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Design Advisory Board meeting 3

27 March 18

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Agenda

1. Welcome – *10 minutes*

2. Criteria for TOM design work – mapping Design Principles to DWG evaluation criteria – *35 minutes*

3. Overview of skeleton TOMs and DWG assessment – *1 hour 30 minutes*

Lunch – *30 minutes*

4. DAB evaluation of skeleton TOMs – *2 hours 20 minutes*

5. DAB ways of work – *10 minutes*

Break – *10 minutes*

4. Future-enabling the TOM working paper – *30 minutes*

5. Presentation from the Future Supply Markets Arrangements – *1 hour*

6. Close of meeting – *5 to 10 minutes*

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Welcome

- Update on Ofgem restructure
  - HHS will be part of the Consumers & Markets directorate. Do not anticipate it impacting the TOM design work
- Meeting objectives
  - Provide overview of skeleton TOMs and framework for assessment
  - DAB assessment of skeleton TOM options to help SRO decision on stage 1
  - DAB comments on future-enabling paper and presentation from future supply market arrangements team
- Where are we now?

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Where are we now?

- March 14 - DWG has finalised five skeleton TOM options and undertaken an evaluation
- **March 27 – DAB assessment of skeleton TOMs to assist SRO decision on skeleton TOMs**
- April 16 – SRO decision on whether to accept skeleton TOMs (stage 1), and proceed to stakeholder consultation and detailed design work (stage 2)
- April 25 – DWG finalise consultation document and ELEXON to undertake 4 week consultation on BSC website
- 12 June – DAB meeting to discuss consultation feedback

Where next?

- If SRO makes decision to approve skeleton TOMs, TOM design work will move into stage 2 where detailed design of the TOM will be undertaken

  - Ofgem to start review of DWG membership

  - Forward work plan for stage 2 detailed design to be revised. Future DAB dates to be determined once this is done

Key questions for the DAB today

1. Do you think there is a sensible range of skeleton TOM options?

2. Which TOMs better support the move to, and facilitate the energy system of tomorrow?

3. Initial thoughts on how some of the skeleton TOMs perform against the Design Principles

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TOM design criteria

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What is being covered?

- Show DAB how the Ofgem design principles map to the DWG evaluation criteria
- Seek DAB preliminary views on how the evaluation criteria should be weighted
  - To help with evaluation later today but also to guide stage 2 design and criteria to narrow down potential TOM options

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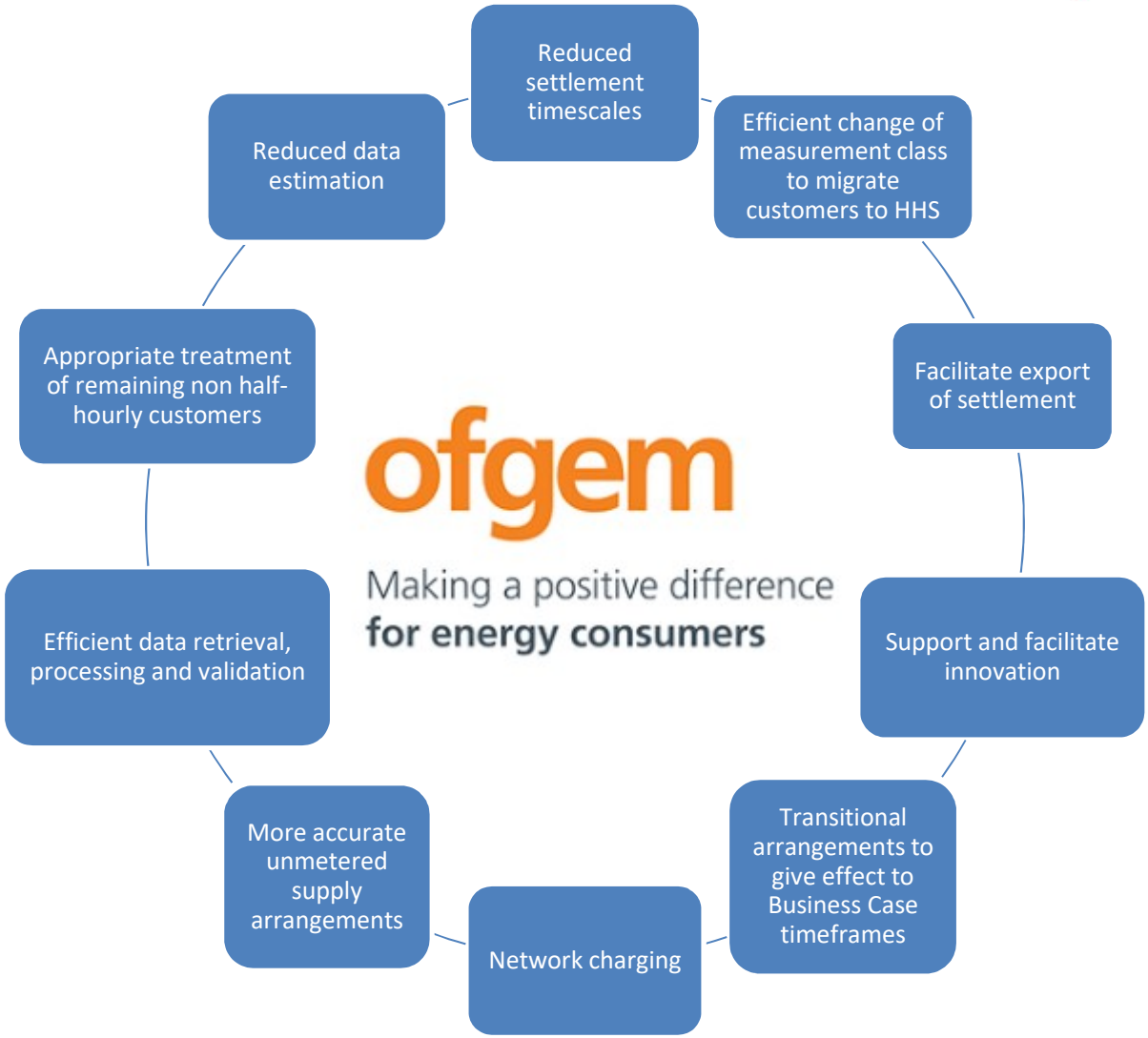
TOM strategic objectives

- Introduce efficient market-wide half-hourly settlement arrangements that in summary:
  - Promote a more cost-reflective energy system that encourages energy service providers to shift/adapt consumption, ultimately benefitting consumers
  - Promote competition, reduce barriers to entry and support innovation
  - Support Government objectives for a low-carbon energy system and are consistent with BEIS and Ofgem policy decisions
- Key themes of: efficiency, simplicity, competition, innovation, accuracy and timeliness

Ofgem Design Principles



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DWG evaluation criteria mapped to Design Principles

- Coverage:
  - TOM strategic objective of efficient market-wide HHS
  - Links to design principles around: reduced data estimation, efficient retrieval, validation and processing, unmetered supply, change of measurement class, transitional arrangements
- Cost reflectivity:
  - TOM/HHS SCR objective of making settlement more cost reflective and promoting competition & innovation
  - Links to design principles around: support and facilitate innovation, reduced data estimation, facilitate export settlement
- Timing
  - Links to design principle of reduced settlement timescales

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DWG evaluation criteria mapped to Design Principles

- Design simplicity:
  - TOM strategic objective of efficient settlement arrangements
  - Design simplicity is a theme which runs through many design principles
- Design flexibility
  - Links to design principle of supporting and facilitating innovation
- Consequential impacts
  - TOM strategic objective of supporting Government's objective of moving to low-carbon electricity system while maintaining system security
  - Link to design principle of network charging, treatment of remaining non-HHS customers
  - Support Ofgem work on understanding distributional impacts of HHS

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DWG evaluation criteria mapped to Design Principles

- Data privacy
  - Ensure TOM supports data privacy options considered by Ofgem
- Solution costs
  - Supports TOM strategic objective of cost-effective settlement arrangements. This theme comes through in several of the design principles (such as data estimation and data retrieval, processing and aggregation)
- Ease of implementation
  - Link to transition design principle

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DWG evaluation criteria mapped to Design Principles

- Impact on small suppliers and new entrants
  - ➢ Link to promoting competition and reducing barriers to entry
- Supports new technologies and innovation
  - ➢ Link to design principle of support and facilitate innovation

DAB preliminary views

- Are there any underlying themes (efficiency, simplicity, competition, innovation, accuracy and timeliness) which the DAB consider should be weighted more than others
  - Put another way, if there was a conflict or tension between them, which one should prevail
- Does this mean certain design principles or DWG evaluation criteria should be emphasized more than others

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Overview of skeleton TOMs

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What is being covered?

- Approach to the design of the skeleton TOMs
- DWG baseline design principles
- Overview of the five skeleton TOMs (A-E)
- Discussion of DAB comments

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Approach to TOM design

- DWG agreed to developing skeleton TOMs via a 'use case' model approach covering five 'market segments' in settlement
- 'Market segments' broadly divided along the lines of metering type and granularity of metering data available for settlement. They are:
  1. smart meters with settlement period (half-hourly) data available
  2. smart meters with only register read data available
  3. non-smart meters with register readings
  4. traditional advanced meters with settlement period data available
  5. unmetered supplies
- DWG also agreed on baseline design principles to help drive design and development of skeleton TOMs

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Baseline design principles

- TOMs are optimised for a 'target state' where majority of meters will be smart or advanced
- Consider existing elective/NHH arrangements as transitional states
- Cover HH import/export meter data for settlement and not be detrimental to non-settlement activities
- Design out elements of existing NHH profiling processes
- At least one TOM that accommodates potential Ofgem policy decisions in data privacy and central agent question
- Not consider technology or architecture factors at this stage
- Not consider settlement timescales until TOM options are further developed

Summary of the 'use case' approach

1. Define processes required to deliver market-wide HHS and group them into high level activities
2. Identify in each segment the high level type of services required to deliver high level activities
3. Identify ways in which the identified services could be grouped for efficient delivery. This is done first within each segment and then done across segments
4. Identify skeleton TOMs for evaluation

TOM design approach

- Service groupings focused on retrieval, processing and aggregation activities as those were identified as key activities
- Service groupings did not include services with single use case activities or those that needed other services to be defined first. These included:
  - Metering services
  - Registration service
  - Unmetered supplies Service
  - Load shaping service
  - Distribution losses service

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Skeleton TOMs – key features

- DWG has developed 5 skeleton TOMs (A-E)
- The skeleton TOMs differ based on how retrieval, processing and aggregation services are grouped across the market segments
- Key features common to all TOMs:
  - The conversion of register read data into HH data moves from volume allocation into data processing. There is a new load shaping service which will be responsible for cheap load shapes using market HH data. This means all data being entered into settlement is HH data - eliminating distinction between NHH and HH settlement processes
  - The role of the DCC being the 'pipe' for all smart meter data has a major impact on the design of the skeleton TOMs. Differs from advanced meter segment where both retrieval and processing need access to the meter
  - Only TOM E is dependent on Ofgem making a policy decision to centralise (other TOM's have both options of supplier or market services)
  - No assumption of who does a service or service detail – to be explored in stage 2

Skeleton TOMs – key outputs

- DAB sought clarity in last meeting on key outputs from each service
  - Retrieval output: HH or register read meter data extracted. For smart this done via the DCC comms and for advanced this is done by the retrieval service over a mobile network/other comms
    - May also involve pseudonymisation/anonymisation if that access to data option is selected
  - Processing output: HH or register read data is checked and validated. If there are errors or the dataset is incorrect it is addressed at this stage. Register read data is turned into HH data based using the usage shapes created by the load shaping service
  - Aggregation output: actual or created HH data is added up and allocated to the responsible supplier/future service provider (checked against data from the registration service) for volume allocation service to calculate Balancing Mechanism Unit volumes

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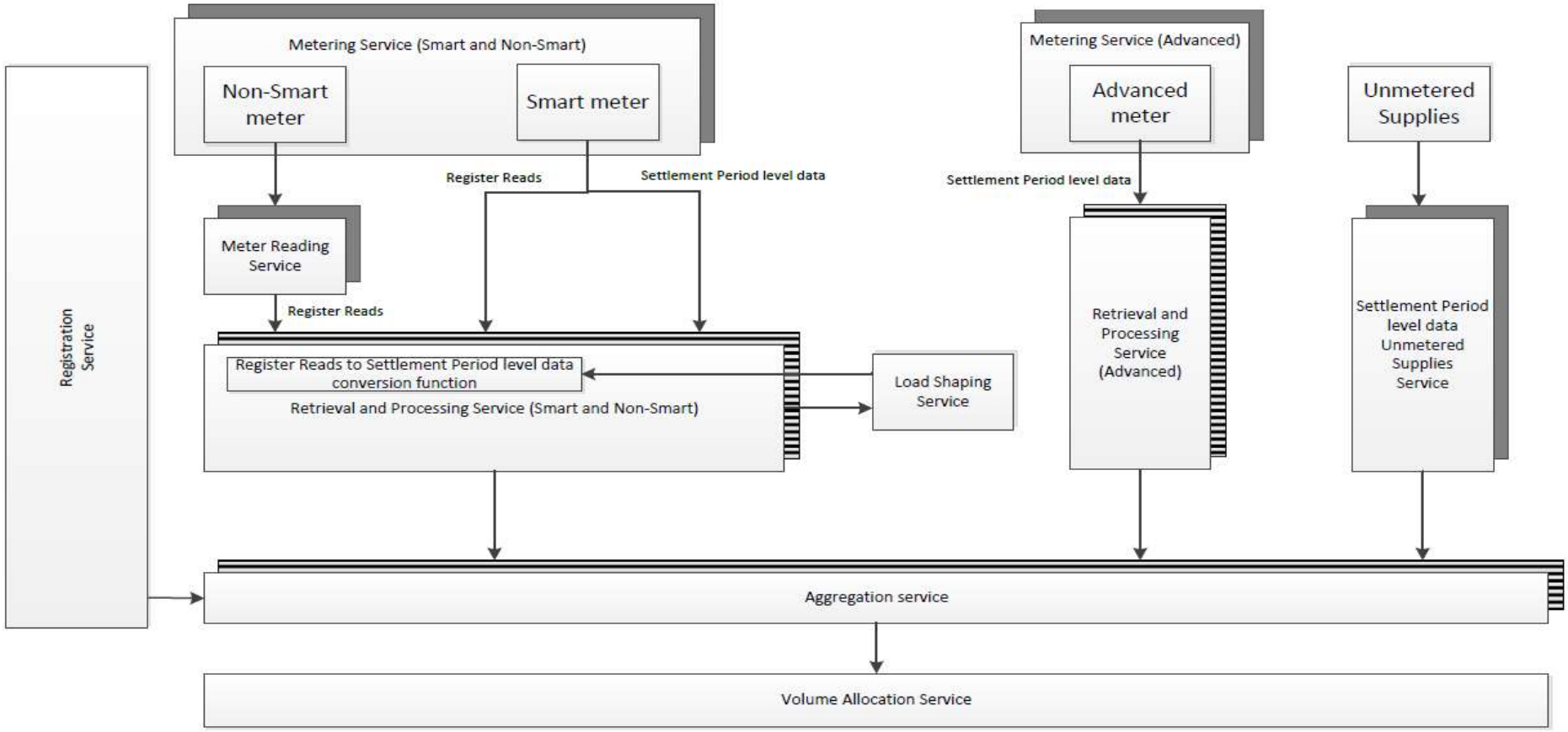
TOM A and D

MARKET-WIDE AGGREGATION

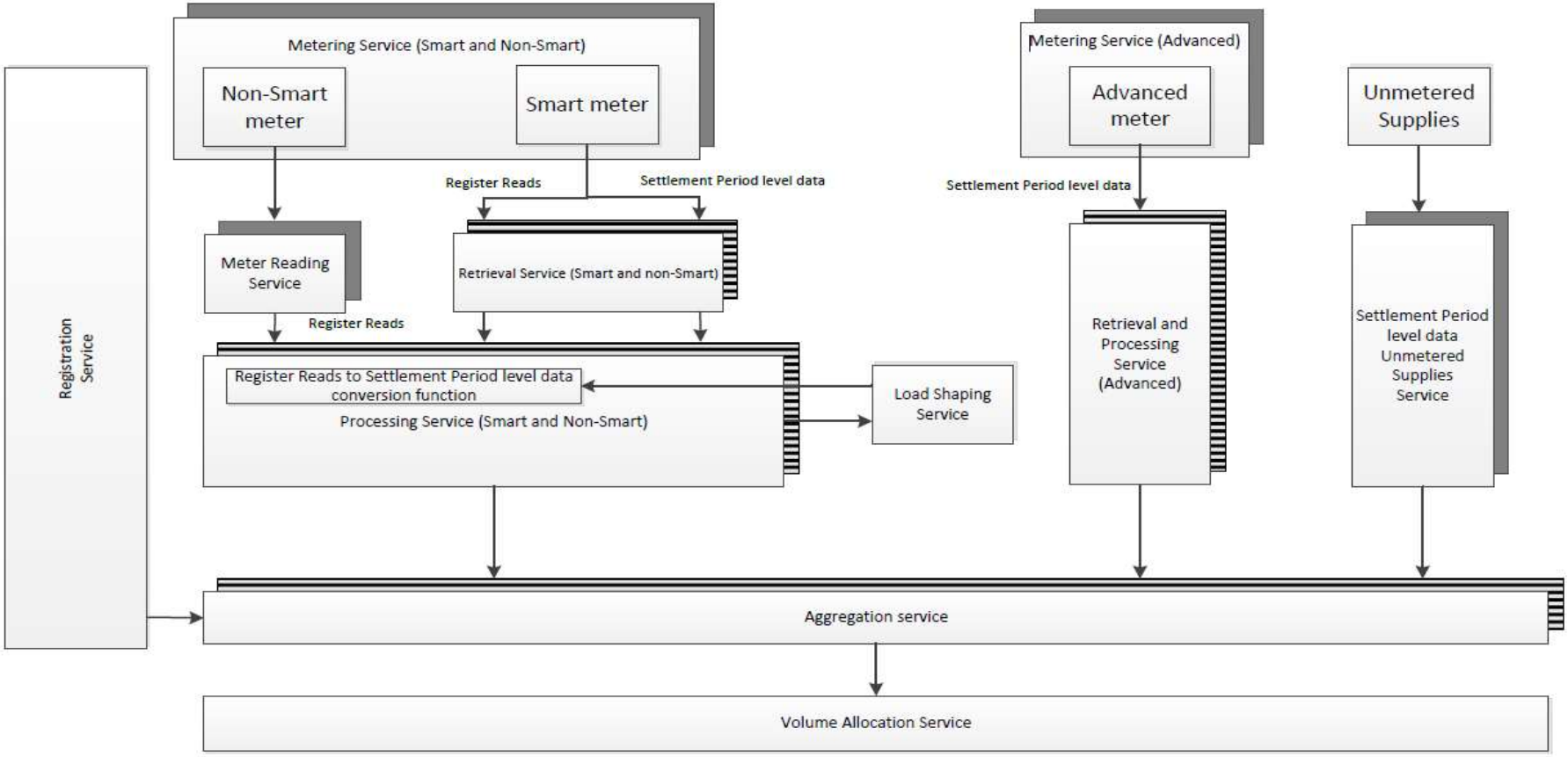
TOM A: Combined Retrieval and Processing with Separate Aggregation



Key to shadows

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

TOM D: Separate Services



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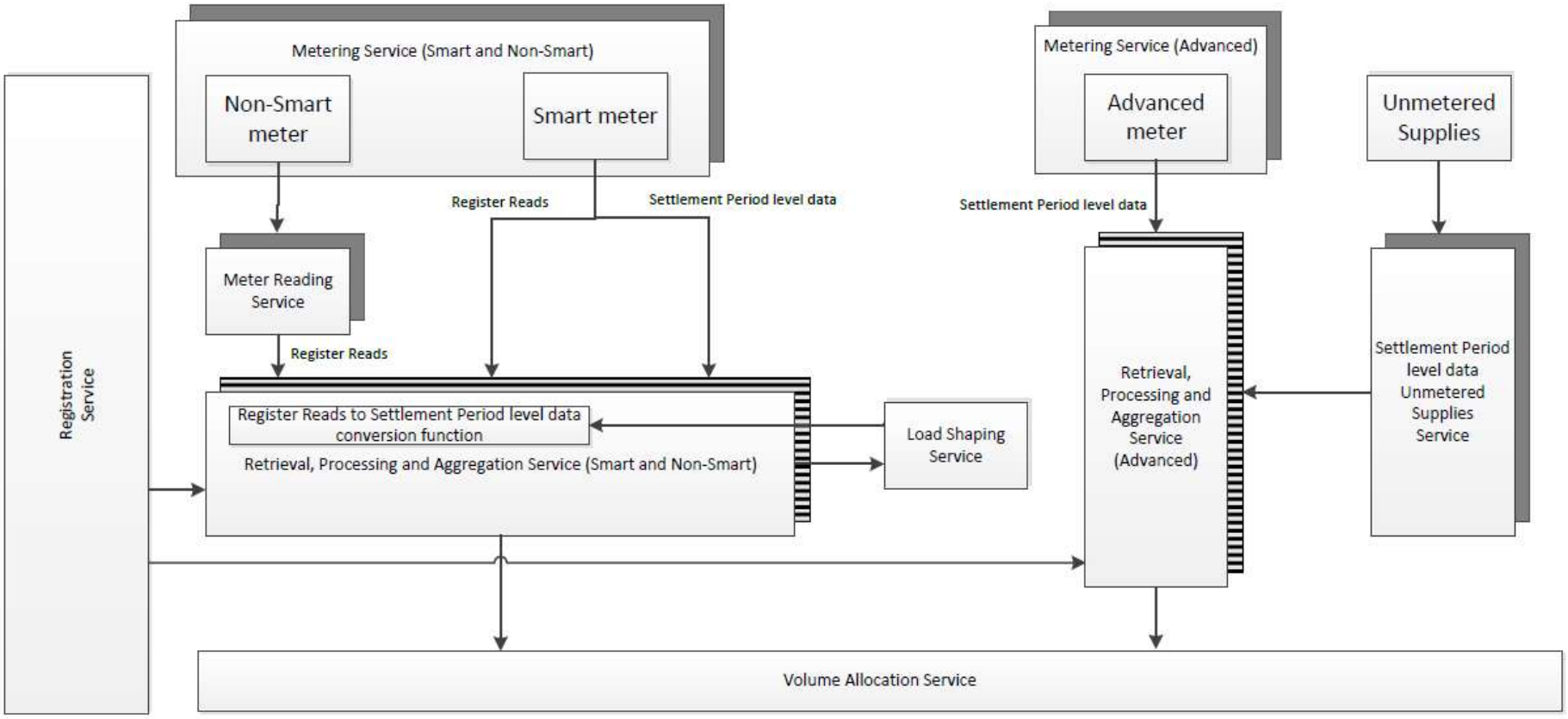
TOM C and B

COMBINED PROCESSING AND AGGREGATION SPLIT BY SMART AND ADVANCED SEGMENTS

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



Key to shadows

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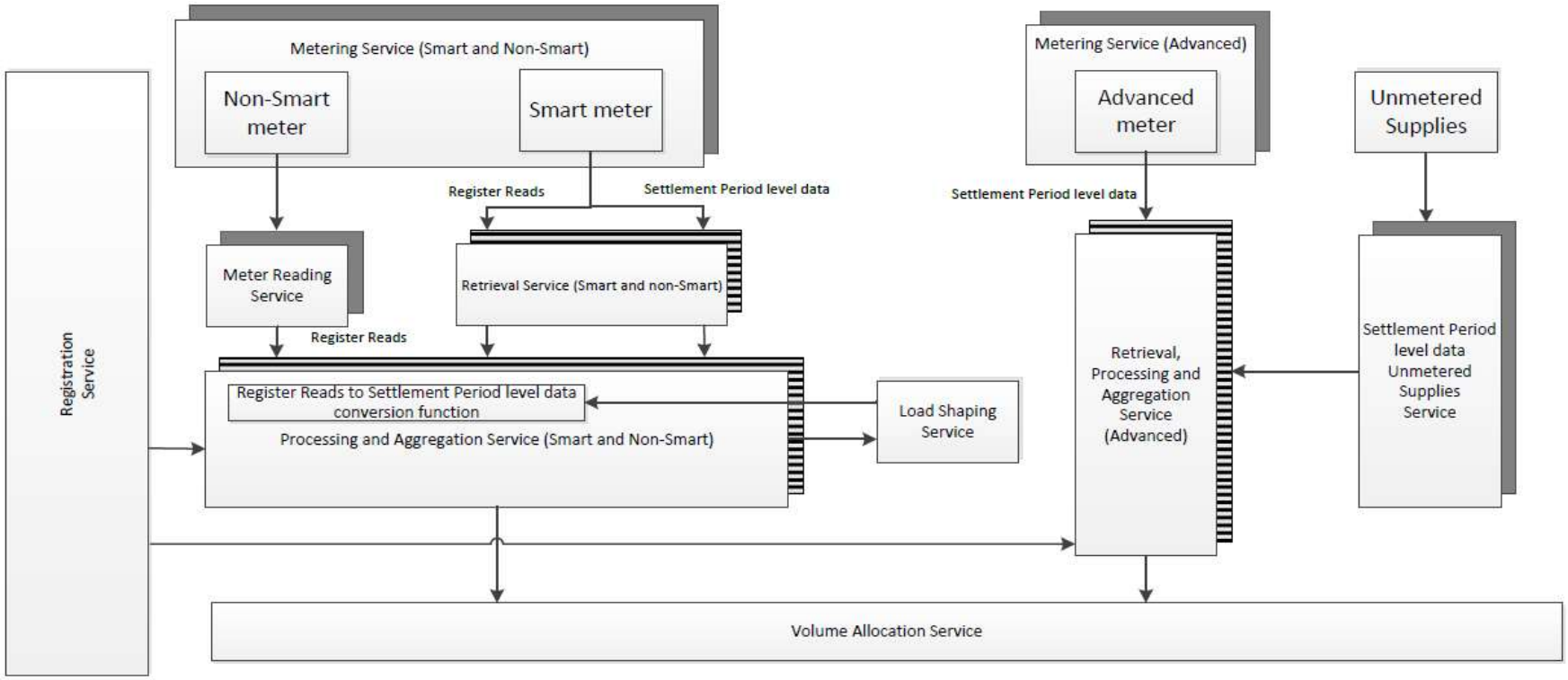
No shadow Single or multiple monopolies

TOM B: Separate Retrieval with Combined Processing and Aggregation



Key to shadows

Competitively procured
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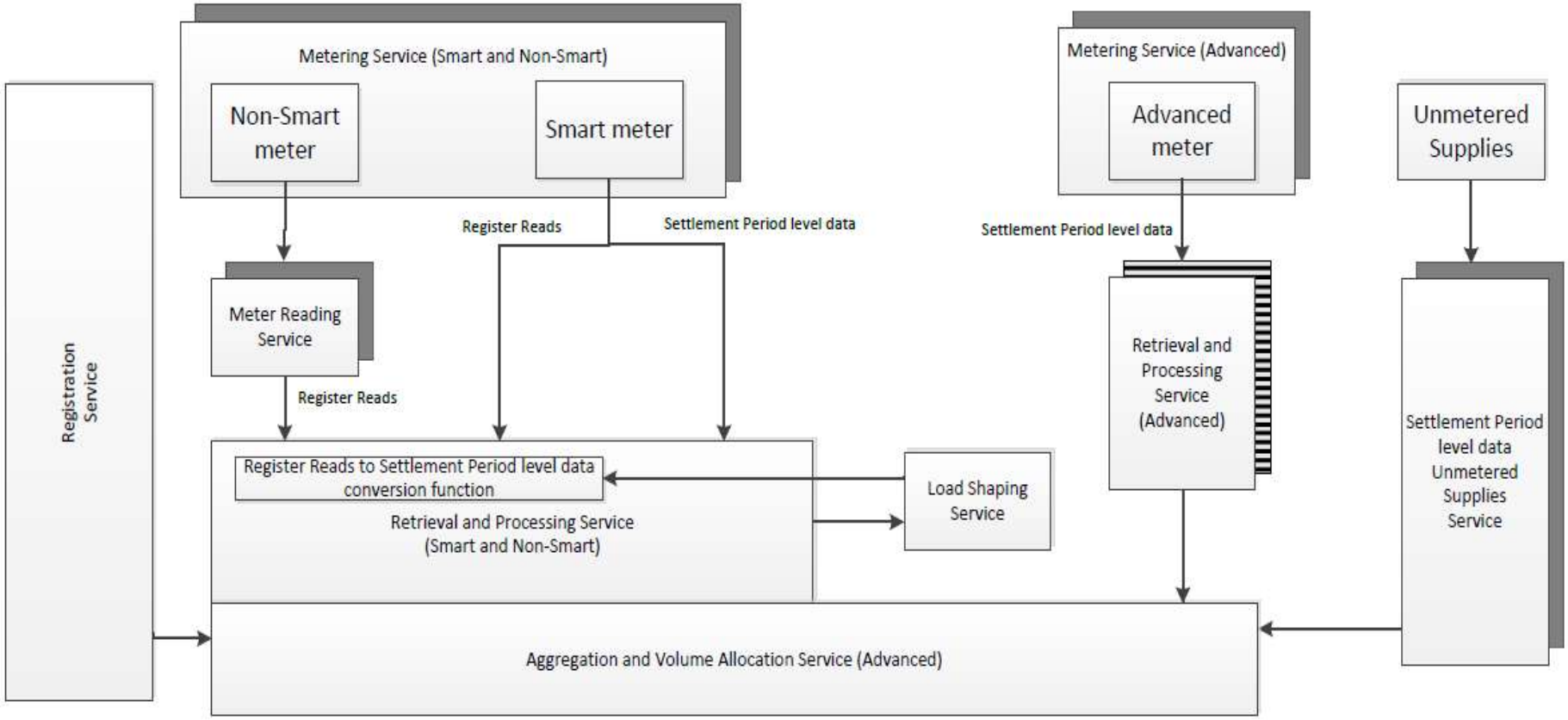
TOM E

CENTRALISED SERVICE MODEL

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

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Initial feedback from previous DAB meeting

- Key DAB feedback from second meeting:
  - ➢ The DAB were keen to understand the potential impact of the skeleton TOMs on new entrants being able to retrieve, process and aggregate data themselves
    - TOM define services and if these services are competitive then a supplier is not precluded from being able to do 'self-service'
  - ➢ Concerned about skeleton TOMs creating barriers to new entrants (such as high data retrieval or processing costs). Regulatory framework should not make services complex or expensive

Across TOM evaluation

TOM evaluation – benefits common to all TOMs

1. Creating Settlement Period and Metering System level data up front for Meters with Register Readings
2. Simplifying data aggregation
3. Simplifying Change of Agent processes
4. Improving the Settlement of embedded export
5. Simplifying the switch between Settlement Period data and Register Read data
6. More accurate and simpler Settlement of Unmetered Supplies
7. Improving Settlement Timescales
8. Efficiency in provision of enduring arrangements

TOM evaluation - criteria used by DWG

Initial assessment:

- Coverage
- Cost Reflectivity
- Timing
- Design Simplicity
- Design Flexibility
- Facilitates new technologies and innovation
- Impact on new entrants

Not assessed in Stage 1:

- Consequential Impacts
- Data Privacy
- Solution costs
- Ease of Implementation

Coverage – evaluation (1)

Criterion	Evaluation Criteria	All TOMs
Coverage	Meets requirement in the Key Roles and Responsibilities document	☑☑
	New or adapted Role types	☑☑
	Meter types	☑☑
	Export coverage	☑
	UMS coverage	☑☑
	Customer billing interaction	☑
	Potential participants to fulfil role	☑
	Registration arrangements	☑☑

Coverage – evaluation (2)

Criterion	Evaluation Criteria	All TOMs
Cost Reflectivity	Quality of data to Settlement	☑☑
	Customers and meter types	☑☑
	Network charges	☑☑
Timing	Does the model allow for faster Settlement against the baseline or other TOMs? Timing of first run for financial Settlement.	☑
	Timing of final reconciliation run	-

Coverage – evaluation (3)

Criterion	Evaluation Criteria	All TOMs
Design Simplicity	Statement on simplicity of design	☑
	Impact of supporting smart and traditional solutions in parallel	☑☑
	Robustness and ease of upgrading	-
Design Flexibility	How adaptable the TOM is and why?	-
	How will it handle bulk CoS events/change of agent ensuring correct allocation?	☑
	Supplier Of Last Resort	☑

Coverage – evaluation (4)

Criterion	Evaluation Criteria	All TOMs
Impact on small suppliers/new entrants	Identifying specific issues for small suppliers/new entrants stemming from an assessment of other criteria	☑☑
Supports New Technologies and Innovation	Identify how access to different levels of meter and aggregation could support new technologies or other innovation such as DSR, Peer-to-Peer and Smart Grids	☑☑

Differentiated TOM Evaluation

ELEXON

TOM A and D evaluation

- **TOM A Combined Retrieval & Processing with Separate Aggregation**
- Allows aggregation across market segments
- Facilitate flexibility and future innovation developments such as P2P trading
  - through cross market segment aggregations
  - More equitable allocation of costs to consumers (through changes to GSP Group Correction)
- **TOM D Separate Services**
- Similar benefits to TOM A with a separate retrieval service for smart meters
- Separation could cause issues with data validation
- Retrieval service
  - If provided by the Supplier, this would largely reflect the current DCC arrangements
  - If independent of Suppliers could allow the opportunity to coordinate data requests more efficiently

TOM C and B evaluation

- **TOM C End-to-end service covering Retrieval through to Aggregation**
- TOM C is similar to TOM A but without aggregation across market segments so no benefit as for TOM A (or could be barrier) on flexibility or innovation
- Creates one service for smart or advanced meters respectively covering retrieval, processing and aggregation
  - Reflects in practice what happens in the market currently
  - These could be delivered either competitively or as a standard service.
- **TOM B Separate Retrieval with combined Processing and Aggregation**
- Similar benefits/dis-benefits to TOM C with a separate retrieval service for smart meters
- As for TOM B separation of retrieval could cause issues with data validation
- As for TOM B Retrieval service (either by Supplier or independent)

TOM E evaluation

- **TOM E Single central service covering Retrieval through to Volume Allocation**
- Only TOM where a choice of processing service is not available to the Supplier
- Provides a more centralised view of Settlement, with potentially one (or more) centrally procured agent(s) doing retrieval, processing, aggregation and volume allocation
- Impacts on DCC security arrangements
- Potential implications on implementation timescales
- Value add services might be limited to Supplier on retrieval/processing
- One stop shop for new entrants might reduce complexity/burden

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DAB assessment of skeleton TOMs

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DAB assessment of the skeleton TOMs – context

- The context of this advice is to assist the Ofgem SRO's decision on whether to accept the skeleton TOMs and proceed to stage two
  - Stage one is the development of a range of high level 'skeleton' TOMs
  - Stage two is the detailed design of the skeleton TOM options
- TOM stakeholder consultation may also draw out new skeleton TOM options – feedback to be discussed with DAB in June meeting
- The purpose of the DAB's evaluation today is not to pick a preferred TOM at this stage

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Outcomes for this session

- Key questions to answer:

1. Does the DAB consider there is a sensible range of skeleton TOM options which have been developed by the DWG? Has anything been missed? *Justin to lead discussion*

2. Looking through the Design Principles, does the DAB have any comments on the skeleton TOM options. *Anna to lead discussion*

   - Based on your views of the direction the energy market is headed, do you have a view on which skeleton TOMs would be better for competition and innovation over the next 10-20 years?

3. Are there any particular questions which should be put to stakeholders in the skeleton TOM consultation *Justin to lead discussion*

4. Heading into stage 2, what direction would you provide the DWG when developing the detailed design *Justin to lead discussion*

Range of skeleton TOM options

- Is there a sensible range of skeleton TOM options which have been developed by the DWG?

- Has anything been missed?

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Evaluation against the Design Principles

- Facilitate and support innovation
  - HH data (actual and estimated) for all MPANs will be available as data processing will be responsible for converting all meter readings to HH data
  - TOM's A, D and E have market-wide aggregation
- Does the DAB have a view on which skeleton TOMs would be better for innovation and competition over the next 10-20 years?
  - Does one way of grouping services better support what could happen in the energy market than other ones in the skeleton TOMs?
  - If you were an innovator or new entrant, is there a particular skeleton TOM that would appeal to you?
  - Does one skeleton TOM better facilitate Government objective of transition to a low-carbon, smart, more flexible energy system over the other ones?

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Evaluation against the Design Principles

- Data retrieval, processing and validation
  - retrieval, processing (including validation) and aggregation are the key services in the skeleton TOMs
  - design principle puts emphasis on 'maximising efficiency and consumer benefits to deliver the best achievable balance between speed, accuracy and minimisation of data errors within reduced settlement timescales' and promoting simplicity but not stifling potential for innovation
  - DAB preliminary views on how service groupings in the skeleton TOMs may contribute to these aims?
    - Does it make sense for some services to be combined? For example – retrieval and processing or processing with aggregation
    - Do DAB members see any reasons why different rules should apply for smart and advanced market segments
  - Definition of these services will form major part of stage 2 – any DAB direction to DWG here?

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Evaluation against the Design Principles

- Treatment of non half-hourly settled customers
  - largely the same rules will apply to non half-hourly customers (same processing and aggregation). The only exception is retrieval for 'traditional' meters due to need to physically read meters
  - potential commercial implications as less and less 'traditional' meters and less agents choose to provide the service
    - Any views from DAB on how this could be mitigated via TOM design?
  - Difficulty of obtaining physical meter readings could slow down settlement. DAB views on how this could be overcome?

Evaluation against the Design Principles

- Data estimation
  - Largely the same across all skeleton TOMs
  - Data estimation to be done as part of data processing. A load shaping service to develop consumption 'shapes' to apply to register reads
  - Envisaged as a simple service as the assumption behind the skeleton TOMs is that the majority of the market has smart or advanced meters and is being HH settled
  - However the idea is 'principles' underlying the load shaping service could be applied even if a larger portion of the market remains non half-hourly
  - Discussion at DWG on whether this should be a competitive service or market-driven? Welcome DAB views here

Evaluation against the Design Principles

- Reduced settlement timescales
  - Current timeframe is 14 months
  - Largely not applicable as skeleton TOMs do not discuss reduction of settlement timescales
  - Settlement timescales should be reduced given ability of smart and advanced meters to collect data remotely
  - Important issue to discuss in stage two as the reduced timescale may drive system requirements for the DCC and settlement

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Evaluation against the Design Principles

- Change of measurement class (CoMC)
  - not applicable as skeleton TOMs do not address mass migration of customers
  - in skeleton TOMs, settlement does draw much distinction between HH and non-HH customers. Distinction in future may more be customers switching between smart and advanced segments
- Settlement of export
  - skeleton TOMs facilitate export. BEIS policy decision on whether this becomes mandatory
  - if export settlement remains optional, what potential issues may the TOM design work have to think about to mitigate potential settlement inaccuracy?

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Evaluation against the Design Principles

- Unmetered supplies
  - Largely N/A but DWG will discuss reforming arrangements in stage 2
  - While only a small portion of the market today, unmetered supplies could make up a larger portion of system energy consumption as EV streetside charging arrangements are recorded via unmetered supplies
- Network charging
  - collection of HH metering data should facilitate distribution and transmission charging arrangements
- Transition
  - N/A as stage one did not consider transitional arrangements

MHHS Stakeholder Event

TOM Feedback and questions

28 February 2018

Stakeholder session - TOM Feedback (1)

- 40 attendees
  - Suppliers, agents, distribution businesses, consultants and various others

- ELEXON and Ofgem
  - SCR context
  - TOM design process
  - TOMs
  - Data privacy update

- Productive, lots of interaction and energy, breakout sessions
  - Feedback - 80% respondents felt day very useful
  - Hold more during and following the Stage 2 consultation on the TOMs

Stakeholder session - TOM Feedback (2)

- Consultation questions:
  - What are the benefits/issues?
  - Efficiencies
  - Resilience
  - Good for Supplier competition
  - Good for accuracy
  - Good for the consumer

  - Note separate Ofgem policy work
  - Good for competition in service/simplification (policy)
  - Good for data privacy

Proposed consultation areas

- Benefits of the approach common to all TOMs
- Questions on each TOM regarding (with supporting rationale):
  - Efficiency
  - Resilience
  - Simplicity
  - Accuracy
  - Competition
  - Effect on the consumer
- Other questions:
  - Identify future developments, innovation, in particular flexibility
  - What these innovations will need from HHS

DWG Stage 2 considerations

- DAB areas of focus
  - What do you see as important to tackle first?

- Initial approach by service area and sub groups
  - Retrieval, Processing and Aggregation (may need to split)
    - Data estimation/validation
    - Conversion of register reads to settlement period data
  - Load Shaping service
  - Unmetered Supplies
  - Transition (this maybe later)

- Interaction with policy area work and key decision points

DAB ways of working

- Welcome DAB feedback on what has worked well (or not well) to date
- Heading into stage 2, is there anything you feel the DAB needs any change or additional expertise
- Would you like more communication from Ofgem between meetings
- Do you want to be kept more up to date on the progress of the DWG

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