Berkshire Hathaway Energy Distributed Generation Study
Results Summary: Rocky Mountain Power Residential Customers in Utah

This document summarizes key findings from the July 2014 Berkshire Hathaway Energy Distributed Generation Survey among Rocky Mountain Power residential customers in the state of Utah. Results for all survey questions are provided in tabulations accompanying this document.

STUDY OBJECTIVES

Objectives of the study were to:

> Determine similarities and differences in demographic characteristics and attitudes of residential Distributed Generation (DG) customers compared to the General Residential customer base, and to residential Blue Sky Renewable Energy program participants.

> Evaluate the likelihood of the general residential customer class and current Blue Sky program participants to adopt potential distributed generation program offerings , including:

- A community shared subscriber solar option
- A rooftop referral program

> Profile current distributed generation customers, prospective distributed generation customers, and customers not likely to adopt distributed generation in terms of demographics; attitudes toward energy use, conservation, cost, and power generation sources including solar; energy efficiency program participation and actions taken; and perceptions of Rocky Mountain Power .

> Identify the primary customer motivators for embracing distributed generation technology and the key barriers to adoption

METHODOLOGY

It was determined that the most efficient way to solicit customer feedback regarding the relatively complex solar and distributed generation concepts in the depth and quantity desired was to invite residential customers (with email addresses on file with their utility) to complete a self-administered online survey. As a "thank you" for completed the survey, respondents were offered the opportunity to enter into a drawing for one of eleven cash prizes (one $500 grand prize, and ten $100 prizes) by the research firm conducting the study, Market Strategies International.

The study was conducted from July 17-25, 2014. Survey respondents were screened for *having or sharing responsibility for reviewing and paying their household's electricity bill and making decisions about their home's energy use*. Presence of a home power generation system, and net metering service was confirmed among Distributed Generation customers participating in the survey. Among residential Distributed Generation customers in Utah, nearly all (99.6%) report having a solar system, while about 2% report having a wind turbine system.

A total of 7949 surveys were completed with residential customers of Berkshire Hathaway Energy utilities including Rocky Mountain Power, Pacific Power, MidAmerican Energy, and NV Energy. The self-administered online survey averaged approximately 25 minutes to complete.

A total of 2220 Rocky Mountain residential customers in the state of Utah completed the survey. The final counts for the three Utah customer segments surveyed are provided below:

Rocky Mountain Power - Utah	
General Residential (non-DG, non-Blue Sky)	734
Blue Sky (non-DG)	1254
Distributed Generation	232
TOTAL	2220

Though a large number of surveys were completed for this study, it should be noted that there is some sampling bias due to the sample frame being limited to customers who have an email address on file with their electric utility, and potential non-response bias resulting from the likelihood that customers that chose to complete the survey may be more engaged with their utility and energy management in general than customers who did not respond to the survey.

KEY FINDINGS SUMMARY: ROCKY MOUNTAIN POWER – UTAH RESIDENTIAL CUSTOMERS

Interest in solar is high among all three Utah residential customer segments; and most customers respond favorably to the prospect of Rocky Mountain Power as a solar power provider offering home/rooftop and subscriber-based community shared solar solutions. Strong majorities of General Residential and Blue Sky customers (current non-DG customers) indicate that they would consider subscribing to a community shared solar offering from Rocky Mountain Power.

Among the majority of customers, the expectation is that any investment they make in solar will ultimately result in cost savings. Though most recognize and value the environmental benefits of solar power, the appeal of home/rooftop and community shared solar offerings declines among if costs are projected to be equal to or higher than the customer's current (pre-solar) total monthly energy costs.

Attitudes Regarding Solar Power and Other Renewables

Nine-in-ten General Residential (90%) customers and nearly all Blue Sky (97%) and Distributed Generation (99%) customers support increasing the use of solar power, versus maintaining or decreasing current levels of usage. The vast majority view solar power as a reliable energy source, with higher proportions noting it is "very reliable" among DG customers, followed by Blue Sky customers.

Solar and other renewable energy sources (wind, hydro, geothermal) are viewed more positively than fossil fuels or nuclear across all three customer segments, and much more positively among Blue Sky and DG customers.

Interest in Home/Rooftop Solar Purchasing or Leasing

General Residential and Blue Sky customers were asked a series of questions about purchasing or leasing a home (rooftop) solar power system.

Nearly one-half (48%) of General Residential customers say they are likely to consider purchasing or leasing a solar power system for their home in the next five years; 16% indicate they will "definitely" consider this option.

Among Blue Sky customers, nearly two-thirds (65%) indicate they will "definitely" (29%) or "probably"(36%) consider purchasing or leasing a solar power system for their home in the next five years.

Among those interested, most say they would opt to purchase rather than lease a system.

Home/Rooftop Solar Power System Providers

Among those who would consider purchasing or leasing a home solar power system in the next five years, more than nine-in-ten (96%-98%) would consider purchasing or leasing from their electric utility. Similarly, nearly all (96%-98%) would consider purchasing a system from a solar installer who was trained and certified by their utility.

Customers across all groups would be considerably less likely to consider a solar installer who was not trained and certified by their electric utility.

Upfront cost is the most frequently cited barrier to acquiring a home solar power system.

Rooftop Referral Program

Among non-DG customers across all the utilities, about nine-in-ten (87%-92%) say they would use a solar power system installer referral program offered by their utility. Approximately one-third (30%-36%) of non-DG customers indicate they would "definitely use" such a program.

SUBSCRIBER-BASED COMMUNITY SHARED SOLAR

Following a series of questions about purchasing or leasing a home (rooftop) solar power system, the concept of a "subscriber-based community shared solar" offering was presented to respondents, described as follows:

> *One alternative to individual rooftop solar that would increase solar power generation in your area would be a subscriber-based community shared solar power generation system developed and maintained by Rocky Mountain Power.*
>
> *With this type of system, households would have the option to subscribe to a shared solar power system built in their community with the capacity to provide electricity to about 100 homes.*
>
> *In return for an ongoing monthly payment to support the solar project, customers could use their share of the power produced to apply to their home's electricity usage or sell the power generated back to the grid at a rate determined by utility regulators.*

Awareness of Subscriber-Based Community Shared Solar

Few non-DG customers were aware of the concept of a subscriber-based community shared solar system (11% of General Residential, 14% of Blue Sky), compared with three in ten (30%) DG customers.

Likelihood to Consider Subscribing to Subscriber-Based Community Shared Solar

Three-quarters (75%) of General Residential customers and nine-in-ten (92%) Blue Sky customers indicated they would consider subscribing to a subscriber-based community shared solar system if offered by Rocky Mountain Power. One-quarter (25%) of General Residential customers, and one-half (51%) of Blue Sky customers said they would "definitely" consider subscribing to such an offering.

Importance of the Potential Benefits of Subscriber-Based Community Shared Solar

Respondents were asked to consider the importance of ten potential benefits of subscriber-based community shared solar when considering whether or not to subscribe to this type of program. This topic was explored via a series of forced "tradeoff' questions that resulted in a relative ranking of importance for the ten benefits described. The top three benefits identified through this technique were: 1) lower overall monthly electric bill, 2) no upfront costs, and 3) no long-term contract commitments.

Preferred Provider Among Four Specified Options for Subscriber-Based Community Shared Solar

When offered a choice of four types of organizations that could potentially develop and offer a subscriber-based community shared solar power program, the majority of non-DG customers selected Rocky Mountain Power (58% among General Residential, 54% among Blue Sky), followed by "a local non-profit entity such as a homeowners association" (20% among General Residential, 24% among Blue Sky), their local city government (14% among General Residential, 18% among Blue Sky), and lastly "a for-profit corporation such as a major solar panel installation company" (8% among General Residential, 4% among Blue Sky).

Cost Considerations for Subscriber-Based Community Shared Solar

Seven-in-ten (71%) General Residential customers would expect lower total monthly energy costs if they were to participate in a subscriber-based community shared solar program. More than half (56%) of Blue Sky customers expect lower monthly costs with the program as described.

Among General Residential customers, 40% say they would be interested in the program even if their total monthly energy costs were about the same on the program. (Another 28%-33% responded "don't know" to this question, indicating that a program offering no appreciable monthly savings was not necessarily a deal-breaker.) Among Blue Sky customers, nearly three-quarters (74%) remain interested in the program even if their monthly costs are about the same as their pre-solar costs (with another 16% responding "don't know" to this scenario).

Interest in subscriber-based community shared solar falls off considerably to 5% among General Residential customers if their total monthly energy costs are projected to be higher when subscribing to community shared solar. Three-in-ten (30%) Blue Sky customers would still be interested in the program even if their total monthly energy costs were higher.

Location of a Subscriber-Based Community Shared Solar Facility

When offered a choice between a community shared solar facility located "in their community where they could see it in operation" versus "outside their community in an area that was optimized for solar," most preferred the latter option. It should be noted that approximately three-in-ten reponded "don't know" to this question, indicating that it may be difficult for customers to understand or visualize what a facility "in their community" would mean.

In an earlier question gauging favorable/unfavorable views of various power generation sources, the proportion of positive (6-10) and very positive (8-10) ratings for "solar power from a small, local solar facility located within a mile of my home" were nearly identical with positive ratings for "solar power from a large solar facility located more than a mile from my home," and "solar power from solar panels located on my property. This indicates that customers are not necessarily averse to a solar facility near their home, and have high interest in solar power regardless of how and where it is deployed.

When weighing the importance of several potential benefits of community shared solar, the benefit associated with facility location, "the subscriber-based community shared solar facility would be located in your community," was given very low relative importance in subscription decision consideration by all customer segments (lowest importance among the ten benefits measured among non-DG customer groups). Since "lower monthly bills" is by far the most appealing benefit to customers, selecting a facility location that delivers the most cost-effective operation regardless of location (ideally ensuring that the program can offer reduced total monthly energy costs to the customer) would appear to be a much higher priority than selecting a location near the customer's home.

Preference Among the Various Solar Power Options Described

When presented with a choice between purchasing a home/rooftop solar system, leasing a home/rooftop solar system, or subscribing to a community shared solar system, the latter was the most popular option among General Residential and Blue Sky (non-DG) customers.

- Among General Residential customers, 47% chose subscribing to a community shared solar program, 20% chose purchasing a home/rooftop solar power system, and 6% chose leasing a system.
- Among Blue Sky customers, 62% chose subscribing to a community shared solar program, 18% chose purchasing a home/rooftop solar power system, and 7% chose leasing a system.

(The remainder among both groups responded "don't know," "no interest," or "would consider a different option.")

Most DG customers would still opt to purchase a home/rooftop solar power system, though 19% selected a subscriber-based community shared solar program when presented with a hypothetical choice "if you were to acquire solar power for your home in the next five years".

Communication

Rocky Mountain Power is viewed as more credible than other sources measured as a source for information about solar power and distributed generation among General Residential and Blue Sky (non-DG) customers.

Web-based communication (email or web page) and information included with the bill are the most desired channels for communication about this topic.

In Summary

Interest in solar is extremely high, and most customers are receptive to solutions from their electric utility. Subscriber-based community shared solar has particular appear due to lower up-front cost and less risk involved for the customer. However, the general expectation is that utilizing solar power will lower the customer's total monthly energy costs. Though many – Blue Sky customers in particular – recognize the environmental benefits of solar and may be willing to participate with little or no reduction in total monthly energy costs, a solar offering that results in savings for most customers is likely to be much more broadly adopted. A subscriber-based community shared solar program offering the cost savings and environmental benefits of solar power, while reducing the upfront costs and risks associated with acquiring a home solar power system would be highly desirable to a large proportion of non-DG customers.