



The Norwegian section of IEEE Power & Energy invites to the seminar

Smart Grid – From hype to action

Wednesday 8th of May 2019, 12:00-16:00

**National Smart Grid Lab (NSGL), NTNU Gløshaugen, Elektro E, Room E0051
Trondheim**

Chairman

Bård Ek, Unitech Power Systems, IEEE Power & Energy, Norge

12:00 Welcome

Bård Ek

12:10 Introduction to the NSGL

Kjell Sand, NTNU

The NSGL gives opportunity to test control algorithms and power equipment under realistic conditions, which are otherwise difficult or expensive to achieve. This presentation will give an overview of the lab infrastructure and equipment available.

12:30 Power system activities in the NSGL

Santiago Sanchez / Abel A. Taffese, NTNU

This talk presents some of the NSGL activities in two parts. The first focuses on rapid controller prototyping, and monitoring of grid condition using real-time simulation. The second presents a case study involving power oscillation damping from a Modular Multilevel Converter (MMC) using Power Hardware-In-The-Loop (PHIL) setup.

13:15 Smart energy management for load smoothing and peak shaving

Spyridon Chapaloglou, NTNU

The integration of renewables into isolated microgrids (e.g. islands or offshore O&G platforms) is associated with reduced reliability and troubled operation. A case study of a smart energy management will be presented. The algorithm uses machine learning and energy analytics to predict actions and optimize power flows among different components, taking advantage of energy storage systems.

14:00 Coffee-break / Networking

14:15 ROME – Resilient and Optimal Micro-Energy-grid

Giancarlo Marafioti, SINTEF Digital

Norway and India have many areas that can be defined as microgrids. Norway in terms of islands with weak and old sea cables not profitable to replace, and India in terms of rural areas with weak and often faulty tie-lines. This presentation will give an overview of ROME, a joint Indian - Norwegian research project addressing ICT challenges of microgrids operating in both grid-connected or island-mode.

15:00 Exploitation Experiences from Smart Grid EU projects

Dieter Hirdes, Smart Innovation Norway

15:45 Discussion and Wrap-up

Background

Smart Grid is the term coined to refer to the modern infrastructure required in the electric power grid for enhanced efficiency and reliability through automatic control, high power converters, modern communications infrastructure, sensing and metering technologies, and modern energy management techniques based on the optimization of demand, energy and network availability. The Smart Grid is an electricity network, which highly integrates:

- Advanced sensing and measurement technologies
- Information and communication technology (ICT)
- Analytical and decision making technologies
- Automatic control
- Infrastructure of electricity grids

There has been much hype about the topic in recent years, and the goals of this seminar is to follow up on what has been done lately and show case practical cases and solutions that are being developed in Norway and Europe.

Note: Limited number of seats.

Information

The seminar is free of charge for IEEE members. For non-members the fee is NOK 600,-. Contact person for the seminar is Erick Alves, erick.f.alves@ieee.org, tlf. 932 61 518.

Registration and payment

Please visit the website "Deltaker.no" through the link <https://www.deltager.no/PESSmartGrid19>
Registration deadline: 3rd of May at 23:00.

IEEE (Institute of Electrical and Electronic Engineers) is an international non-profit organization promoting technologies related electrical engineering. IEEE has about 420.000 members and is present within 160 countries. Power & Energy Society is the IEEE chapter focusing on electrical power and energy. IEEE PES' ambition is to promote and share scientific knowledge about electrical power and energy. The Norwegian PES chapter substantiates this ambition by arranging technical seminars.

IEEE membership yearly fee is 169 USD + 35 USD for PES. New members are awarded 50 % discount first year. Students have reduced fees. Please see IEEE website for more information:

[IEEE PES membership information](#)

Any questions? Please don't hesitate to contact the chairman Bard Ek, bard.ek@unitech.no