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Before the

IDAHO PUBLIC UTILITIES COMMISSION

IN THE MATTER OF THE APPLICATION OF IDAHO POWER COMPANY FOR AUTHORITY TO MODIFY ITS NET METERING SERVICE AND TO INCREASE THE GENERATION CAPACITY LIMIT	)	**Case No. IPC-E-12-27**

DIRECT TESTIMONY OF RICK GILLIAM

ON BEHALF OF

THE CITY OF BOISE

May 10, 2013

Direct Testimony of Rick Gilliam

The City of Boise

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Introduction and Overview

Q. Please state your name and business address.

A. My name is Rick Gilliam. My business address is 1120 Pearl Street, Suite 200, in Boulder, Colorado.

Q. On whose behalf are you submitting this pre-filed direct testimony?

A. This testimony is submitted on behalf of the City of Boise (the "City").

Q. By whom are you employed and in what capacity?

A. I serve as Director of Research and Analysis for the Vote Solar Initiative ("Vote Solar"), and oversee policy initiatives, development and implementation. Vote Solar is a non-profit grassroots organization working to foster economic opportunity, promote energy independence, and fight climate change by making solar a mainstream energy resource across the United States. Since 2002, Vote Solar has engaged in state, local and federal advocacy campaigns to remove regulatory barriers and implement key policies needed to bring solar to scale. We have eighty (80) members in Idaho. Because our interests in this proceeding are in alignment with the City of Boise's interests, I was asked by the City to participate in this proceeding on its behalf.

Q. Please describe your educational background.

A. I have a Masters Degree in Environmental Policy and Management from the University of Denver, Denver, Colorado. I also have a Bachelor of Science Degree in Electrical Engineering from Rensselaer Polytechnic Institute in Troy, New York.

Q. Please describe your experience in utility regulatory matters.

A. Prior to joining Vote Solar in January of 2012, my regulatory experience included five (5) years in the Government Affairs group at Sun Edison, one of the

world's largest solar developers, as a manager, director and eventually vice president; twelve (12) years in the Public Service Company of Colorado rate division as Director of Revenue Requirements; and twelve (12) years with Western Resource Advocates (WRA – formerly known as the Land and Water Fund of the Rockies) as Senior Policy Advisor. Prior to that, I spent six (6) years with the Federal Energy Regulatory Commission as a technical witness (engineer). All told, I have in excess of thirty (30) years of experience in utility regulatory matters. A summary of my background is attached as Appendix A.

Q. Have you previously testified before the Idaho Public Utilities Commission ("PUC" or "Commission")?

A. No, I have not.

Q. Before what other utility regulatory commissions have you testified?

A. I have testified in proceedings before the Arizona Corporation Commission, Public Utilities Commission of Colorado, Nevada Public Utilities Commission, the New Mexico Public Regulation Commission, the Utah Public Service Commission, the Wyoming Public Service Commission, and the Federal Energy Regulatory Commission.

Q. How did this proceeding come about?

A. According to Matthew T. Larkin, witness for Idaho Power Company ("IPCo" or the "Company"), the Company initiated this proceeding in response to the Commission's Final Order No. 29094, issued in 2002. *See* Direct Testimony of Matthew T. Larkin at p. 3, ll. 8-33. In Order No. 29094, the Commission stated:

> We accept for now the Company's proposed cap to Schedule 84, i.e., the 2.9 MW cumulative nameplate capacity limit. We apprise Idaho Power, however, that when the cap is reached, the Company is to immediately notify the Commission in writing that the Company is in the position of having to refuse further applications. At

> that point, this Commission will look at the cap again and determine whether it continues to be reasonable or if there is a better measure of what's appropriate or if there is a need for a cap at all.

Order No. 29094 at p. 7.

In response to this Order, the Company is proposing to double the current cap on all net-metered generation capacity for all of its customer classes, not just residential and small general service customers, from 2.9 MW to 5.8 MW, and proposing to make numerous other changes that impact net-metered customers.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to respond to the Direct Testimony and exhibits of IPCo witness, Matthew T. Larkin, regarding the Company's proposals to change certain practices, impose new untested policies, and initiate special treatments for a very small subset of residential and small general service ("SGS") customers. The changes outlined by IPCo create barriers to, and thwart deployment of, net-metered renewable generation, especially solar, and has significant impacts on the economic viability of these new resources. Further, I will discuss the ramifications of the IPCo proposals on economic development for the City.

Q. Please summarize your testimony.

A. The issues raised by IPCo underscore the success of the solar industry. One of the most interesting things about this proceeding is that it results from utility concerns related to what is occurring naturally in the market, namely customers are installing solar generation to supplement or replace their grid-supplied electricity without any incentives[1] from the state or utility. The actions and changes proposed by IPCo in this case are

[1] Idaho does provide a capped state income tax deduction for solar energy devices spread over four years.

individually and collectively designed to make customer-sited generation more difficult to install or more expensive to utilize, or both.

These actions by IPCo are in conflict with the policy and action recommendations of the recently adopted 2012 Idaho Energy Plan.[2] The following policies address resources:

> 1. The State of Idaho should enable robust development of a broad range of cost-effective energy efficiency and power generation resources within environmentally sound parameters.
>
> 2. Align legislative policies, regulatory policies, and state agency activity to consistently reinforce and support state objectives regarding energy efficiency, energy production, and delivery.
>
> 3. When acquiring resources, Idaho and Idaho utilities should give priority to cost-effective and prudent: (1) conservation, energy efficiency, and demand response; and (2) renewable resources, recognizing that these alone will not fulfill Idaho's growing energy requirements and that these resources play a role in addition to conventional resources in providing for Idaho's energy needs.
>
> 4. Encourage the development of customer-owned and community-owned renewable energy and combined heat and power facilities that meet the Energy Plan objectives of the State of Idaho.

Additionally, Action item E-11 encourages fair treatment of the resources at issue in this proceeding:

> It is Idaho policy to encourage investment in customer-owned generation; therefore the Idaho PUC, utilities, municipalities, and cooperatives are encouraged to ensure non-discriminatory policies for interconnection and net metering.

[2] This plan was approved by the Energy, Environment and Technology Interim Committee on January 10, 2012, and was formally adopted by the Idaho Legislature on March 6, 2012. The report is available at http://www.puc.state.id.us/hot/2012_idaho_energy_plan_final_2.pdf.

The proposed changes I will address include (1) the new capacity cap on net-metered generation; (2) the creation of new customer classes (Schedules 6 and 8); (3) the changes in rate structure under the new rate schedules; (4) the changes to the interconnection requirements in Schedule 72; and (5) the treatment of annual net excess generation credits.

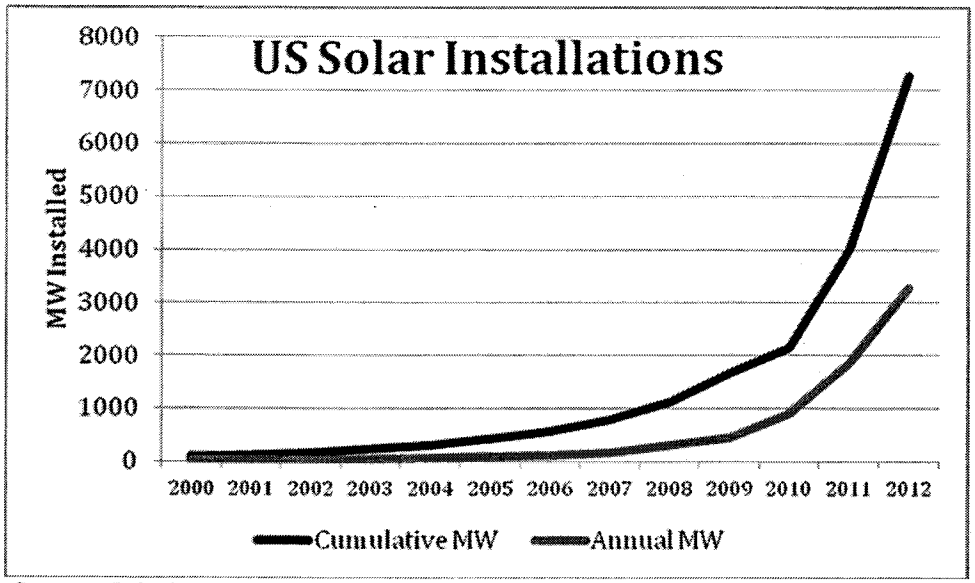
In each case, I generally find that IPCo has not provided sufficient evidence to justify the changes it proposes, has not taken other factors into account, and is attempting to impose significant changes on a small group of customers outside the context of a formal rate proceeding in which all rate-related issues can be addressed comprehensively by interested parties.

Additionally, I will address certain economic development effects of IPCo's filing.

Background

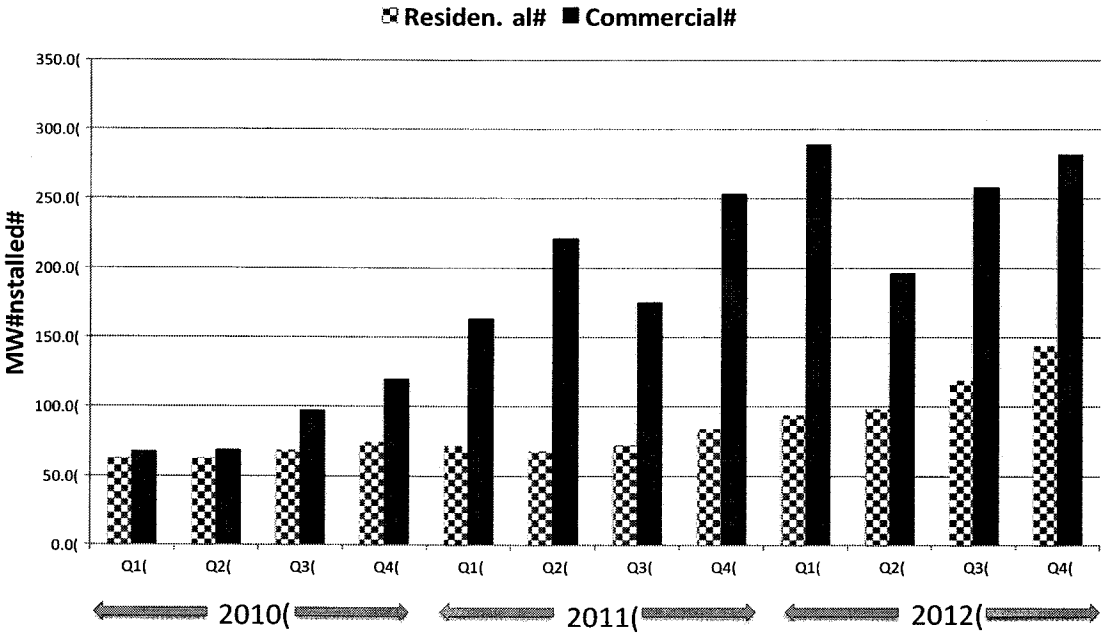
Q. The concerns raised by IPCo primarily deal with solar generation. Please discuss the growth in solar generation capacity nationally.

A. Across the country, solar generation capacity has been growing at a rapid rate — exceeding 75% per year for the last five (5) years.



Sources: DOE/EERE 2010 Renewable Energy Data Book and SEIA/GTM Research Solar Market Insight Reports.

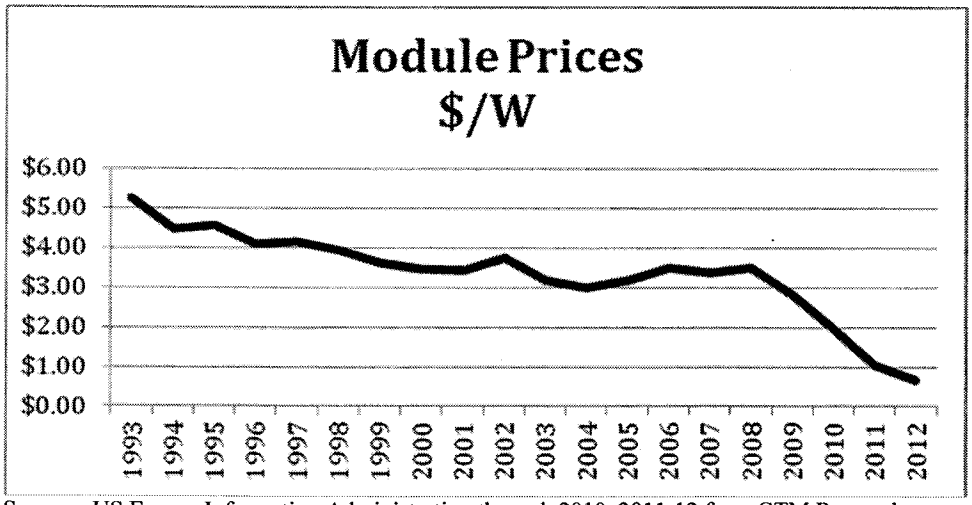
The growth has occurred across the spectrum of market segments — utility scale, commercial on-site, and residential on-site. As the latter two (2) categories are of particular interest in this proceeding, the following chart[3] shows the deployment by major retail market segment over the last few years across the United States.



[3] Source: SEIA/GTM Research, U.S. Solar Market Insight.

Q. To what do you attribute such dramatic growth of solar?

A. The growth is due in large part to increased global demand and the corresponding growth in manufacturing, increased scale economies and efficiencies, and driving hardware prices down. For example, the cost of solar modules has declined precipitously on a $\$/W_{DC}$ basis over the past twenty (20) years.



Sources: US Energy Information Administration through 2010, 2011-12 from GTM Research.

Bloomberg[4] reports an 80% decline since 2008 and a 99.2% decline in solar module costs since 1971.

Q. Why hasn't Idaho's solar market grown as dramatically?

A. As a result of these declining prices, the Idaho market is starting to grow, albeit getting off to a late start. While solar remains the most popular energy resource in virtually every poll, historically it has been more expensive than the alternatives, including grid-supplied electricity. Customer-sited solar penetration levels are largely tied to the purchaser's cost, net of any incentives provided. Most of the states that have higher penetration levels have used various types of financial incentives to promote the adoption of solar on homes and businesses.

[4] http://gigaom.com/2013/04/26/video-the-trends-behind-the-year-of-clean-energy-turbulence/

The incentives help to reduce the initial cost of solar (or the per kWh cost) so that the net cost of a solar kWh is "close enough" to that of grid-supplied electricity for the home or business owner that he or she can rationalize a reasonable payback period. These policies have "kick-started" the markets, and in many places, attracted significant development in value chain manufacturing, administrative offices and installation companies.

Recently, however, with the dramatic reduction in costs noted above, we are beginning to see solar prices approaching the cost of grid-supplied electricity without incentives in some states. As one would expect, this is happening in states with higher electricity costs initially. Interestingly, although Idahoans enjoy the lowest electricity prices in the nation in the residential and commercial sectors, solar has been establishing itself as a viable alternative resource for Idahoans. This can be seen in the chart on page 11 of IPCo witness Larkin's Direct Testimony.

While starting at a much lower level, growth in solar capacity on the IPCo system has been increasing at a good pace. Thus, Idaho is seeing the start of a healthy solar industry, albeit potentially fragile, given proposed size limitations, burdensome requirements and uncertainty regarding consistent solar policy.

Q. Is the solar resource in Idaho sufficient to support a growing solar market?

A. Yes. The National Renewable Energy Laboratory reports[5] Idaho is ranked eleventh (11^{th}) in the country for its solar resource, placing it above states like Texas, North Carolina, New Jersey and others that have deployed far more solar generation.

[5] Denholm & Margolis, The Regional Per Capita Solar Electric Footprint for the United States, National Renewable Energy Laboratory Technical Report NREL/TP-670-42463, December 2007.

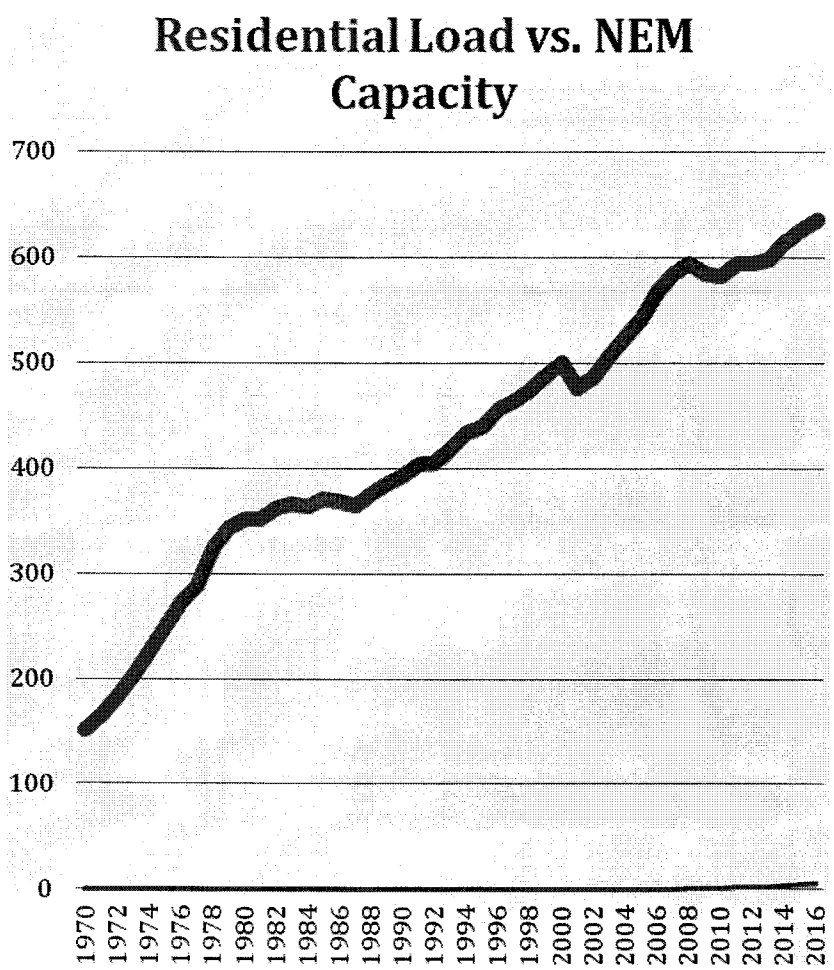
The Overall Capacity Cap on Net-Metered Generation

Q. Would you say the Company has high solar penetration on its system?

A. No. According to IPCo, it had 2.246 MW of net-metered system generation capacity from all of its customer classes installed on its grid at the time of its filing, representing approximately 1/14th of one percent of the Company's peak load. As a state, Idaho falls in the bottom quartile of solar deployment. The amount of 2012 energy generation offset by IPCo's systems was approximately 1/50th of one percent. At the current cap of 2.9 MW, those proportions rise to 1/11th of one percent of IPCo's peak load and about 1/40th of one percent of the Company's sales.

If IPCo's proposed cap of 5.8 MW is reached in three (3) years, the corresponding shares will be a little less than 1/6th of one percent of peak load and 1/20th of one percent of generation. In other words, the existing solar and the amounts related to the current and IPCo's proposed capacity limits on the IPCo system are all almost too small to be measured. The following chart[6] illustrates this point.

[6] Sources: Idaho Power Company 2011 IRP, and response to discovery. Note last three years estimated to grow at 1 MW per year.


Residential Load vs. NEM Capacity
700
600
500
400
300
200
100
0
1970
1972
1974
1976
1978
1980
1982
1984
1986
1988
1990
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2008
2010
2012
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2016

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Q. How does IPCo support the need for a cap?

A. While acknowledging that the current penetration is relatively small, IPCo bases its proposed new limit on the following:

> If current growth trends continue or increase, it is important to maintain a capacity limit to allow the Company and other stakeholders to evaluate this service as it expands. This provides the Company with the ability to identify any future modifications that may be necessary to accommodate more widespread expansion of its net-metering service.

Larkin Direct at p. 13, ll. 9-15.

Q. Do you believe there is a need for a system-wide cap on customer-sited solar generation?

A. No. While I can understand from the utility's perspective that the recent growth in net-metered solar generation capacity may be surprising, it is critical to keep the penetration of this resource in perspective.

Q. Can you provide some perspective on the reduced sales and load for IPCo?

A. Yes. IPCo's 2011 Integrated Resource Plan projected growth of 1.4% per year, or about an additional 650 GWh over the next three (3) years. If solar generation continues growing at the highest level it has over the last few years (~1MW/year), IPCo's proposed 5.8 MW cap would be reached in three (3) years and produce about 8 GWh. Thus, that 650 GWh of projected sales growth would be about 642 GWh, or about 98.8% of the originally projected growth.

Q. Has IPCo performed any analyses of the future growth of net-metered solar?

A. No it hasn't.[7]

Q. Has IPCo performed any economic analyses of solar generation that takes into account costs that are avoided by customer-sited generation?

A. No, the Company has made no attempt to quantify the value of generation provided by net-metered systems.[8]

Q. Does IPCo experience a fixed cost-related loss from customer-sited net-metered solar generation?

A. No. The Company has in place a Fixed Cost Adjustment (FCA) mechanism that is "designed to ensure the company recovers its fixed costs of serving customers regardless of the amount of energy conservation".[9]

Q. Has IPCo raised any operational concerns about customer-sited solar generation?

A. IPCo has presented no evidence of operational concerns in its testimony in this proceeding. In addition, at the public workshop on April 25, 2013, IPCo noted that at present penetration levels, they have no operational concerns.

Q. Are there policies and procedures already in place that address operation issues?

A. Yes. Interconnection standards are in place across the country that address technical, engineering and reliability issues of customer-sited generation. In this proceeding, IPCo is proposing to extensively revamp its interconnection requirements contained in Schedule 72, not only making the requirements more onerous, but more costly as well. These issues will be addressed in more detail below.

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[7] *See* Response to Idaho Conservation League's Request for Production No. 6.b.
[8] *See* Response to ICL Discovery Request No. 15.

Q. Is IPCo precluded from requesting changes from this Commission related to its perceived impacts of solar at any time?

A. No, it is not.

Q. Have other states imposed caps?

A. Yes. Roughly half of states with net-metering have system-wide capacity caps, according to the Database for State Incentives for Renewable Energy. The vast majority of the states with caps set the limit based upon a percentage of retail peak demand.

Q. What is the average percentage limit?

A. The average for states that have established caps is approximately 3.5% of peak retail demand. This would equal 114 MW in the case of IPCo, based upon the 2012 peak load of 3245 MW (2012 FERC Form 1).

Q. Have there been any economic or operational problems created by solar penetration in the states with no caps?

A. Not to my knowledge.

Q. What do you recommend the Commission do with respect to the overall system-wide cap issue?

A. I recommend the current cap be lifted and no cap be imposed. IPCo has presented neither economic justification nor operational necessity for a cap. There is currently a miniscule amount of net-metered solar generation in Idaho, and it is growing at a slow enough rate that any significant impacts can be anticipated and addressed by this Commission as the need arises, if at all.

Imposition of New Rate Classes

Q. What rate class changes is IPCo proposing?

[9] http://www.puc.idaho.gov/internet/press/040212_IPCFCAfinal.htm

A. IPCo is proposing to implement two new customer classes — Schedule 6 and Schedule 8 for residential and SGS net-metering customers currently on Schedules 1 and 7, respectively. Additionally, IPCo is proposing modifications to Schedule 84 and significant changes to its Schedule 72 interconnection procedures.

Q. What is IPCo's rationale for creating a new class of customers?

A. IPCo appears to believe that a potential inequity exists between customers that have net-metered generation and those that don't within the same rate class. Its objective is to limit the "potential inequity between net metering and standard service for Residential and SGS customers."[10]

Q. What is the amount of the "potential inequity?"

A. In response to Discovery Request No. 9 from Commission Staff, IPCo calculated the difference in bills for customers affected by the filing to be approximately $65,000.00. Based upon IPCo's rationale and proposals, this is the amount that the remaining 440,000+ non-net-metered customers within Schedules 1 and 7 would have to contribute to keep the Company whole through the FCA.

It should be noted that IPCo's estimates are purely based upon the reduction in revenue it perceives is representative of the cost of net-metered solar generation. IPCo has not performed any calculation of the benefits that distributed solar generation provides to the grid and to other customers.

Q. Are there any other *potential inequities* in electric utility rates?

A. Yes. The process of determining revenue requirements, classifying and allocating costs, and designing rates is full of assumptions, estimates, modeled data, statistical methods, and adjustments made in a legitimate effort to spread cost

responsibility to customer classes based on causation, and achieve a reasonably consistent relationship between costs and revenue so that the utility can have an opportunity to recover its costs and earn its authorized return on equity between rate cases. For example, IPCo's cost allocation manual notes that for customers without interval meter data, coincident demands are estimated using coincidence factors determined through a load research sample. Moreover, even accepting all the approximations in the process, the rate for a class is designed for that mythical customer that represents the weighted mean of the group.

This is further complicated because customers and customer classes tend not to be static, but change usage and demand patterns over time. Thus, as soon as new rates are placed into effect, imbalances will begin to occur, with some customers paying more and some less than their up-to-the-minute theoretically appropriate cost of service, were one to be performed at that point in time.

This is not intended to be an indictment of the regulatory system — there are very good reasons why the process has evolved in this way. However, as we start to make selective changes that move away from current structures and practices, we should carefully examine the basis for doing so and the potential for unintended consequences. Any assumption that the revenue recovered from an individual customer in a given rate class is an accurate reflection of the actual cost of providing electric service to that customer would be a stretch at best.

Some examples of areas where there are potential inequities include the following:

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[10] *See* Direct Testimony of IPCo witness Larkin, page 20, ll. 9-12.

- The return on equity generated by each customer class (e.g. residential commercial and industrial classes) and approved by the Commission in the last rate class differs, meaning that certain rate classes are paying higher or lower than average shares of IPCo earnings requirements;
- Low income programs are often subsidized by other ratepayers;
- Certain geographic areas are more costly to serve than others. An example is densely populated urban areas, where there is a relatively large number of customers per mile of distribution line, versus low-density rural areas. The latter is clearly more expensive to serve (as the rural electric cooperatives will tell you), yet there is no differentiation in rates or rate structures;
- The distance a customer may be from a distribution substation affects the amount of equipment (and investment) required of the utility to serve that customer. Again, there is no differentiation among customers related to this factor;
- Residential (and SGS) rates are designed to recover costs on the basis of energy consumed. Customers who consume more energy than average in these rate classes contribute more fixed cost recovery to the utility than those who use less than average;
- Line extension policies: While generally intended to have no impact on existing customers, the differential between the actual

cost of attaching new customers and the customer contribution can be more or less than zero;

- Utilities invest new capital to build power plants and transmission lines to serve growth on its system, resulting in an increase in rate levels. Those customers whose load has not grown at all share in the burden of these additional investments.

Q. Are you suggesting that each of these "inequities" be culled out and new rate classes, designs or structures be implemented?

A. Not at all. I raise these issues to debunk the notion that rates are precise, and that singling out changes in sales due to a very small amount of customer-sited generation is arbitrary and unfair. Indeed, reductions in sales for any reason, whether related to a new more efficient refrigerator or a shrinking household, have the same effect. Moreover, increases in sales due to growing households, new "must have" appliances, electric vehicles and so forth add to the earnings of the utility.[11]

Q. Has IPCo defined the specific requirements for eligibility for these new rate classes?

A. While not laid out in testimony, the proposed new rate schedules include applicability language that reads as follows:

> Customer owns and/or operates a Generation Facility fueled by solar, wind, biomass, geothermal, or hydropower, or represents fuel cell technology, with a total nameplate capacity rating of 25 kilowatts (kW) or less.

[11] The changes described are, of course, subject to the effects of the FCA in the case of IPCo.

Presumably, this means that any residential or SGS customer that installs a net-metered system would be subject to the applicable new tariff. Additionally, net-metered systems that exceed 25kW would be subject to Schedule 84, provided they are smaller than 100 kW.

Q. In your experience, is it standard practice to cap individual system sizes at such low levels?

A. No. In the territories of utilities that have low system size caps, the solar markets are virtually non-existent.

Q. Is there a need for individual system size caps?

A. No. There is really no need for an individual system size cap for net-metered solar generation because the economic viability of such facilities drops dramatically if the system generates more energy than the host can consume.

Q. Is there a practical limit for these two customer classes?

A. Yes. It is rare for a home to be so large as to consume the full amount of energy generated by a 25kW solar system. In Idaho, such a system would generate nearly 34,000 kWh per year – about three (3) times the average usage. Similarly, the SGS class has a monthly consumption limit of 2,000 kWh, after which it would get bumped into a new rate class. These practical considerations make the 25kW limit virtually meaningless.

Q. Do other states have system size limits?

A. Yes. Many states have a one (1) or two (2) MW limit for individual net-metered system sizes, but even this is arbitrary. This is too large for many customers and too restrictive for others. The most practical limits for individual system sizes are those