

HORIE LAB.

[Creation of Clean and Efficient Energy Supply System]

Energy Storage Engineering

Future Energy Network with Advanced Batteries

Energy-Information-Consolidated Networks Empowered by Advanced Batteries

Advanced batteries have broken the ice over a wide spread use of environmentally friendly vehicles such as EVs or HEVs, and they are expected to establish a further contribution : indispensable materialization of power supply networks for future clean and energy-efficient systems. Energy and information would be eventually consolidated through an electron platform, which leverages advanced batteries to provide/absorb energy ubiquitously to accommodate stringent constraints at any layer of a complex system. We would like to propose harmonized energy and information network concepts, which could benefit any conceivable artifacts in the future.

- ◆ Design of advanced batteries for smart-grid applications
- ◆ Creation of battery information technology
- ◆ Creation of energy and information network systems with distributed nodes of advanced batteries

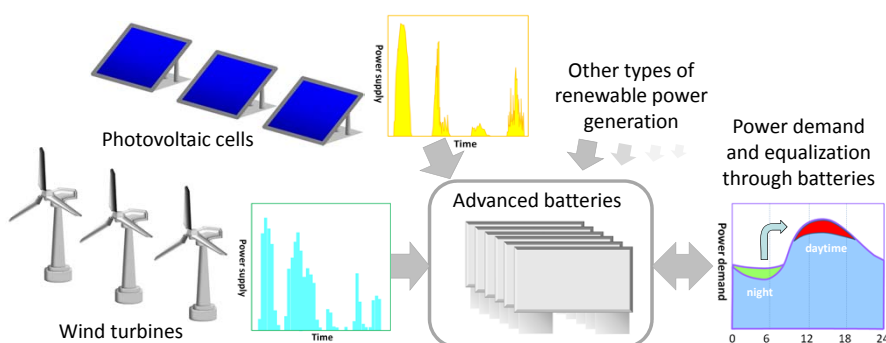


Fig. 1 Advance batteries equalize renewable energy supply and demand

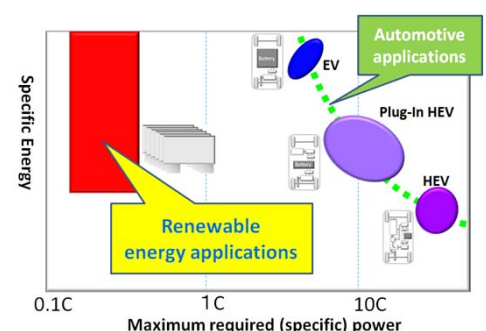


Fig. 2 Design analysis of smart-grid applications

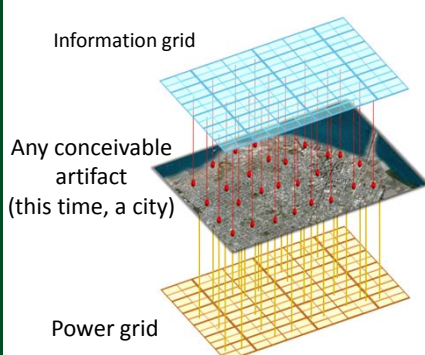


Fig. 3 Embedded batteries

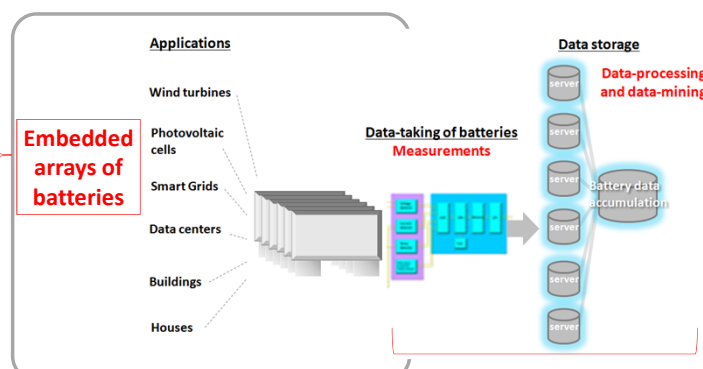


Fig. 4 Data-taking system for battery states and system optimization

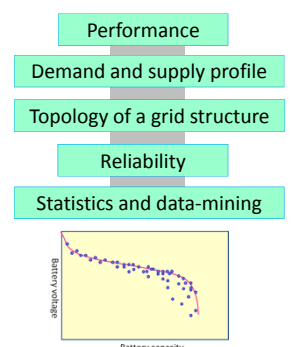


Fig. 5 Structure of information