

Demand Connection Code Public workshop Call for Stakeholder Input

Voltage Withstand Capabilities

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Voltage Withstand Capabilities – Introduction

Fundamental

- Voltage stability is a **key issue** for system performance and **security**.
- Most of the **large-scale disturbances** in the electricity transmission system in the recent years were caused by **voltage instability (low voltage)**, particularly in Continental Europe.
- **High voltage** situations are now increasing due to the development of underground cables and due to the lack of generation support in specific areas.
- In these cases, any additional losses of demand due to narrow voltage withstand capabilities makes the situation worse.

Today

- Generator units used to contribute most to voltage stability.

Future

- In future all kinds of network users need to contribute to support voltage stability, taking into account their technical capabilities and their connection voltage level.
- Also Distribution Networks, both DSOs and Closed Distribution Networks, provide a pathway for embedded generation and DSR to contribute to voltage stability and are essential to ensure that their capabilities can be utilised.

Voltage Withstand Capabilities – Introduction

Future

- Intermittency of RES, and a less controllable, wider and more dispersed generation portfolio increase the need for stability in response from other elements in the network.
- Withstand capabilities in case of high voltage situations would be particularly valuable support for all demand users.
- NC DCC relates to **cross border issues** and therefore the NC only looks to place requirements on **transmission connected demand users**.
- ENTSO-E recognises the right of the demand user to alter their demand for their own reasons seeking only to increase the stability of demand by avoiding equipment limitations.

Voltage Withstand Capabilities – Options



Several options are possible to deal with this issue in the NC DCC:

- I. Do nothing. Demand Units/ Demand Facilities/ Distribution Networks are not expected to be equipped with a defined voltage withstand capability.
- II. Demand Facilities or Closed Distribution Networks are not expected to be equipped with a defined voltage withstand capability, unless offering DSR services.
- III. Include voltage withstand capabilities in the NC DCC for Demand Units connected directly to a transmission-connected Demand Facility or Distribution Network.
- IV. Include voltage withstand capabilities only at the transmission connection point.

Voltage Withstand Capabilities – Questions



To evaluate the need to implement voltage withstand capabilities in NC DCC we would like to ask the following questions:

Questions:

1. Do you agree with the analysis concerning the need of voltage withstand capabilities? N2
2. What are the technical limitations to voltage withstand capabilities in your Demand Units in option iii?
3. What are the technical limitations to voltage withstand capabilities in your Demand Facility or Distribution Network in option iv?
4. What would be the costs induced by such requirements in option ii, iii and iv?
5. Which alternative would you prefer? In case of option ii, iii or iv, shall the requirements be defined for all Demand Units/ Demand Facilities/ Distribution Networks or with specific voltage connection levels only?

Slide 5

N2

Differret from call for evidence need to check outcome.

NORTON_M, 17/04/2012