STATE OF IOWA

BEFORE THE IOWA UTILITIES BOARD

IN RE:	)	
	)	**DOCKET NO. NOI-2014-0001**
DISTRIBUTED GENERATION	)	
	)	
	)	**RESPONSE TO JUNE 15, 2015**
	)	**COMMENTS**
	)	
	)	

The Environmental Law & Policy Center, Iowa Environmental Council, Sierra Club, Iowa Solar Energy Trade Association, Solar Energy Industries Association, and Vote Solar, collectively the "Joint Commenters," jointly file these comments in response to the comments filed on June 15, 2015 pursuant to the Iowa Utilities Board Order Soliciting Additional Comments issued on April 30, 2015.

Description of the Parties

The Environmental Law & Policy Center (ELPC) is a non-profit corporation with an office in Des Moines, Iowa and members who reside in the State of Iowa. ELPC's goals include promoting clean energy development and advocating for policies and practices that facilitate the use and development of clean energy such as solar and wind power.

The Iowa Environmental Council (IEC) is a broad-based environmental policy organization with over 70 diverse member organizations and a mission to create a safe, healthy environment and sustainable future for Iowa. IEC's work focuses on clean water, clean air,

conservation, and clean energy, including the promotion of policies that would facilitate the development of clean energy and clean energy jobs.

The Sierra Club, the nation's oldest grassroots environmental organization, has a mission to explore, enjoy, and protect the planet. The Sierra Club works state-wide and nationally to advocate for clean, renewable energy to reduce air pollution, water pollution, and the effects of climate disruption resulting from fossil fuel extraction and combustion.

The Iowa Solar Energy Trade Association (ISETA) is a non-profit, professional organization for promoting solar photovoltaic and solar thermal industries in Iowa. ISETA promotes the interests of its members through education and public relations about the economic and environmental benefits of solar. ISETA advocates for policies that will facilitate and promote the development of solar photovoltaic and solar thermal energy in Iowa.

The Solar Energy Industries Association (SEIA)[1] is the national trade association of the United States solar industry. Through advocacy and education SEIA and its 1,100 member companies work to make solar energy a mainstream and significant energy source by expanding markets, removing market barriers, strengthening the industry and educating the public on the benefits of solar energy.

Vote Solar is a non-profit grassroots organization working to foster economic opportunity, promote energy independence and fight climate change by making solar a mainstream energy resource across the United States. Since 2002 Vote Solar has engaged in state, local, and federal advocacy campaigns to remove regulatory barriers and implement the key policies needed to bring solar to scale.

[1] The views represented in this filing are the views of the trade association and not necessarily any of its individual members.

Together, the "Joint Commenters" represent a coalition of the leading national, regional and local policy organizations and businesses working on distributed generation policy in Iowa and across the nation. We are well positioned to offer the Board insights from our diverse experiences in states throughout the country, informed by our practical experiences on the ground in Iowa.

Introduction

In the staff memo accompanying the Board's April 30, 2015 Order, the Board made clear that "based on the current penetration levels the impacts [of DG] will likely be minimal in the near future."[2] Furthermore, the memo stated that "the utilities have not quantified the level of cross-subsidization with current data."[3] There is nothing in the June 15, 2015 comments from the utilities or any other party that should alter the Board's previous conclusion.

The comments provided by the utilities highlight the need for efforts to collect and analyze data and independently study the value of solar and other distributed energy resources. Rather than make the case for immediate action, the utility comments underscore how much work remains to develop policy and rate designs for the long term that effectively encourage distributed energy resources. This docket has begun the process in a thoughtful and inquisitive manner. We should proceed forward in the same manner and continue to ask questions, collect data and have the data drive the discussion and the way forward while at the same time maintain and expand net metering and other important DG policies to facilitate the stable growth of this market.

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2 NOI-2014-0001, Staff Memo Recommendation to Solicit Additional Responses for Net Metering, at 4 (April 8, 2015).

3 *Id.*

Our comments respond to some of the assertions that other parties make in an attempt to rush policy and rate design changes. We take a look at those statements and also raise a number of questions that should be answered before acting. We highlight how some of these statements demonstrate the need and usefulness of an independent comprehensive value-of-solar analysis prior to any net metering policy or rate design change.

The Utilities' Case for Urgent Action on Net Metering is Unsupported by the Facts.

In the April 8, 2015 staff memo, the Board noted that "based on the current penetration levels the impacts [of DG on non-DG customers] will likely be minimal in the near future."[4] The memo also notes that "[t]he utilities have not quantified the level of cross-subsidization with current data."[5] Rather than begin the process of providing data to quantify assertions of impacts, the utility comments largely repeat past theoretical arguments about net metering "cross-subsidies," make several statements that do not support the need for changes to net metering, and provide cherry picked data without disclosing it to other parties or providing appropriate context. The utility comments neither "quantify the level of cross-subsidization with current data" nor do they attempt to quantify and account for the multiple grid benefits of distributed generation.

The utilities have also failed to persuasively explain why the time to act is now and not when DG penetration levels are higher. In our comments last October, we discussed the September 2014 Lawrence Berkeley National Laboratory (LBNL) study that examined the financial impacts on utilities and ratepayers of net-metered PV.[6] The LBNL study found that

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4 NOI-2014-0001, Staff Memo Recommendation to Solicit Additional Responses for Net Metering, at 4 (April 8, 2015).

5 *Id.*

6 NOI-2014-0001, Joint Commenters Response to Board Order Soliciting Additional Comments, at 26 (October 24, 2014) citing Satchwell, Andrew et al., Lawrence Berkeley

utility rates for the average vertically integrated utility would be virtually unchanged at PV penetration levels of 2.5%.[7] Nothing in the comments filed by the utilities suggests that the LBNL study is inaccurate or that there are imminent problems in Iowa that require more urgent action. PV penetration levels in Iowa are nowhere near that threshold. The filings provided by IPL, MidAmerican, IAEC and IAMU in this docket indicate approximately 7.4 MW of solar PV at the close of 2013, representing less than one-tenth of one percent (0.061%) of the utilities' total generation capacity.[8] Distributed PV would need to reach 120 MW before accounting for approximately 1% of utility-owned capacity[9] and would need to reach close to 300 MW before accounting for approximately 2.5% of utility owned capacity. Even with exponential growth, there will be a significant window of time between hitting the 1% penetration level and hitting a 2.5% penetration level.[10] We concluded that an Iowa-specific study on the costs and benefits of solar should be started once Iowa reaches a 1% penetration level, which would help ensure an adequate data set for more accurate Iowa-specific results.

National Laboratory, "Financial Impacts of Net-Metered PV on Utilities and Ratepayers: A scoping Study of Two Prototypical U.S. Utilities" (2014) (hereinafter "Financial Impacts of Net-Metered PV) *available at* http://emp.lbl.gov/sites/all/files/LBNL%20PV%20Business%20Models%20Report_no%20report%20number%20(Sept%2025%20revision).pdf.

7 *Id.*

8 *Id.* at 3-4.

9 *Id.*

10 IPL argues in its comments that it has experienced a "substantial increase" in DG installations in recent years. Based on the information IPL provided in its comments, IPL does have a slightly higher penetration level than other Iowa utilities, but IPL's penetration level is still modest and would not justify any need for immediate changes to net metering policy. IPL reported approximately 1,500 net-metered customers out of more than 486,000 total customers. *See* NOI-2014-0001, IPL Additional Comments, at 2 and 19 (filed June 15, 2015). This is just over 3/10th of one percent of all IPL customers.

There will be challenges to addressing net metering and rate design whenever policymakers decide to take on the issue. The best way to avoid backlash, create fair rates, and build stakeholder agreement is through a transparent, data driven process that looks comprehensively at the costs and benefits of distributed energy resources and addresses the many complexities of rate design to achieve agreed upon policy goals. This can be accomplished through an independent study based on data and assumptions that are available to stakeholders for vetting and double-checking. This process will take time, but if we start the process by collecting the data, identifying key questions and decision points and preparing for an independent valuation study rather than fighting over rushed rate design proposals, it is one that can be accomplished.

Utility Arguments That Net Metering Cross Subsidizes DG Customers Are Unsupported by Current Data and Have Still Not Been Quantified.

The Board did not accept previous assertions of cross subsidization and indicated that the utilities should quantify any potential cross subsidization with current data. This charge did not stop the utilities from making cross-subsidization assertions again in comments submitted on June 15, but those assertions do not replace data or fill the gap that data would provide.

MidAmerican makes its cross-subsidization argument by claiming that DG customers have "no corresponding reduction in the utility's cost for grid services because these fixed costs don't go away. All the wires, poles, meters, and vehicles are still necessary."[11] There are at least two flaws in this argument, which highlight the need for more careful study and data analysis. First, DG customers typically do not offset their entire electricity usage with self-generation. Therefore, these customers continue to pay a monthly utility bill to MidAmerican that

[11] NOI-2014-0001, MidAmerican Additional Comments, at 3 (June 15, 2015).

contributes to the costs of the "wires, poles, meters, and vehicles" necessary to serve them. MidAmerican has not conducted a cost-of-service study that accurately quantifies (1) how much it costs MidAmerican to serve DG customers, and (2) how much DG customers currently contribute to their cost of service through rates.

Secondly, MidAmerican's cross-subsidy argument entirely fails to acknowledge or account for the benefits of distributed generation. By looking only at the "costs" of DG and ignoring the benefits, MidAmerican argues that DG customers "ultimately pay less for 'grid services'."[12] MidAmerican's broad statement that DG customers do not reduce grid costs conflicts with extensive research on this issue. MidAmerican takes an inappropriately narrow view on the value provided by DG customers, which includes not just grid services and reduced transmission and distribution investments, but the wide range of other values including fuel price hedging, reliability and resilience.

Several recent studies show that the calculated benefits of distributed photovoltaic generation often exceed residential retail rates.[13] As additional time passes, more value of solar studies are conducted with similar results demonstrating that the benefits of distributed solar outweigh costs and residential retail rates. For example, the Mississippi Public Service Commission engaged Synapse Energy Economics, Inc. to conduct an independent study on the value of solar. The study accounted for energy, capacity, transmission and distribution, system losses, environmental compliance and avoided risk in concluding that solar provided $0.17 per

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12 *Id.*

13 *See, e.g.*, Rocky Mountain Institute eLab, *A Review of Solar PV Benefits and Costs Studies*, at 22 (Sept. 2013) *available at* http://www.rmi.org/elab_emPower.

kWh of benefits.[14] A recent review of 11 current net metering studies found that the value of solar energy was higher than the average local residential retail electricity rate in 8 of the 11 studies.[15] The studies demonstrating that solar benefits outweigh residential retail rate costs imply that net metering provides "rough justice" for solar customers vis-à-vis the utility, and the resulting grid, social, and environmental values benefit solar and non-solar customers alike.[16]

The RMI eLab's review of solar PV cost and benefit studies finds that distributed solar PV that is strategically deployed "can relieve T&D capacity constraints by providing power close to demand and potentially defer capacity investments."[17] RMI states that the location of solar PV is important and that the studies to date range in the level of detail and granularity to fully understand the potential benefits from solar PV on the transmission and distribution system. Still, many of the reviewed studies include a benefit from solar PV regarding transmission and distribution.

In addition, as we have discussed in past comments in this docket, avoided transmission and distribution investments are only one of the many potential benefits or values provided by distributed solar PV. The RMI study also evaluates energy, generation capacity, grid support services, financial risk, security risk, environmental, and social benefits. All of these benefits must be identified and valued in Iowa to inform the role of solar DG and DG customers,

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[14] Mississippi PSC Study, Net Metering in Mississippi: Costs, Benefits, and Policy Considerations, at 37-38 (Sept. 19, 2014) *available at* http://votesolar.org/wp-content/uploads/2014/10/Synpase-MS.pdf.

[15] Environment America, *Shining Rewards: The Value of Rooftop Solar Power for Consumers and Society* (June 2015) *available at* http://www.environmentamerica.org/reports/amc/shining-rewards.

[16] Interstate Renewable Energy Council, *A Regulator's Guidebook: Calculating the Benefits and Costs of Distributed Solar Generation,* at 10 (October 2013) *available at* http://www.irecusa.org/publications/.

[17] Rocky Mountain Institute eLab, *A Review of Solar PV Benefit & Cost Studies* (2013), at 31.

including whether any cross-subsidization exists and, if so, which direction it is going. Without doing this analysis, MidAmerican's statements that solar DG customers 'pay less' is without support. Until an independent Iowa-specific value-of-solar study is conducted, we continue to support existing net metering policy to achieve this "rough justice."

High Penetration Rates on Individual Circuits Are Addressed by Iowa's Interconnection Standards and Do Not Require Changes to Net Metering Policy.

IPL notes that some circuits have 25% DG penetration, which purportedly highlights the need to take immediate action for grid safety and reliability.[18] IPL is referring to the 25% of peak load on a circuit and not customer participation rates of 25%. While this is an important situation to acknowledge and address in planning and interconnection processes, these important considerations are comprehensively addressed by Iowa's interconnection standards and are not relevant to the state's net metering policy. To our knowledge, IPL has successfully managed all of the situations where penetration levels have reached 25% or more.[19] For example, an IPL waiver request concerned a level 2 application to interconnect a 9.5 kW solar array to be interconnected on a distribution circuit with "one or more turbines that exceed the minimum load of the given substation."[20] IPL stated that the interconnection of the solar array would not have adverse system impacts and noted that the 15% screen is not specifically mandated by statute or another provision of law.[21] This issue has specifically been addressed in this docket. FERC and several states have adopted a supplemental review process that incorporates a 100% of minimum

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[18] *Id.* at 2 and 8.

[19] *See* IUB Docket Nos. WRU-2014-0011-0150, WRU-2014-0014-0150, and WRU-2014-0016-0150.

[20] WRU-2014-0014-0150, Request for Waiver of Level 2 Review Requirement for 8kW Solar Array (filed Oct. 1, 2014).

[21] *Id.*

load screen to avoid needlessly sending projects to study as the volume of distributed generation applications grows. ELPC/IEC/IREC and IPL/MidAmerican independently proposed a supplemental review process in this docket.[22] ELPC, IEC, IPL and MidAmerican filed joint comments supporting the supplemental review process as proposed by IPL.[23] Adopting new interconnection standards with a supplemental review process effectively addresses any near-term issues that will arise with higher penetration levels on individual circuits. While IPL raises an important issue related to penetration levels on individual circuits that issue does not support changing current net metering policy.

IPL Overstates the Impact and Understates the Benefit of DG Customers.

IPL's statements regarding the impact of DG customers on the grid are erroneous, without support, and ultimately misleading. IPL claims that partial requirements or DG customers require grid service similar to full requirements customers and that DG customers do "not decrease overall peak demand" and do "not promote lower grid investment costs."[24] However, IPL has not provided a comprehensive, independent study to verify these claims.

Instead, IPL provides a graph that it claims compares DG customers ('partial requirements' customers) to other residential customers ('full requirements' customers) and also shows the peak for these customers on two selected days, August 27, 2013 and August 30, 2013.

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22 NOI-2014-0001, ELPC/IEC/IREC Response to Board Order Soliciting Proposed Rule Changes (filed February 16, 2015); NOI-2014-0001, IPL Proposed Rule Changes (filed February 16, 2015); NOI-2014-0001, Response of MidAmerican Energy Company (filed February 16, 2015).

23 NOI-2014-0001, ELPC/IEC/IPL/MidAmerican, Joint Comments on Proposed Interconnection Rule Changes (filed April 7, 2015).

24 IPL Additional Comments at 6.

There are significant problems with IPL's graph that illustrate the need for a broader, independent study that appropriately account for both the costs *and benefits* of distributed solar PV. First, IPL selected two dates that it called residential direct load control events.[25] The purpose of this program is to shift load away from summer afternoon peak periods, meaning that load is higher in the evening and lower in the afternoon than it would be without the program. Rather than have a peak at 3 pm, for example, the program is intended to shift the peak to 7 pm or later. In addition to lowering load during this time period, IPL recognizes that there is a so-called 'snapback' effect where energy is used to return the home to desired cooling levels after the cycling event ends – that energy is used in the evening rather than in the afternoon.

On August 27th, IPL cycled 48,485 units between 1 pm and 7 pm, representing 38.49 MW of load. On August 30th, IPL cycled 25,177 units between 1 pm and 7 pm, representing 18.94 MW of load. It is unclear from IPL's comments, but IPL's graph and usage patterns likely reflect the impact of the residential direct load control program: all customers in the graph have artificially reduced demand during the day and higher demand in the evening. If this load control program did not exist, a higher load would occur during the mid-day and afternoon hours when solar PV is expected to be producing significant energy.[26]

Furthermore, IPL's assertion that "partial requirements customer peak demand does not decrease overall peak demand, and therefore, does not promote lower grid investment costs"[27] is in direct contrast to a concern that MidAmerican raised, stating "[d]ue to on the on-peak nature of solar generation's energy profile, new quick-starting and/or fast ramping generation

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[25] EEP-08-1, Interstate Power & Light, Annual Report for 2013 Energy Efficiency Plan, at 36-38 (filed May 1, 2014).

[26] We are not criticizing the existence of the load control programs in these comments, but rather identifying how these programs affect the load profile of customers and classes.

[27] NOI-2014-0001, IPL Additional Comments, at 6 (filed June 15, 2015).

capabilities may be necessary to follow the new net load daily profile at significant penetration levels."[28] IPL continues to deny the peak benefits of DG while MidAmerican has shifted to identifying potential concerns that come from altering existing peaks. This is the type of issue that can be resolved by analyzing the data thereby developing an understanding of exactly how distributed generation is affecting the utilities and providing benefits to the grid. IPL's and MidAmerican's dueling concerns present a perfect example of why more data and comprehensive analysis is necessary to support any future policy changes.

Second, by using this example, IPL ignores the fact that many daily peaks occur during afternoon hours in the summer when DG solar can be expected to produce significant energy. We understand that IPL's daily peaks (as opposed to monthly peak, class peak, or overall system peak) in the summer months often occur in the hour ending at noon, 1:00, 2:00, 3:00, 4:00 or 5:00. Solar DG would reduce peak on many or most of such days. This is similar to solar DG production for MidAmerican's peak as discussed in Nathaniel Baer's testimony in the Wind X rate proceeding:

> MidAmerican's overall system peak in 2104 occurred on July 21st in the hour ending at 5:00 pm. The top twenty hourly peaks occurred between the hours ending at 12:00 noon and 6 pm on dates in July, August, and early September, with fifteen of these top twenty hourly peaks occurring between hours ending at noon and 4 pm. A typical solar PV array in Iowa would be expected to generate electricity very well during such hours.[29]

In fact, a solar array owned and operated by MidAmerican had strong production during these hours.[30] As discussed above and in our previous comments, there are system and grid benefits from this daily peak reduction. In addition, to the extent IPL is purchasing power from the MISO

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28 NOI-2014-0001, Response of MidAmerican Energy Company to Net Metering Questions, at 15 (file June 15, 2015).

29 RPU-2015-0002, Revised Testimony of Nathaniel Baer, at 9-10 (filed June 9, 2015).

30 *Id.*

market to meet its energy and capacity needs, those costs are likely to be higher – sometimes significantly higher – during the summer afternoon hours. Thus, solar DG would provide direct economic benefits in addition to grid and system benefits, all of which IPL ignores.

Third, IPL inappropriately focuses only on the residential class in its comments. Many current and potential DG customers exist in other rate classes, so a discussion of all rate classes as well as the overall system is necessary. The load profiles of other rate classes are also somewhat different from the residential class. IPL filed load profile information for General Service and Large General Service classes in its most recent energy efficiency docket.[31] The General Service class peak hour for the class peak day in June was 2:00 pm, July was 3:00 pm, and August was 3:00 pm.[32] For these three months, the Large General Service class peak hours were 2:00 pm in June, 11:00 am in July, and 12:00 pm in August.[33] The Large General Service class has slightly higher maximum kW demand than the Residential class on these and other peak hours. Combined, the Large General Service and General Services classes are much larger contributors to system peak than the Residential class.[34]

In summary, the Board cannot draw broad conclusions from IPL's graph of a subset of residential DG customers on two individual days. Significantly more information is needed, including a value-of-solar study conducted by an independent third party.

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31 Iowa Utilities Board Docket No. EEP-2012-0001, Interstate Power & Light, Appendix D: Electric Customer Load Profiles, January 25, 2013.

32 *Id*. at 8.

33 *Id*. at 9.

34 *Id.* at 10.

IPL's Carryover Proposal Changes the Rules for Customers After They Have Invested in Distributed Generation.

We have significant concerns with IPL's proposal to revise the net metering tariff for current customers by revising the carryover provision to be a cash out at IPL's avoided cost. IPL's current net metering tariff allows customers to match their annual energy use with the annual energy production of the DG system. The carryover of credits from month to month encourages the DG system to be sized to meet the customer's load. This annual matching is relatively simple to understand and implement, which is an important factor in a net metering tariff rate design.

IPL's proposal would change the rules on customers after they have made significant investments in their systems. IPL has over 1,000 DG systems that net meter, most of which have been installed in the past two years. The customers that installed these systems made decisions based on the economics of the current net metering tariff, including system size, system location and installation characteristics. Changing the rules after the fact will impose economic consequences on customers who acted in good faith and relied on IPL's net metering tariff, which has been in place for nearly fifteen years.

IPL's proposed change would significantly and adversely affect any net metering customer whose energy use and DG production changes on a seasonal basis but still match up on an annual basis. Farmers, for example, are likely to be adversely affected and a number of IPL's net metering customers are farmers. A farmer who designed a solar PV system to match annual load may produce more solar PV in the summer and then use carryover credits in the fall when the farm operation needs to dry grain. This customer would get a fraction of the economic value from the existing solar array under IPL's proposal.

Finally, customers of all kinds make the choice to install renewable energy in order to stabilize energy costs. There are no variable fuel costs, environmental compliance costs, or other unpredictable costs involved with technologies like wind and solar. While utility-supplied electricity costs have continued to rise in Iowa, wind and solar DG allows customers to better manage their energy costs. IPL's proposal would upend this system by imposing artificial, unsupported, and utility initiated cost increases to the customers that are motivated to keep their energy costs stable.

Rate Design Changes Should Be Systematically Studied and Should Be Informed by an Independent Valuation of DG Costs and Benefits.

One general theme across the utility comments is the call for new rate design to address distributed generation. If done properly, rate design can send price signals that effectively value and encourage strategic deployment of distributed energy resources. Simplistic rate design with an undue focus on fixed costs can have significant negative impacts on the adoption of distributed energy resources causing all consumers to lose out on the benefits of additional distributed energy resources. Effective rate design for distributed energy resources will require consideration of the full range of benefits and costs those customers provide as well as policy context and goals.

Future rate design will affect the deployment and use of distributed energy resources. Lawrence Berkeley National Laboratory recently released a study analyzing the impact of rate design changes on the deployment of solar PV and found that rate design "can have a dramatic

impact on the projected level of PV deployment."[35] The study provides context and highlights the importance of a thoughtful, thorough discussion about rate design and the need to fill in the information gaps before proceeding:

> Key informational gaps also exist with respect to the effect of rate-design changes on PV deployment. . . . Understanding these deployment impacts will be critical for regulators and other decision makers as they consider potential changes to retail rates – whether to mitigate adverse financial impacts from distributed PV or for other reasons – given the continued role that PV may play in advancing energy and environmental policy objectives and customer choice.[36]

The study attempts to start filling the gap in information relative to how rate design will impact deployment by looking at a handful of rate designs. The study concluded that adding higher monthly fixed charges or providing PV compensation at less than the full retail rate "can dramatically erode aggregate customer adoption of PV."[37] The Board should be particularly mindful of these potential negative impacts of rate design given Iowa's policy to "encourage the development" alternative energy production facilities.[38] The study also looked at time varying rates, but not time varying rates in combination with fixed charges or demand charges as proposed by MidAmerican. While it will vary significantly by region, on a national basis, time-varying rates can lead to short-term growth in PV deployment but may lead to a long-term decrease in adoption.[39] Additional research is still needed but given Iowa's strong policy support for renewable energy resources, it will be important to consider the impact that rate design

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35 Darghouth, N. et al, Lawrence Berkeley National Laboratory, *Net Metering and Market Feedback Loops: Exploring the Impact of Retail Rate Design on Distributed PV Deployment*, at 21 (July 2015) *available at* http://emp.lbl.gov/sites/all/files/lbnl-183185_0.pdf.

36 *Id.* at 3.

37 *Id.* at 1.

38 Iowa Code §476.41.

39 LBNL, *Net Metering and Market Feedback*, at 1.

changes could have on the ability to add distributed energy resources and achieve important policy goals.

Several of the joint commenters have issued guiding principles for rate design. These principles were attached to our October 24, 2014 comments, and we repeat them here for reference:

1. Preserve Individual Customers' Rights to Self-determination
2. Capture the Full Range of DSG Benefits and Values
3. Promote Policies and Rates Favorable to Next Generation Distributed Technologies
4. Insist Upon Non-Discriminatory Rate Practices and Policies
5. Due Process is Essential
6. Ensure that the Benefits of Rooftop Solar are Shared with Low-income Customers.

The topic of rate design is receiving increasing amounts of attention from public utility commissioners, industry experts, utilities and other stakeholders. Several states have initiated dockets or other processes to address rate design and other issues surrounding distributed energy resources. These efforts will provide guidance on policy decisions, help address critical rate design questions, and inform efforts in Iowa. The Regulatory Assistance Project recently released a paper on rate design for a future with distributed energy resources. The paper highlights three principles for modern rate design that should inform future discussions of rate design in Iowa:

- **Principle 1:** A customer should be able to connect to the grid for no more than the cost of connecting to the grid.
- **Principle 2:** Customers should pay for grid services and power supply in proportion to how much they use these services and how much power they consume.
- **Principle 3:** Customers who supply power to the grid should be fairly compensated for the full value of the power they supply.[40]

[40] Lazar, Jim and Gonzalez, W. *Smart Rate Design for a Smart Future* Regulatory Assistance Project (2015) *available at* http://www.raponline.org/document/download/id/7680.

These principles provide a framework for future rate design proposals that the Board may consider. To develop rates that accomplish these principles will require significant conversation, data collection and analysis, and independent study of the value-of-solar. The Board should discourage utility proposals to rush through rate design changes through individual rate cases before this broader statewide discussion and inquiry can take place.

There are a significant number of important and complicated issues that any rate design should consider. While the utilities suggested rate design changes in their June 15, 2015 comments, they were largely silent on the details. The details of rate design will be important particularly if the rate design is attempting to balance policy priorities to encourage distributed generation, cost recovery and equity concerns. Some of these issues will benefit from input from experts and learning from experiences in other states. We should take advantage of the fact that Iowa's DG penetration levels do not require immediate action to address rate design. We should see how others tackle these difficult issues and learn from their successes and failures.

As we have previously noted, the low penetration rates of distributed generation does not justify making significant changes to Iowa's existing net metering policy or utility rates. We have recommended that rate design issues be explored in a docket that collects data and properly values distributed energy resources. There are important factors that should be considered across utilities and stakeholders, some of which will be complicated and resource intensive. To leave these common issues to individual utility rate cases limits transparency, strains the ability of interested stakeholders with limited resources to effectively participate, and creates opportunities for parties that are looking to block distributed generation to do so with limited accountability. To settle these issues without fully understanding and accounting for the value of distributed energy resources could cause significant harm to Iowa consumers who could benefit from the

continued development and deployment of distributed energy resources. Thus, we recommend that any future utility proposal to significantly change residential and commercial rate design await the completion of a statewide rate design inquiry docket that is informed by an independent, statewide study to quantify the costs and benefits of distributed solar generation.

Iowa Policy Limits the Permissible Approach to Rate Design and Requires a Strong Data-based Foundation for Rate Design Changes Affecting DG.

Iowa code has strong policy in support of renewable energy resources, and Iowa's policy places limits on the type of rate design that can be considered to address distributed generation. Iowa Code 476.21 states:

> A municipality, corporation or cooperative association providing electrical or gas service shall not consider the use of renewable energy sources by a customer as a basis for establishing discriminatory rates or charges for any service or commodity sold to the customer or discontinue services or subject the customer to any other prejudice or disadvantage based on the customer's use or intended use of renewable energy sources.

Creating a new rate class for distributed generation customers may not comply with the Iowa Code § 476.21 prohibition against discrimination based on the use of renewable energy sources. The utilities proposing rate design changes have not provided evidence that would justify differential treatment for DG customers. Customer load profiles are not uniform, and there are many technologies or customer use patterns that alter customer load profiles and the way the customer uses the electric grid. The Company currently relies on the diversity of load to manage such fluctuations and in planning and building its system. Entire subdivisions do not use their microwave ovens at precisely the same time. Similarly, a broad set of solar resources will not be impacted by clouds at the same time. Indeed, a typical residential solar system produces less power than two blow dryers and a coffeemaker. Furthermore, two identically situated customers

(same peak load, same distribution circuit, same service drops, etc.) that consume different amounts of electricity will contribute different amounts towards fixed costs under standard ratemaking approaches. Costs are apportioned and rates are designed across broad groups of customers, and no single customer has a rate that recovers precisely the proper cost of serving that customer. This does not mean that the existing rate design is "unfair." It simply reflects the reality of *average* embedded cost rates.

To pick distributed generation among all the technologies and customer behaviors and impose a different rate solely because the customer uses distributed generation or consumes less energy than the "typical" residential customer violates Iowa law. As the Utah Public Service Commission pointed out in a recent case rejecting an additional fee for DG customers:

> Simply using less energy than average, but about the same amount as the most typical of [the utility's] residential customers, is not sufficient justification for imposing a [DG] charge, as there will always be customers who are below and above average in any class. Such is the nature of an average. In this instance, if we are to implement a facilities charge or a new rate design, we must understand the usage characteristics, *e.g.*, the load profile, load factor, and contribution to relevant peak demand, of the net metered subgroup of residential customers. We must have evidence showing the impact this demand profile has on the cost to serve them, in order to understand the system costs caused by these customers.[41]

Similarly, the Minnesota Department of Commerce recently concluded that it would be unreasonable and would constitute illegal rate discrimination for a utility to attempt to single out DG customers for additional charges to "make up" for revenue decreases attributed to rate design decisions. As the Department stated in recent comments to the Minnesota Public Utilities Commission:

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[41] Utah Public Service Commission, *In the Matter of the Application of Rocky Mountain Power for Authority to Increase its Retail Electric Utility Service Rates in Utah and for Approval of its Proposed Electric Service Schedules and Electric Service Regulations*, Docket No. 13-035-184, Report and Order at 68 (August 29, 2014) *available at* http://psc.utah.gov/utilities/electric/ordersindx/documents/26006513035184rao.pdf.

> Minn. Stat. §216B.03 requires that "rates shall not be unreasonably preferential, unreasonably prejudicial or discriminatory, but shall be sufficient, equitable, and consistent in application to a class of customers." The Department believes that assessing a charge on DG customers to cover the customer costs currently being recovered through the energy charge would constitute rate discrimination. When customer costs are recovered through a variable rate such as the energy charge, some customers pay more than the average cost to serve them while others (those with below average usage) pay less than the average cost to serve them. Attempting to recover those costs only from DG customers would constitute unreasonable rate discrimination.[42]

The "anti-discrimination" principle embodied in the Minnesota statute described above is similar to the general non-discrimination principles in Chapter 476 and is not as strong as the principles embodied in Iowa law at §476.21. As the application of the Minnesota statute illustrates, Iowa law operates to limit utility proposals that would single out DG customers through discriminatory rate designs.

MidAmerican's position that DG customers are not paying their "fair share" of grid services appears to be largely based on the utility's concern that DG customers (may) consume less energy than other utility customers.[43] It is far from clear that the usage pattern of MidAmerican's DG customers as a class will differ significantly from the residential or commercial class as a whole, but even if there are some differences any utility proposals to single out customers that reduce their consumption using distributed generation (as opposed to energy efficiency, conservation, or any other reason) would clearly constitute unreasonable rate discrimination and would violate Iowa law.

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[42] Minnesota Public Utilities Commission, *Request for Dispute Resolution with Peoples Energy Cooperative,* Docket No. E132/CG-15-255, Comments of the Minnesota Department of Commerce at 8-9 (July 6, 2015).

[43] *See* NOI-2014-0001, Response of MidAmerican Energy Company to Net Metering Questions, at 3 (file June 15, 2015). ("When DG customers reduce their kilowatt-hour consumption because they are producing their own power … they ultimately pay less for 'grid services.'").

There may be ways to test new rate design models and avoid the prohibition in § 476.21. For example, it would not be discriminatory if a customer chooses to opt into a new pilot rate class. This has the added benefit of encouraging that rate design in a way that entices customer participation and therefore guarantees the possibility of future distributed energy resource growth. As we have previously stated, we recommend that any future utility proposal to significantly change residential and commercial rate design await the completion of a statewide rate design inquiry docket that is informed by an independent, statewide study to quantify the costs and benefits of distributed solar generation.

The Utilities' Comments Frequently Include Broad, General Statements that Are Not Supported by Evidence in the Record.

IPL and MidAmerican responded to the Board's request for additional comments with a series of proposals that would constitute a significant change in Iowa's existing net metering policy. The utilities supported these recommendations with a number of statements that lack data or evidentiary support in the record. The tendency of the utilities to make sweeping generalizations about the impact of distributed generation without specific data and evidence highlights the importance of a more moderate, data-driven approach in Iowa.

The following examples of utility statements filed in this docket illustrate this problem. Following each statement, we have attempted to identify some of the missing data that would be necessary to assess the veracity of the statement. The Board may wish to require the utilities to gather and file some of this missing data in order to more fully inform the Board's consideration of these important issues. The Board should press IPL and other stakeholders to support assertions with facts, lead a process where data is made available to stakeholders in a timely transparent manner, appropriately value distributed energy resources based on that data and not

on unsupported assertions, and provide opportunities for all stakeholders to develop new solutions to continue the growth and integration of distributed energy resources.

IPL Statements and proposed follow-up questions:

- "DG customers – as individuals and as a group – do not share a similar usage pattern with customers who do not have DG." (p. 5)
    - Please provide aggregate usage pattern data for all DG customers.
    - Please provide aggregate usage pattern data for all of IPL's non-DG customers by rate class.
    - Please provide the load profile, load factor, and contribution to relevant peak demand, of the net metered subgroup of residential customers.

- "The utility must maintain the distribution system to ensure reliable service for all customers <u>but the DG customer does not incur costs</u> to maintain the distribution systems." (p. 8)
    - Please provide all data supporting IPL's statement that DG customers "do not incur costs"?
    - What percentage of IPL's DG customers fully offset their electricity bills through net metering?
    - How does the usage of IPL's DG customers, on average, differ from the usage of other customers within the same rate class?

- "This cost shift is, effectively, a "transfer payment" or "cross-subsidization." (p. 8)
    - What are the total costs of IPL's grid services? Please break down grid services by individual components (i.e. meters, wires, poles, vehicle service repair personnel, etc.).
    - Does IPL have a cost of service study showing how much it costs IPL to serve DG customers? If so, please provide it.
    - How much have DG customers contributed towards these costs of service through the existing rate structure?
    - What is IPL's alleged net shortfall for DG customers' contribution towards cost of service? How much is it per customer?
    - What other "cross-subsidies" exist in IPL's current rate structure between groups of customers? How does the purported "DG cost-shift" compare to the other cross-subsidies that IPL maintains in its rates? Is IPL proposing solutions for these other cross-subsidies or does it just want to restructure rates for DG customers?

- "Moreover, new competitive business models continue to develop in reliance on current rate design and net metering configurations, which serves to further exacerbate the cost shift between net metering participants and nonparticipants." (p. 8)
    - Please clarify what "competitive business models" IPL is referring to here.
    - Provide data that supports the statement that these "competitive business models" are "exacerbating" cost shifts.

- "Absent rate design and cost-allocation changes, the impact of the transfer payment to IPL's non-net metering customers will continue to grow as additional DG customers install generation." (p. 8)
    - What is the total amount of DG penetration in IPL's system today?
    - What is IPL's calculation of the alleged total "impact" of this DG penetration today on a system-wide and per customer basis?
    - When does IPL project that it will hit 1% of DG penetration in its service territory? How many customers does IPL estimate would have DG systems at this level of penetration? What is IPL's estimate of the total "impact" at this level of penetration?
    - When does IPL believe it will hit 5% of DG penetration in its service territory? How many customers does IPL estimate would have DG systems at this level of penetration? What is IPL's estimate of the total "impact" at this level of penetration?
    - Has IPL considered DG system benefits in its estimation of "impact" to non-net metering customers? If so, which benefits has IPL considered?
    - Please provide data to support all estimates and projections.

- "Today, certain IPL distribution circuits exceed 25 percent DG penetration." (p. 8)
    - Please identify the circuits that exceed 25 percent DG penetration.
    - Please identify the DG systems on these circuits.
    - Did the DG systems on these circuits comply with Iowa's interconnection standards before interconnecting?
    - Is it IPL's position that Iowa's interconnection standards are insufficient to address safety and reliability concerns associated with the growth of DG penetration on its circuits? If so, what specific changes to Iowa's interconnection standards are needed?
    - What are the "changes in service delivery costs and processes" that are referred to on p. 8? Please identify and explain.

- "To achieve this level of system operation, the total cost of the system will increase adding costs via higher rates to all customers, which also intensifies the cross-subsidization impact referenced above." (p. 9)
    - Is it IPL's belief that the need for a "two-way networked and transactional" (p. 8-9) distribution grid is solely driven by DG customers? If so, please explain?
    - Will a "two-way networked and transactional" distribution grid provide benefits to other customers that are not DG customers? If so, please explain.
    - Is it IPL's position that the cost of a "two-way networked and transaction" distribution grid should be borne exclusively by DG customers? If so, please explain. If not, please explain why the cost of grid modernization "intensifies the cross-subsidization impact" IPL is concerned about.

MidAmerican Statements and proposed follow-up questions:

- On p. 3, MidAmerican discusses its belief that "the current net metering tariff . . . currently shifts certain costs disproportionately from net metered DG owners to other ratepayers."
    - Please provide all data supporting MidAmerican's statement that the current net metering tariff "shifts certain costs disproportionately."
    - Does MidAmerican's statement that the current net metering tariff "shifts certain costs disproportionately" account for the benefits of distributed generation? If so, which benefits has MidAmerican included in its calculation?
    - What are the total costs of MidAmerican's grid services? Please break down grid services by individual components (i.e. meters, wires, poles, vehicle service repair personnel, etc.).
    - Does MidAmerican have a cost of service study demonstrating how much it costs to serve DG customers? If so, please provide it. Please provide any relevant usage characteristics for DG customers necessary to understand the system costs caused by these customers, *e.g.* the load profile, load factor, and contribution to relevant peak demand. What is the difference for DG customers between cost causation (pursuant to the cost of service study) and cost recovery? How much is it per customer? How do the calculated benefits of DG compare to MidAmerican's calculation of costs?
    - What other "cross-subsidies" exist in MidAmerican's current rate structure? How does the purported "DG cost-shift" compare to the other cross-subsidies that MidAmerican maintains in its rates? Is MidAmerican proposing solutions for these other cross-subsidies or does it just want to restructure rates for DG customers?

- MidAmerican discusses conditions necessary to implement new rate structures and notes "[a]s a result of MidAmerican's most recent rate case (Docket No. RPU-2013-0004), all four of these conditions exist, so implementation of long-term rate design solutions for MidAmerican does not need to wait…" (p. 18)
    - Are MidAmerican's current rates inadequate to recover costs?
    - Did MidAmerican's cost of service study specifically look at net metered DG customers?
    - How many net metered DG customers did MidAmerican have when it filed RPU-2013-0004? How many net metered DG customers does it have today?
    - What is the total amount of DG penetration in MidAmerican's system today? What is MidAmerican's calculation of the alleged total "impact" of this DG penetration today on a system-wide and per customer basis?
    - When does MidAmerican project that it will hit 1% of DG penetration in its service territory? How many customers does MidAmerican estimate would have DG systems at this level of penetration? What is MidAmerican's estimate of the total "impact" at this level of penetration?
    - When does MidAmerican believe it will hit 5% of DG penetration in its service territory? How many customers does MidAmerican estimate would have DG systems at this level of penetration? What is MidAmerican's estimate of the total "impact" at this level of penetration?

- Has MidAmerican considered DG system benefits in its estimation of "impact" to non-net metering customers? If so, which benefits has MidAmerican considered?
- Please provide data to support all estimates and projections.

- Attachment 3 purports to identify "hourly loads for the same typical residential customer that net meters its entire annual usage with solar DG." (p. 17)
  - What percent of MidAmerican's DG customers offset their "entire annual usage" with solar DG?
  - How does the usage of MidAmerican's *actual* DG customers (i.e. not a hypothetical customer that offsets her "entire annual usage"), on average, differ from the usage of MidAmerican's other customers within the same rate class?

- Attachment 4 purports to show that MidAmerican's DG customers "pay an amount that is far less than the cost of providing service" under MidAmerican's standard two-part rates. (p. 19)
  - Please provide all data that supports the "cost of service" reflected in Attachment 4. Has MidAmerican studied the costs to serve DG customers as a class?
  - Please provide the customer data used to generate these graphs.
  - Please provide the "Normal Usage" and "DG/NEM" graphs on the same scale so that customers with similar usage profiles can be compared together.
  - Does MidAmerican's "Normal Usage" table include customers that have reduced their consumption through energy efficiency or conservation?
  - Is it MidAmerican's position that customers that have reduced their consumption using energy efficiency or conservation also pay an amount "that is far less than the cost of providing service"?
  - Do the graphs in Attachment 4 account for any of the benefits of DG, or do they only reflect costs? Has MidAmerican quantified or estimated how the benefits of DG compare to the projected costs on an individual or classwide basis?

- Attachment 5 purports to show that residential customers with and without DG pay a "fair amount" under MidAmerican's proposed three-part rate. (p. 19)
  - What were the customer data that populated these comparisons? Are these entirely MidAmerican customers or were some other customer data sets used? What is the sample size for normal usage compared to the sample size for DG/NEM?
  - What were the specific rate assumptions made under the DG/NEM rate for the fixed charges, demand charge and time of use energy charges?
  - How did MidAmerican account for any customer over production in this scenario?
  - Did MidAmerican evaluate other rate assumptions? If so, what were the results?

MidAmerican Pilot Project Proposal

MidAmerican states that it is exploring a solar DG pilot project. MidAmerican provides few details of the pilot project but does include a number of goals for the pilot. We support focusing this pilot on several of the identified goals, including better understanding the impact of solar on providing load relief that may defer distribution investments (goal #3) and better understanding costs and benefits of using solar as a resource in MidAmerican's portfolio (goal #4).

While several of MidAmerican's high-level goals are aligned with goals we have identified, we need to fully understand the details of the pilot before evaluating whether it is an appropriate next step. As MidAmerican develops this pilot, we suggest that MidAmerican work closely with interested stakeholders and that the following components should be included:

- Include all potential distributed energy resources (DER) in addition to solar, such as energy efficiency and load management;[44]
- Develop as part of the pilot the planning tools and forecasting methods identified in goal #7. These tools should be an outcome of the pilot to the extent possible, not just identified as part of the pilot.
- Allow third party providers of DER to actively participate in the pilot;[45]
- Target strategic locations based on planned capital expenditures, constrained distribution systems, or local brownfields.

The pilot program is also an opportunity to target low/moderate income participants and program designs to include those customers should be considered. We also note that it is important for a

[44] *See* NOI-2014-0001, Joint Commenters Response to Board Order Soliciting Additional Comments, at 23-24 (filed June 15, 2015)

[45] *Id.*

pilot program to run long enough to conduct sufficient customer education and awareness to get significant participation and collect representative data.

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Respectfully submitted,

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