



Interaction Assessment of VSC-HVDC links using EMT-type tools

Keywords

FACTS, EMT-type tools, HV power electronics, HVDC links, Interactions phenomena, VSC station, wind power plants

Context

Large integration of renewable energy sources and HVDC converters in power system have resulted in displacement of conventional power generation, lower system inertia and lower short circuit capacity of the AC power system. The AC grids integrate multiple converters in the close vicinity that potentially influence each other. The interoperability and stability of the system with massive amounts of converters is regarded as a key issue in future power systems development.

In recent years large-scale integration of solar, wind and HVDC converters, have resulted in several stability problems in the power system. Interactions phenomena between VSC-HVDC converters and other power electronics devices or passive HV components installed on the network, can have a wide range of frequencies: from interarea oscillations, to sub-synchronous interaction (as SSRI and SSTI) and even to high frequency interaction (between 100Hz till several kHz). In addition, interactions due to non-linear behaviour such as transformer saturation, control non-linearity, etc. can also occurs.

EMT-type tools is commonly used to study and investigate such interactions phenomena between VSC-HVDC links and other HV equipment. The aim of this workshop is to provide an overview on interaction assessment related to VSC-HVDC links. The following aspects will be addressed:

- Methodologies to analyse and to assess interactions in AC networks with multiple converters
- EMT-type tools (offline and real-time) and models that are required to perform such studies.
- Practical experiences of interaction assessment in real projects
- Risk assessment and/or solutions to prevent such interactions

Organization

This workshop is organized by RTE

Participation is free of charge

Date

June 16th, 2019 –
1:30 pm - 5:30 pm

Location

Palais des Congrès,
Perpignan
Auditorium JC Rolland

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Topics and speakers

Stability and interaction analysis in islanded power systems including HVDC interconnectors

Eduardo Prieto
CITCEA-UPC
Spain

Interaction assessment between HVDC & power electronic components in AC network

Iftekhharul Huq
Siemens AG
Germany

Interaction Assessment Studies Challenges with parallel connected HVDCs

Kamran Sharifabadi
Equinor
Norway

EMT-type tools to assess interaction studies of HVDC links

Hani Saad
RTE
France

Methodology and Experiences in Analyzing Oscillation Problems of MMC-HVDC Links using RTDS Close-Loop Simulation Results

Yi Zhang
RTDS
Canada

Real-Time Simulation of MMC-based HVDC and DC Grid Applications

Jean-Nicolas Paquin
Opal-RT
Canada

Sub-synchronous oscillations with Type-3 Wind-turbine and MMC-HVDC system

Anton Stepanov, Jean Mahseredjian
Ulas Karaagac
Polytechnique Montreal and Hong Kong Polytechnic

Converter interactions - modelling challenges for stability studies

Jef Beerten
KU Leuven
Belgium