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Docket Control
Arizona Corporation Commission
1200 W. Washington Street
Phoenix, AZ 85007

Arizona Corporation Commission
DOCKETED

JAN 17 2014

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RE: Docket No. E-00000J-13-0375, In the Matter of the Commission's Inquiry into Potential Impacts to the Current Utility Model Resulting from Innovation and Technological Developments in Generation and Delivery of Energy

Dear Sir/Madam:

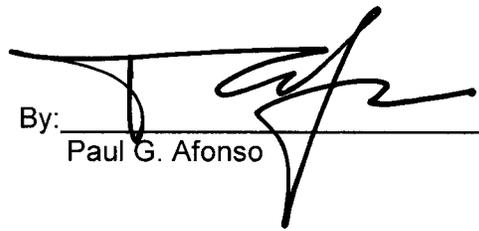
Enclosed please find a copy of the Comments of Utilidata, Inc. for filing in the above-referenced proceeding.

Please call me if you require further assistance with respect to this matter.

Thank you for your consideration.

Very truly yours,

BROWN RUDNICK LLP

By: 
Paul G. Afonso

PGA:ljr
Enclosures

cc: Service List (via first class mail)

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January 16, 2013

Docket Control
Arizona Corporation Commission
1200 W. Washington Street
Phoenix, AZ 85007

RE: Docket No. E-00000J-13-0375, In the Matter of the Commission's Inquiry into Potential Impacts to the Current Utility Model Resulting from Innovation and Technological Developments in Generation and Delivery of Energy

Dear Commissioner Burns and Commissioners:

Pursuant to the letter requesting comments issued by Commissioner Burns and the Arizona Corporation Commission ("ACC" or "Commission") on December 5, 2013, Utilidata Inc. ("Utilidata") submits the following comments and information for the Commission's consideration. Utilidata commends the Commission's efforts in this proceeding and appreciates the general structure and scope of its proposal. As further set forth below, Utilidata believe that its Volt/VAR Optimization ("VVO") solution should be included in the Commission's investigation of several proposed areas, including: development of distributed supply resources (wind, solar PV, AMI), load management technologies and energy efficiency, as well as distribution automation. Utilidata recommends that as the Commission explores these issues it consider a cost recovery and cost benefit analysis which addresses the need for grid modernization and deployment of proven innovative technologies such as Utilidata's AdaptiVolt™ while mandating robust measurement and verification protocols to address concerns regarding any potential risk to customers for these investments.

Utilidata, Inc.

Utilidata, Inc. is a technology innovator that is modernizing the distribution grid by leveraging advanced digital signal processing (DSP) techniques to extract better information from primary and secondary AMI voltage data, enabling real-time solutions for more intelligent and adaptive closed-loop voltage control.

Utilidata's best-in-class and patented AdaptiVolt™ Volt/VAR Optimization solution unlocks the significant value related to new types of data and information that can be extracted via DSP from power line assets – which can transform how electric utilities manage the grid. By feeding more intelligent primary and secondary AMI data into the solution's patented, elastic boundary decision-making process, Utilidata has redefined voltage control. The flexible AdaptiVolt™ system and its control algorithm are highly scalable, can integrate with other IT/OT technology, and have the ability to extend to thousands of circuits across multiple substations.

This innovative approach is unmatched in the industry. Utilidata's technology delivers 25-50% greater voltage reduction than its competitors, decreases tap change equipment operations by 30-50% from baseline operations, and is the only real-time VVO solution that has been shown to mitigate against the intermittent effects of distributed generation. The company has been awarded with 22 patents issued and pending and its independent third-party validated Measurement & Verification (M&V) protocol ensures proper due diligence of the value that AdaptiVolt™ provides.

AdaptiVolt™ is currently deployed on over 110 electric circuits in North America making it the #1 deployed VVO solution in North America. Supported by strategic venture partners, including American Electric Power (AEP), Braemar Energy Ventures, Saudi Aramco Energy Ventures and Formation 8, Utilidata is located in Providence, Rhode Island, where it has built a world-class production, research and development facility.

Consistent with the Commission's goals of investigating the innovations and technological developments that could impact the current energy utility model in Arizona, Utilidata believes that its VVO solution can play an important role in modernizing the state's grid while enabling utilities to meet their regulatory commitments to customers more efficiently and more cost-effectively. Utilidata's VVO solution provides proven benefits verified through its M&V process, including: customer energy savings; peak demand and energy reductions; capacity release; system voltage performance; and overall operational efficiencies, all in a cost-effective manner. Ultimately, ratepayers benefit from efficient energy usage while maintaining overall cost savings.

VVO - A Proven Cost-Effective Grid Facing Technology

The Commission has identified several proposed areas for investigation in this docket, many of which should account for Utilidata's AdaptiVolt™, including: development of distributed supply resources (wind, solar PV, AMI), load management technologies and energy efficiency, and distribution automation: The potential impacts of Utilidata's Volt/VAR management technology to the

modernizing grid in Arizona are proven and verifiable. Several jurisdictions have recognized the potential for Volt/VAR management technology to provide many benefits that allow utilities to better optimize demand. Utilidata's AdaptiVolt™ can deliver many of these benefits in a cost-effective manner, including:

- 25-50% greater voltage reduction than any other VVO solution in the market by leveraging its patented, advanced signal processing technology resulting in greater energy savings benefits;
- reducing equipment operations by 30% through its more sophisticated, process control approach;
- offering a risk-proof solution due to a third-party validated M&V process;
- increasing the penetration capability of distributed energy resources, such as wind power and photo-voltaic solar panels, by providing real-time insight and adaptive control; and
- creating a unique platform for Big Data, providing new sources of data from the grid and giving informative insight from the application of DSP.

The benefits of Utilidata's AdaptiVolt™ are being delivered today. AEP, a large utility client of Utilidata, has observed significant voltage reductions accompanied by a reduction of equipment operations of 30% on their regulators on circuits controlled by the AdaptiVolt™ solution. In expansion of their VVO pilot to multiple operating jurisdictions, AEP evaluated several VVO technologies, including distribution management system load-flow based and stand-alone heuristic solutions. The voltage reductions and associated energy efficiency benefits produced by AdaptiVolt™ were 25-50% greater (typically 0.5-2.0 volts) than

typically observed by the Company. These greater reductions serve to double the net present value of an already robust business case. In addition, other solutions evaluated by AEP increased regulator operations and shortened the operating life of expensive field equipment, necessitating accelerated maintenance schedules. In contrast, AdaptiVolt™ was the only solution to reduced regulator operations, thereby extending equipment life and reducing maintenance costs.

Based on the success of this collaboration, AEP entered into a joint development agreement with Utilidata to expand the value of the technology platform. In the past few years, AEP has moved forward with its plans to deploy AdaptiVolt™ in several jurisdictions. Most recently, both the Michigan Public Service Commission and the Indiana Utility Regulatory Commission (“IURC”) approved VVO has part of, AEP subsidiary, Indiana Michigan Power Company’s (“I&M”) Electric Energy Consumption Optimization Program (“EECO”) and deemed it eligible for accelerated cost treatment as Demand Side Management (“DSM”).¹ The IURC based its findings, in part, on the evidence that VVO is a “deliberate intervention” by I&M that produces a “change in a utility’s load shape” by allowing I&M to deliver energy within a tighter bandwidth of voltage which ultimately reducing usage as a result of

¹ See *In the Matter Regarding the Regulatory Reviews, Revisions, Determinations, and/or Approvals Necessary for Indiana Michigan Power Company to Fully Comply with Public Act 295 of 2008*, Case No. U-17353, Order Approving Settlement (December 19, 2013); See *In the Matter of the Verified Petition of Indiana Michigan Power Company for Approval of an Adjustments to its Rates*, Cause No. 43827 DSM 3, Order of the Commission (December 30, 2013).

greater efficiency.² Moreover, the IURC specifically found that

[a]lthough many DSM programs are targeted at changing customer behavior, for example usage of electricity, or incenting customers to purchase more efficient appliances. However, the [Indiana statutory] definition of DSM measure does not require a change in customer behavior – only the change in customer usage. I&M presented evidence demonstrating that the EECO program would reduce energy consumption through increased efficiency. Therefore, we find that the EECO program meets the requirements for DSM [under Indiana Statute], and we approve the EECO program as part of the 2014 DSM plan.³

Based on these proven and accepted results, Utilidata's AdaptiVolt™ technology is being deployed on distribution systems today and stands ready to positively impact the current energy utility model in Arizona.

Measurement and Verification

Often the implementation of modernizing the grid with these types of new innovative technologies brings with it diverging positions of distribution companies, technology companies and energy policy advocates with that of direct representatives of customers. Often these groups all recognize the potential of new technologies, but differ significantly on how the risk for introduction of these technologies should be allocated between the investor-owned utilities and customers. On one hand, the distribution companies are often cautious of capital investment in new and innovative technologies due to their unproven track record under existing regulatory paradigms (post-investment prudence review). On the

² *Id.* at 11.

³ *Id.*

other hand, consumer advocates want customers to bear as little risk as possible. Robust M&V can help bridge this gap providing the data necessary to justify a more appropriate cost recovery mechanism for these technologies while providing benefits and reducing the risk that ratepayers will be paying for investments that are not prudent.

Strong M&V programs should be at the center of grid modernization investments. In addition to measuring benefits, strong M&V programs can provide utilities with the added benefit of near real-time information about their system's performance. M&V also provides key input to capital decisions and helps regulators understand exactly how much infrastructure investments save customers. M&V allows utilities to confirm their investments, inform future investments and ensure energy efficiency. Too often, M&V is an afterthought and often left to regulators to mandate or condition as part of a particular program or investment.

Utilidata's AdaptiVolt™ M&V protocol was developed almost a decade ago and is based upon a model that has been approved by regulators for determining compensation of the utility and certain customers for certain results. The M&V protocol has been peer reviewed and meets the U.S. Department of Energy's energy conservation measurement and verification guidelines.⁴ Where robust M&V has been integrated into the deployment of technology, the risk that an investment will

⁴ For a complete overview of Utilidata's M&V protocols and conservation results from the deployment of Utilidata's technology, see *Measurement and Verification of Distribution Voltage Optimization Results for the IEEE Power & Energy Society*, Thomas L. Wilson, Senior Member (2010) attached hereto as Exhibit A. Mr. Wilson was the founder and president of PCS Utilidata, the predecessor company to Utilidata.

not be prudent or that customers will not receive some benefit is greatly decreased. Moreover, to the extent that both risk and benefits of certain capital investments are to be shared between the utility's investors and customers, robust M&V is essential in making any such allocation.

Utilidata therefore urges the Commission to make M&V central to the deployment of grid modernization technology in Arizona. Robust M&V will ensure that the costs and benefits of capital investments will be known regardless of the manner in which those costs are ultimately recovered.

Regulatory Impacts and Cost Recovery

For planning, review and implementing projects involving new innovation in technologies in Arizona, Utilidata supports a paradigm whereby utilities can gain certainty for investments through the pre-approval of innovative investments, balanced by the risk to customers through a "business case" or cost and benefit analysis of the plan. This cost benefit analysis will in many respects hinge on how well the utility can measure and verify its results. In considering the business and regulatory impacts of these technologies, the Commission should ensure that M&V programs are well developed and dependable prior implementation, where possible, third-party validation. An upfront investment in robust M&V can ensure that the projected benefits are achieved while providing a sound basis for sharing of incentives by utilities and customers without the need for protracted subsequent proceedings to evaluate performance of a particular investment.

Utilidata has vast experience in measuring and verifying the benefits it delivers to utilities and individual customers. Because of Utilidata's early investment and focus on M&V, it has significant data on how its technology has performed in the field. An example of how robust M&V can overcome the challenges of measuring customer benefits can be found in the attached IEEE study conducted by Mr. Wilson, which concludes after analyzing 11 separate Utilidata distribution voltage optimization projects involving 10 electric utilities, 19 different substations and 66 separate distribution feeders that:

CVR, which is a subset of VVO, can save significant kWh when implemented both on utility distribution feeders and at large industrial facilities. The verified % conservation found on the projects described in this paper ranged between 3% and 6% of total kWh. This costly energy, being generated using fossil and nuclear fuels, hydro, solar, wind and other renewable resources is essentially being used to heat the atmosphere through unnecessary losses. Additionally the amount of demand (kW) required by this wasted energy requires generation facilities both to serve it and to provide essential reserves to cover that wasted demand.⁵

Mr. Wilson's analysis of the benefits of VVO, as well as AEP's experience, provide regulators with confidence in utility investment in grid modernization technologies, reducing the risk to customers and justifying accelerated and pre-approved cost recovery. Any regulatory or cost recovery mechanism considered by the Commission can be enhanced through greater emphasis on measurement and verification.

⁵ Exhibit A at p. 9.

Workshop Presenter

Utilidata appreciates the opportunity to participate in this docket and offers the following individual for consideration to present at the Commission's workshops in this proceeding:

Michael Donohue
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Providence, RI 02905
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Conclusion

Utilidata appreciates the opportunity provided the Commission with these comments and information related to this new proceeding. Utilidata encourages the Commission to recognize the value of the Volt/VAR management and include it in the Commission's investigation of several proposed areas, including: development of distributed supply resources (wind, solar PV, AMI), load management technologies and energy efficiency, and as distribution automation. Utilidata also recommends that the Commission place significant emphasis on M&V protocols in the further development of policies designed to modernize the electric grid through innovative solutions and technologies. A strong M&V mandate for grid modernization plans can address many concerns regarding risks to customers in these investments and apprehension over changes in cost recovery standards with the ultimate goal of delivering significant benefits to the ratepayers. Utilidata looks

forward to participation in future proceedings regarding the impacts of grid modernization technologies in Arizona.

Sincerely,



Michael Donohue
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ORIGINAL and thirteen (13) copies of the foregoing filed this 16th day of January, 2014, with:

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