

AWG Consultation Response Template

Date	21 May 2021	Classification	Public
Document owner	Elexon	Document version	Version 1.0

Respondent information

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Confidential Y/N	N		

Please:

- Email your response to awgsecretary@elexon.co.uk by 08:00 on 24th May 2021, using the subject line 'MHHS AWG Consultation Response'.
- Use this Word response form where possible to make it easier for the AWG to identify and summarise views.
- Provide supporting reasons for your answers to help the AWG understand your response.
- Identify clearly which, if any, aspects of your response are confidential. We will not publish any information marked as confidential or share this with the AWG. However, Ofgem will see all responses in full. We encourage you to provide non-confidential responses where possible, to inform the AWG's discussions.

Email Elexon's MHHS team at awgsecretary@elexon.co.uk with any questions. More information can be found on the [AWG webpage](#).

Question 1. Do you agree that the business and non-functional scope as set out is consistent with Ofgem's business case, target operating model development principles, the agreed TOM and subject areas considered by the CCDG?

Yes

Rationale:

Electralink agrees that the business scope is consistent with Ofgem's business case and TOM.

We believe, however, that balancing the requirements of the non-functional scope is a challenging task. For example, the requirement to transfer data automatically could be a challenge when also trying to minimise costs. There is also the challenge of balancing costs to a wide array of industry participants, while also creating a new data integration service that is prepared for future changes and that modernises technology without creating large technological debt.

ElectraLink believes that balancing these potentially conflicting objectives will benefit from significant engagement with industry and central technologies, such as the DTS, including investigating whether there are opportunities to reuse existing technology or minimise costs with a central integration solution.

We agree with the AWG that cost efficiencies could be realised by utilising the existing technology of the DTS to allow parties to transfer their data to an Event Driven Architecture, until they are ready to transition to a new data architecture themselves. ElectraLink would welcome the opportunity to continue to support industry and Elexon with

understanding how we can achieve these objectives and investigate central solutions, such as DTS adapter services, to minimise integration costs.

A centralised solution utilising the DTS will ensure that there is no need for the DTS users to incur the cost and risk of moving to a new data architecture until they are ready or need to do so. Integration with existing systems would also reduce the cost of and requirement to run multiple data connections and formats to manage multiple different processes in the retail energy market.

Question 2. Do you agree that data integration is the appropriate architecture style to realise the MHHS TOM requirements rather than a more process centric architecture such as process automation or centralised business rules processing? If not, why not and what would be the most appropriate architecture style?

Yes

Rationale:

ElectraLink agrees that data integration is the correct approach to ensure that settlement systems are prepared for the future and provided at a low cost to a variety of different industry participants. A process centric architecture does not meet the expectations of Ofgem, or industry, and we agree that any move towards this architecture could create high costs to industry participants who would be required to overhaul their existing IT systems. A data integration approach would allow industry participants to interact with the EDA in a way that suits them and their technology requirements, ensuring that costs and impacts of the transition are minimised.

A data integration approach is the architecture model for the Data Transfer Service (DTS), the current mechanism for data transfer for settlement. ElectraLink provides a single, independent, flexible, secure and low-cost data transfer service between UK energy market participants that delivers all data transfer requirements relating to settlement-critical market processes.

The DTS is provided at low-cost to 308 industry participants, including every settlement party, on a cost-recovery basis. A range of connection options (starting from £132 per quarter) are available to DTS users to minimise the barriers to entry and allow industry parties to connect to the DTS according to their technology needs (such as APIs, CSV, XML, data portals etc.). The DTS enables industry parties to connect to the DTS in their own way and receive data in the way that they wish to receive it. For example, one party may wish to receive and send data in XML, whereas another party may wish to receive data in CSV. The DTS translates this data for each party so that it can be easily ingested into their systems and processes.

Since 2012, ElectraLink has been working with industry participants to create analytical solutions (including APIs and file transfer) for those that want more event or process driven data transfer, alongside the data integration architecture of the DTS. Through collecting and storing data for the benefit of the energy market, ElectraLink has been building a detailed governance framework to support innovation and provide data to those who require it, while also protecting the data controllers. This dataset and governance framework are agnostic of technology and are currently being implemented through event-driven data transfer from:

- a process (e.g. sending all relevant data in the data store to agents from the EMDH following their appointment);
- APIs, where data is accessible to users immediately for real time decision-making, removing the reliance on bilateral data transfer; and
- online dashboards to provide high level overviews.

Through the DTS and wider data services we provide, we have demonstrated that there are a number of benefits that can be derived from the existing data integration architecture. These include reducing costs to the market by only investing in technology when the investment brings benefit; reducing the risk and impact of whole scale redevelopment and allowing market participants to move at their own pace – relative to their size and capability.

We believe that these same benefits could be realised for the HHS programme by allowing the DTS to bridge the gap between the old and new settlement systems, until parties are ready to transition.

Question 3. Do you agree that Event Driven Architecture is the most suitable data integration style to realise MHHS and should be taken forward to the next stage of design? If not, why not and what would be the most suitable data integration style to realise MHHS.

Yes

Rationale:

In a modern data architecture, real-time data is not a “nice-to-have”. It is increasingly becoming a requirement of the smart energy system. Internet of Things, smart homes devices and electric vehicles all enable real time data exchange, and these devices will play an increasingly important role in the energy market. **Therefore, ElectraLink agrees that the industry should move towards an Event Driven Architecture (EDA) as this is appropriate to meet future data requirements in the energy data landscape.**

However, ElectraLink believes that most settlement datasets do not require real-time data transfer as settlement is not, and never will, need to be a real time process. Most datasets and settlement parties do not have, nor require, real time settlement data and, therefore, could utilise existing data transfer mechanisms to minimise costs to the industry. Where an EDA solution is required and used for settlement, industry parties could be supported through adapters to integrate with an EDA.

Therefore, as outlined by the AWG, users should be able to manage their own transition to an EDA – whether this is full adoption or a hybrid solution. **For those not ready to transition to EDA, ElectraLink believes that the Data Transfer Network and adapters can help minimise the impact of real-time settlement data management and can support the integration into new settlement systems at low risk and cost.** Moving the industry to EDA, with the support of adapters, will prepare industry for the future real-time data architecture and support those who need more time to move to an EDA.

ElectraLink also believe that the industry should continue to use the DTN for flows that do not require the use of an EDA architecture. This will minimise the scope of changes needed with the introduction of a new EDA and may entirely preclude some industry participants from having to adapt to EDA systems if they do not need to. With the support of the AWG documentation and the Target Operating Model, ElectraLink has performed a review to highlight which areas are most likely to benefit from EDA to explore the impact of MHHS on future use of the DTN. A summary is below, with more detail, including the DTC flows impacted, in Appendix 1 of our [White Paper](#). This assessment is in line with the AWG recommendation that not all areas of the settlement system is required to move to EDA.

Interface:	Frequency:	DTN Capable	EDA Benefit
Registration Service Appointment to Metering	Variable depending on business processes These processes could benefit from EDA, as these processes reflect an ‘event’ that has happened. EDA would only be a benefit, if the current processes and systems supported real time data transfer. However, changes to a customer or meter point are not real time (it happens at midnight) and are notified +1 to +28 days in advance, therefore, under current arrangements for registration, there is no requirement for systems to be ‘event’ driven because these events are planned events, not real time events.	✓	✓
Registration Service De-Appointment to Metering			
Registration Service Updates to Metering			
Metering Service Accept or Reject Appointment			
Metering Service Updates to Registration			
Registration Service Appointment to Data Service			
Registration Service De-Appointment to Data Service			
Registration Service Updates to Data Service			
Data Service Accept or Reject Appointment			
Registration Service to Central Settlement			

Metering Service to Data Service UMS Inventory			
Data Service to Metering UMS Response			
Consumption Data Service to Central Settlement	Minimum: once per day These processes are unlikely to benefit from EDA, as the datasets shared would be post-event data.	✓	TBC
Consumption Central Settlement LSS Period to Data Service	Twice per day These processes would not benefit from EDA, as the datasets shared would be communicating an event within settlement (i.e. validation) However, this information is not processed in real time and, therefore, under current arrangements for registration, there is no requirement for systems to be 'event' driven because these events are planned events, not real time events.	✓	✓
Consumption Central Settlement LSS Totals to Data Service			
ISD Specification	Ad-hoc as needed These processes are unlikely to benefit from EDA, as the datasets shared would be post-event data.	✓	TBC
ISD (Transitional MDD) Specification			
Registration Service to Supplier	Variable depending on business processes These processes could benefit from EDA, if the current processes and systems supported real time data transfer.	✓	✓
Supplier to Registration Services			
Supplier to Registration Services			
Registration Service Updates			
Registration Service to LDSO Updates			
LDSO to Registration Service Updates			

In conclusion, while we are supportive of the introduction of an EDA, we believe that this needs to be proportionate and focused on the activity where benefit can be gained from real time data. We wish to continue to work with the AWG to minimise the impact on existing systems and identify any opportunities to utilise existing systems where this can reduce cost and impact on market participants, while still bringing the intended benefits and progression intended by the AWG.

We also contend that that Ofgem and industry participants should reassess the cost impact of HHS to reflect this new architectural position, as it was not included in the assumptions for the Ofgem Request for Information and Impact Assessment for half hourly settlement.

Question 4. Do you agree that a new data integration service is required to satisfy the data volume and frequency requirements mandated by the MHHS TOM? If not, why not?

No

Rationale:

ElectraLink does not agree that new data integration services are necessarily required to satisfy the data volume and frequency requirements mandated by the MHHS TOM. This is because real time data is not a requirement of the AWG or Ofgem TOM and the frequency requirements, acceptance and validation of messages outlined in the TOM could be achieved using existing systems. Moreover, existing systems, such as the DTS, are able to support the transfer of data according to the data volumes outlined by the AWG.

This is because the DTN is built upon the EMDH, a highly scalable platform, built on opensource applications and hosted in a cloud environment. This architecture enables ElectraLink to support changes in volume quickly and cost effectively by implementing more or fewer virtual servers in the cloud.

As evidence of this scalability, ElectraLink successfully implemented an additional 20% capacity to support the recent growth in HHS traffic as a result of P.272 without raising the cost of the DTN to industry and, following the EMDH upgrades in 2020, the DTS is currently operating at 5% capacity. Therefore, the DTN could support the increase in data transfer requirements and significantly increase in size without additional price increases to consumers. In fact, price reductions would be possible with an increase in use of the DTN, as most of the underlying system costs are largely fixed, due to a re-platforming of the EMDH in 2020 to meet the demands of HHS.

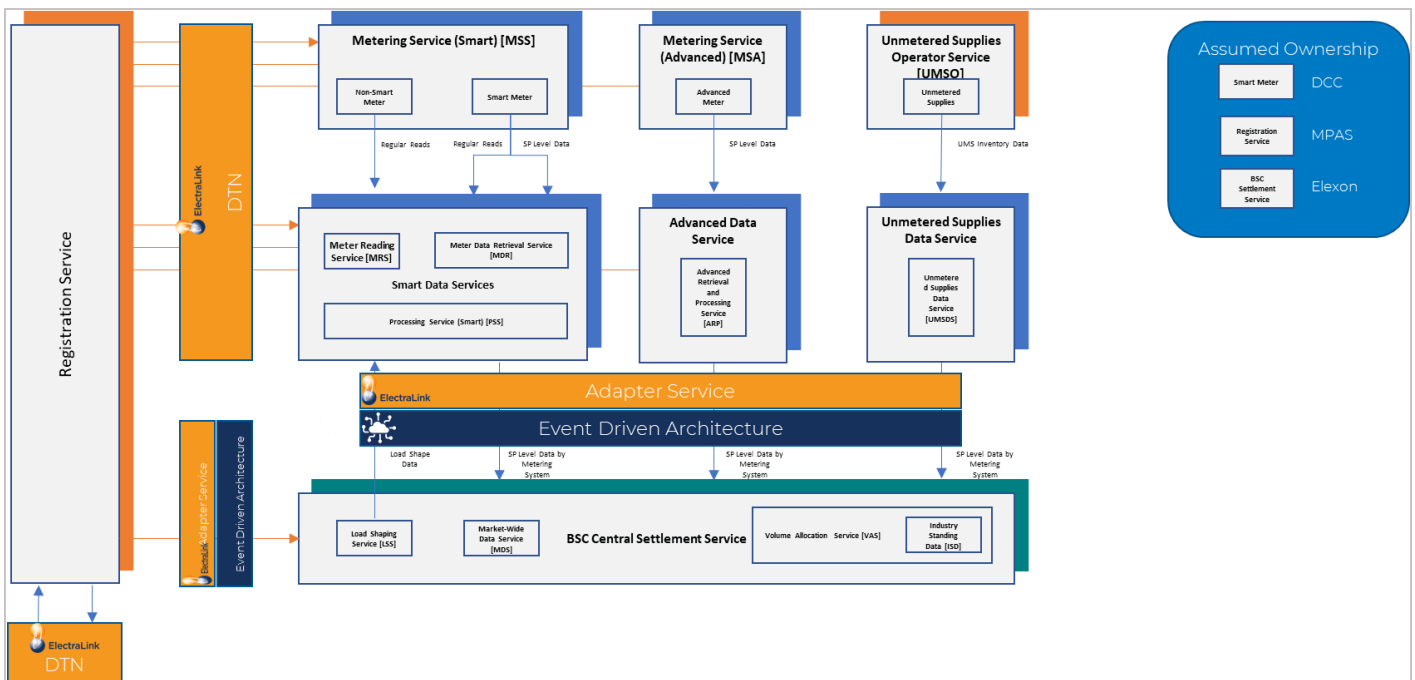
This information was used by Ofgem to outline that, as ElectraLink's costs are small, the use of the DTN supports the positive business benefits in Ofgem's impact assessment; therefore, any additional architecture decisions should be impact assessed to ensure a continued positive business case.

This is not to suggest that ElectraLink would not be supportive of the introduction of a new event driven architecture. In fact, we believe that an event driven architecture is essential to the future of the energy market and to future-proof settlement systems. However, we do not believe EDA is needed to meet the needs of the TOM so would propose a review of each data interface to understand where the benefits of an EDA will be realised, whether in current or future state. As outlined in question 3, we believe that there are some interfaces where existing data transfer mechanisms could continue to be used, namely those where there is no positive business case to move towards an EDA, even in a smart system.

We have reviewed the option outlined in the consultation regarding how an adapter service might let parties continue to use the DTN until they are ready to move to an EDA. We are very supportive of this hybrid, where the DTN is integrated with an EDA architecture, supported by an adapter system. We believe it would deliver the benefits of an EDA and move the industry forward in terms of a modern architecture, without incurring the additional costs of integrating EDA within each individual parties' systems, until those parties are ready and want to do so. Parties could continue to send and receive data in a similar way to their existing DTN connection.

A hybrid DTN-EDA meets the following key architecture requirements for the AWG:

- "Allow transition between older and newer technologies so that existing system logic can be maintained across generations of hardware/software
- Meet aspirational targets for speed of data exchange but allow for exceptions (e.g., may use batch interfaces where needed)
- Provide the opportunity to use improved technology which will encourage faster execution of data transfers
- Data created by data producers can be immediately passed to a data integration component (an adapter), resulting in minimal technology changes within each organisation"



A hybrid solution will support the industry's transition to a smart, reliable energy system, while:

1. Reducing the barriers to entry such as those experienced by small suppliers in the CSS programme
2. Reducing the costs to respond to HHS
3. Supporting parties who have minimal resources, including people, costs, or capability, to manage changes to internal systems

This mechanism will be beneficial to parties who:

1. Do not have big IT or regulatory teams able to manage the scale of the change
2. Want to avoid big bang changes to architecture
3. Do not want to overhaul existing IT systems
4. Want to minimise internal IT changes
5. Want to reduce costs to integrate into HHS

Question 5. Do you see any other benefits to industry of having an EDA for data integration available?

No

Rationale:

We do not have any benefits to add to those identified in the consultation.

Question 6. Do you have any other comments?

Yes

Rationale:

Addressing the view of the DTS in the AWG report

The AWG report outlines several high-level features that are required by HHS that it argues the DTN lacks. We believe that these assertions are based on assumptions regarding the DTN infrastructure which, following the EMDH upgrade, are out of date and require updating, as outlined by the table below:

Features the AWG suggested that the DTN 'lacks'	DTN features that support AWG proposed architecture
Speed of data transmission	The DTN transfers 99.97% of all messages within 5 mins. It can also provide near real time data transfer with DTS adapters and API services
Speed of acceptance of messages sent	The DTN provides automatic acceptance of messages against technical data validation data requirements
Moving away from batch processing to real-time processing of small data packets	Data packet size and frequency is at the behest of the individual sender - Batch data processing is an industry driven mechanism for data transfer. By 2022, the DTN will be able to send small data packets, either via the existing mechanism or via API and replication.
Real time validation	Data validation is part of the DTN where data will be validated against industry data standards and requirements
End to end encryption & protection of sensitive data	End-to-end encryption and protection of sensitive data is a core component of the DTN
Replay of event history	<p>The DTN can support visibility of event history through data portals, such as EMPRIS</p> <p>The DTN, via webtools, can support the resending the historic datasets that have already been sent by parties, if required</p>

ElectraLink agrees that there are some features the DTN does not currently have within its architecture. However, given the statements in the AWG, it is our understanding that these are not requirements of the AWG target operating model, or the requirements outlined by Ofgem that have been assessed for the HHS Impact Assessment. Those features that the DTN does not currently offer are limited to real-time data transfer and event history similar to control systems (though this could be achieved through the introduction of an adapter service) and acceptance and validation of messages against business rules, which are not a requirement of the AWG or Ofgem TOM.