

PSERC Future Grid Initiative:

The Future Grid to Enable Sustainable Energy Systems

Vijay Vittal

Director, Power Systems Engineering Research Center
Ira A. Fulton Chair Professor, Arizona State University



PSERC Future Grid Initiative
May 29, 2013

PSERC Future Grid Initiative

- Project: The Future Grid to Enable Sustainable Energy Systems
- Funded by the U.S. Department of Energy
- Objective: enable higher penetrations of renewable generation and other future technologies into the grid while enhancing grid stability, reliability, and efficiency
- Period: February 2011 - December 2013
- Contributors: 40 researchers from 12 universities plus many graduate students
- Project support: Dennis Ray, Deputy Director

Future Grid Initiative – Thrust Areas

Broad Analysis

The information hierarchy of the future grid
Peter Sauer, Univ. of Illinois at U/C

Grid enablers of sustainable energy systems
Jim McCalley, Iowa State Univ.

Thrust Area 5

Computational Challenges and Analysis
Under Increasingly Dynamic and Uncertain
Electric Power System Conditions
Santiago Grijalva, George Tech

Thrust Area 6

Engineering Resilient Cyber-Physical Systems
Tom Overbye, Univ. of Illinois at U/C

Thrust Area 3

Renewable Energy Integration -Technological
and Market Design Challenges
Shmuel Oren, UC Berkeley

Thrust Area 4

Workforce Development
Chanan Singh, Texas A&M

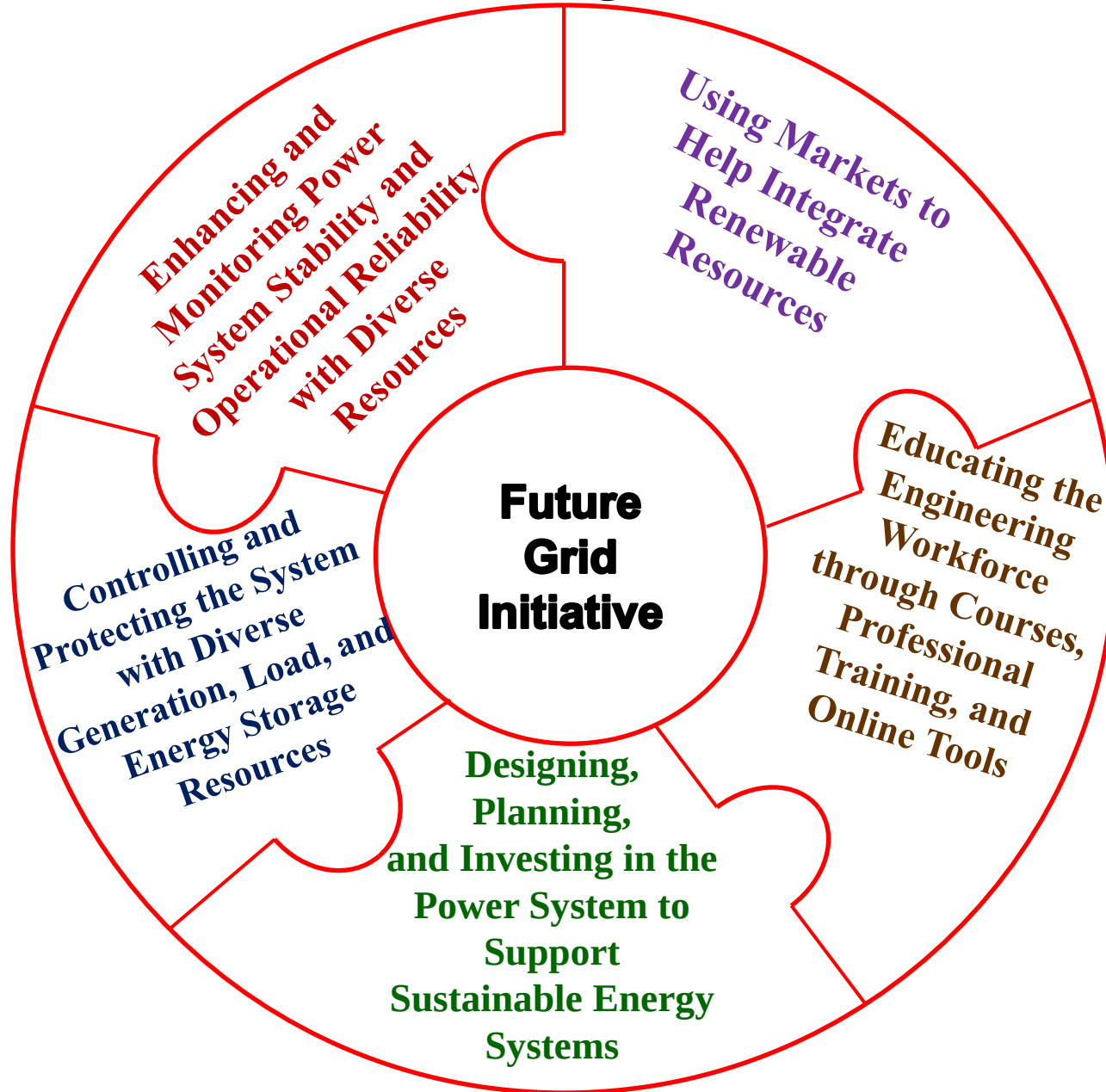
Thrust Area 1

Electric Energy Challenges of the Future
Jerry Heydt, Arizona State Univ.

Thrust Area 2

Control and Protection Paradigms of the Future
Chris DeMarco, Univ. of Wisconsin- Madison

Cross-Cutting Themes



Public Events

- Future Grid Initiative Workshop (Dec. 7, 2011, at Univ. of California, Berkeley)
- Future Grid Forum: Technological Challenges in Designing the Future Grid (June 27-28, 2012, in Washington D.C.)
- The Future Grid to Enable Sustainable Energy Systems, IEEE PES General Meeting (July 23, 2012, in San Diego, CA)
- 17 webinars (January 2012 to April 2013)
- Tech Talks on the PSERC Future Grid Initiative (May 29, 2013, at Univ. of Wisconsin-Madison)

PSERC Future Grid Initiative Website

- PSERC web page:
<http://www.pserc.org/research/FutureGrid.aspx>
- Web page will continue to evolve as new Initiative products (e.g., publications, software, courseware) become available.
- Proceedings from today's Tech Talks is available on the website.