

Update on Expert Groups On-going and planned activities

Ioannis Theologitis, ENTSO-E

**10th Grid Connection European Stakeholder
Committee Meeting**

11 June 2018, Brussels

Expert Groups

- High Penetration
 - Compliance Monitoring
-

Who is the EG HP?

- Volunteers from 6 stakeholder groups:
 - TSOs: 2 Representatives
 - Wind Manufacturing Industry: 4 Representatives
 - HVDC Manufacturing Industry: 2 Representatives
 - PV Manufacturing Industry: 1 Representative
 - Power System Analysis tool providers/Consultants: 2 Representatives
 - Academia: 2 Representatives
- Its work is split in two stages
 - Stage 1 (early 2017): Fast Fault Current Injection (FFCI)
Initial guidance for use at national level ahead of issue of national documents
 - Stage 2 (2017 – 2019): High Penetration (HP)
Longer term analysis and input into issues of extreme high penetration

Release draft report for consultation end of 2018.

What is EG HP doing?

- Released two IGDs
- Is currently working on a joint report on grid forming capabilities
 - Reflect a joint position
 - Maybe joint position not possible on each point
- No active research
- Work based on available research results
- Contribution for setting up requirements on grid forming capabilities in future grid/network codes

Way forward for Expert Group High Penetration

- Describe individual aspects of grid forming capability
- Describe design/sizing consequences for PE interfaces
- Describe possibilities and limits of grid forming with respect to size of storage and/or current headroom
- Give brief (!) cost indications related to individual or combinations of grid forming capabilities
- Set up benchmarks for evaluation of compliance including testing
- Publish draft for consultation
- Publish final results

Status of work and members' considerations

Status of work:

- Further work on individual grid forming capabilities
- First inputs expected before summer break
- Draft report for stakeholder consultation by end of 2018

Considerations from members:

- Timeline for introduction of new inverter control
- Need cases expected (TSO studies that lead to new requirements regarding control)
- Requirements as performance specification (allowing different implementations and solutions)
- Agreeing to proposed format of final report (joint document)

Inputs to be considered:

- Links to research projects e.g. Migrate and Osmose
- Projects with focus grid forming were already collected
- Liaison with EG hosted by National Grid

EG on compliance monitoring (EG CM)

- Total \approx 25 experts from 22 companies
 - Stakeholder groups represented in EG: Turbine manufacturing industry, wind manufacturing industry, co-generation industry, engineering and certification bodies, utility companies, energy suppliers, DSO association, consultant companies, standardization entities,...
- (list to be refined)*

Status of work:

- The joint team - CENELEC/WG3 and ENTSO-E/EG CM – met end of April
- Deliverable: EN50549-10 report
- Possible adaptations to IGD on Compliance Monitoring
- If required EG CM will have own meetings
- Experts from the EG CM were advised to join WG3 of CENELEC for easier access to the materials
- Future updates can be done jointly by CENELEC/ENTSO-E to the GC ESC

IGDs update

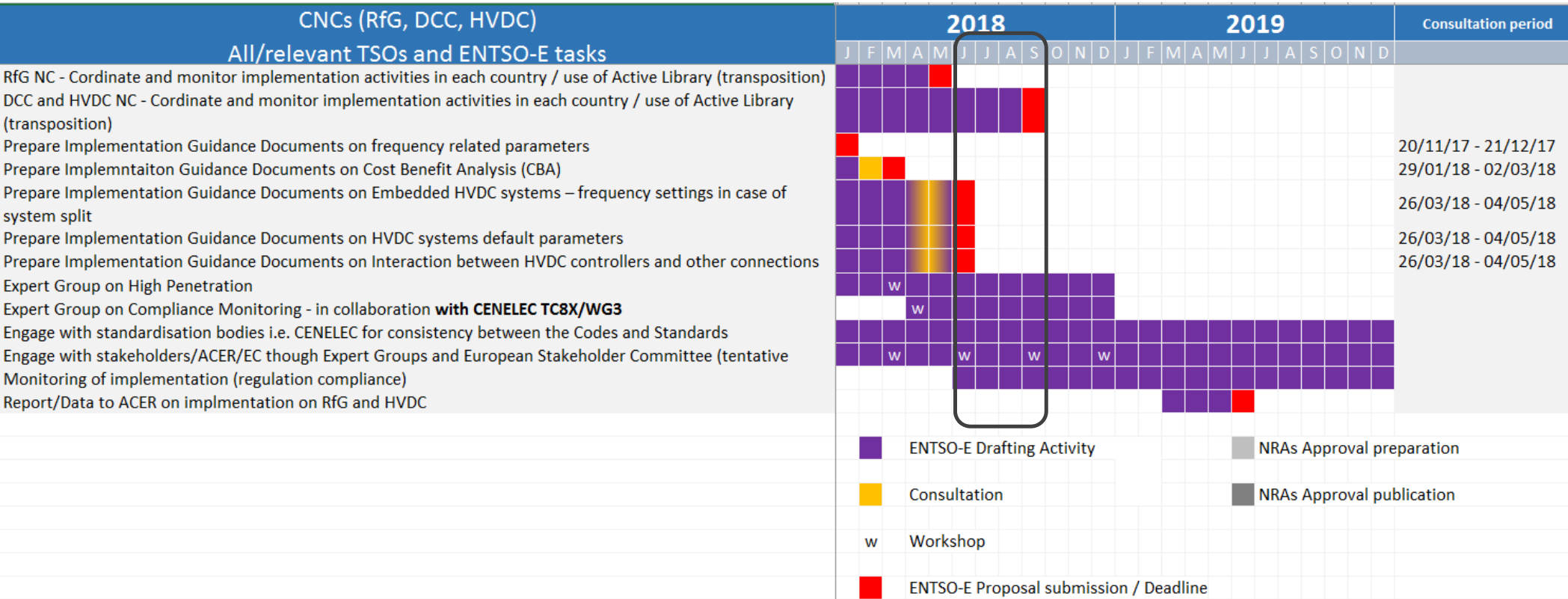
Status of IGDs since last GC ESC

- New IGDs to be published by **June 11th**:
 - Embedded HVDC systems – frequency schemes in case of system split
 - Interactions between HVDC systems and other connections
 - HVDC systems default parameters
- Consultation period was finalized successfully with limited number of comments which were addressed by the relevant ENTSO-E experts.
- Material can be found here: https://www.entsoe.eu/network_codes/cnc/cnc-igd/
- The announcement of publication here: https://www.entsoe.eu/network_codes/news/



Overview

Overview plan for next months



Consultation of the report from EG HP by end of 2018 is not included in the above plan