

# PacifiCorp - Stakeholder Feedback Form

## 2019 Integrated Resource Plan

PacifiCorp (the Company) requests that stakeholders provide feedback to the Company upon the conclusion of each public input meeting and/or stakeholder conference calls, as scheduled. PacifiCorp values the input of its active and engaged stakeholder group, and stakeholder feedback is critical to the IRP public input process. PacifiCorp requests that stakeholders provide comments using this form, which will allow the Company to more easily review and summarize comments by topic and to readily identify specific recommendations, if any, being provided. Information collected will be used to better inform issues included in the 2019 IRP, including, but not limited to the process, assumptions, and analysis. In order to maintain open communication and provide the broader Stakeholder community with useful information, the Company will generally post all appropriate feedback on the IRP website unless you request otherwise, below.

Date of Submittal 5/24/2019

\*Name: Justin Brant

Title: Senior Associate, Utility Program

\*E-mail: [jbrant@swenergy.org](mailto:jbrant@swenergy.org)

Phone: \_\_\_\_\_

\*Organization: SWEEP

Address: 2334 Broadway, Suite A

City: Boulder State: CO Zip: 80304

Public Meeting Date comments address: 5/20/2019  Check here if not related to specific meeting

List additional organization attendees at cited meeting: Kevin Emerson, Utah Clean Energy; Wendy Gerlitz, NVEC

303-447-0078x2

**\*IRP Topic(s) and/or Agenda Items:** List the specific topics that are being addressed in your comments. DSM Potential Study and IRP Modeling Scenarios

Check here if any of the following information being submitted is copyrighted or confidential.

**\*Respondent Comment:** Please provide your feedback for each IRP topic listed above.

Class 2 DSM

The Draft Conservation Potential Assessment ("CPA") published by PacifiCorp on March 29, 2019 estimates extremely low potential for Class 2 demand side management ("DSM") resources over the next twenty years. For the five states included in the study, the CPA estimates that the total technical potential is 24.6% of baseline load cumulatively over the next twenty years. This equates to a total potential of less than 1.25% per year, without taking into account the cost or cost-effectiveness of the DSM measures analyzed. The CPA also estimates a Technically Achievable Potential, which constrains the total technical potential based on market adoption rates, of 19.7% of baseline sales cumulatively over the next twenty years. This equates to less than 1% achievable savings each year.

The idea that the maximum achievable potential is less than 1% of sales per year is inconsistent with other CPA's and PacifiCorp's own experience implementing DSM programs. As shown in the table below, we surveyed a number of CPA studies conducted over the last three years. For those that published a 20-year technical potential, these ranged from 26.5% of sales to 39% of sales, significantly higher than the technical potential estimated in the PacifiCorp CPA. In fact, while PacifiCorp did not publish a cumulative 10-year DSM potential, those studies surveyed that did find technically achievable savings from 17-39%. Thus, these studies estimated that a similar level of technical potential is available in half of the time, or 2-4% savings each year is technically feasible.

\* Required fields

A technical potential of 2-4% per year is also consistent with PacifiCorp’s recent DSM program delivery experience. In Utah and Washington from 2015-2017 PacifiCorp consistently delivered savings levels of 1.2-1.4% of sales each year through highly cost-effective programs. Thus, the total Achievable Technical Potential available to the IRP model is less than the actual MWh of savings PacifiCorp has achieved in Utah and Washington in recent years.

At the same time, leading jurisdictions continue to cost-effectively achieve annual DSM energy savings in excess of 2.5% of sales, significantly higher than the total achievable technical potential identified by PacifiCorp. There is nothing specific to PacifiCorp’s service territory that leads us to believe that this level of sustained energy savings could not be achieved over the long term. Thus, it is not plausible that achievable DSM technical potential over the next twenty years would be limited to an average of less than 1% of baseline sales per year.

While we have not yet had a chance to dig into the detailed appendices of the PacifiCorp CPA to determine all of the reasons that PacifiCorp’s estimate of achievable technical potential is far out of line with other estimates, a few reasons are evident based on a review of the draft report.

1. PacifiCorp excludes any potential from behavioral programs outside of California as the CPA claims that behavioral programs are mature and thus included in the baseline. PacifiCorp continues to offer behavioral programs in multiple jurisdictions and claim significant savings from these programs. In addition, behavioral programs continue to evolve using interval meter data and artificial intelligence to influence customers and generate savings. There is no reason to believe that behavioral programs will not continue to evolve in the future and continue to deliver energy savings.
2. PacifiCorp fails to include early retirement measures in its CPA. Early retirement programs often show high savings potential, as the high efficiency unit replaces whatever is currently installed on the premise instead of just counting savings compared with a new standard efficiency unit. By failing to include these measures, PacifiCorp likely underestimates the available DSM potential in the near term.
3. The CPA excludes refrigerator recycling programs because PacifiCorp does not currently offer such a program. However, many other utilities throughout the United States offer this type of program cost-effectively. A study estimating the technical potential savings regardless of measure cost should not exclude measures based on current program offerings.
4. In calculating the Achievable Technical Potential, the CPA limits the available potential based on “recent statespecific program history...to account for the level of program infrastructure and awareness currently in place in each jurisdiction.” Again, the CPA is estimating the technical potential. It should not be artificially limited based on current program offerings. If the IRP model were to select high levels of DSM is may be reasonable to ramp these program up over multiple years, but it is not prudent to limit technical potential based on current program limitations.

Study Area	Year Published	Forecast Years	Cumulative Potential Year 5 (% of Baseline)	Cumulative Potential Year 10 (% of Baseline)	Cumulative Potential Year 20 (% of Baseline)	Potential Reported
Xcel Energy Colorado	2016	2018-2028	17.4%	17.2%		Technical Potential
NV Energy	2018	2019-2038	14.7%	25.4%	36.2%	Technical Potential
State of Minnesota	2018	2020-2029		33%		Economic Potential
Idaho Power	2016	2017-2036	12.3%	19.3%	26.5%	Technical Potential

\* Required fields

<b>Louisville Gas and Electric</b>	2017	2019-2038			33%	Technical Potential
<b>State of Michigan</b>	2017	2019-2026		39.1%	39.1%	Technical Potential
<b>Puget Sound Energy</b>	2017	2018-2037			28%	Technical Potential

## Class 1 DSM

We have also identified assumptions around the cost and availability of Class 1 DSM resources that will likely limit model selection of these resources. First, the Class 1 DSM CPA appears to assign the full cost of enabling technologies to the levelized cost of measures. It is unlikely that a DSM program would fully subsidize a Level 2 electric vehicle charger, thus the levelized costs for these resources should not include the full cost. In addition, as discussed in the California Demand Response Potential Study, many technologies that enable customer demand response actions also provide co-benefits to the customer such as reducing energy usage or demand charges. These co-benefits provide an additional value stream to customers and reduce the incremental cost of demand response enabling technologies. In the California Demand Response Potential Study customer co-benefits reduce the cost of the DR implementing technology assigned to the demand response program.<sup>1</sup> As an example, smart thermostats and heat pump water heaters are included in the Class 2 energy efficiency potential study. One would assume that measures incentivized through a utility DSM program would require that units be capable of demand response to create maximum value for customers. Thus, by counting the full cost of those measures in both programs the potential study double counts some costs.

In addition, other assumptions made in the PacifiCorp Class 1 DSM potential study likely limit Class 1 resources available within the IRP modeling. First, the CPA did not model the potential of customer sited behind-the-meter battery storage. While customer batteries remain costly, this is a rapidly growing market with significant cost reductions expected over the next twenty years. Behind the meter batteries have the potential to provide significant demand response capabilities to the grid and are being piloted by a number of utilities around the country. Battery demand response programs can be called 100s of times each year, as opposed to traditional programs that are available for limited hours. Over the twenty-year period of the potential study, behind-the-meter batteries will likely become a viable demand response program. In addition, early battery adopters have the technology already in the field and would likely enroll in utility programs without the utility needing to subsidize the battery itself.

The PacifiCorp Class 1 CPA also assigns the full cost of enabling technologies such as switches for water heaters or other appliances to demand response programs. Appliances such as water heaters and pool pumps are already available with grid connected capabilities built in. Over time, this feature will become more common in many appliances around the home. As such, the cost of enabling technologies for many smart appliances will likely be significantly less than those included in the CPA, which assumes that PacifiCorp will need to individually install communicating switches to run a water heating or smart appliance demand response program.

Finally, similar to the Class 2 DSM potential study, PacifiCorp limits the availability of Class 1 DSM resources based on current program offerings and infrastructure. Again, when calculating technical potential it is not prudent to limit resources based on program barriers. This is better accomplished when utilizing the results of various model runs to

---

<sup>1</sup> Alstone, P., et. al. 2025 California Demand Response Potential Study – Charting California’s Demand Response Future: Final Report of Phase 2 Results. 2017. Page 4-8. Available at: <https://drrc.lbl.gov/publications/2025-california-demand-response>

\* Required fields

develop a Preferred Portfolio, similar to what PacifiCorp would do if the modeling selects supply-side resources in the early years of the Action Plan that could not be permitted and built within the necessary time.

We have not had enough time to review the full range of assumptions in the Class 1 CPA. However, the issues discussed above will likely limit the quantify of Class 1 DSM resources available in the IRP modeling and assign unreasonable costs to Class 1 DSM resources.

#### High DSM Scenario

As discussed above, the PacifiCorp CPA likely significantly underestimates the amount of technically achievable Class 1 and 2 DSM resources available, especially in the near-term. Results of a total technical potential of 1.25% of sales each year are out of line with recent program implementation experience and similar studies in other jurisdictions. Given the highly conservative potential study, even without looking at cost assumptions, the PacifiCorp IRP is likely to suboptimally allocate resources by significantly underestimating the amount of DSM resources available at a low cost. The increased availability of low-cost DSM resources may help ease cost and reliability issues around coal retirements, DSM programs can be ramped up much quicker than supply resources, and reduce the risk of permitting delays or cost overruns associated with supply-side resources.

To effectively model the availability of DSM resources in greater quantities, we request an Accelerated DSM Portfolio or Sensitivity for analysis in the 2019 IRP process. In this portfolio we suggest PacifiCorp assume that the full quantity of retrofit measures identified in its CPA are achieved within the first ten years of the IRP, either by assuming that 10% of all measures are available in each year or by applying a ramp rate similar to the Retro20Fast rate for all retrofit measures. In this scenario assumptions about measure cost would remain that same as identified in the CPA. We are happy to work with PacifiCorp to further define this scenario, including what assumptions to make around DSM potential for the last 10 years of the IRP modeling period in order to avoid unreasonable modeling results.

**Question 1.** In addition, we suggest adopting a more aggressive ramp rate for Lost Opportunity measures, where appropriate. Well designed programs can overcome significant market barriers, thus it is highly conservative to use some of the medium or slow ramp rates in determining the achievable technical potential. Instead, by applying faster ramp rates for lost opportunity measures, PacifiCorp could let the model decide if a more aggressive implementation of DSM programs in the near term could reduce the PVRR for its portfolio.

#### **PacifiCorp Response:**

##### Question 1.

In order to maintain consistency with previous studies and the Northwest Power and Conservation Council's Seventh Plan methodology, PacifiCorp's third-party consultant, Applied Energy Group (AEG), prescribes ramp rates to measures in accordance with the Seventh Plan's supply curve workbooks. That includes measures assigned to medium and slow ramp rates as well as many faster ramp rates. However, AEG has also accelerated all lost opportunity measures by three years (starting in year-4 of the Seventh Plan), reflecting the fact that PacifiCorp's demand-side management (DSM) programs are more mature than the Seventh Plan assumes in the first year of the ramp rates. For example, the Seventh Plan prescribes the LO20Fast ramp rate for nonresidential lighting fixture replacements, which is the second fastest rate available. After reviewing Rocky Mountain Power recent-year accomplishments, this rate was accelerated to LO50Fast in Utah, the fastest available rate.

**Question 2.** We also request that as part of this scenario PacifiCorp reduce that levelized costs of Class 1 resources identified in its Class 1 CPA based on the co-benefits analysis used in the California Demand Response Potential Study. This will bring address some of the cost concerns raised above and make the PacifiCorp IRP consistent with a leading analysis of demand response potential.

\* Required fields

## PacifiCorp Response:

### Question 2.

PacifiCorp’s third-party consultant, AEG, incorporated the analysis referred to in the 2025 California Demand Response Study and previous California Public Utility Commission rulings into costs for the four states using Total Resource Cost (TRC) as their primary test (California, Oregon, Washington, and Wyoming). As discussed during the August 30, 2018 Public Input Meeting<sup>1</sup> and in Volume 3 of the 2019 Draft Conservation Potential Assessment (CPA) Report,<sup>2</sup> this credit was not applied in Utah or Idaho since the UCT does not consider a participant co-benefits within its scope.

Question 3. Given the conservative nature of its CPA, these changes alone will likely still undervalue the available DSM resource as technology changes over twenty years and new DSM opportunities will present themselves. However, by assuming all retrofit measures are available within the first ten years of modeling, faster availability of certain lost opportunity measures, and not double counting costs for Class 1 resources, PacifiCorp and stakeholders will get a better sense of how sensitive their modeling is to the availability and cost of additional DSM resources.

## PacifiCorp Response:

### Question 3.

The table below re-creates *Table 3-2 Cumulative Class 2 DSM Potential by State in 2038* from Volume 2 of the 2019 CPA report for 2028, representing the first ten years of the study. During this timeframe, Technical Achievable potential for most states is within the 1.25% - 1.50% range as percent of baseline load. Potential in Idaho and Wyoming are lower due to their unique segmentation – large irrigation and industrial loads respectively. Even though lost-opportunity measures tend to save more in later years, nearly 63% of the Technical Achievable potential occurs in the first ten years. Additionally, almost 70% of the retrofit potential (4,104,907 megawatt hours (MWh) through 2028) occurs during the first ten years.

*Cumulative Class 2 DSM Potential by State in 2028*

Territory	State	Baseline Loads (MWh)	Technical Potential (MWh)	Technical Achievable Potential (MWh)	Technical Potential (% of Baseline)	Technical Achievable Potential (% of Baseline)
Pacific Power	California	807,675	192,845	137,980	23.9%	17.1%
	Washington	4,735,530	995,848	729,595	21.0%	15.4%
	<b>Subtotal</b>	<b>5,543,205</b>	<b>1,188,693</b>	<b>867,575</b>	<b>21.4%</b>	<b>15.7%</b>
Rocky Mountain Power	Idaho	2,526,137	429,472	315,099	17.0%	12.5%
	Utah	25,573,391	5,011,173	3,792,700	19.6%	14.8%
	Wyoming	10,226,909	1,399,341	1,067,880	13.7%	10.4%
	<b>Subtotal</b>	<b>38,326,437</b>	<b>6,839,986</b>	<b>5,175,679</b>	<b>17.8%</b>	<b>13.5%</b>
<b>Total</b>	<b>43,869,643</b>	<b>8,028,679</b>	<b>6,043,254</b>	<b>18.3%</b>	<b>13.8%</b>	

<sup>1</sup> Please see slide 18 of the August 30<sup>th</sup> Public Input Meeting slide deck for more details.

[http://www.pacificorp.com/content/dam/pacificorp/doc/Energy\\_Sources/Integrated\\_Resource\\_Plan/2019\\_IRP/PacifiCorp\\_2019\\_IRP\\_August\\_30-31\\_2018\\_Public\\_Input\\_Meeting.pdf](http://www.pacificorp.com/content/dam/pacificorp/doc/Energy_Sources/Integrated_Resource_Plan/2019_IRP/PacifiCorp_2019_IRP_August_30-31_2018_Public_Input_Meeting.pdf)

<sup>2</sup> Please see Volume 3, Pages 30-31 on PacifiCorp’s DSM Website. <http://www.pacificorp.com/es/dsm.html>

\* Required fields

---

**Data Support:** If applicable, provide any documents, hyper-links, etc. in support of comments. (i.e. gas forecast is too high - this forecast from EIA is more appropriate). If electronic attachments are provided with your comments, please list those attachment names here.

---

**Recommendations:** Provide any additional recommendations if not included above - specificity is greatly appreciated.

---

Check here if you do **not** want your Stakeholder feedback and accompanying materials posted to the IRP  
 website.

---

Thank you for participating.