



Diversity of Electrical Energy Resources in a Reliable Grid

[Keywords: Smart Grid, Reliability, Stability, Power Quality] Professor Masahide Hojo

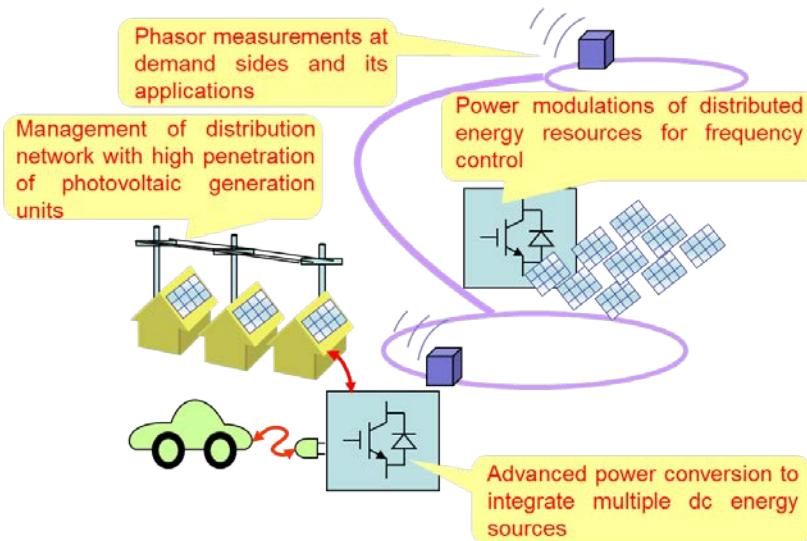


Fig. 1 My major researches.

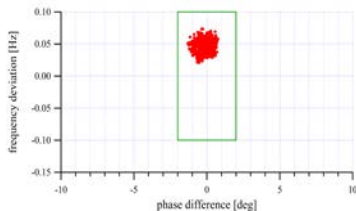


Fig. 2 Grid monitoring.

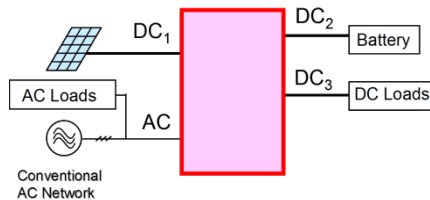


Fig. 3 Dc sources integration.

Topics

1. [Phasor measurements at demand sides and its applications](#)
Developing an online monitoring of power system by multiple phasor measurement units with monitoring voltages at the outlets on the wall.
2. [Management of distribution network with high penetration of photovoltaic generation units](#)
Investigating reasonable voltage regulation on high and low voltage distribution lines by cooperation of photovoltaic generation units and other apparatus.
3. [Advanced power conversion to integrate multiple dc energy sources](#)
Integrating multiple dc voltage terminals to connect solar cells, batteries and loads easily, based on multilevel converter topology with flying capacitors.
4. [Series-connected dc-dc converter for multi-end dc power transmission](#)
Developing a high frequency dc-dc power converter in series with a dc power transmission or distribution line to provide multi -ends.
5. [Power modulations of distributed energy resources for frequency control](#)
Developing a voltage phasor modulation of grid-connected converters to regulate the system frequency as much as possible.

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Field: Power system and power electronics

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