

# U.S. Department of Energy

## Grid Tech Team

---

The Grid Tech Team (GTT) was established in recognition of the challenges and criticality associated with grid modernization. Modeled after the SunShot Initiative, the GTT aims to coordinate and align RD&D efforts within the Department of Energy (DOE) and facilitate efforts externally to address technical and institutional barriers. With DOE-wide representation, the GTT provides leadership through strategic thinking and improved communication, coordination, and collaboration. As a singular entity through which to engage external stakeholders, the GTT seeks to guide the development of a vision for the future electricity grid and a strategy to address national and regional issues.

Currently, the GTT consists of members from the Office of Electricity Delivery and Energy Reliability (OE), the Office of Energy Efficiency and Renewable Energy (EERE), the Office of Fossil Energy (FE), the Office of Science (SC), the Advanced Research Projects Agency - Energy (ARPA-E), the Office of the Chief Financial Officer (CFO), and the Office of the Secretary (S1). Moving forward, the GTT will continue the dialogue towards a National Public-Private Vision of the Future Grid and solicit input from **you**.

The GTT has engaged with stakeholders through various channels, venues, and forums:

- *November 15-16, 2011*: DOE Future Needs of the Electricity Grid Workshop
- *December 7, 2011*: PSERC Future Grid Workshop
- *January 26, 2012*: NARUC Webinar
- *February 8-9, 2012*: National Electricity Forum
- *February 27-29, 2012*: ARPA-E Energy Innovation Summit

Near term goals and next steps for the GTT are:

- Development of a National Vision document
- Development of a Strategy for Coordinated DOE Grid Activities/Priorities

Your input and involvement throughout this process is extremely valuable and necessary for effective modernization of the electricity grid. Please feel free to send thoughts and comments to the GTT at:

[GridTechTeam@hq.doe.gov](mailto:GridTechTeam@hq.doe.gov)





# U. S. Department of Energy

## Future Needs of the Electricity Grid

### Grid Tech Team

Office of Science (SC)  
 Office of Electricity Delivery & Energy Reliability (OE)  
 Office of Energy Efficiency & Renewable Energy (EERE)  
 Office of Fossil Energy (FE)  
 Advanced Research Projects Agency – Energy (ARPA-E)  
 Chief Financial Office (CFO)  
 DOE Senior Management (S1)

*The Grid Tech Team (GTT), with DOE-wide representation, is responsible for leadership within and outside DOE on grid modernization through strategic thinking and improved communication, coordination, and collaboration. Through outreach and engagement with stakeholders, the GTT seeks to facilitate the development of a vision of the future electricity industry and a strategy to address national and regional grid issues.*

#### Developing a Future Grid Vision

- Build on earlier visioning efforts such as Grid2030 and more recent Future Grid studies
- Recognize the linkages between institutions, markets, and technologies
- Work with stakeholders at all levels to establish a broadly-shared vision and scenarios for a future grid

**Policies**  
 state RPS, federal CES, FERC, PUC's, environmental regulations, siting, etc.



**Markets**  
 business models, cost allocation, wholesale power trading, utilities, vendors, etc.

**Technologies**  
 generation, infrastructure, smart grid, electric vehicles, storage, etc.

#### Identifying Priorities and Challenges

*what's the challenge? • where are we today? • need for collaboration? • where are we going?*

##### Technical

- Smart Grid
- Renewables Integration
- Advanced Modeling
- Power Electronics
- Cyber Security
- Energy Storage

##### Institutional

- Regional & Sub Planning
- State & Federal Policies
- Analysis & Assessment Tools



Establish and maintain a long-term vision for the future grid

Identify high priority technical and institutional issues/challenges to achieving the vision

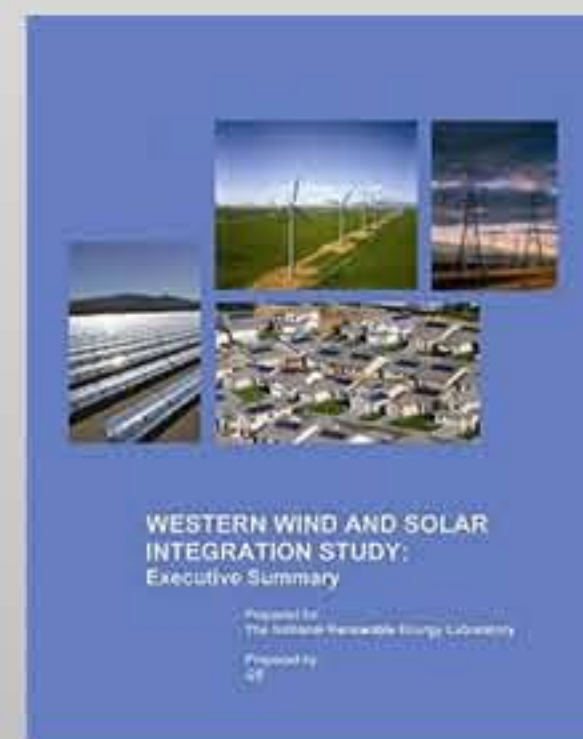
**GRID TECH TEAM**

Align DOE Office/Program projects and initiatives for objective consistency

Develop long-, mid-, and near-term plans to address key issues

#### Expanding Internal Coordination

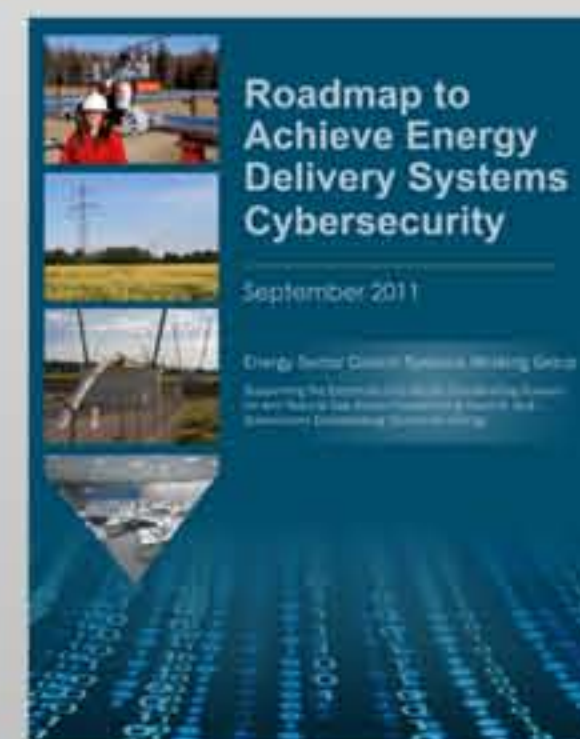
- Align program objectives and resources in support of the vision
- Develop peer review and funding opportunity announcement strategies that leverage Office/Program expertise
- Assess and strengthen R&D efforts that will have a material impact



Renewables Integration



Advanced Modeling



Cyber Security



Power Electronics

#### Enhancing External Collaboration

- Changing Supply Mix**
  - Requires additional transmission
  - Requires advance control and communications
- Demand Transformation**
  - Expanding Digital Economy
  - Power quality needs
  - Demand growth
- Complexity of Grid**
  - Expanding footprint
  - Overlay of markets
  - Operating "closer to the edge"
- Infrastructure Vulnerability**
  - Interdependencies of electric and energy systems



Please send any comments to the Grid Tech Team at: [gridtechteam@hq.doe.gov](mailto:gridtechteam@hq.doe.gov)