LOUISIANA PUBLIC SERVICE COMMISSION

DOCKET NO. R-31417

LOUISIANA PUBLIC SERVICE COMMISSION
EX PARTE

In re: Re-examination of the Commission's Net Energy Metering Rules found in General Order No. R-27558, dated November 30, 2005 (the "Net Metering Order")

Comments of the Alliance for Affordable Energy

Pursuant to the Louisiana Public Service Commission's (Commission) "Notice of Request for Specific Comments" (Notice), issued to parties on January 15, 2013, the Alliance for Affordable Energy (Alliance) respectfully submits these comments addressing the benefits of net energy metering.

The Alliance addresses Staff's specific questions regarding the various benefits of net energy metering (NEM), but emphasizes that conducting a cost-benefit analysis demands a robust, holistic consideration of the role of NEM in supporting grid operations in the state. A full cost-benefit analysis cannot be obtained by cobbling together various benefits asserted by parties who lack the fundamental data to substantiate these benefits, nor can it be based on self-interested utility arguments that NEM provides only minimal benefits. Given the data-intensive nature of this type of study, and Staff's apparent view that most of this data will be sealed or protected as proprietary, parties are constrained in their ability to verify the purported costs of NEM with utility-specific data. The Alliance suggests that the way to level the playing field — and the dominant approach in every state that has tackled this precise question —is to convene a public process to establish a methodology that can be used by a qualified third-party expert, with experience in quantifying the benefits of distributed generation in order to produce a comprehensive report on the relative costs and benefits of NEM to participants and non-

participating ratepayers in the state.

To address the need for a robust methodology to determine these costs and benefits, the Alliance has contracted with an outside consultant, Jason B. Keyes, who has considerable experience with NEM issues and working within state regulatory arenas on cost-benefit issues associated with state net metering technologies. As former Commissioner Field stated at the August 20, 2012 technical conference, there is sound logic in reviewing the work of other jurisdictions that have mature solar and NEM markets and have already vetted and deployed methodologies for determining the cost-effectiveness of those policies.[1] Mr. Keyes, who is regulatory counsel for a national non-profit organization—the Interstate Renewable Energy Council, Inc. (IREC)—has presented the issue of NEM's benefits before multiple state utility commissions and has co-authored "*A Generalized Approach to Assessing the Rate Impacts of Net Energy Metering*,"[2] which was reviewed and vetted by both the United States Department of Energy and the National Renewable Energy Laboratory (NREL). Mr. Keyes is a recognized national expert on NEM policy and the Alliance hopes that its efforts to bring outside expertise and a multi-jurisdictional perspective on this issue will assist the Commission in moving forward.

The Alliance asked Mr. Keyes to prepare comments describing how cost-benefit analyses are usually conducted for NEM, to further elaborate on the benefits of solar and NEM, and to

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[1] Transcript of August 20, 2012 Technical Conference, at p. 77, lines 6-9. ("Commissioner Field: "Well, bring those [precedent from other jurisdictions regarding inclusion of benefits] to the attention of our Staff. We are not on the cutting edge, so we might as well take advantage of what other states have done, what they have been successful with, so we can set this thing up right, and set it up for a long term future.").

[2] Keyes, Jason and Wiedman, Joseph, *A Generalized Approach to Assessing the Rate Impacts of Net Energy Metering*, (Solar America Board for Codes and Standards (Solar ABCs)) (January 2012), *available at* www.solarabcs.org/about/publications/reports/rateimpact.

make the case for why they should be included in any study.[3] In addition to providing a thorough discussion regarding the proper methodological approach to determining the costs and benefits of NEM policy in Louisiana, Mr. Keyes has also made three primary recommendations, which the Alliance asks the Commission to adopt:

1. The Commission should retain the existing NEM structure, and reject Staff's proposal to fundamentally change the operation of NEM. The NEM rules should be revisited at a time that corresponds with the aggregate net metering cap of 0.5% of utility peak demand, as established in the June 22, 2011 PSC order.

2. The Commission should hire a contractor with demonstrated experience in assessing the costs and benefits of distributed generation and has conducted at least three studies that specifically employ a methodology to value the benefits of distributed generation. In the alternative, the Commission could require the current contractor to hire a subcontractor that meets these qualifications.

3. The public should have input and timely opportunities to comment on the development of any study methodology, which comments will form a part of the record of this proceeding.

[3] These comments are attached hereto as Attachment A. Mr. Keyes' resume is attached as Attachment B.

Response to Paragraph 3 of the Staff's Request for Specific Comments

As a preliminary matter, the Alliance notes that the Staff's request for data from utilities and parties is fundamentally asymmetrical. The utilities have ready access to internal data and can easily comply with the Staff's information request with concrete, substantive data. Intervenors, on the other hand, do not have access to specific cost of service data and cannot begin to accurately quantify the benefits of solar and NEM to the grid and to other ratepayers. Instead, non-utility parties are left to generally describe the types of benefits that might exist without the ability to leverage specific data to support those claims. As such, the Alliance assumes that Staff is taking this opportunity to identify categories of benefits, and will not conclude its cost benefit analysis solely on the basis of parties' attempts to quantify benefits without source data. The Alliance maintains that a cost-benefit analysis can only be conducted by an impartial party that has equal access to all of the information.

In light of this concern, the Alliance presents the following observations in response to Staff's question regarding net metering benefits, as a supplement to Mr. Keyes comments on the proper methodological approach going forward. Generally, NEM allows utilities to save fuel expenses, avoid line losses, provides a hedge against fuel costs, and realize at least some capacity benefit, in addition to providing various secondary benefits. Because all of these benefits inure to the advantage of the utility and non-Net Metering customers as well as the Net-Metering customer, each benefit should first be examined in turn and which are discussed in more detail by Mr. Keyes accompanying comments which are attached hereto as Attachment A.

1. Value of Exported Energy

Electricity exports from NEM customers will typically be consumed by other nearby customers, reducing the amount of generation the utility needs to generate to serve load at those times.

Due to the general correlation with on-peak usage periods, NEM solar facilities generally do not offset baseload generators. Rather, they offset the higher operating cost of peaking facilities that operate during business hours and other periods of above-average demand. In other words, the value of exported energy, if it occurs at times where it can offset expensive generation units, may be a net benefit to the utility and, thereby, other non-participating customers.

2. Avoided Line Losses

One of the most direct benefits of distributed generation is the fact that it allows generation to be consumed close to the place where it was generated, thereby avoiding the inefficiency of delivering power from central plants over great distances to the ultimate consumer. Typically, average line losses are in the range of 7%, and higher during heavier load periods, which correlate with high irradiance periods. Therefore, utilities are forced to generate additional electricity to compensate for line losses, decreasing the economic efficiency of each unit of electricity that is delivered. However, when a NEM customer does not consume all output as it is being produced, the excess is exported to the grid and consumed by neighboring customers on the same circuit, with minimal losses in comparison to electricity generated by and delivered from a utility's distant plant. Avoided line losses are a benefit to the utility and, thereby, other non-participating customers.

3. Fuel Cost Price Hedge

Customer-generation can also provide a fuel cost price hedge benefit by reducing reliance on fuel sources that are susceptible to shortages and market price instability. NEM customer exports help hedge against these price increases by reducing the volatility risk associated with traditional fossil fuel prices. Again, the hedge provided by NEM customers benefits both the utility and non-participating customers.

4. Avoided Generation Capacity

While it may be the case that individual NEM systems using intermittent generating technologies do not provide capacity value to a utility, distributed solar and wind have capacity value when considered in the aggregate. Geographic diversity tends to smooth the variability of solar generation output, making it more dependable as a capacity resource. Therefore, the diversity of these facilities may collectively comprise the equivalent of capacity thereby avoiding the cost of new generation which benefits the utility and non-participants.

5. Avoided T&D Capacity

Avoided or deferred T&D stems from the fact that NEM customers will have less load at the feeder, substation, and transmission levels, and can help a utility to avoid specific upgrades or defer replacements of some utility distribution assets. This data is likely to be highly location-specific and not all NEM systems will equally contribute to upgrade deferrals. However, the system-wide proxy value for avoided T&D can be derived. Again, avoided T&D benefits both the utility and non-participants.

a. **The Net Metering benefits to the Net Metering customer**.

The Net Metering rules currently in effect ensure that Net Metered customers receive fair credit for the energy which they generate and put on the grid for the benefit of other customers. The Net Metered customer has made an investment in generation and the current rules protect Net Metered customers from having a utility company take and sell that generation without adequately compensating Net Metered customers so that they can recoup their investment.

The Net Metered customer also enjoys the benefits that NEM provides to all customers, to wit: 1) allows the utility to purchase less expensive peak generation energy which savings is passed through to all customers (including the Net Metered customer); 2) avoids line losses which benefits all customers (including the Net Metered customer); 3) provides a fuel cost price hedge which benefits all customers (including the Net Metered customer); 4) when implemented on a large enough geographic base, provides for delaying or avoiding capacity additions which benefits all customers (including the Net Metered customer); and 5) avoids or defers T&D capacity additions which benefits all customers (including the Net Metered customer).

b. **The Net Metering benefits to non-Net Metering customers**.

The non-Net-Metering customer benefits from the fact that NEM: 1) allows for the utility to purchase less expensive peak generation energy which would be passed through to all customers (including the non-Net Metered customer); 2) avoids line losses which benefits all customers (including the non-Net Metered customer); 3) provides a fuel cost price hedge which benefits all customers (including the non-Net Metered customer); 4) when implemented on a large enough geographic base, provides for delaying or avoiding capacity additions which benefits all customers (including the non-Net Metered customer); and 5) avoids or defers T&D capacity additions which benefits all customers (including the non-Net Metered customer).

c. **The Net Metering benefits to the utility**.

The utility benefits from the fact that NEM: 1) allows for the utility to purchase less expensive peak generation energy which would otherwise be passed through to all of its customers; 2) avoids line losses which benefits all of its customers ; 3) provides a fuel cost price hedge which benefits all of its customers; 4) when implemented on a large enough geographic base, provides for delaying or avoiding capacity additions which benefits all of its customers; and 5) avoids or defers T&D capacity additions which benefits all of its customers.

d. **The Net Metering benefits to society**.

In addition to reducing rates and risk to utilities and non-participants, NEM can also promote economic development for Louisiana. Most of the costs of generation resources are for fuel, equipment purchases, interest and dividends, all of which primarily flow out of Louisiana. Most renewable energy systems, in contrast, require large amounts of local labor, which cannot be outsourced. Renewable energy also increases local economic activity due to the reduction in bills which increases additional disposable income for Louisiana residents and businesses, and increases competitiveness of Louisiana for industrial firms and commercial enterprises.

Furthermore, renewable energy provides substantial environmental benefits including reduced air and water pollution, locally and upstream along the Mississippi and its tributaries; and reduced global-warming emissions.

e. **Any other Net Metering benefits**.

A critical benefit of Net Metering is that it encourages the development of renewable energy which will decrease our nation's dependence on fossil fuels. Even though there has been

a recent boom in natural gas production, natural gas supplies – like all fossil fuels (and likewise uranium ore) – are limited on our planet. Development of renewable energy sources will help our country become energy independent by decreasing our reliance on imported energy.

Conclusion

The development of new rules and revisions to existing law should respond to evolving and substantive changes in regulatory circumstances. Such undertakings are costly to the commission and stakeholders and create uncertainty for parties potentially affected by new regulations. Although increases in the prevalence of solar technology reflects a growing local and national trend that warrants periodic review, conditions have not substantively changed beyond what was considered in the rules enacted by the PSC in 2011. Among many other issues addressed at that time, a clear threshold of 0.5% of utility peak capacity was established as the trigger for review of the net metering rules, as a way of evaluating the costs and benefits of further expansion of distributed generation in the state of Louisiana. We have not reached that threshold, nor have new circumstances emerged that could be construed to constitute an unforeseen emergency from interconnection that justifies overturning existing law.

Furthermore, no plausible scenario exists whereby cost shifting , if any, caused by solar interconnection comes anywhere close to the scale of impact that issues like rate cases, transmission divestiture, assignment of cost for proposed construction of generation facilities (past and future), the movement to an RTO, and many others will have on ratepayers. And yet, LPSC staff and consultant resources, as well as the time and resources of numerous stakeholders, are being diverted from those important matters to this issue.

Finally, the Alliance wishes to reiterate that a decision to alter the terms of established law on net metering directly impacts not only future solar customers, but thousands of

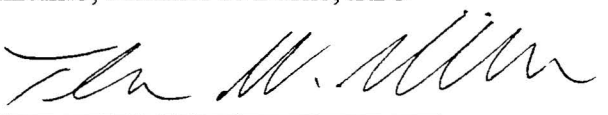
individuals who have already purchased solar systems to serve their electricity needs. These investment decisions were based to a significant degree on payback calculations that included the fair 1-to-1 credit for excess generation that is the core of Louisiana's net metering rules. The two potential modifications that have been presented to date radically transform the basic premise of net metering to the serious detriment of this single group of ratepayers.

It is clear that the rules currently in place are the correct rules until such time as a methodologically sound cost benefit analysis is conducted that corresponds with reaching 0.5% of utility peak capacity from the excess generating capacity of interconnected solar electric systems, as defined in the 2011 net metering rules.

The Alliance appreciates the opportunity to submit these comments and respectfully requests that the Commission adopt its recommendation to perform a comprehensive cost-benefit analysis of NEM based on the established methodological approaches discussed in our comments. The Alliance looks forward to working with Staff and other parties to accomplish this task.

Respectfully submitted.

Anzelmo, Milliner & Burke, LLC



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On Behalf of the Alliance for Affordable Energy

CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing has been served upon "The Official Service List" via electronic mail and/or U.S. Mail, postage properly affixed, this 1st day of February, 2013.

Thomas W. Milliner

Comments of Jason B. Keyes

Introduction

I, Jason B. Keyes, have been retained by the Alliance for Affordable Energy (Alliance) to provide an analysis of the Louisiana Public Service Commission's (Commission) recent proposal to modify its net energy metering (NEM) rules and to respond to Staff's January 15, 2013 "Notice of Request for Specific Comments" (Notice).

The Alliance retained me to prepare this analysis based on my experience in working to advance best practices in NEM policy throughout the United States. I have been regulatory counsel for the Interstate Renewable Energy Council, Inc. (IREC), for the past six years and have participated in net metering rulemakings or workshops in 21 states. IREC is a non-profit organization that has worked for three decades to expand retail electric customer access to renewable energy resources through the development of programs and policies that reduce barriers to renewable energy deployment and increase consumer access to solar and other distributed renewable energy technologies. IREC has worked in over 40 states to implement successful regulatory policies that further deployment of these technologies, including net metering rules, interconnection procedures, and community renewable power programs.[1]

I recently co-authored a report on the generally accepted methodological approaches to determining the cost-effectiveness of state net metering policies. This report was published by the Solar America Board for Codes and Standards, with extensive peer review by personnel from the National Renewable Energy Laboratory, Lawrence Berkeley National Laboratory, and the United States Department of Energy.[2]

Additionally, I have appeared before several utility Commissions on behalf of IREC to address similar methodological concerns. On behalf of IREC, I am participating in a comprehensive state-wide cost-benefit analysis of NEM that is currently underway in California, submitting several rounds of comments to the California Public Utilities Commission's consultant, Energy and Environmental Economics (E3). Previously, I worked with local counsel in New Mexico to support IREC's intervention in a general rate case to oppose a distributed generation rider that would have improperly imposed costs on net metering customers without proper consideration of the benefits those customers provided to the grid. While this case was resolved by settlement, IREC submitted testimony that made a full presentation on the proper methodology for assessing the relative costs and benefits of serving distributed generation (DG) and NEM customers. Using this methodology, IREC's expert concluded that, based on cost of service studies that were made available to parties to the rate case, NEM customers

[1] Under the terms of its contract with the United States Department of Energy, IREC is authorized to assist state utility commissions in the top twenty solar states. Unfortunately, Louisiana does not currently qualify for that list.

[2] Keyes, Jason and Wiedman, Joseph, *A Generalized Approach to Assessing the Rate Impacts of Net Energy Metering*, (SolarABCs) (January 2012), *available at* www.solarabcs.org/about/publications/reports/rateimpact.

delivered benefits to the grid that exceeded the utility's cost of providing service.[3] Accordingly, IREC's position was that any charge imposed on NEM customers would not be cost-justified.

Prior to my legal career, I managed government contracts and business development for eight years at JX Crystals Inc., a pioneer in the field of high-concentration solar energy systems. In the early 1990s, I helped develop the integrated resource plan and the demand forecast at Washington State's largest utility. I received my juris doctor from the Seattle University School of Law, a master of arts in economics from the University of Washington, and a bachelor of arts from Dartmouth College. I am a member of the Washington State Bar Association. My professional resume is attached to these comments as Attachment B.

Overview of Comments

My comments are offered to supplement the comments of the Alliance, which are directly responsive to Paragraph 3 questions in the Commission's January 15, 2013 Request for Specific Comments. My comments focus on the need to conduct a comprehensive and methodologically sound study to determine the relative costs and benefits of NEM policy in Louisiana before the Commission takes any action to change the existing NEM policy, should it adopt Staff's most recent proposal or any other of the options previously explored. The purpose of my comments is to present a framework for properly assessing the benefits and costs of the state's NEM policy, which I hope will help provide the Commission a clearer picture of how the question has been addressed in other jurisdictions.

In **Section I**, I discuss the basic background of NEM policy in the United States and provide my analysis of why the Staff's proposed revisions are inconsistent with national practices and threaten to undermine the economic assumptions of NEM customers.

In **Section II**, I discuss why cost-causation principles require consideration of the benefits of customer generation and why it is inappropriate to assume no benefits or to attempt to justify a charge on NEM customers without consideration of these benefits.

In **Section III**, I discuss the range of benefits of solar and distributed generation (DG) identified in literature.

In **Section IV**, I provide specific recommendations for the Commission to ensure that a cost-benefit analysis will be conducted with sufficient transparency and methodological rigor whenever such a study becomes appropriate. My chief recommendation is to wait until the utilities have met the trigger point at which installed NEM capacity equals 0.5% of utility peak load, as previously established by the Commission in its NEM rules in 2011.

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[3] *See* New Mexico Public Regulation Commission Case No. 10-00086-UT; *see also Freeing the Grid*, 2011 edition at pp. 79 (discussing NM proposed DG rider), *available at* www.gracelinks.org/147/freeing-the-grid-2011.

I. Staff's Proposal Dismantles Louisiana NEM Policy and Cuts Against National Norms

The primary appeal of net metering to customers—as a policy tool to encourage investment in renewable technologies—is that it allows "netting" over a billing period, giving customers full credit for their generation output by accounting for usage and generation on a monthly basis. IREC has identified indefinite rollover of excess generation credits—the current practice in Louisiana—as a best practice because it encourages proper sizing of net metered systems and avoids potential complications associated with direct "payouts" to NEM customers.[4]

Staff's proposed revisions appear to upend this established practice of netting and, thereby, undermine the assumption of existing customers that the kilowatt-hours (kWhs) they produce would either be consumed onsite or valued on a "1 to 1" basis against future consumption. According to the Staff's proposal, "the Commission [should] modify its existing rule to require electric utilities to compensate the net metering customer at the utility's average avoided cost rate for the immediate preceding month for any excess generated power sold to the utility."[5] The interpretation shared by many intervenors is that the phrase "any excess" implies that all exports (i.e., electricity not directly and instantaneously consumed by the NEM customer) will be valued at avoided cost at the end of the month, and not just the generation in excess of consumption as netted over the monthly billing period.

This approach does not "net" usage against consumption as NEM customers have come to understand the policy. Customers who sized their systems to account for all usage (i.e., expecting to generate approximately what they consume over a month) will now find themselves facing the costs of system ownership and a large energy bill because their exports are valued significantly lower. If this interpretation is incorrect, Staff should clarify how its proposal will work so that the public and existing NEM customers appreciate the significance of what is at stake.

Further, if the various intervenors are correct in this interpretation, Staff's proposal appears to be indistinguishable from what is provided for by the Public Utility Regulatory Policies Act of 1978 (PURPA).[6] Under PURPA, a QF has the right to self-generate and may opt to sell its "as available" output to the interconnected utility at that utility's avoided cost rate. PURPA, like the Staff's proposal, does not provide for netting over the billing period and values all exports at avoided cost.

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[4] For example, the Federal Energy Regulatory Commission's precedent (see footnote 7) holds that "netting" does not involve a sale, unless there is excess generation at the end of a billing period. At that point, any sale will be pursuant to FERC's jurisdiction unless the generator is a QF and the rate does not exceed avoided costs. With indefinite rollover, there is never a sale, and presumably the arrangement would therefore never be subject to FERC's exclusive wholesale jurisdiction.

[5] Staff Report and Recommendation, Commission docket number R.31417, at p.10 (issued November 30, 2012).

[6] 16 U.S.C. § 824a-3; *see generally* 16 U.S.C. § 2601 *et seq.*.

This practice is out of step with the overwhelming majority of states that have adopted net metering. All states in Table 1 allow netting over the monthly billing period and only differ in respect to how excess generation left at the end of that billing period is treated. The United States Congress[7] and the Federal Energy Regulatory Commission (FERC)[8] have both framed net metering as an option that is distinct from PURPA, in recognizing that it involves "netting" over the applicable billing period.

Table 1. Credit for Excess Generation by State

Excess kWh Rolled Over to Subsequent Bills at Retail Rate or to Offset Retail kWh	Not Clear Whether Avoided Cost or Retail Is Required	Excess kWh Rolled Over at Avoided Cost or Wholesale Rate
AR, AZ, CA, CO, CT, DC, DE, FL, HI, IA, IL, IN, KS, KY, LA, ME, MD, MA, MI, MN, MT, NE, NV, NH, NJ, NY, NC, OR, PA, RI, SC (IOUs), UT, VT, VA, WA, WV, WI, WY	GA (pursuant to PSC approved rate)	AK, MO, NM, ND, OH, OK

II. Cost-Causation Principles Require Consideration of Benefits Associated with Customer Generation and Demand Sufficient Data Inputs

A. NEM Customer's Beneficial Characteristics Are Essential to Determining Cost-Causation.

In general, customers should only be held accountable for costs that they, as a class, cause the utility to incur. Taken in the context of proposed revisions to the NEM rules, the Commission should determine whether existing NEM policy is cost-justified based on sound cost-causation principles. If it is not, the Commission should assess the extent of any cost-shift and estimate whether its response— either assigning a fee to net metering customers or essentially rewriting net metering to be a PURPA arrangement—is proportional to the size of the cost shift it identifies.

Moreover, the proper frame of reference for determining the relative costs of NEM is to look at exports from the NEM customer to the grid, as it is the ability to export electricity that differentiates NEM customers from others in their rate classes.[9] It is the export of

[7] 16 U.S.C. § 2621(d)(11) ("Net metering service means... service to an electric consumer under which electric energy generated by that electric consumer from an eligible on-site generating facility and delivered to the local distribution facilities may be used to offset electric energy provided by the electric utility to the electric consumer during the applicable billing period.")

[8] *See, e.g., MidAmerican Energy Co.*, 94 FERC ¶ 61,340 (2001); *SunEdison LLC*, 129 FERC ¶ 61,146 (2009).

[9] On-site, behind-the-meter usage of generator output is equivalent to reductions in usage achieved by energy efficiency or changes in behavior, and should not be a part of a cost-benefit analysis.

electricity, then, that creates the unique potential for a cost-shift from NEM customers to non-participating ratepayers and that should be the focus of determining costs associated with NEM.

There are many guiding principles associated with utility ratemaking, but cost-causation embodies the basic reasonableness that is demanded in Commission-approved rates. This principle inherently seeks to avoid cost-shifts between classes of customers by not overestimating or underestimating the extent of costs caused by that class.[10]

Cost of service studies look at the fixed and variable costs of providing service, and determine how to allocate those costs to customer classes. Cost of service studies should also identify beneficial properties of a class, such as load diversity, that make a class easier or cheaper to serve. In short, when a unique charge or treatment is proposed for a defined group, there should be some reasonable justification that those customers in that group will be paying for costs they actually cause the utility to incur.

The Commission should consider that NEM customers provide benefits that allow utilities to avoid certain costs. By offsetting these costs, NEM customers necessarily defray the utility's cost of providing service to NEM customers. A fair assessment of whether a change in policy is justified based on cost-causation grounds (i.e., concerns about a cost shifting) must account for these benefits.

B. The Statutory Framework for Considering Cost-Causation in the NEM Context Focuses on Interconnection and Administration Costs

As the Alliance pointed out in its comments dated December 7, 2012, Louisiana law provides a framework that requires the Commission to consider relative benefits or costs when it considers imposing a special charge on NEM customers.[11] Among the "benefits" the Commission should consider against a utility's "direct costs of interconnection and administration of [NEM]" are the "public policy benefits of allocating the cost among the electric utility's entire customer base."[12] Importantly, the focus of this cost-causation showing is on interconnection and administrative costs associated with NEM.

The express public policy intent of the legislature, here, is to protect net metering customers from unjustified charges. Far from requiring the Commission to act to "equalize" any potential cost shift from non-participating customers to NEM customers

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[10] *See generally* Bonbright, James *et al.*, Principles of Public Utility Rates, second ed., at pp. 109-110; 480-483.

[11] R.S. 51:3063(B)(2) ("Shall authorize an electric utility to assess a net energy metering customer a greater fee or charge, of any type, if the electric utility's direct costs of interconnection and administration of net energy metering outweigh the distribution system, environmental, and public policy benefits of allocating the cost among the electric utility's entire customer base. The net metering customer shall reimburse the utility for any costs in excess of those to serve a traditional customer.")

[12] *Id.*

by instituting new charges, the legislature contemplates that public policy may be served by spreading the costs of net metering, if any, among the entire customer base.

In the present context, it is not clear whether the Commission is considering a rate change or a novel charge, or if it has something even more consequential in mind: the rewriting of state-wide NEM policy. Louisiana law appears to call for any of these options to be cost-justified since any of these Commission actions will affect only NEM customers. If utilities must make a cost-justification showing before seeking approval of a special charge, it would be reasonable to apply the statute's requirements with equal force to the proposal to restructure NEM into, basically, a PURPA program.

C. Data Obtained Through Staff's Request for Specific Comments Is Likely to Be Insufficient to Support a Cost-Causation Conclusion about NEM

Based on Staff's January 15, 2013 Request for Specific Comments from the utilities and parties, it is unclear whether the Commission intends to pursue a more robust study. The level of detail of the requests is unlikely to provide sufficient information to conduct a thorough analysis. While obtaining data on kWh exports to utilities from NEM customers is relevant, such data needs to be further disaggregated to be of much value. For example, determining the value of NEM exports to the grid should differentiate by rate class, as commercial NEM customers, as discussed in Section III, may provide distinct grid benefits compared to residential NEM customers. Another element of a thorough examination would be an estimate by each utility of the incremental costs of administering net metering for its customers (i.e., billing and customer service). With volume, it is reasonable to expect lower administrative costs per customer.

For information on the benefits of NEM, it is not clear that any intervenors will have access to sufficient data to match the utility's presentation about costs with a counter-presentation about benefits. Accordingly, responses to the specific questions in Staff's request are unlikely to provide the depth and quality of data that will be needed to draw defensible cost-causation conclusions about NEM.

III. Analysis of NEM Cost-Effectiveness Should Consider the Full Range of Potential Benefits Associated with Customer Generation

A Generalized Approach to Assessing the Rate Impacts of Net Energy Metering[13] *(SolarABCs* paper) presents a summary of three significant studies conducted in California, Arizona and Austin, Texas, and discusses the common approaches taken in those studies in evaluating benefits of solar or NEM. This section discusses each benefit that these studies sought to quantify and makes the case for inclusion of such benefits in a Louisiana-specific study (subsection A). Additionally, this section provides a high-level overview of the methodological approaches and results of those and other recent studies that investigate the benefits of NEM or solar energy generally (subsection B).

[13] Keyes, *A Generalized Approach to Assessing the Rate Impacts of Net Energy Metering, supra,* footnote 1.

A. List of standard benefits associated with customer generation

The *SolarABCs* paper identified a common range of benefits considered in all three of the evaluated studies:

"On the benefits side of the rate impact calculation, the three studies we reviewed indicate that NEM allows utilities to save fuel expenses, avoid line losses, and realize at least some capacity benefit, while also suggesting various secondary benefits. An important component to the benefit calculation is determining what generation will be offset."[14]

Within these basic benefit categories, there are a number of additional considerations that may provide concrete, quantifiable benefits for NEM systems.

1. Value of Exported Energy

Electricity exports from NEM customers will typically be consumed by other nearby customers, reducing the amount of generation the utility needs to generate to serve load at those times. A significant potential benefit of NEM exports, then, is the value of electricity at the time the export occurs.

Utility variable rates are based on average operating costs, and more than two thirds of a typical utility's generation comes from high capital cost/low operating cost coal, nuclear, and hydropower facilities. Due to the general correlation with on-peak usage periods, NEM solar facilities generally do not offset these baseload generators. Rather, they offset the lower capital cost/higher operating cost natural gas-fired facilities that operate during business hours and other periods of above-average demand to supplement baseload generation. Accordingly, the value of NEM solar exports are likely to reflect the higher marginal costs, including fuel costs, of less efficient peaker units. Depending on each utility's costs at the margin, the value of NEM solar exports at these times could far exceed the retail credit the customer receives in exchange. In other words, the value of exported energy, if it occurs at times where it can offset expensive generation units, may be a net benefit to the utility and, thereby, other non-participating customers.

The Commission should consider the value of generation that NEM helps utilities to avoid by virtue of energy exports. If adequate data is not presented by the utilities in their responses to specific questions on January 29, 2013 to support such an analysis, the Commission could issue a supplemental request or enable a qualified contractor to conduct a pilot study to measure the timing and quantity of exports from typical NEM customers.

2. Avoided Line Losses

One of the most direct benefits of distributed generation is the fact that it allows generation to be consumed close to the place where it was generated, avoiding the inefficiency of delivering power from central plants over great distances to the ultimate

[14] *Id.* at p. iv (Executive Summary).

consumer. Indeed, when a NEM customer does not consume all output as it is being produced, the excess is exported to the grid and consumed by neighboring customers on the same circuit, with minimal losses in comparison to electricity generated by and delivered from a utility's distant plant. Utilities are forced to generate additional electricity to compensate for line losses, decreasing the economic efficiency of each unit of electricity that is delivered.

Including avoided line losses as a benefit is relatively straightforward and should be non-controversial. Even FERC's regulations implementing PURPA recognize that distributed generation can account for avoided line losses.[15] There is no technical reason that the consultant's analysis should not account for this benefit, which exists for all types of DG technologies and, to some extent, in all locations. Typically, average line losses are in the range of 7%, and higher during heavier load periods, which correlate with high irradiance periods.

3. Fuel Cost Price Hedge

Customer-generation can also provide a fuel cost price hedge benefit by reducing reliance on fuel sources that are susceptible to shortages and market price instability. In addition to providing a hedging value for NEM systems based on market fluctuations, it is also important to consider regulatory uncertainty regarding greenhouse gas emissions. Prospective regulation of greenhouse gases could impact the costs of producing base fuels, as well as targeting emissions caused by burning those fuels in the generation process. NEM customer exports help hedge against these price increases by reducing the volatility risk associated with base fuel prices.

4. Capacity Benefits

a. Avoided Generation Capacity

Determining the capacity benefits of renewable generation, particularly where it is intermittent in nature and is exported on an "as available" basis, is a more complex consideration, but there can be a demonstrated capacity value for NEM systems. Capacity value of generation exists where a utility can count on generation to meet its peak demand and, thereby, avoid purchasing additional capacity to generate and deliver electricity to meet that peak demand.

While it may be the case that individual NEM systems using intermittent generating technologies do not provide capacity value to a utility, there is compelling precedent for considering the aggregate value of NEM systems in determining capacity value. First, recent literature shows that geographic diversity tends to smooth the variability of solar generation output, making it more dependable as a capacity resource.[16] Again, even FERC regulations reflect the principle that distributed solar and wind have capacity value when considered in the aggregate:

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[15] *See* FERC Order No. 69, 45 Fed. Reg. 12214 at 12227.("If the load served by the [QF] is closer to the [QF] than it is to the utility, it is possible that there may be net savings resulting from reduced line losses. In such cases, the rates should be adjusted upwards.").

[16] *See* Andrew Mills and Ryan Wiser, *Implications of Wide-Area Geographic Diversity for Short-Term Variability of Solar Power*, September 2010, LBNL-3884E.

> In some instances, the small amounts of capacity provided from [QFs] taken individually might not enable a purchasing utility to defer or avoid scheduled capacity additions. The aggregate capability of such purchases may, however, be sufficient to permit the deferral or avoidance of a capacity addition. Moreover, while an individual [QF] may not provide the equivalent of firm power to the electric utility, the diversity of these facilities may collectively comprise the equivalent of capacity.[17]
> [. . .]
> [F]or example, wind machines that furnish power only when wind velocity exceeds twelve miles per hour may be so uncertain in availability of output that they would only permit a utility to avoid generating an equivalent amount of energy. In that situation, the utility must continue to provide capacity that is available to meet the needs of its customers. Since there are no avoided capacity costs, rates for such sporadic purchases should thus be based on the utility system's avoided incremental cost of energy. On the other hand, testimony at the Commission's public hearings indicated that effective amounts of firm capacity exist for dispersed wind systems, even though each machine, considered separately, could not provide capacity value. The aggregate capacity value of such facilities **must** be considered in the calculations of rates for purchases, and the payment distributed to the **class** providing the capacity.[18]

b. Avoided T&D Capacity and Deferral of Capacity Additions

Fundamentally, avoided or deferred T&D stems from the fact that NEM customers will have less load at the feeder, substation, and transmission levels, and can help a utility to avoid specific upgrades or defer replacements of some utility distribution assets. This category could also refer to locational benefits, as NEM in specific locations may serve to reduce peak circuit or substation load by offsetting the individual demands of NEM customers on those systems. This in turn can allow a utility to defer expensive upgrades in those locations.

Accordingly, this data is likely to be highly location-specific and not all NEM systems will equally contribute to upgrade deferrals. As in the case of heavily commercial circuits, which tend to peak around 1 p.m. (when solar production is at its highest), solar NEM systems can provide substantial locational benefits by reducing customer contributions to circuit and substation peak.[19] Regardless, the system-wide proxy value

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[17] FERC Order No. 69, 45 Fed. Reg. 12214 at 12227.
[18] *Id* at 12225.
[19] Southern California Edison (SCE) performed its own analysis in its most recent rate case to determine whether higher demand charges were warranted on C&I NEM customers taking service under Option R, a rate that shifts a significant portion of cost recovery away from the demand charge and into volumetric rates that can be avoided by NEM customers. SCE concluded that C&I NEM customers made significant contributions to reducing system peak demand and determined that increasing demand charges was not warranted because these customers were currently providing a net benefit to the grid. The study was made publicly available as attachment RTB-2 to the Solar Energy Industries Association's testimony in a separate proceeding, A.11-10-002.

for avoided T&D can be derived. In the ongoing California cost-effectiveness process, E3's study will consider the potential avoided T&D value of NEM by considering costs categories including but not limited to marginal avoided transmission costs and distribution avoided costs based on the most recent utility distribution capital plans.[20]

5. Secondary Benefits

In addition to the more readily quantifiable benefits—avoided energy costs, avoided line losses, fuel price hedge value, and capacity value—NEM brings many secondary benefits that should be considered on whole, in assessing the policy value, even if doing so is beyond a determination of strict cost-effectiveness. Secondary benefits may include environmental attributes, such as avoided emissions, or social and economic benefits, such as increased jobs installing NEM systems. The Commission should consider these secondary benefits, on balance, as factors in weighing whether public policy goals support continuing the existing NEM policy even if a cost-shift is discovered after a proper and thorough investigation.

B. Valuation of NEM or Distributed Solar Benefits in Previous Studies

Past studies demonstrate that it is not only appropriate to consider the benefits of solar or NEM, but also that the approaches to determining these benefits are fairly standard. The following studies could provide inspiration to the Commission or at least a template to consider the discernible benefits of solar or NEM. The following brief overview of these studies demonstrates that solar and NEM can result in a net positive outcome in a cost-benefit analysis. Moreover, the following studies suggest a template of broadly accepted benefit categories that the Commission could include in any future cost-benefit analysis for NEM.

1. Austin Energy Solar Study (Clean Power Research)

The Austin Energy study, undertaken in 2006 to consider the cost-effectiveness of a goal to install 100 MW of solar by 2020, considered a broad range of potential benefits, but limited its analysis to energy production value, generation capacity value, T&D deferrals, reduced transformer losses, reduced line losses, and environmental benefits. The Austin Energy study considered but did not include in its final analysis the benefits of natural gas price hedge, blackout prevention, management of load uncertainty, emergency utility dispatch, and reactive power control.

In considering these benefits, Clean Power Research concluded that PV offered a net present value in the range of $1,983 to $2,938 per kW of capacity, or approximately $0.11 to $0.12 per kWh generated when levelized and expressed in 2006 dollars.[21] These benefits exceeded Austin Energy's retail rates for the summer period and were slightly below the retail rate for "upper tier" consumption (i.e., the higher rate for consumption

[20] *Net Energy Metering Cost-Benefit Study: Phase 1 Scope and Method, Post-Workshop Update* (E3) (December 19, 2012).
[21] *SolarABCs* at p. 6.

over 500 kWh/month) during winter months. However, when the benefits were recalculated in 2008, and expressed in 2008 dollars, the levelized benefit was determined to be $0.164/kWh, far in excess of Austin Energy's retail rates at all times of year.[22] This study provides a great example of how consideration of benefits can reveal net positive benefits of solar generation, the technology that is primarily associated with NEM.

As a side note, Austin Energy's 2012 Value of Solar Tariff (VOST) determined a value of $ 0.128/kWh for solar output. According to the Database of State Incentives for Renewables and Efficiency (DSIRE) website, "the Value of Solar rate is based upon several factors including: loss savings, energy savings, generation capacity savings, fuel price hedge value, transmission and distribution capacity savings and environmental benefits."[23] The (VOST) number is significant because it represents consideration of the benefits (i.e., value) that solar exports bring to the grid. This number also far exceeds, with perhaps the exception of Hawaii, the published avoided cost rates of utilities across the country. By analogy, the Commission could draw inspiration to quantify and value solar exports in a similar fashion in Louisiana for the purposes of determining whether a cost shift if occurring.

2. Arizona Public Service Solar Study[24]

In 2008, Arizona Public Service (APS) set out to study the impact of wide-scale deployment of distributed solar PV, in addition to solar hot water systems. One of the specific objectives of this study was to assess the benefits that wide-scale deployment of these technologies could bring to the APS system. The authors of the study looked at three penetration scenarios for these technologies, based on the aggregate capacity of systems as a percentage of peak load: low (0.5%), medium (6.4%), and high (14%). The study assumed that each level of penetration would occur by 2025.

This study considered the benefits of avoided T&D line losses, deferment of T&D capacity upgrades and additions, reduction in necessary equipment size within the distribution system, avoided electric generation capacity costs, avoided fixed operating costs, avoided energy purchases, and avoided fuel purchases. Unlike Austin Energy, the APS study did not include consideration of environmental benefits.

Using these benefit inputs, the study found a range of benefits across the penetration scenarios from $0.079 to $0.141/kWh, expressed in 2008 dollars. Residential rates for APS customers range between $0.094 and $0.174/kWh (in the summer months). On balance, the results of the APS study are inconclusive as to whether a subsidy is flowing from non-participating customers to NEM customers. In the case of demand-metered customers, it is clear that the subsidy flows the other way because the benefits of solar far

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[22] *Id.*

[23] *see* DSIRE website, Austin Energy-Value of Solar Residential Rate web page, *available at* http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=TX139F.

[24] R.W. Beck, Inc., *Distributed renewable energy operating impacts and valuation study* (APS Study) (2009), *available at* www.aps.com/_files/solarRenewable/DistRenEnOpImpactsStudy.pdf.

exceed the costs for those customers.[25] Moreover, consideration of environmental benefits, as was done in the Austin Energy study, would very likely have tipped the analysis to conclusively show that solar customers provide net benefits to the grid and other ratepayers.

One significant caveat to this study is the fact that it gave solar energy virtually no credit for its capacity benefit. As discussed in the SolarABCs report, the APS study assumed that solar could only provide a capacity benefit where it could match the same "lumpy" capacity additions as traditional generation. The flaw in this approach is that it ignores the value of solar in creating incremental increases in generating capacity that would enable solar to defer "lumpy" and inefficient capital investments in new generation. Even FERC, in implementing PURPA, accounted for the fact that QFs should be valued for the fact that they can come online quickly and can help meet incremental demand and defer large capital projects.[26] By analogy, consideration of the capacity benefits of NEM facilities is appropriate in the context of Louisiana's generation mix and future resource planning.

3. E3 2010 California NEM Cost Benefit[27]

The CPUC has been engaged, for almost a decade, in refining a cost-effectiveness methodology to consider the efficacy of its demand-side policies, including energy efficiency, demand response, and renewable distributed generation programs. In 2008, the CPUC commissioned E3 to evaluate the value of excess generation from NEM customers for all three of California's major investor-owned utilities. This study was the first, comprehensive study specific to NEM, so it and its ongoing consideration in California should be very valuable to the Commission's present consideration. The 2010 E3 study has some significant flaws, but recent updates performed by Crossborder Energy, discussed next, address those issues and attempt to provide a clearer picture of the relative benefits of NEM to utility ratepayers.

The 2010 E3 study considered a range of benefits that included, similar to the APS and Austin Energy studies, avoided costs from avoided energy purchases, avoided generation capacity or resource adequacy, avoided line losses, avoided T&D capacity, avoided environmental compliance, avoided ancillary services, and avoided renewable energy purchases (pursuant to the state's mandate that a percentage of retail sales be generated from renewable resources).

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[25] *SolarABCs* at p. 8.

[26] *See* FERC Order No. 69, 45 Fed. Reg. 12214 at 12227 ("In some instances, the small amounts of capacity provided from [QFs] taken individually might not enable a purchasing utility to defer or avoid scheduled capacity additions. The aggregate capability of such purchases may, however, be sufficient to permit the deferral or avoidance of a capacity addition. Moreover, while an individual [QF] may not provide the equivalent of firm power to the electric utility, the diversity of these facilities may collectively comprise the equivalent of capacity.")

[27] Energy and Environmental Economics, Inc., *Net Energy Metering (NEM) Cost Effectiveness Evaluation* (E3 Study) (2010), *available at* http://www.cpuc.ca.gov/PUC/energy/DistGen/nem_eval.htm.

As with the APS study, a significant caveat is the failure of the E3 study to account for capacity value in early years for NEM excess generation. The E3 study assumed that utilities would not have a need for additional capacity until 2015 and valued pre-2015 capacity at approximately $28/kW/year. After 2015, this number increases in a linear fashion to $141/kW/year, with a high of $200/kW/year in 2036. As discussed in our SolarABCs paper, this assumption is flawed in the context of California policy because long-term utility resource planning does account for customer-generation in projected and historic load.[28]

The biggest caveat for the E3 study, and the ability to extrapolate to other jurisdictions, is the fact that California has some of the highest retail rates in the nation, as a result of the energy crisis of the early 2000's. For Pacific Gas & Electric, the top tier residential rate in 2009, when the study was conducted, was $0.40/kWh. Customers receiving credit at the retail rate that had consumption in these upper tiers would impose costs (lost utility revenues) that exceed the value of retail rate credits in nearly all other jurisdictions. It is significant, however, to note that the E3 study found reaching a capacity target of 2,550 MW of NEM facilities would result in only a slight impact on utility rates: an increase of $0.00064/kWh. Given California's rate structure at the time, this is a minimal impact.

4. 2012 Crossborder Energy Update to the E3 Study

In 2012, Crossborder Energy undertook an analysis of the E3 study that sought to correct and update that study's assumptions. First, Crossborder's E3 update study accounted for the fact that the majority of apparent cost-shifts occurred in PG&E's territory, where upper-tier residential rates were the highest and where the utility's purported administrative costs were several times higher than those of the other utilities.[29] Second, PG&E's residential rate structure has changed since 2009, eliminating its upper tier 5 and dramatically reducing it upper-tier rate by approximately $0.07/kWh.

When taking these factors into consideration, the Crossborder E3 update revealed a much smaller cost shift among residential customers (seven times less than that found in the E3 study) and a net benefit for other rate classes, particularly NEM customers on certain Commercial and Industrial (C&I) rate schedules. Crossborder's E3 Update underscores the importance that rate design has on the ultimate cost-effectiveness of NEM.

5. Crossborder Energy 2013 NEM Study

In January 2013, Crossborder performed a more in-depth analysis with a large data sample (approximately 10,000 solar NEM customers) to assess whether NEM was

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[28] *SolarABCs* at p. 13, *supra*, footnote 1.

[29] Beach, Thomas and McGuirre, Patric, *Re-evaluating the Cost-Effectiveness of Net Energy Metering in California* (Crossborder Update to E3 Study) at p. 5 (noting that two-thirds of the purported cost-shifts were in PG&E's territory and likely tied to high residential upper tier rates) (2012), *available at* http://votesolar.org/wp-content/uploads/2012/01/Re-evaluating-the-Cost-effectiveness-of-Net-Energy-Metering-in-California-1-9-2012.pdf.

providing a net benefit or net cost to the utility. In this analysis, Crossborder considered benefits from the CPUC-approved methodology including avoided energy costs, avoided capacity costs for generation, reduced costs for ancillary services, lower line losses on the T&D system, reduced investments in T&D facilities, and lower costs for the utility's purchase of other renewable generation.[30] Crossborder assumed that more than 5000 MW of NEM generation (an approximation of California's aggregate NEM cap) would be installed by 2020.

When considering the full value of renewable generation exports, the 2013 Crossborder Study found that NEM results in a positive benefit for every rate class except for residential customers in PG&E's territory (with the highest upper-tier rates in the state), though much of the overall net benefit of $92 million per year is attributable to the C&I NEM customers. The importance of C&I customers to the overall net benefit is not surprising, given their lower energy rates and the correlation between solar generation and peaks for circuits and substations that are predominantly composed of C&I load.[31]

Of course, in the context of Louisiana, the value of renewable exports considered in Crossborder's 2013 study can be discounted, as the state does not share a similar mandatory renewable procurement requirement. The consideration of other benefit categories, and the overall result, should be informative in that it shows very limited circumstances under which NEM results in a cost shift to non-participating customers.

6. Clean Power Research Study of distributed solar PV in NJ/PA

In late 2012, Clean Power Research finished its analysis of the value of distributed solar PV in New Jersey and Pennsylvania. This study considered benefits of fuel cost savings, operations and maintenance cost savings (associated with combined-cycle gas turbines), grid reliability (avoided economic impact of outages), long-term societal value, fuel price hedge value, generation capacity value, T&D capacity value, market price reduction (wholesale market costs associated with shifts in demand), environmental value, and economic development value.[32] In addition to the benefits, this study also considered the additional costs incurred to integrate variable solar generation into the grid.

Of particular interest in this study, CPR quantified the economic development and environmental values of solar. The study produced a relatively conservative estimate by estimating the "tax revenue enhancement from the jobs created as a measure of PV-induced economic development…" based on historical job numbers from the markets in

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[30] Beach, Thomas and McGuire, Patrick, *Evaluating the Benefits and Costs of Net Energy Metering in California,* prepared for the Vote Solar Initiative (Crossborder 2013 Study) at p.12 (2013), *available at* http://www.seia.org/research-resources/evaluating-benefits-costs-net-energy-metering-california.

[31] *See* SCE's Option R Study, *supra*, footnote 13.

[32] Perez, R. *et al.*, *The Value of Distributed Solar Electric Generation to New Jersey and Pennsylvania* (Clean Power PA and NJ solar study) (2012), *available at* communitypowernetwork.com/sites/default/files/MSEIA-Final-Benefits-of-Solar-Report-2012-11-01.pdf .

Germany and Ontario.[33] The overall economic development benefit for both states was approximately $0.04/kWh. For environmental values, this study used the "environmental/health cost of energy generated by fossil-based generation," based on a per unit costs of avoiding greenhouse gases, SOx/NOx emissions, mining degradations, ground water contamination, toxic releases and wastes.[34] The study assumed that nuclear generation was not avoided by solar PV generation, and based the values on the avoided use of coal and natural gas plants. Based on the differences in reliance on coal-fired plants in the two states,[35] the environmental benefits of solar ranged from $0.048/kWh to $0.129/kWh in Pennsylvania and from $0.02/kWh to $0.048/kWh in New Jersey.[36]

When considering the full range of benefits of solar, this study concluded that solar PV in New Jersey and Pennsylvania has a range of value between $0.256/kWh and $0.318/kWh.[37]

IV. Recommendations to the Commission

To conduct a study that is consistent with the principles discussed in Sections I through III, above, I offer the following specific recommendations to the Commission regarding its future action in this proceeding:

1. *The Commission should retain the existing NEM structure and should delay undertaking a comprehensive NEM cost-benefit study until net metering capacity has reached 0.5% of utility peak load.*[38]

Prior to 2011, the Commission's rules regarding NEM put no upward limit on the total amount of capacity that could net meter. In 2011, the Commission modified its rules, increasing the system size limits, but capping total participation in NEM to 0.5% of utility peak retail load. Caps like this are generally intended to serve as the "economic screen" that would protect non-participating ratepayers, assuming that NEM does result in a cost shift from participating customers to non-participating customers. Implicit in the Commission's determination is that participation up to the 0.5% level would not be adverse to the public interest. As a practical matter, the Commission can and should allow net metering to continue under the existing rules until this cap is reached, no matter the results of the Commission's ultimate investigation.

Additionally, it is important that the NEM cap should be calculated in a consistent manner. While the utility's system peak demand is readily identifiable as a denominator

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[33] *Id.* at 45.
[34] *Id.* at 43.
[35] Pennsylvania's generation mix relies on Coal for 48% of all generation, while New Jersey only uses coal to meet 10% of its overall portfolio. *Id.* at 45.
[36] *Id.* at 44.
[37] *Id.* at 3.
[38] *See* Net Metering Rule 5.02(A).

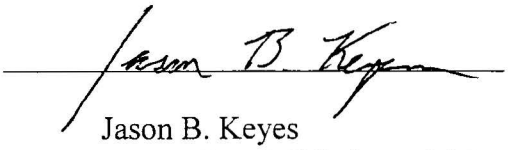
(NEM capacity/utility peak load = 0.5%), a customer's NEM facility could be measured by either its DC rated nameplate capacity or by its actual AC output capability. Basing the cap on DC ratings is inappropriate and unnecessarily limits the size of the NEM program, since most NEM technologies cannot operate at the full rated capacity due to operational characteristics. In the case of inverter-based systems, the rated capacity of the inverter is appropriate, as it reflects the actual output of the system. This approach would also be consistent with other jurisdictions.

2. *The Commission should hire a contractor that has demonstrated experience in assessing the costs and benefits of distributed generation and that has conducted at least three studies that specifically employ a methodology to value the benefits of distributed generation. In the alternative, the Commission could require the current contractor to hire a subcontractor that meets these qualifications.*

There are several, prominent energy and economics consultants nationally that far exceed these basic criteria. Of the studies referenced above, Crossborder Energy, Clean Power Research, and E3 have each conducted multiple analyses on the benefits of solar and DG to utilities and their customers. While the costs of engaging these experts may vary, it would be reasonable to expect an initial study to cost $25,000 to $40,000. All three are very familiar with the costs and benefits of NEM discussed in these comments.

3. *The public should have input and opportunities to comment to inform the development of any study methodology, which will form a part of the record of this proceeding.*

According to statements by Staff at the Technical Conference in August of 2012, it appears that much of the relevant data will be considered confidential and privileged information. With the public lacking access to the underlying data, it is absolutely essential that the public have confidence that the process is fair and that an impartial party is conducting the analysis. One way that the public may have substantial participation in such a study is in the development of the methodology that will be used to conduct the study. Convening workshops and otherwise providing the public opportunity to comment on the proposed methodology will increase the transparency and public engagement and increase confidence in the results of the study. If necessary, much of the needed data is available through utility filings with FERC.



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Experience

***Keyes, Fox & Wiedman LLP**, Oakland, CA, July, 2008 -*
Partner. Representing the Interstate Renewable Energy Council, Inc. in state utility commission rulemakings related to net metering and interconnection of distributed generation, among other issues. Representing private clients in state-level energy regulatory matters.

***Wilson Sonsini Goodrich & Rosati, PC**, Seattle, WA, 2007 – 2008*
Associate. Represented the Interstate Renewable Energy Council in state utility commission rulemakings and counseled various solar energy ventures regarding regulatory matters.

***Stoel Rives LLP**, Seattle, WA, 2005 – 2007 and Summer, 2004*
Associate. Litigated electric utility rate case before the Washington Utilities and Transportation Commission, researched electric and natural gas utility regulatory matters, prepared construction contracts for various wind and ethanol developers, led development of firm's new solar practice.

***JX Crystals Inc.**, Issaquah, WA, 1994 – 2002*
Manager of Business Development, co-founder. Managed government R&D contracts, business planning, investor relations, and general small business administration. JX Crystals secured $10 million in funding related to solar power systems from military, NASA, and DOE sources.

***Puget Sound Power & Light**, Bellevue, WA, 1991 – 1993*
Corporate Planning Analyst. Assisted the company's chief economist with power and customer forecasts, helped craft the Integrated Resource Plan and led the electric vehicle project.

Education

***Seattle University School of Law**, Seattle, WA, Juris Doctorate, May, 2005*
Summa cum laude, ranked 9th out of 330, business focus, "Presidential" scholarship, Moot Court Board Chair, Inn of Court, CALI awards in Evidence, Constitutional Law, Conflict of Laws, and Bankruptcy. Washington State Bar member no. 36947.

***University of Washington**, Seattle, WA, Master of Arts, Economics, 1990*
Focused on econometrics and international economics, using the econometric skills extensively when later employed by Puget Sound Power & Light. Taught undergraduate courses every term.

***Dartmouth College**, Hanover, NH, Bachelor of Arts, English, 1986*
Teaching Assistant for probability courses. Equivalent of a minor in computer science.

Activities and Publications

- Board member, American Solar Energy Society, 2007- (Board Secretary since 2010)
- President, Solar Washington, 2007-2010
- Board member, Washington Solar Energy Industries Association, 1998-2000.
- Publications and representative presentations available on attorney page at www.kfwlaw.com.