

# PS-2 Smart Measurement System for Pole Mounted Transformers



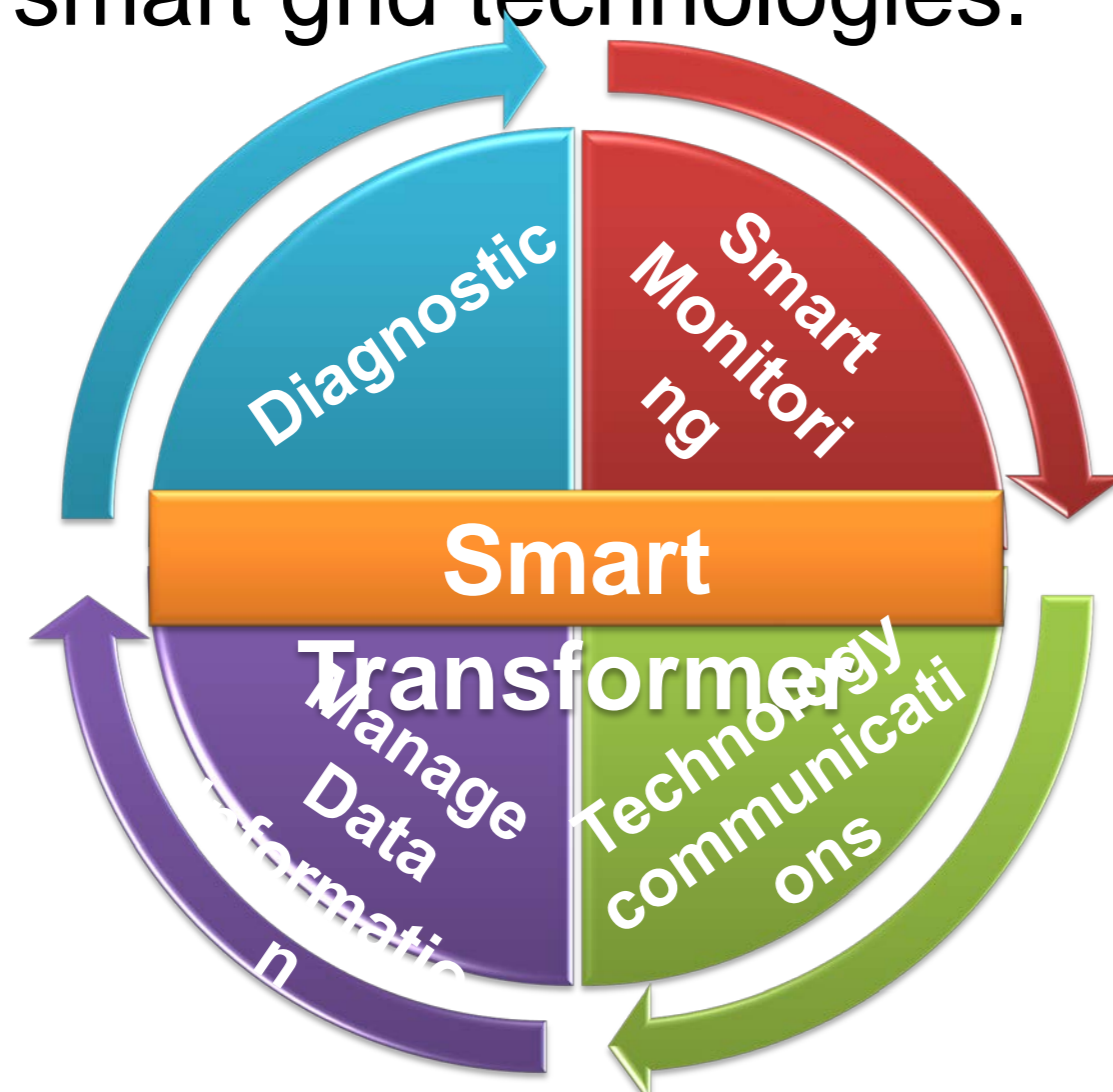
Powering reliable solutions for you

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## Background

Nowadays, the requirement to meet growing energy demand in a profitable, safe and sustainable way has been driving the development of new smart grid technologies.



Utilities focus on upgrade the existing electrical grid and make easier further renewable energy integration by adding real-time applications as monitoring, control, network communication and diagnostics.

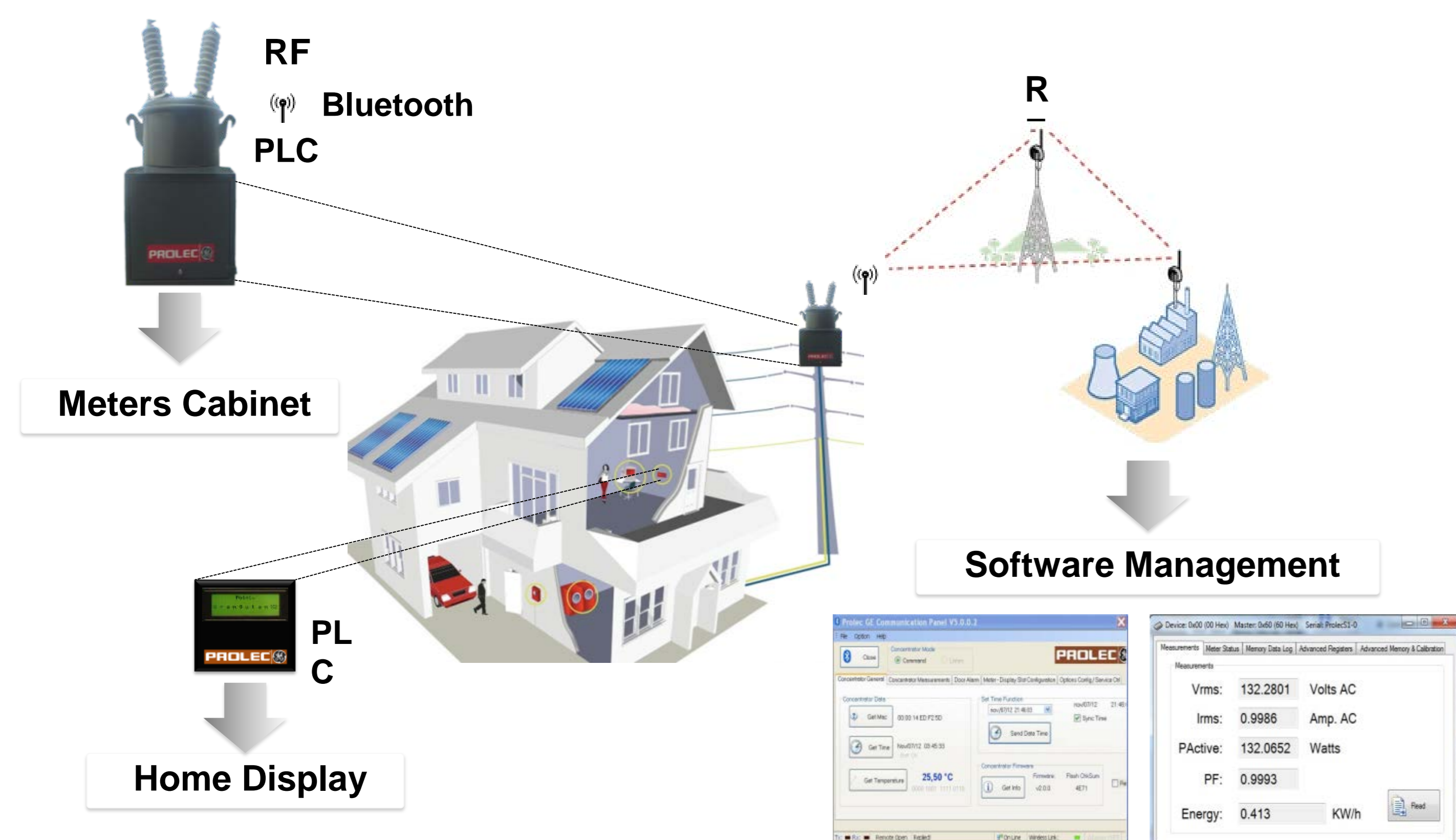
To enable this transition, smart grid technologies are accelerating the transformation of the distribution system into the smart system of the future, the transformer is one of the elements that must adapt.

## Technology Proposal

The Smart Measurement on Electric Power Systems (SMEPS-F2), was designed to integrate smart meters inside a cabinet mounted in a pole type distribution transformer.

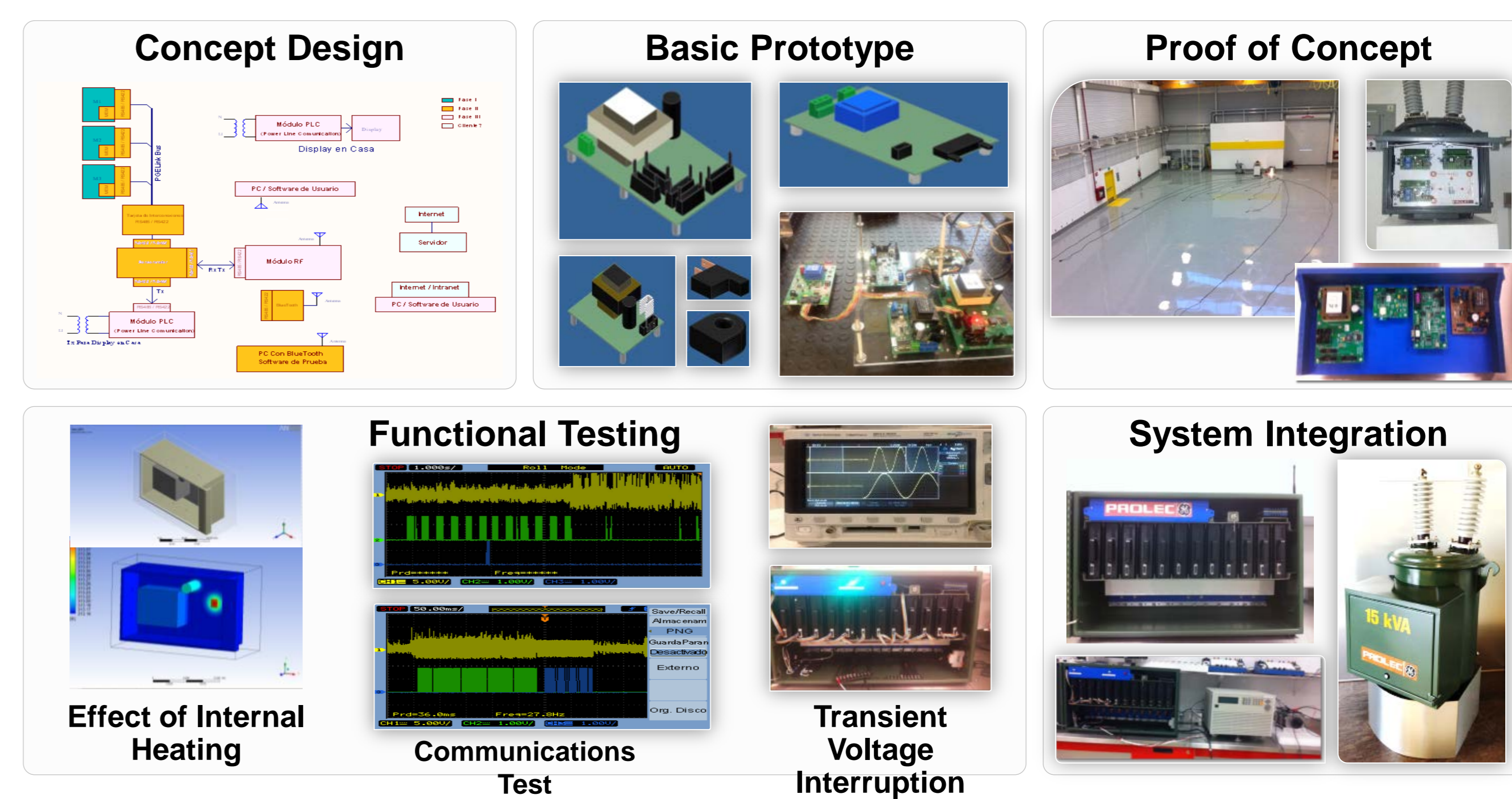
The system is able to send through radio frequency (RF), meter readings to the energy supplier, and sends information to the in-home display using power line communication (PLC).

### Smart Measurement on Electric Power Systems (SMEPS-F2)



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 transformer.

## Development Methodology



This technology innovation is covered by one or more of following patents and utility models:

MX/a/2009/012122, MX/a/2007/009708

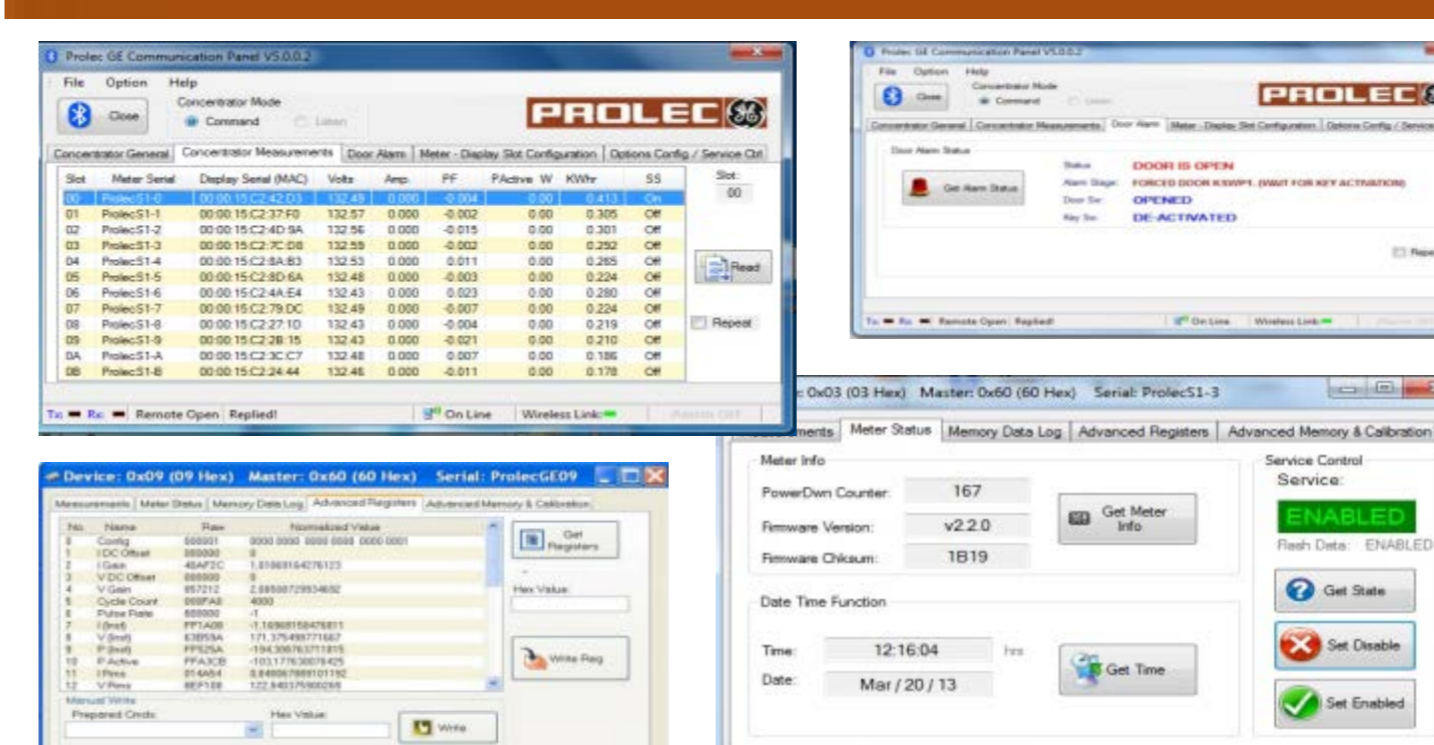
MX/u/2008/000195, MX/F/2008/002439 D. I. MX29832, MX/F/2008/002440 D. I. MX29829

## Hardware

- **Smart Meters**
  - Monitors power consumption and power quality
  - Stores up to three months information for each user
- **Communication**
  - Communicates directly with the energy supplier
  - Provides platform two-way communication
  - Supports multiple technologies communications as radio frequency, Bluetooth and serial connection
- **Home Display**
  - Real time information on energy use
  - Power line communications



## Software



- Secure two-way information and open IP network architecture
- Remote connection/disconnection
- Real time reports of energy usage
- Warning alarm when cabinet door is forced

## Conclusion

Increased energy demands, clean renewable energy and secure manage data network are leading the fast emergence of smart grid systems in the last years and is expected to continue growing up.

PROLEC GE concerned about these new challenges, is working in develop future smart grid technologies that provide smart monitoring, manage data information and real time diagnostics.

## Future Work

The next step is to install our new technology on field, we are currently working with an energy supplier to connect the system to the network.