

**Review of “Home Energy Reports”
Docket No. 08-999-05
February 28, 2011**

Background

On December 17, 2009 in Docket No. 08-999-05, the Public Service Commission of Utah (the “Commission”) adopted amendments to the Public Utility Regulatory Policies Act (“PURPA”) as contained in the Energy Independence and Security Act of 2007 (“2007 EISA”). Specifically, the Commission adopted the Smart Grid Information Standard codified as Section 532 of 2007 EISA amending Section 111(d) of PURPA and U.S.C. §2621(d). As part of this order, the Commission directed Rocky Mountain Power’s (the “Company”) demand-side management advisory group to review the concept of a “home energy report” and provide a recommendation to the Commission whether such a report is appropriate for implementation in Rocky Mountain Power’s Utah service territory. The Commission directed such recommendation be provided by May 1, 2010. Relevant language from page 19 of the Commission’s order is provided below.

“...we direct the DSM advisory group to review the Home Energy Report and provide a recommendation whether or not such report is appropriate and, if so, an estimate of the costs and timing necessary to implement such report. Said recommendation shall be submitted to the Commission by May 1, 2010.”

The concept of the home energy report was introduced in this docket by a group of parties consisting of the Brendle Group, Park City Municipal Corporation Environmental Sustainability Department, the Environmental Defense Fund, the Town of Alta, and Utah Clean Energy (“Brendle et al”). In their comments submitted to the Commission in this docket dated November 25, 2009, Brendle et al stated that home energy reports are able to provide residential and commercial customers information on their energy usage and the source of that energy. As stated in the December 17, 2009 order, the Commission found merit in the concept of a home energy report, stating that information provided in such reports “could have an immediate impact on energy conservation in the Company’s Utah service territory.”¹

On April 8, 2010, Rocky Mountain Power filed a letter with the Commission requesting an extension of the due date for the report from May 1, 2010 to February 28, 2011 in order to allow the Company sufficient time to complete an ongoing evaluation of a Home Comparison Report product received through a competitively bid request for a proposal.

In the April 8, 2010 letter to the Commission, the Company offered to submit a report which provided a summary level inventory of known “home comparison reports” that were currently being provided to electric utility customers in the United States by May 1, 2010. On April 30, 2010 the Company provided the summary level inventory report and continued its evaluation of home comparison reports in order to fully vet the information necessary to respond to the Commission’s initial direction to provide a recommendation on home energy reports.

¹ Refer to page 19 of the Commission’s order in Docket No. 08-999-05.

Review and Findings

As stated by the Company in its April 8, 2010 letter to the Commission, the Company believes home comparison reports, or home energy reports, are worthy of consideration. A growing number of utilities have begun offering home comparison reports to their customers; however, most of these offerings are being described as pilot programs. Utilities are testing customer reaction to receiving the reports, seeking to understand the sustainability of the savings, looking for interaction and impact on other utility programs offered, testing program economics, and seeking to understand measurement and verification requirements and challenges.

Energy savings from behavioral actions taken by customers can be low cost and are in many ways similar to the energy efficiency education that has been occurring through public and utility forums and channels for many decades. The primary difference is that home comparison reports seek to foster a comparative approach and are accompanied by a conscious effort to measure, track and report energy savings; savings which historically, due to the broad approach taken in disseminating the information, were believed to be too difficult to attempt to quantify. It was presupposed that smart energy users would translate to smart energy choices and therefore energy savings. Costs of such efforts were folded into the utility's overall program portfolio in order to support their economics (they had no attributed savings of their own).

Today's home comparison report products are attempting to change this historic approach, to develop behavioral change products capable of educating consumers, delivering savings and being measured. While still in their infancy in many facets, i.e. what motivates different customers, where the savings come from, and the sustainability of savings over time, today's home comparison reports are growing in popularity and use.

The use of customer data, both utility (usage history, etc.) and non-utility (housing type and size, general household demographics, climate information, etc.) data, in the development of the comparison reports has prompted a measure of customer concern regarding privacy. The type of data required, and in some cases, unflattering energy use comparisons have led some customers to call, voice their concerns, and cancel their participation in home energy report programs. While the number of customers reacting to the reports in this manner has been small, it warrants mentioning that these concerns could result in Commission inquiries or complaints if a home comparison report program is offered in Utah.

Rocky Mountain Power's review of the home comparison reports suggest there may be a place in the Company's residential program portfolio for such a program despite identified limitations that may reduce applicability to all customers. In a review of home comparison report program economics, two key variables or assumptions tend to drive program economics: 1) number of households receiving the reports and 2) average household usage. As one would expect, both variables influence program savings; however, they also influence program potential. A third variable, the percentage of savings per home, is also a key variable; however, is not as utility specific or relevant to the Company's review in that utility evaluations of similar programs are consistently showing savings in the 2-3 percent range with early efforts at the lower end of this range and longer running pilots near the middle to upper end of this range.

Home comparison reports are generally priced on a per household basis, creating a requirement to derive sufficient savings from each household to justify the cost. Since savings opportunities are the greatest in households with above average electricity consumption, these homes become the target market audience for two reasons; greater opportunity for savings and thus greater savings achieved; both necessary to justify the per household costs of providing the reports. However, to provide good comparison reports for each home treated within the targeted households, a corresponding set of comparison homes (which do not receive a home energy report) must be identified and their usage tracked. In short, if you elect to provide home comparison reports to 50,000 to 75,000 households, it requires another comparatively similar set of households, another 50,000 to 75,000 households, be identified and tracked. “Similarly comparative” means comparable housing type, climate zone and other similar demographic characteristics in order to derive the needed 1) comparative information, 2) tracking of household improvements over time, and 3) measurement and verification of program household/program savings. A 50,000 household program requires the program manager, monitor and track the monthly or quarterly energy usage (depending on frequency of the reports) of nearly 100,000 households with sufficient energy consumption to ensure a cost-effective program. The control group or households not receiving the home comparison reports cannot participate in the program as they are needed to demonstrate participating customer savings. In the near-term, this limits the applicability of the program to all or a number of Rocky Mountain Power’s Utah customers proportionate to the number of households receiving the comparison reports.

In addition to the per household driven economics, providing home comparison reports requires access to and the management of large amounts of data, including utility customer usage data. A utility offering home comparison reports must develop data transfer procedures and extract files, data change or update procedures and extract files, and a data warehouse to facilitate the management and exchange of customer information needed to operate the program. In addition, training a utility’s call center representatives to handle customer calls, establishing web page information, linking the utility’s web page to that of the program providers web page/program page (if an outsource solution is selected), utility/vendor collateral information development, coordination of offering with other Company demand-side program offerings and the development of energy saving tips and promotions all add to the one-time and ongoing support requirements and costs of offering home comparison reports.

Cost Analysis

Rocky Mountain Power reviewed several cost benefit scenarios in evaluating a pilot home comparison report program. The Company provides the following two scenarios to illustrate general program economics and the impact of a programs size on economics. For the purpose of this analysis, and consistent with the Company’s findings, key variables such as implementation and ongoing operational costs, the weighted average of annual household usage, and anticipated percent of per household saving are for the most part constant between the two scenarios. As previously mentioned in this report, a larger pilot program helps mitigate the relatively static one-time/start-up costs and may result in a modest reduction in per household report and data analysis cost. Ongoing support costs are not expected to be impacted by program size.

Home Comparison Report (Utah only)	Pilot Option 1	Pilot Option 2	Comments
Number of household receiving reports	50,000	75,000	Dependent variable on economics, larger is preferable to overcome one-time upfront costs
Number of households required for analysis	100,000	150,000	Included treated and non-treated households
As percent of residential customers ~	14 percent	21 percent	Assumes roughly 710,000 residential households
Targeted annual usage (weighted average, not minimum)	16,000 kWh	16,000 kWh	Average residential usage in Utah, 9,300
Assumed savings from homes receiving comparison reports	2.04 percent	2.04 percent	Weighted average savings over 3 years, 2.24 percent by year 3
Total savings (3 years)	48,960 mWh	73,440 mWh	Assumes savings from 50,000 or 75,000 households over first three years implemented
One-time Costs	\$169,100	\$175,100	Report engine setup, development of data extracts and files, data warehouse, call center training, etc.
Ongoing Support Costs	\$272,580	\$272,580	Data management, call center support, etc.
Report and Data Analysis	\$1,612,500	\$2,306,250	Assumes 6 reports per year, treated homes
Evaluation Costs	\$75,000	\$75,000	Year 3 cost, validate savings and formulate program recommendation
Total Cost of 3 Year Pilot	\$2,129,180	\$2,828,930	Estimate only, actual costs may vary depending on final design, regulatory requirements, etc.
Average cost per kWh of savings	\$.0435	\$.0385	Not levelized, straight average over the three year pilots and assumes 1 year measure life

As illustrated in the analysis, a larger pilot program results in more savings and savings at a lower average cost per kWh and 50 percent more MWh savings at a nearly 13 percent lower cost per kWh saved.

In addition to program size, the second largest key economic driver is average household usage of participating homes. From an average perspective, Utah's residential household usage is approximately 9,300 kWh annually. For the purpose of the two scenarios presented in the table above, Rocky Mountain Power assumed a pilot program would target participation homes with a weighted average household usage of 16,000 kWh annually. If, for the purpose of the analysis, the weighted average household usage is reduced to 10,000 kWh, the average levelized cost per kWh saved would increase for the 50,000 and 75,000 household pilots to \$.0696 and \$.0616, respectively. This occurs as a result of the one-time costs, ongoing support costs, report and data

analysis costs, and evaluation costs remaining static concerning pilot assumptions on targeted household or average household usage.

Presuming a home comparison report pilot program is successful at delivering verifiable and sustainable savings, and it’s continuation beyond an initial pilot period is warranted, at some point it would likely be appropriate to: 1) expand the set of households participating (receiving reports), or 2) rotate the households receiving reports. However, a discussion of the impact of expanding participation on program performance is warranted. As the number of participating customers increases (the greater the market penetration rate of the program) the greater the likelihood that program performance will be degraded. Because a program will likely target the highest energy using homes first, the program will experience a decline in average targeted household usage as more homes participate. This dynamic will result in less verifiable program savings and greater challenges in verifying program savings. However, this may be offset, or the impacts delayed, if program costs improve and or program design evolutions are forthcoming that enable greater per household savings than the 2-3 percent assumed today.

Provided the savings and cost assumptions are accurate and are realized, Rocky Mountain Power’s initial review suggests there are a sufficient number of higher usage households in Utah to support the program beyond the three year pilot period. Initial estimates are that at least 100,000 households could be targeted for participation and maintain the economics proposed in this report. The exact number beyond 100,000 households, however, has not been analyzed. The Company assumes that too many variables are subject to change over the next three years to make this type of analysis valuable at this time.

Estimated Implementation Timeline

Tasks to Implement	Time required²
Complete vendor negotiations and execute delivery agreement	5 weeks
Prepare and file program for regulatory approval	4 weeks
Advisory group review	2 weeks
Regulatory approval timeline	9 weeks
Preparations for program launch*	15-20 weeks
*Preparation tasks include but are not limited to: 1) Finalizing data and technical support requirements 2) Development of technical infrastructure(s) i.e. extracts, data warehouses, secured data transfer processes, configuration of necessary hardware, software and network infrastructures, web access/sign-on capabilities and system testing 3) Analysis, selection and data enrichment of targeted participating and comparison household data i.e. acquire and match customer demographics, housing data, location data, and other data necessary for the creation of the home energy reports 4) Data segmentation and targeted household refinements, incorporating third-party information to finalize targeted households 5) Development of program communications including report content, web content,	

² Assumes the company is not required to reinitiate the procurement of a third party vendor.

Tasks to Implement	Time required ²
customer newsletters, customer tip sheets, and related program collateral i.e. welcome letter, bill inserts, report envelope, etc. 6) Internal testing using real customer data, report generation and reviews to ensure accuracy and consistency of information, test all report generation functions and web support functions 7) Call center training and support materials i.e. help screens, support numbers, etc. 8) Customer informational letters mailed explaining program 9) Begin report delivery	
Estimate of time from decision to proceed to implementation	35-40 weeks

Recommendation

Rocky Mountain Power’s review of the home comparison reports suggest there may be a place in the Company’s program portfolio for such a program despite identified limitations that may reduce applicability to all customers. While it’s clear that these tools are still evolving and improving, as evidenced by the evaluation data emerging from existing utility pilot programs, considering a pilot program to test customer response and tool effectiveness may prove beneficial in growing markets such as Utah. Programs that proactively reach out to customers, help them better understand and assess their energy usage, and help educate them on efficient use of electricity seems a logical step forward in program services.

That said, the design, effectiveness and cost of these tools is still in the development stages as competition among third-party providers and software companies intensify to provide market-ready products for utilities to offer their customers. In addition, product requirements vary and as evidenced by the implementation requirements noted in this report there is a utility investment in information technology and systems required to provide the program; costs which may be specific to a given solution offered, i.e. may need to be replicated if a utility moves from one delivery platform, provider and or software to another.

Rocky Mountain Power believes a measured approach is warranted at this time in the exploration of home comparison reports, suggesting that if a program is offered in Utah it be done under a pilot basis with an appreciation and understanding of the program’s strengths and limitations identified in this report. Rocky Mountain Power would require the support of the Commission in this exploratory effort and an understanding that the pilot or pilot’s implementation may be cancelled if: 1) program costs/requirements exceed initial forecasts/expectations, 2) program savings are less than anticipated, 3) customer reaction is not positive, or 4) the program economics warrant such cancellation. The Commission should recognize the pilot designation as an admission by the Company that much is yet to be learned regarding home comparison reports and offering a program at this time is intended to further the Company’s and the State of Utah’s understanding, not be a guarantee of the program’s economics or effectiveness.

If a pilot program is pursued, Rocky Mountain Power would recommend an initial program size of 75,000 households and that selection of participation be based on higher average use

households. These two recommendations provide the best opportunity for a pilot program's success, for reasons previously presented in this report.

As proposed, the pilot program costs are estimated not-to-exceed \$2.8 million over three years; a home comparison report program could be implemented in 35-40 weeks. If a pilot is pursued, the Company would propose recovering its cost through the existing tariff rider mechanism and may require an adjustment to the existing collection rate to fund.