Online Workshop
Harmonization of HVDC systems
Best practices and potential for standardization

Part 1
HVDC switchgear and protection systems
Time: Wednesday | 17 June 2020 | 10:00–13:00
Location: Microsoft Teams Meeting

Part 2
HVDC systems control and grid codes
Time: Friday | 19 June 2020 | 10:00–13:00
Location: Microsoft Teams Meeting
PROMOTioN – Project Facts, Objectives & Partners

Project facts

33 partners

11 countries

4.5 years (2016 – 2020)

Total budget € 42 million
PROMOTioN – Project Facts, Objectives & Partners

Demonstrators

**HVDC network control**
- MMC test bench
- RWTH Aachen
- Aachen, Germany

**HVDC network protection**
- Multi-terminal test centre
- SSE Transmission
- Glasgow, UK

**HVDC circuit breakers**
- KEMA High Power Lab
- Arnhem, Netherlands

**HVDC gas insulated system**
- KEMA High Voltage Lab
- Arnhem, Netherlands

Lead: ABB
WP1 – Requirements for meshed offshore grids - TenneT

WP2 – Grid topology & Converters
RWTH Aachen

WP3 – WTG – Converter interaction
DTU

WP4 – HVDC Grid Protection Systems
KU Leuven

WP5 – Test environment for HVDC CB
DNV GL

WP6 – HVDC CB performance characterisation
UniAberdeen

WP7 – Regulation & Financing
TenneT

WP8 – Test environment for HVDC CB
DNV GL

WP9 – Protection system demonstration
SHE Transmission

WP10 – HVDC Circuit Breaker demonstration
DNV GL

WP11 – Harmonisation towards standardisation - DTU

WP12 – Deployment plan for future European offshore grid - TenneT

WP13 – Dissemination
SOW

WP14 – Project Management
DNV GL

WP15 – HVDC GIS Demonstrator
ABB

WP16 – MMC Test bench demonstrator
RWTH Aachen
Workshop Harmonization of HVDC systems
Part 1: HVDC switchgear and protection systems

WP1: Requirements for Meshed Offshore Grids - TenneT
WP2: Grid Topology & Converters - RWTH Aachen
WP3: WTG – Converter Interaction - DTU
WP4: HVDC Grid Protection Systems - KU Leuven
WP5: Test Environment for HVDC CB - DNV GL
WP6: HVDC CB Performance Characterisation - UniAberdeen
WP7: HVDC GIS Demonstrator - ABB
WP8: Regulation & Financing - TenneT
WP9: Protection System Demonstration - SHE Transmission
WP10: HVDC Circuit Breaker Demonstration - DNV GL
WP11: Harmonisation Towards Standardisation - DTU
WP12: Deployment Plan for Future European Offshore Grid - TenneT
WP13: Dissemination SOW - DNV GL
WP14: Project Management - DNV GL
WP15: HVDC GIS Demonstrator - ABB
WP16: MMC Test Bench Demonstrator - RWTH Aachen
Workshop Harmonization of HVDC systems
Part 2: HVDC systems control and grid codes
## Workshop Harmonization of HVDC systems
### Part 2: HVDC systems control and grid codes

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Session Title</th>
<th>Speaker(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>19 June 2020</td>
<td>10:00 – 10:15</td>
<td>Introduction to the workshop</td>
<td>Poul Sørensen, DTU</td>
</tr>
<tr>
<td></td>
<td>10:15 – 10:30</td>
<td>Harmonisation of grid code requirements for HVDC systems</td>
<td>Christina Brantl, RWTH</td>
</tr>
<tr>
<td></td>
<td>10:30 – 10:45</td>
<td>Grid code compliance evaluation</td>
<td>Benjamin Marshall, SSE</td>
</tr>
<tr>
<td></td>
<td>10:45 – 11:00</td>
<td>Multi-frequency stability</td>
<td>Lukasz Kocewiak, Ørsted</td>
</tr>
<tr>
<td></td>
<td>11:00 – 11:15</td>
<td>Grid forming converters for Black Start</td>
<td>Ramon Blasco-Gimenez, UP Valencia and Nicolaos Cutululis, DTU</td>
</tr>
<tr>
<td></td>
<td>11:15 – 11:30</td>
<td>HVDC , R&amp;I activities towards harmonization</td>
<td>Norela Constantinescu, ENTSO-E</td>
</tr>
<tr>
<td></td>
<td>11:30 – 11:45</td>
<td>Enabling Multi-Vendor Systems by International Standardization of functional Requirements</td>
<td>Marcus Zeller and Frank Schettler, Siemens</td>
</tr>
<tr>
<td></td>
<td>11:45 – 12:15</td>
<td>Discussion</td>
<td>Moderator: Poul Sørensen, DTU</td>
</tr>
</tbody>
</table>
Discussion – HVDC systems control and grid codes

• Discussion points - under the heading HVDC systems control and grid codes:
  • Additional questions and discussions to presentations
  • Future R&D needs to support standardization of HVDC systems control and grid codes
  • Need to propose new standardization work for HVDC systems control and grid codes?
  • Any other issues regarding standardization of HVDC systems control and grid codes

• How to participate in discussion:
  • 6 presenters are free to take the word
  • Other participants, please write in chat
APPENDIX

DISCLAIMER & PARTNERS

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