

NARUC 2015 Winter Meeting

Committee on Energy Resources and the Environment

The Future of the Grid: Getting to 2030 and Beyond

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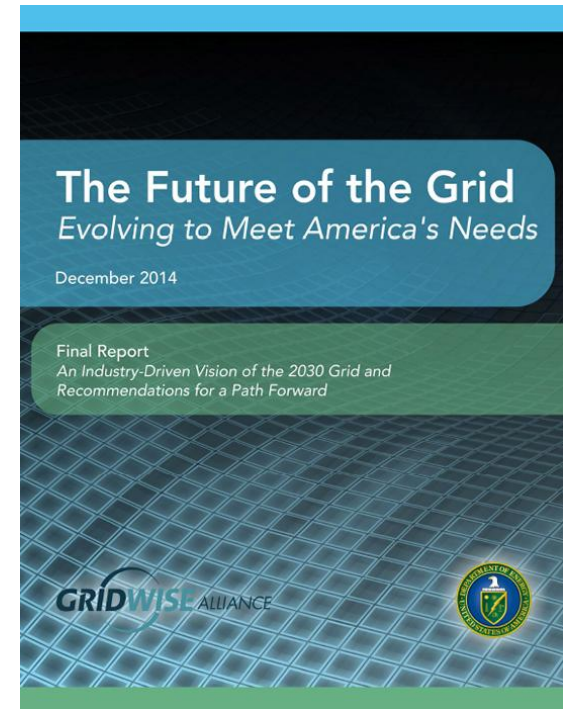
GridWise Alliance Members

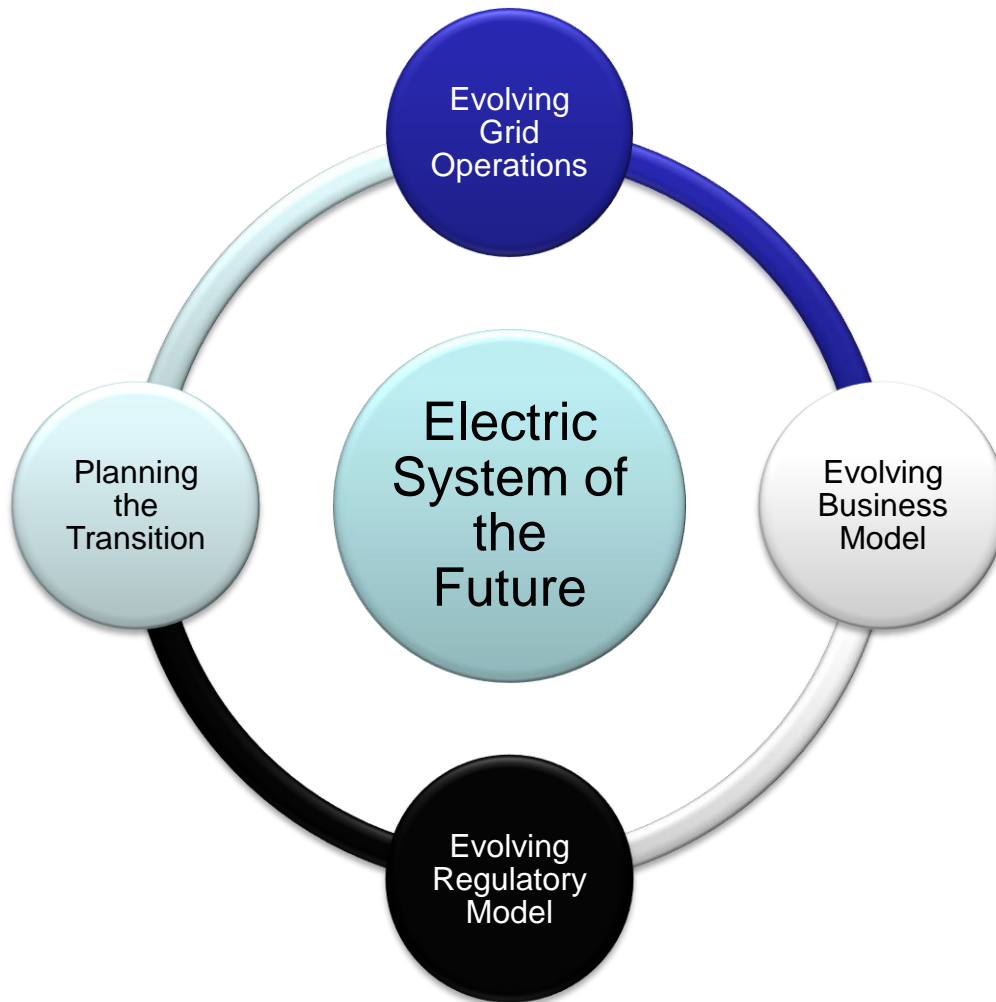
A consortium of passionate stakeholders focused on modernizing our electric grid, collaborating to transform the nation's electric power grid



Future of the Grid Evolving to Meet America's Needs

- Partnership - GridWise Alliance and the Office of Electricity Delivery and Energy Reliability
- Four Regional Workshops
- National Summit in Washington, DC
- Final report –December, 2014





- **Generation**
 - Centralized and distributed
 - Dispatchable and non-dispatchable
 - Microgrids – complementary not replacement
- **Energy storage**
 - Important
 - Still need “dispatchable” generation and resources
- **Balancing supply and demand**
 - Increasing complex and important
 - Moves down into distribution network
- **Consumers**
 - Different expectations and options
 - Prosumers
- **Markets**
 - Wholesale and retail
 - Third party non-regulated competitive players

- Will still want and need a grid
- No longer just a delivery “pipe”
 - => Multi-way power flow
- Must be agile and “fractal”
 - Flexible, adaptable, responsive
- Enabling platform
 - For a very dynamic and complex system
 - Robust retail market
- Balancing supply and demand
 - Distribution will look and act more like transmission
 - Essential function for both T&D
- Connecting markets
 - Linking new retail markets to wholesale markets

Future Value Propositions for Grid Operators

- Integrating all types of generations
- Being agnostic as to where supply comes from
- Increasing grid efficiency
- Enabling customers to provide services back to grid
- Facilitating a retail market for consumers to buy and sell services
- Optimizing assets utilization
- Supporting/implementing public policies
- Maintaining a safe and reliable grid
- Enabling highly reliable and resilient energy services to end consumers
- Identifying most cost-effective way to achieve outcomes



Portfolio of Selectable Services

- Basic service
- Enhanced service
- High-reliability services
- Microgrid services
- Financing services
- Buying/selling ancillary services, such as:
 - VAR Support
 - Voltage Support
 - Frequency Response
 - Spinning Reserve
 - Backup Power Support

Challenges for Regulators

- Providing regulatory clarity in time of significant change
- Align regulatory process to embrace speed of change and technology innovation
- Balancing public good with the needs and desires of individual consumers
- Addressing consumers' obligations to the grid as well as utilities' obligations to consumers in the future



Recommendations

- Establish clear and comprehensive guiding principles
- Develop a unifying architecture to ensure interoperability across the entire grid
- Create a framework for guiding investments and the development of state/regional roadmaps.
- Drive solutions through stakeholder engagement and education.
- Address technology challenges and limitations through robust research and analysis.

Q&A

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Report can be down loaded from:

www.gridwise.org

