

Requirements for Generators European Network Code



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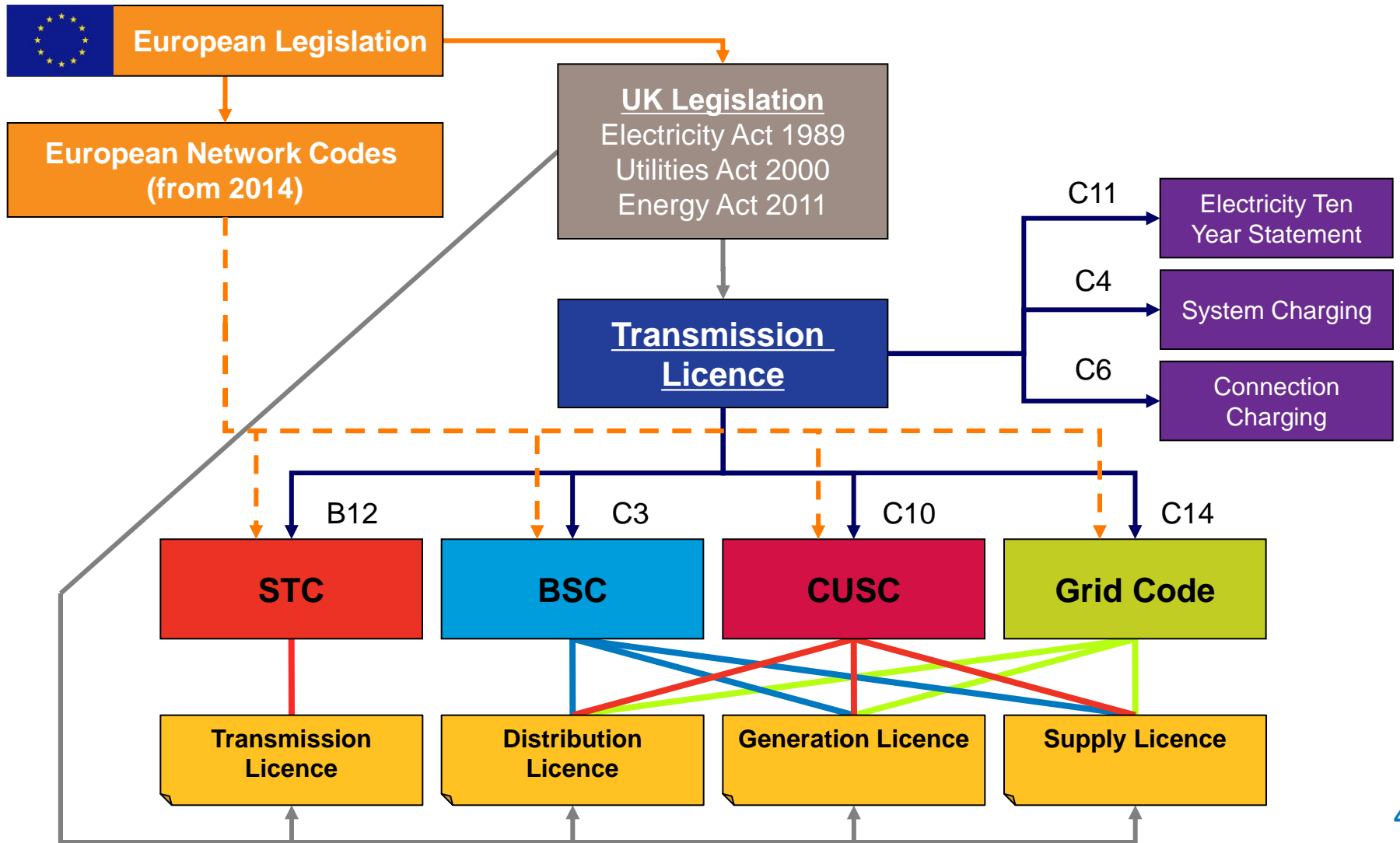
Overview

- Fault Ride Through
- Background to Current GB Structure
- Licensing and Connection Requirements
- Transitional Arrangements
- Structure
- Ways Forward
- Summary

Fault Ride Through

- GB Grid Code Working Group established to address fault ride through issues for Synchronous Generators – mainly focussed for very large directly connected Generators but also will consider smaller Generators
- The proposal is to consider early adoption of the RfG requirements but within the context of the GB framework
- Extensive study work completed and three options proposed
- Assessment still required for Generators to understand the impact in terms of their auxiliary supplies
- Fault Ride Through requirements for Smaller Embedded plant has not yet been considered but the issue has been discussed and the initial view is that Type B, C and D Generators which are Embedded should satisfy the fault ride through requirements for Transmission System faults only not at the Connection point as currently proposed in RfG.

Where do the Codes come from



Applicable Requirements and Agreement Type

- These are influenced by
 - The requirements of the Industry Codes
 - Licensing Requirements
 - Size of Generator (Large, Medium or Small)
 - Point of Connection
 - Transmission Area to which the User is connected
 - Is the Generation Directly Connected or Embedded

The Effect of Licensing

- Administered by DECC
- Mandatory requirement for any Generator in excess of 100MW – Penalties apply without a Generation License.
- In England and Wales Licence Exemption is available between 50 – 100MW
- No License is required below 50MW in England and Wales
- The current Licensing arrangements complement the existing definitions of Large, Medium and Small Power Stations
- Under RfG, the adoption of Type A, B, C and D Generators only without reference to Small, Medium and Large is likely to require a review of the Licensing requirements

Applicable Requirements

Some Examples – England and Wales

Size (MW)	Embedded or Directly Connected	TO Area	Agreement Type	TEC	Metering	Applicable Industry Codes
100 (Large)	Directly Connected	NGET	BCA	Yes	CVA	CUSC, Grid Code, BSC
150 (Large)	Embedded	NGET	BEGA	Yes	CVA	CUSC, Grid Code, BSC, DCUSA, D Code, G59
99.9 (Med)	Embedded	NGET	BEGA	Yes	CVA	CUSC, Grid Code, BSC DCUSA, D Code G59
			LEEMPS	No	SVA	DCUSA D Code G 59 Grid Code (Part)
49.9 (Small)	Embedded	NGET	None	No	SVA	DCUSA D Code G59

Applicable Requirements

Some Examples – Scotland

Size (MW)	Embedded or Directly Connected	TO Area	Agreement Type	TEC	Metering	Applicable Industry Codes
100 (Large)	Direct	SPT	BCA	Yes	CVA	CUSC Grid Code BSC
30 (Large)	Direct	SPT	BCA	Yes	CVA	CUSC Grid Code BSC
10 (Large)	Direct	SHE-Trans	BCA	Yes	CVA	CUSC Grid Code BSC
50 (Large)	Embedded	SPT	BEGA	Yes	CVA	CUSC, Grid Code, BSC, DCUSA, D Code. G59
			BELLA	No	SVA	CUSC, Grid Code, DCUSA, D Code, G59
9.9 (Small)	Embedded	SHE - Trans	None	No	SVA	DCUSA, D Code G 59

Transitional Arrangements

- At the September meeting an action was raised on the implications for impending Generator Connections who could be seeking a connection in the immediate future which will overlap the RfG implementation phase
- Discussed with NGET Legal
- Requirement to identify:-
 - Who the current applicants are and
 - Who could be affected by the ENTSO-E RfG Code
- Requirement to develop generic wording either through the covering letter of a connection offer, through a generic Code change or via NGET's website
- The process is complicated by existing Users who may choose to Mod App.
- An arrangement to manage this process needs to be developed.

Transitional Arrangements - Example

- Assume Comitology is finalised on 1st January 2015 and the Codes need to be in force by 1st January 2017
- A Generator also applies for a connection on 1st January 2015 with a completion date expected on 1st January 2019 with major plant items expected to be procured in February 2017 and hence will be caught by the ENTSO-E RfG Requirements
- NGET will need to issue an offer by the end of March 2015 but at the time of the offer the Grid Code and Bilateral Agreement will not have been updated to capture the RfG Requirements.
- The Offer will need to refer to the approved version of the RfG and current Grid Code with some potentially significant amendments to the Technical Appendices within the Bilateral Connection Agreement. **At this stage however the exact technical requirements would be uncertain.**
- A similar issue will arise for Modification Applications – ie Generators who already have a connection offer / agreement
- This will be particularly challenging to manage in the early phases of the transition process

Transitional Issues / Ways Forward

- Uncertainty over national parameters
 - Eg National Grid can suggest and recommend National Parameters but these need to be subject to industry Governance which could be a time consuming process especially for new technical requirements
 - Significant potential uncertainty for Generators in specifying equipment
- Identify preferred Structure Option
- Start limited legal drafting to ensure the structure will work – but recognising this is an iterative process
- Similar issues have been encountered previously but to a lesser extent
 - Technical Requirements for Wind Generation – 2005
 - Offshore Transmission - 2009

Summary

- Fault Ride Through developments
- Review of GB Connection Process
- Impact of Licensing
- Complexities of Transition
- Transitional Issues / Ways forward

Useful links

- ENTSO-E

- <https://www.entsoe.eu/resources/network-codes/>

- ACER

- http://www.acer.europa.eu/portal/page/portal/ACER_HOME/Activities

- European Commission

- http://ec.europa.eu/energy/index_en.htm

- JESG

- <http://www.nationalgrid.com/uk/Electricity/Codes/systemcode/workingstandinggroups/JointEuroSG/>

Questions
