Grid Consulting Services

Illustration of SuperGrid Institute know-how & tools

1. HV/MV GRID STUDIES

Main applications:

HVDC grids and integration within AC grids, MVDC grids, Offshore Wind farm ("OWF") grid connections.

This non-exhaustive list is given for information only, please contact us for any grid studies request and we will be glad to help.

Category	Description
Planning & CBA	Macro studies (Adequacy – Production / Demand…) Technology choices (HVAC, HVDC, MTDC …) Voltage selection Techno-economic analysis (TEA) studies
Grid connection (OWF)	Concept studies Local connection feasibility Risk of curtailment (grid impact) Inter-array cable routing
Grid impact	Load flow Fault level analysis Contingencies Transient analysis Dynamic analysis
Grid code compliance / System studies	PQ and UQ capability diagrams Dynamic and transient stability Fault ride through capability Voltage and frequency regulation Harmonic analysis
Basic design	Load flow (power transformers & reactors sizing) Fault level analysis Contingencies Dynamic analysis Transient analysis Harmonics study Single line diagrams Protection coordination Insulation coordination study Earthing study
Equipment specification (review & validation)	Fault level analysis: • Specifications of equipment short circuit withstand capability • Sizing of earthing transformer MV/HV equipment selection CT/VT class validation

2. SOFTWARES & TOOLS

Software	Category addressed	Type	Status
OpTEAsoft Wind	OWF Basis of design (techno-economic modelling and optimization software for OWF grid connections) Energy yield analysis	In-house	Available
EMTP-RV	Grid connection Grid impact Grid code compliance / System studies Detailed design	Powersys	Ver 4.0
PSCAD		Manitoba Hydro International Ltd.	V4.6.3
PSS/E		Siemens	V33
Simscape Power Systems		The MathWorks, Inc	2019b
Matlab Simulink			
Dymola		Dassault Systèmes	2019
OpenModellica		Open source	1.13.2 and 1.14 dev
Hypersim	Detailed design	Opal-RT Technologies, Inc	6.x and 2019.2