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DIALOGUE



**2014 ANNUAL
ACTIVITY REPORT
FOR MEMBERS**

PLMATM
Demand Response Leadership Since 1999



Officers and Executive Committee pictured left-to-right in front row:
Paul Tyno, Buffalo Energy Advisors; Dennis Quinn, Joule Assets; Paul Miles, PECO; Joseph Childs, Eaton's Cooper Power Systems

Back row:
Rich Philip, Duke Energy; Elody Samuelson, Consumers Energy; Jason Cigarran, Comverge; Steve Koep, Vaughn Thermal Corp.; Stuart Schare, Navigant Consulting; Michael Brown, NV Energy; Heather Manypenny, New Hampshire Electric Cooperative; Dave Hyland, Schneider Electric

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Peak Load Management Alliance

www.peakload.org

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Chair Letter

In ancient Greek, the word “kairos” is used to describe the opportune moment of time in which audience and occasion have perfectly coincided to allow for the maximum impact of an idea. These types of moments have defined our history.

The electric car, for example, has been around for more than 100 years, but it took the combination of rising oil prices, broad economic decline and a design perfectly attuned to the needs of the market to create that precise moment which would elevate this “new” approach to powering an automobile into the corporate and public consciousness in a truly meaningful way.

For the past few years, the PLMA leadership has been laying the foundation and creating the structure for an organization that will be ready for its moment—and that moment is fast approaching. Demand response is a concept whose time has come.

The language of our industry—grid stability, peak load management, demand response itself—is making its way into the general lexicon. New York’s Reforming the Energy Vision (REV) initiative is a veritable canary in the coal mine, indicating a major shift within the energy business nationwide. Meanwhile, issues like the FERC Order 745 are not only challenges within the DR market, they are signals that demand response is moving out of the shadows of emergency grid stabilization to be an undeniable force that will help shape the future of energy delivery, consumption and management.

PLMA’s mission is to be the voice—and the home—of demand response practitioners as they navigate a playing field with shifting parameters. Our goal is to support you as you innovate throughout—and in response to—these changes.

In 2014, PLMA members created special groups to investigate the technologies that are pushing the boundaries of what we believe demand response can and cannot do. The newly formed Women in DR member group is a reflection of our organization’s constant effort to be a place where all practitioners and professionals have a voice that is welcome and encouraged.

The continued success of our DR Dialogue series indicates that PLMA is offering the type of added-value educational opportunities and subject matter that our constituents want to explore. These successes, among others, have led to membership numbers that are bigger than ever and conference attendance that just keeps going up.

Last year we developed a strategic vision, and this year we realized many of our goals, including instituting new executive leadership that better represents the full body of membership. Now more than ever, PLMA is an organization of radical inclusion—and because we are a community of doers united in a common vision, this inclusion makes us stronger.

Is there still work to be done? Of course. Do we look forward to tackling the challenges and opportunities facing our community? You bet.

As we head into another year of conversation, collaboration and innovation, I want to thank you for being a part of PLMA. Our members are our greatest assets, and we look forward to a year of discovering what’s important to you and finding new ways to serve you best. Kairos—the moment of opportunity. Bring it on. We’re ready.

Paul Tyno,

Peak Load Management Alliance
Chairman, PLMA
Buffalo Energy Advisors





Executive Summary

If 2013 is remembered within PLMA as a year of renewal, of planning and of vision, 2014 will be remembered as a year of action, implementation and growth.

With a clear strategic vision, and a membership filled with enthusiastic, dedicated individuals, the last 12 months were a time of realizing potential through hard work, creative thinking and a true purpose on the part of all members. We have all worked hard this year to further solidify PLMA's reputation as the voice of the demand response practitioner.

Member surveys indicated a desire for more brass-tacks DR training series. To this end, we spent 2014 designing the PLMA on-site and interactive DR education series, which debuted last fall. We also increased the frequency of our Web-hosted DR Dialogues.

Current and prospective members each expressed the desire for a simplified membership structure that is attractively priced and allows for multiple levels of participation. Therefore, in 2014, we totally revamped the fees, benefits and payment schedules, and bundled the conference passes in with the member dues. So far, this change has been well received, and membership numbers have never been higher.

We also designed a special category with clearer parameters for academic institutions and students interested in exploring the field of demand response. Part of our responsibility as a community of experts and thought leaders is to usher in the next generation of demand response practitioners. We believe this new category will result in a higher level of accessibility for young people looking to explore energy management as a career path.

As you will see in the Achievements and Activities pages, participation at our events has never been higher. 2014 was a year of newly created member groups, including Women in DR and the Thermostat Interest Group. We are excited about these developments, not only because they are providing a deeper level of analysis and innovation within our organization, but also because their formation indicates a high degree of professional interest among our members to improve the PLMA experience. That is the best indicator of our potential as the definitive source of thought leadership within the industry.

Our relationship with the publication, Utility Dive, continues to be a benefit to us all. Their production of our weekly newsletter keeps us well informed on the events and news shaping our industry. Utility Dive provided the year-in-review and 2015 outlook for this report, and we would like to take this opportunity to thank them for all they do to make this organization the best it can be.

We'd also like to take a moment to thank PLMA's executive director, Ed Thomas. He has infused PLMA with a new enthusiasm and sense of purpose, and we certainly would not accomplish all that we do without his careful guidance and management expertise.

There has never been a better time to be a member of PLMA. The executive committee would like to extend a heartfelt thank you to all of the PLMA members who so generously volunteer their time, talent and know-how throughout the year. As we move into 2015, with your continued effort and enthusiasm, we expect the PLMA experience—whether it's through conferences, education or peer-to-peer networking—to only get better.



"2014 was a year of substantial growth for PLMA—we are now known within the industry as a place where DR practitioners can go to do a deeper dive, a place where people with like interests can come together to investigate and share ideas."

Executive Committee Member Rich Philip, Duke Energy



Accomplishments

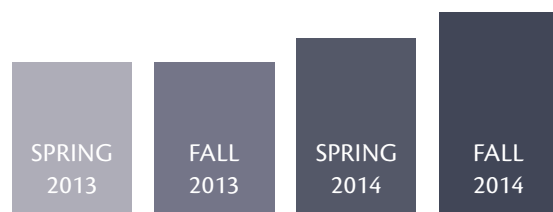
Conferences

As always, PLMA conferences reigned supreme as the year's foremost accomplishment. Attendance numbers for both the spring conference in Colorado and the fall conference in Pennsylvania were the largest on record, and the scheduled events were packed with engaging, top-of-the-moment discussions among a gathering of the industry's best and brightest.

Spring and Fall Conference Topic Highlights Include:

- How to Build Executive Support (and a budget) for DR Projects
- Exploring DR From the End User Perspective
- Federal Regulatory Challenges for Program Implementers
- Calculating the Business Case for Demand Response

As always, the conferences included the Sponsor Showcase Lightning Round, a quick-moving discussion forum designed to ensure that vendor members have a voice while keeping the overall tone of the conference one of peer-to-peer idea sharing for the advancement of DR at the practitioner level.



CONFERENCE ATTENDANCE STATS

Spring Conference 2013	-	138 Attendees
Fall Conference 2013	-	138 Attendees
Spring Conference 2014	-	152 Attendees
Fall Conference 2014	-	166 Attendees

Membership Growth

2014 was a year of tremendous growth for PLMA both as an organization and as a community. Membership enjoyed a 30 percent growth rate over the course of the year, while the growth rate from 2012 through 2014 increased 83 percent.



MEMBER GROWTH STATS

December 2012	-	42 Member Companies
December 2013	-	59 Member Companies
December 2014	-	76 Member Companies

DR Education Initiative

As a community of practitioners, PLMA is concerned first and foremost with providing its membership with the relevant information and tools needed to move the peak load management and demand response industry forward. To accomplish this, PLMA conducted an extensive member survey in 2013 in order to ensure that it is providing for the needs and wants of its membership. One revelation that came from this survey is a resounding interest in educational programs that focus on the practical implementation of demand response.

From this, PLMA Demand Response Training Series was born.

PLMA members, led by PLMA education committee chair Michael Brown of NV Energy, worked throughout 2014, soliciting RFQ's, negotiating contracts, developing course curriculum and arranging training session logistics.

The result of this effort is a series of courses on Demand Response with topics ranging from a comprehensive introduction to DR, to DR markets, to DR program design and implementation. The series kicked off with an Introduction to Demand Response course this past fall at the start of the 15th PLMA Fall Conference. Three more classes are currently scheduled for 2015 with more dates planned. Signups are ongoing, but space is limited.



Introduction to Demand Response – a one-day, interactive course that provides a comprehensive overview of demand response topics and current issues from the perspectives of multiple stakeholders: utilities, retail energy providers, customers, Independent System Operators, and other demand response technology and services providers. This course debuted at the 15th PLMA Fall Conference in Philadelphia, and will again be presented in partnership with Skipping Stone on April 27, 2015 in Tucson, just ahead of the 16th PLMA Spring Conference. Details at www.peakload.org/event/DRintroAZ

Demand Response Markets – a two-day course that explores how to leverage wholesale energy market models to design demand response programs for: traditionally regulated, restructured, and emerging electricity markets; a detailed review of the similarities and differences among markets in which demand resources can participate; and, the current and future roles for electricity consumers, aggregators, energy retailers, utilities, and market operators. The course will be presented in partnership with UISOL and is slated to debut on March 25-26, 2015 at host utility Consumers Energy in Jackson, Michigan. Details at www.peakload.org/event/DRMktsMI

Demand Response Program Design and Implementation – a two-day course covering the strategic factors impacting program design, such as: the market environment, business drivers, financial goals, demand management goals, and the regulatory environment. A program implementation review will cover the tactics and methodologies used to improve program success, including a discussion of: organizational and resourcing strategies; contracting; business processes; performance management; technology; and measurement and verification. This course will be presented in partnership with Navigant Consulting and is slated to debut on February 18-19, 2015 at host utility NV Energy in Las Vegas, Nevada. Details at http://www.peakload.org/events/event_details.asp?id=531499&group=

Member Interest Groups

Industry insiders know that demand response is evermore becoming an idea whose time has come. And with this industry shift, innovation, inevitably, will follow. Women in DR, Grid Interactive Water Heating, and Thermostats are three member interest groups formed that spotlight innovation and industry growth. These groups explore new developments within our industry while elevating and bringing to our attention the changing face and capacity of peak load management. Members of these niche groups are enthusiastic field experts and all PLMA members are welcome to participate in their meetings. For more information on the specific groups and links to Web-hosted added-value information, please visit the Activities section of this report.



"It used to be that I would drop by a member interest group if I had a free moment. But these days, the PLMA Member Interest Groups are so relevant and push the boundaries of what DR can do in really interesting ways, I'm planning my schedule around them."

Executive Committee Member Stuart Schare, Navigant Consulting

DR Dialogues

Throughout 2014, PLMA continued to offer its DR Dialogue series with 18 engaging and timely Web-hosted presentations. The series is an example of how PLMA's executive leadership is working to position the organization as a trusted source of information, ideas and practitioner-based expertise, not just within the DR industry but throughout the greater community of news organizations and academic institutions as well. Access to PLMA's comprehensive library of DR Dialogue series recordings is exclusive to members and available through the website with appropriate login credentials. For a listing and links to 2014's DR Dialogues, visit this report's Activities page. The full library is at www.peakload.org.

Membership Restructuring

A key accomplishment in 2014 was the restructuring of the member fee structure and benefits schedule. Based on utility industry and member input, the entire system was simplified. The membership structure is now based on four participation levels—Associate, Advisory, Sustaining and Academic. Conference attendance passes are now built in to the packages with an option at the sustaining level to trade in half of the attendance passes for sponsorship. To meet the greater organizational objective of increasing utility participation—both in membership growth and presenter/panel participation—the fee structure was also revised.



"The PLMA membership structure is inclusive to all organization types and the participation levels support our members' business requirements. Our restructured academic membership positions PLMA as an avenue of learning for students considering peak load management in all of its various incarnations as a career path."

PLMA secretary Joseph Childs, Eaton's Cooper Power Systems

Activities



2014 was a year of education, collaboration and innovation. Through the hugely popular DR Dialogue series, PLMA kept members up to speed on the latest news and developments affecting the DR industry. Our twice-yearly conferences and Member Meet-Up Series provided a forum for idea sharing, networking and continuing education, while member interest groups zeroed in on the latest ways in which the energy delivery industry is evolving, modernizing and maintaining relevance in an ever-changing, and, at times, tumultuous marketplace. Our market surveys and special reports provided our membership with the leading-edge information and ground-level research that sets us apart as an organization of doers.

As always, the PLMA Awards shined the spotlight on those companies that go the extra mile to promote sustainable energy practices. This year, we recognized seven outstanding solutions and organizations.

PLMA member organization staff may access this year's extensive library of archived reference materials by clicking the live links below and entering a member ID and password at the prompt.

If you belong to the staff of a member organization, but do not have a member ID and password, please contact Ed Thomas at ethomas@peakload.org. To learn how your organization can become a PLMA member, please visit <http://www.peakload.org/?page=JoinPLMA2015>

2014 PLMA Conferences

One of the most important aspects of PLMA membership is access to the organization's twice-yearly conferences. PLMA events include timely, relevant topic discussions, presentations from industry thought leaders, and Q&A's with top minds in the industry. Click the links below for 2014's conference schedule and speaker bios.

April: 15th Spring Conference, Denver, Colorado <http://www.peakload.org/?page=Spring2014Member>

November: 15th Fall Conference, Philadelphia, Pennsylvania <http://www.peakload.org/?page=Fall2014Attend>



**Click Here to Watch the 15th PLMA
Fall Conference Video Overview**

2014 DR Dialogues

From discussing DR in the commercial building sector with the USGBC to reviewing mandatory DR within the California Building Code with PG&E and the LBL, PLMA's 2014 DR Dialogue series was packed with relevant, timely Q&A with frontline DR practitioners.

To access the entire collection of PLMA's engaging and thought-provoking dialogue series, please visit www.peakload.org.

PLMA DR Dialogue with BGE & Opower

<https://peaklma.site-ym.com/?DRDialogueBGE>

PLMA DR Dialogue with SCE & Integral Analytics

<https://peaklma.site-ym.com/?DRDialogueSCE>

PLMA DR Dialogue with NV Energy & Ecofactor

<https://peaklma.site-ym.com/?DRDialogueNVE>

PLMA DR Dialogue with PG&E & LBL

<https://peaklma.site-ym.com/?DRDialoguePJM>

DR Dialogue with PJM & Navigant

<https://peaklma.site-ym.com/?DRDialoguePJM>

DR Dialogue with NREL & LBL

<https://peaklma.site-ym.com/?DRDialogueNREL>

DR Dialogue with Hawaiian Electric

<https://peaklma.site-ym.com/?DRDialogueHECO>

DR Dialogue with USGBC

<https://peaklma.site-ym.com/?DRDialogueGBC>

DR Dialogue: New Brunswick Power's Award-Winning Initiative

<https://peaklma.site-ym.com/?DRDialogueNBP>

DR Dialogue: How Smart Grid Affects Benefits & Costs of DR

<https://peaklma.site-ym.com/?DRDialogueSmartGrid2>

DR Dialogue: What is Future for DR in Light of FERC & PJM Developments?

<https://peaklma.site-ym.com/?DRDialogueNavResearch>

DR Dialogue: Kilroy Realty's Award-Winning Initiative

<https://peaklma.site-ym.com/?DRDialogueKilroy>

DR Dialogue: Oklahoma Gas & Electric's Award-Winning Initiative

<https://peaklma.site-ym.com/?DRDialogueOGE2>

DR Dialogue: SMUD's Award-Winning Initiative

<https://peaklma.site-ym.com/?DRDialogueSMUD>

DR Dialogue for PLMA Board Members ONLY: Illinois Impact of DC Circuit Decision with Illinois Commerce Commission Staff and PLMA Board Members

DR Dialogue: Duke Energy's Award-Winning Initiative

<https://peaklma.site-ym.com/?DRDialogueDuke>

DR Dialogue: The Evolution of Demand Response in PJM Wholesale Markets

<https://peaklma.site-ym.com/?DRDialoguePJMWP>

DR Dialogue: How Texas Electricity Market is Evolving for Demand Response

<https://peaklma.site-ym.com/?DRDialogueTX>

DR Dialogue: New Brunswick Power's Award-Winning Initiative

https://peaklma.site-ym.com/events/event_details.asp?id=437590&group



2014 Member Meet-Ups

Throughout the year, PLMA organized a number of opportunities for members to touch base and enjoy informal conversation and networking. This series of Member Meet-Up events was scheduled to dovetail with industry conferences occurring throughout the U.S.:



JANUARY:

PLMA Member Meet-up at AESP
PLMA Member Meet-up at Distributech

MAY:

PLMA Member Meet-up at ADS Town Hall
PLMA Member Meet-up at AESP National Conference

JULY:

Member Meet-Up at Distributech Planning Meeting



"As demand response and energy professionals, we owe it to the future of our industry to develop and utilize our talent fully. With women representing 23.3% of the utility workforce according to Catalyst.org, the opportunity speaks for itself to provide a forum to engage and support our future leaders."

Elody Samuelson, Consumers Energy



Member Interest Groups

From Women in DR, to grid interactive water heating, to thermostats, 2014 was a year of tapping into the expertise of our membership to examine the issues and share the knowledge and technology that is setting the course for the peak load management industry.

WOMEN IN DR GROUP

In 2014, Elody Samuelson of Consumers Energy in Michigan, Heather Manypenny of New Hampshire Electric Cooperative, and Robin Maslowski of Navigant co-led PLMA's Women in Demand Response Interest Group. Women play an important role in demand response leadership and delivery. This interest group helps promote that role by encouraging greater visibility, support and recognition of women in the industry.

June Press Release: Women in Demand Response Becomes Focus for New PLMA Interest Group

<http://peaklma.site-ym.com/news/179215/Women-in-Demand-Response-Becomes-Focus-for-New-PLMA-Interest-Group.htm>

September: Women in DR Quarterly Update

<https://peaklma.site-ym.com/?DRWomenSept2014>

December: Women in DR Quarterly Update

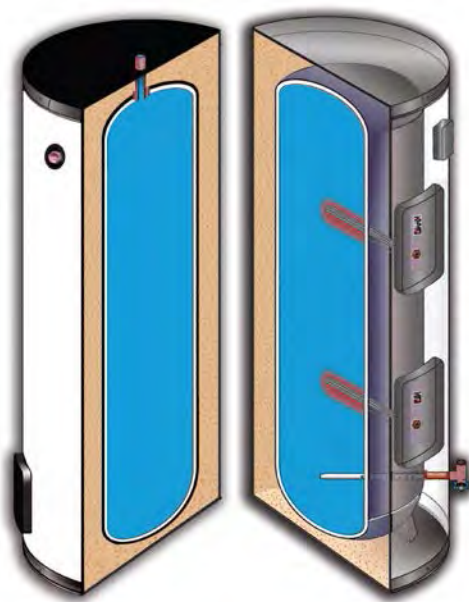
<https://peaklma.site-ym.com/?DRWomenDec2014>





"The industry is changing, and we need to change, too. PLMA interest groups like this one look at how we can do more with something as simple as a water heater to make the electric grid more efficient."

Gary Connett, Great River Energy



GRID-INTERACTIVE WATER HEATING GROUP

Distributed energy sources like wind and solar provide intermittent delivery of resources. Often their peak production occurs at times when there is little demand. Because of this, the utility industry has a critical need for battery storage. Enter the humble water heater. This interest group examines and promotes the ways in which grid-interactive water heating can play a significant role in rethinking energy storage and sustainable distributed energy management.

PLMA Grid-Interactive Water Heating Interest Group February Meeting

https://peaklma.site-ym.com/events/event_details.asp?id=408274&group=

Making the Case for Grid-Interactive Electric Water Heating in 2014 April Workshop

<https://peaklma.site-ym.com/?GIWHWorkshop2014>

Grid-Interactive Water Heating Interest Group September Update

<https://peaklma.site-ym.com/?GIWHREG>

Grid-Interactive Water Heating Interest Group November Workshop

<https://peaklma.site-ym.com/?Fall2014GIWH>

THERMOSTAT INTEREST GROUP

The PLMA Thermostat Interest Group seeks to examine the costs and benefits of all types of utility-sponsored programs that leverage thermostat technology to deliver demand response, energy efficiency, or other system benefits. A group goal is to identify the resources and partners that help articulate a comprehensive value assessment of the demand response and energy efficiency benefits associated with smart thermostats. The group does not focus on a specific technology or solution.

September Press Release:

Thermostats Are Emphasis for Newest PLMA Interest Group

<http://peaklma.site-ym.com/news/193215/Thermostats-Are-Emphasis-for-Newest-PLMA-Interest-Group.htm>

Thermostat Interest Group November Workshop

<https://peaklma.site-ym.com/?Fall2014Tstat>

11th Annual PLMA Awards

The PLMA Award Program recognizes those energy industry leaders who create innovative methods to meet peak load requirements, mitigate price risks and manage variable generation. In 2014, PLMA awarded seven outstanding company initiatives with this honor out of a field of 34 nominations. Our awards committee comprised six recognized industry experts with diverse views and industry backgrounds. The awards were presented during the 15th PLMA Spring Conference in Denver, Colorado.

2014's PLMA Award Winners (in alphabetical order):



Duke Energy

Outstanding Residential Demand Response Program Design Award



Kilroy Realty

Outstanding Demand Response Customer Award



Navigant Research

Outstanding Demand Response Research Award



New Brunswick Power

Innovative Application of Technology Award



NV Energy

Outstanding Commercial Demand Response Program Design Award



Oklahoma Gas & Electric

Outstanding Investor-Owned Utility Demand Response Program Award



Sacramento Municipal Utility District

Outstanding Public-Owned Utility Demand Response Program Award



Read the Press Release:

PLMA Recognizes Leading Energy Utility Demand Response Initiatives

<http://peaklma.site-ym.com/news/169483/PLMA-Recognizes-Leading-Energy-Utility-DemandResponse-Initiatives.htm>



Education

PLMA's overarching goal is to be the foremost destination for demand management practitioners to gain the knowledge, insight and collaborative opportunities they want and need to improve and evolve the industry. The results of our 2013 market survey showed that our membership wanted more opportunities to learn about the implementation aspect of demand response. To meet this need, we spent considerable time and effort throughout 2014 developing a DR Training series. We hosted the first Intro to DR course in November and are looking forward to developing this popular new offering throughout 2015 and beyond.

June: PLMA Seeks Training Partners for Demand Response Training Series

<http://peaklma.site-ym.com/news/176408/PLMA-Seeks-Training-Partners-for-Demand-Response-Training-Series.htm>

October: PLMA Launches Demand Response Training Series

<http://peaklma.site-ym.com/news/197307/PLMA-Launches-Demand-Response-Training-Series-.htm>

November: Introduction to Demand Response Training Course

<http://peaklma.site-ym.com/events/eventdetails.asp?id=501083&hhSearchTerms=%22introduction+and+demand+and+response%22>



PLMA News

In 2014, PLMA ramped up its visibility and continued on the course it set in 2013. With new leadership at the helm, a clear guiding vision, and the groundwork complete, we are looking forward to 2015 being a year of growth and continued success. Click on the links below for further information on some of PLMA's biggest stories of 2014:

July: Two National Alliances to Conduct Joint Meeting on Electricity Demand Response Issues

<http://peaklma.site-ym.com/news/184269/Two-National-Alliances-to-Conduct-Joint-Meeting-on-Electricity-Demand-Response-Issues.htm>

November: PLMA Elects New Leadership

<http://peaklma.site-ym.com/news/202539/PLMA-Elects-New-Leadership.htm>

November: PLMA Restructures Member Dues to Attract More Utilities

<http://peaklma.site-ym.com/news/202894/PLMA-Restructures-Member-Dues-to-Attract-More-Utilities-.htm>



PLMA Research and Reports

As an organization interested in the practitioner's view of demand response and peak load management, the PLMA strives to support its membership with the knowledge, viewpoints, research and data that is shaping our industry. Information within PLMA surveys and reports is generated from our own community of experts and reflects the needs, concerns and forward-looking projections that drive today's most pertinent conversations.

April: PLMA Releases Spring Demand Response Market Research Report

<http://peaklma.site-ym.com/news/169484/PLMA-Releases-Spring-Demand-Response-Market-Research-Report.htm>

October: PLMA Report: DR Is More Essential and More in Flux Than Ever

<http://peaklma.site-ym.com/news/205803/PLMA-Report-DR-Is-More-Essential-and-More-in-Flux-Than-Ever.htm>



Conclusion

2014 was a monumental year in PLMA history. Our numbers and conference attendance grew exponentially; we made critical updates to our membership structure; we initiated projects to improve the member experience and, most importantly, we provided a forum for idea sharing and networking that was truly useful within our industry at a time when we need it most.

But like any entity that cannot be satisfied with merely maintaining the status quo, our work is far from over. Much is happening in our industry. We are all keeping close watch over developments with FERC Order 745, and we are all interested to see what kind of regulatory changes are on the horizon on the state level as places like New York, California and Hawaii explore new ways to efficiently deliver resources to their citizens and businesses.

As an organization concerned with the practical implications of these issues, we hope that PLMA in 2015 and beyond will benefit from a higher level of utility company participation—in the form of both members and presenters. To this end, we will continue to ensure that PLMA events and meet-ups are a space where utility practitioners and vendors can comfortably interact and work together to solve the ever-present problem of how to do it better and how to do it more efficiently.

We hope that 2015 will be a year of further refinement for PLMA—of our message, of our place in the DR community and of our goals, expectations and deliverables. As we move forward, we look to our members to help us chart the course. The more you participate, the stronger we will become.

Here's to a productive 2015.



Member Directory



Members as of December 31, 2014 (in alphabetical order):

- | | | | |
|--|------------------------------------|---|---|
| 1. ACME Business Consulting | 19. Ecofactor | 40. Konkuk University | 61. Sacramento Municipal Utility District |
| 2. Advanced Load Control Alliance | 20. Edison Electric Institute | 41. Landis+Gyr | 62. Smart Energy Demand Coalition |
| 3. Alternative Energy Systems Consulting | 21. Emerson Climate Technologies | 42. Lockheed Martin | 63. Smart Grid Consumer Collaborative |
| 4. American Public Power Association | 22. Energy Grid Services | 43. Mad Dash | 64. Southern California Edison |
| 5. Apogee Interactive | 23. EnergyHub | 44. MelRok | 65. Steffes Corporation |
| 6. AutoGrid Systems | 24. Energy Solutions | 45. National Rural Electric Cooperative Association | 66. Synergy Companies |
| 7. Bonneville Power Administration | 25. Enerliance | 46. Navigant Consulting | 67. Tennessee Valley Authority |
| 8. Buffalo Energy Advisors | 26. EnerNOC | 47. New Hampshire Electric Cooperative | 68. The Brattle Group |
| 9. Comverge | 27. Enervision | 48. Nexant | 69. Threshold Door-to-Door |
| 10. C Power | 28. E Source | 49. NTC Corporate | 70. Tri-State Generation & Transmission Association |
| 11. Consumers Energy | 29. Extensible Energy | 50. NV Energy | 71. Tucson Electric Power Company |
| 12. Davis Energy Group | 30. Genscape | 51. OpenADR Alliance | 72. Utility Integration Solutions |
| 13. Demand Response Research Center | 31. Good Company Associates | 52. OPower | 73. Vaughn Manufacturing |
| 14. Demand Response Partners | 32. Great River Energy | 53. Pacific Gas and Electric | 74. WeatherBug Home |
| 15. DTE Energy | 33. HomeServe USA | 54. PECO, an Exelon Company | 75. Westar Energy |
| 16. Duke Energy | 34. Honeywell Smart Grid Solutions | 55. Portland General Electric | 76. Xcel Energy |
| 17. Eaton's Cooper Power Systems | 35. ICF International | 56. Power Generation Services | |
| 18. Ecobee | 36. Integral Analytics | 57. REGEN Energy | |
| | 37. Intelligent Energy Solutions | 58. SafePlug | |
| | 38. Johnson Controls | 59. Schneider Electric | |
| | 39. Joule Assets | 60. Skipping Stone | |

Leadership (as of December 31, 2014):

PLMA Member Companies with designated staff representatives

Officers:

Board Chair: Paul Tyno, *Buffalo Energy Advisors*

Board Vice Chair: Rich Philip, *Duke Energy*

Treasurer: Dave Hyland, *Schneider Electric*

Secretary: Joseph Childs, *Eaton's Cooper Power Systems*

Executive Director: Ed Thomas

Executive Committee:

Michael Brown, *NV Energy*

Jason Cigarran, *Comverge*

Steve Koep, *Vaughn Thermal Corp.*

Heather Manypenny, *New Hampshire Electric Cooperative*

Paul Miles, *PECO*

Dennis Quinn, *Joule Assets*

Elody Samuelson, *Consumers Energy*

Stuart Schare, *Navigant Consulting*

Committee Chairs:

Marketing: Jason Cigarran, *Comverge*

Awards: Greg Wikler, *Navigant Consulting*

Education: Michael Brown, *NV Energy*

Conference Planning: Elody Samuelson, *Consumer Energy with Ward Eames, NTC Corporate*

Interest Group Co-Chairs:

Grid-Interactive Water Heating:

Gary Connett, *Great River Energy with Steve Koep, Vaughn Thermal Corp.*

Thermostat: Bryan Doyle, *Xcel Energy with Lee Hamilton, Xcel Energy*

Women in Demand Response:

Elody Samuelson, *Consumers Energy with Heather Manypenny, New Hampshire Electric Cooperative with Robin Maslowski, Navigant Consulting*

Board Members:

Jason Gates, *ACME Business Consulting*

Wendy Brummer, *Advanced Load Control Alliance*

Ray Pustinger, *Alternative Energy Systems Consulting*

Joe Polaski, *Apogee Interactive*

Carlos Bravo, *AutoGrid Systems*

Chris Cantone, *C Power*

Thomas Clark, *Consumers Energy*

David Springer, *Davis Energy Group*

Carl Almeter, *Demand Response Partners*

Derek Kirschner, *DTE Energy*

Rodrigo Sanchez Breedee, *EcoFactor*

Steve Rosenstock, *Edison Electric Institute*

Ivan Kustec, *Emerson Climate Technologies*

Dick Preston, *Energy Grid Services*

Matt Johnson, *EnergyHub*

Kitty Wang, *Energy Solutions*

Mark Boliaris, *Enerliance*

Ann Cole, *EnerNOC*

Joshua Warmack, *Enervision*

Rachel Reiss Buckley, *E Source*

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Bill Kallock, *Integral Analytics*

Terrill Laughton, *Johnson Controls*

Clark Pierce, *Landis & Gyr*

Jim Armstrong, *Lockheed Martin*

Joe O'Malley, *Mad Dash*

Dr. Michel Kamel, *MelRoK*

Sharon Close, *Nexant*

Ward Eames, *NTC Corporate*

Nicholas Payton, *OPower*

Stephen Knapp, *Power Generation Services*

Mark Kerbel, *REGEN Energy*

Craig Sherman, *Sacramento Municipal Utility District*

Steven Montgomery, *SafePlug*

Peter Weigand, *Skipping Stone*

Paul Steffes, *Steffes Corp.*

David Shallenberger, *Synergy Companies*

Brian Solsbee, *Tennessee Valley Authority*

Ahmad Faruqui, *The Brattle Group*

Joel Schofield, *Threshold Door to Door*

Scott Coe, *Utility Integration Solutions*

David Olberholzer, *Weatherbug*

Brian Doyle, *Xcel Energy*

Representatives:

Michael Hyland, *American Public Power Association*

Kim Thompson, *Bonneville Power Administration*

Sila Kiliccote, *Demand Response Research Center*

Julia Dalla Rosa, *Ecobee*

Jong Bae Park, *Konkuk University*

Keith Dennis, *National Rural Electric Cooperative Association*

Barry Haaser, *Open ADR Alliance*

Albert Chiu, *Pacific Gas & Electric Company*

Elizabeth Paul, *Portland General Electric*

Jessica Stromback, *Smart Energy Demand Coalition*

Patty Durand, *Smart Grid Consumer Collaborative*

Mark Martinez, *Southern California Edison*

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The State of Demand Response What Happened in 2014—and What's Coming in 2015

It almost goes without saying: 2014 was a big year for demand response.

In many ways, the news was good: The industry saw a surge in innovative ideas and technology, with a strong focus on customer engagement.

In other ways, the news was bad: Wholesale markets lost demand response when a federal appeals court vacated FERC Order 745, removing the resource from the PJM energy market. First Energy's challenge to have the resource removed from capacity markets threatens even greater consequences.

"We saw a very public fight brought by generators," Matt Plante, CEO of demand response provider EcoFactor, told Utility Dive in an interview. That fight then "morphed into an all-out attack against demand response."

But on the flip side, Plante said there is now *"more evidence that cost-effective residential DR exists ... and that such demand response, when done well, actually increases customer comfort and customer satisfaction."*

The industry is still poised for growth, despite the challenges. Whether or not demand response competes in wholesale markets, it will continue to be a resource for utilities and grid operators across the U.S. But the court's decision and ensuing uncertainty have cut into the industry's potential. Analysis by Greentech Media found the annual growth rate of the demand response industry dropped from 8 percent down to 4.9 percent annually through 2023 as a result of the ruling.

Though demand response was on pace to be a \$2.9 billion industry by 2023, Greentech now estimates the market will only reach \$2.3 billion by that point. But demand response providers remain largely optimistic and are focused on the year ahead, where they believe new technologies will expand opportunity and make demand response a year-round resource.

FERC Order 745: 2014's Demand Response Drama

In May, the U.S. Court of Appeals for the D.C. Circuit vacated FERC Order 745, setting off a chain of events that left the industry uncertain. While demand response was a modest participant in power markets, First Energy filed to have demand response removed from capacity markets as well. A group of New England generators joined their complaint last month.

The Obama administration has signaled it will appeal the decision to the Supreme Court. John Podesta, then the White House's environmental point man, said at a conference in December that the administration views the D.C. Circuit ruling as *"a very significant and mistaken decision."* FERC followed up the Supreme Court appeal announcement in January by announcing it would authorize ISO New England to allow demand response to participate in wholesale energy markets until the legal controversy is resolved.

Though it is a more complicated process, many observers say a legislative fix would be the clearest way to determine demand response's role in wholesale markets. New Mexico Sen. Martin Heinrich (D) has introduced legislation that would unambiguously charge FERC with regulating demand response in wholesale markets. However, the bill seeks to modify the Federal Power Act, which even supporters say could open up a long and daunting legislative process.

A Way Forward for Demand Response: PJM's plan

In the wake of the court's decision to vacate Order 745, PJM rushed to put together its vision for how demand response could continue to participate. Nothing in the court's decision, PJM said, would prevent it from taking actions to recognize wholesale curtailment efforts. The grid operator sketched out a plan that would allow demand response to continue participating, with a focus on utilities and states.

PJM explained that, in its view, the court decision still allowed it to account for curtailment, but only to the extent it reflected the action of a wholesale entity, such as a load-serving entity or competitive retail service provider, and only to the extent such curtailment reflects that entity's own wholesale load.

That leaves out about 70 percent of PJM's demand response market, which comes from third-party aggregators, according to Michael Panfil, an attorney for the Environmental Defense Fund's Clean Energy Program.

"And to make matters worse, they're saying yes you can provide this valuable asset, but we're not going to compensate you," he said. *"That's why you do need states to step up."*

Demand Response in 2015: New technology and Rate Structures to Drive Innovation

While demand response has been around since the 1970s, in the year to come it could be poised for more growth than ever. Fueled by the expansion of high-tech devices, advanced networks and new rate structures, it's no surprise many industry professionals foresee 2015 as *"the year of demand response."*

A key area of focus is technology. Prices are dropping for smart thermostats, and as more renewables come online, demand response is being considered to help integrate them.

According to Navigant Research, the total number of worldwide residential demand response sites is expected to grow from 6.8 million in 2014 to 64.8 million in 2023. The spread of advanced metering infrastructure (AMI) has unlocked the industry's potential, and smart, two-way communicating appliances like thermostats and water heaters may be poised to usher in a new era of power consumption and savings.

Vivin Nath, product manager for EcoFactor, says demand response will become a more ubiquitous resource. Nath believes the coming year will yield greater numbers of integrated demand-side management programs that also provide ancillary services to the grid, allowing for higher levels of renewable power on the grid.

That connection between renewables and DR as an ancillary service can help make those demand-side programs *"a mainstay in the energy business for many years to come,"* he predicted. *"Also, we will see utilities opening up to year-round DR programs (instead of just summer and winter peak reduction programs) to continuously manage their loads in a cost-effective manner."*

Smart Meters and the 'Internet of Things'

Steve Hambric, vice president of strategic sales and operations for demand response provider Comverge, said his company has observed increased deployment of two-way devices over the past year, technology capable of exchanging information over either Wi-Fi or cellular networks.

"This provides utilities unparalleled levels of reliability, predictability and availability," Hambric said. "This enables utilities to leverage demand response as an everyday component of the supply mix, better integrate renewable sources of energy, and participate more effectively in capacity and energy markets. We expect this two-way demand response trend to accelerate in 2015."

"We're moving towards this 'Internet of Things,'" said Steve Koep, utility sales manager at Vaughn Thermal Corp., a leading manufacturer of water heaters and digital energy controllers.

Traditional demand response programs centered around "one-way radio control," where the utility could send a signal to a thermostat but not see the response other than monitoring system load. *"Now we're getting to two-way communication, the Internet right to the appliance, and the level of granularity of data is increasing. You're going to be able to reach down and tell what all of these energy-using appliances are doing," Koep said.*

Behavioral Demand Response

Another interesting DR innovation likely to catch on in 2015 is the concept of "behavioral demand response"—that customers want to conserve and will reduce consumption simply by being asked, or by being informed of their neighbors' savings.

That willingness means utilities have a greater range of options available to them. For a variety of reasons, only about 5 percent of U.S. households participate in demand response programs. But Opower has worked with utilities to implement DR programs that do not require specific rates or equipment, instead using targeted outreach to simply ask for reduced power consumption.

"It challenges the mindset that to get customers to do something, you have to pay them in return, or penalize them," said Opower's Kevin Hamilton. The company found that in a test involving more than one million homes across multiple utilities and ISOs, customers with no load control device dropped their usage 5 percent, just through behavioral cues.

Plug-In Vehicles May Be Grid Resource

As consumers begin to embrace the plug-in electric vehicle, America's transportation fleet could become the next great demand response resource. By some estimates, there are a quarter million PEVs on the roads already—adding demand, yes, but also the potential to help smooth peaks and even feed power back into the grid.

The concept of PEVs as a distributed resource has been around a few years, but with advances in battery technology and the falling cost of larger storage options and chargers, electric vehicles could assist in frequency regulation to help integrate renewables into the mix. And PEVs could bid into ancillary markets, opening up new revenue streams and bringing down the cost to integrate the new technology.

Research published this year in *Applied Energy* journal evaluated the cost-effectiveness of using a V2G-capable school bus fleet, and found that for one district in Delaware with 179 buses, the switch could be worth \$38 million. And the U.S. Air Force recently announced a pilot program in which 36 of the 42 vehicles at the Los Angeles Air Force Base are capable of taking power from, or feeding it back into, the grid. The vehicles can provide more than 700 kilowatts of power to the grid and will enhance the power grid's reliability and security by balancing demand against supply without having to use reserves or standby generators.

New Rate Structures to Support Demand Response

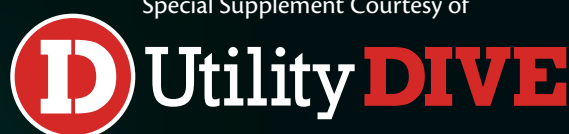
Finally, as technology advances, utilities will increasingly alter their rate structures to accommodate and enhance demand response programs.

Navigant's research shows that as the overall market for residential demand response expands, the number linked to dynamic pricing programs will also grow rapidly. About 88 percent of residential DR sites now are part of direct load control programs, and only about 12 percent are associated with dynamic pricing systems.

By 2023, that split is expected to be closer to 50/50, Navigant concluded. Commonwealth Edison, for instance, began signing up customers in late 2014 for a new Peak Time Savings plan that will award bill credits for voluntary power reductions during high use times. The program will go into effect this summer, utilizing Silver Spring Networks smart meters.

Utilities now have the ability to discreetly dispatch customers according to system, Navigant said, and can get real-time feedback on performance and outages. The firm predicted global residential demand response revenues will grow from \$332.4 million in 2014 to \$2.3 billion in 2023.

"As AMI is deployed around the world, residential DR follows closely behind," Brett Feldman, senior research analyst with Navigant Research, said in a research note. "AMI allows for near real-time access to interval meter data, so residential DR programs will migrate from the traditional long lead time, command and control model to more customer-friendly, flexible and price-based methods."



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