



Solar Energy and Energy Storage: Answering the Energy Challenge

Oak Ridge National Laboratory
September 14, 2010

WORKSHOP AGENDA



U.S. DEPARTMENT OF
ENERGY

Solar Energy and Energy Storage: Answering the Energy Challenge

Oak Ridge National Laboratory

Part of ORNL User Week 2010

Science to Energy – Fundamental Issues and New Frontiers

This workshop will demonstrate how leaders in the field are pushing the limits of solar cell and energy storage technology. An overview of the opportunities and challenges faced by industry in today's market will be presented as well as a technical roadmap for achieving grid parity and energy storage solutions within the next 5 years. Researchers from ORNL and the University of Tennessee will show how they are utilizing unique capabilities for modeling, synthesis, characterization, and processing to increase the performance and decrease the cost of solar technology and energy storage solutions. Leaders from industry will provide their perspective on the market and present how their technology will change the future landscape of renewable energy.

Tuesday, September 14, 2010

(ORNL Conference Center, Tennessee Rooms 202-A/B)

- 7:00 – 8:00 a.m. Registration & Refreshments
- 8:00 – 8:15 a.m. Welcome and ORNL Overview – Dr. Jim Roberto, ORNL
- 8:15 – 8:40 a.m. Technology Innovation and Solar Energy –
Dr. Rudy Shankar, Tennessee Valley Authority

Overview Presentations — National Need, Technology Roadmaps

- 8:40 – 9:00 a.m. ORNL Solar Program Overview – Dr. Chad Duty, ORNL
- 9:00 – 9:20 a.m. Tennessee Solar Institute & EPSCoR Solar Energy Program –
Dr. Stacey Patterson, University of Tennessee
- 9:20 – 9:40 a.m. Materials and Processing for Lithium-Ion Batteries –
Dr. Claus Daniel, ORNL
- 9:40 – 10:00 a.m. Redox Flow Batteries for Energy Storage – Dr. Tom Zawodzinski, ORNL
- 10:00 – 10:15 a.m. Break

Industry Spotlight

Session Chair, Dr. Ron Ott, ORNL Industrial Technologies Program

10:15 – 10:30 a.m. Opening Remarks – Dr. Ron Ott, Session Chair

10:30 – 10:45 a.m. Tennessee Solar Industry Needs Assessment –
Chris Wright, Tennessee Solar Institute



10:45 – 11:00 a.m. Ampulse: c-Si Thin-Film Solar PV – Steve Hane, Ampulse



11:00 – 11:15 a.m. Solar Opportunities: Hemlock Semiconductor in Tennessee
– Terry Strange, Hemlock Semiconductor



11:15 – 11:30 a.m. Suniva, Inc. Technology Roadmap and Production –
Dr. Ben Damiani, Suniva, Inc.



11:30 – 11:45 a.m. Asahi Glass Company: Solar Energy Markets and
Engineered Products – Ernest Caldwell, AGC Solar



11:45 – 12:00 p.m. Low Cost Multi-Crystalline Silicon –
John Carberry, Mossey Creek Solar



12:00 – 1:30 p.m. *Keynote Luncheon* –



luxresearch

**Dr. Johanna Schmidtke, Lux Research, Inc.
Solar Energy & Energy Storage: Market Opportunities
and Challenges**

Sponsored by Tennessee Solar Institute

Solar Energy and Energy Storage Research

Session Chair, Dr. Parans Paranthaman, ORNL Solar Technologies Program

1:30 – 1:50 p.m. Novel Nanostructures for Photovoltaics – Dr. Ilia Ivanov, ORNL

1:50 – 2:10 p.m. Inorganic NanoCone Solar Cells – Dr. Jun Xu, ORNL

2:10 – 2:30 p.m. Material Development for Organic Photovoltaics – Dr. Kunlun Hong, ORNL

2:30 – 2:50 p.m. *Putting Photons to Work: Two Parts Nature and One Part Material Science*
– Dr. Michael Vaughn, Arizona State University

2:50 – 3:10 p.m. Raman Spectroscopy for Lithium Batteries – Dr. Jagjit Nanda, ORNL

3:10 – 3:30 p.m. Break

- 3:30 – 3:50 p.m. Nanofermentation: Scalable Low Cost Nanomaterials Synthesis –
Dr. Lonnie Love, ORNL
- 3:50 – 4:10 p.m. Solar Deployment and Integration – Curt Maxey, ORNL
- 4:10 – 4:30 p.m. Heat Transfer Fluids for Concentrated Solar Power –
Dr. Joanna McFarlane, ORNL

Overview of ORNL Facilities

- 4:30 – 4:50 p.m. Center for Advance Thin-Film Solar Cells, Materials Processing Laboratory,
Clean Room Fabrication Laboratory – Dr. Jay Jellison, ORNL
- 4:50 – 5:10 p.m. High Temperature Materials Laboratory – Dr. Edgar Lara-Curzio, ORNL
- 5:15 p.m. Depart ORNL