

Operational DER Visibility and Monitoring Proposed Change of Scope

Open Networks | WS1B P6
May 2022 | Version 1.0

DOCUMENT CONTROL

Authorities

Version	Issue Date	Authorisation	Comments
0.4	30/05/2022	Open Networks Steering Group	

Change history

Version	Change reference	Description
0.1	29/04/2022	Draft version circulated with WS1B
0.2	06/05/2022	Addressed initial feedback from WS1B
0.3	12/05/2022	Addressed final feedback from WS1B
0.4	30/05/2022	Addressed feedback from the Steering Group

Distribution

Published on ENA website

1. Introduction

The purpose of this paper is to:

- Describe where the ON22 WS1B P6 got to since the start of the year (Section 2);
- Justify the proposed ON22 WS1B P6 scope change going forward (Section 3);
- Present the alternative scope options considered (Section 4);
- Present the proposed updated scope and deliverables (Section 5).

2. ON22 WS1B P6 scope delivered so far

Since the start of 2022, WS1B P6 has carried out a gap analysis on the level of visibility DNOs currently have over generation sites connected on the HV and EHV network and delivered a CBA which looked at the cost DNO would incur in retrofitting these sites, and the benefits that DNO, ESO and customers will get from the enhanced DER visibility. Based on the results of the CBA, the product team has then provided recommendation to Ofgem on the minimum generation capacity worth retrofitting. The CBA report (deliverable A of the PID) can be found here: [ON22-WS1B-P6 CBA for Operational DER Visibility and Monitoring \(16 Feb 2022\).pdf](https://www.energynetworks.org/ON22-WS1B-P6-CBA-for-Operational-DER-Visibility-and-Monitoring-16-Feb-2022.pdf) ([energynetworks.org](https://www.energynetworks.org)).

The product team has then delivered a deep dive session with the regulator at the beginning of March 22 (deliverable B), where we have gone through the methodology used to deliver the CBA, the study assumptions and justified the recommendations provided to Ofgem, which will then be used for policy development.

Ref	Product Element	Deliverables	Scope/Description	Expected Completion	Completion
A	CBA (rolled over from 2021)	CBA	CBA and report describing the findings from this analysis along with the justifications and assumptions.	Feb-22	Feb-22
B	Regulator Workshop	Joint workshop (Ofgem)	Deliver a deep dive session to facilitate understanding of the recommendations that feed into Ofgem's policy development.	Mar-22	Mar-22

3. ON22 WS1B P6 PID Scope going forward

Following the handover of the CBA to Ofgem, based on the original scope in the PID, the next piece of work to be delivered by WS1B P6 is a RAG analysis on the non-operational data produced by WS1B P7, available [here](#), which looked at the following data sharing mechanisms 1) DNO->ESO, 2) ESO->DNO, 3) ESO->market participants, 4) DNO-market participants. The ask in Deliverable C, is to carry out an assessment of the non-operational data which are currently being shared by DNOs (R= not shared, A= future plans to share, G = currently shared). Subsequently, based on the results of the RAG analysis, the product team would need to assess these non-operational data sharing needs and mechanisms (Deliverable D).

Most of the non-operational data produced by WS1B P7 (Week24/42, SoW, Appendix G, FES, NOA, LTYS etc) already have standardized processes in place established by licence conditions and grid code requirements, which stipulates data sharing needs and mechanisms between different parties (DNO-ESO). Moreover, there are several overlaps with dedicated working groups, products and grid code modifications which are dealing individually with most of them. Table 1 below shows the overlap area of each element of the non-operational data list produced by WS1B P7.

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For these reasons, the scope currently on the PID is not considered to bring much value to the wider industry, and the product team is suggesting a scope change, which is captured in the next section.

Table 1: Non-operational data, Overlap with grid code mods, WS/products.

DATA ITEM	Regulation/Code	WS/Product/Grid Cod Mod
Week 24 Network Data	Grid Code - Standard Planning and Operating Code Data	Was dealt with WS1B P4
Week 42 Network Data	Grid Code - Standard Planning Data	Proposed changes to Grid Code Mods GC0139
Week 50 Network Data	Grid Code - Standard Planning Data	Proposed changes to Grid Code Mods GC0139
GB Min/Max date/time	Grid Code - Standard Planning Data	GC planning Data – could be covered by wk 24 etc, GC0139 covers exchanging by CIM data
Regional Development Plan (RDP)	CUSC	
Statement of Works / Mod Offers	CUSC	CUSC mod in progress looking at this area – Covering App G
Appendix G process	CUSC	Same as SOW
Connection Registers Tech, Interconnector, Embedded Register	Transparency of connected or contracted projects. Required per CUSC 6.30.3	
FES	License Condition C27	Ws1b – p 2
DFES	Agreement through WS1B P2	Ws1b – p 2
NOA (Network Operability Assessment)	Obligation under Standard License Condition C27	Not Open Networks – NG report stating issues
ETYS (Electricity Ten Year Statement) models	Transmission license condition C11	WS1B – P5 maybe (NVP)
Embedded Capacity Register	CUSC 31	WS2 P1
ESO Data portal	ESO data available openly under National Grid ESO Open Data Licence v1.0.	

4. Alternative Scope considered

The product team has put forward three alternative scopes to the scope of work currently in the PID and collaboratively has selected the scope considered to bring more value to the wider industry in the short term. This is the scope change which this paper intends to cover.

For completeness the other two alternative scopes have been included in this paper and are summarised below. The recommendation from the product team is for these two alternative scopes to be looked at as part of WS1B P6 2023 (and beyond) scope and or as part of other Open Networks products.

4.1. Alignment of DER Operational control and monitoring requirements

This is the proposed scope that has been decided on and is the recommendation of the product team. Full details of the scope are captured in Section 5.

4.2. DER non-operational data for improved forecasting

This was one of the alternative scopes considered and covers the collection of non-real time operational DER data which would allow DNO and ESO to have forward looking visibility of the DER output. This includes visibility of the ESO and DNOs services DER has been contracted to provide together with volume and activation windows and well as forward-looking visibility of DER unavailability to planned DER outages.

Some DNOs are starting to develop forecasting system (mostly focusing on demand and renewable generation forecasting at the moment) and having the ability to forecast output of non-renewable DER (including peaking plants/ storage etc) responding to market signal would be extremely beneficial for DNO and ESO as it would lead to much more accurate DNO forecasting. The data in scope include:

- **DER market data:** visibility of service contracted (frequency services/ BM/ STOR/ DNO Flexibility service, ANM etc); volume and windows/blocks of service constricted (if applicable), volume dispatched, etc
- **DER forecast data** DER declared output through physical notification and final physical notification
- **DER availability:** forward looking availability of DER availability/outages; visibility on whether the plant is operating at lower capacity due to plant's planned maintenance.

4.3. DER Controllability

This was the other alternative scope that has been considered which would expand on the DER visibility work delivered in 2021, by looking at the DER controllability aspects.

The scope of work would first include the agreement on the definition of controllability (active/reactive power control, CB open/close etc.) and then a gap analysis of the generation sites that DNOs are currently able to control (CB open close, P/Q set point) via telemetry. Subsequently, similarly to what was done for visibility aspect, the product team would carry out a CBA assessing cost and benefits of the enhanced controllability capabilities. The use cases for assessing benefits were already defined in 2021 scope,

As having the ability to control DER does not mean DNOs would be entitled to operationally send set-points unless captured in the connection agreement, the product team would also need to look at the triggers for DNO to control DER (emergency planning/system resilience).

5. Proposed ON22 WS1B P6 updated scope and deliverables

The proposed scope includes the harmonisation of operational (real-time) data requested going forward by DNOs to Distributed Energy Resources (DER) customers to be commissioned to the distribution network. This includes data collected from the customer’s metering equipment and exposed to the DNO, as opposed to data collected directly from DNOs substation through DNO’s metering equipment (which is what 2021 scope covered).

The data list will include a minimum set of ‘mandatory’ data requirement which may be differentiated based on generation capacity, technology and service provided etc

The product team believes a standardisation of the data point requirements collected by DNOs is essential going forward. One reason being that currently, developers having generation sites across different part of GB, are requested different data sets depending on the DNO area the site falls into.

Code modifications may follow the work delivered by WS1B P6.

Suggested deliverables for ON22 WS1B P6 is described below and is summarised in

Table 2.

Deliverable C: Standardisation of DER operational control and monitoring requirements

The product team will produce a list of minimum mandatory operational data points to be requested going forward to DER customers, which may be differentiated based on capacity (type A-D), service provided and technology type, if applicable.

The operational DER data points could include measurements from the customer metering equipment (P, Q, V, I, PF, frequency etc), reback signals (acknowledgment of setpoints receipt), weather data, capacity in service, status of customer switchgear and visibility of protection operation etc.

The operational DER data points should take into account requirements from grid code, relevant standards, as well as specific DNOs and ESO services requirements captured in the relevant service requirement documents, DNOs standards, CUSC, BSC etc. The operational DER data point list should only capture current use cases rather than future use cases as the specific use case requirement are not known yet.

For the same service (e.g. Flexible Connections), there may be data points that are currently being requested by some DNOs which are not considered essential and hence not requested by others DNO. The product team will need to align on a minimum set of ‘mandatory’ DER operational data points. If considered necessary, ‘optional’ DER signals may also be included.

Deliverable D: Use Cases for collection of DER operational data points

The product team will justify the business needs for each of the ‘mandatory’ DER operational data points through the definition of use cases which will provide clarity on how each of the collected data point will be used by DNOs and/or ESO.

This activity will form the basis to standardise the ‘mandatory’ and ‘optional’ operational DER data points requirements, hence this activity will need to be carried out in parallel and delivered before Deliverable C.

Deliverable F: DER operational data points technical specification

The product team will then look at the technical specification of the collected data points including communications protocol, data availability, tolerance, frequency of data capture etc.

Deliverable E: DNOs Gap Analysis and implementation plan

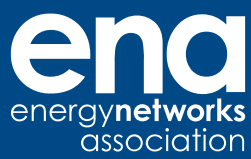
Based on the list of data points produced, the product team will then carry out a gap analysis looking at the data points that are currently being collected by each DNO and the one that are not currently collected, potentially affecting customers in each DNOs area.

A cost assessment on how the additional data point requirements are going to affect customers (if affected at all) is going to be carried out and an implementation plan for the collection of these data set is then going to be recommended.

Table 2: ON22 WS1B P6 - proposed updated deliverables.

Ref	Product element	Target Date
Deliverable C	Standardisation of DER operational monitoring and control requirements	August 22
Deliverable D	Use Cases for the collection of DER operational Data Points	July 22
Deliverable E	DER operational Data Points Technical Specification	September 22
Deliverable F	DNOs Gap Analysis and Implementation Plan	November22

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