Electricity settlement expert group

Meeting 3 – 31 July 2014

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10.00 – 10.10   Welcome and introductions

10.10 – 10.20   Review minutes from meeting two

10.20 – 10.40   Evidence to inform discussion on settlement timetable

10.40 – 11.40   Detailed discussion on settlement timetable

11.40 – 12.30   Detailed discussion on estimation

12.30 – 13.00   *Lunch*

13.00 – 13.15   Update to expert group work plan

13.15 – 14.45   Introductory discussion on options for Data Processing and Data Aggregation functions

14.45 – 15.00   Wrap up and AOB

Review of minutes from meeting two

Expert group

Evidence to inform discussion on settlement timetable

Rachael Burn – E.ON

Detailed discussion on settlement timetable

Jonathan Priestley – ELEXON

Detailed discussion on data estimation

Francis Jackson – Ofgem

- Group in favour of site-specific estimation in first instance for smart sites – agreement that BSCP502 would need to be adapted.

- Group in favour of developing and using smart profiles where necessary (ie traditional sites and as last resort for smart sites).

- Group keen for joined up approach for traditional and smart sites (costs and fairness).

- High-level principles best approach at this stage (don't want to rewrite BSCP502).

- Group asked for current profiling process and costs and international comparisons.

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Market	Process	Applies to
Texas (ERCOT)	Distinction between 'weather-sensitive' (WS) and 'non-weather-sensitive' (NWS) sites. WS uses best proxy day to estimate. These are set according to day of week and maximum temperature. NWS sites use most recent same day of week as proxy. 'Backcast profiles' used in last resort (248 combinations of regions and profile types (including non-domestic)).	All sites with interval recording meters (>95% of sites).
California (CAISO)* Based on public website	Site-specific estimation similar to BSCP502. Loose order of precedence: backup metering, max 1 hour interpolation, estimation using historical site data, most recent data first (not weather sensitive). They also have the option of using load profiles (unclear when used).	All sites with interval recording meters (>40%).
Australia (AER)	Site-specific estimation simpler than BSCP502. Options for estimation: max 2 hours interpolation, estimation using historical site data ('like days') either from the previous meter read period or the previous year. N.B. no new requirements introduced as part of smart roll-out.	All sites in Victoria with domestic smart meters (~100%).

Data collection

- PrA informs suppliers of sample requirements.
- Suppliers randomly select sample sites and appoint Supplier Agents.
- Supplier Agents provide actual HH data to PrA.

Data analysis

- PrA uses sample data to create Regression Coefficients. Actual demand is regressed against: day of the week, noon effective temperature and sunset time.
- SVAA produces daily Profile Coefficients by applying outcome variables to regression coefficients (Daily Profile Production).

Volume allocation

- DP calculates AAs/EACs using meter advance and Profile Coefficients with software provided by PrA.
- DA aggregates AAs/EACs
- SVAA allocates aggregated volumes for each HH by applying Profile Coefficients to AAs/EACs.

PrA – Profile Administrator
SVAA – Supplier Volume Allocation Agent
DP – Data Collector
DA – Data Aggregator
AA – Annualised Advance
EAC – Estimated Annual Consumption

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	PrA costs/year	Other costs/year*	Total costs/year
Current profiling (PCs 1-8)	£176k	£458k	£634k
Indicative costs of options			
Frozen profiles	Nil	£458k	£458k
Smart profiles	?	~£458k	>£458k

* Other costs comprise: provision of EAC/AA and NHHDA costs, daily profile production by SVAA, Met Office data, and costs of distribution of profiling data to relevant parties.

	Traditional meters	Smart/advanced meters
1)	Smart profiles	Site-specific + smart profiles
2)	Frozen profiles	Site-specific + frozen profiles

- At last meeting, the group expressed a preference for Option 1.

- We have also kept Option 2 on the table as it is the lowest cost option.

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	1) Smart profiles	2) Frozen profiles
Accuracy	Enhances current level of accuracy for traditional sites; more accurate than Option 2 for smart sites.	Similar level of accuracy as at present for traditional sites; less accurate than Option 1 for smart sites.
Costs – capital	Costs of developing new process and software for profiling.	No costs for profiling – simplifies existing process.
Costs – operational	Data analysis (depends on complexity of chosen profiling method). Costs likely to exceed Option 2.	Minimal data analysis for daily production of profiles.

Does the group continue to prefer option 1?

Outcomes

- The process should be as simple and cost-efficient as possible.

  ➢ There should be no need for manual intervention at any point in the process (which would be very costly when scaled up).

- The accuracy of the estimation should be similar to that achieved by current BSCP502.

Process

- In choosing the appropriate data to base the estimation on, it will be necessary to have regard to the nature of the day in question (eg day of week, weather, holiday etc) and price signals (eg DSR).

- There should be various alternatives if the first choice of data is unavailable (order of precedence).

- The option of last resort should use a form of profile to estimate the missing data.

Does the group agree with these principles?

Is this level of accuracy realistic?

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- As for BSCP502, we want sufficiently detailed principles for smart profiling to enable the Impact Assessment to include a cost estimate.

- As discussed last time, variables that could be changed include:

  ➢ Dynamic versus static profiling.

  ➢ The size of the sample.

  ➢ The number and type of profiles.

  ➢ Profiling for volumes.

What is the group's vision for smart profiling?

How accurate does it need to be?

- Further refine options based on today's discussion.

- Join up with conclusions of other focus areas in order to draw up reform packages.

- Revert to group with reform packages (1 October).
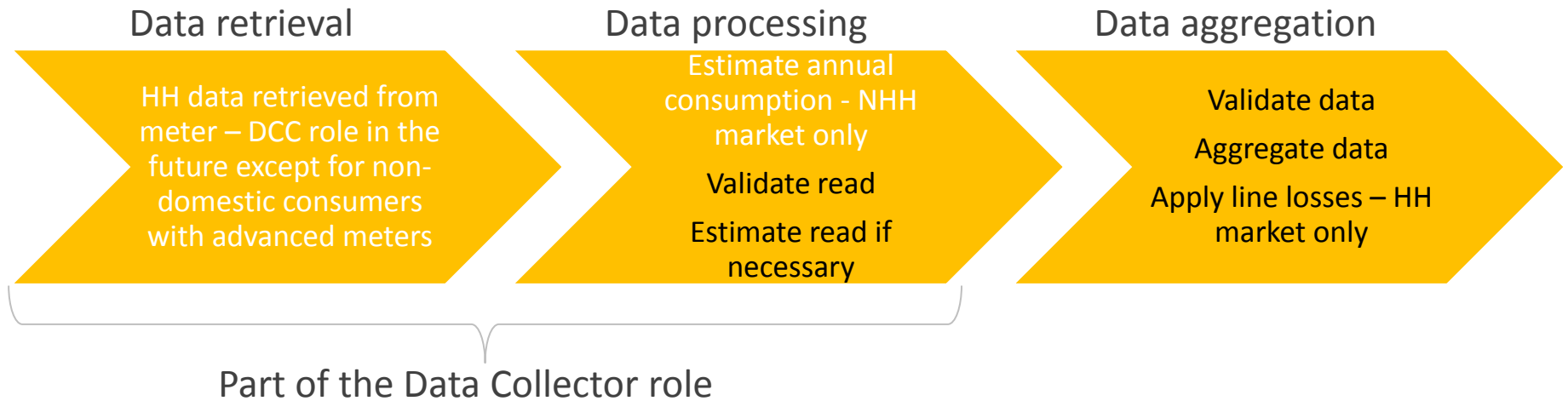
Lunch

12:30 – 13:00

Update to expert group workplan

Francis Jackson – Ofgem

Forward workplan

Date	Morning session	Afternoon session	Additional items
03/09	Detailed discussion on DP and DA functions	Introductory discussion on transition	CER presentation
01/10	Detailed discussion on transition	Introductory discussion on reform packages	Options for DCC data retrieval
23/10	Detailed discussion on reform packages	Discussion on plan for second stage	
06/11 or 12/11	Discussion on export	(contingency)	

Introductory discussion on options for DP and DA functions

Ciaran MacCann – Ofgem

- Explain context

- Explain proposed options and design

- Explore other potential options

- Discuss initial evaluation of those options and design

- Explore next steps and further evidence

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Data retrieval

HH data retrieved from meter – DCC role in the future except for non-domestic consumers with advanced meters

Data processing

Estimate annual consumption - NHH market only

Validate read

Estimate read if necessary

Data aggregation

Validate data

Aggregate data

Apply line losses – HH market only

Part of the Data Collector role

- Should all consumers be settled against HH data, DP and DA functions will still be necessary in the future

- Aside from estimation we do not think these functions will need to change considerably

- Stakeholders told us there are potential efficiencies from changing who is responsible for DP and DA functions in smart world – this is a key regulatory question

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- Message from stakeholders that issue not relevant to improving the reliability and speed of change of supplier process, but is more relevant to settlement

- Stakeholders have informed us there are three drivers, relevant to settlement:

| Simplicity | Cost efficiency | Data quality |

- Our policy objective is to ensure that the arrangements for who is responsible for DP and DA functions are simple, cost-effective, and result in high quality data being used in settlement

- **Data access and privacy** – taking existing rules into account in developing options

- **Change of supplier related reforms** – eg timing/co-ordination of reform with central registration

- **Settlement timetable** – affects how quickly DP and DA functions must occur

- **Estimation** – changes a function which DP and DA performs

- We see three high level options in the future:

1. Supplier Agent	Little or no intervention – users would be free to use Supplier Agents
2. Central agent(s)	Intervention – mandatory use of central bodies and/or suppliers
3. Hybrid competition	Intervention but choice of using central bodies/suppliers or Supplier Agents

Are there any other high-level options to consider?

Key features

- DP and DA functions continue to be performed by individual Supplier Agents
- Two sub-options either 1a) suppliers obtain data and pass it to Supplier Agents or 1b) Supplier Agents obtain it directly from DCC

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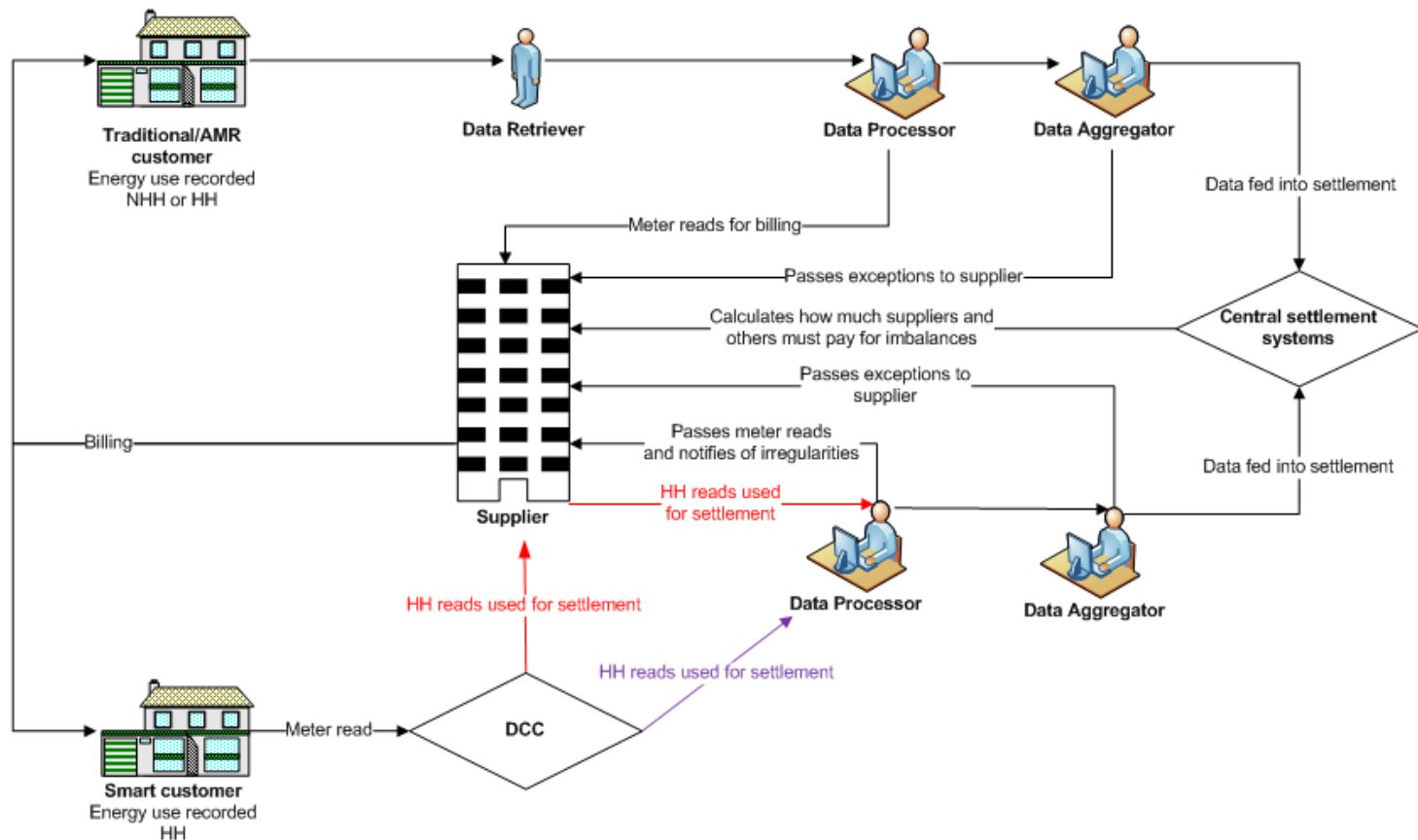
|	1a) Supplier Agents access from suppliers	1b) Supplier Agents access from DCC
Simplicity	• little scope for process simplification (multiple hand-offs & unstandardised processes)	• one less hand-off than 1a
Accuracy	• remote capabilities of smart and HH data reduce exceptions, but no scope for reduction in errors from complex processes • Supplier Agent competition and close relationships with suppliers could maintain/improve data quality standards in managing error/settlement performance	• potentially fewer errors (to some extent) than 1a if less hand-offs
Cost	• upfront cost for Supplier Agents; potentially limited scope for further economies of scale of undertaking DP and DA • potential for further cost savings in managing/resolving error? (if fewer errors/agent competition?)	• potential (small?) costs saving of resolving exceptions and from marginally simpler process given one less hand-off
Flexibility	• strong flexibility to react to needs of market as choice retained	• as 1a)
Integration	• little change to existing market structure	• as 1a)
Risks	• fragmented accountability for DP and DA (but suppliers retain control); no risk of single point of failure	• as 1a)
Implementation	• uncomplicated implementation	• may require changes to SEC

Do you agree with initial assessment?

- *How should central agent be structured?*
  - ➤ Procurement and management model

- *Which consumers are included?*
  - ➤ Smaller non-domestic consumers can opt in or out of central provider

- *Who is the central body?*
  - ➤ DCC
  - ➤ ELEXON
  - ➤ New body

Shown in diagrams

- *Where do DP DA functions sit?*
  - ➤ All with one central provider
  - ➤ Functions split across different central providers

- *What should be the scope of the central body service?*

<u>**Do you agree with these design considerations? Are there any other considerations, particularly those which could mitigate policy risks?**</u>
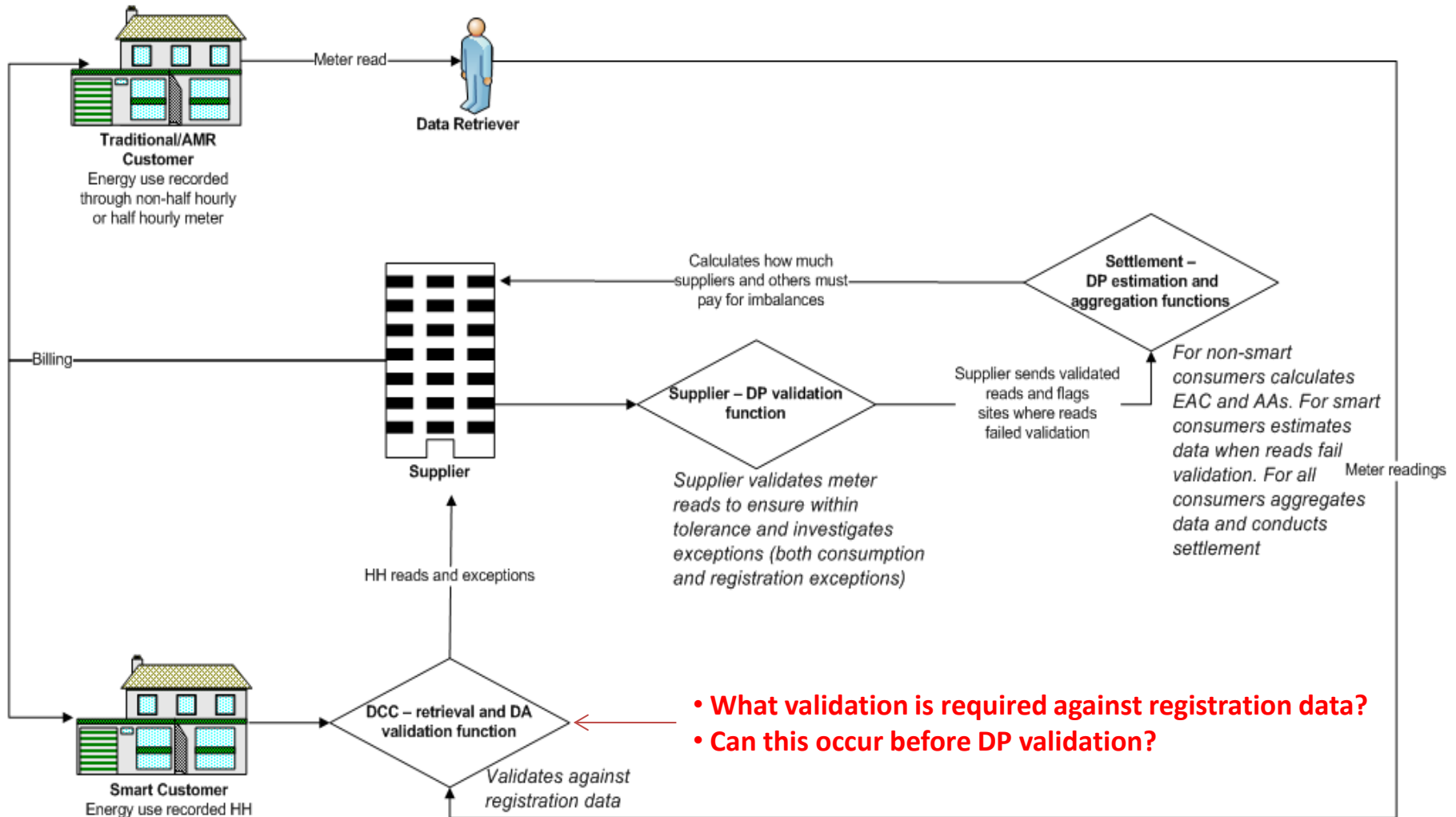
Key features

- Use of a central agent(s) would be mandated
- 3 sub-options exist, central agent could be a) DCC, b) ELEXON c) new body
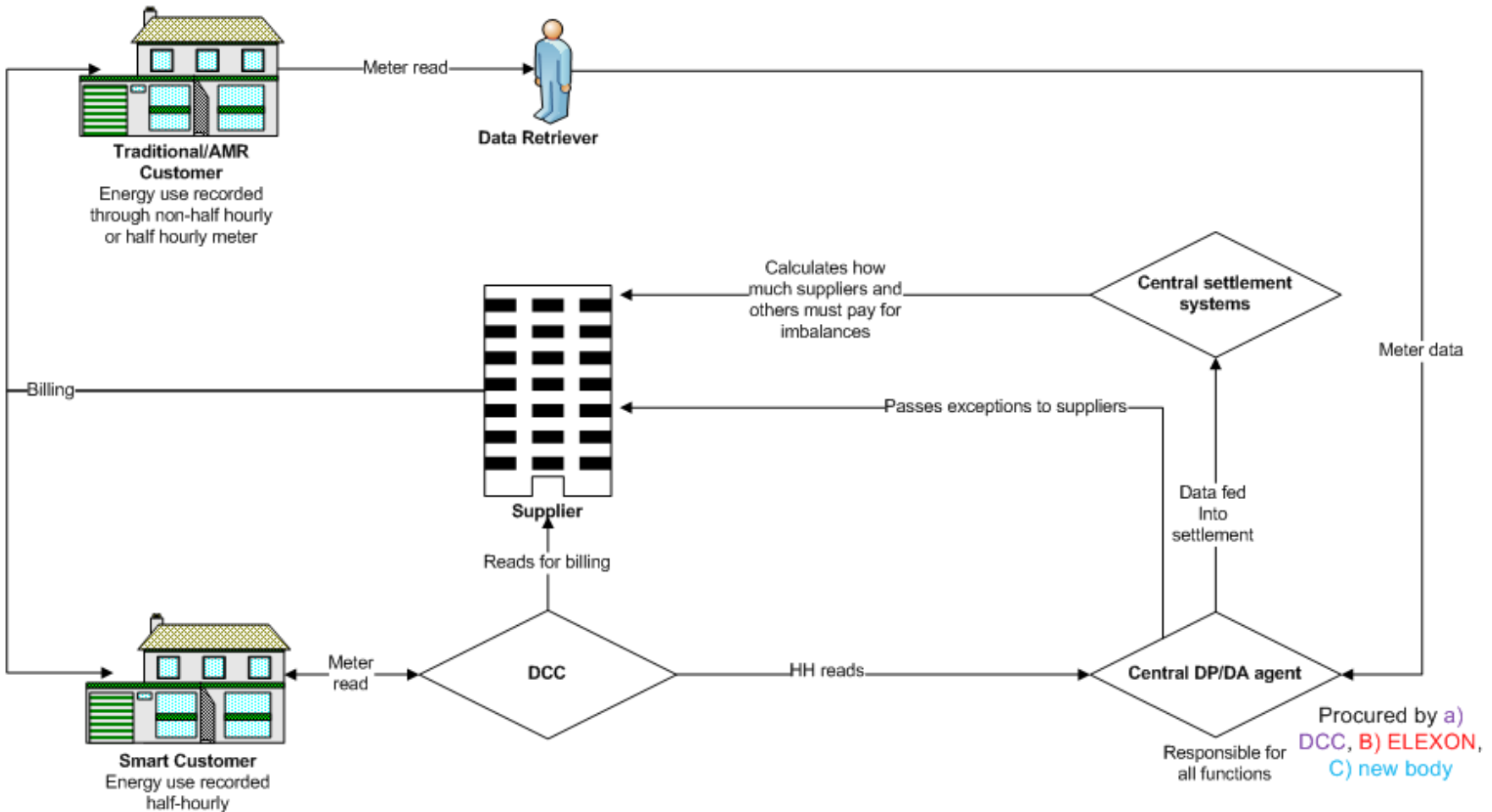
Key features
- There is a further sub-option (d) where responsibility for functions is split

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	2 a) DCC b) ELEXON c) new body	2 d) split responsibility
Simplicity	• strong scope for process simplification (fewer data hand – offs & end to end standardised processes)	• slightly more complex from having multiple providers
Accuracy	• strong scope for process simplification allows fewer related exceptions • single provider/removal of competition may worsen data quality standards (but could be mitigated by certain design considerations)	• more hand-offs /unstandardised processes which could mean more exceptions?
Costs	• upfront cost in establishing central agent, but potential for economies of scale • fewer exceptions which would reduce cost of managing exceptions	• more sets of upfront cost; potentially less scope for economies of scale? • higher cost of managing exceptions if these increase
Flexibility	• flexibility to respond to market minimised, but single governance allows flexibility	• multiple governance inflexibility
Integration	• large changes to market structure; potential misalignment of central body current role/expertise and DP and DA role • potentially integrates with DPA	• better alignment with body roles/expertise • potentially worse integration with DPA
Risk	• single point of accountability (but suppliers potentially less control); risk of single point of failure • Ofgem regulatory oversight may vary by body • risk of monopoly power of having one seller (potentially mitigated through safeguards)	• fragmented accountability (but suppliers retain some control); less risk of single point of failure
Implementation	• complex	• potentially more complex (more players)

Do you agree with our initial evaluation?

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- DECC introduced licence obligations to ensure domestic and micro businesses have greater control of energy consumption data held on their smart meters

- Suppliers need to gain opt-in consent from domestic consumers and opt-out consent from micro-businesses with smart meters for their HH data

- Third parties need opt-in consent to access HH data from both domestic and micro-business consumers

Key considerations

Supplier Agent model
➢ Suppliers would be allowed to get HH data for settlement as a regulated duty
➢ **Current licence obligations on access to HH data would need amending**
➢ Suppliers would be responsible for ensuring their Supplier Agents use data solely for settlement
➢ Access to disaggregated data could enable suppliers to forecast more accurately and therefore help them to manage risk
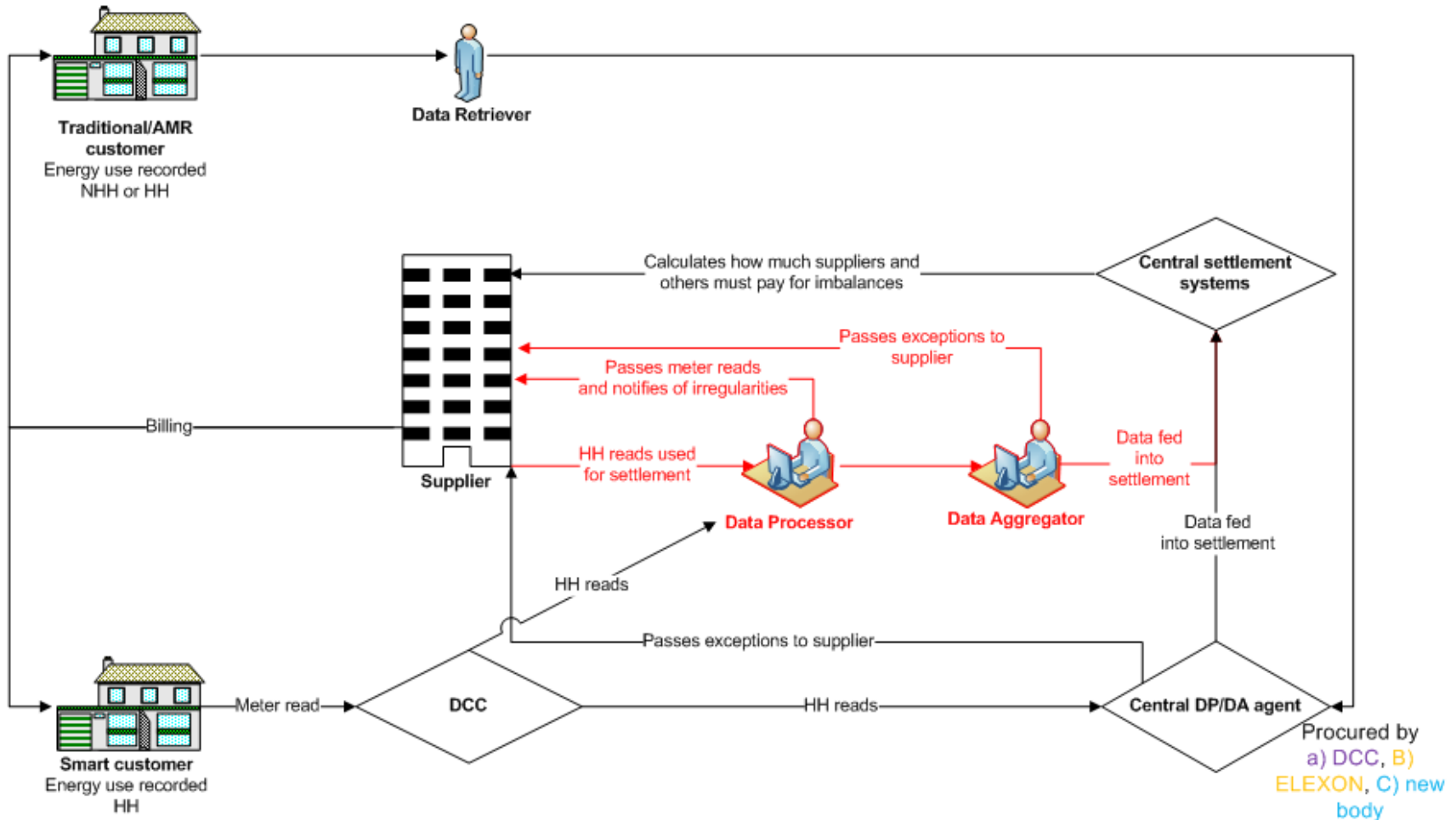
Central agent model
➢ Central agent would be entitled to access HH data for settlement – no commercial interest in data
➢ Central agent would aggregate data and provide this to central settlement and suppliers
➢ **Would retain the current restrictions on suppliers**
➢ Suppliers would only receive aggregated data which could negatively affect their ability to forecast accurately and therefore manage risk

What might be the issues with suppliers only receiving aggregated consumption data?
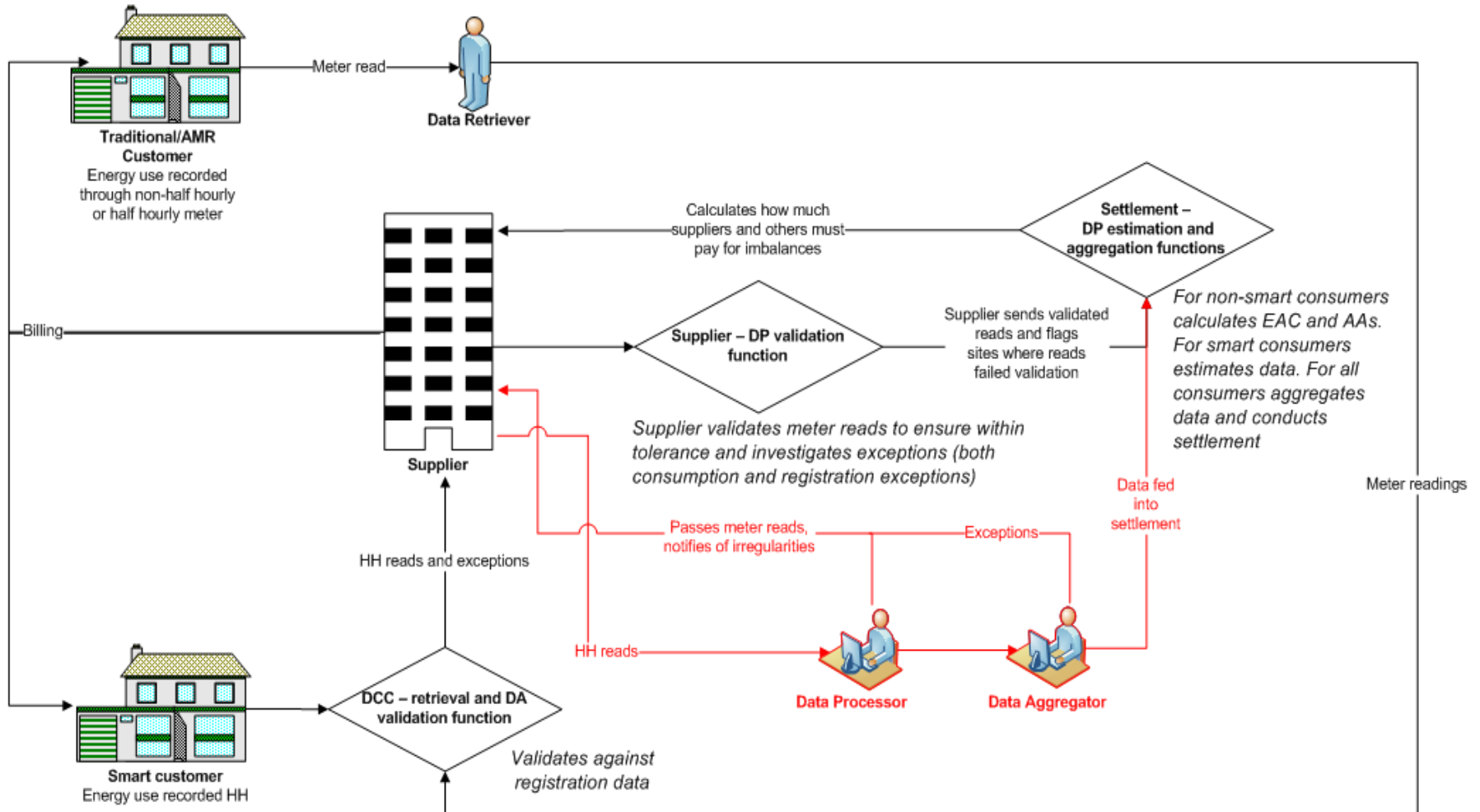
Key features

- Central agent(s) would be established – this body would compete with individual Supplier Agents

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Key features

- There is a further sub-option (d) where responsibility for functions is split

	3 a)DCC b)ELEXON c) new body & Supplier Agents	3 d) split responsibility central agents & Supplier Agents
Simplicity	• potentially complex processes (dependent on market structure evolution – move to a central provider)	• potentially more complex
Accuracy	• potential complexity may remain and lead to data exceptions (dependent on market structure evolution – move to a central provider; and competition)	• more process complexity could impact data quality
Costs	• upfront central agent costs; economies of scale dependent on market structure evolution • may reduce managing exceptions costs (depend on reduction in exceptions/Supplier Agent competition)	• more sets of up-front costs, potentially fewer economies of scale?
Flexibility	• potential market flexibility (if choice from competition); multiple governance arrangements and potential uncertainty	• broadly same as other sub-options
Integration	• large changes to market; potential misalignment of central body current role/expertise and DP and DA role (but lower impact as market choice); complex interaction with DP and DA	• more alignment between central body current role/expertise and DP and DA role; potentially more complex interaction with DPA
Risks	• uncertainty – central agent cost recovery/how suppliers are charged (double charging)? • risk of distorting competition • fragmented accountability; lower risk of single point of failure • Ofgem oversight may vary by body	• lower risk of single point of failure
Implementation	• complex	• potentially more complex

Do you agree with our initial evaluation?

	Option 1 – Supplier Agents	Option 2 – central agent(s)	Option 3 - hybrid
Simplicity	Low scope for process simplification	Best scope for process simplification (though depends on how functions allocated)	Scope for simplification depends on market movement to single provider
Accuracy	Some data issues resolved; exceptions caused by process complexity remain; may be (mixed?) competition benefits	Highest scope for reducing exceptions caused by process complexity (may depend on how functions are allocated); risk of poor service quality as single provider	Scope for improvements over option 1 depend on market move to single provider
Costs	Upfront cost; limited potential for economies of scale for doing DP and DA; reductions in cost of managing exceptions	Up-front costs, but highest scope for economies of scale of doing DP and DA and managing data quality exceptions (may depend on how functions are allocated)	Up-front costs and potentially lower scope for economies of scale than option 2 from doing DP and DA (and increases in unit costs?– if high costs of competition)
Flexibility	Best flexibility to adapt to future market changes	Low flexibility to adapt to future market changes (but option design could mitigate some risks)	High ability to adapt to future market changes
Integration	Best integration with existing market arrangements; complex interaction with DPA	Large change to market; risk to central body performance; potentially best interaction with DPA	Change to market; lower risk to central body performance than option2?; complex interaction with DPA
Risk	Fragmented accountability (but suppliers retain control), no risk of single point of failure	Single point of accountability; highest risk of single point of failure. Risk of one provider exerting market power. Regulatory oversight may depend on provider	Fragmented accountability and control, but low risk of single point of failure. Risk of central provider distorting market power. Less regulatory oversight for certain providers
Implemnt'n	Easiest to implement	Complex implementation	Complex implementation
Overall consumer impact	Retains potential consumer benefits of competition but less potential for efficiencies; complexity retained	Removes potential competition benefits but potential consumer benefits from central agent	Potentially retains competition and centralised benefits but dependent on how market moves

Do you agree with our initial assessment?

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- Ofgem will revert to the group at the 3 September meeting with options updated in light of today's discussion

- The group to reflect on discussion and send any further thoughts or feedback

Can group members provide any data or information to inform option development or evaluation?

Role	Function	Further detail
Data Collector – data retrieval	Collect meter readings	
	Perform site checks	
Data Collector – Data processing	Validate meter readings • check read is within tolerance • main/check meter comparison • checking alarms • checking outstation time • checking outstation channels	 • comparing the main meter against the check meter to ensure the values match • investigating alarms when triggered • correcting outstation time if out of sync • comparing number of channels of outstation with what expected
	Proving tests	The meter operator and the HHDC collect meter data for the same period and compare the data to ensure it matches
	Estimate data when it is missing or fails validation	
	Meter advance reconciliation	Reconciliation of the advance on the meter register between two specific dates compared with the sum of the relevant data used in settlement over the same dates
	Data transfer	The transfer of data between old and new HHDC is required for gap-filling historical data following a change of HHDC
Data Aggregator	Validate data against registration data	Checking data received from the HHDC against registration data to ensure it matches
	Aggregate data	
	Apply line losses	

Initial view of Supplier Agent functions in smart world

Table below outlines our initial view on Supplier Agent functions in a smart world. We have indicated where functions move to the DCC, may no longer be required, or are likely to remain in future

Role	Function	Where sit in future
Data Collector – data retrieval	Collect meter readings	Moves to DCC (except non-domestic consumers with advanced meters)
	Perform site checks	Likely to remain in future
Data Collector – Data processing	Validate meter readings	
	• check read is within tolerance	Likely to remain in future
	• checking alarms	Likely to remain in future
	• main/check meter comparison	May no longer be required as sites will not have check meters
	• checking outstation time	Moves to DCC (DCC becomes master/reference time for smart meters)
	• checking outstation channels	May no longer be required as sites will not have multiple channels
	Proving tests	May no longer be required for consumers with smart meters but still necessary for consumers with advanced meters?
	Estimate data when it is missing or fails validation	Likely to remain in future
	Meter advance reconciliation	May no longer be required as smart meters should not allow advance and HH interval data to become desynchronised
	Data transfer	May no longer be required if central agent option is pursued or if estimation uses data from other consumers rather than historical data?
Data Aggregator	Validate data against registration data	Likely to remain in future
	Aggregate data	Likely to remain in future
	Apply line losses	Likely to remain in future

Wrap up and next meeting

Chair

Next meeting: Wednesday 3 September July 2014, Ofgem.

- Morning – detailed discussion on data processing and data aggregation

- Afternoon – introductory discussion on transition

Papers circulated: 27 August 2014

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