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Arizona Corporation Commission,
Commissioners Wing
1200 W. Washington St.,
Phoenix, AZ 85007

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RE: Value and Cost of Distributed Generation (Including Net Metering), Docket No. E-00000J-14-0023

Dear Chairman Stump and Commissioners,

Thank you for the opportunity to offer comments on the value of Distributed Generation ("DG") and net metering.

By way of background, Natural Power and Energy is a leading Arizona-based commercial Solar Project Developer, Contractor & Design firm. Natural Power and Energy is comprised of a small but talented team of solar industry professionals with a clear vision of how to provide our clients with high quality, solar-generated energy through efficient, reliable and cleanly integrated PV systems. NPE is proud to be one of the leading solar providers in the state, as well as one of its fastest growing private companies. We have worked on over 23 MW of completed solar projects, and are currently working on an additional 14 MW of active projects. These projects under contract include the largest distributed school solar project to be executed in the US to date without any utility incentives, and through which the host customer will retain the rights to all Renewable Energy Credits generated.

Distributed Generation is Equivalent to Energy Efficiency, with at Least Equivalent Value

DG has no worse bottom-line impact to the utilities, nor creates any greater 'cost shift' amongst ratepayers, than customer energy efficiency measures. In fact, distributed generation offers additional benefits to the utility / grid operator not offered by energy efficiency, such as avoided



transmission upgrades, reduced capacity needs and fuel costs, reduced line losses, etc., as well the unique attribute of creating generating energy rather than conserving it.

We wish to draw the comparison between DG and energy efficiency to the attention of the Commission, because the Commission clearly believes in the virtues of energy efficiency, as it has put in place one of the most aggressive Energy Efficiency Standards in the country. Meanwhile, energy efficiency has been endorsed by Arizona's Governor and the President of the United States as one of the central tenets of both the state's and the nation's energy planning, according to the Western Governors' Association Energy Perspectives Report (June 2013) and the President's Climate Action Plan (June 2013), respectively.

When a residential or commercial energy consumer elects to reduce their energy consumption, for example by turning lights off when they leave the house, weatherization, purchasing a more energy-efficient refrigerator or lighting, or investing in energy management systems, that consumer purchases less kilowatt-hours of energy from the electric utility provider. By not purchasing those kilowatt-hours from the utility provider, the consumer implicitly avoids the retail cost/value of each marginal kilowatt-hour reduced / avoided as a result of the energy efficiency measure employed. Moreover, the profit impact to the utility provider is *identical* in this case to that caused by a consumer which sources its kilowatt-hours from a distributed generation system under the current net metering paradigm (i.e. thereby not sourcing it from the electric utility provider). For the avoidance of doubt, the 'cost shift' from consumer-enacted energy efficiency measures to consumers which do not enact energy efficiency measures is *identical* to that caused by a consumer which sources its kilowatt-hours from a distributed generation system under the current net metering paradigm.

Given that the 'cost shift' impact of energy efficiency is identical to that of distributed generation, we believe it would be inconsistent for the Commission to single out distributed generation for reduced value versus energy efficiency. After all, the owners of net metered DG systems are not merchant suppliers of energy to the grid. Rather, these systems are installed by consumers for the purpose of reducing their net energy consumption from the electric utility provider, often driven by short and long term cost savings from doing so. However, those who wish to install DG systems are always *net consumers* of energy from the electric utility provider. In fact,



Arizona's utilities maintain interconnection rules which specifically prevent customers from purposefully becoming net excess generators to the grid. Therefore, DG systems are equivalent to energy efficiency measures for households and businesses. They offer a means to favorably reduce net consumption, just like any other energy efficiency measure. The 'cost shift' / utility profitability impact is at worst identical, if the additional benefits of DG are ignored.

Iowa District Court Ruling

In support of the equivalency of DG and energy efficiency, we wish to draw the Commission's attention to a March, 2013 Iowa District Court ruling which determined that a solar Power Purchase Agreement (PPA) provider was not acting as a utility in its sale of energy to a municipal building because the DG system was installed on the customer's side of the meter.

The ruling pointed out that the Iowa Utilities Board (the "Board") "*recognized that behind-the-meter generation of renewable energy used to offset a customer's own demand from the grid is substantially similar to other energy efficiency technologies when viewed from the utility's perspective. In its Final Order in In re Interstate Power & Light Co., Docket No. EEP-08-1, at 11 (Final Order, Iowa Utilities Board June 24, 2009), the Board stated,*

"The Board can discern no difference between the use of renewable technologies and classic energy efficiency measures when those activities take place on the customer's side of the meter. As to classic energy efficien[cy] measures, the use of renewable technologies reduces a customers' demand and energy use from the utility."

The District Court Judge pointed out that the solar system would not meet all of the building's electricity needs and that the building would remain connected to the utility's grid and would continue to purchase energy from the utility. It was noted that the building's energy consumption from the grid would be reduced, but it was determined that this would be equivalent to the energy use reduction created by energy efficiency measures.



Additional Benefits of Distributed Generation over Energy Efficiency

It is true that DG systems make use of the grid, while energy efficiency measures do not. However, this does not change the indisputable conclusion that the 'cost shift' impact is at worst the same. Meanwhile, by virtue of its connection to, and use of the grid, DG provides many benefits to the utilities / grid operators not offered by energy efficiency, such as avoided transmission upgrades, reduced capacity needs and fuel costs, reduced line losses, etc. The Commission has listed the many benefits of DG to the utilities in its Docket No. E-0000J-14-0023 (specifically, in the 'Capacity', 'Grid Support Services' and 'Avoided Costs/Financial Risk' categories). As to the specific value of these benefits in the case of Arizona's regulated utilities, we believe it is incumbent upon the utilities themselves to provide that assessment with honesty and integrity.

Additional Benefits of Distributed Generation over Alternative Forms of Generation

Renewable DG technologies, in as much as they provide 'clean' energy without emissions, also avoid producing environmental externalities, the cost of which is not currently accounted for by fossil fuel technologies. We believe that environmental regulation of carbon dioxide and mercury emissions is inevitable. If this is indeed the case, coal plant operators, for example, will ultimately have to undergo significant additional capital expenditure to retrofit their facilities to meet reduced emissions requirements, or alternatively may elect to close plants in cases where such additional investment is not deemed economical. This will create upward pressure on rates which can be mitigated through diversification away from impacted fuel sources.

Finally, specifically with regards to distributed solar energy, **we believe the distributed solar industry is of huge strategic importance to Arizona**, and could be a critical economic growth driver (with few equivalent opportunities given Arizona's competitive insolation and land availability advantage), if consistent policies allow it.¹

¹ It should be noted that Arizona's distributed solar PV industry has already faced several challenges in the last two years, including the eradication of utility incentives for the foreseeable future, challenges to the state's existing net metering policy, rate structure changes which have reduced bill savings to solar customers, recent proposals to suspend or waive the DG carve-out within the RPS, and the apparent likelihood of property tax assessment for third-party owned DG systems by the Department of Revenue. As a result of these challenges and the uncertainty created by them, employment in the



Implications for DG Value and Net Metering

Given that DG systems create an equivalent energy use reduction to that created by energy efficiency measures, and given that the value of a kilowatt-hour from energy efficiency is the marginal avoided retail cost of that energy to the customer (i.e. the retail value of that marginal unit of energy), **so the value of the DG kilowatt-hour should be at least the marginal avoided retail cost of that energy to the customer.** This conclusion is not altered by customers' use of third party financing options in their deployment of DG systems.

The current net metering policy in effect provides this retail value for energy produced by DG systems, as long as the host customer remains a net consumer of energy on a calendar year basis. The existing policy does not take into account any of the additional benefits from grid-connected DG systems including reduced utility capacity requirements, additional grid support, or avoided costs. Additionally, by virtue of basing the value of DG energy on the marginal avoided retail cost, which is significantly based on a fuel mix which includes coal and other technologies that do not include the cost of proven environmental externalities, the current net metering policy also does not assign any environmental, social or risk mitigation value to DG systems.

Based on the analysis above, **we recommend that the Commission maintain the state's existing net metering rules**, as they provide for an equivalency between DG systems and energy efficiency measures, and provide upside to non-adopting customers in the form of additional long term grid and environmental benefits provided by DG implementation. To the extent that these benefits reduce long term utility provider costs, thereby lowering long term rates for ratepayers, adopting DG ratepayers may be seen to provide a subsidy, rather than a 'cost shift' to non-participating ratepayers.

Arizona solar industry dropped 12.5% in 2013 versus 2012. There is a high likelihood that the contraction will be significantly greater in 2014.



Ratepayer Freedom and Regulator Preference for Grid-Tie vs. Off-Grid Systems

We believe that ratepayers should be afforded the freedom to select which energy efficiency options, if any, provide them the best overall return on investment. All energy efficiency measures, including DG systems, offer customers the ability to reduce their energy consumption from their electric utility provider. Customers should retain the freedom to choose which option suits them best, or no option at all. Therefore, we believe the Commission should not intervene to specifically make kilowatt-hours reduced by DG systems less valuable than those reduced through alternative energy efficiency measures. The customer's return on investment from competing energy efficiency measures should be based on the relative attractiveness and costs of these measures, as perceived by the customers themselves.

We also believe a possible consequence of artificially depressing the value of DG kilowatt-hours would be an increasing trend towards off-grid DG systems over time, and we have seen recently increased customer interest in this. Going "off the grid" represents a means of ensuring that full value is provided to the customer, which will be the total avoided retail utility cost. We believe increased prevalence of off-grid systems would represent a sub-optimal outcome given the Commission's general concerns about 'cost shifts'.

Implications for the Incumbent Utility Rate Setting Model / Business Model

We believe the perceived 'cost shift' associated with DG and energy efficiency measures is driven by the fact that DG and energy efficiency are simply at odds with the current volumetric model of utility returns and fixed cost recovery, creating a conflict of interest.

Given the popularity of energy efficiency measures (including DG) amongst consumers, as well as their centrality to forward-looking state and national energy policy, it is clear that energy efficiency and DG deployment will increase over time. Therefore, the ability of regulated utilities to recover fixed costs will become increasingly challenging, if their compensation continues to remain proportional to energy sales.



We believe the inherent conflict of interest between the business model (and profit potential / ability to recover fixed costs) of the regulated utilities and the Commission's energy efficiency goals should be directly addressed, by shifting the utility compensation model away from one that is volumetric, towards one that takes into account the utilities' role as an investor in and operator of, the electric grid. As the penetration of distributed systems increases from its currently very low levels over time, there will likely be a need for investment in an increasingly smart grid. In the future our regulated utilities should be afforded the opportunity to invest in, and receive a return on their investment in, smart grid infrastructure and technology, just as they have invested in central plants for the past several decades.

This conclusion was reinforced by a joint statement issued on February 12, 2014 by the Edison Electric Institute (funded by the electric utility industry) and the Natural Resources Defense Council:

"Recovering the fixed costs of the grid is becoming more challenging. While customers are discovering new opportunities that enhance the value that the grid brings to them, policy makers should rethink how utility costs are recovered, with consideration needed for new rate designs and new approaches that balance the desire to promote innovation while still enabling recovery of the capital investment that recognizes the value of the grid to all customers and their new uses of the grid... The retail electricity distribution business should not be viewed or regulated as if it were a commodity business dependent on growth in electricity use to keep its owners financially whole. Instead, utility businesses should focus on meeting customers' energy service needs. Therefore, recovery of utilities' non-fuel costs should reflect their costs of maintaining and improving the electricity grid, and should not be tied to levels of retail commodity sales."

Conclusion

In conclusion, we believe that the Commission should formally recognize that insofar as DG deployment continues to result in net consumption arrangements from the electric utility providers, DG is equivalent to alternative energy efficiency measures and therefore should not be prevented from receiving equivalent value, i.e. the marginal avoided retail energy value. We believe this value is achieved under the existing net metering rules and therefore see no reason



to modify these rules. Finally, we perceive the 'cost shift' impacts caused by both DG and energy efficiency not as a reflection of the demerits of these measures, which are in fact clearly desirable, responsible and codified in our state's energy planning, but rather a reflection on the unsuitability of the volumetric business model for Arizona's regulated electric utilities under a burgeoning paradigm of customer-sited energy generation and reduced consumption.

Sincerely,

A handwritten signature in black ink, appearing to read "Rob Dallal". The signature is fluid and cursive, written over a white background.

Rob Dallal
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About Natural Power and Energy

Natural Power and Energy is a leading Arizona-based commercial Solar Project Developer, Contractor & Design firm, and was the third-fastest growing private company in Arizona in 2012. Rob Dallal is CEO of Natural Power and Energy. He earned a First Class Honors Degree in Economics at Cambridge University. He was an Associate in Mergers & Acquisitions and Corporate Finance at Goldman Sachs until 2009.