

# Update on Expert Groups On-going and planned activities

Ioannis Theologitis, ENTSO-E

10<sup>th</sup> 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 ≈ 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

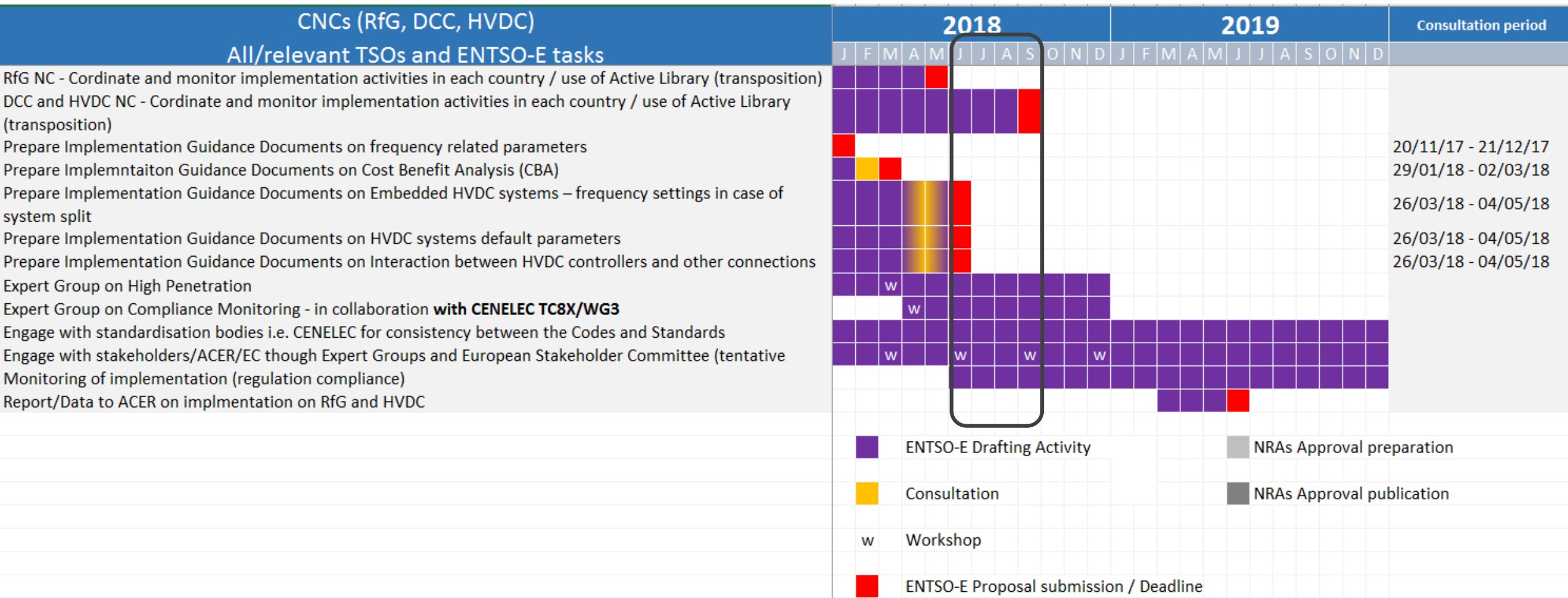
- New IGDs to be published by **June 11<sup>th</sup>**:
  - Embedded HVDC systems – frequency schemes in case of system split
  - Interactions between HVDC systems and other connections
  - HVDC systems default parameters
- Consultation period was finalized successfully with limited number of comments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