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Paper Reference:	**TABASC_51_0503_09**
Action:	**For Decision**

MWHHS Strawman Design Scenarios

1. Purpose

At the February TABASC meeting, SECAS presented several scenarios for facilitating Market Wide Half Hourly Settlements (MWHHS) through Smart Metering. Most of the discussion concerned the identity of the party retrieving half hourly data from the meters; members largely preferred solutions involving Suppliers that would minimise change to the meters and impact to the current architecture.

The TABASC requested that a strawman be provided outlining the Supplier specific scenarios which can be presented to the relevant Design Working Groups; this paper presents this strawman for with a recommendation for preferred design for TABASC approval.

2. Scenarios

2.1 Scenario 1 – Settlement Alert To Supplier

Outline

In this scenario, the Supplier would configure delivery of a settlement specific Alert on the meters via a Service Request, and thereafter, the meter would send half hourly data at the time specified. It would be the responsibility of the Supplier then, to pass the data to Elexon's systems.

Benefits

There would be minimal data privacy implications the Supplier is already authorized to collect and process consumer data. Additionally, end to end encryption of the data is possible as Suppliers have their certificates on the meter's trust anchor cells. A final benefit of this solution is that, unlike the other solutions, this solution does not involve bidirectional flows of data every time it is initiated; the Service User has to set up the Alert once and thereafter, all payloads will sent by the meter (without needing an Read Service Request on-demand or scheduled), a situation that reduces network traffic.

Costs/ Considerations

Solution specific costs envisioned are in the definition of new technical constructs, namely alert structure and payload, service request definitions, and changes to the meter functionality. Thus, changes would be required to the GBCS, DUIS, MMC, and SMETS specifications. Meter firmware would also need to be upgraded. Lastly, there may be implications for settlement if the configuration time of Alert happens to coincide during planned DCC outages (although this is mitigatable by proper scheduling).

2.2 Scenario 2 – Supplier Agent As Other/MWHHS User

Outline

This scenario is one in which the Supplier agent performs the retrieval via an on-demand request, espousing either the 'Other User' function or a new MHHS specific User Role.

Benefits

Agent as 'Other User': There would be no code changes. End to end data privacy would be preserved; the meter receives the credentials of the party assuming the role, and therefore, is able to encrypt relevant SMETS consumption attributes so that it can be viewed only by the authorized party.

Supplier as MWHHS User: Carving out a settlement specific User Role means access can be limited to just data and/or use cases that are necessary for settlement purposes.

Costs/ Considerations

Agent as 'Other User': The 'Other User' role also permits access to non-half hourly data (such as Tariff, Daily Consumption Logs, Inventory, Device Configuration, and Auxiliary Load Switch Data) – a situation which may not be preferable. Settlement specific use cases will also not be isolatable from other use cases.

Agent as MWHHS User: Some code redrafts may be needed. SEC Section I currently requires parties other that Suppliers, Distributors, and Transporters to obtain unambiguous consumer consent prior to accessing Consumption data, and it may be in beneficial to make settlement use cases exempt from this requirement (so that they are not caught up in privacy arrangements). Given that the MWHHS User functionality is not present, there will likely be additional costs of implementation.

Both scenarios, as presented here, are on-demand services and therefore, would not have the traffic management benefits envisioned in Scenario 1.

2.3 Scenario 3 – Supplier Polling Data

Outline

This scenario is facilitated by already extant functionality, namely the Supplier sending Read requests (SR 4.8.1 or equivalent) for half hourly data.

Benefits

No code changes are incurred. To facilitate billing, most supplier systems facilitate the polling of tariff registers from the meters, and a similar mechanism can replicate polling for half hourly profile data.

Costs/ Considerations

It can have adverse implications for network traffic (similar to Scenario 2) due to bidirectional flows.

3. Residual Design Challenges

A few general challenges are worth noting with all solutions aforementioned.

The first concerns the potential effects on the transmission networks. The design assumption of the MWHHS is that meter data is input into volume allocation daily, subsequently implying that the meter data must be sent to balancing and settlement daily. While Scenario 1 attempts to minimise increases in network traffic as much as possible, CSP capacity, particularly in the North, may still be adversely

affected. For example, a simultaneous transmission of settlement data from all assets on the field may strain the network, especially if the target read time is similar in magnitude to that for on-demand requests (30s). Settlement data may not time critical, however, such implementation details have not yet been designed. Thus, the exact extent of the effects from MWHHS on the network is unclear as of now, however, solutions that keep traffic flow to a minimum or spread traffic flow across the various times are advisable.

Secondly, billing and settlement information may not correlate with each other in the current SMETS implementation. Settlement will rely on half hourly profile data, collected between 00:00 and 00:30 by the meter on a daily basis and stored within its Profile Data Log. However, billing relies on Tariff Registers that are subject to randomization by means of an offset value. This effect may be negligible with a single or two-rate tariff, but may become significant with 48 tariffs (the maximum allowed for an electricity meter), potentially leading to a situation in which the Supplier bills the consumer on a value that is different to the settlement amount. Note that this challenge is tractable through a SEC Modification and change in specification.

4. Next Steps

As noted here and at the February TABASC meeting, all solutions have associated costs and benefits. The AWG has not yet defined detail within the solution architecture, and so a full analysis of the impact cannot be formulated. Preferences can however be identified at this early stage.

With the aim of minimizing potential network traffic and code changes, SECAS recommends the following Supplier-based scenarios (in the order of most to least preferable) to facilitate MWHHS:

1) Settlement Alert To Supplier
2) Supplier Agent As Other User/MWHHS User
3) Supplier Polling Data

Residual challenges are then surmountable through proper management of traffic and/or specification change.

5. Recommendations

The TABASC is requested to:

- **AGREE** the design priorities as laid out in this paper
- **AGREE** that Scenario 1 (Settlement Alert to Supplier) is the preferred design position
- **AGREE** that this view is to be taken forward with the relevant design groups.

Abhay Soorya

SECAS Team

27 February 2020