

Wind power

Towards power plant grid compliance

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VTT beyond the obvious

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The requirements for power plant grid code compliance have been in transition over the past years and are more exhaustive today than ever before. For the power plant project developer point of view it is critical to fulfil the requirements to get connection permission. VTT has know-how on grid code requirements, grid code compliance capabilities of wind power plants, and experience especially on the modelling and simulation requirements. We also offer wind power plant grid code compliance testing and measurements.



Our offering

1. PSS®E modelling and simulations – load flow and dynamic simulations with an RMS representation

- Modelling of the power plant
 - using manufacturer models / parameterizing existing models, for a specific power plant modelling
 - aggregating the wind power plant model according to the requirements
 - checking the model features for grid code compliance
- Grid code required simulations, e.g.
 - reactive power capability calculation
 - voltage disturbance simulations

2. PSCAD/EMTDC modelling and simulations – dynamic EMT simulations

- Using manufacturer models for a specific power plant modelling
- EMT-level studies, e.g. transformer magnetization analysis, power plant protection planning
- Grid code required simulations, e.g.
 - reactive power capability calculation
 - voltage disturbance simulations

3. Power plant testing for grid code compliance – most of the grid code required measurement items

Our references

VTT has carried out multiple modelling and simulation studies for many wind power plants in Northern Europe. The number of studies per year has recently dramatically increased.

Having been involved in international research co-operation, VTT has a good view point in wind power as well as other renewable energy modelling and simulations for power system studies.

VTT acts as the operating agent in IEA Wind Task 25 “Design and Operation of Power Systems with Large Amounts of Wind Power” and has been the editor for “Recommended practises for wind integration studies” report. We also have experience in wind integration studies carried out for actual power systems.

