

Flexibility Digital Infrastructure – System Use Case exercise.

National Grid Electricity Distribution's response

18 January 2024

Overview

As expressed in our response to the original call for input, we see the value that could be created through the deployment of well-defined and suitably deployed common digital infrastructure. Simplifying processes for FSPs, whether the registration of assets or users, will reduce barriers to entry, and if progressed alongside wider enablers and the development of a more coordinated market, could unlock significant additional volumes.

We also see the value in diving into some of the details via the BUCs and then the SUCs to see how such systems could operate.

Having developed digital systems that will need to interface with this infrastructure, we understand the complexity ahead, and the many different design decisions and trade-offs to be made. We are keen to support the process required to explore some of those trades-offs and help develop systems that deliver on the core objective.

In particular we see a core decision required in the level of centralisation, or not of this architecture. Inherently a number of the interacting systems will remain decentralised, whether they be with the buyer, sellers or potential facilitators. We see the question focusing on how best to coordinate data and processes these systems, whilst enabling the necessary agility and innovation ahead.

Within NGED, we have focussed our development work on the delivery on internal tools, and a number of key interfaces. We see the FDI as an extension of this work, allowing for more coordination and data exchange across the various relevant system. There are clear use cases, such as how to stream asset registration, and updating across systems such as our Market Gateway and the ESO's SMP.

Whilst we have will be a key user of the FDI, our core expertise does not lie in the architecture and design of such wide, cross organisation data exchanges. Given the above, and the limited time given for this exercise, we have therefore decided to focus on providing input from our experience as a user/developer of some of the interfacing systems. We would also suggest a review of the strengths and weaknesses of the architecture of existing systems used to coordinate data flows across the energy system. Whilst they might not replicate this specific use case, there is value in learning from existing experience.

Finally we suggest a review of the various use cases and their position in the IT/OT realms. These will have differing requirements for availability and security. In particular we would suggest that BUC.6 may stray into the OT world.

Should you have any questions about our response please contact Matt Watson, Head of Commercial & Operability, mwatson@nationalgrid.co.uk.

BUC.4 Common Registration of Users

To date our work on user registration has focussed on the registration of users within individual systems (the market gateway, the flexible power portal). Delivery of unified registration across organisations and systems would be a significant additional requirement.

However within our Market Gateway we already have segregation between the external facing systems which hold and maintain the user credentials, and the internal systems which are separate and focus on the core user/asset data.

A number of other key learnings to date on user registration include:

- Across all datasets, our experience is that managing changes to data types is much more complex than the creation of new data. This should be factored into the initial requirements.
- There is a key distinction between Organisations and Users. As well as the obvious relationship of multiple users to one organisation, we also see the desire for a single user to link across organisations (to accommodate various corporate structures)
- We have used a Company/Charity number as a unique ID to validate organisations. This is not our system primary key, but could serve as a key external ID across systems.
- Clarity is needed on the confidentiality/not of certain data types. This will factor into the data model used for organisations and users. Our experience of the Flexible Power Portal highlighted a number of challenges obfuscating certain data (existence or not of users, and their presence on the portal). Removing this by may reduce this complexity.
- There will be further design required on how common certain data types must be across systems. This is particularly important for sensitive data or data that may legitimately be different for different use cases. Billing data might be such an example.
- A focus will be needed to ensure that the right permissions are obtained to share all the data. This is particularly important for personal data such as names and emails.

BUC.2 Common Registration of Assets.

Our work on asset registration builds on the use case above, but also includes more coordination requirements between different systems (Market Gateway and Flexible Power Portal). The points below share some of our learning/considerations:

- The first consideration is to develop a clear definition of an asset and the logical structures it might be associated with it. Is an asset tied to a physical piece of equipment, an MPAN...? An example of a potentially complex site is a domestic property with multiple LCTs behind the settlement meter that may be controlled by different FSPs. Within NGED we have aligned an asset to the point of lowest metering. This sets the asset as the lowest point we could audit delivery to. To support our baselining work, we have had to introduce the concept of sub-assets (to cover individual LCTs). How this definition is made, may differ depending on the use case. If a common approach is needed across system, you may need to drop to the lowest level needed across the use cases. This may have a significant impact on existing systems.
- Once an asset has been created by an FSP it will need to be validated. Again consideration will be needed on the appropriate processes for this. Different flexibility use cases will drive different requirements. These may evolve over time as new data sets are available. The data quality of these data sets must also be considered to ensure that validation works pragmatically. For example validating an EV chargepoint against registered chargepoints

with the DSO, has proven very challenging due to the data quality issues associated with the latter.

- Changes to assets, and how they flow into downstream processes must also be considered. What changes can be made without validation, which with re-validation, and when do changes cascade downstream. A change might impact the baselining of an asset already committed to delivery, and so managing these changes is essential.
- There is further work to be done on developing robust processes for duplicate claims to an asset. If two organisations claim an asset, how should this be managed? Some processes that are viable for larger assets (discussions with owners) will not be for smaller (domestic scale) assets. How a change in asset ownership flows into existing commitments must be carefully considered.
- Related, but distinct to duplication, are challenges with overlapping assets, or overlapping metering. This might lead to double counting delivery. An example might be a household demand being provided by one entity and the EV chargepoint by another. This challenge fed into the NGED definition as an asset being the lowest point of metering, as well as a prohibition on overlapping metering.
- Consideration is also needed in how the assets are built into logical entities for delivery. Within NGED we allow FSPs to group assets into Meterable Units. These are the entities at which they provide us with metering. This allows them to aggregate some metering types (for example domestic flexibility), and is also the level at which we apply baselines. Meterable Units can then be aggregated again for delivery. Similar concepts are applied across marketplaces.
- The data associated with each logical entity will need to be considered, as will the what is tied to the asset, and what is tied to pre-qualification.
- Clear permissions need to be established for sharing this data, as some, such as domestic MPANs are considered personal
- Finally consideration is needed for assets not yet connected (if applicable). Some providers allow for contracting with such assets. How they are identified must be considered, as some wider industry data IDs will not yet be generated (such as MPANs).