Expert Group Interaction Studies and Simulation Models (EG ISSM)

Presentation to GC ESC on behalf of the EG ISSM

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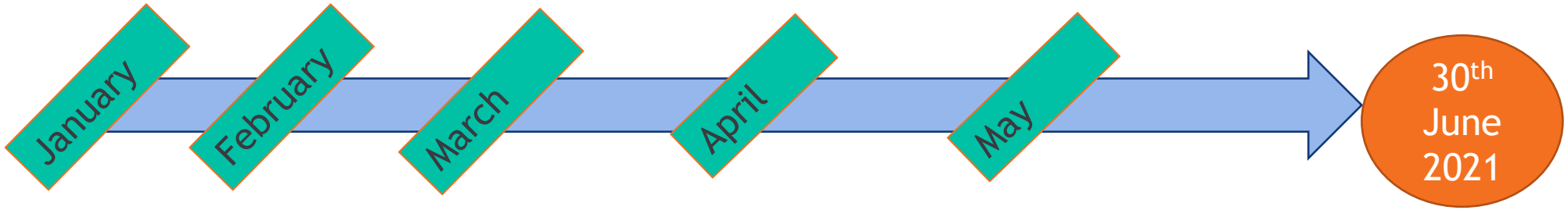
Project time line



The EG has developed the draft report

Internal (EG ISSM) consultation has been concluded

Ongoing discussion and revision after consultation, preparation of final report for submission to GC ESC

Due to Covid restrictions only web meetings were arranged (no physical meetings).

The EG ISSM has proposed the following amendments for improvement of the Network Codes

NC RfG

Art.15.6.c / General requirements for type C power-generating modules

- new paragraph on RMS model requirements for PPMs
- new paragraph on EMT model requirements for PPMs
- new paragraph on impedance model requirements (in frequency domain) for PPM will be provided
- Clarification of models to be used for SPGMs

NC HVDC

Art.54 / Simulation models

- new paragraph on RMS model requirements for HVDC
- new paragraph on EMT model requirements for HVDC
- new paragraph on impedance model requirements (in frequency domain) for HVDC

NC DCC

Art.21.3 / Simulation models

- new requirement for frequency dependent impedance profiles at the transmission and distribution interface.

Overview of the results of EG ISSM

- An overview of the interaction phenomena to be studied is described.
- Models shall be adequate for the necessary simulations.
- The type of required models (RMS, EMT or impedance) and frequency ranges were agreed.
- Where intellectual property requires encoded black box models or restricted data, this is acceptable under certain conditions. The conditions were agreed.
- Validation (correct representation of the real world) and verification (conformity with regulations) of models is described.
- Model requirements for HVDC, PPM, SGPM and Demand are described in detail.
- Necessary model maintenance during life time of the installation is described.
- In line with these results, proposals for amendments of NC DCC, NC HVDC and NC RfG were discussed and will be part of the final report.

Discussion points for to the GC ESC

- NC HVDC only considers the installation of new HVDC installations.

- The installation of new grid users close to one or more existing HVDC systems raised the following questions:
    - Who should have access to the models and who should perform the studies when a new grid user is installed close to an existing HVDC system?
        - The position of ENTSO-E members in the EG is that it is the relevant TSO that should perform such studies. NC HVDC article 29 defines it clearly for new HVDC connections, but not for new grid users. For the new grid users it should be identified in the NC RfG and NC DCC.
        - Similar to NC HVDC Article 29, paragraph 6:
          "*Any necessary mitigating actions identified by the studies carried out in accordance with paragraphs 2 to 5 and reviewed by the relevant TSO shall be undertaken by the HVDC system owner as part of the connection of the new HVDC converter station*"
          a regulation for the case of new grid users is necessary.
    - Who shall bear the costs of such mitigation measures, the new grid user, the existing HVDC owner or all. This is not part of our TOR and should be discussed in ESC.

Thank you for your attention!