Curtailment Reports Consultation

2023

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Overview

National Grid Electricity Distribution and UK Power Networks are consulting on how we best support our customers in understanding the impact of curtailment analysis in the future. We are proposing three parallel approaches for enabling curtailment analysis and are looking to understand which option(s) provides the most benefit to our customers.

Scope of this consultation

For every Curtailable Connection provided by UK Power Networks and National Grid Electricity Distribution after 1st April 2023, we have provided a DCP404 compliant curtailment report with an associated Curtailment Limit, which guarantees the maximum level of non-compensated distribution curtailment experienced in a 12 month period.

Prior to this date and continuing for other flexible connections outside the definition of a Curtailable Connection, UK Power Networks and National Grid Electricity Distribution have been providing curtailment information using the relevant modelling software. These reports provide an estimate of likely curtailment, but without any guarantees.

Following the introduction of Technical Limits at a number of Grid Supply Points in Q4 2023 to accelerate connections otherwise behind transmission reinforcement, UK Power Networks and National Grid Electricity Distribution will be able to connect Distributed Energy Resources (DER) ahead of these enabling works under non-firm arrangements.

Curtailment forecasts for the likely curtailment due to Transmission constraints will be provided using a bespoke curtailment report with increased data visibility.

Curtailment will be uncompensated and the arrangements time bound with terms lifted once reinforcement works are completed.

This consultation addresses the information provision and options for supporting processes across:

- Curtailable Connections
- Transmission curtailment due to Technical Limits accelerated connections
- Enduring Distribution curtailment where customers have opted for non-firm connections in lieu of contributing to reinforcement
- Enduring Transmission curtailment where customers have opted for non-firm connections in lieu of contributing to reinforcement

What issues are we trying to address?

The current modelling processes for the DCP404 tool and DSO-led curtailment forecasting have a number of limitations, outlined below, which could be better mitigated through improved modelling processes, enhanced data or additional sensitivity analysis.

The details of the risks associated with current modelling techniques are those such as; technology profiles based on DSO assumptions, and therefore may not reflect the bespoke nature of the site or technology installed.

The model takes loadings from connected load and then applies oversimplified assumptions on future demand/ generation, this does not align to how we carry out network design and Distributed Energy Resource Management Systems (DERMS) operation.

Those familiar with the DCP404 curtailment tool will be aware of the limitations to this modelling technique, again such as;

- only one asset demand or generation rating available in the tool so no consideration to seasonal loadings,
- curtailment is based on intact network and does not capture abnormal running conditions,
- the tool is not designed for network availability and voltage driven constraints.
- the tool also doesn't consider that previously offered and accepted generators don't have a constant contribution to the constraints, because of their variability and/or because they have accepted a Flexible Connections, hence their output will be curtailed when the network is congested.

Standardisation of approaches and data

Within Open Networks, the format and presentation of curtailment reports has been defined to increase standardisation. Associated with the Significant Code Review changes, DCP404 was written to provide a consistent process for defining curtailment limits across all Distribution Network Operators (DNOs).

The below table highlights a numnernumber of datasets which are either currently available or soon to be available which will enable DER connections to assess their own curtailment risk.

Data	
Asset Ratings	Historical Outage Data
Load and generator details	Standard technology specific profiles
Historical HH power flow data across 132 kV circuits, 33kV circuits, grid and primaries	Operational Curtailment per constraint
Detailed of connected/accepted customers	Description of assumptions
LIFO stack per GSP/constraint	Curtailment threshold per constraint

Curtailment Analysis Proposals – Our preferred approach

Jointly, we have considered a range of potential models for curtailment reports being provided across the industry and have agreed on a set of overarching principles that we have now begun working to. We want to seek further views on these and other models that we should be considering from our stakeholders.

The three overarching proposals we are taking forward to compliment the DCP404 curtailment analysis, are as follows. Where available, additional curtailment datasets and information will be provided at offer stage.

Proposal 1: DCP404 curtailment analysis

We will release open data and standard industry tooling to allow customers to utilise the data sets to carry out detailed analysis for their connection to confirm the likely curtailment experienced.

Proposal 2: Self-serve tooling made available for curtailment analysis

We will provide self-service tools which enable DER connections to carry out their own analysis across a number of selectable variables to understand the sensitivity of important factors such as queue position, technology load profiles and attrition.

Proposal 3: Provide enhanced DSO-led curtailment studies

We will provide enhanced curtailment analysis including relevant studies and reports at a cost. This cost is likely to be around £5,000 - £10,000 dependent on complexity. These reports will be bespoke, delivered to a defined timescales and could include a 1-1 engagement with the customer to agree the parameters of the analysis.

Provide all data required for customers to carry out their own curtailment analysis

We will release all open data listed above to enable customers / third parties who are able to do curtailment studies to carry out their own detailed analysis or instruct a third party to do so on their behalf.

We are seeking your views on the suitability of these proposals and if you agree with our minded to position on pricing, with respect to Proposal 3.

Timeline

We are planning to consult on this until 2 February 2024 and we would like your views on the proposals above as this will help us to shape the final criteria.

Responding to this consultation

We want to hear your views on the proposals presented in this consultation. It is important that we get a broad range of stakeholders' opinions and we are keen to get your feedback so to assist with your response we have produced a questionnaire with the specific questions from the consultation.

Please complete the survey here: https://forms.office.com/r/RKQZMZtukt

Responses should be returned by 2 February 2024.

Appendix – Additional detail

Under the “DCP404 curtailment analysis” option, customers would receive a Curtailment Limit for connection offers under DCUSA Schedule 2D.

Where customers are seeking a connection offer that is subject to a load management scheme or curtailment management scheme, the general data required to undertake a curtailment analysis would be provided, along with industry standard tooling. Allowing data to be open and used by our customers provides many benefits.

We believe though, our customers in some instances could have an enhanced understanding of commercial risks that feed into curtailment analysis to empower them to access the viability of a connection offer. This would be one of the benefits of undertaking a more enhanced DSO-led curtailment study.

Under this bespoke service, the customer would receive the standard data and reports as listed below:

1. Basic Distribution constraint

The curtailment due to distribution constraint under DCUSA Schedule 2D. For schemes which are not under DCUSA Schedule 2D, this would not be applicable, but the data and tooling would be available for customers.

2. Transmission constraint

An indication of the enduring curtailment caused by constraints on the Transmission network where National Grid ESO have identified them, and the customer has chosen an enduring non-firm option. Where appropriate this will also include curtailment due to the Technical Limits applied at a GSP.

3. Provision of network and load data

We would provide network data such as, asset ratings, schematics, half hourly power flow data, constraint information and the curtailment analysis assumptions. This will also enable customers to be able to carry out their own analysis based on their own assumptions and assessment of market risk.

This data would all be made available on openly accessible data portals. We would also make available the methodology to follow when carrying out curtailment analysis to represent how the DERMS systems will operate.

In addition to these outputs, you will also receive a bespoke curtailment report based on the information provided at a pre-assessment engagement session. The modelling for this will be adapted to take into consideration a number of new parameters, which could include the following:

- new assumptions provided by the customer based on their own market intelligence e.g. sensitivity to LIFO stack
- site specific load profiles
- updated load profile for adjacent customers based on customers market intelligence
- impacts from anticipated future network developments.

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