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BEFORE THE ARIZONA CORPORATION COMMISSION

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IN THE MATTER OF THE COMMISSION'S INVESTIGATION OF VALUE AND COST OF DISTRIBUTED GENERATION.

Docket No. E-00000J-14-0023

NOTICE OF FILING

The RESIDENTIAL UTILITY CONSUMER OFFICE ("RUCO") hereby provides notice of filing the Rebuttal Testimony of Lon Huber in the above referenced matter.

RESPECTFULLY SUBMITTED this 7th day of April, 2016.

for
Daniel W. Pozefsky
Chief Counsel

AN ORIGINAL AND THIRTEEN COPIES
of the foregoing filed this 7th day
of April, 2016 with:

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IN THE MATTER OF THE COMMISSION'S INVESTIGATON OF
VALUE AND COST OF DISTRIBUTED GENERATION
DOCKET NO. E-00000J-14-0023

REBUTTAL TESTIMONY
OF
LON HUBER

ON BEHALF OF THE
RESIDENTIAL UTILITY CONSUMER OFFICE

APRIL 7, 2016

Q. Do you have any major new issues to introduce in your Rebuttal Testimony?

A. No, however, there is one issue area I identified in the testimony of other intervenors that concerns RUCO and I would like to address in this response.

Q. What issue area is of concern to RUCO?

A. RUCO is concerned by the prospect of only examining the value of energy that distributed PV systems export to the grid. Certain parties to this proceeding have advocated that this docket should be limited solely to the value of exported energy, not the full output of the DG system.

Q. What are the implications of examining exports only?

A. Limiting the scope of this proceeding to exports would significantly reduce both the information collected by the Commission and the policy options that the Commission could consider. Moreover, limiting the scope to exports only increases the likelihood that there will ultimately be different compensation levels for energy consumed on site and energy exported to the grid. This is problematic for a variety of reasons.

Q. Please explain some of the reasons this would be problematic.

A. First, RUCO believes that the Commission should have all the data and policy options available to create sound solar policy. Second, by examining exports only, the Commission would be declaring, by implication, that the prevailing retail rate is an appropriate price for compensating a major portion of a PV system's output. In fact, on-site consumption often represents around 50% of a system's production on

average. This means that any policy option adopted under an export-only framework will only address one half of a typical PV system's output. In order to address the second half (i.e. self-consumption) the Commission would have to undertake a general rate case. This would create a complex, bifurcated policy framework to address what RUCO believes is a singular policy issue. Furthermore, several stakeholders, including the ACC Staff, have recently taken the position that retail rate design changes, necessitated by a small subset of technology adopting residential customers, should be applied equally to every residential ratepayer (Docket No. E-04204A-15-0142 UNS Energy Rate Case, Direct Testimony of Thomas M. Broderick, Page 1 Line 20). This means that if the Commission seeks to address compensation for the other 50% of a PV system's output it would have to do so in a way that could have significant impacts on hundreds of thousands of ratepayers without solar. Finally, general rate design is a blunt policy instrument with a long timetable for change and is unable to respond quickly or precisely to the rapidly changing circumstances in the DG marketplace. Thus, relegating part of this proceeding to a general rate case thus would forgo the ability to capture additional value from DG that could arise due to near term price declines of DG technologies. Ultimately, this means higher costs for all ratepayers.

Q. Does RUCO believe that changing the rate design for every customer in order to address DG-related issues represents a sensible long-term approach?

A. No. In fact, if the Commission were to apply this approach in subsequent ratemaking decisions, it could undoubtedly lead to very harmful consequences for customers. For example, it is conceivable that within 10 years a solar "plus" storage technology

product could become widely available and would be able to erase most of a customer's grid energy consumption except for a few peak summer hours when AC load is the highest. RUCO wonders what the Commission's policy response would be to such a development. For example, one possible outcome consistent with Staff's current approach would be to change every customer's rate plan to have near wholesale pricing for 98% of a year's hours and then charge around $100 per peak day during the summer. While this might work for some customers, this type of pricing would likely be strongly rejected by many customer segments and create financial problems for the Company. Instead, RUCO believes that Arizona should strive to create fair and transparent rate design changes that treat DG customers as a unique customer segment.

Q. Are there other issues with a pricing differential between self-consumption and exports?

A. Yes. First, there is no sound economic or technical justification (at this stage of solar penetration in Arizona) to value self-consumption substantially different than exports. For example, why would self-consumption be compensated at 10 cents/kWh and exports at 5 cents/kWh? While there may be policy reasons for this type of pricing discrepancy, especially when other DG rate options exists alongside it, the electrons are the same and the distances traveled are both likely very short.

Q. Would it generally be good for ratepayers to apply a different approach to valuing exports and on-site consumption?

A. It depends on the specifics; but in general, having a sizable differential in compensation for exports and on-site consumption will make a customer's decision to evaluate solar much more complicated and the saving projections more uncertain. The installer will also have many more hurdles to selling systems. Absent other policy options, this will likely increase the cost of rooftop solar in Arizona.

Q. Please explain the potential difficulties for prospective solar customers in more detail.

A. To begin, the exact timing of when exports occur would become a key consideration. If the compensation price for this energy approximates its value in real-time, then trying to understand the value proposition of solar would be extremely difficult. Long term metering would need to be put in place and if solar was to be installed, the customer would have to be careful in changing usage patterns even if it was a conservation related behavior change. On a monthly basis, it is still somewhat complicated but less so. Under both situations a significant portion of the value proposition of solar would be dependent on an ever changing unknown of customer load patterns.

Q. Are there rate designs that could send appropriate price signals for both on-site consumption and exports, but are easier to understand?

A. Yes. For example, one sensible option would be to use a DG specific seasonal on/off peak TOU rate design. This would send accurate price signals to both exports and

self-consumption without being reliant on complicated load metering and export ratio calculations.

Q. If it is more complicated and lacks sound justification, why are some parties proposing to differentiate between self-consumption and exports?

A. Some parties have argued that DG solar is just like energy efficiency and therefore any self-consumption should be treated similarly to an energy efficiency measure.

Q. Is energy efficiency the same as self-consumed distributed generation?

A. Energy efficiency is not the same as distributed generation solar. There are similarities but as my direct testimony stated, starting on page 10, there are key differences. This can manifest both in technology impacts and intra class equities.

Q. Do you have an example to illustrate this difference?

A. Using the methodology published in APS' most recent Technical Reference Manual for Energy Efficiency Programs[1] I calculated that replacing a typical 60W lightbulb with an LED bulb yields approximately 41 kWh of energy savings over the course of a year. Thus, even if a homeowner were to replace every single light in his or her home with a cutting edge LED, it would only yield about 1,858 kWh in total energy savings.[2] This represents only a small fraction (<20%) of the annual energy produced from a typical 6.5 kW rooftop PV system, which I estimate to be about 11,700 kWh per year.[3] Most

[1] http://images.edocket.azcc.gov/docketpdf/0000162231.pdf
[2] Assumes replacement of 45 bulbs, which is the total number of lighting sockets in a typical home.
[3] Assumes a typical rooftop PV system produces 1800 kWh-ac/kW-dc, and is sized at 6.5kW-dc.

importantly, if one of the various 45 bulbs fails, customer load would decrease. In contrast, if a customer's PV system failed, it would cause load to increase substantially.

Q. Does that conclude your testimony?

A. Yes.

ATTACHMENT

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EDUCATION

January 2010 – May 2011
Eller College of Management - University of Arizona
Masters of Business Administration (MBA)

August 2005 – May 2009
School of Government & Public Policy - University of Arizona
Bachelor of Science - Public Policy and Management

RELEVANT WORK EXPERIENCE

Strategen Consulting
Director –March 2015 to present

Arizona's Residential Utility Consumer Office (RUCO)
Special Projects Advisor and former consultant – April 2013 to March 2015

- Responsibilities: policy analysis and design, advocacy, case testimony, constituent outreach, and financial analysis.
    - Team lead on net metering, utility-owned rooftop solar, and new resource procurement policies.

Suntech America
Manager, Regional Policy – September 2011 to December 2012

- Point person for the company in every key state solar market except California.
    - Worked to balance cost effective utility-scale solar with state distributed generation policy goals.
    - Elected by SEIA member companies to be the state lead in Arizona.

TFS Solar
Government Affairs – September 2010 to September 2011

- Created a solar financing program for faith based organizations in Tucson.
- Instrumental in forming the Southern Arizona Solar Standards Board.
- Advocated for polcies in front of ACC.

Arizona Research Institute for Solar Energy at the University of Arizona
"Founding employee" and Policy Program Associate – August 2007 to September 2010

- Helped build the institute while gaining experience with the technical attributes and challenges of various energy technologies.

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Congressional Fellow – D.C.

January 2009 to May 2009

- Responsibilities included weekly memos to the Congress member on energy issues, forming energy related legislation (Solar Schools Act - H.R. 4967), and creating educational presentations on energy.

COMMUNITY INVOLVEMENT

- Appointed to the Arizona Governor's Solar Task Force, 2013
- Chairman - Southern Arizona Regional Solar Partnership at the Pima Association of Governments, 2011
- Founding Chairman - University of Arizona Green Fund, 2010 to 2011
- Member of UA President's Campus Sustainability Advisory Board, 2008 to 2011
- Big Brother for a child in special needs program - Tucson Big Brothers Big Sisters, 2006 to 2008

AWARDS AND HONORS

- *Arizona Daily Star's* "40 Under 40" winner for leadership, community impact, and professional accomplishment, 2011
- University of Arizona Honors College Young Alumni Award Winner, 2011
- Outstanding Professional Staff Member – University of Arizona, 2010
- Arizona Foundation Outstanding Senior Award for the Eller College of Management, 2009
- Honors College Pillars of Excellence Award, March 2009
- Congressional Recognition Award, May 2008