

MAGNUS SPEYCHAL

Magnus' specialist field is power system analysis, dynamic simulations and modelling and grid code compliance. He has more than 20 years' experience in electric power engineering and has extensive knowledge of simulation tools such as PowerFactory, PSS/E, PSCAD and Simpow, as well as supporting tools such as Matlab/Simulink, DPL/DSL (PowerFactory), and Python. Magnus has been involved in power system analysis software development as well as numerous applications including software integration and software training.



MAIN FIELDS OF COMPETENCE

- Power system analysis – Dynamic simulations and modelling
- Grid code compliance studies

WORK EXPERIENCE

2023 –	Independent Insulation Group Sweden AB , Ludvika, Sweden <i>Expert</i>
2020 – 2022	Independent Insulation Group Sweden AB , Ludvika, Sweden <i>Senior Specialist</i>
2018 – 2020	SWECO Energuide AB , Ludvika, Sweden <i>Power System Analyst</i>
2002 – 2018	STRI AB , Ludvika, Sweden <i>Senior Engineer</i>
2001 – 2002	ABB Utilities , Ludvika, Sweden <i>Engineer</i>

EDUCATIONAL DEGREES

2002	Master of Science in Electric Engineering Mälardalens University, Västerås/Ludvika, Sweden. Thesis: SSTI investigation for the HVDC Light™ B concept
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LANGUAGES

Swedish (native), English (professional level)

LIST OF PROJECTS

2023 - ongoing	Grid code compliance simulations – RfG and EIFS 2018:2 for PV farms Grid code compliance simulations as per RfG and EIFS 2018:2 for PV farms. The studies were performed in PowerFactory.
2022 - ongoing	PV farm connection studies Studies regarding grid code (EU 2016/631 - RfG) compliance, reactive power capability and cable dimensioning based on loading and short-circuit currents.
2022 - ongoing	Grid code compliance process – RfG Supporting wind farm project developers in the execution of the RfG grid code compliance process - numerous projects.
2022 - ongoing	Grid code compliance process – RfG Supporting DSO:s in implementing the grid code compliance process of RfG - numerous projects.
2022 - ongoing	Grid code compliance process – BESS Supporting DSO:s in implementing the grid code compliance process for BESS
2022 - ongoing	Grid code compliance simulations – RfG and EIFS 2018:2 for wind farms Grid code compliance simulations as per RfG and EIFS 2018:2 for wind farms. The studies were performed in PowerFactory - numerous projects.
2022 - ongoing	Grid code compliance testing – RfG and EIFS 2018:2 for wind farms Grid code compliance testing as per RfG and EIFS 2018:2 for wind farms including compliance evaluation - numerous projects.
2022 - ongoing	Protection coordination studies for wind farms Protection coordination studies for connection of wind farms. The studies concern coordination between DSO protections and wind turbine generator protections - numerous projects.
2022 - ongoing	Windfarm connection studies Studies regarding grid code (EU 2016/631 - RfG) compliance, reactive power capability and cable dimensioning based on loading and short-circuit currents.
2021 - ongoing	Allocation, follow-through and verification of emission limits for wind and solar parks To ensure that new connections do not lead to an unacceptable deterioration in power quality, emission limits are set on current or voltage harmonics at the connection point. There are no clear guidelines for what is required for an installation in the planning stage to be considered to meet the connection requirements, and how this is to be followed up and verified after the installation is put into operation. The project intends to produce recommendations on how harmonic limits in Sweden should be assigned, followed up and verified.
2021	Technical requirements for power quality Development of technical requirements related to power quality together with a transmission system operator.

2020 - 2021	Grid code compliance simulations – RfG and EIFS 2018:2 for numerous wind farms Grid code compliance simulations as per RfG and EIFS 2018:2 for numerous wind farms. The studies were performed in PowerFactory.
2020 - 2021	Windfarm connection studies Several studies regarding grid code (EU 2016/631 - RfG) compliance, reactive power capability and cable dimensioning based on loading and short-circuit currents.
2020 - 2021	Gas turbine power upgrade project Grid code (EU 2016/631 - RfG) compliance project for a power upgrade of a gas turbine powerplant.
2020	HVDC grid code (EU 2016/1447) comparison for offshore wind power hub Comparison of national implementations for EU 2016/1447 between European North Sea countries related to an offshore hub for wind power.
2020	Load rejection/temporary overvoltage study for a nuclear power plant unit Study of overvoltages in auxiliary power systems at load rejections following faults in the external grid.
2019	BESS (Battery Energy Storage System) island operation study Study of BESS voltage and frequency control performance during island operation in a power distribution system.
2018 - 2019	Frequency protection coordination study for a grid containing a VSC HVDC link Dynamic PSCAD/EMTDC – PSS/E hybrid simulations for settings and coordination of frequency protections in a weak grid containing a VSC HVDC link.
2018	VSV (Very Short Variations) study for distribution systems with PV Power quality study of very short voltage variations resulting from varying PV production in power distributions systems.
2018	Load rejection/temporary overvoltage study for a nuclear power plant unit Study of overvoltages in auxiliary power systems at load rejections following faults in the external grid.
2016 – 2021	Generator excitation-, turbine- and governor system modelling project Modelling of generator excitation-, turbine- and governor systems for dynamic simulations in PowerFactory.
2015 – 2016	Analysis of disturbances - Nuclear power plant auxiliary power system study Analysis of unsymmetrical conditions in the auxiliary power system of nuclear power plants. Conversion of and benchmarking of dynamic data for system equivalent in PSS/E.
2015 – 2016	Generator excitation system modelling project Modelling of generator excitation system for dynamic simulations in PowerFactory.
2015	Transformer on-load tap changer modelling project Modelling of transformer on-load tap changers for dynamic simulations in PowerFactory.
2015	Asynchronous machine modelling project Asynchronous machine modeling for dynamic simulations in PowerFactory.
2014	Nuclear power plant auxiliary power system study Study of motor start sequencies in the auxiliary power system of a nuclear power plant.
2013	Project manager Project manager for a project concerning voltage upgrading of Norwegian 320 kV power lines.

2012	EU power quality project Voltage dip analysis as part of a EU project.
2012	Technical area manager Technical area manager for Simpow software development.
2004 - 2012	Software development for power system analysis Simpow and Simpow auxiliary programs; development and support. Including conversion of PSS/E data (static and dynamic) and benchmarking against PSS/E (static and dynamic simulations).
2001 - 2002	VSC HVDC SSTI (Sub Synchronous Torsional Interaction) study Sub synchronous torsional interaction study in PSCAD/EMTDC v.2 for a VSC HVDC project.
2001 - 2002	VSC HVDC dynamic performance study Dynamic performance study for a VSC HVDC project in PSCAD/EMTDC.
2001 - 2002	Master thesis Master thesis, "SSTI investigation for the HVDC Light B Concept". This was an investigation regarding Sub Synchronous Torsional Interaction between generator-turbine shaft systems and voltage source converters of type HVDC Light B.

LIST OF PUBLICATIONS

<p>S. Aceby, M. Speychal <i>Fortsättningsprojekt spänningsvariationer och intermittent produktion</i> Energiforsk rapport 2018:472, Stockholm, Sweden, 2018</p>
