

To: distribution network and
system operators,
flexibility providers, generators
and other interested parties

Date: 10 January 2024

Dear stakeholders,

Re: Form of Long Term Development Statement

We recently consulted with stakeholders on proposed changes to the form of Long Term Development Statement (LTDS)¹. In accordance with the provisions of paragraph 25.6 of the Electricity Distribution Licence, we have today issued a notice of our intention to give a direction revising the form of LTDS, also known as the Form of Statement (FoS)².

The proposed changes to the FoS include a requirement for the provision of grid model data using the Common Information Model (CIM) data standard and the inclusion of capacity heatmaps in a common format, to ensure interoperability and to maximise the opportunity for users to access network data and gain insights.

We published a draft revised FoS, and associated annexes and appendices on 29th August 2023 and asked for feedback by 11th October 2023. During this period we held two workshops with a range of interested parties and received eight written responses from stakeholders. We held a further workshop on 8th December 2023.

We asked a series of questions alongside the publication of the draft FoS and have categorised the feedback received into the following themes.

- Load and Generation Capacity Modelling
- Implementation Strategy

¹ <https://www.ofgem.gov.uk/publications/long-term-development-statement-ltlds-guidance-update-informal-consultation>

² <https://www.ofgem.gov.uk/publications/formal-consultation-form-long-term-development-statement>

- GB CIM Governance
- Operational Capacity
- Solved Case Scenarios
- Strategy for Longer Term Mandated Data Exchange Coordination
- Equivalent External Modelling
- Data Confidentiality & Security
- Heatmap Standardisation

This letter summarises the feedback that we received, sets out our position on these topics and explains the actions that we have taken, or plan to take in the future, as a result, either through changes to the FoS, or associated annexes and appendices.

Load and Generation Capacity Modelling

Summary of Responses

Respondents noted a need for greater clarity regarding the relationship between LTDS and the embedded capacity register (ECR), including the potential incorporation of demand side response (DSR) data. Other comments related to the need for us to be clearer about the intent of the LTDS.

Ofgem Position

The intention is for the ECR and LTDS to work together in respect of accepted-to-connect generation data, to avoid duplication of data or systems where possible. The ECR will be linked to the LTDS through the use of identifiers, relating the accepted-to-connect generation entries in ECR to the LTDS with the following identifiers.

- Grid location - a 'pointer' to LTDS ConnectivityNode mRID
- Development project dependencies - project identifier(s) from project CIM .zip file name, if connection is dependent on development project(s)

Existing generation data will not be taken from the ECRs and there is no requirement at this stage to include specific DSR projects in the LTDS. The purpose of leveraging ECR data is to eliminate need to describe future generation connections as CIM Difference Models. The phased retirement of the existing LTDS Tables is addressed in the Implementation Strategy section below.

In summary, there is no change to the proposed approach, but we have reworded the LTDS Grid Modelling Guidelines to specifically identify the ECR as the source of accepted-to-connect generation. We acknowledge that the introduction of identifiers requires a minor change to the ECR template. Changes to the ECR are led by the industry with the

requirements set out in the DCUSA, and we request that industry considers how best to incorporate the additional identifier fields into the ECR.

Implementation Strategy

Summary of Responses

Five of six DNOs indicated that the proposed timescales were challenging and put quality at risk. The most commonly cited obstacles were (i) lack of vendor readiness, (ii) the need to integrate data from multiple sources and (iii) the lack of suitability of source data (quality, completeness, format, etc.). In addition some DNOs made the comparison with GC0139, which is more limited in scope but where a much longer implementation period has been planned. Several DNOs also noted the need to incorporate interoperability testing into the implementation process. Multiple comments expressed a desire to retire existing LTDS Tables to avoid inefficiency and duplicate data.

Ofgem Position

We understand the concern and appreciate DNO interest in producing quality results useful to user stakeholders. As a result of stakeholder feedback we have updated the phased implementation schedule, both increasing the number of distinct stages and extending the overall delivery period from 10 to 22 months. We have also allocated time in the implementation process for interoperability validation, to be led by DNOs. The detailed phased implementation requirements have been incorporated into the body of the FoS.

The phased implementation requirements have been developed to provide an increasing level of benefit to LTDS users at each stage, as summarised below.

Stage 1 provides a fully connected CIM model of the grid of every GB distribution system in a common form. While a major step forward, this Stage requires a user desiring to use the model for power flow analysis to do significant manual extraction and massaging of load data from the existing LTDS Table 3.

Stage 2 allows a sophisticated user to leverage bus group non-coincident load values along with generation capacities to algorithmically distribute load and generation real and reactive power values across modelled Energy Connections, which could create input data sufficient for a power flow study. Users could use this approach for both the existing grid and for the grid as reflected in future year Models.

Stage 3 provides geo-location of substations and circuits enabling understanding of the physical distance between a contemplated development site and grid. Schematic diagrams generated from and related to underlying connected grid descriptions provide users with

reliable visualisation of grid data. Solved cases allow users to validate their power flow calculations against licensee solutions – a reassuring foundation for doing more sophisticated ‘what if’ studies based on massaged LTDS data, including information about future development projects or accepted-to-connect projects.

We have considered the retirement of existing LTDS requirements and have confirmed the earliest dates by when certain tables published as part of the existing LTDS could be retired. That said, DNOs should continue to discuss this point with their users and ensure that the format of LTDS is accessible.

We are supportive of interoperability testing, but DNOs should lead, coordinate and manage interoperability activities together. There are two possible approaches to interoperability validation (or a combination of both):

- DNO self-test
- Multi-party interoperability event including users

In each case the basic requirement is an agreed set of LTDS-specific SHACL constraints and a validation tool. As set out in the revised phased implementation schedule, the first opportunity for interoperability validation is expected to be June 2024.

CIM Governance

Summary of Responses

The importance of establishing a suitable governance body to adapt and maintain GB CIM standards as they change over time was a point that several stakeholders noted. Such changes could result from changes to international standards or the need for new GB extensions or new requirements being mandated by us or another relevant authority.

Establishing a governance framework for GB CIM is considered critical to the successful implementation of LTDS and the long-term maintenance and development of the GB CIM standards for wider implementation.

Ofgem Position

International CIM-related standards are underpinned by International Electrotechnical Commission (IEC) governance. Implementation of CIM-based data exchange for GB requires a series of bespoke, local variations/extensions to appropriately reflect GB networks. These variations need to be formally maintained as standards. Coordination with the IEC CIM standards is essential to (i) ensure adoption of changes in GB, (ii) ensure GB specific extensions can be incorporated into IEC CIM standards, (iii) encourage vendor

adoption and (iv) ensure GB standards remain as aligned with IEC CIM standards as possible.

In January 2022 we published an open letter³ setting out our regulatory approach and intent to use the CIM as the expected data standard in our data related licence requirements and for it to be used more broadly for data exchanges in the energy industry. As part of that publication we highlighted the need for a governance body, to maintain suitable governance of the emerging standards and their application, and referred to the British Standards Institute (BSI), the Institution of Engineering and Technology, the Energy Networks Association and the Future System Operator as potentially suitable organisations to take on this role.

Discussions are ongoing between Ofgem and the BSI regarding the interface between existing UK & international governance structures and any future group providing governance of GB CIM-based data exchange. CIM Governance will need to be integrated into the wider GB digitalisation governance framework, being developed by Ofgem and covering issues of consumer consent, data sharing infrastructure and data best practice.

We consider that, in an increasingly digitalised energy system, the CIM will not be the only data model deployed in the GB energy sector that will require enduring governance. We are working to establish enduring solutions for governance of energy data models. For this reason, final decisions about CIM governance will be taken as part of this wider programme. We will provide a further update on developments in this area, including the plans for GB CIM Governance, in Spring 2024.

In the meantime we intend to publish all relevant LTDS documents, including the technical appendices to the LTDS Annexes, but at the appropriate time we will clarify the governance arrangements for certain documents that would more logically be maintained by an appropriate governance body and will take the necessary steps to action this matter under the licence.

Operational Capacity

Summary of Responses

Respondents expressed their desire to have better visibility of operational capacity considerations that could impact the ability to connect to networks. Multiple possible sources of limitation/mitigation were cited:

³ <https://www.ofgem.gov.uk/publications/common-information-model-cim-regulatory-approach-and-long-term-development-statement>

- Management of DER and load
- New grid technologies
- Consideration of additional grid conditions
- Fault levels
- Transmission limitations
- Curtailment arrangements

Ofgem Position

We acknowledge the potential value of providing insight into capacity limitations. We therefore plan to introduce a new requirement to provide narrative describing the standard approach to determining firm capacity and to detail exceptions and specific operational strategies (e.g. ANM) in the CIM model in the .description attribute of appropriate FirmCapacity objects.

Modelling of the sources of capacity limitation/mitigation could be considered as part of any future update to LTDS outputs and some DNOs may decide to provide this sooner, in any event.

Solved Case Scenarios

Summary of Responses

Some respondents noted that NETS maximum and minimum demand scenarios might be less helpful to users than other scenarios. Some alternatives were suggested including a typical DNO planning scenario, licence area or GSP maximum/minimum demand scenario and minimum demand/maximum generation scenario.

Ofgem Position

Having discussed this point openly at a stakeholder consultation session, the consensus position was that the original requirement to use NETS minimum and maximum scenarios was on balance the preferred option to prove the solved case. This was partly because it was acknowledged that no single scenario will provide the relevant data for any given connection, given that minimum and maximum demand and generation will vary across all parts of the distribution network. In this way any solved case scenario would need to be supplemented with other data being provided in CIM format under the revised FoS. Furthermore, using NETS minimum & maximum scenarios will align with the GC0139 workstream, which is looking to improve data sharing between transmission and distribution.

Longer Term Data Exchange Coordination

Summary of Responses

Multiple DNOs and the ESO commented on need for coordination among various mandated UK data exchanges at two levels:

- Coordination of instance data (non-overlapping, matching IDs etc)
- Coordination of underlying data exchange standards

Ofgem Position

We agree that coordination is extremely valuable. We expect that this coordination will become a key part of the scope of the GB CIM governance body. In the meantime, there has been an initial effort at coordination with LTDS in CIM for example by the GC0139 project requirements being informed by LTDS in CIM design (generator fuel types) and by leveraging existing datasets rather than duplicating ECR for accepted-to-connect generation.

In summary, the CIM requirements described under the revised FoS are a positive first step and any future governance structure should enable future coordination. We do not propose any changes to the requirements that we consulted on in this area.

Equivalent External Modelling

Summary of Responses

Respondents noted the need for the standardisation of data modelling and sharing of data between transmission and distribution licence areas, including for example the coordination of identifiers across licence area boundaries and the formalisation of transmission data provision.

Ofgem Position

We agree that coordination of data across licence areas is important. Certain activities are currently underway which will encourage the formulation of a GB cross-licence area data sharing solution including:

- IEC CIM Working Group efforts to formalise the sharing of 'context' data
- Casting of GC0139 data exchanges into CIM
- Ofgem's wider commitment to data standardisation via CIM through future regulations

Our position is that there should be no change to the existing requirements in this area at this stage, given wider work underway. The IEC CIM Working Group and GC0139 activities will be monitored and, when a solution for cross-licence area exchange is defined, it will be evaluated for use in LTDS (likely by the GB CIM governance process).

Data Confidentiality and Security

Summary of Responses

Respondents have raised two key areas:

- The commercially sensitive nature of data that could be attributable to single site customers and large demand users
- Clarification of expectations around data security including from a critical national infrastructure (CNI) perspective

Ofgem Position

We recognise the concerns that have been raised. Special condition 9.5.11 of the Distribution licence requires parties to use their best endeavours to act in accordance with Data Best Practice (DBP) Guidance. DBP Guidance is applicable to all Energy System Data which includes the LTDS, so there is a responsibility on licence holders to follow robust Open Data Triage processes with regards to data security in line with Principles 9 & 11 of the DBP Guidance and Supporting Information. Given the development of DBP Guidance and Supporting Information since the previous version of the FoS, we have removed existing Appendix 1 which contains the data triage process and replaced this with Section 8 which refers to the DBP Guidance.

Regarding the potential risk on CNI, we highlight the ongoing work within industry to define access requirements for open data portals provided by DNOs and standardisation of triage. We intend to align with this, expecting DNOs to publish their LTDS data via their open data portals and utilising the protections being developed through industry fora, for the publication of data that potentially poses risks to CNI.

Heatmap Standardisation

Summary of Responses

Responses to the informal consultation focused on the need for more detailed documentation on the data structure, classes, attributes etc. One DNO questioned the use of a JSON format and suggested a more geo-specific format would be more suited. Questions on whether all data attributes should be required and whether the minimum set of data should be lowered and/or phased to align with CIM deliverables were also raised. There were also general questions on the proposed timescales and update frequency of the data.

Ofgem Position

We have created two specific Capacity Heatmap Appendices to the FoS, to clarify the requirements in this area and have updated the content and provided more clarifications as

required. We have reduced the amount of required data in the standard but provide clarification in the documentation that when the operator publishes CIM data they should be aligned at this stage. This will allow heatmap standardisation to proceed without depending on the CIM LTDS publications but will ultimately ensure that the two sources of data are coordinated and can be cross referenced.

Regarding the format of the heatmaps, the intent was not to limit formats but to provide one standardised structure. The open-source example showed how it could be easily converted into GeoJSON for display. The data structure, classes/types, attributes and relationships can be retained unaltered if the data is serialised in alternative formats alongside JSON.

General Updates

Other changes have been made to the FoS and associated documents following the informal consultation process, to prepare them for publication, including considering the need to ensure certain documents can be governed and maintained by a third-party governance body in due course. Modifications have been made to the overall structure of the FoS to allow the future retirement of certain sections to be more clearly described, along with the addition of Section 9 which describes those retirements. There have also been changes to the descriptions of (5) Grid Modelling and (6) Capacity Heatmaps, to accurately articulate the requirements at a functional level, leaving technical implementation detail to Annex 1 and 2. Minor changes have been made to drafting throughout, to improve clarity.

We greatly appreciate the work of the LTDS working group and the feedback that we have received from all those who have taken the time to attend workshops and/or provide written responses, on the informal draft set of documents. This is a key step forward in delivering on our decision to use the CIM as the data standard in our data related licence requirements and we look forward to working with stakeholders to finalise these important updates to the Form of Long Term Development Statement.

Yours sincerely

A handwritten signature in black ink, appearing to read 'RB Barnett', with a stylized flourish at the end.

Rebecca Barnett

Director of Major Projects