IEEE PES Membership meeting with Distinguished Guest Speakers

Time: Thursday, September 29, 16.00-18.00 (*including break for refreshments*)
Place: KTH Campus, Stockholm.
Address: E34, Osquars backe 2, floor 3, https://www.kth.se/places/room/A43:03/1330
Contact and registration (by Sept. 19th**):** Professor Lina Bertling Tjernberg **linab@kth.se**

Agenda:

- ***Welcome and membership information***
  Lina Bertling Tjernberg Chair of Sweden Chapter PES/PEL
- ***Old and new uncertainty in power systems***
  Professor Math Bollen Luleå University of Technology, Skellefteå Campus
  Uncertainty is not something new for the electric power system. It has been around since the early days in the form of uncertainty in the amount of consumption and uncertainty in availability of production as well as network components. All this resulted among others in the development of strong tools for power system reliability analysis. New developments have however resulted in new types of uncertainty, the uncertainty in production from renewable electricity production being the one most discussed. This one has even been honored with a new term: "intermittency" (more recently also "stochastic intermittency"). But there is more: changes in consumption like the shift from direct electric heating to heat pumps also result in additional uncertainty. Also developments in the electricity market, like hourly prices form end users, create additional uncertainly. In this presentation, a general overview will be given of the different types of uncertainty in the modern and future electric power system. The main question to be asked is, what does this matter to the customers? Keywords in that discussion will be "power quality" and "hosting capacity", which should not be a surprise to those knowing my work.
- ***Demonstration of Smart Grid and E-mobility projects***
  Dr. Fredrik Carlsson Vattenfall
  The energy landscape is changing in many ways, due to different reasons. One obvious reason is the target of reducing the environmental impact by introducing more renewable production such as wind and solar power, converting fossil consumption to electrical consumption such as electric vehicles and heat pumps, and last but not least improving the energy efficiency. Other reasons are that the dependency of electricity is increased everywhere, which is driving for higher security of supply, while the new production is intermittent, and at the same time digitalisation and monitoring is becoming cheaper for every year, and this gives the possibility to solve the whole equation of operating the new energy landscape. Vattenfall is taking the theory into practice by installing demonstration of smart grids and e-mobility solutions, to verify solutions, understand obstacles, and how to proceed. This presentation will give examples from some of the demonstration projects e.g. the Smart Grid Gotland project.