The EMDH Delivering Half Hourly Settlement

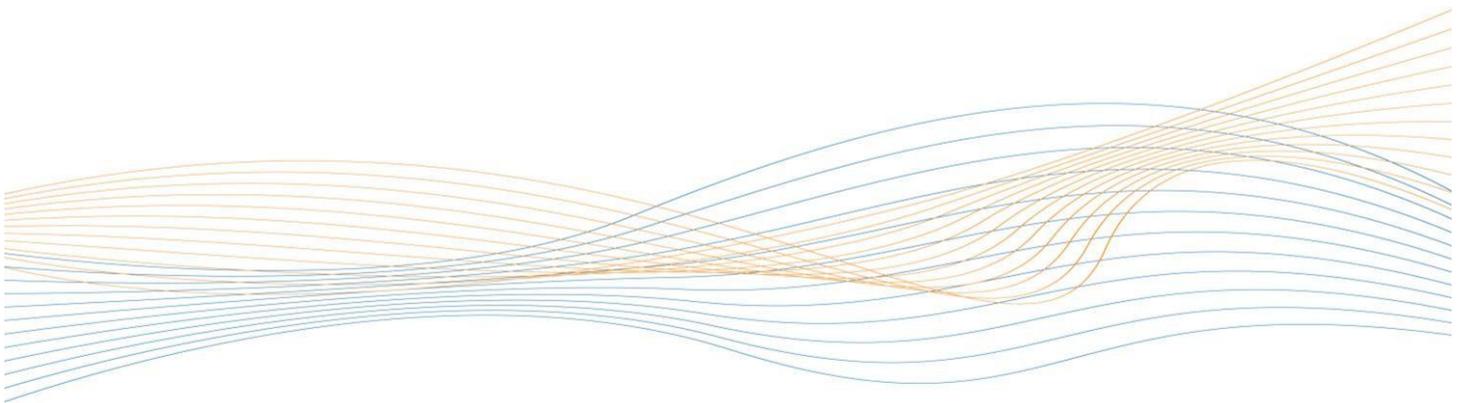## ElectraLink White Paper

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1   Introduction

As part of the report "The Target Operating Model for Market-wide Half Hourly Settlement" issued on February 12th, 2019, ELEXON is seeking views on who should be responsible for developing the system architecture once Ofgem approved the final Target Operating Model (TOM) design.

ElectraLink is the current provider of the communications mechanism used to communicate data into and out of retail settlement. The Data Transfer Service (DTS) is part of ElectraLink's Energy Market Data Hub (EMDH), an accessible, extensible, scalable and secure platform which has been designed to fully meet the requirements of Market-wide Half Hourly Settlement (MHHS).

The intention of this White Paper is to explain how the EMDH, which is competitively procured by ElectraLink, meets all the requirements of MHHS documented in the Report. There is no need for the industry to procure an additional network or for market participants to incur the cost and risk of integrating with a new solution.

2   The Energy Market Data Hub (EMDH)

ElectraLink operates at the heart of the UK energy market with unique insights into the challenges and opportunities the industry faces. For over 20 years, ElectraLink has supported the evolution of the UK energy market with the consistent and reliable delivery of the Data Transfer Service (DTS). From its inception in 1998, the DTS has underpinned competition and growth in the market through flexible, secure and trusted data transfer. Always staying ahead of the technology curve, the DTS adopted virtual private cloud technology and open source platforms in 2013 to ensure it can support dramatic growth whilst reducing costs to industry.

However, this is only one aspect of what ElectraLink has been delivering during this time. Since 2012, ElectraLink has had permission to collect all DTS data flows (from April 2012) and hold this data for up to 8 years. This data is used to support a number of settlement processes (such as ELEXON's PAF process) and the transition to a smart, flexible network (by proving Half-Hourly data to National Grid to support their forecasting of Embedded Generation output). Through the DTS, ElectraLink is connected to all settlement-critical market participants and currently provides the system architecture that supports the data transfer for all relevant retail settlement processes, such as agent appointment and meter reading data.

Beyond this, with all the necessary and appropriate governance in place, we were able to make use our unique position to monitor and identify trends in the energy market, providing a level of transparency and insight into the challenges and opportunities the industry faces. This allows us to support industry to develop solutions, facilitate innovation and reduce costs to consumers. These solutions are under the governance of the Data Transfer Service Agreement (DTSA), a multi-party agreement overseen by Ofgem.

The EMDH is our way of bringing together all the products, services and solutions we offer in one place. ElectraLink believes that it is critical that access to industry data falls under industry governance and be centrally available, from a trusted entity, to ensure that all participants have equal, secure access to industry data. It is noted that ElectraLink already fulfils this trusted, governance-bound role for the provision of the settlement system architecture.

3   The EMDH meets the programme's requirements

ElectraLink meets all the technical requirements of MHHS as outlined in the Report:

1. **"Common Interfaces" between all participants:** ElectraLink provides an independent, flexible, secure and low-cost data transfer service between UK electricity market participants to transfer data relating to settlement-critical market processes. These processes include customer switching, settlement, agent management and meter administration. ElectraLink's platform currently provides the functionality for non-Domestic HH settlement as well as elective HH Settlement to the domestic market. ElectraLink's EMDH connects to 271 industry participants which includes every HH Settlement party.

2. **"Options to stream data" including "APIs and file transfer":** Through 20 years' experience of managing the DTS, and now transformative EMDH, ElectraLink has gained deep understanding of the main barriers to the sharing of datasets, as well as the establishment of governance arrangements to ensure effective sharing of those datasets. Through the DTS and now the EMDH, ElectraLink has provided the functionality for file transfer between all relevant MHHS actors since 1998.

   Since 2012, ElectraLink has been working with industry participants to create analytical solutions for the industry. 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 whilst 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. the sending of 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 views.

   ElectraLink's services already include file transfer and API access to market data.

3. **"Allow future innovation options…to access Meter level data":** ElectraLink's ability to collect all DTS data flows enables ElectraLink to store, enrich and analyse the DTS dataset. We do so to provide insights which drive business value and operational efficiency for UK energy market participants, including settlement agents and suppliers, as they enter the smart flexibility market. Moreover, the governance structure of the DTS, namely the DTSA, enables ElectraLink to provide secure access to settlement data to market actors to facilitate innovation and drive market transformation.

   An example of key use cases for access to the settlement data within the DTS dataset, include:
   - National Grid's utilisation of ElectraLink's Embedded Generation dataset to support Grid's forecasting of Embedded Generation output,
   - Ofgem's tracking of eServe ECO submissions and
   - ELEXON's use of settlement data to support their performance assurance.

4. **"Robust governance layer":** The EMDH has a flexible governance structure defined in the DTSA that allows the EMDH to operate data exchange defined across a number of industry codes (currently SPAA, MRA, BSC) and between bilateral parties through flows defined using FlowBuilder. The Data Transfer Network governance structure would facilitate the changes to the HHS message definitions within existing codes to the new MHHS arrangement.

A structured, mature governance arrangement for data sharing, such as the DTSA with the DTS dataset, reduces data risks (e.g. the wrong people accessing the data) and ensures independence and competitiveness, as industry govern how industry data can be used. For ElectraLink, the governance arrangements of the DTS dataset ensures that the data sharing is provided flexibly and **always to the right people**, including new market actors. The rules of data sharing can be updated, as appropriate and agreed by the industry, and this mechanism has been used to provide settlement data to new market actors, such as Innogy, to support their DER offerings.

The industry, via the DTS User Group, and Ofgem retain oversight of the DTSA and therefore would have direct visibility of any EMDH performance, service or governance issues relating to its support of the MHHS.

5. "**Role based access controls**": The EMDH security controls ensure that access to the any services are user-specific and each user's access controls are based on the role of the user.

6. "**Auditing and monitoring**": The EMDH contains audit functions and a data store to provide assurance and monitoring capabilities to understand the effectiveness of change as market participants move to market-wide HHS and, more specifically, a smart, flexible, coordinated system.

ElectraLink also supports the overall programme aims as set out by Ofgem:

7. **Promotes a cost effective and competitive solution:** ElectraLink competitively procured the EMDH on behalf of the industry, compliant with OJEU procurement procedures.

In the EMDH, the industry has a competitively procured network connected to 100% of the SVA settlement participants that can deliver the functionality required to meet the current and future needs of the MHHS at limited incremental cost. ElectraLink believes, therefore, that the most cost-effective solution for industry is to re-use this network as the communication mechanism for the MHHS.

ElectraLink firmly believes that its management of the DTS over the last 20 years demonstrates a clear centre of excellence in the procurement and delivery of data transfer services to support the UK energy industry. We believe that the most cost-effective way of delivering communication infrastructure to support the MHHS is to include MHHS communication in the scope of the EMDH and we have therefore factored this requirement into the EMDH.

Combined with the opportunities to support innovation (point 3 above), the EMDH already removes barriers to competition for new entrants through low cost connections and a trusted service that is undifferentiated between the largest and the smallest market participants. (Connections to the EMDH are provided for as little as £480 per year.)

8. **Reliability of the transition:** It is important to monitor performance across the transition to the new arrangements and to publish how suppliers and market actors are performing. Existing market monitoring can incur an overhead on market participants as they must 'self-report' performance to the regulator. Self-reporting can lead to inconsistencies. ElectraLink has successfully demonstrated how market monitoring can be delivered centrally with reporting derived from the collection of DTS data supporting ELEXON's PAF process, Ofgem's eServe monitoring and National Grid's monitoring of embedded generation growth. The continuation of the EMDH as the communication mechanism for HHS would allow the EMDH to continue providing these monitoring services. This would also allow the EMDH to support monitoring of the new settlement arrangements' performance.

9. **Scalability of the solution:** The introduction of settlement reform will significantly increase the volume of settlement traffic that the BSC, suppliers and other market participants use. We estimate that the monthly settlement traffic will grow from approximately 25GB to 3,000GB, if all domestic properties were to be settled on a HH basis using the current processes. Although a 2,700% increase in EMDH traffic would present the industry with a challenge, the EMDH is extensible and flexible – with horizontal and vertical scaling options available to support the new data volume throughout.

   The EMDH is a highly scalable platform, built on open source applications and hosted in a cloud environment. This architecture enables ElectraLink to support changes in volume quickly and cost-effectively, for example 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 DTS to industry.

   From an impact assessment perspective, it would be easy to assume that when settlement traffic increases, the amount paid for use of the DTS will increase accordingly. **This is not true.** The underlying costs of the DTS are broadly fixed and do not increase in proportion to usage. Therefore, as the volume of traffic increases, the unit charge reduces — the more the DTS is used, the less it costs per transaction — therefore removing cost-shock relating to increased or uncertain data volumes.

4   Summary

The EMDH can support all the communication needs of retail settlement as defined under the MHHS consultation. Our service is competitively procured and is designed to support the changing requirements of the smart, flexible system. In an increasingly fragmented energy market, ElectraLink facilitates vibrant competition by ensuring that the communication of and access to data is provided on a low cost, reliable and secure interface. Moreover, through the flexible, yet secure and robust, governance structures of the EMDH, access to data has been established to support the changing nature of the market.

ElectraLink does not believe there is any business case for ELEXON to procure another UK energy market communications network in support of half hourly settlement. We believe that the EMDH can deliver these communications requirements at low risk and cost, a service already procured on behalf of the UK energy industry by ElectraLink.