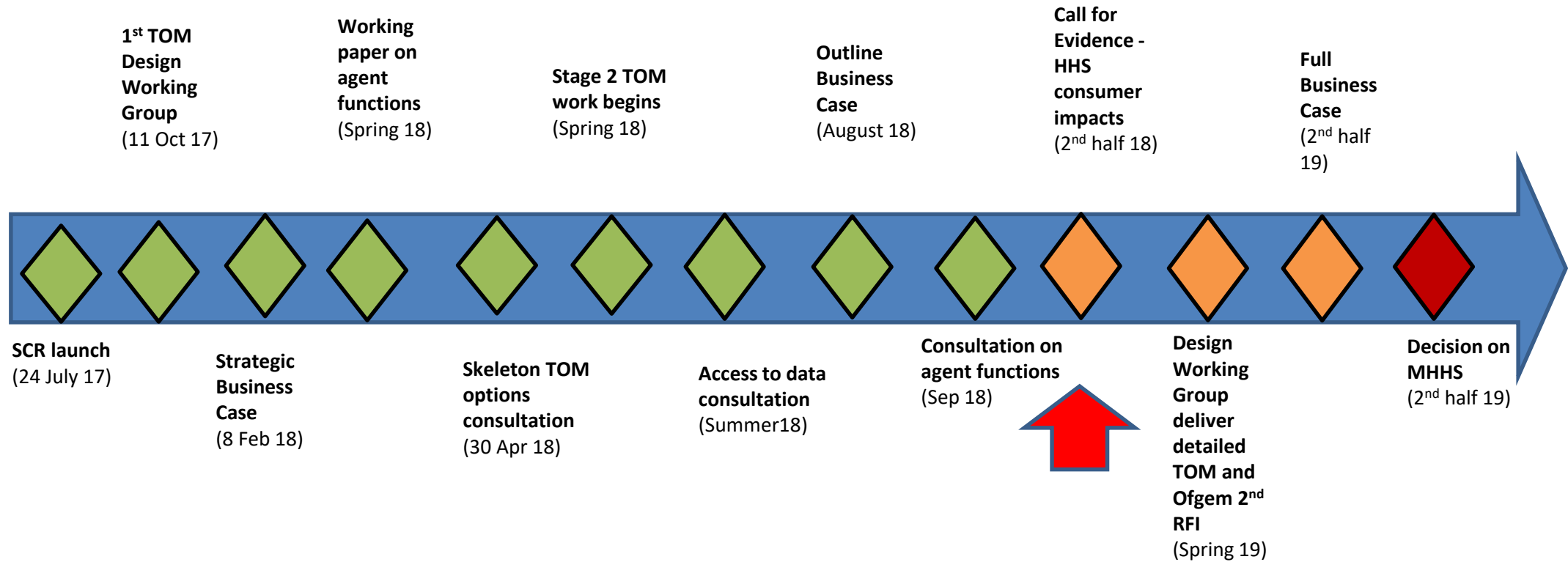
Update on action items

Action item	Status
Ofgem to organise meeting with Graham Oakes and ELEXON to discuss potential architecture options for new settlement arrangements	To be completed
Ofgem to look at the security implications of having central settlement hold disaggregated MPAN data and if the data has to be disassociated with an MPAN, once no longer required for settlement, to remain secure	To be completed

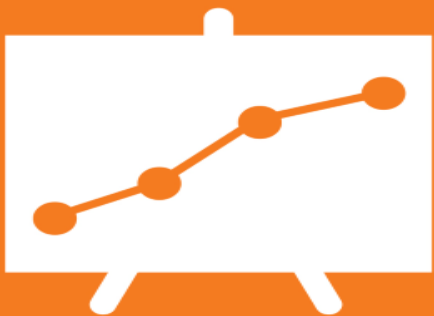
Project Update

July 2017

Winter 2019

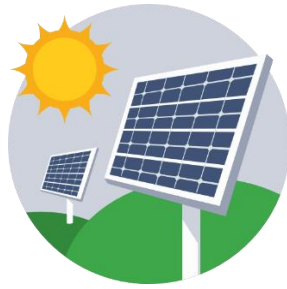


Network access and forward-looking charging reform



HHS DAB
27/11/2018

- To talk you through our proposed **review of access and forward looking charges** and
- To seek your views on implications for settlement reform systems and requirements
- These slides:
 - Provide a background to the project and an update on the way forward, and
 - Pose some questions for discussion on interactions with settlement reform and how the Target Operating Model could support these options.



- The energy system is going through a radical transformation.
- These changes could create challenges and opportunities for our electricity networks.
- We have two major projects addressing how electricity network access and charging should be reformed to address these changes and existing issues:
 - The **Targeted Charging Review** (TCR). This seeks to remove those distortions not covered by our work on embedded benefits and to allocate fairly the long term fixed costs of the network infrastructure being there for when people may want to use it. We have a Significant Code Review (SCR) to address these issues. We are about to consult on our proposals
 - **Access and forward looking charging reform.** We want to ensure that electricity networks can be used more efficiently and flexibly –so that users can have the access needed, and benefit from new technologies and services, whilst avoiding unnecessary costs. We have consulted on this and on an SCR and will be announcing a decision before Christmas on the form and scope of reform.

Today's discussion will focus on the access reform project and its links with settlement reform.

There are **three types of electricity network charges** :

1. Transmission (TNUoS)
2. Distribution (DUoS)
3. Transmission balancing (BSUoS)

Each one of these has **different charges for generators and demand** users

Total annual revenue to be collected is calculated from

1. Transmission: RIIO T-1
2. Distribution: RIIO ED-1
3. Transmission system balancing: Balancing actions, constraint payments, other services.

Transmission and distribution **charges are split into three components**

1. Connection charges
2. A residual charge – reflecting the costs of the infrastructure being there for when it is needed
3. A forward looking signal (sometimes locational, sometimes time of use), reflecting costs associated with how the network is used for particular purposes

Transmission balancing is slightly different –total costs are socialised across all users of the system in a given balancing period.

Network access rights

- By this we mean **users' network access rights and how these rights are allocated.**
- Network access rights define the nature of users' access to the networks – eg how much they can import or export, when and for how long, where to/from, and how likely their access is to be interrupted and what happens if it is.

Forward-looking charges

- The elements of network charges that **signal to users how their actions can either increase or decrease future network costs in different locations.**
- Includes connection charges and elements of use of system charges

Residual charges ("scaling")

- Residual charges are 'top up' charges set to ensure that the network's efficient costs can be covered, after other charges have been levied.
- Residual charges are intended for revenue recovery, and are not meant to incentivise specific actions by network users.

- > In November 2017, we published a working paper on “Reform of electricity network access and forward looking charges”.
- > We commissioned Baringa to gather evidence to assess the materiality of current inefficiencies. They identified three priority issues:
 - Managing constraints on the distribution network as a result of growth in demand (eg EVs and heat pumps)
 - Managing constraints on the distribution network as a result of growth in distribution-connected generation (eg solar generation)
 - An effective interface between transmission and distribution arrangements (eg the impact of distribution generation on the transmission system).
- > We set up two industry Task Forces (TFs) under the Charging Futures Forum (CFF) to help assess the options for the change.
- > We published a consultation in July 2018 on the form and scope of our potential review. We received responses in September 2018.

Network access arrangements

Improving access choice and definition for larger users

Clarify access rights and choices for smaller users, including households

Improving the allocation of access rights, including enhancing the scope for markets

Forward-looking charging arrangements

Wide-ranging review of distribution use of system charges (DUoS)

Review of distribution connection charging boundary

Focused improvements to the transmission use of system charges (TNUoS)

How might potential access and charging options be relevant for future settlement systems?

Potential options for access reform

Better definition and choice of access rights: Could provide additional/better defined choice of access options, eg non-firm and time-profiled access, with locational elements. Potential overrun charges for users exceeding capacity limits.

Minimum firm access limit for small users: could provide protections for a basic level of usage to ensure access was appropriate for small users' needs.

Potential options for charging

Wide-ranging review of DUoS charges: could increase the granularity of charging signals, involve choices of more capacity-based or time-of use charges.

Basic charging tier: could involve a basic level of protection from sharper temporal or, particularly, locational charging signals for small users.

Interaction of potential access and charging options with the TOM

- How should the TOM design take account of these potential future options?
- What enablers would be needed to facilitate these options?
- Do you see any risks or dependencies, eg for 'future-proofing', with the developing TOM design?

Benefits and opportunities for innovation and load-shifting

- How do you think network users, or innovators, would respond to these sorts of options?
- What do you consider could aid response?

Design features to consider for development of charging options

- What features should we consider in taking forward any review of access and forward-looking charging?
- Are there consumer protection risks and mitigations we should be considering?

Next steps

- > Our consultation closed in mid-Sept 2018. We received 77 responses to our consultation.
- > We expect to make a decision on whether to launch an SCR by the end of the year.
- > If we launch an SCR, we are targeting the first set of changes to take effect in April 2022, with any remaining changes taking effect in April 2023. Any industry-led changes outside of the SCR could be implemented in advance of this.

How to get involved?

- > Our December 2018 decision document will provide further information on how to engage with any SCR.
- > If you want to learn, contribute and shape the future of charging arrangements join the Charging Futures Forum distribution list (email: chargingfutures@nationalgrid.com). They host quarterly forums, as well as regular webinars, podcasts and newsletters.

Public

Design Advisory Board

27 November 2018
ELEXON





Network Charging and the TOM

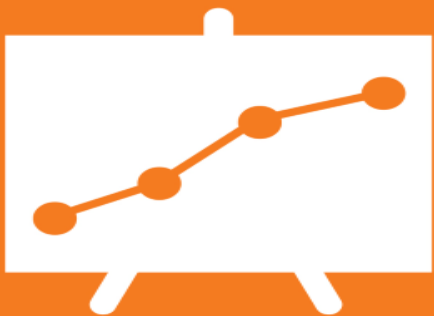
Options for provision of data

Network Charging Data Options

- The DWG's preferred TOM provides optionality in provision of data for Network Charging:
 - Validated Data at Meter Level could be provided directly by the competitive data Services
 - Validated Data at Meter Level could be provided directly by BSC Central Services
 - Aggregated Super customer data could be provided by BSC Central Services
 - Reactive data could be collected via the smart Meter if required
 - Maximum demands per Meter could be derived and stored by BSC Central Services
 - Full width or sample data can be provided by BSC Central Services

- Key questions:
 - What level of data is required for each Market Segment (or sub-category)?
 - What data is required?

Review of the Preferred TOM option





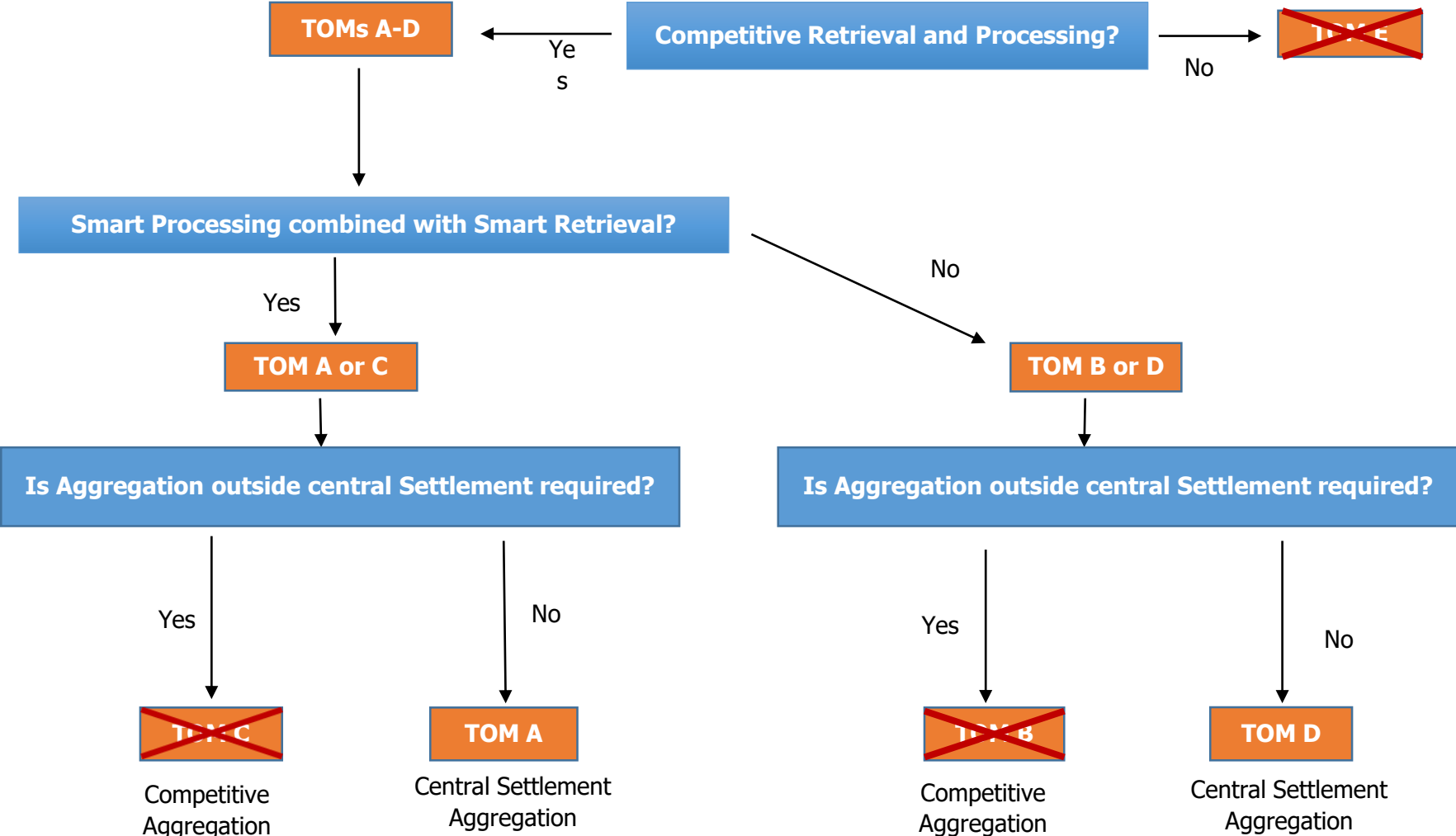
DWG Preferred TOM

DAB presentation

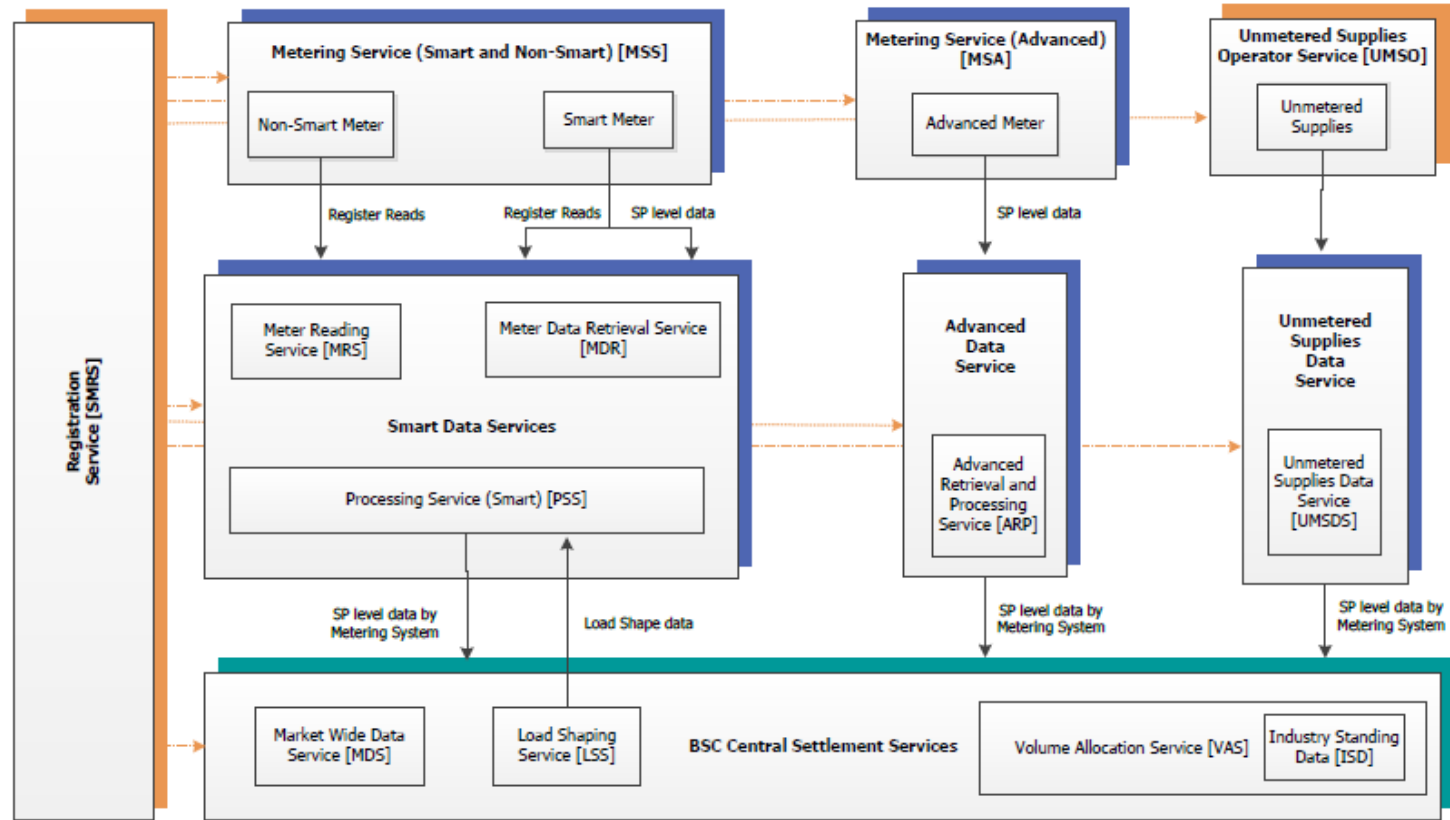
DWG's Preferred TOM

- Ofgem provided their least regrets steer to the DWG. Ofgem are still considering evidence on data access and agent functions, and have not made their final decisions yet.
- This steer helped rule out a number of variants of the five skeleton TOMS (15 out of 21)
- The last six were separated by two key decisions:
 - Should the retrieval of smart Meter data be performed by the same service that processes the data for Settlement?
 - Is the traditional Aggregator role required or should the BSC central Settlement services receive disaggregated data?
- The DAB provided a steer to the DWG at its last meeting that it believed the traditional Aggregator role is no longer required

Decision Tree Approach



DWG Preferred TOM



Key to shadows

- Competitively Procured Service/s
- Natural Monopoly Service
- BSC Central Service

- Flow of Metered Data
- Access to Registration Data

DWG Preferred TOM

DWG Majority Decision on the TOM

- All but one DWG member prefer a variant of TOM A where the BSC central Settlement services receive disaggregated data
 - Views on the benefits align with Ofgem / DAB
- One DWG member disagrees and prefers a different variant of TOM A where Aggregation remains a separate service outside of central Settlement
 - Believe it is not proven that centralisation will deliver greater quality, efficiency, cost-effectiveness or innovation than a competitive service
 - Believe it removes an opportunity for Data Aggregation to become an area for greater differentiation between agents in the future
- Full views will be captured in January's report
- ELEXON is currently drafting the report and 'stitching' together the Service Requirements to match the preferred TOM
- The DWG will review the report at its meeting on 15 January 2019
- Report will be provided to Ofgem at end of January

TOM Architecture Options

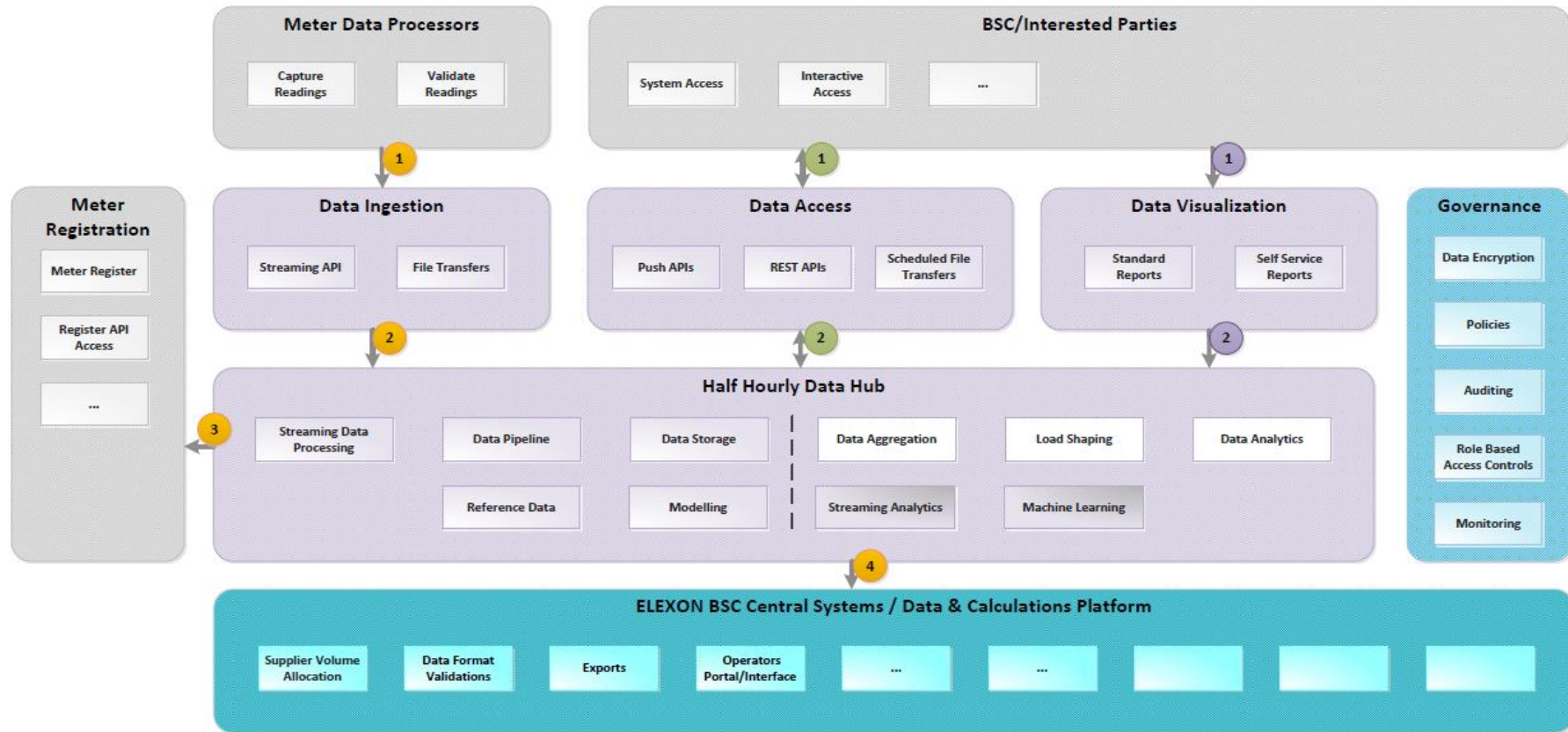




TOM Architecture Option

Potential model presented to DWG

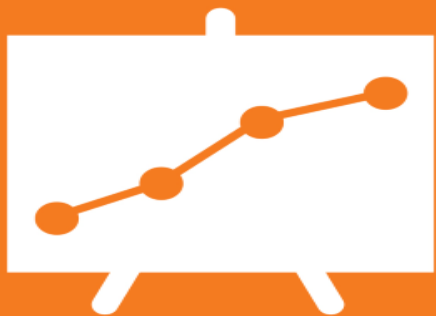
TOM Architecture



Legend:



The Starting Point for Transition



Transition

- We have said that as part of the Business Case, we will develop an approach for the transition to HHS.
- This will consider the costs and benefits of different implementation timeframes based on the commercial decisions that affect organisations in the transition, including the resources required to manage concurrent industry changes. The work on the transitional approach will need to be informed by the design of the TOM as it develops.
- The TOM design work will include the design of settlement arrangements which will give effect to the transitional approach outlined by the Business Case. The TOM design work will also provide information for the Business Case on the costs and benefits of different timeframes for and approaches to the transition.

- Are there any fundamental prerequisites before the transition to the TOM can commence?
 - Is there a critical mass of HH meter data needed?
 - TOMs all assume that all smart meters will be enrolled into the DCC. The successful enrolment of a majority of installed SMETS1 meters will likely be required before the transition to the TOM can commence
 - Do not likely want to have dual profiling arrangements so there should be a sufficient number of customers sharing HH meter data for the load shaping service to work
 - Degree of certainty of system architecture requirements

- Are there any other considerations?
 - Length of the transitional period? If there is a longer transition period then customers could be moved on a more gradual basis.
 - Lessons learnt or considerations from the P272 transition
 - Interaction with other reform programmes (faster switching, charging reviews)
 - Period for testing of new system interfaces
 - Accreditation requirements for settlement services
 - Promotion of elective

Public

TOM Transition

Initial high-level content for January 2019
TOM report

27 November 2018
Kevin Spencer



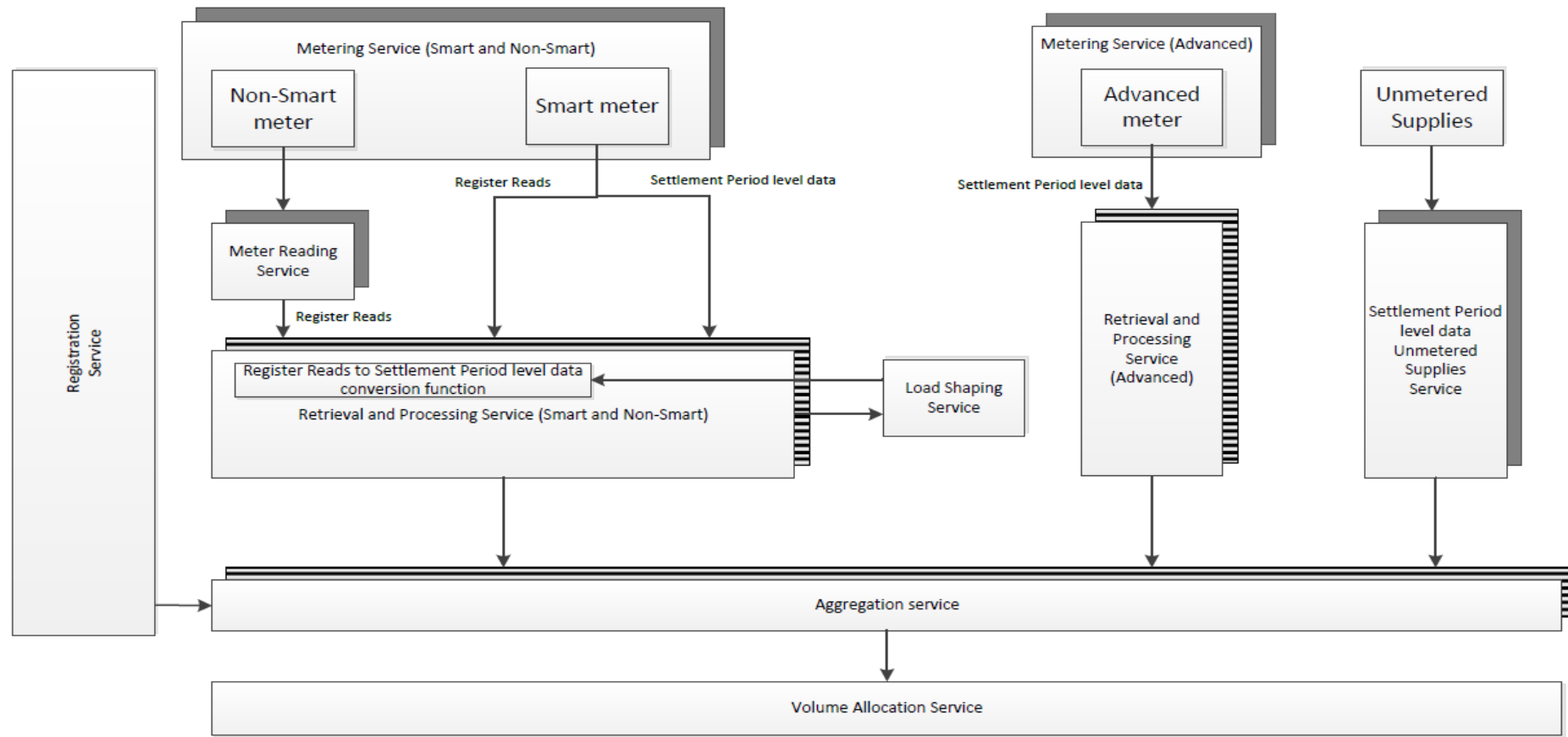
ELEXON's proposed transition content for Jan-19 report

- High-level transition principles
- What needs to change in order to get from 'current state' to the TOM:
 - What's new and what existing things need to be changed
 - High-level milestones
- Complexity / 'level of change' rating (H, M, L) for each milestone
- Dependency rating (H, M, L) for each milestone, with details of dependencies with other milestones/initiatives
- Which Industry Code(s) are impacted by each milestone
- Who will be accountable for the delivery of each milestone (e.g. Code Manager, Parties), including procurement of new services
- DWG's view on pre-requisites for starting transition
- DWG's plan for developing the detailed transition approach in 2019




Appendix: Skeleton TOM Options



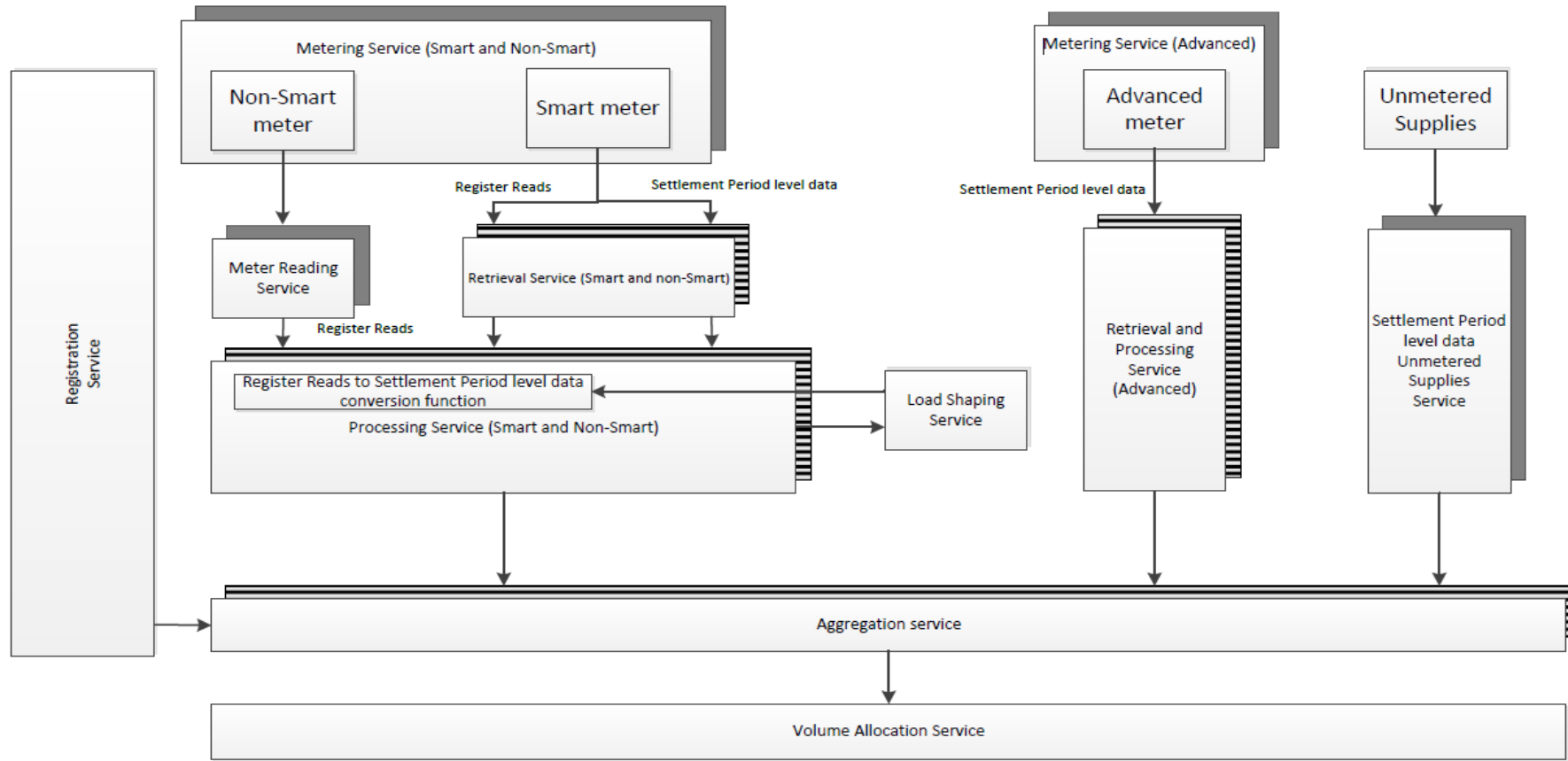
TOM A: Combined Retrieval and Processing with Separate Aggregation



Key to shadows

-  Competitively procured
-  Competitively procured or single/multiple monopolies
-  No shadow: Single or multiple monopolies

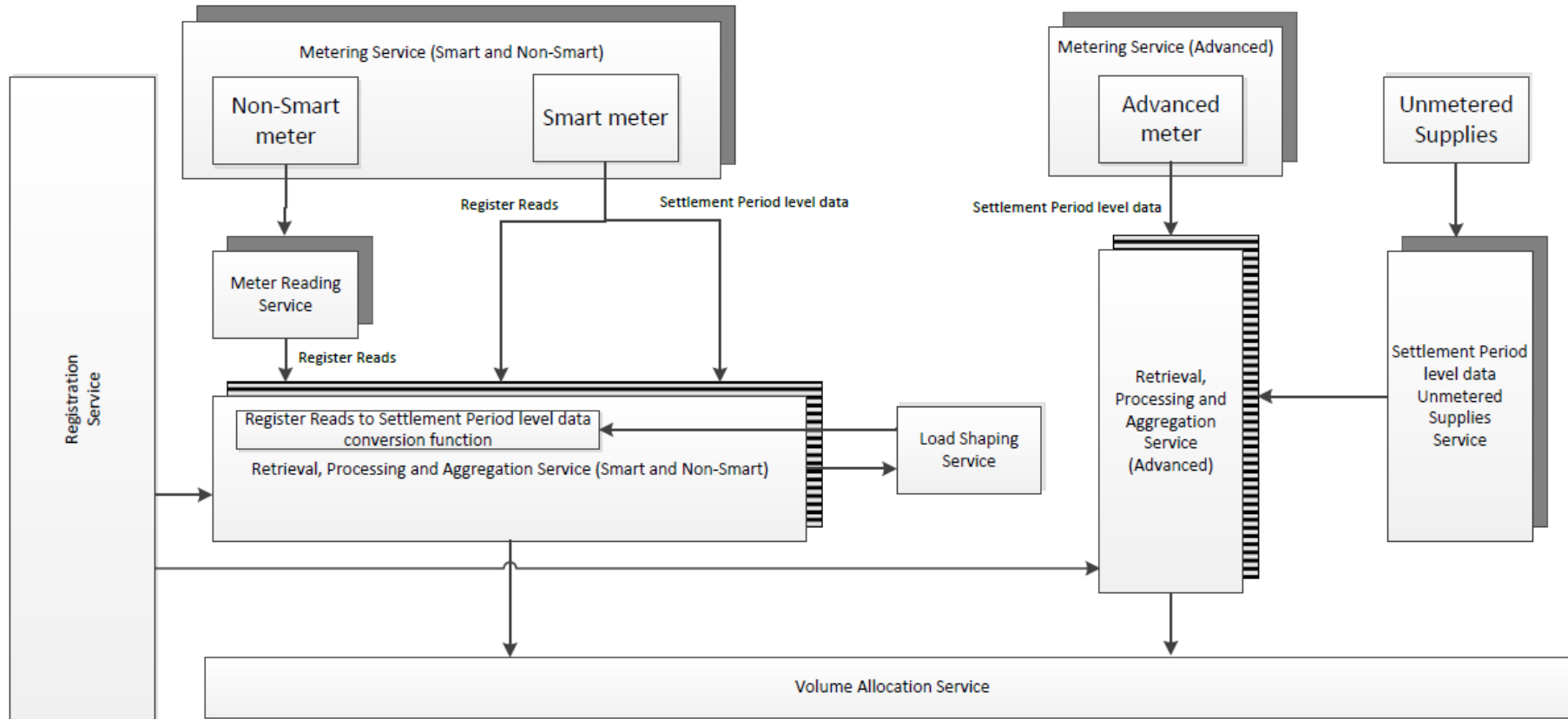
TOM D: Separate Services






Key to shadows

- Competitively procured
- Competitively procured or single/multiple monopolies
- No shadow: Single or multiple monopolies

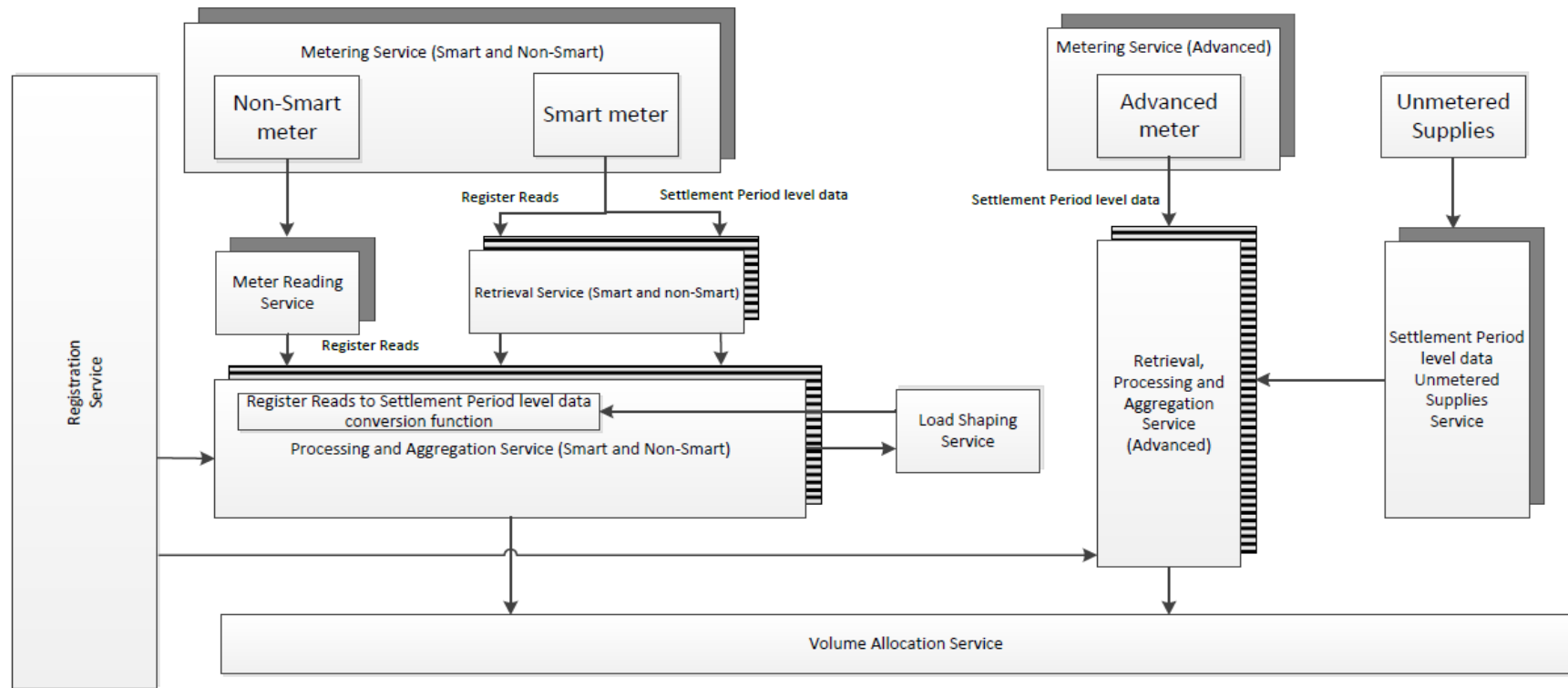
TOM C: Single End-to-End service covering Retrieval through to Aggregation



Key to shadows

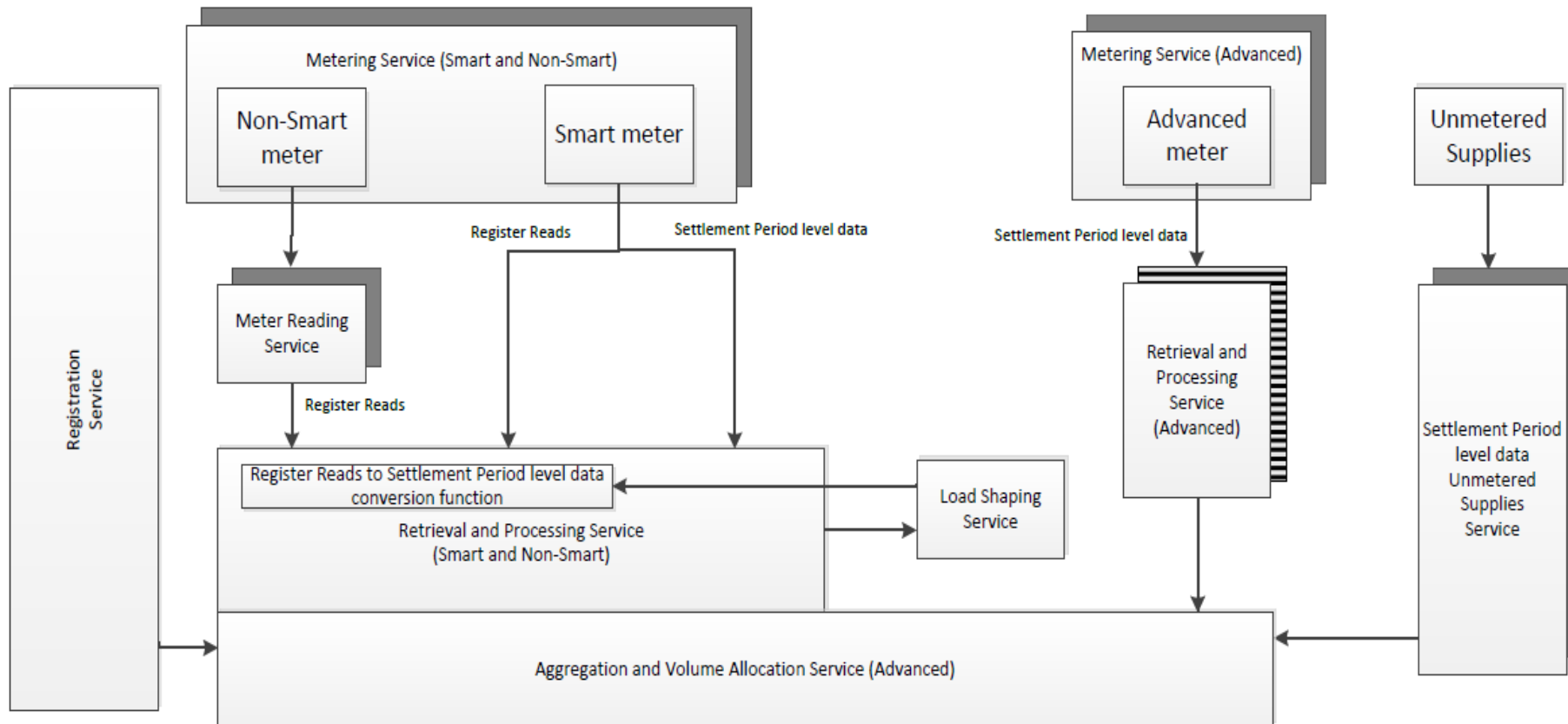
-  Competitively procured
-  Competitively procured or single/multiple monopolies
-  No shadow Single or multiple monopolies

TOM B: Separate Retrieval with Combined Processing and Aggregation



Key to shadows
 [Shaded box] Competitively procured
 [Striped box] Competitively procured or single/multiple monopolies
 [No shadow box] Single or multiple monopolies

TOM E: Single End-to-End Service covering Retrieval through to Volume Allocation



Key to shadows

- Competitively procured
- Competitively procured or single/multiple monopolies
- No shadow: Single or multiple monopolies

Our core purpose is to ensure that all consumers can get good value and service from the energy market. In support of this we favour market solutions where practical, incentive regulation for monopolies and an approach that seeks to enable innovation and beneficial change whilst protecting consumers.

We will ensure that Ofgem will operate as an efficient organisation, driven by skilled and empowered staff, that will act quickly, predictably and effectively in the consumer interest, based on independent and transparent insight into consumers' experiences and the operation of energy systems and markets.