IEEE Seminar on Future energy system with focus on grids in distribution and wind power by Dr. Fredrik Carlsson, R&D portfolio manager, Distribution, Vattenfall and Viktorija Dudjak, Senior R&D Engineer, Vattenfall

Date/Time: Friday, Sep 29, 2023, 15:00-17:00 CET

Registration: https://events.vtools.ieee.org/m/373427

Location: Hybrid Event at both KTH Campus and Zoom (link will be sent upon registration)
Registration in **latest Sep 26, 2023**

Abstract

Future energy system-Part 1: The electric energy system is transforming and expanding with more grid connections to renewable power production and new loads. Solar and wind power dominates the new production and data centres, chargers for electric transportation and hydrogen production for material production are the new electric consumers. The future system needs will be based on the old system but expanded with new grid connections with high power, digital and smarter functionality. The journey has began and the future is not entirely set. We will show you how we at Vattenfall work on making the future possible, both on the system level as on the local grid connections to customers and wind and solar power, to make it happen.

Future energy system-Part 2: Large-scale offshore wind farms have the potential to make a significant impact on the future development of power systems. A considerable part of planned offshore wind farms is and will be located far away from shore and connecting them to the grid at the nearest possible point needs to be carefully planned and optimized. Since repair of offshore equipment is long lasting and expensive and reduces the availability of the wind farm, it is important to design for adequate reliability as well. In this presentation, we will show you how in Vattenfall R&D we develop different power system analysis tools that can cope with the level of complexity and uncertainty in early-stage of offshore wind projects development.

Bios of Speakers

Fredrik Carlsson was born in Stockholm, Sweden, on January 17, 1974. He wrote his master thesis in 1998 in the field of "models of electric actuators for railway vehicles", which was entitled the best master thesis in railway techniques by Swedtrain. He received his M.Sc. degree 1999 in Electrical Engineering from KTH, Royal Institute of Technology in Stockholm, Sweden. He got his Ph.D. degree in January 2004 with the title "On impacts and ride-through of voltage sags exposing line-operated AC-machines". He has then worked as a researcher at the department of Electrical engineering, KTH, Stockholm, Sweden. Research was done in the fields of diagnostics, traction applications, and hybrid vehicles. At 2008, he started working as a senior R&D engineer at Vattenfall Research & Development with smart grids, power quality, wind power, asset management, transformer monitoring and electricity market. Since 2015 until present he is heading the R&D portfolio for Distribution.

Viktorija Dudjak received the B.Sc. and M.Sc. degrees in Electrical Engineering from the Faculty of Electrical Engineering and Computing, University of Zagreb, Croatia in 2009 and 2011, respectively. During last semester of her studies, she did a master thesis internship at EDF R&D

in Paris, France. Upon graduation, she joined Energy Institute Hrvoje Pozar (Zagreb, Croatia) in October 2011 as a researcher in the Department for Power Transmission and Distribution. Her work focused on long- and medium-term technical and economic planning and analyses in power systems. From February 2019 until February 2020 she worked with Smart Wires (San Francisco, USA), a modular FACTS devices developer. Her responsibilities included power system studies, steady-state and dynamic model development for different software packages, and analytics tools development. From March 2020 until June 2021 she worked as a research associate at Lucerne University of Applied Sciences and Arts (Lucerne, Switzerland) as part of Digital Energy Systems group. There, she collaborated on research projects in the area of local energy markets and machine learning applications in Power Systems.

Since August 2021, she is a senior R&D engineer at Vattenfal R&D (Stockholm, Sweden). She is currently part of Offshore Power Technology Team and leads projects in the area of grid integration of Offshore Wind Farms. Her work includes power system studies for different power plants within Vattenfall portfolio (with focus on offshore wind), development of standardized tools and optimization algorithms for power system studies, reliability calculations and offshore power technology analysis.