PowerLabDK

1 Control Center Lab

Solutions and grid simulation for intelligent energy systems

The Intelligent Control Lab is dedicated to testing and development of new advanced principles for intelligent supervision and control of smart energy systems.

◗ Real time digital simulator with the capability of simulating power systems with 480 buses, carrying out closed loop hardware-in-the-loop tests and implementing real time wide area assessment of stability and security of sustainable power systems.

◗ Software platform for modeling and development of centralized and distributed control systems based on multi agent technology including knowledge based systems and computational intelligence.

Applications and Operation

TEST AGAINST STANDARDS: PowerLabDK facilities are suitable for R&D related tests of electrical power components and systems against a wide range of relevant standards.

◗ Proof of concept tests of intelligent control and system operator training

◗ Hardware-In-the-Loop (HIL) tests - optimization and control implementation

◗ Wide area monitoring and control

◗ Relay testing and protection coordination using IEC 61850

◗ Modeling and development of centralized and distributed control systems based on multi agent technology including knowledge based systems and computational intelligence

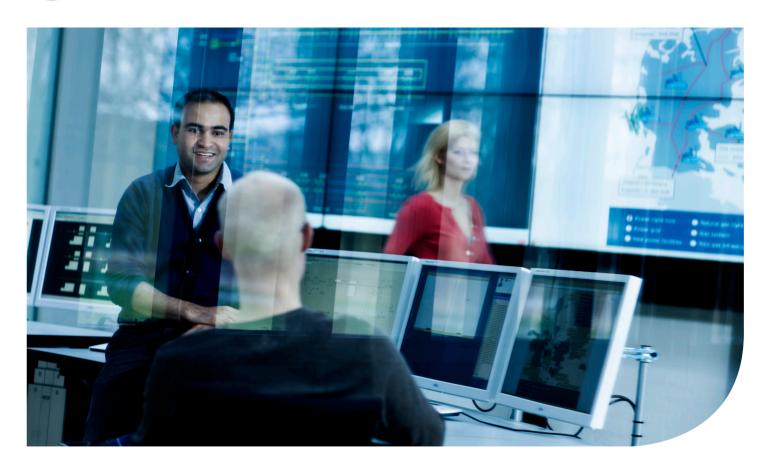◗ PMU tests according to IEEE Standard C37.118.1)

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PowerLabDK partners

BORNHOLMS ENERGI & FORSYNING

DTU
Technical University of Denmark

PowerLabDK

2 Control Center Lab

The Intelligent Control Lab is comprised of

- PMU lab with a PMU test platform comprised of a Doble amplifier, and PMUs from several manufacters.

- A full scale ABB Network Manager SCADA system for real time supervision of Bornholm power system operation with a link to the Bornholm SCADA, real time operation and control with the a real time simulator (RTDS) or the Microgrid with Labcells and local distributed generation (DG) for proof of concept tests of intelligent control and system operator training.

- A RTDS with the capability of simulating power systems with 480 buses, the RTDS can be used for Hardware-In-the-Loop (HIL) tests and be connected to the high power amplifier in the Electric Lab to carry out Power-Hardware-In-the-Loop (PHIL) tests.

- An IBM blade center for optimization and control implementation.

- A PMU lab for research and development on wide area monitoring and control.

- Software platform for modeling and development of centralized and distributed control systems based on multi agent technology including knowledge based systems and computational intelligence.

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