

Myron Katz, PhD, (504)-343-1243  
Primary Consultant and Innovator Myron.Katz@EnergyRater.com

VIA HAND DELIVERY  
June 27, 2017

Re: CNO Docket No: UD-17-01

Ms. Lara W. Johnson, CMC  
Clerk of Council  
Room 1E09, City Hall  
1300 Perdido Street  
New Orleans, La 70112

Re: CNO Docket No: UD-17-01

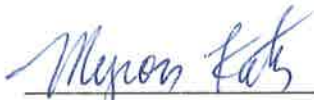
**MOTION BY BSI TO REQUIRE COMPLETE AND TIMELY CONSIDERATION OF TOM STANTON'S COMMENTS**

Dear Ms. Johnson:

Enclosed is an original and three copies of  
**MOTION BY BUILDING SCIENCE INNOVATORS, LLC TO REQUIRE COMPLETE AND TIMELY CONSIDERATION OF TOM STANTON'S COMMENTS ON INTEGRATED RESOURCE PLANNING (IRP) BY MARKET BASED ACQUISITION AND CORRECT ASSUMPTIONS AND CONDITIONS NEEDED FOR STATE-OF-THE-ART IRP FOR ENERGENCY NEW ORLEANS (ENO).**

Thank you for your time and attention.

Sincerely,



---

Myron Katz, PhD  
Building Science Innovators, LLC  
302 Walnut St  
New Orleans, La 70118  
504-343-1243  
[Myron.Katz@EnergyRater.com](mailto:Myron.Katz@EnergyRater.com)  
[www.BuildingScienceInnovators.com](http://www.BuildingScienceInnovators.com)

JUL 24 4 39 PM '17

**BEFORE THE  
COUNCIL OF THE CITY OF NEW ORLEANS**

**IN RE: RESOLUTION REGARDING  
PROPOSED RULEMAKING TO  
ESTABLISH INTEGRATED RESOURCE  
PLANNING COMPONENTS AND  
REPORTING REQUIREMENTS FOR  
ENTERGY NEW ORLEANS, INC.**

**DOCKET NO. UD-17-01**

**JUN 27, 2017**

**MOTION BY BUILDING SCIENCE INNOVATORS, LLC TO REQUIRE COMPLETE  
AND TIMELY CONSIDERATION OF TOM STANTON'S COMMENTS ON  
INTEGRATED RESOURCE PLANNING (IRP) BY MARKET BASED ACQUISITION  
AND CORRECT ASSUMPTIONS AND CONDITIONS NEEDED FOR  
STATE-OF-THE-ART IRP FOR ENTERGY NEW ORLEANS (ENO)**

ON MOTION OF BUILDING SCIENCE INNOVATORS, LLC (BSI), appearing herein through undersigned principal, represents the following:

WHEREAS, the goal of this docket, UD-17-01, is to revise the ordinances that define the methodology to use to successfully approach the goal of and/or specify how to perform an IRP;

WHEREAS, BSI, in a filing made on February 3, 2017 (February Filing), presented testimony that an IRP cannot "even nearly" approach its stated goal via computer-aided calculation;

WHEREAS, BSI has submitted Customer Lowered Electricity Price (CLEP) as an alternative means of approaching an IRP's goals in the predecessor IRP Docket UD-08-02;

WHEREAS, BSI presented an outline description of IRP by Market Based Acquisition (IRPbMBA) in its February Filing and noted that CLEP falls into that definition (Exhibit A) — which exhibit was primarily a restatement of excerpts from Tom Stanton's publications;

WHEREAS, Tom Stanton, of the National Regulatory Research Institute, submitted on May 20<sup>th</sup>, formal comments to Councilman James Gray which help to explain that IRPbMBA is a viable method to approach IRP goals and cited many *tried-and-true*, working examples in other states including California and New York (Exhibit B) and focuses his comments upon DER, i.e., Distributed Energy Resources, as the critical missing link between what is be done now with calculation and what is needed but missing (i.e., DER) to optimally accomplish IRP's goals,

WHEREAS, Mr. Stanton's comments have not been introduced into this docket at all much less in a timely manner and these comments are germane to the purpose of this docket and potentially refute assertions made by others who introduce filings or motions into this docket — even though his comments were explicitly solicited by Councilman Gray and prepared by Tom Stanton for that purpose;

WHEREAS, Mr. Stanton points out in that letter that "This function should not be delayed while a utility develops and employs the capability to comprehensively model DER technologies

throughout its entire service territory." Which, BSI interprets as: Tom's way of saying that an IRP that substantially accounts for DER cannot be calculated;

WHEREAS, Mr. Stanton points out that all IRPs should include IRP by Market Based Acquisition, as follows:

I believe the rapid emergence of cost-effective DER technologies and services means that all IRPs should include conscientious efforts to model what I like to call IRP "from both sides now." That means incorporating a practice for fully investigating IRP from the customers and their end uses backwards towards utility substations, taking into account the full range of DER technologies and services that can be applied by utilities, customers, and third parties.

WHEREAS, Mr. Stanton points out that:

In a variety of ways, utility companies and their regulators are adjusting to provide the necessary modeling, planning, and implementation for DER that are capable of providing services: (a) at equal or better cost; (b) with fewer negative environmental consequences; (c) with equal or greater reliability and power quality, and equal or better resilience; and (d) while helping to grow the local economy better, faster and more sustainably, compared to the centralized utility resource options that DER can replace.

WHEREAS, Mr. Stanton points out that:

Experiences elsewhere in the country are demonstrating that combinations of DER, in particular grid locations, are capable of postponing or fully replacing alternative centralized resources at average costs anywhere from five to ten times lower.

WHEREAS, Mr. Stanton points out that:

I believe that utility companies that are failing to rapidly advance their IRP practices to comprehensively analyze DER are **guilty of malpractice**, because utility investments in traditional, more centralized infrastructure can too easily lead to excess costs that are borne by customers and could become stranded assets as the alternative DER technologies continue to gain market share.

WHEREAS, Mr. Stanton's letter points out that major revision of the IRP process is currently going on in many states including Michigan which is considering inclusion of IRPbMBA;

WHEREFORE, BSI PRAYS THAT THE CITY COUNCIL ORDER AS FOLLOWS:

THAT Tom Stanton's comments are herewith submitted into the record; and

BSI FURTHER MOVES THAT the council should provide complete and timely consideration of Mr. Stanton's comments: that is, no final action on the goal of this docket will be considered until a month after Mr. Stanton's testimony is completely and effectively received into this docket.

Myron Katz, PhD  
Building Science Innovators, LLC  
302 Walnut St,  
New Orleans, La 70118

504-343-1243  
[Myron.Katz@EnergyRater.com](mailto:Myron.Katz@EnergyRater.com)  
[www.BuildingScienceInnovators.com](http://www.BuildingScienceInnovators.com)

## **Exhibit A Integrated Resource Planning by Market-Based Acquisition (IRPbMBA)**

*means enabling and empowering the marketplace, to achieve all cost-effective supply- and demand-side distributed energy resources, in order to minimize future utility investments while ensuring reliable electricity service at the lowest practical total resource cost.*

**IRPbMBA requires continuously effective as well as iterative actions by the regulator, utility and customers.**

**Although CLEP, as yet untested, may be the only “complete” means of IRPbMBA that is continuous (i.e., without interruptions and not stimulated by substantial, discrete events),**

CLEP tariff requires acts by the regulator and causes cash flows by and for the consumer after (s)he voluntarily accepts the CLEP tariff. (For a full explanation of CLEP, see [https://www.dropbox.com/sh/a7ohwfd2lpqfdaj/AAD0ci7fvR9-JDEB\\_sbj7ubSa?dl=0](https://www.dropbox.com/sh/a7ohwfd2lpqfdaj/AAD0ci7fvR9-JDEB_sbj7ubSa?dl=0).)

**a host of states already provide complementary programs, rates or reverse auctions, etc. that facilitate MBA, a.k.a. “non-wires” or Non-Transmission Alternatives,<sup>1</sup> some are continuously effective and others are iterative;**

these include VT, ME, CA, NY, HI, MI, NJ, MN, WI, MA, MD, and CT.

**The following is a three-part proposal for iterative IRPbMBA.**

1. The utility regulator shall determine a threshold dollar value for utility investments. Prior to the regulator pre-approving any combined utility investments above that threshold value, the utility must initiate an IRP process, subject to public review and input, and the result of that process (described in steps 2 and 3) shall be to determine that the new investment is the most reasonable and prudent available option. The appropriate dollar value threshold can be determined by review of the utility’s largest annual expenditures over the most recent decade. The dollar value should be low enough to trigger market-based review prior to pre-approval of any major transmission, distribution or central station power plant expenditures.
2. The utility shall prepare its justification for such an expenditure using the kinds of tools it has traditionally used to initiate an IRP, but only execute the IRP work up to the first or second public hearing. Nothing akin to creating a set of alternative portfolios or guesses at future sizes of demand side management will be included in those hearings. No decisions shall be reached on a preferred plan until step 3 is implemented; that is, all available distributed energy resources have been fully evaluated and compared to the identified transmission, distribution, or central station power alternatives proposed by the utility.
3. The preferred approach to market-based analysis is for the regulator to engage a third-party consultant to investigate distributed energy resources, non-wires, and market-based alternatives, using an open, public, community-driven process for investigating these options. If that investigation identifies practical market-based alternatives, then the same or another third-party should manage the process of acquiring and implementing those solutions. That acquisition and implementation could utilize reverse-auction mechanisms combined with the advantages available through appropriate utility rate designs, so that the alternatives will be procured in a timely manner at the lowest practical *utility* resource cost and *total* resource cost. This generally describes the mechanisms already demonstrated successfully in the State of Maine, and proceeding now in multiple New York utility jurisdictions.

---

<sup>1</sup> i.e., “energy efficiency, demand management, and distributed generation”, <https://microgridknowledge.com/utilities-embracing-disruptive-energy-non-wires-alternatives/> also add “electricity and thermal storage, load management, and rate design” according to <http://nrii.org/download/nrii-15-02-nrii-non-transmission-alternatives/>

Tom Stanton  
216 Huron St. • Lansing MI 48915-1781  
517-775-7764 • stantontom1@gmail.com

20 May 2017

Councilman James A. Gray, II – District E                      by email to: Maurice C. Baird, [mcbaird@nola.gov](mailto:mcbaird@nola.gov)  
City of New Orleans, Louisiana

RE: Public Comments on April 25, 2017 Advisors Report in Council Docket No. UD-17-01

Dear Councilman Gray:

Thank you for affording me the opportunity to provide these comments on the April 25, 2017 Advisors Report in Council Docket No. UD-17-01.

I offer these comments as a private citizen who happens to be professionally involved in this subject matter. These comments are my own and do not represent the views of my employer, the National Regulatory Research Institute (NRRI), or its Board of Directors.

In recent months, I have been studying how rapid improvements in distributed energy resources (DER) are causing growing numbers of regulatory commissions and utilities to engage in concerted efforts to investigate the changes DER are affecting in the electric industry and particularly to modernize integrated resource planning (IRP) procedures to account for DER. Already, major grid modernization efforts are underway in California, District of Columbia, Hawaii, Illinois, Maine, Maryland, Minnesota, Michigan, Missouri, Nevada, New Hampshire, New Jersey, New Mexico, New York, Ohio, Rhode Island, Virginia, and Washington. Included are several states that are already investigating or taking actions to change the ways that DER are incorporated into utility resource planning. These include at least Maine, Michigan, New Mexico, Nevada, New York, Rhode Island, and Washington.<sup>1</sup>

These biggest changes in the electric industry in more than a century are the direct result of the rapidly emerging potential for DER of all kinds to produce and deliver valuable services. The Staff Subcommittee on Rate Design for the National Association of Regulatory Utility Commissioners (NARUC) explains:<sup>2</sup>

A DER is a resource sited close to customers that can provide all or some of their immediate electric and power needs and can also be used by the system to either reduce demand (such as energy efficiency) or provide supply to satisfy the energy, capacity, or ancillary service needs of the distribution grid. The resources, if providing electricity or thermal energy, are small in scale, connected to the distribution system, and close to load. Examples of different types of DER

---

<sup>1</sup> Just this month, I was invited by authors from the North Carolina State University Clean Energy Technology Center to review and comment on a new report about such regulatory and legislative efforts. That report (Proudlove, Lips, et al. 2017, <https://nccleantech.ncsu.edu/the-inaugural-50-states-of-grid-modernization-report-now-available/>, pp. 21-26) includes summary information about dozens of grid modification actions taken in 35 states, just in the first quarter of 2017. That review includes eight states, in addition to NOLA, that are presently considering changes in IRP rules and procedures or new Distribution System Planning operations.

<sup>2</sup> NARUC Staff Subcommittee on Rate Design, 2016, *NARUC Manual on Distributed Energy Resources Rate Design and Compensation*, pp. 41-45. <https://www.naruc.org/rate-design/>

include solar photovoltaic (PV), wind, combined heat and power (CHP), energy storage, demand response (DR), electric vehicles (EVs), microgrids, and energy efficiency (EE).

Definitions from other groups include additional factors, such as: (a) DER can be owned by utilities, customers, or third parties; (b) DER can be stationary or portable or movable, grid connected or independent of the existing grid; (c) DER can be integrated with the electricity grid on either side of the utility meter; and (d) some DER can be monitored by or even controlled by a utility or DER aggregator.<sup>3</sup>

In a variety of ways, utility companies and their regulators are adjusting to provide the necessary modeling, planning, and implementation for DER that are capable of providing services: (a) at equal or better cost; (b) with fewer negative environmental consequences; (c) with equal or greater reliability and power quality, and equal or better resilience; and (d) while helping to grow the local economy better, faster and more sustainably, compared to the centralized utility resource options that DER can replace. Those are just a few of the compelling reasons why the continuing evolution in DER is causing industry participants and regulatory authorities to rethink the century-old model of large centralized power plants interconnected by long-distance, high-voltage transmission lines, with one-way power flow from utilities to customers. Clearly, today's and tomorrow's technical and market changes in DER have been happening faster than the pace of changes in either utility business models or regulatory oversight. Fortunately, in NOLA Docket UD-17-01 offers a timely opportunity for considering proposed changes to the Council's IRP process and requirements, and updating the city's IRP rules to fully accommodate this new reality. It is an ideal time to think about the major industry changes DER can bring, and what they portend for IRP in New Orleans.

I believe the rapid emergence of cost-effective DER technologies and services means that all IRPs should include conscientious efforts to model what I like to call IRP "from both sides now." That means incorporating a practice for fully investigating IRP from the customers and their end uses backwards towards utility substations, taking into account the full range of DER technologies and services that can be applied by utilities, customers, and third parties.

It is not sufficient, in my opinion, for a utility to simply assume some system-wide percentage improvement in efficiency or maximum city-wide budget for the support of utility-sponsored efficiency programming. This function should not be delayed while a utility develops and employs the capability to comprehensively model DER technologies throughout its entire service territory. And, it should not be delayed for as long as it might take for customer representatives and customers themselves to become more fully versed in the ways that DER can provide value and enter into IRP decisions. In the meantime, while those two things are gradually happening, one or more specific locations on the utility grid should be identified in each IRP cycle, and comprehensive DER modeling should be completed for those locations. Based on my prior research, I recommend that be done for both: (1) one or more locations where any significant centralized utility resources are being considered for completion in the coming five to ten years; and (2) one or more public purpose microgrids.<sup>4</sup> Detailed modeling should be completed, of the aggregated effects of identifying, inviting, and inducing in those particular locations any and all DER resources that conceivably could be capable of deferring or completely obviating the

---

<sup>3</sup> *IRP from the Grid Edge: Backwards to the Future*, presentation by Tom Stanton, 27 March 2017, at EUCI Integrated Resource and Supply Planning (IRP) Summit Denver, Colorado, pp. 7-11.

<sup>4</sup> The first of these topics is discussed in NRRRI Research Paper No. 15-02, about non-transmission alternatives, and the second in NRRRI Research Paper No. 12-15, about microgrids.

need for alternative centralized resources. Experiences elsewhere in the country are demonstrating that combinations of DER in particular grid locations are capable of postponing or fully replacing alternative centralized resources at average costs anywhere from five to ten times lower.<sup>5</sup>

In my opinion, this kind of distribution system IRP is already essential for optimizing electricity infrastructure. I believe that utility companies that are failing to rapidly advance their IRP practices to comprehensively analyze DER are guilty of malpractice, because utility investments in traditional, more centralized infrastructure can too easily lead to excess costs that are borne by customers and could become strandable assets as the alternative DER technologies continue to gain market share.

NRRI has already published reports on related subjects, freely available for your review,<sup>6</sup> including:

- *Are Smart Microgrids in Your Future? Exploring Challenges and Opportunities for State Public Utility Regulators*, NRRI 12-15.
- *Consultant Report for Maine PUC Docket 2010-267: Smart Grid Coordinator*, NRRI 12-02.
- *Distributed Energy Resources: Status Report on Evaluating Proposals and Practices for Electric Utility Rate Design*, NRRI 15-08.
- *Getting the Signals Straight: Modeling, Planning, and Implementing Non-Transmission Alternatives*, NRRI 15-02.
- *Future Drivers and Trends Affecting Energy Development in Ontario: Lessons Learned from the U.S. (Mowat Energy Research Report #137)*
- *New Technologies: Challenges for State Utility Regulators and What They Should Ask*. NRRI 12-01.
- *Smart Grid Strategy: How Can State Commission Procedures Produce the Necessary Utility Performance?* NRRI 2011-05.
- *State and Utility Solar Energy Programs: Recommended Approaches for Growing Markets*. NRRI 13-07

If you wish to ask NRRI to assist further in any regulatory research and educational efforts, at any time, then I invite you to contact NRRI to request that support. In the meantime, I offer these specific comments, based on my preliminary review of the Advisors Report:<sup>7</sup>

- On page 1, the Advisors discuss the need for greater community involvement and transparency in the IRP. I agree wholeheartedly, but caution that substantial education will be needed to help community representatives understand the available DER technology and service choices, and how they can be incorporated into the IRP and distribution systems planning (DSP) processes. Even for industry experts and those who are immersed in these issues and concerns, it is hard to imagine what new IRP requirements and process make sense. It is even more challenging for customers and local interest groups who might have previous experience only with old-style, centralized IRP and perhaps have never seen examples of many of the new DER possibilities, nor bottom up or grid-edge-backwards IRP.

---

<sup>5</sup> Some of those early case studies are reported in NRRI Research Paper No. 15-02.

<sup>6</sup> NRRI reports are available on the website, at [www.nrri.org](http://www.nrri.org)

<sup>7</sup> I did not try to review and comment on the specific language of the proposed rules. That effort is beyond what I am able to accomplish working on my own time as a volunteer, without the direct support of NRRI.

- At the bottom of page 1 and top of page 2, the Advisors note that the changes being considered now for NOLA IRP are “wide-ranging,” perhaps broader than the parties had anticipated. Before making any decisions about specific changes to the existing IRP rules, I urge the city council to review thoroughly the efforts underway in many other jurisdictions to modernize IRP and update distribution system planning (DSP) rules and procedures, to reflect the major changes occurring because of the expanding system contributions DER can deliver. In addition to the aforementioned NRRRI reports and the newly published summary described in footnote 1, I am also including an Appendix to these comments, which includes other resources that I recommend should be consulted.
- On page 3, the Advisors note the need for “consideration of other planning processes underway in Orleans Parish and the region, including but not limited to Resilience, Climate and coastal planning, other public utility systems planning in Orleans Parish.” I agree that coordination with such other activities is worthwhile. I also note that New Orleans is participating in the international “Compact of Mayors” regarding climate risk (<https://www.compactofmayors.org/cities/new-orleans-la/>). I recommend a concerted effort to catalog the New Orleans organizations, actions, and plans towards sustainability and resilience. Participating groups should be invited to share their plans with and actively participate in the IRP process. I believe the IRP must be informed by these kinds of efforts, helping ensure the utility understands customer intentions towards clean energy and distributed energy resources. Utilities that fail to incorporate such major changes in consumer choices, like these concerted voluntary efforts to address climate risk, could easily misjudge future demand forecasts, which would lead to erroneous IRP conclusions.

Experience in my home state, Michigan, is emblematic: Detroit and Grand Rapids, the State’s two largest cities, have already declared themselves to be *2030 Districts* and more Michigan cities are considering it. They join a growing number of North American cities that are adopting the principles of the American Institute of Architecture’s *Architecture 2030* program.<sup>8</sup> That decision demonstrates a publicly-announced commitment on the part of the cities and major building owners and operators throughout the *2030 Districts* to reduce fossil fuel energy use and water use, for all purposes including transportation, by 50% by 2030. Michigan utilities would be remiss not to anticipate and include in future forecasts such major changes in customer demands in their service territories.

- I note the emphasis on reliability and resilience that is attributed to S&WB on page 3 of the Advisors Report. I believe that new metrics are needed to evaluate reliability and resilience, based on customer needs for power quality to serve electronic equipment. I caution you that typically used 20<sup>th</sup> Century metrics for reliability and resilience are not sufficient to track all of the issues relevant to today’s electricity consumers. At the appropriate time, in a separate proceeding, I recommend the council consider updating the measures it uses to track utility performance in terms of reliability and resilience.
- On Page 5, the Advisors notes ENO’s concern that the IRP not duplicate MISO’s and MTEP efforts. I agree with that idea in concept, but I caution that MISO and the country’s other regional transmission system operators are also just beginning to grapple with how DER can and will be incorporated into their planning procedures. A report from the North American Electric

---

<sup>8</sup> See [www.architecture2030.org](http://www.architecture2030.org) and <http://www.2030districts.org/>.



Reliability Corporation, Distributed Energy Resources Task Force, highlights the concern facing utility planners:

As the penetration level of DER increases, the classical transmission model of distribution system load (netted generation and load) is not valid; the unique characteristics of DER must be modeled separately. This is distinct from tariff and ratemaking issues (e.g., net metering, time-of-use rates, value of solar methods, etc.). Data for DER modeling and verification purposes must be collected, and the industry should determine the level of granularity which corresponds to the future [bulk power system] BPS modeling needs. (NERC Distributed Energy Resources Task Force Report, February 2017, pp. iv-v).<sup>9</sup>

- The Advisors Report, on pages 6 and 7, lists topics of “ongoing dispute” between the utility and intervenors. I note that two themes, in particular, are repeated in various ways in multiple concerns that are listed:
  - Benefit-cost testing, including which tests should be used and what benefits should be included.

Please note that new work from the National Efficiency Screening Project provides extensive guidance to utility regulators about benefit-cost testing for energy efficiency. I recommend careful study of that report before making any changes about what benefit-cost tests to use and exactly what benefits and costs will be included in the tests that are selected.<sup>10</sup> Please understand that the major impetus for the NESP project is that the TRC test, as traditionally used, fails to account for all of the customer-benefits attributable to different demand-side measures. Thus, it can screen-out many measures that customers are quite willing to adopt. I also note that innovative program delivery options, like on-bill financing, can greatly expand the measures that customers are willing to adopt in the absence of any utility incentives. These program delivery approaches, like the Pay-As-You-Save™ system originally developed for the National Association of Regulatory Utility Commissioners (NARUC) in the early 1990s, are readily available for fast implementation and can help remove many of the most important barriers that are preventing customers from more rapidly adopting more cost-effective high-efficiency products and services. I recommended careful study of best practices for on-bill financing and PACE financing, and pilot programs to test those concepts in New Orleans as quickly as those can be implemented. There are already plenty of U.S. examples that prove how these program delivery techniques are helping customers to achieve much greater energy efficiency (often including electricity, heating fuel, and water and sewer usage) at lower utility cost.<sup>11</sup>

- The scope of the IRP, for example whether it should include natural gas supply planning, and investigate utility expansion plans under a broad array of policy choices.

---

<sup>9</sup> [http://www.nerc.com/comm/Other/essntlrbitysrvcstskfrDL/Distributed\\_Energy\\_Resources\\_Report.pdf](http://www.nerc.com/comm/Other/essntlrbitysrvcstskfrDL/Distributed_Energy_Resources_Report.pdf)

<sup>10</sup> I was recently a member of the NESP advisory committee, participating in discussions about this work and providing input on and editorial review of the draft report. That report, published 18 May 2017, is available here: <https://nationalefficiencyscreening.org/>

<sup>11</sup> Please see the reference materials listed in the Appendix for Clean Energy Works, EESI, Michigan Saves, PACENow, and TFC Utilities.

My own recommendation is that electric utility IRP should include consideration of natural gas infrastructure and coordinate with natural gas utility IRP planning. Even more importantly, electric utility IRP should be fully integrated with plans on the part of New Orleans' water, surface-water, and wastewater utilities. The topic of the nexus between energy and water utilities is just now emerging in a positive way to help guide utilities and regulators. Because the engineering and operating requirements for energy and water utilities are so closely interrelated, it is of the utmost importance that IRP practices be adjusted to fully consider the ways and means by which actions on the part of each utility – electric, natural gas, water, wastewater, and even to some extent communications utilities and transportation planning – can support the others.

In closing, I thank you again for the invitation to comment on the Advisors Report. Please do not hesitate to contact me or NRRI again in the future if you think we could be helpful in any way.

Very truly yours,

Tom Stanton

TS:ts

## APPENDIX:

### Recommended Readings and Internet Sources about *Changes Required in IRP: Preparing for a Future with Rapidly Increasing Customer Adoption of and System Reliance on DER*

Clean Energy Works [Website, retrieved 18 May 2017]. Check here for information about Pay-As-You-Save™ financing. <http://cleanenergyworks.org/>



Community Solar Value Project. <http://www.communitysolarvalueproject.com/library.html>




EESI. *EESI's On-Bill Financing Project* [Web page, retrieved 18 May 2017]. Energy and Environmental Studies Institute, Washington, DC. <http://www.eesi.org/obf/main>



EPRI. *EPRI Product Abstract—The Integrated Utility Energy Network: Connecting Customers to Reliable, Safe, Affordable, and Cleaner Energy* [Web page, retrieved 18 May 2017]. Electric Power Research Institute. <https://www.epri.com/#/pages/product/000000003002009917/>

Jossi, Frank. (2017). "Clean energy groups leading on utility changes envisioned in Minnesota's e21 Initiative" [Electronic article, retrieved 8 May 2017], *Midwest Energy News*, 8 May 2017. <http://midwestenergynews.com/2017/05/08/clean-energy-groups-leading-on-utility-changes-envisioned-in-minnesotas-e21-initiative/>

LBNL Future Electric Utility Regulation (FUER) report series. <https://emp.lbl.gov/projects/feur>

Kahrl, Fredrich, Andrew D. Mills, Luke Lavin, Nancy Ryan, and Arne Olsen. *The Future of Electricity Resource Planning* In *Future Electric Utility Regulation Report Series*, Edited by Lisa C. Schwartz. Vol. FEUR Report No. 6., 2016.  Report PDF (1.96 MB)  Presentation PDF (1.31 MB)

Corneli, Steve, and Steve Kihm. *Electric Industry Structure and Regulatory Responses in a High Distributed Energy Resources Future* In *Future Electric Utility Regulation Report Series*, Edited by Lisa C. Schwartz. Vol. FEUR Report No. 1., 2015.  Report PDF (1.84 MB)  Presentation PDF (1.2 MB)  [ElectricityPolicy.com](http://ElectricityPolicy.com) Article PDF (641.18 KB)

De Martini, Paul, and Lorenzo Kristov. *Distribution Systems in a High Distributed Energy Resources Future* In *Future Electric Utility Regulation Report Series*, Edited by Lisa C. Schwartz. Vol. FEUR Report No. 2., 2015.  Report PDF (2.39 MB)  Presentation PDF (1.03 MB)

Madrigal, Marcelino, and Robert Uluski. (2015). *Practical Guidance for Defining a Smart Grid Modernization Strategy : The Case of Distribution*, World Bank Study. DOI: 10.1596/978-1-4648-0410-6 <https://ideas.repec.org/b/wbk/wbpubs/21001.html>

MITEI. *Utility of the Future Research* [Web page, retrieved 18 May 2017]. Massachusetts Institute of Technology Energy Institute. <http://energy.mit.edu/research/utility-future-study/>

Michigan Saves. *Get to Know Michigan Saves* [Web page, retrieved 18 May 2017]. <http://michigansaves.org/>

- Milby, Mark, Haley Keegan, and J. Will Baker. (2017). *Intelligent Efficiency and Utility Programs – Reports from the Midwest*. Midwest Energy Efficiency Alliance, February 2017. [http://www.mwalliance.org/sites/default/files/uploads/Intelligent Efficiency and Utility Programs FINAL.pdf](http://www.mwalliance.org/sites/default/files/uploads/Intelligent_Efficiency_and_UTILITY_Programs_FINAL.pdf)
- NEEP. *A Look Inside the Region's Latest Non-Wires Alternative Projects and Policies* [Web page, retrieved 18 May 2017]. Northeast Energy Efficiency Partnerships. <http://www.neep.org/blog/look-inside-region%E2%80%99s-latest-non-wires-alternative-projects-and-policies>
- PACENation. *What is PACE?* [Web page, retrieved 18 May 2017]. <http://pacenation.us/what-is-pace/>
- Parkinson, Giles. (2017). "AEMO Chief Says Clinging to Old Energy Business Models is 'Insane'," *ReNewEconomy* [Electronic article, 3 May 2017, retrieved 18 May 2017]. <http://reneweconomy.com.au/aemo-chief-says-clinging-to-old-energy-business-models-is-insane-66776/>
- Proudlove, Autumn, Brian Lips, et al. (2017). *50 States of Grid Modernization, Q1 2017 Quarterly Report*. North Carolina Clean Energy Technology Center, May 2017. <https://nccleantech.ncsu.edu/the-inaugural-50-states-of-grid-modernization-report-now-available/>
- REBA. *Making Clean and Renewable Energy the New Normal* [Web page, retrieved 18 May 2017]. Renewable Energy Buyers Alliance. <http://rebuyers.org/#about>
- Schwartz, Lisa, Max Wei, et al. (2017). *Electricity End Uses, Energy Efficiency, and Distributed Energy Resources Baseline*. Lawrence Berkeley National Laboratory, LBNL 1006983, January 2017. <https://emp.lbl.gov/sites/all/files/lbnl-1006983.pdf>
- TFC Utilities, LLC. (2017). *The Million Rate Base Model* [Web page, retrieved 15 May 2017]. Twenty First Century Utilities, LLC. <http://tfcutilities.com/approach/the-million-rate-base-model/>