

Transmission to 3rd party interface Round table discussion

Introduction to discussion session

**ENTSO-E public consultation workshop on
Demand Connection Code (DCC)**

Brussels 9th August



Reliable Sustainable Connected



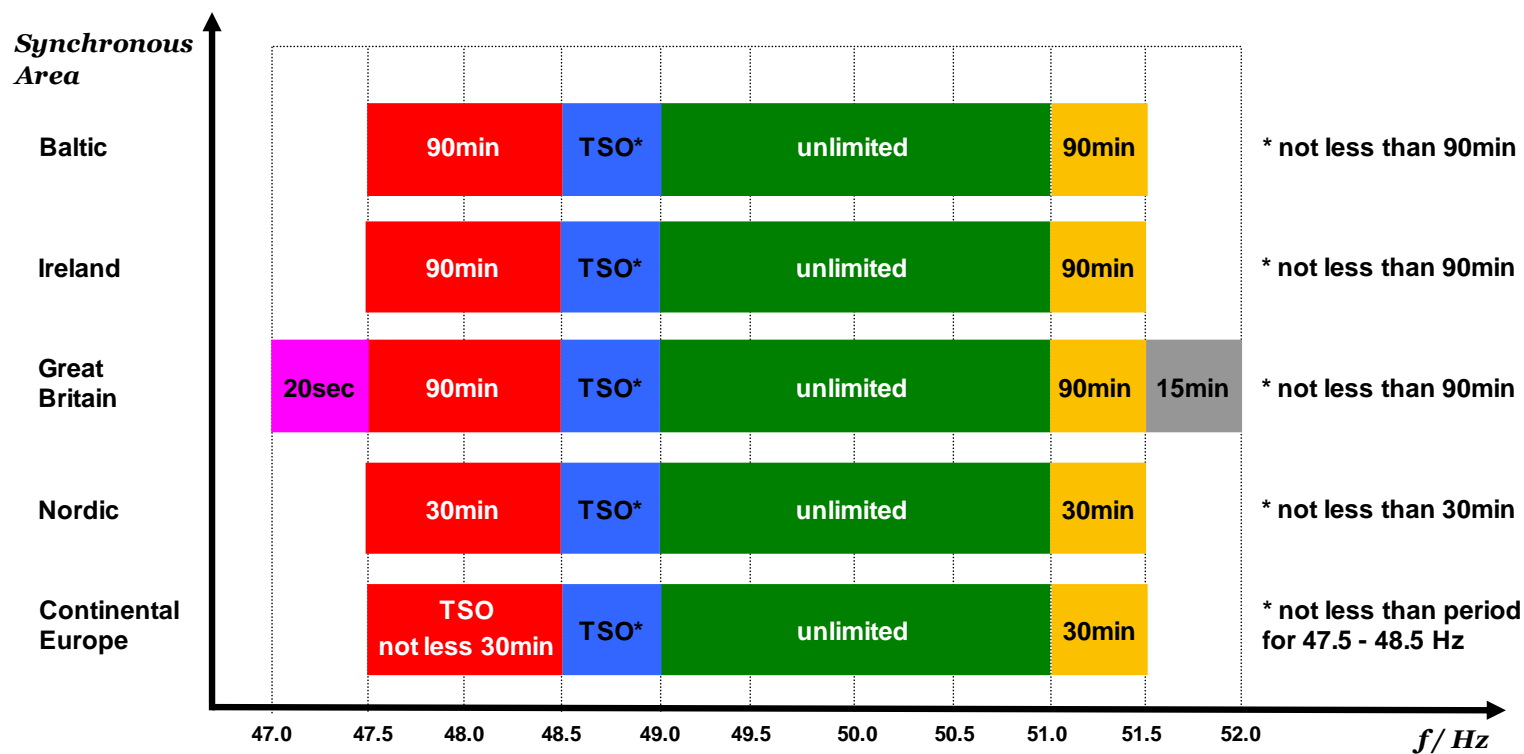
Introduction to topic

1. What are requirements on T-D interface that the DCC focuses on?
2. What are the key new requirements on T-D interface?
3. How are these specified in the DCC?
4. What types of demand are impacted?
5. How will compliance be assured?
6. Cost of compliance testing?

Introduction to Transmission to 3rd party interface (i)

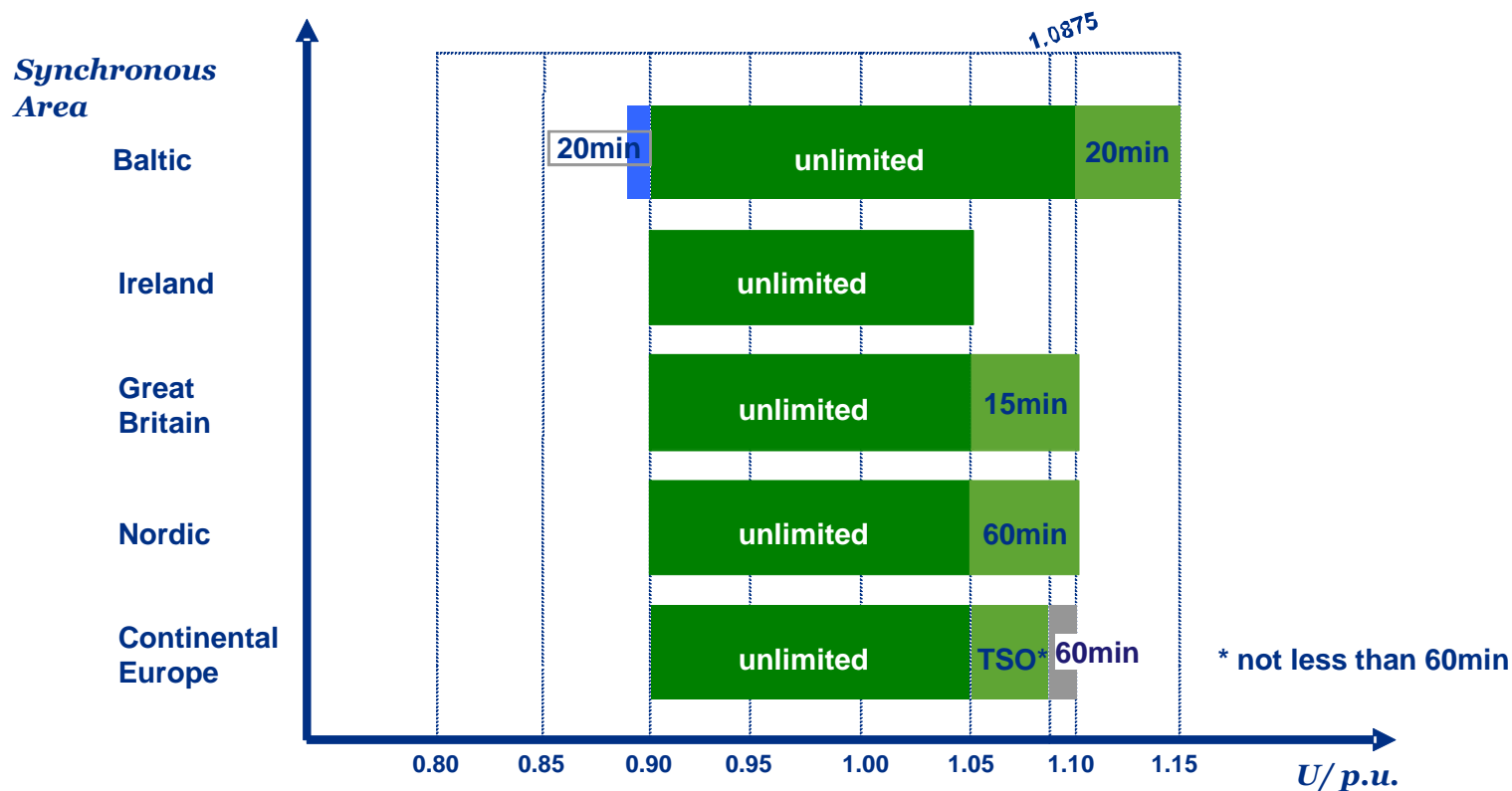
1. What are requirements on T-D interface that the DCC focuses on?
 - Reactive power requirements
 - Voltage
 - Frequency
 - Short circuit
 - Protection and control
 - Demand Disconnection [LFDD/LVDD/OLTC]
 - Demand Reconnection
 - Power Quality
2. What are the key new requirements on T-D interface?
 - Reactive Power requirements
 - Voltage
 - Frequency
3. How are these specified in the DCC?
 - On next slides

Frequency Requirements



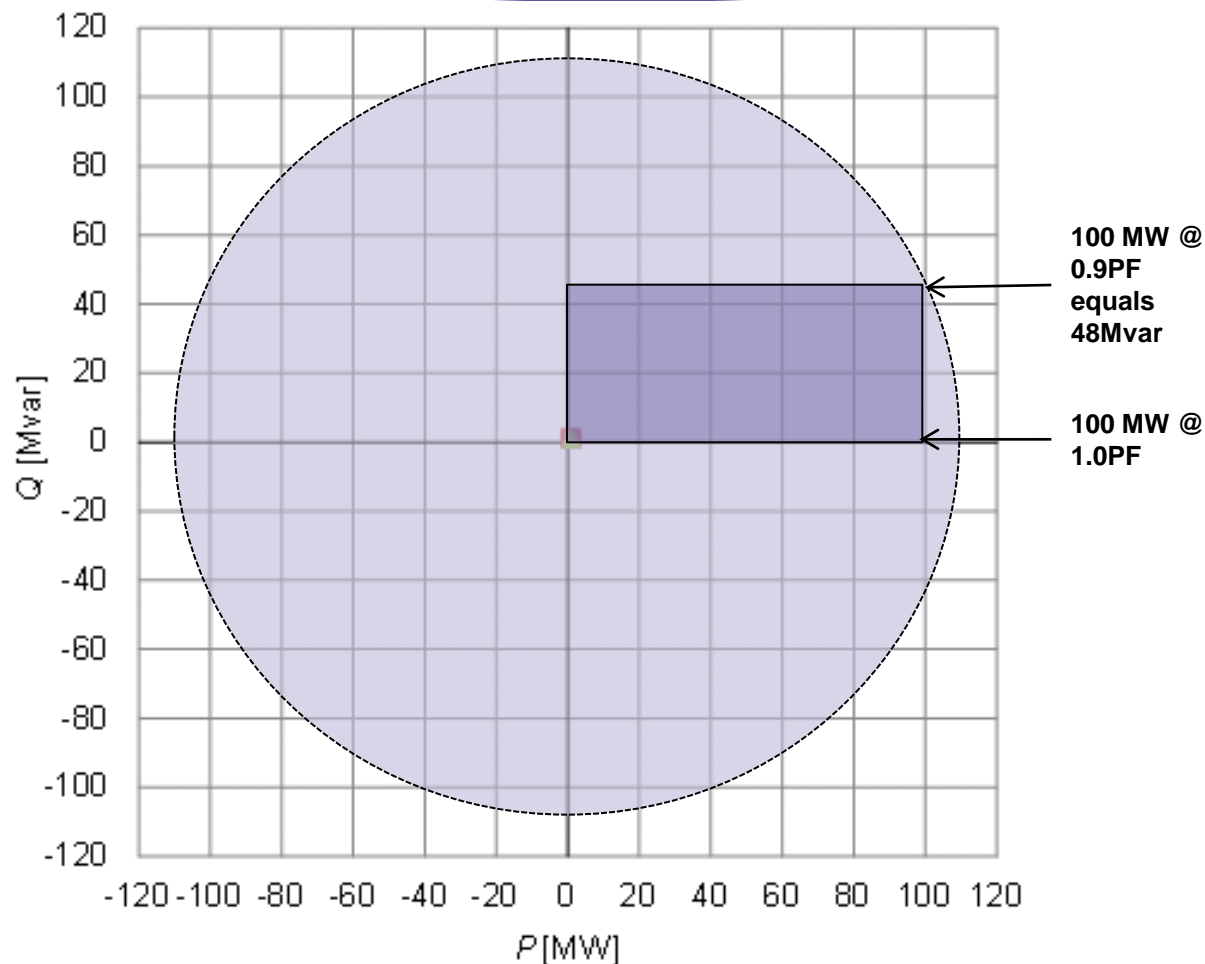
Voltage requirements

(300kV – 400kV)



Reactive power – Demand only demand facility

- If MIC 100MW
- Maximum range of 0.9PF of MIC is 48Mvar
- Therefore 0 - 48Mvar is widest European envelope that can be specified
- TSO can specify any reactive power range within this envelope
- Reactive power range beyond this can be specified outside of this if justified by technical and financial benefits
- Examples maybe paid for reactive support on TSO side to compensate or system voltage reduction reasons



Introduction to Transmission to 3rd party interface (ii)

4. What types of demand are impacted?

- Transmission Connected Demand Facilities
- Transmission Connected Distribution Networks [DSO/CDN]

5. How will compliance be assured?

- Compliance will be tested during ION Operational Notification stage
- Simulation testing will be completed prior to FON Operational Notification stage

6. Cost of compliance?

- Cost of the relevant compliance tests shall be covered by the user
- All costs (including Compliance costs) accounted for in retroactive application cost benefit analysis

Possible topics for discussion / feedback in this session

CONTENT ISSUES

Stakeholders views:

- No Distribution Network and/or Demand Facility supply chain challenges are envisaged for equipment?

Views on ENTSO-E direction:

Frequency requirements

- Frequency withstand capabilities are mandatory for Distribution Networks and for the Demand Facilities, which offer DSR services
- Frequency ranges are the expectation of system frequency
- Frequency ranges are identical with the requirements on generators
- Frequencies outside defined range can occur
- User always retains the prerogative to disconnect, at any frequency
- Frequency withstand capabilities should be coordinated with low frequency demand disconnection ranges

Possible topics for discussion / feedback in this session

Voltage requirements

- Voltage ranges are voltage withstand capabilities
- Applies to transmission connected users with a connection point at 110 kV and above
- Voltage ranges are aligned with the requirements on generators
- Withstand capabilities only at the transmission connection point
- Demand facilities connected below 110 kV providing DSR have to remain connected for national provisions
- Distribution network or demand facility shall be capable of automatic disconnection at specified voltage

Reactive power requirements

- Reactive compensation is optimal close to the source of use
- Network operators should mainly reactively compensate their own networks
- Reactive ranges should not be too restrictive and should allow for effective use of embedded generation and DSR

COMMUNICATION ISSUES:

- How can these requirements be best communicated to all responsible parties defined in the code?



- Thanks for your attention!