

PAB217/12 – PAF REVIEW - ASSESSMENT OF EXISTING DATA PROVISIONS

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| Purpose of paper | For information |
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| Classification | Public |
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| Summary | An information paper presenting the key findings following a review of existing PAF data and reporting provisions. |
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1. Background

1.1 The Performance Assurance Framework (PAF) is in place to provide assurance that:

- Energy is allocated between Suppliers efficiently, equitably and accurately;
- Suppliers and Supplier Agents transfer Metering System data efficiently and accurately; and
- Calculations and allocations of energy and the associated Trading Charges are performed in line with the requirements detailed in the BSC.

1.2 The provision of data to support the PAF is critical to its effectiveness. The data underpinning the PAF should provide for accurate risk appraisal, justify deployment of assurance techniques, be flexible to change in future, and the cost to provision be proportionate to the error mitigated.

2. Purpose/scope of this paper

2.1 This paper details the key data provision findings in the existing PAF. The review explored the current data catalogue, the use of current data, and the interpretation of the data through reporting for performance assurance purposes.

2.2 This paper considers the technical practicalities of how the data is sourced, loaded and exposed to end users.

2.3 Consideration is also given as to how these current data provisions align with the objectives of this workstream.

Are current data provisions flexible enough to identify and address current and future Settlement Risks and issues?

- Can the current data provisions be used to assess and communicate both aggregate and individual performance across key risk areas so as to enable strategic and tactical deployment of Performance Assurance Techniques (PATs).
- Make use of data sources which BSC Parties trust, give accurate and actionable views of the materiality of non-compliance and that, as much as possible, minimise the reporting burden for BSC Parties and their agents.

Are current data provisions supported by systems and processes which:

- are scalable to meet changing assurance needs;
- enable evidence-based decision making;

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- provide the functionality and content needed to support the delivery of a risk-based PAF;
- facilitate the coordinated, focussed, application of PATs; and
- are as inexpensive as possible to maintain or change.

2.4 The key findings of this paper will be used in the latter stages of this workstream to guide the review, and recommendations.

3. Methodology

- 3.1 An audit of current data sets was conducted. The audit documented the characteristics of the existing data (structured/unstructured, volumetric etc.). Mapping the objectives/purpose of the data, and identifying all internal systems used for existing PAF data.
- 3.2 An audit of existing reports was also conducted. The audit documented the reports which are produced by the business Operations teams, detailing the producers of each report, its published frequency, systems, and delivery methods.
- 3.3 Feedback from stakeholder through engagement exercises were considered. This exercise consisted of an Issue 69 workgroup meeting and a Request for Information from industry.
- 3.4 Interviews were conducted and detailed feedback was gathered from internal data owners. The assessment has taken into consideration any lessons learned from the routine operation of the PAF.

4. Key findings

Knowledge provisions

- 4.1 Stakeholder feedback has highlighted the lack of guidance documentation which explains in plain language existing PAF reports and how to interpret the data, especially for new Market Entrants.
- 4.2 Documentation of existing data sources such as the Interface Definition Documents are complex and difficult to interpret for end-user customers.

Reporting provisions

- 4.3 External stakeholders have highlighted ELEXON customer reports and the Meter Operator/Supplier Dashboards provided by their Operation Service Managers, as valuable tools to highlight current performance against targets and the risks of EFR escalations. The benefit of this report is the easily understandable Red/Amber/Green statuses.
- 4.4 Reporting is considered retrospective. External stakeholder feedback has encouraged more forward-looking forecast reporting which could highlight issues which may impact future Settlement. For example, analysis into the level of generation spill from micro-generation onto the Distribution networks which impacts Settlement Charges through the GSP Group Correction Factor.

Performance Assurance Reporting and Monitoring System

- 4.5 Stakeholders highlighted issues with the PARMS reports which reduces the effectiveness of the reports as a resolution tool. Access to the PARMS backing data would allow Suppliers more granular data to identify offending Metering Systems and would improve resolution times.
- 4.6 By the time PARMS reports are published, the reported data can be up to three months old. Feedback has revealed this delay reduces the reports usefulness as an internal reporting tool for Market Participants, and does not assist fault resolutions.

Data Transfer Network

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- 4.7 ELEXON is required to seek approval from each Supplier whenever it wants access to additional DTN data flows. Seeking this approval from each individual Supplier causes delay and requires resources to contact each Supplier.
- 4.8 Potential over-reliance on DTN data within the PAF. With the emergence of new technologies such as Blockchain, there is a risk industry could move away from traditional data flows and this could be a point of failure for effective reporting (note that here by failure we mean adequate representation of the whole market).

Material Error Monitoring reporting

- 4.9 The Erroneously Large EAC/AA report was identified as very useful from its recipients. Stakeholders noted its use to resolve EAC/AA anomalies which aids Suppliers to reconcile Settlement and assists with business awareness.
- 4.10 A number of flaws were identified in the NHH Energisation Status MEM reporting process which undermined the usefulness of the instance reports to Suppliers.
- 4.11 Feedback has revealed a number of Suppliers, rather than make use of the MEM instance reports as a report to identify at-risk Metering Systems, a number of Suppliers independently produce instance reports for their own MPID(s).
- 4.12 The level of Energisation Status error in the industry is estimated based on sampling responses from Suppliers on a biannual basis. The response rate from Suppliers is poor. This causes the estimated error for a Supplier to be less accurate and outdated.

Trading Disputes

- 4.13 Although additional controls have been implemented to restrict unauthorised changes at DF (CP1484 – SVAA Validation), unauthorised changes at DF are still present in both NHH and HH markets. To monitor the exact extent of the issue will require Suppliers and their Agents to provide data detailing the exact manual adjustments made to Settlement on a Metering System level.

Alternative data sources

- 4.14 With the level of change in the industry, it was highlighted that reviews of potential new data sources were not regularly conducted. ELEXON has recently incorporated an impact assessment from a PAF perspective for all future Modifications and Change Procedures to highlight this need.
- 4.15 Stakeholder feedback has highlighted a lack of innovation with new forms of PAF reporting, especially with newer Market Participants to the industry; new technologies such as API data protocols or data visualisation tools.

CVA reporting provisions

- 4.16 CVA performance data has traditionally been lacking from PAF reporting. Stakeholders accept that CVA performances issues are less common than in the SVA market, but when issues occur the impact on industry can be large. The visibility of CVA data/reporting to the PAB can be improved.
- 4.17 ELEXON publishes monthly Trading Operations Reports (TOR), and System Price Analysis Reports (SPAR) which can help highlight potential Settlement issues in industry. For example, the Annual Demand Ratio data will highlight long-term issue(s) impacting individual GSP Groups; this could trigger further investigation or a Performance Assurance Technique. The TOR, and SPARs can provide greater visibility of CVA risks to PAB. Once analysis and internal discussions are exhausted in identifying the cause of the issue, ELEXON should make PAB aware of any potential Settlement impacting issue highlighted from the TOR/SPAR and recommend appropriate action(s).

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5. Internal business findings

- 5.1 There are a number of findings relating to internal ELEXON processes to support enhanced data analysis and reporting for the PAF. These findings have been discussed with the operational teams involved, and relevant actions from these findings will be communicated to the PAB at the end of the workstream (Expected Q3 2019).
- 5.2 The majority of these findings relate to the systems and tools for existing and future PAF data analysis and reporting purposes; they align directly with ELEXON's 2019/20 strategic activities around digital platforms and people supporting innovation and quality delivery [see [BSCCo 2019/20 Business Plan](#)]. The remaining findings relate to specific reporting processes which were fed back to the business for further analysis.

6. New data sources

- 6.1 An initial assessment of identified new data sources can be found in Appendix 1. The details will include associated risk(s) for which this data will provide further analytical insight.
- Theft Risk Assessment Service (TRAS)
 - Electricity Theft Detection Incentive Scheme (ETDIS)
 - Data Transfer Catalogue (DTC)
 - Unmetered Supplies Operator (UMSO)

7. Extension to existing data sources

- 7.1 Supplier Meter Registration Service (SMRS) data – increase the frequency of data extracts to the Falcon database from quarterly to daily D+1
- 7.2 ECOES data request through the Application Programming Interface (API) communication protocol rather than website, which is a more effective method compared to screen scrapping.

8. Proof of Concepts

- 8.1 Proof of Concepts (PoC) will be explored to demonstrate:
- New data sources can be ingested by our systems
 - Performance insight through analysis can be gained from the data
 - Performance data can be presented using various new reporting tools
 - Reports can be customised for various audiences (PAB view / Supplier view / Public)
 - Ability to utilise new analytical techniques (text mining)

Historic Default Payment Charges

- 8.2 Analysing actual Default Payment Charges paid by Parties following events of defaults. This PoC will utilise Power BI as a data visualisation tool, allowing users to filter data.

Modelling Default Payment Charges

- 8.3 Using the analysis from Default Payment Charges to model the impact on Default Charges following a Supplier of Last Resort (SoLR) event. Default Payment Charges are reconciled over the Settlement Reconciliation calendar, the objective of this analysis will provide the ability to assess the total cost to industry at the point a SoLR occurs. This PoC will prove we can use data to forecast potential impacts of future events.

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CVA metered data

- 8.4 Analysing metered data from CDCA allowing us to assess the impact from estimated data and erroneous actual at a meter-level. The results from this analysis can feed to the impact scoring of the associated risk(s).
- 8.5 This PoC will demonstrate we can digest large volumes of data for analysis, and are able to map complex technical data such as CVA MTDs.
- 8.6 This analysis will provide further insight in to the following focussed Settlement Risks (as detailed in the [2019/20 Risk Operating Plan](#)):-
- Risk 021 – The risk that CVA metered data is not retrieved, or processed correctly, or at all, by the CDCA.
 - Risk 023 – fault with CVA Metering Equipment is not resolved, such that metered data is recorded incorrectly or cannot be retrieved.

Text data mining of metering faults

- 8.7 The analysis of Meter fault resolution DTN data flows to categorise the types of faults. Text data mining technique will be used to analyse the free text field of each data flow.
- 8.8 This PoC will demonstrate our ability to perform analysis on unstructured data. Further applications of such techniques could be the analysis of BSC Service Desk data to categorise requests.
- 8.9 This analysis will provide valuable insight in to the top focussed Settlement Risk:-
- Risk 003 – SVA Metering Equipment is installed, programmed or maintained incorrectly including where Commissioning is performed incorrectly or not at all.

PARMS backing data

- 8.10 Stakeholder feedback has identified access to PARMS backing data as useful data for Supplier; allowing to better investigate instances of error on a MSID-level.
- 8.11 This PoC will seek to prove our ability to join related data sets from multiple data sources into a single data set.

9. Next steps

- 9.1 A formal request for high-level statistics will be sent to TRAS. This high-level data could include annual figures detailing the number of confirmed cases of energy theft, and the annual assessed volume of energy loss (MWh). This formal data request will require approval from DCUSA. If the initial data proves useful, there is an avenue to request Suppliers provide their individual instance reports for further assessment under existing PAF data request provisions, or to request such data through the TRAS.
- 9.2 Further analysis of identified new data sources will be conducted. The purpose will be to assess the practicalities of the data and how ELEXON could incorporate the data into its systems and reports.
- 9.3 The key findings of this paper relating to internal systems and processes will be fed back to the business. Actions from these findings will be communicated to PAB.
- 9.4 Findings have identified key areas of improvement for the workstream and will be explored further as part of the next phase. A paper of these developments will be presented to PAB once this phase is concluded in Q2 2019.
- 9.5 Proposed improvements and solution development will be assessed with further stakeholder engagement. Further Issue 69 workgroups and PAB sub-group meetings will be utilised.

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9.6 Proposed solutions to the key findings will be recommended at the end of this workstream.

10. Recommendations

10.1 We invite you to:

- a) **NOTE** the findings in this paper.

Appendices

Appendix 1 – Assessment of alternative Data Sources

For more information, please contact:

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APPENDIX 1 – ASSESSMENT OF ALTERNATIVE DATA SOURCES

| Data Source | Acronym | Data Provider | Data Type |
|---|---------|---------------------------------|------------|
| Theft Risk Assessment Service | TRAS | Electralink | Structured |
| Data Name Supply Block data (MSID) Meter Block data (Meter Serial Number) Investigation Outcome Block data | | | |
| Data Ownership Suppliers | | Governing Body DCUSA | |
| Historic Data April 2016 | | Data Granularity MSID | |
| Performance Insight Gained Number of assessed cases of energy theft. | | | |
| Related Settlement Risk R018 - The risk that Revenue protection processes are not managed sufficiently, such that unrecorded energy volumes are excluded from Settlement | | | |
| Notes and assumptions: High-level statistics can be provided following a formal request to Electralink (with DCUSA approval). MPAN-level data will require a raised CP, and approval from all Suppliers. | | | |

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| Data Source Electricity Theft Detection Incentive Scheme | Acronym ETDIS | Data Provider Electralink | Data Type Structured |
| Data Name | | | |
| Data Ownership Suppliers | | Governing Body DCUSA | |
| Historic Data June 2018 | | Data Granularity MSID | |
| Performance Insight Gained Theft detection results | | | |
| Related Settlement Risk R018 - The risk that Revenue protection processes are not managed sufficiently, such that unrecorded energy volumes are excluded from Settlement | | | |
| Notes and assumptions: Target value for smaller Suppliers can be zero, therefore can be excluded from the scheme. | | | |

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| Data Source | Acronym | Data Provider | Data Type |
|--|---------|--------------------------------------|------------|
| Data Transfer Catalogue | DTC | Electralink | Structured |
| Data Name Revenue Protection Service D0236 - Revenue Protection Service Statistical Report D0237 - Notification by Revenue Protection Service of Possible Irregularity D0238 - Request and Information for Revenue Protection Investigation D0239 - Revenue Protection Report on Action Taken D0136 - Report to Supplier of Possible Irregularity | | | |
| Data Ownership | | Governing Body MRA | |
| Historic Data March 1997 | | Data Granularity MPID/MSID | |
| Performance Insight Gained Identified potential energy theft. | | | |
| Related Settlement Risk R018 - The risk that Revenue protection processes are not managed sufficiently, such that unrecorded energy volumes are excluded from Settlement | | | |
| Notes and assumptions: | | | |

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| Data Source | Acronym | Data Provider | Data Type |
|---|---------|---------------------------------|------------|
| Data Transfer Catalogue | DTC | Electralink | Structured |
| Data Name Demand Disconnection D0369 - Aggregated Disconnected DUoS Report D0370 - Supplier Half Hourly Demand Disconnection Report D0371 - Supplier - Supplier Disconnection Matrix Report D0372 - Aggregated Embedded Network Disconnected DUoS Report D0373 - GSP Group Demand Disconnection Totals Report D0374 - Supplier BM Unit Demand Disconnection Report D0375 - Disconnected MSIDs and Estimated Half Hourly Demand Disconnection Volumes D0376 - Supplier’s Demand Disconnection Volume Data File D0377 - Disconnection Purchase Matrix Data File D0378 - BM Unit Aggregated Half Hour Demand Disconnection Data File | | | |
| Data Ownership | | Governing Body MRA | |
| Historic Data November 2015 | | Data Granularity MPID | |
| Performance Insight Gained Instances of demand disconnections | | | |
| Related Settlement Risk R013 - The risk that manual adjustments to metered data are not completed correctly, or at all | | | |
| Notes and assumptions: | | | |

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| Data Source | Acronym | Data Provider | Data Type |
|---|---------|---------------------------------|------------|
| Data Transfer Catalogue | DTC | Electralink | Structured |
| Data Name Defaulted DA files D0298 - BM Unit Aggregated Half Hour Data File D0041 - Supplier Purchase Matrix Data File | | | |
| Data Ownership | | Governing Body MRA | |
| Historic Data November 2015 | | Data Granularity MPID | |
| Performance Insight Gained Impact of DA default VAR data | | | |
| Related Settlement Risk R009 - The risk that the Data Aggregator does not process metered data correctly or at all, including transfer to SVAA, such that the energy volumes required for Settlement are incorrect or missing R034 - The risk that the SVAA does not process or transfer the correct data or does not use approved default data. | | | |
| Notes and assumptions: Data flows will be provided by SVAA. Regular access to aggregation log files (L0038 for NHHDA) which can be generated by a DA running in audit mode. This data could also provide additional information. | | | |

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| Data Source | Acronym | Data Provider | Data Type |
|---|---------|---------------|------------|
| Unmetered Supplies Operator | UMSO | UMSO | Structured |
| Data Name < | | | |

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| Data Source | Acronym | Data Provider | Data Type |
|--|---------|------------------------------|--------------|
| Unmetered Supplies Operator | UMSO | UMSO | Unstructured |
| Data Name UMS Physical Audit Reports | | | |
| Data Ownership UMSO | | Governing Body SVG | |
| Historic Data | | Data Granularity | |
| Performance Insight Gained Accuracy of UMS inventory logs | | | |
| Related Settlement Risk R011 - The risk that Unmetered Supplies volumes are calculated incorrectly or not at all | | | |
| Notes and assumptions: | | | |