

RIIO-ED2 Investment Decision Pack

Systems for Marketwide Half Hourly Settlements (MHHS)

Investment Reference No: 426/SSEPD/NLR/MHHS



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Definitions and Abbreviations

ADQM	Address Data Quality Management
BPDT	Business Plan Data Table
CAPEX	Capital Expenditure
CVA	Central Volume Allocation
DER	Distributed Energy Resources
DFMS	Data Flow Management System
DG	Distributed Generation
DNO	Distribution Network Operator
DSO	Distribution System Operator
DTN	Data Transfer Network
DUoS	Distribution Use of Service
EJP	Engineering Justification Paper
EV	Electric Vehicle
FTE	Full Time Equivalent
GSP	Grid Supply Point
IDP	Investment Decision Pack
LCT	Low Carbon Technology
MHHS	Marketwide Half Hourly Settlements
MPRS	Meter Point Registration Service
NPV	Net Present Value
OPEX	Operational Expenditure

1. Executive Summary

The introduction of Marketwide Half Hourly Settlements (MHHS) is a key component of industry work to facilitate decarbonisation and develop a smarter, more flexible energy sector. The MHHS programme is a fundamental building block of Flexibility Markets, improving the cost reflectivity of the energy market and improving the efficiency of the whole system - including the use of electricity networks. It will enable shorter settlement periods and we anticipate this will increase the accuracy of energy forecasting and DUoS recovery.

Ofgem estimate that this option will deliver net benefits to GB energy consumers in the range of £1,559m-£4,509m. It will also deliver benefits that we expect to see but cannot quantify, notably increased competition amongst retailers and innovation in new products and services.

SSEN agrees with Ofgem that this must be done and is excited about delivering its part in the programme so customers can benefit from the related system enhancements.

This IDP outlines the necessary updates to our IT systems to enable this change and deliver against Elexon's current Target Operating Model (this is expected to be finalised in April 2022).

2. Investment Summary Table

Summary Table			
Name of Scheme / Programme	Systems for Marketwide Half Hourly Settlements (MHHS)		
Primary Investment Driver	Progress to Net Zero		
Scheme Reference / Mechanism or Category	426/SSEPD/NLR/MHHS		
Output References / Type			
Cost (CAPEX)	█		
Delivery Year	RIIO ED2		
Reporting Table	C4		
Outputs Included in RIIO ED1 Business Plan			
Spend Apportionment	ED1	ED2	ED3

3. Introduction and Background Information

Ofgem announced its decision in April 2021 to require the industry to adopt Marketwide Half Hourly Settlements (MHHS). In the business case¹ it states “The programme’s specific settlement-related objective is to develop settlement arrangements that incentivise all retailers and suppliers (current and future) to encourage customer behaviour that contributes to a more cost-effective electricity system. Linking future retailers’ costs to their customer’s actual use of energy within the course of a day will have this effect, encouraging new and disruptive business models through settlement arrangements that facilitate competition in new areas.” To achieve that aim, and hence incentivise behaviours such as ‘vehicle to grid’ exports by customers when the network is constrained, will require near real time information to be shared between all market participants.



Currently nearly all industry dataflows (i.e. exchanges of data between the market participants) occur overnight. To process half hourly settlements will require changes to our existing systems, and in some cases replacement of those systems. This project will deliver the system changes required to implement MHHS.

SSEN agrees with Ofgem that this must be done and is keen to deliver our part in this programme so our customers can gain from its wider benefits.

The work outline in this IDP is in line with Elexon’s currently proposed Target Operating Model, however, should this be changed in a significant way then we may need to revisit these requirements.

4. Business Plan Fit

This project can be mapped to following strategic themes:

Progress to Net Zero	Safe, resilient and responsive networks	A trusted and valued service to customers and communities	Positive Impact on Society
✓	✓	✓	✓

5. Optioneering

The requirement for MHHS will necessitate many changes to existing systems, and in some case replacement of those systems. We have reviewed our current application portfolio and, in discussion with key product vendors, concluded the following changes are required:

- A new version of the Meter Point Registration Service (MPRS) application.
- Updates to the Durabill (Distribution Use of Service, DUoS) application.
- Updates to the Address Data Quality Management (ADQM) application.
- Upgrade to our LOCUS (unmetered services) application.
- Changes to our Lineloss application, to align with half hourly measurements.

¹ https://www.ofgem.gov.uk/sites/default/files/docs/2021/04/mhhs_full_business_case_final_version_for_publication_20.04.01.pdf

- Replacing internal applications used for processing CVA and GSP flows.
- Changes to, or replacements of, our internal systems, namely:
 - [REDACTED]
 - Changes to other internal systems to receive and process revised flows.
- New near real time flow mechanisms (event driven architecture), which includes:
 - Changes to our internal Hub (data flow transfer/integration) system.
 - Updates to our DTN, DFMS and Flowtracker applications.

Note that our internal finance systems will also require updates; these will need additional changes to manage Flexibility Markets and future reporting requirements, so a separate project will address these requirements.

5.1.1 Alternative Options

This project will deliver the new code change for MHHS. The nature of the market systems mean that an IT solution is mandated and its interfaces across industry standardised. Our systems to manage dataflows are long established, and indeed have been updated during ED1, so alternatives to updating these systems would be very expensive, likely cause industry disruption and hence offer exceedingly poor value. Nonetheless, given the pace of development in IT solutions, the market will be re-examined at the project commencement to ensure the best value solutions at that time are chosen for delivery.

6. Stakeholder Evidence

Our own stakeholder engagement on this topic has been carried out through Open Network to gain feedback in a consistent and efficient way for the industry. From this it is clear agreement that half hourly settlements will be necessary to fully realise the benefits of Flexibility and Low Carbon Technology. This, combined with the Ofgem assessment that this will deliver net benefits to GB energy consumers in the range of £1,559m-£4,509m, clearly demonstrates why it is right for SSE to invest in the systems needed to enable MHHS.

More details of overall stakeholder engagement are set out in the *Digital Investment Plan Strategic Annex (Annex 5.2)*.

7. Analysis and Cost

Costs have been built up using a bottom up approach and have been based on the best currently available solution. IT is a rapidly changing area, so the market will be re-examined prior to delivery, and the best value option to meet the requirements set out above will be chosen. The project has been assessed over a 5-year lifecycle, with both Opex and Benefits equated for that operational period, as IT solutions often need updating after 5 years. NPVs of both 5 and 45 years have therefore been quoted below.

7.1 Cost Profile

This project has the following cost profile and will be delivered as a series of sub-projects, some waterfall, others as iterations. As the work is necessary to deliver a code change, and no alternative is possible, in line with guidance no CBA has been completed (and hence no NPV). The full build-up of costs is contained in the ED2 IT Investment Plan (Non-Op Capex) Cost Estimate spreadsheet.

	Total £'M	2023/24 £'M	2024/25 £'M	2025/26 £'M	2026/27 £'M	2027/28 £'M
CAPEX	■	■	■			
ED2 OPEX	■					
ED2 Benefits	■					
5 Year OPEX	■					
5 Year Benefits	■					
NPV (5 Year)	■					
NPV (45 Year)	■					

7.2 Benefits

7.2.1 Financial Benefits

SSEN recognise the benefits the MHHS programme will have for our customers and wider industry and are happy to support the system changes needed to enable this programme. Given the wider industry focus of MHHS, specific financial benefits are not quantified SSEN nor a CBA produced for the project (in line with guidance).

7.2.2 Non-Financial Benefits

The prime non-financial benefit is the optimisation of customer incentives to enable the Flexibility Market, maximise the use of Low Carbon Technology and, hence, achieve the Net Zero objectives.

Further to this, SSEN also recognise improvements such as reductions in settlement periods leading to increased accuracy in energy forecasting and DUoS recovery.

7.2.2.1 Foundation to other Projects/Initiatives

The move to MHHS will be a foundation for DSO working as it will underpin the more efficient use of the distribution network and flexibility markets and help change the sector culture in regard to the sharing of data between interested parties.

7.3 Key Assumptions

The current programme and costings assume that the design is completed in April 2022 and Ofgem's Faster Switching Programme has reached a stable state.

7.4 High Level Dependencies

The project will depend on full agreement of Elexon's Target Operating Model and cannot realistically be commenced until such agreement in April 2022. It will only be able to go into operation when industry participants are ready to send and receive near real time data flows and the data cleanse is complete.

7.5 Deliverability & Risk

Our chapter ***Ensuring Deliverability and a Resilient Workforce (Chapter 16)*** describes our approach to evidencing the deliverability of our overall plan as a package, and its individual components.

We have also demonstrated that SSEN's in house and contractor options can, or will through investment or managed change, provide the capacity and skills at the right time, in the right locations.

In ED2 SSEN will change the way Capital Expenditure is delivered, maximising synergies within the network to minimise disruptions for our customers. This is particularly relevant for a Price Control period where volumes of work are increasing across all work types.

Our ***Deliverability Strategy (Annex 16.1)*** and ***Supply Chain Strategy (Annex 16.2)*** are included in the Business plan Submission

- The principle is to develop and deliver Programmes of work, manage risk and complexity at Programme level and to develop strategic relationships with our Suppliers and Partners to enable efficiency realisation.

8. Conclusion

Marketwide Half Hourly Settlements (MHHS) will deliver benefits to customers and all interested parties in our sector. We are excited about this potential change and ready to make the necessary improvements to our IT systems.