



# Grid Modernization Initiative Midwest Region Workshop

**May 9, 2016**

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| <b>12:30</b> | <b>Registration</b>  |   |
| <b>1:00</b>  | <b>Welcome and Introductions</b><br>• <i>Eric Lightner, Office of Electricity Delivery &amp; Energy Reliability</i>  |   |
| <b>1:10</b>  | <b>Welcome - University of Minnesota</b><br>• <i>Elizabeth Wilson, Humphrey School of Public Affairs</i>   |   |
| <b>1:20</b>  | <b>Grid Modernization Initiative (GMI) Overview</b><br>Overview of the vision and technical areas of the Grid Modernization Initiative<br>• <i>Bill Parks, Office of Electricity Delivery &amp; Energy Reliability</i><br>• <i>Kevin Lynn, Office of Energy Efficiency &amp; Renewable Energy</i>  |   |
| <b>1:45</b>  | <b>Technology Sessions</b><br>Each session will have a 10-minute presentation of the technology area followed by a facilitated stakeholder discussion to solicit input and feedback on the priorities outlined in DOE's multiyear program plan.  |   |
|              | <b>Session 1: Devices &amp; Integrated Systems</b><br>Cowles Auditorium<br>Presenter: Ben Kroposki, NREL<br>Facilitator: Bryan Hannegan, NREL  | <b>Session 2: Sensing &amp; Measurement</b><br>Humphrey Forum<br>Presenter: Peter Fuhr, ORNL<br>Facilitator: Carl Imhoff, PNNL  |
|              | <i>Discussion Questions:</i> <ul style="list-style-type: none"> <li>• <i>Will the proposed research plan lead to practical applications and solve industry needs?</i></li> <li>• <i>Are there technology areas that are not addressed?</i></li> <li>• <i>Is the plan realistic but ambitious enough to respond to new developments?</i></li> </ul> |   |
| <b>2:45</b>  | <b>Break</b>   |   |
| <b>3:00</b>  | <b>Session 3: Security &amp; Resilience</b><br>Cowles Auditorium<br>Presenter: Jim Kavicky, ANL<br>Facilitator: Bryan Hannegan, NREL   | <b>Session 4: System Operations &amp; Control</b><br>Humphrey Forum<br>Presenter: Alex Melin, ORNL<br>Facilitator: Carl Imhoff, PNNL  |
|              | <i>Discussion Questions:</i> <ul style="list-style-type: none"> <li>• <i>Will the proposed research plan lead to practical applications and solve industry needs?</i></li> <li>• <i>Are there technology areas that are not addressed?</i></li> <li>• <i>Is the plan realistic but ambitious enough to respond to new developments?</i></li> </ul> |   |
| <b>4:00</b>  | <b>Break</b>   |   |
| <b>4:15</b>  | <b>Session 5: Design &amp; Planning Tools</b><br>Cowles Auditorium<br>Presenter: Mihai Anitescu, ANL<br>Facilitator Bryan Hannegan, NREL   | <b>Session 6: Institutional Support</b><br>Humphrey Forum<br>Presenter: Vladimir Koritarov, ANL<br>Facilitator: Carl Imhoff, PNNL   |
|              | <i>Discussion Questions:</i> <ul style="list-style-type: none"> <li>• <i>Will the proposed research plan lead to practical applications and solve industry needs?</i></li> <li>• <i>Are there technology areas that are not addressed?</i></li> <li>• <i>Is the plan realistic but ambitious enough to respond to new developments?</i></li> </ul> | <i>Discussion Questions:</i> <ul style="list-style-type: none"> <li>• <i>What information or tools are needed to better allow policy makers to understand the technology impacts of policy decisions?</i></li> <li>• <i>How could DOE better provide the information needed for the evaluation of technology investments to support policy goals?</i></li> <li>• <i>What methods would be most effective for providing support to policy maker requests?</i></li> </ul> |
| <b>5:15</b>  | <b>Break</b>   |   |
| <b>6:00</b>  | <b>Networking and Social Event, The Republic, 221 Cedar Ave, Minneapolis, MN 55454</b>   |   |



## May 10, 2016

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| 8:00  | <b>Continental Breakfast</b>   |   |
| 8:30  | <b>Welcome and GMI Workshop Overview</b><br>• <i>Eric Lightner, Office of Electricity Delivery &amp; Energy Reliability</i>  |   |
| 8:40  | <b>Technical Session Key Themes</b><br>• <i>Carl Imhoff, PNNL</i><br>• <i>Bryan Hannegan, NREL</i>   |   |
| 8:50  | <b>Regional Stakeholder Panel: The Modern Grid and Its Challenges</b><br>Industry perspectives on the current and future challenges of grid modernization.<br>Moderator: Chris Villarreal, Director of Policy, Minnesota Public Utilities Commission<br><br><i>Panelists:</i><br>• <i>Will Kaul, Vice President, Transmission, Great River Energy</i><br>• <i>Brian Amundson, Director, Grid Modernization, Xcel Energy</i><br>• <i>Rao Konidena, Principal Advisor, MISO Energy</i><br>• <i>Wanda Reder, Chief Strategy Officer, S&amp;C Electric Company</i> |   |
| 9:50  | <b>Break</b>   |   |
| 10:00 | <b>Regional Sessions</b><br>Each session will discuss the technology challenges associated with the implementation of grid modernization policies and thoughts on overcoming these challenges.   |   |
| 10:15 | <b>Session 1A: Bridging Practice and Potential with Increasing Distributed Energy Resources (DER)</b><br>Cowles Auditorium<br>Facilitator: Dan Delurey, Wedgemere Group  | <b>Session 1B: Bridging Practice and Potential with Increasing Distributed Energy Resources (DER)</b><br>Humphrey Forum<br>Facilitator: Laney Brown, Modern Grid Partners |
|       | <i>Discussion Questions:</i><br>• <i>What are the top hurdles or opportunities to increasing DER penetrations?</i><br>• <i>Are the impacts of DER and the ability to serve customers different in rural versus urban settings?</i><br>• <i>What are the gaps between the realities of operating the grid today and the vision of a modern grid with more DER?</i><br>• <i>What is the role of microgrids, storage, energy efficiency, and demand response related to DER penetration?</i>  |   |
| 11:15 | <b>Break</b>   |   |
| 11:30 | <b>Session 2A: Changing Relationship between the ISO/RTO and Distribution Assets</b><br>Cowles Auditorium<br>Facilitator: Dan Delurey, Wedgemere Group   | <b>Session 2B: Changing Relationship between the ISO/RTO and Distribution Assets</b><br>Humphrey Forum<br>Facilitator: Laney Brown, Modern Grid Partners                  |
|       | <i>Discussion Questions:</i><br>• <i>What new system benefits can high DER adoption provide?</i><br>• <i>Will increasing DER assets change the intersection of transmission and distribution?</i><br>• <i>Will increased DER improve system flexibility or capacity? Will it change traditional planning, roles, or responsibilities?</i><br>• <i>What visibility, controllability, or data transparency will be needed to realize the benefits?</i>   |   |
| 12:30 | <b>Lunch</b><br><br><b>Speaker:</b><br>• <i>Nancy Lange, Commissioner, Minnesota Public Utilities Commission</i>   |   |
| 1:30  | <b>Regional Partnerships and Demonstrations</b><br>Presentation of proposed areas for future demonstrations followed by a facilitated discussion of stakeholder perspectives on the attributes of regional importance.<br>• <i>Facilitator: Laney Brown, Modern Grid Partners</i>  |   |
| 2:30  | <b>Closing Remarks</b>   |   |
| 2:45  | <b>Adjourn</b>   |   |