Exhibit A

Review and recommendation of RMP proposed residential load research plan

Bert Haskell – Chief Technology Officer, Pecan Street, Inc.

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Overview

Pecan Street Inc. was asked by a group of clean energy advocacy organizations, including Sierra Club, The Alliance for Solar Choice, Utah Clean Energy, and Utah Citizens Advocating Renewable Energy, to review the residential net metering load research study designed by a Utah utility—Rocky Mountain Power. We reviewed a presentation given November 5, 2014 entitled Technical Conference on Net Metering Load Research Study, and a document entitled "Sampling Plans, Procedures and Selections For the Profile Metering Sample of Utah Residential Distributed Generation 2014." Our understanding is that the data generated from this study will be used as part of a cost-benefit analysis of net metering and possibly for future rate design changes for net metering ("NEM").

Pecan Street Inc. is a 5-year old non-profit launched with the assistance of a $10.4 M DOE grant with the expressed purpose of conducting research on residential energy usage in Austin, Texas. Today we are a globally recognized research organization that has developed unique processes for collecting residential and commercial energy data and supporting localized energy research. We are currently engaged with utilities and communities across the world, including San Diego CA, Boulder CO, Oak Park IL, and Amsterdam Smart cities to help those regional entities better understand how to transform their energy landscape. Additional information about Pecan Street is included in the Company History section below.

Discussion

Pecan Street currently collects energy data on over 1,200 homes around the country including clusters of homes in Austin, San Diego, and Boulder. When we are retained to support such utility research, we instrument homes to gather more detailed data so that researchers can better understand the behaviors and technology interactions that impact the grid. Our database includes a large amount of 1-hour and 15-minute utility data, and we understand that Rocky Mountain Power plans to gather 15-minute generation and load data as part of this study. However, we have found the 15-minute data to be of limited use in identifying the impact of NEM on the factors that affect the cost of providing electrical service.

In our recommendations below, we avoid discussion of sample size, since even those people expert in the field of statistical analysis often do not agree. However, we do note that Rocky Mountain Power should incorporate PV system size and orientation into its data collection plan, which should affect the Company's sample design and possibly its size. Primarily, we focus on how the quality, rather than the quantity, of data can impact conclusions by providing the insights often masked by

statistical analysis. Generally speaking, high-resolution data collected on small clusters of residential customers will enhance, or in some cases, transform the conclusions that would have been derived by large samples sizes of low-resolution data.

Our recommendations below are not intended to necessarily replace the RMP research load sampling plan, but to add an extra dimension of data that will greatly clarify the rate issues before the Commission. In our experience, clusters of 25 homes in several regions of service territory (urban, sub-urban, rural) can provide significant insight to utilities and regulators alike.

Recommendations

1) **The size and orientation of PV systems needs to be incorporated into the data collection plan.**

   This impacts the amount of energy that the home produces relative to the load and it also impacts the exact timing of production. West facing arrays, for example, produce energy later in the day than south facing arrays, often resulting in energy production that is more closely aligned with grid peak demand. Without this data, it will not be possible to determine whether or not ALL NEM customers impact the grid in the same fashion. Looking at "Sample Customer Production Meter Output" and "Sample Customer Net Output Meter" slides reveals that if a particular NEM customer's solar output were shifted to the right by even an hour or so, then that customer's impact on the grid in terms of negative power flow (onto the grid) and demand ramping would be impacted in such a way as to look similar to a non-NEM customer that arrives at home later in the day. Aggregating results for NEM homes regardless of system size and orientation could mask these effects. It would have the effect of leading to a general conclusion about the grid impacts of NEM customers that may not be true for a significant portion of NEM customers. Incorporating these factors into the data collection plan may require increasing the number of residences included in the study or otherwise altering the sample design.

2) **The data collection should include some disaggregated load monitoring which separately measures the major residential loads including HVAC, Clothes washer & dryer, dishwasher, Electric vehicle charging, overall lighting, cooking appliances, pool pumps, and other high energy loads that may be specific to the region.**

   Knowing the exact nature of the residential loads is critical when comparing the cost to service a NEM customer to a non-NEM customer. It is our understanding that this is the purpose for which this data is being collected. For instance, we have seen in our research at Pecan Street that homes with

PV have an exceptionally benign impact on the grid during the hottest days of the year because the PV production significantly offsets the HVAC load. It is at these times of the year where spot prices for energy can spike dramatically and where an NEM customer might provide a beneficial grid impact that outweighs periods where the cost to service that NEM customer is higher than average. This granularity by application is thus essential for researchers trying to gain insights into what constitutes a fair rate structure. Pecan Street has been retained by SDG&E, the City of Boulder, and others to make disaggregated measurements of load for this reason.

3) **The load monitoring, whether aggregated or disaggregated, should be performed on a minute-to-minute basis rather than a 15-minute interval.**

15-minute data has the unfortunate effect of reporting average power consumption over the 15 minute sampling interval. One-minute interval data provides a better picture of peak loads. Peak loads are what drive many aspects of cost allocation (demand charges) to the distribution infrastructure. PV will tend to smooth out these peak loads, so a 15 minute sampling plan will mask some of the benefit of a NEM customer and could potentially lead to incorrect conclusions about the cost to service NEM customers. (One-minute interval data also more readily exposes anomalous behavior in either the actual load pattern of a particular home or the data collection/IT system itself. This is important in verifying the reliability of the data being collected.) In our experience, collecting high-resolution data on a residential energy customer can be usually achieved for around $1,500 -$2,500 per home (including recruiting costs).

4) **An equal sample of similar residences without PV should also be included in the sampling plan.**

This research should seek to characterize and understand ALL residential power usage in the service area. Focusing only on NEM/PV homes will not address all of the differences in the way that a residential customer utilizes the grid.

An important example concerns a residential customer with a PV system that is relatively small compared to the load of the residence. In these circumstances, it is entirely possible that the energy produced by the PV will rarely if ever result in a substantial amount of power feeding back to the grid in a way that will cause the grid operator to incur additional costs. Such a customer might also be compared to a residential customer living next store who has an abundance of grow lights or flat panel displays, but no PV. Such a customer may have a power factor of 0.6 which means that the grid must supply reactive power to the home for which it is unable to bill the customer because most residential meters are not able to measure power factor. Such a

customer would cost the utility much more to service than their PV endowed neighbor.

Our research has shown that modern appliances and lighting systems can cause residential power-factors to swing wildly outside the traditional utility assumption of about 0.9. These customers tax the grid more than some customers that have PV.

NEM customers should be compared to non-NEM customers with similar energy use patterns. Failure to do so could result in incorrect conclusions about the impacts of NEM.

5) **Multiple years of historical pre-solar data for homes with and without PV should be provided by the utility at whatever frequency is available.**

Ideally, disaggregated 1-minute data would be available but since retroactive collection is not possible and it is unlikely that it is acceptable to wait for multiple years of such data to be collected this will be a practical limitation. Researchers will want to concatenate this historic data to historic weather data to establish thermal envelope parameters for comparing homes. These parameters require a variety of weather situations over time to be determined with any accuracy. This data will also enable before and after analyses to be conducted on specific NEM homes providing an additional and important perspective on how NEM impacts the cost to serve a customer.

6) **The data collection plan should also include high-resolution power quality monitoring on a subset of transformers and homes.**

Since the cost to serve an NEM customer is a result of that customer's impact on the grid, that impact should be measured directly. Transformer oil temperature, current, voltage and harmonics can all be measured with retrofit-able wireless devices. Our research in Austin has shown unexpected behaviors in transformer equipment, particularly on homes that have residential solar equipment installed. It is important that independent researchers be able to examine this data to validate the cost or benefit. Transformer monitoring can be achieved for around $8,000 per transformer and the equipment can be readily re-deployed at a much lower cost. Deciding which transformers should be equipped with high-resolution power quality monitoring will require identifying the substations and distribution feeds most and least affected by residential and commercial net metering.

7) **Detailed home energy audit data should be collected on homes for which 1-minute disaggregated data is collected.**

   These audits should include the make, model, and installation date of all major appliances, particularly HVAC. This data will help researchers understand the impact of anomalous appliances and verify that these behaviors are not impacting the aggregated analysis of NEM customers in a selective fashion. In our extensive experience, homes with deteriorating appliance performance or poor thermal envelopes required normalization or elimination from datasets.

8) **Specific location information should be included in the data set to determine geographic and climactic diversity.**

   Researchers will need to append granular weather data to HVAC and Solar production data, based on location, to normalize conclusions for micro-climate effects. Anonymization can be maintained by using ZIP code or better yet, census block locations.

These recommendations are based on the limited information available about the load research study as reviewed from the lens of our collective and extensive research experience. We would be happy to discuss recommendations with the Commission or any organization that would like further clarification.

Author Biography

Bert Haskell is Chief Technology Officer of Pecan Street Inc. Headquartered at The University of Texas, Pecan Street operates the Pike Powers Laboratory and Center for Commercialization and the Pecan Street Research Institute.

After being assigned to the MCC Consortium by Eastman Kodak, Mr. Haskell spent nearly a decade working for the consortium, rising to the position of MCC's Vice President of Portable Electronics Product Research. In addition to his work for Kodak and MCC, he has held product development, product marketing and advisory rolls at a number of start-up companies including Stellar Display Corporation, Wireless Age, Motion Computing and Portelligent. Prior to joining Pecan Street, he was Director of Product Development for Heliovolt, a developer of CIGS-based thin-film photovoltaic modules. Mr. Haskell holds a Masters in Mechanical Engineering from the University of Rochester.

Pecan Street History

Pecan Street Inc. is a university-based not-for-profit research organization founded in 2009. The organization has two divisions (both non-profit): research and commercialization.

The research division carries out three principal activities: (1) research trial management, (2) research data management, analytics and curation, and (3) support of original analyses carried out by researchers using Pecan Street research data. The commercialization division principally focuses on testing, verification, and commercialization of electricity, water, and natural gas management technologies as well as consumer electronic technologies.

Pecan Street is the nation's most significant creator of original customer energy use and behavioral research data that can be shared with researchers, and it operates the nation's most data intensive field trials open to researchers and member companies. Modeled on pharmaceutical clinical trials organizations, Pecan Street specializes in carrying out research trials in the homes and businesses of volunteer customers. Pecan Street carries out this field-based research to advance three critical public interest areas: (1) climate change solutions, (2) electric system reliability, and (3) customer needs and preferences.

The organization manages a highly successful $25M field trial funded by the Department of Energy and private sector partners, a 50-home field trial in San Diego for San Diego Gas & Electric (SDG&E), and is implementing a 50-home field trial in Boulder, CO for the City of Boulder. Pecan Street also manages the world's largest residential energy database.

Pecan Street has demonstrable experience with complex smart grid demonstration project planning, implementation, and management. Through its smart grid demonstrations in Austin, San Diego, Boulder, and Oak Park, the organization has proven its ability to effectively work with local partners to test and analyze the impacts of smart grid technologies and behavioral interventions on residential and small commercial customers. The objective of Pecan Street's demonstration projects are to foster local economies that attract innovative companies, ensure resilient, reliable and intelligent power systems, empower residents with more control over their energy consumption, empower communities with more control over their energy production, and give local researchers data that will help them tackle important public interest research.

Successful implementation of these programs has been based upon the organization's ability to manage all facets of complicated, multi-stakeholder and multi- funder projects. Our relevant expertise includes:

- Smart grid demonstration project management
- Relationship development & collaborative research
- Grants management
- Community outreach and participant management
- Data and cyber security management
- Smart grid and distributed energy technology leadership
- Behavioral research and conservation program testing
- Product testing
- Smart grid demonstration project management experience

Pecan Street's research milestones to date include enrolling 1,200 homes, of which over 150 are apartments, in its consumer research trials analyzing minute-to-minute electricity use down to the appliance level. The information developed in this research consists of whole-home and circuit-level electricity use from up to 24 individual circuits per household in over 600 homes, 15-second interval whole home gas use in approximately 200 homes, 15-second interval whole home water use in approximately 50 homes, and 15-minute to 1-hour interval smart meter data in over 500 homes.

The quantity and the density of this research enables Pecan Street researchers to carry out multi-variable analysis on the effects of home energy measurement systems, technology solutions, and behavioral interventions such as demand response and pricing trials across single-family and multi-family cohorts. Pecan Street's energy audits and socio-demographic surveys enable researchers to isolate the impacts of building conditions and occupant demographics on energy consumption, enabling analysis based upon residence size, number of occupants, household income, socio- demographic information, types of appliances/electronics within the home, green building attributes, and retrofits made to the residence.

The Energy Internet smart grid demonstration

In 2009, Pecan Street Inc. was awarded a $10.4 million grant from the Department of Energy's Smart Grid Demonstration program, with an additional $14.6 million provided in local match, to create 'The Energy Internet' - a model for smart grid deployment that focuses on the impacts and management of smart consumer products. The project concludes in 2015 and is being carried out in four phases:

Phase 1: Establish baseline
Phase 2: Establish test-bed for research trials and deploy selected technologies
Phase 3: Data collection and analysis
Phase 4: Create report of research results

During phase one, a baseline was established against which to compare the impacts of consumer-side of the meter smart grid deployments. The baseline consisted of 200 homes: 100 green-built homes from Austin's Mueller community and 100 older homes spread throughout Austin. The homes were equipped with home energy measurement systems to collect whole-home and circuit-level consumption data at 15-second intervals.

During the baseline period, participants were blind to information on their energy consumption other than what is provided on utility bills to ensure that this information did not result in behavioral changes. After the baseline period ended, the research team equipped the full test-bed with energy management systems that included access to a portal for participants to view their data and carried out research trials with selected emerging technology packages in partnership with researchers from The University of Texas at Austin, Industry Advisory Council members, and local partners.

The research team rounded out phase two of the study through incentivization of over 1MW of residential roof-top PV spread across 200 homes in Mueller, of which 69 purchased or leased electric vehicles, creating the nation's most dense network of residential electric vehicles all with Level 2 charging. Pecan Street offered an enhanced incentive to participants who installed west-facing solar with the goal of determining the optimal alignment of roof-top PV in the sunbelt region. Researchers are currently using data collected from the homes with electric vehicles to understand EV ownership charge behavior, the impacts of home-charging on the electric grid, and to carry out EV charge control research.

Initially, Pecan Street had planned to purchase roof-top solar arrays for 25 residential participants. As the team prepared to undertake this task and select the 25 homes that would receive solar, the management team decided to see if the organization's funds could be stretched further, enabling more homes to participate in the PV research trial. The project team decided to offer an incentive to participants equal to the amount of the Austin Energy's residential PV rebate to purchase their own solar systems and install inverters and energy monitoring devices that would meet Pecan Street's specifications. This approach proved

immensely popular and resulted in increasing the number of homes with PV almost ten fold, from the originally plain 25 to the final 210.

In 2013, Pecan Street Inc., in partnership with Austin Energy, installed GridSense transformer monitors on four transformers in the Mueller neighborhood. Selected transformers represent a mix of transformers serving homes with no solar panels and no electric vehicles and transformers serving homes with high concentrations of electric vehicles (nearly 50%) and rooftop solar panels (over 60%). The data systems record transformer loads at five-minute intervals, enabling research into the impacts of dense networks of distributed generation and electric vehicles on utility infrastructure.

The organization is currently in phase three of its Smart Grid Demonstration focusing on data analysis and field trials management. All project data - including energy consumption, energy audit results, and socio=demographic survey results - flows to Pecan Street's secure Consumer Energy Database at the Pike Powers Lab in Austin where unique identifiers are attached to anonymize all information and it is paired with complementary data sources such as time-stamped weather, irradiance, and ERCOT's power plant emissions. Researchers and Industry Advisory Council members are using this data to identify opportunities for better home energy management, increased utility operational efficiency, and to create new products that will provide customers with increased control over their energy use and opportunities for generation at their home.

Within the Smart Grid Demonstration, Pecan Street manages several specialized field trials that take a deep dive into issues of interest to industry, utilities and communities, including:

- Distributed generation integration
- Electric vehicle impacts and charge control
- Energy pricing and consumer behavior
- Community planning and building construction standards
- Smart grid for schools

Reports of preliminary findings have been released through Dataport.

Utility partnerships

Alliander, Austin Energy, the California Public Utility Commission, NRG Retail, San Diego Gas & Electric, and Texas Gas & Electric are members of Pecan Street's Industry Advisory Council. Each utility is undertaking an independent research project with the organization in addition to their consortium activities. Pecan Street

previously worked with Oncor Electric to develop a model of the impact of distributed PV and electric vehicles on Mueller's distributions infrastructure. Members of the Pecan Street team frequently present research findings at utility industry events.

Through its utility partnerships, Pecan Street has developed unique insight into the challenges that utilities in America and Europe are currently facing. Our field trials approach provides a safe test-bed for utilities to implement and analyze innovative solutions without risk. Smart grid demonstration projects that focus on customer-oriented solutions have proven to be an invaluable resource for many utilities seeking to explore novel programs and business models. As an independent 501(c)3 with a network of volunteer participants, Pecan Street is uniquely situated to carry out behavioral, technological, and IT testing that utilities would otherwise be unable to perform. Our team is seasoned at working in partnership with utilities on these projects and in negotiating sensitive areas such as data sharing, privacy protection, and customer service.

Municipal partnerships

As a former two-term Austin City Council member, CEO Brewster McCracken has deep experience with municipal operations and procurement practices. Brewster brings expertise on constructing public-private partnerships and leveraging private enterprises to undertake initiatives that public entities could not carry out on their own.

In 2013, the City of Boulder engaged Pecan Street to undertake a research trial analyzing consumer preference and load profiles as the city contemplates municipalizing its electric utility. Pecan Street has worked closely with Boulder to plan, implement, track, and report on project results. Kara Mertz, Environmental Action Project Manager for the City of Boulder explained, "our work with Pecan Street provides the energy usage and customer preference information critical to shaping the Utility of the Future in Boulder. We are able to measure the effectiveness of existing city products and services, as well as to identify what electricity and water usage data is helpful to residents and how best to deliver it. For the first time, we are creating a tangible example of unified and personalized sustainability services for our community members." The project is coordinated through weekly calls between Boulder and Pecan Street staff, complimented by monthly site visits by project management or technical staff.

Smart grid & distributed generation technology leadership

Pecan Street is an established leader in the smart grid, distributed generation integration, and disruptive products spaces. Pecan Street's CTO Bert Haskell serves as the organization's chief technologist cultivating insights into the next generation of disruptive technologies and maintaining strong relationships with industry partners.

Member companies Intel, Schneider, Sony, LG Electronics, Verizon and others have undertaken R&D projects in the smart grid, connected home, and distributed generation space with Pecan Street. Pecan Street's research on optimal residential solar orientation in the sunbelt, released in 2013, made headlines in industry publications for its potential to align high densities of residential PV with utility business interests. The project team can undertake similar research as part of Smart City USA to analyze optimal alignment of roof-top PV systems to maximize value to utilities and to the PV owner.

Product Testing

Pecan Street operates the nation's only research meter network and the nation's only commercialization facility where companies can develop and verify the performance of hardware and software using actual customer data — historical and real-time.

At Pecan Street's Pike Powers Commercialization Lab, companies can test, commercialize, and verify performance of hardware and software that integrate smart grid, distributed generation (natural gas and solar PV), energy storage, building control, appliance control, algorithmic disaggregation, and wireless network technologies.

Designed and instrumented by a team comprised of product development executives and researchers from The University of Texas, National Renewable Energy Laboratory and private industry, the lab is the only facility in the world where companies can test application performance under simulated conditions using actual customer electricity and gas use data. For example, developers of residential and small commercial natural gas fuel cells, disaggregation algorithms, electric and gas meter chipsets and home energy routers can test the performance of their products under second-to- second energy use simulations drawn from actual customer use.

Within the lab, Pecan Street can create a field-testing environment that allows for simulation of real-world conditions within a controlled system, yielding selection of optimal devices. Lab testing of products prior to field deployment allows for

troubleshooting in a controlled environment where installation, configuration, performance, and interoperability challenges can be identified, isolated, and fixed before installation in participants' homes. Testing products in Pecan Street's lab prior to deployment in Smart City USA will prevent expensive and time-consuming problem-solving in the field.

Media and Public Relations

Industry and popular media report on Pecan Street's unique achievements on a regular basis and the organization has received several prestigious industry awards. Links to these accolades can be found on Pecan Street's website.

Some of the recent media coverage includes:

WNYC, May 21, 2014, "New Tech City: The 'Home of the Future' Will Save the Planet...and Drive you Crazy." http://www.wnyc.org/story/smart-grid-life-sweet-and-neurotic/

Green Tech Media, March 13, 2014, "Hidden Treasure: Two New Resources Offer Up Massive Amounts of Utility Data." http://www.greentechmedia.com/articles/read/Energy-Data-Treasure-from-Chattanoogas-Smart-Grid-Incubator-and-Pecan-Str

Scientific American, March 12, 2014, "With WikiEnergy, Pecan Street Shares Largest Residential Energy Database with the World." http://blogs.scientificamerican.com/plugged-in/2014/03/12/with-wiki-energy-pecan-street-project-shares-the-largest-residential-energy-database-with-the-world/

ENC Magazine, January 7, 2013, " Pecan Street demonstrates the potential of smart grid technology." http://www.ecnmag.com/articles/2013/01/pecan-street-demonstrates-potential-smart-grid-technology

PBS NewsHour, July 13, 2012, "In Austin, Charged Up About Smart Power." http://www.pbs.org/newshour/bb/science/july-dec12/smartgrid_07-13.html.

AOL TV, June 26, 2012, "Pecan Street Smart Grid Research Project." http://www.youtube.com/watch?v=70zRZy5ivbw.

Scientific American, August 21, 2012, "Electric Car Owners All Plug In At Once." http://www.scientificamerican.com/article.cfm?id=electric-car-owners- charge-at-once

Forbes, July 24, 2012, "Austin Community To Become A Volt Village To Test GM Electric Car's Impact On Grid." http://www.forbes.com/sites/toddwoody/2012/07/24/austin-community-to-become-a-volt-village-to-test-gm-electric-cars-impact-on-grid/

Selected awards and industry recognition that reflect Pecan Street's innovative approach to smart grid planning and its success include:

- Selected by GridWeek as one of the nation's three "Leading Smart Grid Initiatives" (along with the White House Green Button Initiative and the national Smart Grid Interoperability Panel) — October 2012
- Selected by government of Japan as one of three global smart grid projects to present at the one year anniversary global conference for the reconstruction of Fukushima — March 2012
- "Griddie" award for Excellence in Communication for Pecan Street Inc.'s "Meet the Neighbors" video. National Town Meeting on Demand Response and Smart Grid, put on by the Association for Demand Response & Smart Grid (ADS) - August 2012
- Number one electric vehicle initiative in United States, "Top Five EV Initiatives of 2011," Greentech Media - December 8, 2011.
- Number one smart grid initiative in United States, "Smart Grid Winners 2011," Smart Grid News - December 2011
- Outstanding Paper Award, ICRERA: Pecan Street researchers Dr. Alexis Kwasinski, Dr. Fabian Uriarte, and Amir Toliyat, from the University of Texas at Austin were awarded an Outstanding Paper Award at the International Conference on Renewable Energy Research and Applications (ICRERA) for "Effects of high penetration levels of residential photovoltaic generation." - November 2012
- Smart Grid News, "10 Pretty Darn Interesting Smart Grid Projects." - April 27, 2010