

## **Smart Grid and Storage Notes, Moderator- Sean Meyn**

**Question 1:** If the Florida SUS was to develop a major proposal (e.g. HUB, STC, ERC), what would be the technical problem statement/vision and title? What would be the benefit to the state (e.g. increased energy independence, job creation, economic development)?

**Answer:** Storage doesn't solve a problem. However a knowledge of the grid system goes a long way to solve the problem.

Kind of Storages:

Batteries - Li-ion, Li-Air batteries, super oxide batteries

MIT recent battery development → ions are much cheaper

**Question 2:** Assumption toward discharge of industrial batteries?

**Answer:** Ideas of every household creating and storing its own energy system/storage (e.g. community storage)

- Designing from scratch
- Also within the academic communities, more ideas of better means of storing energy
- Smart meters from car batteries through the grids
- Think about energy storage appropriately
- Flexible manufacturing
- Think about raising water bodies to regulate voltage (e.g. Pacific Northwest has good dams to implement such tasks)
- Distributed energy storage, economically defined algorithms
- Designed batteries based on Super oxides

**Question 3:** What are the interim steps between where we are now and the future?

**Answer:**

- Show a functional design/model
- Develop a product and make it commercially available
- Electrification of cars in Florida is worth exploring
- Consider cost and size (e.g. introducing dynamic signals)
  - Customers are more concerned of their privacy and low cost
- Storing natural gas because unfortunately Florida can not hold dams
- Possible fuel - hydrogen gas stored in buckyballs could help store hydrogen gas

**Answer to proposed question:**

- Merge and integrate smart grids as energy storage in a very efficient way
- Studying new battery technology
  - Enhancing the stability
- Buildings with high energy capability could also help
- Reduce fluctuations between load and generations (e.g. developing self-regulated appliances)
- \*The biggest challenge of implementing smart grids is in getting the customers to buy the product
- Scientists should design their research works to respect privacy
- Develop a smart grid that is also capable of storing energy with appropriate privacy to customers
- A good proposal goes with good business
  - it is essential to figure out the cost of implementing the design proposal
- A problem that may be encountered could be that of balancing the socio-economic and technical issues

**Summary: Merge and integrate smart grids and energy storage in a very efficient way.**

- Space - consider using parking lots
- How much space
- Technology with better control system/optimization
- Real time prices to consumers with comfort, convenience
- Respect of consumer privacy
- Individual responsibility for damage/educating customers
- Proper amount/effective government regulations
- Self optimized nano-grid with efficient distributed energy
- Scale-map systems/incentives from manufacturers that would aid optimize energy storage.

**Smart Grid and Storage Round-table Attendees**

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