

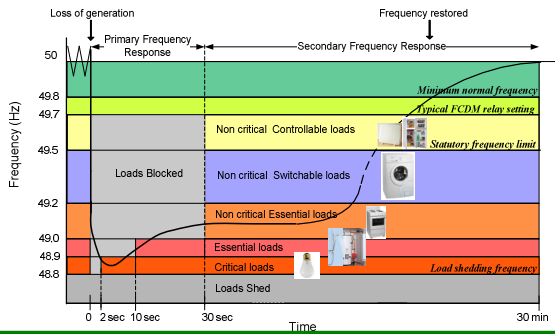
Smart Meter to Support Primary Frequency Control

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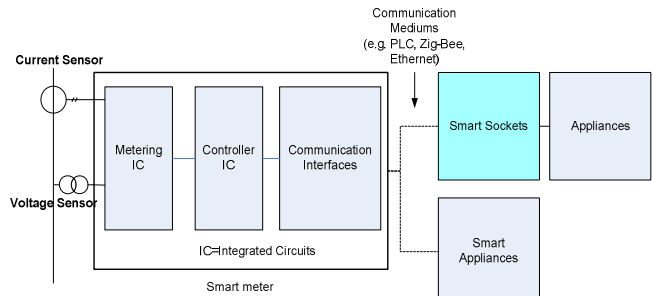
Summary

- ❖ Modelling and simulation of a smart meter controlled load blocking scheme to support frequency control is presented.
- ❖ The domestic loads are grouped based on their criticality and essentiality.
- ❖ Each appliance in the scheme is plugged into a smart socket which is piggy-backed onto a domestic wall socket.
- ❖ Depending on the load group and the severity of the frequency drop, the smart meter sends blocking signals to smart sockets
- ❖ Upon receipt of the control signal from the smart meter, the smart socket blocks the appliance for a pre-defined time.
- ❖ This scheme ensures minimum discomfort for consumers and avoids prolonged load shedding.
- ❖ Simulation results of the GB network for loss of generation of multiples of 1320 MW are presented.

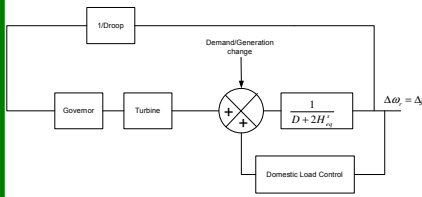
Smart meter controlled load blocking scheme



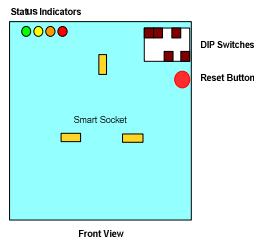
Smart meter in Home Energy Network



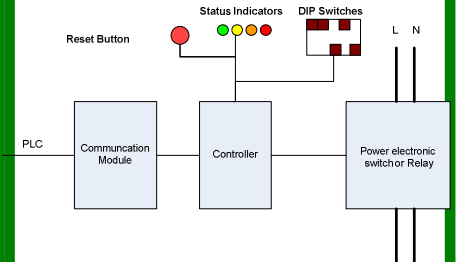
Model of the GB network used for the simulation



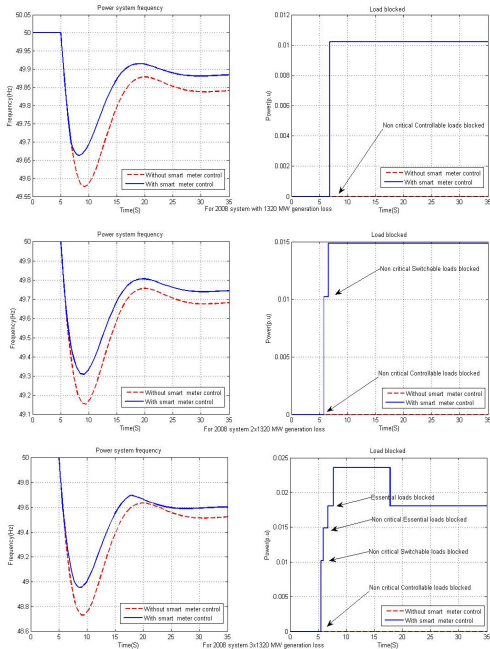
Exterior of the Smart socket



Interior of the Smart socket



Simulation: Present network (2008) in low load scenario



Future network (2020) in high wind low load scenario

