

Renewable Energy and Smart Grid Consortium

Greetings from OIT's Renewable Energy & Smart Grid Consortium team,

Thanks to our industry partners for your participation in the OIT Consortium Exploratory Meeting on April 22nd. This document contains a summary of the Consortium Exploratory Meeting, and proposed next steps for identifying projects and forming a consortium. We will be following up with companies individually to discuss your interests. **Please send specific feedback and project ideas to brittany.miles@oit.edu and mark your calendars for the next meeting on July 8th at 8:00 am.**

Background

OIT convened energy industry leaders on April 22, 2011 for the Renewable Energy & Smart Grid Exploratory Meeting. The goal of the meeting was to assess the interest among invited companies to work together on applied research themes, identify additional participants, and seek support for forming a consortium.

Meeting Take-Aways

1. Companies are **enthusiastic about working together** and with OIT and its faculty and students on non-critical-path applied research.
2. Companies appreciate the industry-driven approach and the role of consortium members in defining research projects, but also want more **focus** on the direction of the consortium.
3. OIT needs to keep a **global perspective** and incorporate attention to **security and standards** in all projects.
4. OIT needs to involve Co-ops and PUDs, and smaller companies

Proposal

OIT is proposing an overarching concept of **Renewable Energy Systems Demonstration** ([see diagram](#)). The Energy Systems framework can accommodate multiple applied research projects, based on the interests of companies that join the consortium.

To illustrate, OIT is providing two examples of projects that are finite and specific to current industry partners, but could evolve into a larger shared/pooled research project.

Specific Projects would fall under the categories of:

A. Grid communications

B. Controls

Example: This project explores development of a control system using the principles of “smart grid” and will contain flexible functionality such as dynamic control and response to stochastic loads, multiple user interfaces for testing flexible consumer choices, comprehensive monitoring.

C. Energy Storage

Example: This project explores the electronic and control interfaces required to allow effective utilization of vehicle battery capacity through charging station connect as a means of providing energy for peak demand.

D. Renewable Energy Generation

Example: This project explores a Dye Sensitized Solar Cells (DSSC) manufacturing method to produce a 1 – 2 kW DSSC system on a flexible substrate. The DSSC array will be integrated with Controls Module and Li Ion battery bank. The methods for state of charge indication and state of health measurement for Li Ion battery bank will be developed through the Control Module that will incorporate smart grid principles. The grid loads will be simulated by powering a part of the OIT laboratory, e.g., lights, computers and dynamic control of the DSSC output will be accomplished to balance load with storage in Li Ion battery bank.

Example Projects Gathered from Exploratory Meeting

- Microgrid alternative storage solutions project, as defined by consortium members (PGE, PNL, Quality Logic)
- Monitoring and testing “change-over” issues from old to new grid technologies (Pacific Power, PGE, BPA)
- Comparative review of old and new technologies for effectiveness (many)
- Demand-Response projects: load shifting and storage (all)
- Storage test bed: controls, battery information systems

Each Consortium Project selected would seek to address the following Renewable Energy Smart Grid themes within the scope of the specific project:

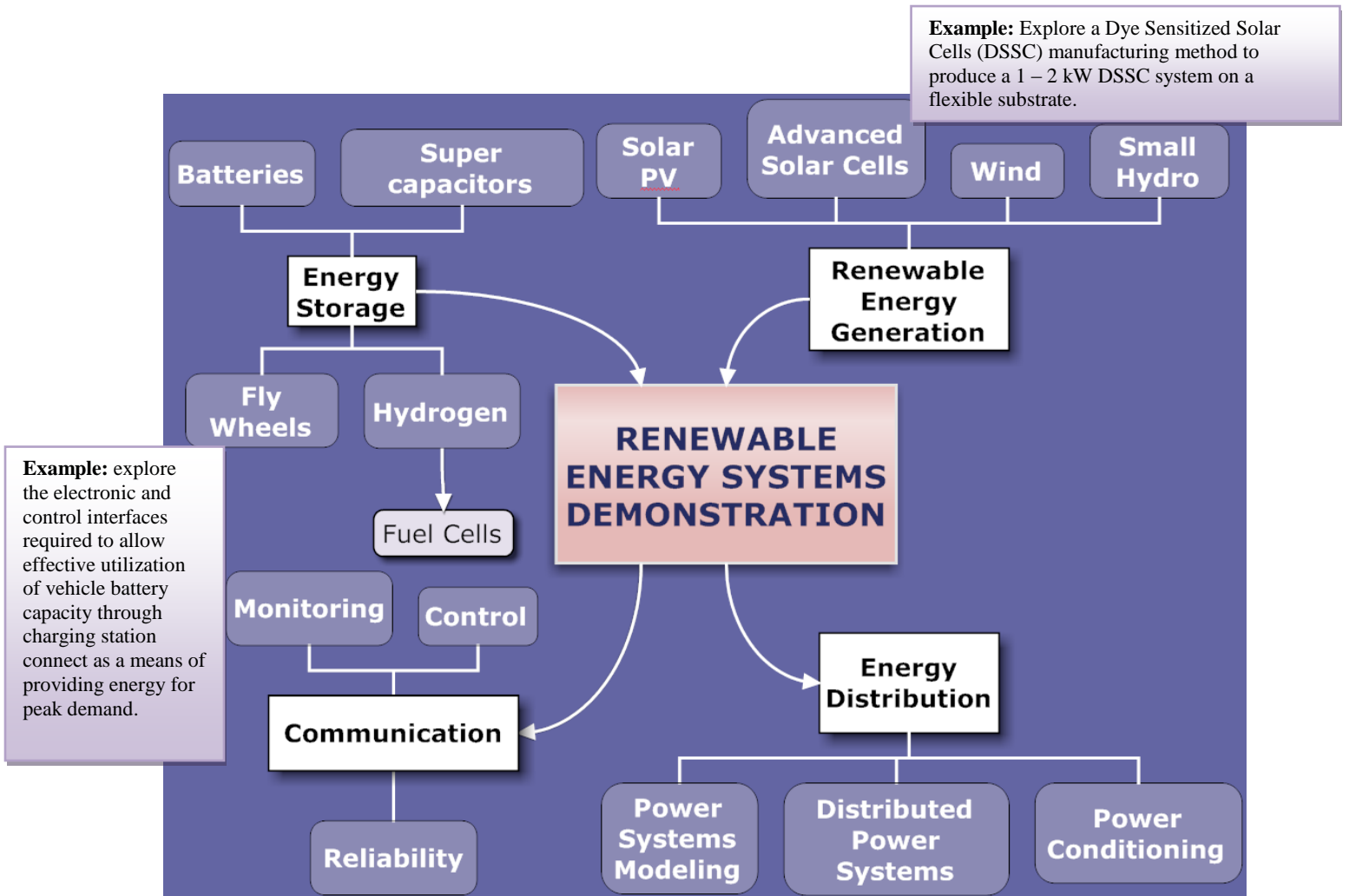
- Security—(perhaps partner with Energy Sec)
- Standards--- (perhaps partner with Smart Grid Oregon)
- Interoperability and Global Reach

Decisions to be made by core group of consortium companies:

- Consortium governance and funding structure
- Consortium IP model
- Process for soliciting and choosing projects
- Timeline for consortium meetings and research projects

Next Steps

- **Companies call or email input on Renewable Energy Systems Demonstration concept and possible projects to OIT: Brittany.Miles@oit.edu or 503-821-1288.**
- OIT will develop draft consortium charter that addresses governance, funding, and IP. An Executive Summary, Membership Benefits and IP Summary are currently available on OIT’s website: www.oit.edu/partnerships.
- Potential consortium members will shop the Renewable Energy Systems Demonstration concept within their companies and determine level of interest.
- **RSVP for next date: July 8th, 2011~ 8 – 10 am;**
Agenda:
 1. Review draft consortium charter;
 2. Identify initial project themes;
 3. Seek commitments for founding members.



The Renewable Energy Systems Demonstration is a “living laboratory” concept. The laboratory will encompass all stages of renewable energy systems, from generation and distribution to storage and use. Each component of this system is flexible and interchangeable over time to accommodate for new technologies to be tested and developed.

The general scheme of the laboratory involves the following sequences:

GENERATION → CONTROLS → STORAGE → USE