ROCKY MOUNTAIN POWER
A DIVISION OF PACIFICORP

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July 22, 2022

VIA ELECTRONIC FILING

Public Service Commission of Utah
Heber M. Wells Building, 4th Floor
160 East 300 South
Salt Lake City, UT 84114

Attention: Gary Widerburg
Commission Secretary

Re: **Reply Comments**
In the Matter of Rocky Mountain Power's Demand-Side Management 2021 Annual Energy Efficiency and Peak Load Reduction Report
Docket No. 22-035-27

On June 14, 2022, the Public Service Commission of Utah ("Commission") issued a Notice of Filing and Comment period in the above referenced matter, allowing parties to file comments on Rocky Mountain Power's (the "Company") 2021 Annual Energy Efficiency and Peak Load Reduction Report ("2021 Report") by July 7, 2022, and reply comments by July 22, 2022. The Division of Public Utilities ("Division") filed comments July 1, 2022, the Office of Consumer Services ("Office") filed comments July 6, 2022, and Utah Clean Energy ("UCE") and Southwest Energy Efficiency Project ("SWEEP") filed joint comments July 7, 2022. The Company submits these reply comments in response to party comments.

Division Comments

The Division's comments concluded that the 2021 Report complies with Commission requirements, and recommends the Commission acknowledge the 2021 Report as complying with Commission orders.

Office Comments

The Office expressed concern with respect to the increased Home Energy Report ("HER") benefits reported in the 2021 Report compared to the HER benefits reported for 2019 and 2020,[1] and recommended the Company provide additional information and evidence in support of the increased HER benefits. Additionally, the Office also requested an explanation regarding the differences between forecasts with HER first-year savings versus HER incremental savings, and which forecast is appropriate for ongoing use.[2]

[1] Office Comments at Page 4.
[2] *Id*.

UCE/SWEEP Comments

UCE/SWEEP's comments contend that the Company's Integrated Resource Plan ("IRP") should not be used to set a hard cap on the amount of efficiency savings in any given year,[3] and requests the Company increase the savings from energy efficiency and demand response programs if the cost effectiveness of the programs is above 1.[4] Additionally, UCE/SWEEP also requested an explanation regarding the increased HER benefits in 2021 over previous years.[5]

DISCUSSION

There are three main factors that contributed to the increased HER benefits in 2021:

1. **Deemed Savings Value** – Prior to 2020, the HER program was implemented and evaluated as an opt-out randomized controlled trial ("RCT"), in which eligible residential customers were randomly assigned to the program treatment or control group. Control group customers did not receive energy reports and provided the baseline for measuring the energy savings of treatment group customers. In 2020, there was an expansion opportunity for the HER program that would significantly increase program participants and energy savings. The expansion however required changing from an RCT approach to a deemed value approach for measuring energy savings. During the June 4, 2020, Demand Side Management ("DSM") Steering Committee meeting, the Company discussed the HER program expansion opportunity and shared a third-party analysis, attached hereto as Exhibit A, to support the switch to a deemed savings approach. The expansion and deemed savings approach were adopted for the HER program as a result and increased HER benefits thereafter.

2. **HER Program Expansion** – As mentioned above, the HER program was expanded mid-2020 by opening the program to any customer with an email address on file, amounting to over 100,000 additional customers receiving reports. As a result, there was a significant increase in savings achieved the latter half of 2020 compared to 2019. Additionally, there was a significant increase in savings achieved during 2021 compared to 2020 as the program expansion was in place the entire calendar year. The HER program expansion was accounted for in the Company's July 1, 2020, updated expenditure forecast in Docket No. 20-035-31, and was referenced further in the Company's Compliance Filing submitted November 6, 2020, in the same docket.

3. **Avoided Costs** – Consistent with historical practice, for the 2019-2020 reporting period, the Company used the 2019 IRP avoided costs in its calculations for cost effectiveness and program benefits. For the 2021 reporting period, the Company used the 2021 IRP avoided costs. The 2019 IRP avoided costs for the load shape applied to HER were $60 per megawatt hour, whereas the 2021 IRP avoided costs for the load shape applied to HER were $172 per megawatt hour. The increase in avoided costs is due to the majority of expected energy savings associated with HERs aligning with daytime peak hours when

[3] UCE/SWEEP Comments at Page 3
[4] *Id* at Page 4.
[5] *Id.*

> energy prices are expected to be relatively high. In the 2021 IRP, near term price volatility for high load peak hours increased substantially. Correspondingly, this increase in avoided costs resulted in a significant increase to HER benefits for 2021 compared to the 2019-2020 period.

With respect to the Office's request concerning HER first-year versus incremental energy savings, and which HER forecast is appropriate for ongoing use, the Company believes it addressed this issue in its Reply Comments submitted December 16, 2021, in Docket No. 21-035-45, attached hereto as Exhibit B, as a result of UCE/SWEEP raising similar concerns to what the Office raised in this docket.

With respect to UCE and SWEEP's comments, historically, the Company has over-achieved its IRP targets, which demonstrates that the IRP targets are not a "hard cap" as UCE and SWEEP contend, but rather a guide to help manage the Company's portfolio. As stated in the Company's Reply Comments submitted December 18, 2018, in Docket No. 18-035-27, reiterated in the Company's Reply Comments submitted August 5, 2019, in Docket No. 19-035-22, and as referenced in UCE/SWEEP's comments,[6] the IRP remains the Company's source for determining appropriate levels of DSM acquisition as a lowest-cost resource. The pursuit of achieving significant DSM acquisition beyond the IRP recommended levels has been discussed on multiple occasions during DSM Steering Committee meetings, and the Company continues to assert that such a pursuit would not be in the public interest. The Company believes its current approach to establishing savings targets, programs and offerings is in the public interest, produces rates that are just and reasonable with balanced outcomes, and in compliance with Utah state law and Commission requirements.

CONCLUSION

Based on the information provided herein, the Company believes it has adequately addressed concerns raised by parties and requests the Commission acknowledge the 2021 Report as complying with Commission orders.

Sincerely,

Michael S. Snow
Manager, Regulatory Affairs

Enclosures

[6] *Id* at Page 2 Footnote 4.

Exhibit A

CADMUS

Memorandum

To: Shawn Grant, William Comeau; Rocky Mountain Power

From: Jim Stewart, Ph.D., Maggie Buffum; Cadmus

Subject: Deemed Savings for Rocky Mountain Power Utah HER Program

Date: June 3, 2020

Introduction

Rocky Mountain Power (RMP) operates home energy reports (HER) programs in Idaho, Utah, and Wyoming. These programs have consistently delivered energy savings and high customer satisfaction ratings. In Utah in 2019, RMP delivers energy reports to 311,051 customers belonging to four waves, and the program saved between 0.3% and 1.8% of electricity consumption, depending on the wave.[1] While RMP has recently expanded its Utah HER program, many of its residential customers still do not receive energy reports.[2]

RMP is considering expanding its HER program to serve all residential customers in Utah.[3] This would require changing the program evaluation approach. Currently, RMP implements the HER programs as opt-out randomized controlled trials (RCT), in which eligible residential customers are randomly assigned to the program treatment or control group. Control group customers do not receive energy reports and provide the baseline for measuring the energy savings of treatment group customers. Delivering energy reports to all residential customers would require abandoning the RCT approach, which is the industry gold standard for evaluating HER programs.

RMP asked Cadmus to investigate whether its HER program in Utah could reliably be evaluated with a deemed savings approach given that the program has a long record of consistently delivering energy savings.[4] With a deemed savings approach, PacifiCorp would claim savings equal to a percentage of a customer's consumption if the customer received a minimum number of energy reports during the program year.

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1 Based on Cadmus analysis of monthly billing consumption data for RMP Utah HER program participants.

2 There were 758,000 RMP residential customers in Utah. The RMP Utah HER program comprises four waves: Legacy (first reports delivered in 2012), Expansion (2014), Refill (2016), and Refill 2 (2018).

3 Some energy reports information modules are based on analysis of the customer's consumption over the previous 12 months. Customers may be required to reside at the same location for 12 months before the first report can be generated.

4 See ADM Associates (2018) for the most recent evaluation of RMP's Utah HER program.

Research Objectives

For a deemed savings approach to evaluating RMP's HER program to be reliable, the following conditions must hold:

(1) **Accuracy**: the evaluated savings on which the deemed savings values would be based must be accurate;
(2) **Predictability:** the HER energy savings must be predictable, so that past evaluated HER program savings will be a good predictor of future program savings; and
(3) **Externally validity:** if RMP wishes to apply deemed savings to residential customers who have never received HERs, the deemed savings values must be applicable to RMP's residential customers who do not currently receive energy reports.

The rest of this memo presents Cadmus' assessment of whether these conditions are met and the validity of using a deemed savings approach for evaluating the RMP Utah HER program. The focus of this research is on assessing the second and third conditions, because, as discussed below, the accuracy of the evaluated annual savings are not at issue. To assess the second and third questions, Cadmus analyzed the evaluated annual savings from RMP HER programs and the HER program of other utilities as well as billing data for RMP Utah residential customers. All evaluated HER savings analyzed in this memo come from RCTs, so these data are of high quality.

Summary of Main Findings

Cadmus' assessment finds that the RMP Utah savings estimates from RCTs are accurate indicators of past program performance and that these savings estimates could be used to develop deemed savings values. Also, the savings from the RMP Utah HER programs follow a predictable time trend. Specifically, savings reach a steady state after three years of treatment and savings maintain while customers receive energy reports. This suggests that deemed savings based on past savings estimates can be used to measure future program savings. The assessment also determined that customers participating in the HER experiment tend to have higher consumption than customers currently not participating and that HER savings depend on household consumption levels. This means that the evaluated savings from the RCT experiments cannot be directly applied to the non-participant population. This memo concludes with recommendations for HER deemed savings values based on regression analysis of RMP UMP customer billing consumption data.

Deemed Savings Approach Assessment

Accuracy of Evaluated Savings

The first condition regarding the accuracy of the RMP's HER savings estimates is not in question. As noted above, RCTs are the gold standard in program evaluation, as they are expected to produce unbiased savings estimates.[5] All RMP HER program evaluations were conducted as large RCTs involving

[5] See Stewart and Todd (2017), Allcott (2011), and Allcott (2015) about use of RCTs for evaluating HERs programs.

thousands of residential customers.[6] The energy savings estimates from these evaluations are precise and of high quality and the evaluated savings or the billing data from these experiments can be used to construct deemed savings values.

Predictability of HER Savings

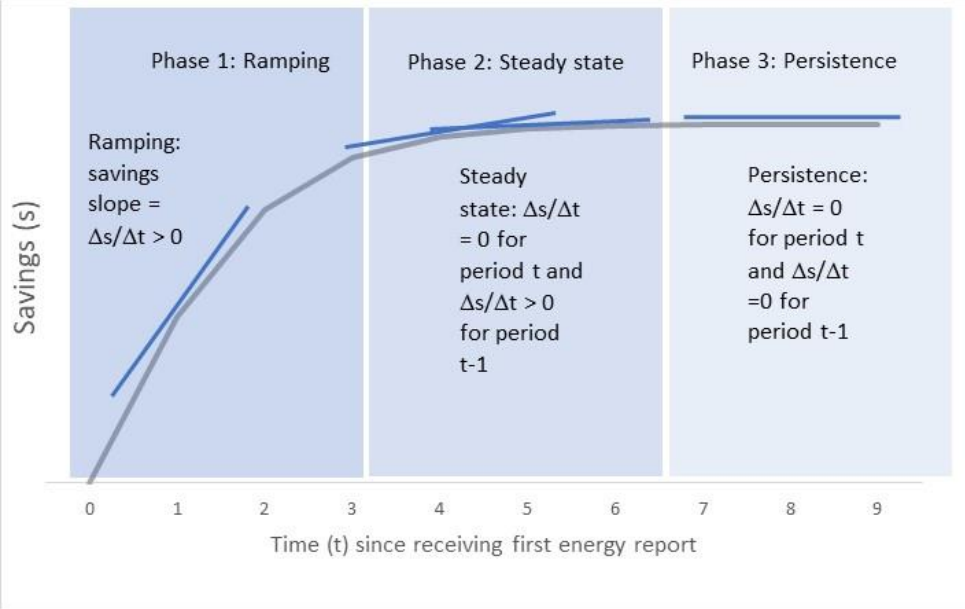
Most RCT impact evaluations from long-running utility HER programs suggest that savings reach a steady state after customers receive energy reports for two or three years (Khawaja and Stewart 2014).

[6] For its evaluation of RMP's Utah HER program, Cadmus validated the research design by verifying that the sample sizes were sufficient and that customers had been properly randomized into treatment and control groups.

Figure 1 illustrates the hypothesized savings trend for a typical HER program since the time of first treatment. The x axis shows time (in years) since the first reports were delivered and the y axis shows savings. Typically, during the first two years of a HER program, savings ramp up. After the third or fourth year of report delivery, the HER savings plateau and reach a steady state. HER savings usually persist while treatment continues.[7]

[7] Research about HER savings persistence suggests that persistence may be due to habit formation (Allcott and Rogers, 2014) and installation of energy savings measures (Brandon et al., 2017).

Figure 1. Typical HER Program Savings Time Path



RMP Utah HER Savings Trends

Cadmus analyzed savings trends for the RMP Utah HER program to demonstrate that savings follow the predictable trend shown in

Figure **1**, specifically, the savings reach a steady state after two years of treatment and that the steady state is maintained while customers receive reports. We collected and analyzed annual savings estimates from recent evaluations of RMP's Utah HER programs and the HER programs of other utilities to estimate how HER savings evolve over time. We show that RMP's Utah HER program follows the savings trends in

Figure **1**.

To estimate the HER savings trends, we ran an ordinary least squares (OLS) regression of HER program annual percentage savings on a utility-wave fixed effects and separate indicator variables for each year of treatment.[8] Savings (the dependent variable) were expressed as percentages to normalize for differences between utility-waves in customer baseline consumption. The coefficients on the indicator variables show the average percentage savings in each year of treatment. The utility-wave fixed effects control for differences in program population and program implementation and allow for the first-year percentage savings to vary between utilities and between waves of the same utility. This regression analysis abstracts from fluctuations in annual savings due to weather and other idiosyncratic factors to characterize the typical HER savings time path, that is, the rate at which savings ramp up over time, the steady-state savings level, and whether savings persist in the long run while treatment continues. This non-parametric regression analysis imposes no functional form assumptions about the relationship between HER percentage savings and year of treatment.

In a second regression, we test whether the savings trend for RMP's Utah HER program differs from the savings trend for the other utilities in the analysis sample. We did this by re-running the first regression with a set of year-of-treatment indicators interacted with a dummy variable for whether the savings estimate was from RMP Utah. We conducted statistical tests of the hypothesis that the coefficients on the interaction variables for program years 3 and higher are equal to zero, which would indicate that RMP Utah's steady-state savings is not statistically different from other utilities. There were not enough annual savings estimates from RMP Utah HER program to develop a separate model for Utah.

The analysis sample includes data for six utilities and 21 utility-waves and a total of 135 observations of annual percentage HER savings. Specifically, we analyzed annual HER savings from the long running HER programs of RMP (Utah), Pacific Power (Washington), Vectren (Indiana), PPL Electric (Pennsylvania), Commonwealth Edison (Illinois), and Indianapolis Power & Light (Indiana).[9] Like RMP's Utah program, many of these programs comprise multiple waves of customers, and we collected data for as many waves as possible. All annual savings estimates data came from publicly available reports. For both regressions, the analysis sample was restricted to utility-waves with at least four program years of annual savings and all data for program years greater than eight were dropped.

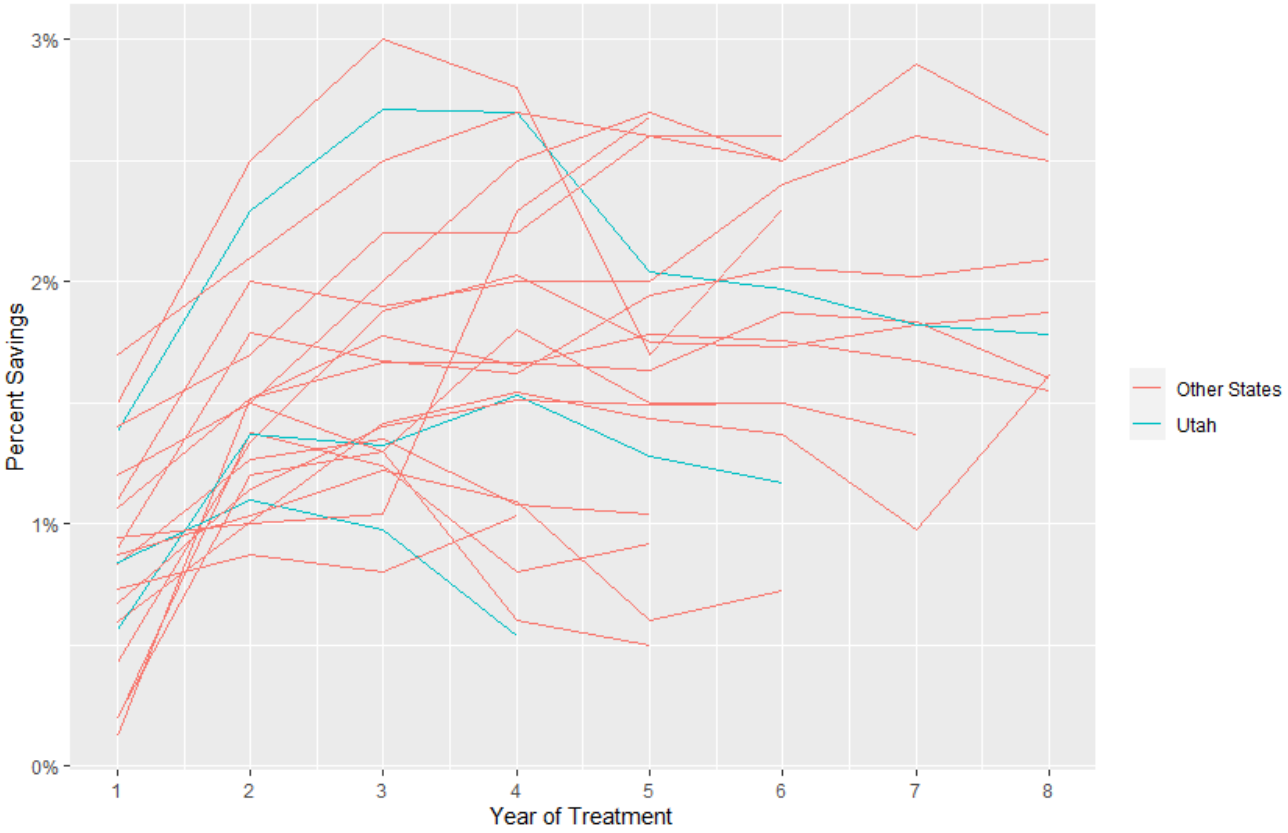
Figure 2 plots the annual HER percentage savings estimates from evaluations of RMP Utah's program and the programs of other utilities in the analysis sample. There are differences between utility waves in the percentage savings levels, but most waves show a year or two of ramping and then a leveling of savings. The savings for the RMP Utah waves are presented in blue. RMP Utah suspended delivery of

[8] The regression also included an indicator variable for years when delivery of energy reports was suspended. This variable equaled one in years with suspensions and zero otherwise.

[9] The annual savings data were collected from evaluations Cadmus conducted of long-running HER programs.

energy reports most of 2018, which may help to explain the decline in savings for the two waves with the lowest savings.

Figure 2. HER Program Savings Trends for Utility Waves



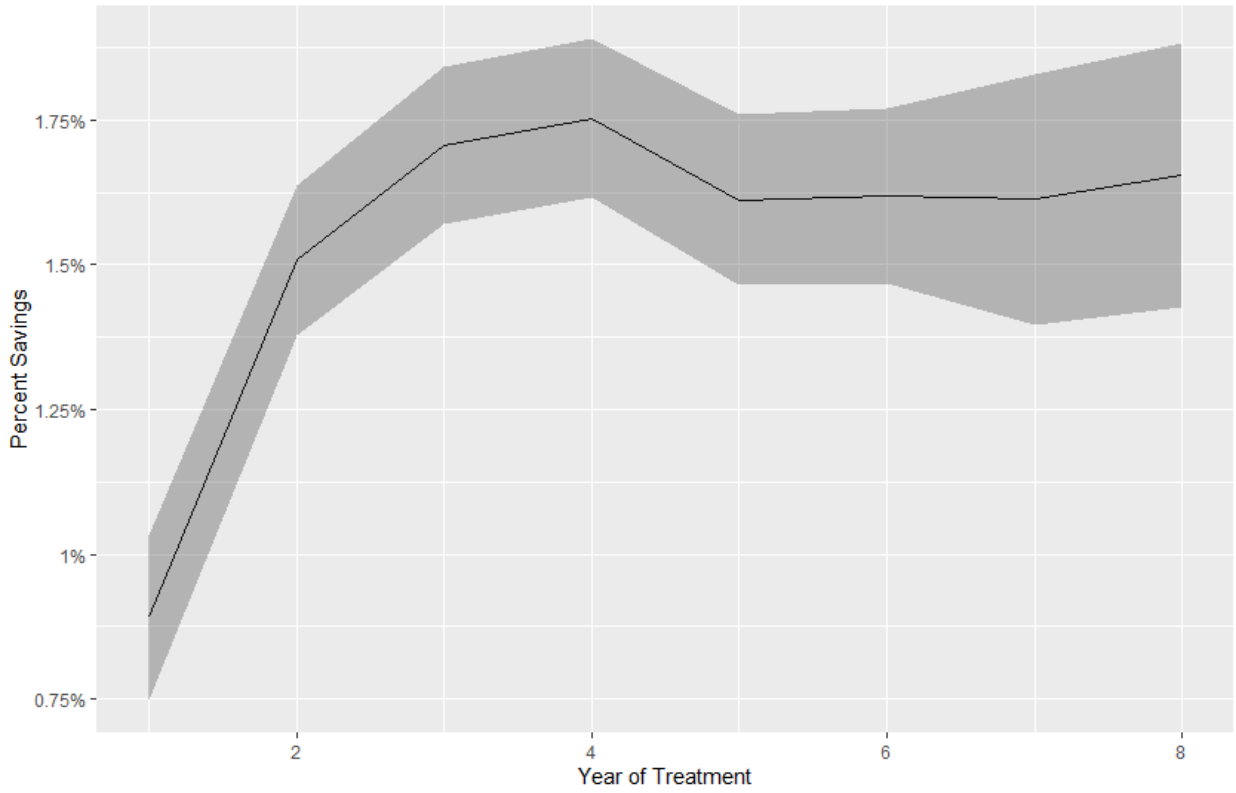
Results

Figure 3 shows the regression-based estimate of annual percentage savings for each year of treatment with a 90% confidence interval for treatment years one through eight. As shown by the 90% confidence intervals, all coefficients were precisely estimated and statistically different from zero. The R^2 of the model (.816) shows that the wave-year fixed effects and the year-of-treatment indicators can explain 81.6% of the variation in annual percentage savings.

The estimates of annual savings for each year of treatment follow a trend similar to that depicted in

Figure 1. The savings appear to ramp for two years before reaching a steady state around the third year of treatment.[10]

Figure 3. Estimated Conditional Mean HER Savings Trend



Notes: Dependent variable is HER annual percentage energy savings. Model was estimated by OLS with standard errors clustered on utility-waves. Observations were weighted by the number of treated customers in the wave.

To test formally for a savings steady state, we conducted an F test of the hypothesis that the savings for year 3 through year 8 of treatment were not statistically different conditional on wave-year fixed effects. The results of the F test in Table 1 show that we cannot reject this hypothesis. The F statistic equals 0.84 and the p-value equals 0.53, suggesting that the savings do not change after year 3 while treatment continues. Cadmus also estimated a model with utility-wave fixed effects, separate indicator variables for program year one, program year two, and program year three or greater of treatment, and a time trend variable that takes on the value of 0 in program years 1 and 2 and then that increases by one unit in each subsequent program years. The coefficient on the time trend was small and statistically

[10] Cadmus ran several checks of this main result. These included (1) estimating a parametric version of the regression using a cubic polynomial in year of treatment rather than individual dummy variables; (2) varying the utilities included in the analysis sample; and (3) varying the sample selection criteria regarding the minimum number of annual savings estimates. The results did not change.

insignificant (t stat = .355, p value = .723), again suggesting that savings did not trend up or down after reaching a steady state.

Table 1. Test for a Savings Steady State

F Statistic	Degrees of Freedom (num, den)	p value
0.84	5, 20	0.534

Notes: Table shows results of F test of hypothesis that the coefficients (savings) on the program years 3-8 indicator variables are equal. Dependent variable in the regression is HER annual percentage energy savings. Model was estimated by OLS with standard errors clustered on utility-wave.

Figure **1** and these statistical tests show that savings of HER programs in the analysis sample reach a steady state after the third year of treatment, but do the savings of RMP Utah's HER program exhibit the same properties? We formally test for differences in savings between RMP's Utah HER and the HER programs of the other utilities in the analysis sample by running the second regression with the interaction variables between the year of treatment and an indicator variable for RMP Utah. The regression is estimated with annual savings data for Utah HER programs (n=16 annual observations) and the other utility waves in our sample (n=102 annual observations) with a minimum of four years of estimated savings. All observations with treatment year greater than six years were dropped from the analysis sample because there was only one utility-wave in RMP Utah's program with more than six treatment years. Table 2 shows the results of an F test of the hypothesis that there was no statistically significant difference between the steady state savings for years 3 through year 6 of the RMP Utah program and the other programs.[11] This results suggests that the HER program savings of RMP Utah and the other utilities follow the same predictable trends.

Table 2. Test of Difference in Savings between RMP Utah and Other Utilities

F Statistic	Degrees of Freedom (num, den)	p value
1.69	4, 20	0.192

Notes: Table shows results of F test of hypothesis that the coefficients (savings) on the interaction variables between year of treatment and indicator variable for UMP Utah program equal zero. Dependent variable in the regression is HER annual percentage energy savings. Model was estimated by OLS with standard errors clustered on utility-wave.

This analysis of HER savings trends shows that HER program savings follow a predictable trend: after ramping for one or two years, savings reach a steady state. The analysis also suggests that the savings of RMP's Utah HER programs follow the same trend. Moreover, most of the variance in percentage annual savings can be explained by the utility fixed effects and the program year of treatment.

External Validity of the HER Savings Estimates

Cadmus assessed the extent to which RMP Utah HER savings estimates would be applicable to RMP residential customers who are not participating in the HER program. This is important because existing participants (treatment and control group customers) in the HER program may be different than customers not in the program. Allcott (2015) estimated HER savings for over 100 HER deployments across the United States and found that savings from the first deployments were significantly greater than savings from subsequent deployments. A similar phenomenon could exist in Utah where the highest expected savers were selected for the program. We assessed the external validity of RMP's HER savings estimates by comparing the energy consumption, demographic, and home characteristics of residential customers participating and not participating in the RCT evaluations.

[11] Also, none of the coefficients on the interaction variables between treatment year and the indicator variable for Utah for program years 3 through 6 were statistically significant at the 10% level.

Expanding the HER program would involve sending energy reports to three groups of customers, two of which have not previously received reports:[12]

- **RCT customers who were randomly assigned to the HER program treatment group**. These customers received energy reports and prior RCT evaluations provide savings estimates for these customers. The analysis above demonstrated that the evaluated savings from the RCTs will be reliable indicators of future savings for this group.
- **RCT customers who were randomly assigned to the HER program control group.** Because of the random assignment, control group customers will be similar to customers currently receiving energy reports and are expected to have similar savings trends.
- **Customers not participating in the RCT**. The non-RCT customers may have different energy consumption characteristics and savings potential than RCT customers, and the evaluated savings of the RMP Utah program may not apply to this group.

Cadmus collected energy consumption, demographic, and home characteristic data for all RMP Utah residential customers from RMP's customer information system (CIS). Specifically, Cadmus collected the following data on customer characteristics shown to influence HER savings:

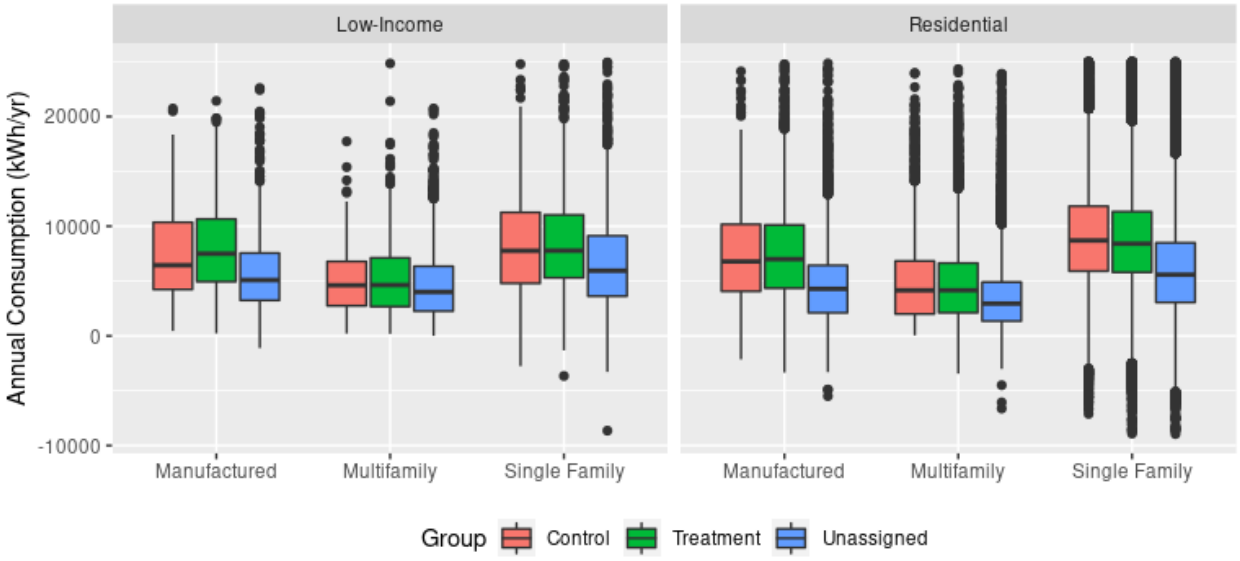
- Annual electricity consumption
- Climate (normal weather annual HDDs and CDDs)
- Type of household
- Low-income status (determined by whether a customer was on a low-income rate)

Cadmus then assessed the magnitudes of the differences between RCT and non-RCT customers.

Figure 4 compares the annual electricity consumption of customers included in RMP Utah HER experiments (customers assigned to the treatment or control group of any wave) and customers who were not included (Unassigned). The results are presented by low income status and by home type (manufactured, multifamily, and single-family).

[12] Rocky Mountain Power launched email-only HER waves in Idaho, Utah, and Wyoming in late 2018 and early 2019. The savings of these customers may still be ramping up, and it remains to be seen how their savings compare to customers who received paper reports.

Figure 4. Annual Consumption Distributions for HER Experimental and Non-experimental Populations



Note: In the figure above, each box spans the 25th to 75th annual consumption percentiles. The horizontal line within each box shows the mean of the annual consumption. Lines extending vertically outside each box show the remaining 50% of customers within each group, and those who fall outside 1.5 times the range of the box are represented by dots and considered to be statistical outliers. Cadmus limited the statistical outliers shown in this figure to preserve the scale.

As expected, treatment and control groups had similar mean annual consumption (shown by the heavy line in each box) and annual consumption distributions (shown by the bottom (25th percentile) and top (75th percentile of the box). This balance is attributable to the random assignment of customers to treatment or control in the experimental population. However, the figure also shows that the HER experiments tended to include customers with higher consumption and exclude customers with lower consumption, though the distributions of the experimental and Unassigned populations significantly overlap. This overlap is important because Cadmus analyzes the monthly billing data from the HER experiments to obtain deemed savings values for RMP Utah's residential customer population.

Cadmus formally tested if mean annual electricity consumption differed significantly for customers assigned to an existing HER program experiment group and those who remained unassigned. Table 3 shows the results of the two-sample t-test. Consistent with the boxplot shown in Figure 4, Cadmus found that customers in RMP Utah territory consumed significantly less than customers assigned to either a treatment or control group in one of its ongoing HER programs.

Table 3. Test for Difference in Average Pre-Treatment Consumption

Mean Annual Consumption (kWh/yr)			T Statistic	Degrees of Freedom	p value
Assigned	Unassigned	Difference			
8,596 kWh/yr	5,679 kWh/yr	2,917 kWh/yr	-140.06	253,223	< 0.0001

The differences between the experimental population and the unassigned population mean that RMP Utah should not directly apply the evaluated percentage savings from the RCT experiments without first checking if the HER savings in the experiment depend on annual consumption.

Deemed Savings Values

Using monthly billing consumption data for the customers in the Utah HER experiments, Cadmus estimated HER savings as a function of customer pre-treatment annual consumption. If the percentage savings depend on consumption, the RCT evaluated savings, which are conditional mean savings estimates across all treatment group customers, will not have validity for the unassigned population and should not be used as deemed savings values.

We ran two separate regressions, one for the savings ramping phase (program years 1 and 2) and the other for the steady state phase (program year 3 and subsequent years). In each regression, the dependent variable was the natural logarithm of average daily consumption in the month, so the coefficients in the regression can be interpreted as approximate percentage effects. Both regressions estimated savings as a function of a customer's annual pre-treatment consumption. Each customer in the HER experiments was assigned to a consumption quartile based on their annual pre-treatment consumption.

We used data for each RMP Utah wave's first two program years to estimate the ramping phase regression. Data for program years three or higher from 2016, 2017, and 2019 were used to estimate the steady state phase regression. The regressions pooled data from all waves (Utah Legacy, Utah Expansion, Utah Refill, and Utah Refill 2) to estimate the average saving by consumption quartile.

Table 4 and Table 5 show the regression-based estimates of the average treatment effects in kWh per customer per day (=-1*savings) and the standard errors by consumption quartile for the ramping phase and steady state phases. All estimates were statistically significant at the 5% significance level.

Table 4 shows that savings increased from the first year of treatment to the second year of treatment consistently across all consumption quartiles. For example, the average daily savings per treated customer was approximately -0.0226 kWh. As expected, customers with higher pre-treatment consumption, such as those in the third and fourth quartiles, reduced their energy consumption more than customers with lower pre-treatment consumption. Cadmus found the largest differences in estimated savings between second and third consumption quartiles.

Table 4. Ramping Phase Savings Estimates by Consumption Quartile

Pre-Treatment Annual Consumption Range (kWh/yr)	Year of Treatment	Estimated Treatment Effect (kWh per customer per day)	Standard Error	p-value
< 4,047	1	-0.0056	0.0018	0.0023
	2	-0.0104	0.0021	< 0.0001
> 4,047 to < 7,027	1	-0.0068	0.0011	< 0.0001
	2	-0.0133	0.0012	< 0.0001
> 7,027 to < 10,356	1	-0.0119	0.0019	< 0.0001
	2	-0.0247	0.0019	< 0.0001
> 10,356	1	-0.0143	0.0040	< 0.0001
	2	-0.0226	0.0038	< 0.0001

Notes: Dependent variable was the natural logarithm of monthly average daily consumption. The fixed-effects differences-in-differences regression model included separate month-year of sample fixed effects for each consumption quartile and customer fixed effects. The model was estimated by OLS with data for 367,187 customers and 7,270,385 observations of monthly adc. Standard errors were clustered on customers.

Table 5 shows the estimated steady-state treatment effects for each consumption quartile. Consistent with the ramp-up savings trends by consumption quartile, the steady state savings also increased with annual pre-treatment consumption. Cadmus found that customers who consumed more than 7,027 kWh/yr in their pre-treatment period saved between approximately 2.4% and 2.5% at their savings steady state, while customers who annually consumed less than 7,027 kWh/yr in their pre-treatment period saved between 1.0% and 1.5% at their steady state.

Table 5. Steady State Phase Savings Estimates by Consumption Quartile

Pre-Treatment Annual Consumption Range (kWh/yr)	Estimated Treatment Effect (kWh per customer per day)	Standard Error	p-value
< 4,047	-0.0100	0.0026	0.0001
> 4,047 to < 7,027	-0.0147	0.0017	< 0.0001
> 7,027 to < 10,356	-0.0243	0.0027	< 0.0001
> 10,356	-0.0254	0.0052	< 0.0001

Notes: Dependent variable was the natural logarithm of monthly average daily consumption. The model included separate month-year fixed effects and pre-period consumption variables for each consumption quartile. The model was estimated by OLS with data for 254,233 customers and 11,339,319 observations of monthly adc. Standard errors were clustered on customers.

The results in

Table 4 and Table 5 show that percentage savings increased with customer annual consumption and confirm that the evaluated savings from the RMP Utah experiments cannot be directly applied to unassigned customers because of the large differences in annual consumption between customers included and excluded from the HER experiments.

Recommended Deemed Savings Values

Cadmus recommends that RMP Utah use the deemed savings values provided in Table 6 to calculate HER savings if a control group cannot be reasonably established. The deemed savings values were obtained from the regression-based savings estimates in

Table 4 and Table 5 and vary by a customer's pre-treatment consumption and the customer's length of treatment.

Table 6. Recommended Deemed Percentage Savings Values

Pre-Treatment Annual Consumption Range (kWh/yr)	Program Year 1	Program Year 2	Program Year 3+
< 4,047	0.6%	1.0%	1.0%
> 4,047 to < 7,027	0.7%	1.3%	1.5%
> 7,027 to < 10,356	1.2%	2.4%	2.4%
> 10,356	1.4%	2.2%	2.5%

Note: Deemed savings values for program years 1 and 2 and consumption range were calculated from the regression coefficients in

Table 4 as deemed savings = -1*[exp(est. reg. coefficient) -1], where exp is the exponential function.

It should be stressed that these deemed savings values assume that RMP Utah will continue to implement the HER program similarly, including that energy reports are delivered with the same frequency and cadence and that a similar mix of paper and electronic reports will be delivered to residential customers. Changes in program implementation could cause the realized savings to differ from the deemed values.

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Exhibit B

ROCKY MOUNTAIN POWER
A DIVISION OF PACIFICORP

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December 16, 2021

VIA ELECTRONIC FILING

Public Service Commission of Utah
Heber M. Wells Building, 4th Floor
160 East 300 South
Salt Lake City, UT 84114

Attention: Gary Widerburg
Commission Secretary

Re: **Reply Comments**
In the Matter of Rocky Mountain Power's Semi-Annual Demand-Side Management (DSM) Forecast Reports – Docket No. 21-035-45

On November 4, 2020, the Public Service Commission of Utah ("Commission") issued a Notice of Filing and Comment period in the above referenced matter, allowing parties to file comments by December 1, 2021, and reply comments by December 16, 2021. On December 1, 2021, the Division of Public Utilities (the "Division") filed comments, and Utah Clean Energy ("UCE") and Southwest Energy Efficiency Project ("SWEEP") filed joint comments.

The Division's comments recommend acknowledgement that the Company's filing complies with Commission Orders. UCE/SWEEP's comments also generally support the 2022 DSM targets, but raise concerns with respect to the format of the Company's forecast and how the Home Energy Report's ("HER") program incremental and non-incremental savings are portrayed.

DISCUSSION

Since the inception of the HER program in 2012, it has achieved incremental savings over the years. If the HER program achieves more savings than it did the previous year by expanding to additional customers, the additional savings are incremental and are counted towards the Integrated Resource Plan ("IRP") Class 2 targets given that the IRP includes HER incremental savings in its modeling. The IRP assumes the savings achieved in previous years from the HER program will continue to be achieved in subsequent years so long as reports are continually sent to customers. Savings achieved in previous years for the HER program that are assumed to be achieved again in subsequent years are non-incremental and are not counted towards the IRP target. All other Class 2 programs in the Company's forecast reports only reflect incremental savings.

The Company's forecast reports have historically included line items with estimated savings ranges that include both incremental and non-incremental savings from the HER program for transparency, however only incremental HER savings are counted towards the IRP Class 2 targets. The savings ranges are provided to reflect that the IRP target is neither the ceiling nor the floor for what the Company may achieve. While the preferred outcome is to achieve the Class 2 IRP target, achieved savings are greatly dependent upon customer participation, the timing of when projects close, and many other factors including the continual impacts of the COVID-19 pandemic.

As stated in the Company's reply comments in Docket No. 20-035-31 regarding the forecast report for 2021, one of the adaptive actions the Company took to counter the impacts of COVID-19 was to expand the HER program to any customer with an email address on file. As a result of the expansion, the HER program is expected to achieve significant incremental savings in 2021. The savings forecasted to be achieved by the HER program in 2021 are assumed to be achieved again in 2022 if reports continue to be sent to customers, and were reflected in the Company's forecast for 2022 submitted November 1, 2021 in Docket No. 21-035-45 ("2022 Forecast"). The HER program savings in 2022 however will not be incremental and will not count towards the IRP target. As reflected in the 2022 Forecast, the line item in the Company's 2022 estimated Class 2 savings range that excludes non-incremental HER program savings is 241,905 - 267,369 MWh at generation, which aligns with the IRP target of 257,465 MWh.

CONCLUSION

The Company's Total Class 2 incremental savings range in the 2022 Forecast aligns with the IRP target and is consistent with the Company's forecast reports from previous years. Additionally, with the HER program expanded to all customers with email addresses, the Company does not anticipate having material incremental HER program savings for the foreseeable future. As a result, the Company will discuss with the DSM Steering Committee if there is preference to update how the Company's forecast reports reflect HER program savings going forward.

Sincerely,

Michael S. Snow
Manager, Regulatory Affairs

Enclosures

CERTIFICATE OF SERVICE

Docket No. 22-035-27

I hereby certify that on July 22, 2022, a true and correct copy of the foregoing was served by electronic mail to the following:

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