Project Proposal

Solar System Inverter Design

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Back Ground

- Solar system and renewable energy system design are typical
- Many homes are becoming more efficient and usages are not a typical.
- Tradition home networks are design like the utility network (one source point and a radial network) ...
- Distributed networks are become more viable and cause a rethinking of network model.
- Equipment of solar network will need to be more flexible for efficiency and network changes.

Typical Solar System Components

Components of a solar system

- Solar Panels
- Controller
- Batteries
- Inverter
- Disconnect(s)

Situation

- When choosing, it is very important to choose the right size inverter
- Inverters can not be added like solar panels
- Solar panels addition or subtraction is dependent on space (roof mounting or ground mounting array)
- Inverter sized usually in 1 to 5 kW increments where panels are 50 to 500 watts.
- So, because of different solar array sizes (8, 9, 12, etc. panels in an array), choosing an inverter and controller for a panel, array or a system will require some thinking. You must think of current system size and possible expansion.

Problem

- Determine the probable size of a home solar system (1 to 3 thousand square feet)
- Choose the typical appliance loads, probable usage duration, and electrical network to support the system (initial kilowatt model)
- Expend your system for appliance usage in increments from 1 to 3 square feet.
- Go green ... Apply Energy efficiency, Energy Management, and Energy Conservation (revised kilowatt model)
- Develop Solar System model to supply load

Be Creative

- Develop different inverter configuration to supply loading of your model home (even distributed inverter configurations)
- Determine the most cost effective and efficient converter configuration
- Choose and Design your inverter / solar system that is expandable in watts to kilowatts as previously determined by loading.

Hint: Consider batter, controller and solar panel location