October 8, 2020

On August 7, 2020, Public Service Company of Colorado ("Public Service" or "the Company") issued a 60-Day Notice to modify the rebate structure and battery system utilization requirements of its existing Residential Battery Demand Response Pilot as approved in Proceeding No. 18A-0606EG. The Company subsequently filed Supplemental Direct Testimony in Proceeding No. 20A-0287EG in order to amend the Residential Battery Demand Response Pilot proposed in the 2021/22 DSM plan to align with the modifications of this 60-Day Notice. The original Notice and accompanying documentation can be found on the Company's website, here:

https://www.xcelenergy.com/company/rates_and_regulations/filings/colorado_demand-side_management

The Company received written comments on the Notice from the City and County of Denver ("CCD") and the Office of Consumer Counsel ("OCC"). After careful consideration of the comments, the Company has determined that the Pilot will not launch at this time to allow for full consideration of the modifications in Proceeding No. 20A-0287EG and ensure consistency for this emerging market. The Company provides the following formal responses:

1. **Comment Submitted by CCD:**

   Is the DR Pilot intended to replace the proposal from the 2021/2022 DSM Plan (Proceeding No. 20A-0287EG)?

   Response:

   No. The Company filed Supplemental Direct Testimony to amend the 2021/22 DSM Plan filing to incorporate the enhanced rebate proposed in this 60-Day Modification into the Residential Battery Demand Response pilot already included in the 2021/22 DSM Plan.

2. **Comment Submitted by CCD:**

   What customer surveys, research or other evidence is available that an upfront incentive of $1,250 per customer will achieve participation from 500 residential customers?

   Response:

   The Company has collected data from other residential battery pilots and programs which are outlined within the tables below that provide a comparison of in-market and proposed incentives for these programs/pilots. Some of these pilots or programs are related to demand response, others are focused on collecting data on battery operation.

The data from these programs shows that the Company's proposed incentive is not an outlier and is similar to incentives offered in other pilots and programs, such as those from Sacramento Municipal Utility District (SMUD), Portland General Electric, and Arizona Public Service.

The following table provides an overview of incentive structures for programs currently in market. Note that the Company's proposal to offer an upfront incentive of $1,250 puts its incentive between SMUD and the incentives offered by Green Mountain Power, National Grid, NV Energy, and Salt River Project.

In Market Incentives[1]

	Demand Response Pilots/Programs			**Incentive/Data Collection Focused Pilots/Programs**	
Pilot/Program	Green Mountain Power	National Grid	Sacramento Municipal Utility District	NV Energy	Salt River Project
Incentive	$850-1,050/kW	$275/kW-year	$500-1,000 + $10-20/month	$.095/watt-hr up to $1,500 for non-Time of Use (TOU) customers and $0.18/watt-hr up to $3,000 for TOU customers	$150/kWh up to $1,800, increased to $300/kWh up to $3,600
Term	10 years	1 year, on-going	2 years	N/A	3 years
# of Enrolled Customers	~200	~500	~20	288 installs from July 2019-June 2020	~100 at first incentive level, ~400-500 at second incentive level

[1] https://greenmountainpower.com/rebates-programs/home-energy-storage/bring-your-own-device/; https://www.nationalgridus.com/MA-Home/Connected-Solutions/BatteryProgram; https://www.smud.org/en/Going-Green/Battery-storage/Homeowner; https://www.nvenergy.com/publish/content/dam/nvenergy/brochures_arch/cleanenergy/handbooks/EnergyStorage-Handbook.pdf; https://srpnet.com/electric/home/batterystorage/default.aspx. With the exception of NV Energy, data on number of enrolled customers is from direct conversations with utility program managers. NV Energy program data found here: https://www.nvenergy.com/publish/content/dam/nvenergy/brochures_arch/cleanenergy/contractor-corner/July2020ContractorUpdate.pdf.

The following table provides an overview of incentive structures for pilots and programs currently proposed for implementation. Note that the Company's proposal to offer an upfront incentive of $1,250 put its incentive above Southern California Edison's proposed incentive level and very close to the lower end of the incentive level for both the Arizona Public Service and Portland General Electric pilots, respectively.

Incentives for Proposed Pilots or Programs[2]

	Demand Response Pilots/Programs			**Data Collection Pilot**
Pilot/Program	Portland General Electric	Rocky Mountain Power	Southern California Edison	Arizona Public Service
Incentive	$20-40/month, limited number of systems in targeted locations eligible for additional upfront incentive of $1,000-3,000	$150/kW * # of Years Committed to Program + $15/kW-y	$250	$300/kW up to $1,500 for existing systems and up to $2,500 for new systems
Term	5 years	Customer selects commitment period	1 year	3 years

3. Comment Submitted by CCD:

What are the assumptions and methods used to determine that the participant bill reduction benefits and incremental cost payback period w/rebate calculated?

Response:

The "Bill Reduction-Electric" calculates the present value of the bill reduction over the measure life, which is assumed to be ten years. The "Bill Reduction-Electric" shown in the Residential Battery DR CBA of the 60-Day Notice is a function of the customer's electric retail rate multiplied by the "Annual Customer kWh Savings" shown in the Electric Forecast Summary, summed over the measure life and discounted by the

[2] https://www.portlandgeneral.com/promotions/smart-battery-pilot; https://energized.edison.com/stories/can-your-home-battery-help-power-the-grid-in-times-of-need; Rocky Mountain Power, 2020. Wattsmart Batteries Program Advice No. 20-08. Docket No. 20-035-T07. Arizona Public Service, 2020. Supplement to the Application for Approval of 2020 Renewable Energy Standard Implementation Plan. Docket E-01345A-19-0148.

Company's weighted average cost of capital. The formulas for the "Annual Customer kWh Savings" in the Electric Forecast Summary are shown in the Deemed Savings Equations as "Export_Customer_kWh" and "Non_Export_Customer_kWh." The analysis includes incremental energy consumption (or negative energy savings) resulting from energy losses associated with charging and discharging the battery system which results in the negative bill reduction.

These formulas use inputs from the two battery vendors that the Company expects to work with to implement the pilot. The Payback Period with Rebate compares the customer costs related to the program incentive. The customer costs only factor in the costs of operating the battery for the purposes of the pilot.

4. Comment Submitted by CCD:

What analysis has the Company conducted to evaluate use of a performance-based incentive for the 2020 DR Pilot?

Response:

It is important to note that battery demand response pilots and programs are still in their infancy. The data describing incentive structures from similar pilots and programs as part of the Response to Comment 2 shows that a wide range of incentive approaches are still being tested.

For the changes to the Residential Battery Demand Response pilot described in the 60-Day Notice, the Company considered a flat, up-front incentive, a tiered incentive based on the kilowatt or kilowatt hours the customer chose to enroll in the pilot, and a performance-based incentive (PBI). The Company does not believe the PBI approach makes sense to incorporate into the pilot for several reasons:

1. The Company is not currently able to accurately estimate the incentive level that each individual customer would receive—making it difficult to describe the pilot benefits to individual customers. One challenge to estimating performance and a corresponding incentive is connected to the types of interconnection agreements that battery customers have with the Company. For the majority of batteries, their interconnection agreement permits the battery to discharge and off-set the amount of on-site electricity usage. The performance of these batteries will depend on both the size of the battery and also the customer's on-site electricity demand during event days. Since the Company does not have 15-minute interval data, it is not able to effectively estimate the amount of load reduction that any given customer might be able to deliver. And therefore, the Company could not offer accurate incentive estimates to any given customer. Uncertainty in estimated customer incentives will add risk to the customer and likely result in lower participation. The Company is able to more accurately estimate the average performance of the group of batteries enrolled in the pilot.

2. A second challenge is associated with the baseline use of the battery. A performance estimate should consider the incremental load reduction that the Company realizes from dispatching the battery in a particular way and during a specific time. Assessing the incremental value of the battery requires that the Company consider the baseline or counterfactual—how the battery would have been used in the absence of the pilot. There are multiple ways a battery could be used in the absence of the pilot. Since the Company does not have access to battery operating data until the pilot begins and a customer enrolls, the Company is not able to accurately estimate the baseline condition and the incremental value that each battery can bring to the grid prior to enrollment.
3. A performance-based incentive model would reduce the incentive amount available to the customer for a limited duration pilot. The customer would only be able to consider one or two annual incentive payments in their enrollment decision; and
4. A performance-based incentive structure is more difficult for the customer to understand, and the Company sought an incentive that is clear and easy to understand.

The Company also notes that a performance-based incentive will not result in additional event-level participation from the customer. The pilot does not allow the customer to opt-out or override a demand response event issued by the Company, so a performance-based incentive will not compel any additional event-level participation.

Furthermore, the customer has relatively little control over the performance of the battery during an event. When the Company issues a demand response event, the event is issued as a request for an aggregate level of capacity for a period. That command is taken by the vendor and the vendor determines how the aggregate command will be met by instructing specific enrolled batteries to discharge (or charge). Since the dispatch of the customer's battery is determined by the vendor, the customer has no way of directly influencing the performance of the battery.

5. <u>Comment Submitted by OCC:</u>

The Pilot Program should be tested first before being changed.

<u>Response:</u>

As described in the 60-Day Notice, the Company's changes are in part driven by a request from the Public Utilities Commission in Proceeding No. 19A-0369E[3]. The Company has provided additional data within the Response to Comment 2 highlighting the impacts of different incentive levels from various pilots which indicate the amended rebate levels are reasonable. The Company believes that it is prudent to incorporate learnings from other similar pilots and programs into the Pilot Program prior to launch.

[3] Decision No. C20-0289, page 31, para. 77.

6. Comment Submitted by OCC:

The budget shown in the 60-Day Notice fails to demonstrate sufficient information to ascertain the needed change.

Response:

The 60-Day Notice is associated with the 2019/2020 Demand Side Management Plan and therefore does not describe its effect on the separate proceeding for the 2021/2022 DSM Plan. The Notice shows the expected 2020 budget, which can be compared to the previously filed budget found in the 2019/2020 DSM Plan. The previously filed budget for 2020 was $365,500. The new budget is $565,980. The incremental difference between previously filed and expected 2020 budget under the 60-Day Notice is $200,480. The changes result from the increase in incentives and also changes in costs as the Company has signed contracts and expenses have shifted from 2019 to 2020 because the pilot may launch in 2020 rather than 2019.

	Previously Filed 2020 Budget	60-Day Notice 2020 Budget
Program Planning & Design	$0	$0
Administration & Program Delivery	$80,000	$197,500
Advertising / Promotion / Customer Education	$1,000	$5,000
Participant Rebates & Incentives	$177,500	$312,500
Equipment & Installation	$0	$0
Measurement & Verification	$107,000	$50,980
TOTAL	**$365,500**	**$565,980**

7. Comment Submitted by OCC:

PSCo's Benefit-Cost Worksheet is Inaccurate.

Response:

The Benefit-Cost Worksheet captures customer costs associated with participating in the pilot. The Company captures the operational costs to run the battery more cycles and the associated round-trip efficiency losses. However, the Company does not include the upfront cost of installing the battery because customers are purchasing batteries for reasons unrelated to the pilot.

This is evidenced by the more than 400 customers that purchased and installed batteries since the beginning of 2017 in the Company's service territory in the absence of the Residential Battery Demand Response pilot. These customers purchase a battery for many reasons, including, to name a few, added resiliency, enhanced use of on-site renewable energy and concomitant environmental benefits, and value customers assign to owning cutting-edge technology.

Neither the installation cost nor the numerous other benefits described herein are included in the Benefit-Cost Worksheet. Instead the Worksheet focuses on the direct costs and benefits of utilizing a battery for the purpose of relieving load during constrained system conditions. This approach to the Benefit-Cost Worksheet is no different than the Saver's Switch program. A customer purchases an air conditioner to cool their home. The Company controls the air conditioner for demand response benefits. In this instance, just like the Residential Battery Demand Response pilot, the Company incorporates costs of equipment and software necessary to enable demand management, costs of incentives, and benefits associated with demand management.

8. Comment Submitted by OCC:

PSCo incorrectly represents that this proposal was discussed (and agreed to) with stakeholders.

Response:

The 60-Day Notice omission of OCC is an error. The Company appreciated OCC's active engagement throughout the Solar + Storage Working Group sessions.

The Company agrees in part and disagrees in part with OCC's assertions. First, the Company acknowledges that it did not include the exact rebate amount or structure in the stakeholder sessions. After presenting a specific concept to stakeholders, as detailed in Attachment 4 of the Company's Update on July 27, 2020 filed as part of Proceeding No. 19A-0369E, the Company received feedback from one of its vendors that the specific concept was going to present implementation challenges. And in this case, the Company made changes to what it originally presented. The Company disagrees with the OCC's notion that OCC or other stakeholders need to "approve" changes before the Company may file or notice them for broader input. At no point in the Solar + Storage Working Group did the Company describe the role of stakeholders as "approving" the details of a pilot or program before it is filed. This is supported by the content presented in the Solar+Storage Working Group and memorialized in the Company's Update filing on July 27, 2020 including the following attachments: 19A-0369E-Attachment 1, 19A-0369E-Attachment 2, 19A-0369E-Attachment 3, and 19A-0369E-Attachment 4.

9. Comment Submitted by OCC:

PSCo has requested approval for the revised DSM DR Pilot through two processes.

Response:

The Company acknowledges the potential conflicts that may arise as a result of the 60-Day Notice being filed after submission of the 2021/22 DSM Plan in Proceeding No. 20A-0287EG. While the Company acknowledges the Commissions requests memorialized within Paragraph 77 of Decision No. C-10-0289 in Proceeding 19A-0369E, the Company has determined that the Pilot will not launch at this time to allow for full consideration of the pilot modifications in Proceeding No. 20A-0287EG and ensure consistency for this emerging market.

10. Comment Submitted by OCC:

OCC Recommendation: Continue with the Implementation of the Original DSM DR Program.

Response:

As discussed in the Response to Comment 9, the Company has determined the pilot will not launch at this time in order to provide the opportunity for full consideration of the pilot modifications in Proceeding No 20A-0287EG.