

Name of the course: An overview on HVDC links

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Duration of the course: 12 hours

Credits: 3

Language: Italian; in case of request by foreign students, the course will be held in English.

Aims of the course: The teaching will describe the reasons leading to use HVDC links, the main technology used, advantages and drawbacks of them, some information about link design and related issues.

Teaching program:

Part 1) Introduction to HVDC

- History
- Reasons for HVDC usage
- Types of links (point-to-point, submarine, back-to-back)
- Plant configurations

Part 2) Main components

- An overview about converters (LCC/VSC)
- Power Lines (overhead or ground/submarine cable)
- Auxiliary components (return electrodes, reactive power banks, filters, HVDC switches)

Part 3) Design considerations

- Load Estimation
- Economic Considerations
- Line Routing/Electrode Siting
- Conversion Station location

Part 4) Environmental issues

- Environmental Impact Report
- Plant Installation
- Considerations related to the use of Return Electrodes

Exam modality:

Oral discussion

Bibliography:

Slides (in English) provided by the teachers.