

## Department of Energy Workshop: Load Participation in Ancillary Services

### Participants

|                       |   |
|-----------------------|---|
| Mike Hyland           | American Public Power Association               |
| Victor Zavala         | Argonne National Laboratory                     |
| Chellury (Ram) Sastry | Battelle  |
| Jim McIntosh          | California ISO                                  |
| Chris Thomas          | Citizens Utility Board                          |
| Lawrence Kotewa       | CNT Energy                                      |
| Raymond Berkebile     | Comverge  |
| Tim Mount             | Cornell University                              |
| Dan Delurey           | Demand Response and Smart Grid Coalition        |
| Sam Baldwin           | Department of Energy (EERE)                     |
| Charlton Clark        | Department of Energy (EERE)                     |
| Becca Smith           | Department of Energy (EERE)                     |
| Amitai Bin-Nun        | Department of Energy (EERE / AAAS)              |
| Mark Philbrick        | Department of Energy (EERE / AAAS)              |
| Paul Bakke            | Department of Energy (EERE Golden Field Office) |
| Phil Overholt         | Department of Energy (OE)                       |
| Dan Cleverdon         | District of Columbia Public Service Commission  |
| Don Tench             | Don Tench Energy Consultants                    |
| Angela Chuang         | Electric Power Research Institute               |
| Nancy Riley           | EnerNOC   |
| Stacy Angel           | Environmental Protection Agency                 |
| David Kathan          | Federal Energy Regulatory Commission            |
| Shiv Mani             | Federal Energy Regulatory Commission            |
| Mary Beth Tighe       | Federal Energy Regulatory Commission            |
| David Najewicz        | General Electric                                |
| Mark Levi             | General Services Administration                 |
| Ed Koch               | Honeywell                                       |
| Steve Gabel           | Honeywell Laboratories                          |
| Jamie Link            | Independent                                     |
| April Paronish        | Indiana Office of Utility Consumer Counselor    |
| John Ruiz             | Johnson Controls                                |
| Pete Cappers          | Lawrence Berkeley National Laboratory           |
| Mike Barber           | Midwest ISO                                     |
| Dave Corbus           | National Renewable Energy Laboratory            |
| Monisha Shah          | National Renewable Energy Laboratory            |
| Dan Steinberg         | National Renewable Energy Laboratory            |
| Dave Mohre            | National Rural Electric Cooperative Association |

Donna Pratt  
Clyde Melton  
Ken Corum  
Paul Centolella  
Robert Anderson  
Beth Reid  
Jeff Dagle  
Scott Baker  
Dave Souder  
Ralph DeGeeter  
Ed DeMeo  
Vipin Gupta  
Paul Hamilton  
Yan Lu  
Phil Hanser

New York ISO  
North American Electric Reliability Corporation  
Northwest Power and Conservation Council  
Ohio Public Utility Commission  
Olivine  
Olivine  
Pacific Northwest National Laboratory  
PJM Interconnection  
PJM Interconnection  
Public Service Commission of Maryland  
Renewable Energy Consulting Services  
Sandia National Laboratory  
Schneider Electric  
Siemens Corporate Research  
The Brattle Group

## Speakers and Presenters

DeWayne Todd  
Mark Petri  
Scott Simms  
Wendell Miyaji  
Lauren Azar  
Mike Davis  
Mark Patterson  
Ron Dizy  
Aaron Breidenbaugh  
Paul Feldman  
Jonathan Lowell  
Henry Yoshimura  
Sila Kiliccote  
Terry Boston  
Don Kujawski  
Rob Pratt

Alcoa  
Argonne National Laboratory  
Bonneville Power Administration  
Comverge  
Department of Energy  
Department of Energy (EERE)  
Electric Reliability Council of Texas  
ENBALA Power Networks  
EnerNOC  
Independent Energy Participant  
ISO New England  
ISO New England  
Lawrence Berkeley National Laboratory  
PJM Interconnection  
PJM Interconnection  
Pacific Northwest National Laboratory

## Facilitators

Mike Hogan  
Rich Sedano (Lead)  
Tim Woolf

Regulatory Assistance Project  
Regulatory Assistance Project  
Synapse Energy Economics

## Note Takers

Youngsun Baek  
Joe Gracia  
Omer Onar

Oak Ridge National Laboratory  
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## Planning Team

|               |                                  |
|---------------|----------------------------------|
| Carla Frisch  | Department of Energy (EERE)      |
| Ookie Ma      | Department of Energy (EERE)      |
| Dan Ton       | Department of Energy (OE)        |
| Kerry Cheung  | Department of Energy (OE / AAAS) |
| Paul Wang     | E2RG Consulting                  |
| Brendan Kirby | Independent                      |
| Julia Downing | SRA                              |
| Mark O'Malley | University College Dublin        |

## Day 1 Agenda: October 25<sup>th</sup>

| Time           | Activity   |   |   |
|----------------|--|---|---|
| 8:30 – 9:00a   | <b>Continental Breakfast</b> (Provided)  |   |   |
| 9:00 – 9:20a   | <b>Welcome</b> – Ookie Ma, Electric Generation and Grid Analysis Lead, Office of Energy Efficiency and Renewable Energy<br><b>Opening Remarks</b> – Lauren Azar, Senior Advisor to the Secretary at the US Department of Energy  |   |   |
| 9:20 – 10:00a  | <b>DOE Context</b> – Mike Davis, Director of Strategic Program at the Office of Energy Efficiency and Renewable Energy<br>Dan Ton, Smart Grid R&D Program Manager at Office of Electricity Delivery and Energy Reliability<br><b>Workshop Format and Agenda</b> – Rich Sedano, Director of the Regulatory Assistance Project   |   |   |
| 10:00a – 3:30p | <b>Break Out Sessions by Market Segment</b>  |   |   |
|                | <b>System Operators/Ancillary Service Buyers Breakout Session</b><br>Facilitated by Tim Woolf, Vice President at Synapse Energy Economics  | <b>Large Customer Demand Response Sellers Breakout Session</b><br>Facilitated by Rich Sedano, Director of the Regulatory Assistance Project   | <b>Mass Market Demand Response Sellers Breakout Session</b><br>Facilitated by Mike Hogan, Senior Advisor at the Regulatory Assistance Project   |
|                | <b>Introductory Remarks</b> – Brendan Kirby, Independent   | <b>Introductory Remarks</b> – DeWayne Todd, Alcoa   | <b>Introductory Remarks</b> – Mark O’Malley, University College Dublin  |
|                | <b>Presentations with Q&amp;A – Current Programs, Expected Programs, and Pilot Projects from the following:</b> <ul style="list-style-type: none"><li>Don Kujawski, PJM and Mark Petri, ANL</li><li>Mark Patterson, ERCOT</li><li>Jonathan Lowell and Henry Yoshimura, ISO-NE</li><li>Scott Simms, BPA</li></ul>   | <b>Presentations with Q&amp;A – Current Programs, Expected Programs, and Pilot Projects from the following:</b> <ul style="list-style-type: none"><li>Sila Kiliccote, LBNL</li><li>Ron Dizey, ENBALA Power Networks</li><li>DeWayne Todd, Alcoa</li></ul> | <b>Presentations with Q&amp;A – Current Programs, Expected Programs, and Pilot Projects from the following:</b> <ul style="list-style-type: none"><li>Rob Pratt, PNNL and David Najewicz, GE</li><li>Wendell Miyaji, Comverge</li><li>Aaron Breidenbaugh, EnerNOC</li></ul> |
| 11:00a-12:00p  | <b>Discussion surrounding potential for customer loads and past barriers</b> <ul style="list-style-type: none"><li>How much? What kinds of loads?</li><li>Why not more? What are the barriers/limits?</li><li>What are the requirements?</li><li>If conditions changed, then how much more? Today or 5-10 years from now?</li></ul>  |   |   |
| 12:00 – 1:00p  | <b>Lunch</b> (Provided)  |   |   |
| 1:00 – 2:15p   | <b>Facilitated Discussion – Is increased load participation needed?</b> <ul style="list-style-type: none"><li>Can it help? Which are most useful?</li><li>Is it good for integrating variable generation?</li><li>What is the government role, and should DOE facilitate increased participation?</li></ul>  |   |   |
| 2:15 – 3:30p   | <b>Facilitated Discussion – Synthesis and Action Plan</b> <ul style="list-style-type: none"><li>What are best practices? Where are the gaps?</li><li>Needs &amp; barriers to realize the potential: What can technology fix? What can it not?</li><li>Pathways recommended to overcome the barriers (R&amp;D agenda, regulatory and market developments);</li><li>What are the roles of DOE and non-DOE entities in identified pathways?</li></ul> |   |   |
| 3:30 – 3:45p   | <b>Break and Regroup to the Full Session</b>   |   |   |

|              |  |
|--------------|--|
| 3:45 – 4:45p | <b>Presentations and Q&amp;A – How it all comes together</b> <ul style="list-style-type: none"> <li>Paul Feldman, Independent Energy Participant</li> <li>Mark Patterson, Electric Reliability Council of Texas</li> </ul> |
| 4:45 – 5:00p | <b>Closing Remarks and Adjourn</b>   |
| 5:30 – 7:00p | <b>No-Host Reception at Hyatt Regency Washington Hotel Bar</b>   |

## Day 2 Agenda: October 26<sup>th</sup>

| Time            | Activity   |
|-----------------|--|
| 8:30 – 9:00a    | <b>Continental Breakfast</b> (Provided)  |
| 9:00 – 9:20a    | <b>Opening Remarks</b> – Terry Boston, President and CEO of PJM Interconnection  |
| 9:20 – 10:00a   | <b>Report-out and Q&amp;A from Spokesperson for System Operators/Ancillary Service Buyers</b> – Dave Souder, PJM <ul style="list-style-type: none"> <li>What are the load participation baseline, targets, and barriers, and needs?</li> <li>What are the actionable plans (R&amp;D, market, regulatory) to reach the targets?</li> <li>How should DOE help? What should non-DOE entities do?</li> </ul> |
| 10:00 – 10:40a  | <b>Report-out and Q&amp;A from Spokesperson for Large Customer DR Sellers</b> – Nancy Riley, EnerNOC <ul style="list-style-type: none"> <li>What are the load participation baseline, targets, and barriers, and needs?</li> <li>What are the actionable plans (R&amp;D, market, regulatory) to reach the targets?</li> <li>How should DOE help? What should non-DOE entities do?</li> </ul>             |
| 10:40 – 10:55a  | <b>Break</b>   |
| 10:55 – 11:35a  | <b>Report-out and Q&amp;A from Spokesperson for Mass Market Small DR Sellers</b> – Aaron Breidenbaugh, EnerNOC <ul style="list-style-type: none"> <li>What are the load participation baseline, targets, and barriers, and needs?</li> <li>What are the actionable plans (R&amp;D, market, regulatory) to reach the targets?</li> <li>How should DOE help? What should non-DOE entities do?</li> </ul>   |
| 11:35a – 12:00p | <b>Presentation and Q&amp;A</b> – Ron Dizy, ENBALA Power Networks  |
| 12:00 – 1:00p   | <b>Lunch</b> (Provided)  |
| 1:00 – 3:00p    | <b>Facilitated Discussion of Consolidated Outputs from the Report-Outs</b> – Rich Sedano, Regulatory Assistance Project <ul style="list-style-type: none"> <li>What are the important barriers and needs?</li> <li>What are the actionable plans (R&amp;D, market, regulatory) to address barriers and needs?</li> <li>How should DOE focus its program activities and research agenda?</li> </ul>       |
| 3:00 – 3:15p    | <b>Discussion of Final Thoughts</b> – Rich Sedano, Regulatory Assistance Project <ul style="list-style-type: none"> <li>Strengths and weakness of the workshop</li> <li>What worked, what didn't, what was useful?</li> <li>Missed topics/issues and next steps?</li> </ul>  |
| 3:15 – 3:30p    | <b>Closing Remarks</b> – Carla Frisch, Acting Director of Analysis at Office of Energy Efficiency and Renewable Energy<br>– Dan Ton, Smart Grid R&D Program Manager at Office of Electricity Delivery and Energy Reliability   |