

STATE OF IOWA
BEFORE THE IOWA UTILITIES BOARD

IN RE:)	
)	DOCKET NO. TF-2016-0321
DISTRIBUTED GENERATION)	DOCKET NO. TF-2016-0322
)	
)	PETITION FOR REHEARING
)	AND MOTION FOR CLARIFICATION
)	

The Environmental Law & Policy Center (ELPC), Iowa Environmental Council (IEC), Sierra Club, Iowa Solar Energy Trade Association (ISETA), Solar Energy Industries Association (SEIA), Vote Solar, and Winneshiek Energy District (WED), collectively the “Joint Commenters,” file this petition for rehearing or reconsideration pursuant to 199 Iowa Administrative Code § 7.27 and motion for clarification pursuant to 199 Iowa Administrative Code § 7.12 in response to the Iowa Utilities Board Order issued on February 3, 2017.

For the reasons discussed in more detail below, the Joint Commenters request that the Board rehear the issue of whether or not it is appropriate to define customer load in terms of demand, rather than energy usage, for the purpose of limiting the size of distributed generation systems that may be net metered systems. Joint Commenters urge the Board to explore the implications of this major policy shift on net metering and whether the record supports such a change, whether the change would be consistent with state law, whether the change would be consistent with the Board’s existing rules, and whether the change can be applied in a fair manner that is not arbitrary. In the alternative, if the Board moves forward with this new

limitation, we request that the Board provide an opportunity for hearing on IPL's specific methodology for implementing this new limit and explore alternatives that may better capture this approach, and we request that the Board clarify its order to reflect that the new demand-based approach in Interstate Power and Light's (IPL's) tariff should only apply to the net metering systems from 500 kW to 1 MW that the pilot expands net metering to and not to all net metered systems.

We object to IPL's proposed tariff because it is inconsistent with the Board's intent and its explicit directive to expand renewable distributed generation (DG) in Iowa. Specifically, IPL's proposal to limit net metering to an estimate of a customer's maximum annual kilowatt demand will make IPL's net metering program less transparent, more complicated, and much less likely to encourage renewable generation.

I. Introduction: The Board's Order Approving IPL's Approach to Customer Load in the Net Metering Pilot Tariff is not Consistent with the Data-Driven Approach Preserving Net Metering Previously Adopted by the Board.

On July 19, 2016, the Iowa Utilities Board issued an Order directing Interstate Power and Light (IPL) and MidAmerican Energy Company (MidAmerican) to file pilot net metering tariffs.¹ The Board's Order and corresponding press release issued the same day made clear the Board's intention to encourage and expand renewable energy development in Iowa. The Order preserved the existing net metering framework and ordered several narrow and temporary changes designed to expand renewable development and to collect data that will help inform future policy decisions.

The Order specifically directed three changes: 1) increase the net metering cap from 500 kW to 1 MW (up to 100 percent of a customer's load); 2) allow all customer classes to net meter

¹ NOI-2014-0001, Order Directing Filing of Net Metering Tariffs (July 19, 2016).

to offset energy charges; and 3) provide an annual cash-out of excess credits at the utility's avoided cost rate with the cash-out to be split between the customer and the utilities' programs for customers in need.²

The July 19, 2016 order is the culmination of the net metering portion of the Board's notice of inquiry docket on distributed generation initiated on January 7, 2014. Since initiating the docket, there have been multiple rounds of comments submitted by a diverse array of stakeholders covering a wide range of distributed generation topics. More than 170 participants have filed comments in this docket, including utilities, utility associations, environmental groups, renewable energy advocates, and other organizations, businesses, and individuals.

Net metering has been a particular focus of the docket. The Board addressed the path forward on net metering in its October 30, 2015 Order, and the July 19, 2016 Order reaffirms the Board's commitment to that approach. The Board's October 2015 Order emphasizes a data-driven approach, concluding, in the case of net metering, that "additional information is required before any permanent policy or rule changes are made."³

In order to begin the process of collecting additional information to inform future policy discussions while waiting for the market to grow large enough for a full value of solar study, the Board provided a pilot project framework. The "Board encourage[d] all utilities (municipal, rural electric cooperatives, and investor-owned), but particularly the investor-owned utilities (IPL and MidAmerican), to consider implementing pilot projects that will expand renewable DG in Iowa."⁴

² *Id.* at 3-4.

³ NOI-2014-0001, Order Regarding Policy Statement, Rate Design Presentations, and Net-Metering Generation Pilots, at 7 (Oct. 30, 2015).

⁴ *Id.* at 9 (emphasis added).

The Board’s vision of pilot projects “creates an opportunity for innovation and exploration of best practices.”⁵ Importantly, a pilot project “provides an opportunity to make changes on a limited basis in order to determine the impacts that those changes might have on the utility and its customers prior to making these changes permanent.”⁶ The Board stated its interest in several types of pilot projects, while also noting that the utilities should have flexibility in designing these pilot programs. The Board highlighted several topics that pilot projects could collect useful information about:

- The treatment of excess net-metering credits including information about the amount of such credits and “whether there are sufficient credits to justify a change in the rules”⁷
- Whether the net metering cap should be increased including collecting data on “the financial impacts of raising the cap”⁸
- Reliability
- Community solar programs

Although the Board declined to mandate any specific pilot programs, it was specific about the objective of such programs—to “expand renewable DG in Iowa” and to gather additional information about some aspects of net metering.⁹ MidAmerican and Alliant then outlined proposed pilot programs with Preliminary Implementation Plans on March 28, 2016, that included sweeping changes to rate design, virtually eliminated net metering, and would not meet the goals of expanding renewable energy or collecting data regarding distributed generation and net metering penetration.

⁵ *Id.* at 8.

⁶ *Id.* (emphasis added).

⁷ *Id.*

⁸ *Id.* The Board specifically noted that “a pilot project increasing the current 500 kW size to 1 MW could provide valuable information and it is consistent with the policy statement encouraging DG growth.”

⁹ *Id.* at 9.

Joint Commenters filed comments highlighting significant concerns about the sweeping changes and adverse impacts to renewable energy from these pilot program proposals, as did many other stakeholders. In the July 19, 2016 Order, the Board responded by stating, “To address these concerns and to obtain data ... the Board finds that the impact of raising the net metering cap and the treatment of excess net metering credits should be studied before the Board decides whether to make permanent changes to its net metering rules.” The Board’s July 19, 2016 Order made clear that it intended to expand renewable energy and distributed generation with specific and limited changes, and that it was not looking to make sweeping or fundamental changes to net metering. The July 19, 2016 Order called for the utilities to submit revised pilot programs consistent with the Board’s overarching policy objectives.

In response, IPL filed a pilot program that continues to attempt sweeping changes to net metering and will discourage, perhaps dramatically, the development of distributed renewable energy. Joint Commenters filed comments outlining significant concerns to IPL’s pilot program proposal on September 20, 2016. Since that filing, we have conducted additional analysis using the publicly available class load data referenced in IPL’s interpretation letter accompanying its pilot tariff. IPL’s approach could substantially reduce the size of solar installations for residential customers and business customers in the general service and large general service rate classes. If IPL’s approach reduces the net metering size cap too far, it will curtail the market for net metering solar projects by undermining the economics that drive that market. We are further concerned that information contained in IPL’s August 31, 2016 filing was unsourced, incomplete, and misleading to stakeholders on the actual impact of the proposed tariff.

One of the issues that required interpretation in the July 19, 2016 Order was application of the 100% of customer load limit to the net metering cap. The Board provided additional

guidance in the February 3, 2017 order and accompanying Gold memo. Importantly, IPL has gone significantly farther than the July 19, 2016 Order to propose a new way to dramatically alter net metering in a manner that makes it less transparent, more complicated, and much less likely to encourage renewable generation. IPL's approach goes well beyond the specific changes called for in the Board's Order, and those additional changes in IPL's approach are inconsistent with the Board's intent and with the Board's specific direction.

We request the Board reconsider the February 3, 2017 Order and more fully develop the record before finalizing its approach to the net metering cap. We request that the Board hold a hearing on the issue of whether or not it is appropriate to define customer load in terms of demand, rather than energy usage, for the purpose of limiting the size of distributed generation systems that may be net metered systems. We also request that the Board explore the implications of this major policy shift on net metering and whether the record supports such a change, whether the change would be consistent with state law, whether the change would be consistent with the Board's existing rules, and whether the change can be applied in a fair manner that is not arbitrary.

In the alternative, if the Board still moves forward with this new, demand-based limitation, we request that the Board provide an opportunity for hearing on IPL's specific methodology for implementing this new limit in order to provide certainty to customers and installers and to explore alternatives that better reflect the Board's desire to have a limitation on system size in the pilot tariff. If IPL's class average load factor approach remains as one option to calculate the net metering limit, IPL must provide the underlying data and formulas to derive class average load factors. IPL's limit should be a kW-AC limit (rather than kW-DC), and IPL should provide flexibility in applying the limit such as allowing system sizes of 150 percent of

any limit (similar to MidAmerican's filed approach). In addition, we ask that the Board clarify its Order to reflect that the new limit in IPL's tariff should only apply to the net metering systems from 500 kW to 1 MW and not to all net metered systems.

II. The Approach in IPL's Tariff is Arbitrary and Fundamentally Flawed.

IPL proposes to constrain and fundamentally alter its net metering program by limiting the "monthly amount of kilowatt-hour eligible" for net metering to an estimate of that customer's maximum annual kilowatt demand¹⁰ rather than focusing on the customer's annual kWh *energy* use. IPL's approach would be a significant departure from its existing net metering tariff, which allows each customer to net meter based on the energy that the individual customer uses and generates. Shifting from the use of a customer's energy to use of a customer's demand to limit the size of a net metered system is inconsistent with the direction of past Board Orders. It is not a narrow change to net metering for the purposes of collecting data, and it will reduce, not expand, future renewable energy development. Even if the Board wanted to create a demand-based net metering limit, IPL's proposed tariff is not based on customer-specific demand or load data for most customers. For these customers, this approach would be arbitrary and discriminatory. Finally, IPL's proposed tariff is vague and difficult for customers and solar installers to implement. IPL has not provided the necessary information and data to apply the tariff, such as load factors for each customer class and the underlying inputs and methodology to derive those load factors.

IPL proposes to define "customer load" as annual maximum kilowatt demand, but IPL does not have the annual maximum kilowatt demand data for individual residential and general service customers. Instead of making a customer-specific calculation based on a customer's

¹⁰ TF-2016-0321, IPL Cover Letter at 2 (August 31, 2016).

actual maximum demand, IPL proposes a methodology to estimate demand based on customer class average load factor. Notably, the tariff is ambiguous about where the data for such a calculation will come from and does not detail specifically how the calculation will be done. Under IPL's approach, customers would have their ability to net meter artificially capped based not on their own usage, but on a class average and a formula that the customer does not know how to calculate or reproduce. Using customer class average load factors in lieu of customer specific information is a poor proxy for an individual customer's demand.

This approach would lead to customers having to size their system significantly below their annual energy use or to incur significantly higher costs and longer payback periods. At a minimum, any customer whose load factor was below the class average that is used would be in this situation. Any customer who had an actual maximum demand greater than the class average load factor cap would also be in this situation. This would be arbitrary, discriminatory and inconsistent with the legislative policy in Iowa Code § 476.41 to "encourage the development of alternative energy production facilities."

Furthermore, IPL proposed a major and unprecedented change to net metering that will slow the development of distributed generation when the Board requested narrow changes that would expand distributed generation. Such a significant change in policy is inconsistent with the Board's data-driven approach in NOI-2014-001, and it deserves an opportunity for hearing and stakeholder input.

There was not a hearing to address this issue. Consequently, there is nothing in the record that supports IPL's specific approach. IPL's particular methodology has not been scrutinized or defended to determine if this is the appropriate way to capture customer load in the absence of data for most residential and commercial customers. Nor is it possible to know exactly how IPL

makes its calculations from the information provided in the tariff. The complexity and lack of transparency inherent in IPL's proposed approach would greatly complicate the sales and financing of distributed generation projects, which is not what the Board intended when it ordered IPL to "expand renewable energy opportunities in Iowa."

In contrast to IPL's proposal, a cap based on energy usage is easy to understand, simple to calculate, and is consistent with net metering best practices, including the approach that MidAmerican has taken in its net metering pilot tariff. IPL did not explain - and the record does not support - the need for this confusing change in policy. Therefore, we respectfully request that the Board reconsider its February 3, 2017 Order approving IPL's demand-based approach to the customer load limit.

III. IPL's Filing May Have Misled Stakeholders and Requires Clarification and Additional Details for Stakeholders to Understand the Implication of the Approach.

If the Board continues to move forward with IPL's approach to a demand-based limit to net metering, we request clarification on several aspects of the interpretation letter and proposed tariff, which do not contain sufficient information or contain potentially misleading information, in order to fully understand and evaluate IPL's proposed approach for setting a demand-based net metering cap. We request that IPL file all formulas, data sources and class average load factors for stakeholders to review; that IPL apply any net metering load cap as an AC cap instead of a DC cap; and that IPL provide flexibility in applying any net metering load cap, such as allowing the size to vary by 150 percent of the cap, similar to MidAmerican's filed approach to the cap based on annual energy. Without this additional information and these clarifications, we are not able to fully understand or evaluate the impact of IPL's proposed tariff on the renewable energy market, and there is a strong potential for IPL's approach to cause significant harm to the

growth of renewable energy in Iowa. At a minimum, there should be an opportunity for greater scrutiny by stakeholders and the Board and a requirement for additional detail before final approval of IPL's tariff.

The residential class average load factor example that IPL used in its interpretation letter to illustrate the implications of its proposed approach may be misleading, and customers and installers cannot replicate their example calculation using publicly available data.¹¹ In that letter, IPL provides an example to calculate the size of an array that would equal 100 percent of customer load, assuming the residential customer class average load factor is 25 percent. Under this assumption, IPL's methodology leads to calculating that a residential customer using 12,000 kWh per year would only be allowed to net meter the generation from a 5.48 kW AC solar system.¹² Under the current net metering tariff that IPL's pilot and methodology would replace, this same customer would be able to net meter a 9 kW AC system. (Congdon Affidavit at ¶9, attached as Exhibit A.)

After the Board's February 3, 2017 Order, we reviewed the implications of the Order and attempted to verify IPL's 25 percent residential load factor example using the customer class load data referenced in IPL's interpretation letter and filed in compliance with 199 IAC 35.11. It is unclear if IPL's hypothetical example in the letter is consistent with how their methodology would actually be applied. The assumption that "the residential customer class average load factor is 25 percent" is not a calculation that we could replicate with IPL's filed class load data.

Using data from IPL's May 2016 filing in IAC-2016-3511 and making a calculation of class load factor using Class total kWh/Class Max kW/hours in the year, IPL's residential

¹¹ TF-2016-0321, Interstate Power and Light, Interpretation No. IPL E2016-25, Net Billing Pilot Tariff Compliance Filing (filed August 31, 2016)

¹² *Id.*

customer class average load factor could be as high as 40 percent. (Channing Congdon Affidavit at ¶7.) If IPL had used this calculation of class load factor, it would have created a net metering cap of 3.43 kW AC for a residential customer using 12,000 kWh per year. (*Id.* at ¶8.) This is an even greater reduction in the ability to net meter than IPL's interpretation letter example led us to believe and results in a reduction of net metered systems for residential customers of 60 percent to 70 percent. In addition, the economics of a typical residential solar installation become challenging when net metered system sizes go below 4 kW AC. (*Id.* at ¶10.) While the potential reduction of net metered systems from 9 kW AC to 5.48 kW AC was a significant concern, a further reduction to 3.43 kW AC threatens to bring the residential renewable energy market to a stop. (*Id.*)

IPL filed its class load data in May 2016. There was no reason for IPL to use a hypothetical example that did not reflect the actual class load factors IPL would apply if the tariff were approved. Nevertheless, IPL used an illustrative example that did not reflect the reality for its customers.

In addition, IPL did not provide any examples or information on the load factor for other rate classes, including general service and large general service, or whether customer-specific maximum annual demand information would be more available for any customers in these rate classes. Using IPL's filed class load data and the methodology we went through above, we have calculated that class average load factors could be as high as 47.8 percent for general service and as high as 70.9 percent for large general service. (Congdon Affidavit at ¶7.) Higher load factors limit net metered system sizes. These load factors of 48 percent and 71 percent will limit net metered systems sizes even further for customers in these rate classes compared to the residential load factor we calculate at 40 percent.

In more recent discussion with IPL about the tariff, IPL has provided a different method for inputs to calculate class average load factors. We have attached the spreadsheet that IPL provided us as Exhibit B. This approach uses an average class load usage divided by class max demand based on non-coincident peak demand. The resulting load factors are 19 percent for the residential class and 24 percent for the general service class. It is unclear what the data source for the spreadsheet is, and while IPL's calculation makes sense, it is not clear that IPL would use this methodology for the pilot tariff or use another methodology. The results of this approach would still lead to less solar development compared to the current tariff, but this methodology would not see the level of declines as the scenario with a 40 percent residential class load factor. IPL's tariff does not identify an approach to calculating class load factor, and there is nothing in the tariff that would prevent IPL from making calculations and using higher load factors, like the ones we have shared, once the tariff is approved. Neither the proposed tariff nor the interpretation letter include the 19 percent residential load factor, the 24 percent general service load factor, or the underlying data and formulas required to calculate these load factors. IPL should be required to identify the underlying data and formulas required to calculate, and it should include the class load factors that will be used before its tariff is approved. Given the importance of load factors in IPL's methodology and the fact that IPL has provided this information, IPL should not be allowed to use higher load factors than the 19 percent residential and 24 percent general service load factors if the IPL load factor methodology remains one of the options to calculate customer load.

We also request clarification that the net metering load cap in the IPL interpretation letter and proposed tariff is a kW-AC limit, not a kW-DC limit. From a demand perspective, the AC rating for a customer-sited generation system is the relevant information, since the AC rating will

control the maximum output from the generator at any given time. The Board's interconnection forms require the generation facility's nameplate capacity to be provided in terms of AC capacity. IPL's online interconnection application forms primarily ask for a generating facility's kW-AC size and the associated inverter's kW-AC size. We request that any demand-based net metering size cap be expressed as a kW-AC size cap. We believe that this will improve application of a demand-based limit by allowing for more annual kWh generation from a project and by improving consistency, transparency, and clarity in the implementation of the limitation.

Finally, we request flexibility in application of any demand-based load cap similar to MidAmerican's proposal to limit net metering to 150 percent of a customer's annual energy usage. IPL's proposed approach to use customer class average load factors provides an estimate of customer demand, not actual demand. Customers should not be held to a strict limit or cap on net metering based on an estimate from class average data. Customers instead should have some flexibility in sizing a system within a reasonable range of the net metering size cap derived from class average data. Providing customers with a cap of up to 150 percent of the cap derived from class average data would help mitigate the arbitrary nature of IPL's proposed approach and would mitigate the potential for IPL's approach to unreasonably limit system size.

Net metering is too important a policy and the changes to net metering have too significant an impact on the development of the renewable energy market and the Board's goals in this docket for IPL not to clearly explain all of its changes and its full methodology in a transparent manner in its tariff. IPL must be required to provide formulas for calculating class load for customers where individual data is not available, the source of information that will be used to make calculations, the actual class load factors to be used, and how that derived limit will be applied to actual customers and their bills.

The extreme impact of IPL's proposed approach and the fact that IPL's filing caused stakeholders not to realize the true extent of that impact deserves more scrutiny before approval and implementation. The Board should reconsider the impact of IPL's proposed tariff and require sufficient detail in the tariff so that customers and installers can understand the implications before they develop and install a system. For this reason, we request a rehearing on IPL's approach to limiting net metering.

IV. In the Alternative, the Board Should Only Allow IPL to Apply a Demand-Based Limit to Net Metering Systems Sized Between 500 kW and 1 MW.

If the Board decides to proceed with IPL's demand-based limit, the Board should clarify that its order applies only to the expanded net metering cap for systems sized between 500 kW and 1 MW. The Board directed very specific tariff changes in its July 19, 2016 Order, but IPL's tariff applies one specific change, the limit to customer load for the increased system size, in a much broader manner that will have much broader implications. The Board's July 19, 2016 Order stated that "the Board will direct IPL and MidAmerican to file new net metering tariffs implementing temporary, yet *specific*, tariff changes that will be effective for a three-year study period."¹³ The specific change related to net metering system size stated: "Increase the net metering cap from 500 kW to 1 MW (up to 100 percent of a customer's load)."¹⁴

Rather than simply increasing the cap from 500 kW to 1 MW and developing a methodology to limit those large systems to 100 percent of a customer's load, IPL proposed a new methodology for *all* net metered customers that dramatically changes net metering in ways that will significantly limit new renewable generation. While we have very significant concerns with IPL's new methodology that we discussed in detail above, if the new methodology had been

¹³ Docket No. NOI-2014-0001, Order Directing Filing of Net Metering Tariffs, at (July 19, 2016)

¹⁴ *Id.*

limited to systems between 500 kW and 1 MW to be consistent with the Board's Order, it would be more likely that a pilot project could address, or at least explore, those concerns. This broad application to all net metering system requires immediate attention or risks having severe negative impacts on the developing Iowa solar market.

IPL's broad application of this specific change goes well beyond the Board's Order on the net metering pilot tariff. IPL's current net metering tariff does not have a limitation based on 100 percent of a customer's load. The Board's specific Order of tariff changes only stated that IPL must "[i]ncrease the net metering cap from 500 kW to 1 MW (up to 100 percent of a customer's load)."¹⁵ There is nothing in the Board's orders that direct or approve of limiting net metered systems below 500 kW based on a customer's load. This limit was meant to apply to the expansion and not the entirety of IPL's net metering program.

Beyond the plain language of the Board's Order, other interpretative tools would support a narrow application of the customer load limit to the expanded net metering cap. IPL's broad approach is inconsistent with Iowa Code § 476.41, which encourages renewable energy development. As discussed above, IPL's broad application of the customer load limit will result in significantly less distributed renewable generation than the current net metering tariff. While applying this approach to an expanded net metering cap in a pilot setting would increase renewable generation from the status quo, limiting systems that can currently use the existing net metering tariff would result in less renewable generation, not more. It is not possible to reconcile this limit as consistent with § 476.41.

Similarly, IPL's broad approach in applying a customer load limit to all customers would undermine the Lt. Governor's recently released Iowa Energy Plan. The Iowa Energy Plan

¹⁵ *Id.*

interpreted the Board's July 19, 2016 order as designed to expand renewable generation stating: "In July 2016, the IUB issued an order directing Iowa's two largest investor-owned utilities to expand renewable energy opportunities in Iowa by allowing all customer classes to net meter while doubling of the previously established net metering cap."¹⁶ The plan built on the Board's action and adopted an objective supporting additional distributed renewable generation: "Objective 2: Support distributed renewable energy generation including wind, solar, and other clean energy resources in Iowa."¹⁷ IPL's proposed implementation of the Board's order interprets a very specific change directed by the Board in a manner that would run counter to the Iowa Energy Plan's interpretation of the order and the objective of the Iowa Energy Plan to support distributed renewable solar generation.

If the Board determines that it is appropriate to limit net metered systems using a demand-based approach, the Board should clarify that this limitation was meant to apply only to the expanded net metering cap (projects between 500 kW and 1 MW) and not all smaller net metered projects.

V. Conclusion

IPL has proposed to constrain and fundamentally alter its net metering program by limiting the "monthly amount of kilowatt-hour eligible" for net metering to an estimate of that customer's maximum annual kilowatt demand¹⁸ rather than focusing on the customer's annual kWh *energy* use. Although the Board approved this approach in its February 3, 2017 Order, IPL's pilot tariff approach is inconsistent with the Board's approach in NOI-2014-0001 and is likely to result in less renewable energy. The approach is arbitrary and discriminatory because it

¹⁶ Iowa Energy Plan, at 11 (Dec. 2016)

¹⁷ *Id.* At 55.

¹⁸ TF-2016-0321, IPL Cover Letter at 2 (August 31, 2016).

is not based on a customer's own actual demand or energy use, but on the calculations using information from a customer class. This will lead many customers to undersize systems compared to that customer's actual load. Further, the complexity and lack of transparency inherent in IPL's proposed approach would greatly complicate the sales and financing of distributed generation projects, further limiting renewable energy opportunities in IPL's service territory. Therefore, we respectfully request that the Board reconsider its February 3, 2017 Order that allows the use of demand for customer load limit, given the significant limitations on customer-specific data and the likely and substantial adverse implications for the renewable energy development.

In the alternative, if the Board continues to permit IPL to use demand for the purpose of limiting the size of distributed generation systems, we request that the Board rehear and further investigate IPL's proposed load factor methodology for impacts to different customer classes and to the market for net metered renewable energy. Specifically, the Board should investigate other options besides class average load factor for estimating demand for customers where customer-specific data is not available. The Board should also require additional filings with complete data, calculations, actual class load factors, and examples of impacts to net metered system sizes for all rate classes, not allow IPL to use load factors higher than 19 percent for residential and 24 percent for general service, clarify that any demand-based net metering cap to be a kW-AC cap, not a kW-DC cap, and allow flexibility to size systems at up to 150 percent of any cap. Finally, the Board should clarify that the demand-based limit only applies to systems sized in the 500 kW – 1 MW range and that IPL should continue to use annual energy for systems under 500 kW.

DATE: February 23, 2017

Respectfully submitted,

/s/ Joshua T. Mandelbaum

Joshua T. Mandelbaum (AT0010151)
Bradley D. Klein
Environmental Law & Policy Center
505 5th Avenue, Suite 333
Des Moines, Iowa 50309
P: (515) 244-0253
jmandelbaum@elpc.org

/s/ Nathaniel Baer

Nathaniel Baer
Iowa Environmental Council
521 East Locust, Suite 220
Des Moines, Iowa 50309
P: (515) 244-1194 x206
baer@iaenvironment.org

/s/ Nathan Phelps

Nathan Phelps
Vote Solar
745 Atlantic Ave.
Boston, Massachusetts 02111
P: (860) 478-2119
nathan@votesolar.org

/s/ Rick Umoff

Rick Umoff
Solar Energy Industries Association
505 9th Street NW, Suite 800
Washington, DC 20004
P: 202-556-2877
rumoff@seia.org

/s/ Tim Dwight

Tim Dwight, President
Barry Shear, Treasurer
Iowa Solar Energy Trade Association
900 Jackson Street, Suite 108
Dubuque, IA 52001
P: 563-582-4044
tim.dwight@ipowercorp.com
bshear@eaglepointsolar.com

/s/ Casey Roberts

Casey Roberts
Associate Attorney
Sierra Club Environmental Law
Program
1536 WYNKOP ST., Suite 312
DENVER, CO 80202
P: 303-454-3355
casey.roberts@sierraclub.org

/s/ Andrew Johnson

Andrew Johnson
Executive Director
Winneshiek Energy District
217 West Water St. Unit 2
Decorah, IA 52101
P: 563-564-3580
andy@energydistrict.org

Exhibit A

AFFIDAVIT OF
CHANNING CONGDON

STATE OF IOWA)
)
COUNTY OF JEFFERSON)

I, the undersigned, being first duly sworn on oath depose and state:

1. My name is Channing Congdon, and I am the Director of Design with Ideal Energy. I have been with Ideal Energy for 3 years.

2. At Ideal Energy, I lead the design department, perform analysis of utility tariffs, coordinate with the senior project manager for solar installations, and am part of the management team for business development and strategy.

3. Ideal Energy is a solar firm based in Fairfield, Iowa. Ideal Energy provides stem-to-stem service for solar, our in-house teams develop a project from design & engineering, through construction, to ongoing operations & maintenance. Ideal Energy was founded in 2009. In 2016, Ideal Energy installed over 25 solar projects with a total capacity of 1.4 MW DC.

4. I have reviewed Interstate Power and Light's (IPL) pilot net metering tariff filed in TF-2016-0321 and TF-2016-0322 and the accompanying interpretation letters.

5. I have used IPL's proposed tariff and interpretation letter to calculate the impact of the new tariff on several hypothetical system sizes.

6. I used the 2015 annual class load data that that IPL filed May 12, 2016 as IAC-2016-3511. Interpretation letter stated that the "customer class non-coincident demand" from this filing would be used to calculate the customer class specific annual load factor.

7. I calculated that average class load factors as $\text{Load Factor} = \text{Total kWh} / \text{Max kW} / \text{hours in year}$. The results for Iowa by class are as follows:

Exhibit A

- Residential: $3,506,672,880 \text{ kWh} / 1,004,199 \text{ kW AC} / 8760 \text{ h} = 39.9\%$
- General Service: $1,977,501,967 \text{ kWh} / 472,579 \text{ kW AC} / 8760 \text{ h} = 47.8\%$
- Large General Service: $6,844,682,445 \text{ kWh} / 1,101,516 \text{ kW AC} / 8760 \text{ h} = 70.9\%$

8. These load factors are significantly higher than the example that IPL gave in its interpretation letter of 25%. Currently, the vast majority of Residential and General Service class customers in IPL's service territory do not have meters which register peak kW demand, and therefore, these customers would be wholly dependent on the customer class average load factor.

9. Based on the methodology in the interpretation letter, higher load factors equate to a lower net-metering load cap. Using the customer usage from the residential example in the interpretation letter the new net metering load cap would be calculated as follows: $12,000 \text{ kWh} / 8760 \text{ h} / 39.9\% = 3.43 \text{ kW AC}$. This is a 37.4% reduction of the size of 5.48 kW AC that IPL represented for a residential customer in its example. And it's a 61.9% reduction of the size of a 9 kW AC : 10 kW DC solar system that would be used to produce the 12,000 kWh of customer usage under the current net metering tariff. I estimate that this change would almost double the payback period, adding between 8 and 10 years to the payback period for this residential system.

10. Small residential installations under 4 kW AC are particularly challenging from a financial perspective due to the 2016 requirement for a disconnect device and the recent redefinition of the disconnect device, the recent increases in the interconnection fees, and other fixed installation costs. From our experience, there is a rather minimal financial argument for very small residential solar installations. For this reason, I believe that IPL's proposed tariff would effectively end or severely reduce residential solar in IPL's service territory.

11. I believe that IPL's proposed tariff would also have a significant impact on commercial customers who want to install solar. Using an assumed customer usage for a

Exhibit A

commercial customer of 120,000 kWh, which would currently be a 90 kW AC : 100 kW DC system, the new net metering load cap would be calculated as follows: $120,000 \text{ kWh} / 8760 \text{ h} / 47.8\% = 28.66 \text{ kW AC}$. For the small to mid-size commercial installations (e.g. General Service class), the new tariff would be a 68.2% reduction in system size. This reduction in system size would decrease the economies of scale on solar projects, which in turn would translate to higher dollar per watt installation costs and an overall less attractive solar option. While there would still be some projects in the commercial sector, I would expect farmers and small business owners to be significantly less interested in solar under IPL's proposed tariff than they are today.

12. I used roughly a 1.10 DC to AC ratio for the above solar system examples. It would be possible to have a higher or lower ratio. Per NREL's PVWatt documentation, a 1.10 DC to AC ratio is the default ratio.

13. I believe due to the complexity of the financial calculations for payback, lack of information available for the majority of Residential and General Service customers, and complications from IPL's proposed tariff that the new net metering load cap would be the de-facto solar sizing method for new solar installations.

/s/ Channing Congdon
Channing Congdon
Director of Design
Ideal Energy

Sworn or affirmed before me
this 23rd day of February, 2017.

/s/ Corinna L. Ackerman
Notary Public
My commission expires: 9-3-2017

Exhibit B

	31	28	31	30	31	30	31	31	30	31	30	31	Total
2016 Residential Class	2016 January	2016 February	2016 March	2016 April	2016 May	2016 June	2016 July	2016 August	2016 September	2015 October	2015 November	2015 December	
POPULATION	399,952	398,354	398,913	398,677	399,122	398,923	399,709	398,841	397,960	400,167	400,711	401,205	
SAMPLE CUSTOMERS	192	187	189	193	192	194	190	193	195	193	199	195	
SAMPLE KWH (CALENDAR MONTH)	338,728,223	254,788,808	303,984,345	232,895,324	238,177,223	349,006,112	366,903,708	358,608,062	289,096,316	226,233,041	251,927,641	295,140,255	8,778
AVERAGE KWH (CALENDAR MONTH)	847	640	762	584	597	875	918	899	726	565	629	736	21%
	25%	24%	19%	18%	17%	23%	24%	24%	20%	18%	20%	23%	
													Size (kW)
AVERAGE DEMAND	1.79	1.52	1.69	1.23	1.69	2.36	2.67	2.49	2.43	1.29	1.52	1.58	2.67
CP DEMAND	1.62	1.52	1.52	0.94	1.29	2.07	2.67	2.18	2.30	0.74	1.37	1.46	2.67
NCP DEMAND	4.59	4.05	5.29	4.51	4.66	5.26	5.11	5.06	5.13	4.34	4.34	4.38	5.29

Class Annual Usage 8,778 kWh
 Class Max Demand 5.29 kW
 Annual Load Factor 18.9%

Exhibit B

	31	28	31	30	31	30	31	31	30	31	30	31	Total
2015 General Service Class	2016 January	2016 February	2016 March	2016 April	2016 May	2016 June	2016 July	2016 August	2016 September	2015 October	2015 November	2015 December	
POPULATION	80,853	81,534	79,830	80,197	80,325	80,262	80,423	80,343	79,685	81,862	81,848	81,940	
SAMPLE CUSTOMERS	264	255	256	252	251	246	248	247	243	266	265	265	
SAMPLE KWH (CALENDAR MONTH)	183,271,297	152,490,074	148,523,575	141,307,833	129,332,008	199,465,691	231,779,057	234,473,567	221,244,598	159,353,396	166,456,262	183,607,445	
AVERAGE KWH (CALENDAR MONTH)	2,267	1,870	1,860	1,762	1,610	2,485	2,882	2,918	2,776	1,947	2,034	2,241	26,653 kWh
	35%	35%	30%	28%	27%	32%	31%	31%	30%	27%	29%	33%	30.8%
AVERAGE DEMAND	4.98	4.49	4.26	4.48	4.16	5.98	7.21	6.91	7.55	4.47	4.58	4.70	7.55
CP DEMAND	3.26	3.00	3.57	4.48	3.45	5.55	6.10	6.61	6.91	4.29	3.15	3.34	6.91
NCP DEMAND	8.65	7.87	8.39	8.59	7.89	10.72	12.68	12.51	12.75	9.67	9.81	9.14	12.75
			Class Annual Usage			26,653 kWh							
			Class Max Demand			<u>12.75</u> kW							
			Annual Load Factor			23.9%							

Exhibit B

Residential

Input Annual Usage=====>	10,000 kWh
Class Annual Load Factor	<u>19%</u>
Net Billing Load Cap	6.03 kW

Size of generation	7.5 kW
Percentage amount available for net billing	80%

General Service

Input Annual Usage=====>	120,000 kWh
Class Annual Load Factor	<u>24%</u>
Net Billing Load Cap	57.42 kW

Size of generation	65 kW
Percentage amount available for net billing	88%