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**Abstract Format**

**Smart Measurement System for Pole Mounted Transformers**

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**Abstract**

The requirement to meet growing energy demand in a profitable, safe and sustainable way has been driving the development of new, smart grid technologies for the last years, and this trend is expected to continue growing up.

Nowadays the needs of utilities are focused on electrical grid upgrade in order to be able to use the existing infrastructure and adding functionality, manage energy consumption, detect not electrical losses, abnormal network activities, respond to potential failures, and make easier further integration of renewable energy. Emerging smart grid technologies are accelerating the transformation of the distribution system into the smart distribution system of the future, Prolec GE concerned about this future system, is working in development tools and applications to be integrated with today technologies.

During the last 3 years Prolec GE has been working on development of a concept for Smart Measurement on Electric Power Systems (SMEPS-F2), which includes smart meters concentrated in a cabinet, to be attached to a pole mounted type distribution transformer. Measurement of the electrical parameters is performed directly at the secondary side of the transformer. The aim of this configuration is to avoid, or quickly detect illegal connection on side of the LV distribution grid, between users and the transformer.

Smart meters can measure and analyze electricity usage: power consumption and power quality, and communicate data to the AMI infrastructure. A home display can be inserted on any domestic power outlet to show users the consumption parameters, using power line communication (PLC). The grid operator can disconnect and reconnect users remotely using radio frequency communication.