Summary of Technological Solutions

Morten Blarke, AAU, ”Smart technology markets in the intermittency friendly energy system”

Lee Ackerson, Soquel Energy, ”Problems, solutions, who’s perspective?”

Andrew Burke, UC Davis, ”Sustainable personal electronic transportation”

Francesco Marra, DTU, ”A 100% renewable energy road with electric vehicles”

Randy Katz, UC Berkeley, ”Supply-following loads, a Berkeley view”

Key issues by speakers

Morten Blarke;
- challenge of going 20% -> 50% (->100%) wind
- concept of creating intermittency friendly system, not how can we adapt
- ask for whom is the SmartGrid (market, ISO's, consumers)?
- SmartGrid a total energy system/way of thinking, not "only" a new power grid
- introduce thermal battery, substitute heating + aircon

Lee Ackerson;
- usual inverter manufacturers no significant improvement (short MTBF, not cheaper)
- NREL assessment, $0.38-$0.65/W dead end
- ARPA solar $1/W -> inverters < $0.1-$0.2/W and increased MTBF x 3
- customer only cares about price
- high penetration -> grid reliability issue
- Soquel – add energy management system
- question – how to address excess power production? (curtailment, negative prices…….)
- introduced batteries and inductors as storage

Key issues by speakers

Andrew Burke;
- EV/PHEV support characteristics of Li-ion
- Wh/miles decisive for consumers (don't mind two stop if cheap enough)
- 20 kWh already sufficient for commuters
- Potential synergy between home PV and EV/PHEV 14 kWh
- cost of battery, base line is still ICE

Francesco Marra;
- EV technical and grid side approach
- test bed established, batteries, car, charger, communication IEC61850, EV-VPP
- close loop integration more efficient
- initial stage (10 year) no need for grid reinforcement

Key issues by speakers

Randy Katz;

- traditional system sizing peak load x2, not the way to proceed
- system with full monitoring and controls, data center as general model
- demonstrating peak reduction & demand side management
- price based management
- aggregation on several levels, with buildings, cluster of buildings, part or complete city

Essential

- going 100% renewable a challenge
- certain areas indication of being partly there, hampered only by cost, politics, phycology/mentality
- technology can only take us so far due to nature (focused, specific)
- not only adapt, but change the way of thinking, think holistic

A sustainable and renewable life style