Alignment of Grid Supply Point definition

Open Networks

March 2022 | Version 1.0

DOCUMENT CONTROL

Authorities

Version	Issue Date	Authorisation	Comments
1.0	25/03/2022	Open Networks Steering Group	

Distribution

Published on ENA website

Introduction

About ENA

Energy Networks Association (ENA) represents the owners and operators of licenses for the transmission and/or distribution of energy in the UK and Ireland. Our members control and maintain the critical national infrastructure that delivers these vital services into customers' homes and businesses.

About Open Networks

Britain's energy landscape is changing, and new smart technologies are changing the way we interact with the energy system. Our Open Networks programme is transforming the way our energy networks operate. New smart technologies are challenging the traditional way we generate, consume and manage electricity, and the energy networks are making sure that these changes benefit everyone.

ENA's Open Networks programme is key to enabling the delivery of Net Zero by:

- opening local flexibility markets to demand response, renewable energy and new low-carbon technology and removing barriers to participation
- providing opportunities for these flexible resources to connect to our networks faster
- opening data to allow these flexible resources to identify the best locations to invest
- delivering efficiencies between the network companies to plan and operate secure efficient networks

Executive Summary

The aim of this element of Workstream 1b Product 2 (WS1b P2) is to agree a consistent definition for Grid Supply Points (GSPs) and associated names across GB between the Electricity System Operator (ESO) and all Distribution Network Operators (DNOs) to support the data exchange of whole system Future Energy Scenario building blocks. There is also the link with public data, ensuring there is a common approach to mapping data from FES and DFES to public data sets, such as the ELEXON data. The data exchange of the building blocks allows the ESO and DNOs to compare and discuss future regional trends between the FES and the DFES.

This report explains why the DNOs need to follow a consistent GSP definition between the whole system FES building blocks and the Week 24 submission. Moving forward, DNOs should continue following the access group[1] definition for GSPs for both Week 24 submission and the whole system FES building blocks.

The report also explains why the ESO can benefit from continuing to follow the ELEXON list of GSPs registered in Settlement for whole system FES building blocks.

This document also proposes a practical approach to combine and directly compare building blocks between FES and DFES by combining them in groups of GSPs although in most cases a direct match should be possible. The proposed approach enhances the agreed FES-DFES alignment approach, which is based on the initial alignment and feedback model process[2] . The geospatial region that each GSP covers is another important aspect and regular geospatial data exchanges for GSP supplying areas are also proposed

GSP definition and proposed alignment approach

Consistency in the GSP definition for all DNO forecasts shared with the ESO

Following Ofgem's guidance, the DFES produced by all DNOs are forecasts that have a main planning purpose. In the Week 24 submissions from DNOs to the ESO/TO (Transmission Network Owner), demand forecasts are shared using the access group definition for GSPs. Using this definition, the ESO and TO are provided with demand and generation data to fulfil the transmission license obligation to develop, maintain and operate an efficient, co-ordinated and economical transmission system.

More specifically the Grid Code Standard Planning data using the access group definition for GSPs is used to update the GB offline model used to assess the security and safety of the transmission system at the interface with Distribution Network Operators for both operational and investment planning purposes. The results of the investment planning assessment carried out by ESO/TO Design teams are used in consultation with the Network Operators to investigate the need for transmission system reinforcement to meet the GB Security and Quality of Supply Standard.

Using a consistent GSP definition between Week 24 submission and whole system FES building blocks, DNOs can share with the ESO additional insights to the Week 24 data. These insights can cover more detailed components of demand and generation, as well as a view of the longer-term future uncertainties through a

[1] The Grid Code, National Grid ESO, 14/02/2022. Online: https://www.nationalgrideso.com/electricity-transmission/document/162271/download
[2] DFES Standardisation – Workstream 1b, Product 2, Energy Networks Association, 31/07/2020. Online: https://www.energynetworks.org/industry-hub/resource-library/on20-ws1b-p2-distribution-future-energy-scenario-(dfes)-standardisation.pdf

range of common DFES and FES scenarios. Therefore, it is recommended that all DNOs use the access group definition for GSPs for both Week 24 and whole system FES building blocks.

It should be noted that this paper focuses purely on the data exchanges in the context of the whole system FES building blocks. This does not cover the wider data exchanges between ESO and DNOs, which could include for example GIS datasets per GSP supplying area; further work would be needed to ensure GSP definitions that are used elsewhere are aligned.

Alignment between FES and DFES building blocks – proposed approach

As part of the Week 24 submission, the data exchange between DNOs and the ESO uses the access group definition for GSPs. However, the ESO's wider engagement with other parties has shown the need for additional and open data and third parties being able to link together data we provide with publicly available information, such as settlement data.

ELEXON definition of GSPs

ELEXON provides a rich source of publicly available data that is used in ESO's demand forecast activities. The datasets used as inputs into forecasting demand for the annual Future Energy Scenarios are the ELEXON Settlement data flows CDCA I030 and CDCA I042:

- CDCA I030 includes the volume of energy that was metered at each Distribution System Connection Point for each settlement period. This represents the energy consumption by each individual Grid Supply Point.
- CDCA I042 provides metered volumes of energy for each BM Unit for each settlement period.

The benefits of using this data source as an input into future scenario projections include, but are not limited to:

- The Week 24 demand projections are not full 17,520 half hour demand profiles over the year, but are annual demands and demands at a few key points. In a renewable led system, it is no longer enough to base forecast projections on annual and peak values. The full profile will be key in capturing flexible demand and supply.
- all settlement periods are available and therefore provide an accurate input into calculating the total underlying energy consumption. In the absence of a full smart meter dataset, this is the most accurate publicly available information we have to determine net demand.
- as the ELEXON dataset is open to industry and the general public, it is increasingly being used by third parties for a range of energy related purposes. Being able to link datasets across different parties for different purposes will be important to encourage innovation in solving issues and proposing solutions on the pathway to Net Zero. If data is aligned to ELEXON then the whole industry can access full half hourly flows from the settlement Open Data and use this alongside the detailed generation data from the published Embedded Capacity Registers.

- Linked to the above, the Energy Data Taskforce identified that data visibility was a key pillar in achieving a modern, digitalised energy system and therefore having energy industry data available in way that is easier to understand and access will be increasingly important. This includes publishing or linking to the data that is used in future scenario development.

Proposed alignment of FES and DFES building blocks

The agreed FES-DFES alignment approach is based on the initial alignment and feedback model process[3], where FES and DFES forecasts can be further aligned by the data exchange of the whole system FES building blocks. To allow DFES and FES building blocks to be combined and compared without losing the above mentioned benefits of using the access group definition in DFES and the ELEXON definition[4] in FES building blocks, the proposed approach is to combine and compare groups of two or more GSPs where required. This approach recognises that the differences between access group and ELEXON definitions for GSPs result in very local misalignment. Consequently, for any mismatches in GSP names the building forecasts of two adjacent GSPs can be combined and compared, with the expectation that there will mostly be alignment and the combination of GSPs will be a rare case.

The objective in GSP alignment should be to:

- allow data exchange in the whole system FES building blocks
- have a transparent mapping of geographical regions that each GSP covers and ensure there are no overlapping regions
- allow stakeholders better understand published data in FES and DFES and associated differences
- provide guidance to industry on how to link the building blocks data to publicly available metering information.

For example, Harker-Hutton GSP access group is considered as two GSPs using the ELEXON definition, i.e. Harker and Hutton GSPs. Following the proposed approach, the building blocks from ELEXON's Harker and Hutton' GSPs can be aggregated and compared with the Harker-Hutton GSP access group. In other example, Tilbury GSP is split into two pairs of supergrid transformers at different transmission voltages as separate entries in the Week 24 submission within the same access group – however this is one GSP in the ELEXON definition. Cases at the boundaries between DNO licence areas will also need to be considered.

The grouping of GSPs to align the ELEXON GSP identifiers with the GSP access group names is recommended to be defined with bilateral meetings between the ESO and each individual DNO. This should include the standardisation between names and ID codes (long form and short form IDs).

It should be highlighted that the proposed approach for aggregation of adjacent GSP building block numbers is sensible for the existing building blocks, such as low carbon technology volumes (eg, heat pumps) and annual energy consumption. However, if future whole system FES building blocks include peak demand or other demand components that are diversified across two or more access groups, then a simple aggregation of

[3] DFES Standardisation – Workstream 1b, Product 2, Energy Networks Association, 31/07/2020. Online: https://www.energynetworks.org/industry-hub/resource-library/on20-ws1b-p2-distribution-future-energy-scenario-(dfes)-standardisation.pdf
[4] Annex X-1: General Glossary, ELEXON. Online: https://www.elexon.co.uk/documents/bsc-codes/bsc-sections/bsc-section-x-1-general-glossary/

volumes/values would not be sensible and case specific adjustments or alternative approaches would be required.

To allow this alignment process to be functional for any such future changes of the agreed building blocks as well as network changes / new GSPs, an annual review process of the alignment is also required. This should be an annual meeting between the ESO and all DNOs, where the alignment is reviewed and any potential updates or changes to the alignment process as well as further action are decided (e.g. through ESO-DNO bilaterals).

Recommendations for aligned geospatial representation of GSPs

Although currently the DFES and FES building blocks do not include geospatial data for GSPs for all DNOs, to support the whole system FES building block process it is recommended that the ESO and DNOs exchange data files with the geospatial representation of GSPs on an annual basis.

To allow the alignment of geospatial data between the GSP access groups and ELEXON GSPs, it is recommended that DNOs share additional information for BSP and primary substation feeding areas. Doing this the geospatial data can be adjusted to consider the actual network connectivity for any GSP definition, ie which BSP and primary substation feeding areas are supplied by a GSP in a normal running arrangement, noting that this may change operationally.

Visit our website to find out more about Open Networks

VISIT

V

Energy Networks Association
4 More London Riverside
London SE1 2AU
t. +44 (0)20 7706 5100

w. energynetworks.org
@EnergyNetworks