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BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH

In the Matter of PacifiCorp's 2019 Integrated Resource Plan	**Docket No. 19-035-02 Comments from Southwest Energy Efficiency Project and Utah Clean Energy**

The Southwest Energy Efficiency Program and Utah Clean Energy ("SWEEP/UCE") appreciate the opportunity to provide comments on PacifiCorp's, doing business as Rocky Mountain Power's ("PacifiCorp" or "Company") 2019 Integrated Resource Plan ("IRP"), filed on October 18, 2019. SWEEP/UCE recommend that the Public Service Commission ("Commission") refuse to acknowledge the demand-side management ("DSM") portion of the IRP and find that the DSM value determined from in the IRP is not a cap on DSM acquisition for PacifiCorp. SWEEP/UCE also recommend the Commission directs PacifiCorp to make a number of improvements in the 2021 IRP process to fully evaluate the benefits of DSM resources and ensure that the Company selects the least-cost, least-risk portfolio of resources.

I. SUMMARY AND RECOMMENDATIONS

The PacifiCorp 2019 IRP preferred portfolio calls for over $17 billion in capital expenditures in transmission, distribution, and generation resources over the next twenty years,

with over $4.4 billion in expenditures allocated to ratepayers in Utah.[1] These expenditures will have significant impacts on rates and ratepayers in Utah.

SWEEP/UCE believe that the 2019 IRP fails to fully consider the benefits and availability of DSM resources, and that increased investments in DSM resources above those called for in the IRP will benefit ratepayers by helping them manage their electric bills in the near term, and also by deferring or avoiding some of the capital expenditures called for the IRP. The failure to properly account for DSM resources in the IRP leads to a preferred portfolio that is not the least-cost, least-risk option. It also indicates that PacifiCorp did not compare DSM to other supply-side resources on a consistent and comparable basis, as the Utah IRP guidelines require.[2] Therefore, we ask the Commission to not acknowledge the DSM portion of the IRP and direct PacifiCorp to acquire additional cost-effective DSM resources, if and when available, and make a number of modifications to the Conservation Potential Study ("CPA") process and modeling of DSM resources in the 2021 IRP.

The largest problem with the IRP's treatment of DSM resources stems from significant deficiencies in the CPA with regards to the availability and cost of Class 1 and Class 2 DSM resources. The amount of DSM resources that the CPA allows into the IRP model are unreasonably low and costly, when compared to the recent performance of the PacifiCorp DSM programs and similar programs in neighboring states. With limited DSM resources available to it, the model selects [redacted] of resources up to a marginal cost of over twice the average cost of

[1] PacifiCorp's 2019 IRP, Volume I, page 8, Table 1.2
[2] Docket No. 90-2035-01, IRP guidelines, Order on June 18, 1992.

PacifiCorp's DSM programs.[3] This suggests that if sensitivities or scenarios with additional low-cost DSM resources were run, then the model would also select these resources and that PacifiCorp should pursue all DSM resources up to the average marginal cost identified in the IRP, at a minimum. During the public input process SWEEP/UCE asked PacifiCorp to run a number of such scenarios, which the Company declined to do.

PacifiCorp then takes the limited DSM selections identified by the IRP and uses that as its DSM target in Utah, attempting to procure a very narrow range of between 95% and 105% of the artificially low target that the IRP identified for Class 2 DSM. SWEEP/UCE have concerns with setting DSM targets based on IRP modeling and suggest instead that the Company either set targets based on marginal costs of DSM resources identified in the IRP or be willing to increase targets and spending above the 105% limit if additional low-cost DSM resources become available as the Company implements its programs.

Given these deficiencies and the failure of PacifiCorp to adequately consider the stakeholder input of SWEEP/UCE during the 2019 IRP public input process, we ask the Commission to not acknowledge the DSM portion of the IRP and find that 105% of the Class 2 DSM resources selected in the IRP is not a cap on DSM resources for PacifiCorp if additional cost-effective resources are available. SWEEP/UCE also request the Commission to direct PacifiCorp to make the following changes to its 2021 CPA and IRP process.

[3] According to 2018 Utah Energy Efficiency and Peak Reduction Annual Report, Appendix 2, Table 5, the levelized cost of energy efficiency resources acquired by PacifiCorp in 2018 was $0.0254/kwh. When the DSM bundles selected according to the DSM Energy tab of Table D.3-D.4 (19IRP Preferred Portfolio) CONF is compared to the DSM available in Table 6.9 in file 310615Capter 6 Tables6.9and6.10DSMPotentialandCosts10-25-2019 the model selected [redacted] of DSM resources in bundles up to [redacted] for all years of the IRP. According to Table 6.10 of Volume 1 of PacifiCorp's 2019 IRP this bundle in Utah has a levelized cost of $47.03/MWh, which is equivalent to $0.04703/kwh.

1. Develop Low, Medium, and High Cases for Technically Achievable Potential in the CPA by working with stakeholders to adjust assumptions around cost and availability of DSM resources. Multiple DSM supply curves will allow PacifiCorp and stakeholders to test the sensitivity of the IRP modeling process to assumptions about the availability and cost of Class 1 DSM resources.
2. Update assumptions and modeling of Class 1 DSM resources to realistically represent program costs and utilize the full benefits of Class 1 DSM to integrate variable renewable energy resources.
3. Include an analysis as part of the 2021 CPA comparing measure-level levelized cost and supply assumptions from the 2019, 2017, and 2015 CPAs with historical measure-level cost and program achievements in Utah. Given that PacifiCorp develops a CPA every two years, SWEEP/UCE believe it would be prudent to compare CPA estimates with actual DSM program performance to identify any potential errors or systematic bias in the CPA. Such an analysis would allow PacifiCorp to ground-truth its CPA supply curves with real program data and will likely provide valuable information to PacifiCorp and the Commission.
4. Direct the Company to increase DSM targets and spending if program performance differs from targets modeled in the IRP.

II. THE IRP DOES NOT CAP THE TOTAL AMOUNT OF COST-EFFECTIVE DSM

Over the past few years, PacifiCorp has been setting DSM targets based on the results of its IRP modeling. The Company claims that the IRP is the is the appropriate venue to determine the acquisition of DSM as a lowest-cost resource.[4]

In recent years the Company has attempted to ensure that it does not deliver DSM savings above those indicated in the IRP, stating its intent is to manage the DSM portfolio to achieve savings recommended by the IRP.[5] SWEEP/UCE have a number of concerns with setting DSM caps based on targets identified within the IRP, rather than based on real-world program experience and cost-benefit analysis.

Circumstances affecting the cost-benefit analysis of resource decisions change over time, even between PacifiCorp's IRPs. If PacifiCorp is free to procure cost-effective resources more flexibly in ways that deviate from the IRP preferred portfolio, the utility can leverage these changed circumstances to realize economic opportunities and cost savings for its customers. For example, during the December 3 – 4, 2018, IRP stakeholder meeting PacifiCorp announced that early model runs identified a wind resource that had not been selected in the 2017 IRP or IRP update. The Company determined that this resource could potentially provide its customers with a cost-effective opportunity and began exploring strategies to procure it. This is a good example

[4] Docket No. 18-035-27, PacifiCorp's Reply Comments filed on December 18, 2018, page 1, *found at* https://pscdocs.utah.gov/electric/18docs/1803527/305890RMPReplyComm12-18-2018.pdf ("Given that the Integrated Resource Plan ("IRP") is the source for determining appropriate levels of DSM acquisition as a lowest-cost resource, the IRP process is an appropriate forum for UCE to discuss energy savings levels and to address their concerns with IRP recommendations").
[5] *Id*.

of the flexibility that can maximize opportunity and cost savings for customers, and there is no genuine justification for withholding this flexibility from DSM resources.

Further, the Utah Code and the Commission's rules impart this flexibility to all resource decisions in the IRP action plan, not just to non-DSM resources. Title 54-17-3(1) of the Utah code states that a "utility shall file with the commission any action plan developed as part of the electric utility's integrated resource plan to enable the commission to review and provide guidance…."[6] The code requires the Commission to develop rules outlining a process to review the action plan that "provide sufficient flexibility to permit changes in an action plan between the periodic filings of the [IRP]."[7] The Commission's rules acknowledge that its review of the IRP action plan does not represent "approval of any action or resource identified in the Action Plan."[8] Neither the Utah code nor the Commission's rule distinguishes between DSM resources and non-DSM resources. To say that the flexibility contained in both the Utah Code and in the Commission's Rule applies only to non-DSM resources creates a double standard that is inconsistent with Utah law. The Utah Code "provide[s] sufficient flexibility to permit changes in an action plan between the periodic filings of the [IRP]."[9] To say that the total amount of DSM available to a utility is restricted to the amount of DSM identified in an IRP action plan precludes the utility from using this statutorily prescribed flexibility. Thus, the amount of DSM identified in any IRP action plan should not be treated as a target that the utility may not exceed—the utility must be allowed the flexibility to deviate from the action plan between IRPs.

[6] Utah Code Ann. § 54-17-301(1).
[7] Utah Code Ann. § 54-17-301(2)(b).
[8] Utah Admin. Code r. 746-430-1(3).
[9] Utah Code Ann. § 54-17-301(2)(b).

PacifiCorp has consistently promoted this double standard in Utah for the last few years, resulting in unrealized cost-effective DSM opportunities and likely higher overall rates for Utah customers. This is further exacerbated by significant flaws in the PacifiCorp DSM modeling process. At a minimum, the Company should be open to updating targets and procuring more DSM resources if additional resources are available at a reasonable cost, and it should regularly compare its modeled values and costs with real-world experience.

For the reasons stated above, SWEEP/UCE request that the Commission direct PacifiCorp to procure cost-effective DSM opportunities, regardless of whether those opportunities would exceed the amount of DSM identified in the IRP. This direction is necessary to ensure that PacifiCorp is not needlessly restricting the amount of cost-effective DSM it procures by reading in a non-existent cap on the amount of DSM it may procure based on the IRP action plan.

III. 2019 IRP STAKEHOLDER ENGAGEMENT

As discussed in more detail below, SWEEP/UCE believe there are significant flaws with the CPA relied upon by PacifiCorp to model cost-effective DSM resources leading to a result that underestimates the amount of DSM available within specific low-cost bundles. SWEEP/UCE voiced these concerns during the IRP stakeholder process, but PacifiCorp refused to conduct model runs that would test the sensitivity of its modeling to the availability of greater quantities of DSM resources. Without modeling to test these sensitivities to DSM assumptions PacifiCorp is likely significantly under-procuring DSM resources.

In addition, by failing to account for the availability of additional low-cost DSM resources, PacifiCorp is not meeting the requirements of the Commission to identify the least-

cost, least risk portfolio.[10] Failing to meet the Commission's primary objective for the IRP by excluding low-cost DSM resources is justification enough for the Commission to not acknowledge the DSM components of the 2019 IRP. SWEEP/UCE request that the Commission direct the Company to conduct additional analyses in the 2021 IRP process to ensure that DSM resources are adequately considered in the development of the least-cost, least-risk portfolio.

Given the statements by PacifiCorp that the IRP process in the appropriate venue to develop its DSM targets, SWEEP/UCE invested significant time and resources into participation in the PacifiCorp IRP Public Input Process to ensure the DSM resources were adequately considered. SWEEP/UCE staff attended all nineteen IRP public meetings and webinars over a period of almost a year and a half. In addition, we spent many hours reviewing inputs, assumptions, and results for both the CPA and IRP modeling. In total we submitted thirteen Stakeholder Feedback Forms related to DSM.

While PacifiCorp did take some of the SWEEP/UCE recommendations, the Company declined to run any of the sensitivities suggested by SWEEP/UCE to test its model's response to the availability of varying levels of DSM resources or changes in the cost assumptions around DSM resources.[11] For all of these requests, PacifiCorp did not provide an adequate explanation for declining to run any of our suggested model runs, instead only providing information on DSM resources that were marginally related to our requests.

The guidelines that govern the IRP process in Utah state that "[i]nformation exchange is the most reasonable method for developing and implementing integrated resource planning in

[10] Docket No. 17-035-16, Report and Order filed on March 2, 2018, page 42-43.
[11] SWEEP Stakeholder Feedback Form from 10/3/2018; SWEEP Stakeholder Feedback Form from 5/24/2019; UCE Stakeholder Feedback Form from 4/3/2019; UCE Stakeholder Feedback Form from 5/24/2019.

Utah."[12] Further, the IRP guidelines require PacifiCorp to "provide ample opportunity for public involvement and the exchange of information during the development of its Plan."[13] Based on PacifiCorp's limited recognition of our stakeholder feedback forms, PacifiCorp did not facilitate an exchange of information when developing its DSM analysis. SWEEP/UCE request that the Commission decline to acknowledge the DSM portions of the 2019 IRP, and direct PacifiCorp to work more closely with stakeholders in Utah when developing DSM analysis during future IRP processes, including requiring the Company to run sensitivities or scenarios that test the model results against vary assumptions about the availability of Class 2 DSM resources.

IV. BENEFITS OF DSM IN RESOURCE PLANNING

DSM resources are often the lowest cost resource available to meet system needs.[14] This is highlighted by the use of the utility cost test ("UCT") as the threshold cost-effectiveness test in Utah. The UCT by definition measures the impact of energy efficiency on the utility's cost of service. A benefit cost ratio of greater than 1 in the UCT shows that the average customer's bills will be reduced over the long-term by the continued implementation of DSM programs.[15]

In 2018, the last year with data available, PacifiCorp achieved a benefit-cost ratio of 2.39 for its energy efficiency programs, achieving over two dollars in benefits for the utility and its customers for every dollar invested in DSM programs.[16] Given the high cost-effectiveness of

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[12] Docket No. 90-2035-01, IRP guidelines, Order on June 18, 1992, page 4.
[13] *See id.* at page 21.
[14] ACEEE, Renewable are getting Cheaper but Energy Efficiency, on average, still costs utilities less, *found at* https://www.aceee.org/blog/2018/12/renewables-are-getting-cheaper-energy
[15] Understanding Cost-Effectiveness of Energy Efficiency Programs: Best Practices, Technical Methods, and Emerging Issues for Policy-Makers, November 2008, pages 6-3, *found at*: https://www.epa.gov/sites/production/files/2015-08/documents/cost-effectiveness.pdf.
[16] Docket No. 19-035-22, 2018 Utah Energy Efficiency and Peak Reduction Annual Report, page 6.

these programs it is likely that DSM resources have the ability to provide significant additional benefits to PacifiCorp's customers.

DSM resources reduce the amount of capacity and energy that a utility must procure or build on behalf of its customers. Within the PacifiCorp IRP, DSM resources are primarily considered in two categories, Class 1 and Class 2. Both of these Classes of DSM resources are delivered through PacifiCorp customer-funded programs.

A. Class I DSM Resources

Class 1 DSM resources are active demand response ("DR") programs where the utility pays customers an incentive for the ability to curtail electricity usage during times of peak energy usage or grid emergencies, or to shift usage from one time period to another. These resources typically avoid investments or utilization of peaking power plants or other resources that will only be utilized for a small number of hours each year.

Class 1 DSM resources can also be used to provide ancillary services to the electric grid or to help with the integration of variable renewable resources. As an example, in 2018 PacifiCorp changed how it utilizes its Cool Keeper demand response program moving from a traditional capacity-focused demand response program to one that is providing ancillary services such as contingency reserves.[17] In 2018, PacifiCorp called 7 demand response events, none of which lasted more than 35 minutes, with many lasting five minutes or less.[18] This is in stark contrast to how the program was utilized in the past where PacifiCorp called events that lasted for 2-4 hours.

[17] PacifiCorp's 2019 IRP, Volume 1, pages 3-4.
[18] Docket No. 19-035-22, 2018 Utah Energy Efficiency and Peak Reduction Annual Report, page 20.

By calling shorter events, PacifiCorp was able to increase the amount of load reduced by this program to 201 MW in 2018, from 113 MW in 2017. The Company was also able to call significantly more DR events without impacting customer comfort or opinions about the program. This improved utilization of the Cool Keeper program increased the total benefits generated for PacifiCorp's customers significantly.

Other utilities in the Southwest are also utilizing DR programs to shift customer usage every day to times where there are low energy prices due to excess generation from variable renewable resources and away from times of peak demand. These programs can help integrate variable renewable energy generation into the electric grid without investments in battery storage or new fast-acting electric generation.

B. Class 2 DSM Resources

Class 2 DSM resources include traditional energy efficiency measures. Class 2 DSM measures are installed to more efficiently use electricity in a customer's home or business. In addition to reducing a customer's energy usage, Class 2 DSM measures also reduce the capacity requirement that a utility must procure by reducing energy demand at peak times.

While Class 2 DSM resources are installed at a distinct point in time, those resources continue to reduce energy and capacity demand over the lifetime of the measure installed. For example, the average Home Energy Saving measure incentivized by PacifiCorp in 2018 will continue to reduce both energy and demand for 13 years.[19] Given the long life of DSM

[19] Docket No. 19-035-22, 2018 Utah Energy Efficiency and Peak Reduction Annual Report, Appendix 2, PY2018 Utah Cost-Effectiveness Results – Home Energy Savings, *found at* https://pscdocs.utah.gov/electric/19docs/1903522/308805RedRMPDmdSideMngnt2018AnEngyEffPLoadRedReport6-18-2019.pdf.

measures, failing to fully invest in Class 2 DSM now, will increase the resources a utility must procure to serve customer load in both the short and long-term.

In addition, unlike utility-scale generation resources, Class 2 DSM resources are additive with investments in each year building on each other over time. To maximize the value of DSM resources within system planning a utility must continually invest in an expanding portfolio of DSM resources. Failure to maximize cost-effective investments in any period of time will lead to higher costs to utility customers in the future as the opportunities missed (for example, when a customer makes a decision to change out a piece of equipment with a more efficient option) will not be available again until the end of that equipment's life. Therefore, to maximize the value of DSM resources in system planning it is essential to continually maximize the investments in cost-effective resources in each year.

DSM measures also reduce risks associated with a utility's load forecast and the expected cost of future resources, fuel, and energy. Investments in DSM resources today, will reduce energy usage and save customers money. If energy prices are higher in the future, those measures can also avoid the purchase of the future resources. Therefore, investments in DSM today provide an additional benefit of serving as a hedge against future price increases while also mitigating short term price risks to customers. A paper by the American Council for an Energy Efficient Economy found the value of the short-term price volatility risk reduction of Class 2 DSM resources to be 14-25% of wholesale electric prices, without accounting for the long-term value of avoided fuel price or resource risks.[20]

[20] ACEEE, Baatz, et al. Estimating the Value of Energy Efficiency to Reduce Wholesale Price Volatility, report U1803, April 2018, page 18, *found at* http://www.aceee.org/sites/default/files/publications/researchreports/u1803.pdf.

V. DEFICIENCIES WITH THE CONSERVATION POTENTIAL STUDY

A. Class 2 DSM

The CPA completed by PacifiCorp as part of the 2019 IRP process estimates extremely low potential for Class 2 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 but also does not consider cost-effectiveness, 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 Table 1, SWEEP/UCE 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 found 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.

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

Table 1. Comparison of PacifiCorp CPA to other Utility CPAs.

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 significantly 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 SWEEP/UCE to believe that this level of sustained energy savings could not be achieved over the long term in Utah. Thus, it is not plausible that Achievable Technical

Potential over the next twenty years would be limited to an average of less than 1% of baseline sales per year.

Given the proprietary nature of PacifiCorp's CPA modeling it is not possible to identify all of the thousands of assumptions that together provide an abnormally low results for the CPA. However, a few reasons are evident based on a review of the 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 offers 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, and it is therefore unreasonable to restrict the potential for these programs from PacifiCorp's non-California states.

2. PacifiCorp fails to include early retirement measures in its CPA. Measures that are retired early are energy-using systems in buildings (such as lighting or air conditioning) that are replaced with a more efficient system before the end of the system's useful life. 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 still offer this type of program cost-effectively. A study estimating the technical potential of available

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 state-specific program history…to account for the level of program infrastructure and awareness currently in place in each jurisdiction."[21] Again, the CPA is estimating the technical potential of DSM that may be available over a twenty-year period. It should not be artificially limited based on current program offerings. If the IRP model were to select high levels of DSM it may be reasonable to ramp up new programs over a period of multiple years in order to achieve this level of savings, but it is not prudent to limit technical potential of DSM that may be available to PacifiCorp based on current program offerings and limitations.

B. 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 assigns the full cost of enabling technologies to the levelized cost of measures in Utah. It is unlikely that a DSM program would fully subsidize the full cost of Class 1 DSM technologies, such as a Level 2 electric vehicle charger or electric water heater, 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

[21] PacifiCorp's 2019 Conservation Potential Study, Appendix E, page E-2, *found at* https://www.pacificorp.com/content/dam/pcorp/documents/en/pacificorp/environment/dsm/2019-final-study/PacifiCorp_DSM_Potential_Vol_4A-H_Class2_Appendix_Final_2019-6-30.pdf.

actions also provide co-benefits to the customer such as reducing energy usage or demand charges.[22] 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. As an example, smart thermostats and heat pump water heaters are included in the Class 2 CPA. 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 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, including Rocky Mountain Power.[23] Battery demand response programs can be called hundreds 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

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[22] Alstone, P., et. al. 2025 California Demand Response Potential Study – Charting California's Demand Response Future: Final Report of Phase 2 Results. 2017. Pages 4-6-4-8. *found at*: https://eta-publications.lbl.gov/sites/default/files/lbnl-2001113.pdf.

[23] Docket 16-035-36, Application to Implement Programs Authorized by the Sustainable Transportation and Energy Act, filed by Rocky Mountain Power on March 8, 2019, *found at*: https://pscdocs.utah.gov/electric/16docs/1603536/306971AplImplProgAuthSTEP3-8-2019.pdf.

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.

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 the status of current programs and infrastructure. This is better accomplished when utilizing the results of various model runs to 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.

Finally, the Class 1 CPA does not adequately consider the ability of DSM resources to provide services other than capacity. While the CPA considered the ability of DR resources to provide ancillary services for the first time, it did not adequately model the size of the resource available. For example, the CPA found a potential of 1.6 MW of ancillary service over the full 20-year modeling period across all of the PacifiCorp jurisdictions. As discussed above, PacifiCorp is already realizing over 200 MW of DR based ancillary services in Utah. It is unreasonable for the technical potential of a technology area like DR, which is only poised for

more growth, to be estimated to expand by less than one percent over the next 20 years. By failing to model the ability of Class 1 DSM resources to provide ancillary services and help with the integration of variable renewable resource, PacifiCorp is likely over-investing in battery storage and new generation, and potentially undervaluing the transmission and distribution deferral value of DR. PacifiCorp's failure to capture the full spread of benefits and value of Class 1 resources precludes these resources from being compared to alternate supply-side resources on a consistent and comparable basis, in violation of the Utah IRP guidelines.[24]

VI. DEFICIENCIES IN IRP DSM MODELING

The IRP modeling process selects bundles of DSM resources based on the Technical Achievable Potential of Class 2 DSM resources identified in the CPA for each year. Given the deficiencies in the CPA discussed above, the IRP is selecting much less DSM resources than are cost-effectively available to PacifiCorp. This raises the cost and risk of the preferred portfolio by having PacifiCorp procure unnecessary resources that could be served through DSM and by increasing the exposure of PacifiCorp's customers to fuel price and resource cost risks.

A. IRP Preferred Portfolio

In the preferred portfolio, the IRP model selects [redacted] of the Class 2 DSM available to it in Utah for all bundles up to [redacted] for all years of the IRP. Beginning in 2024 the model also selects all [redacted] of the [redacted] bundle for the remainder of the modeling period and it adds the [redacted] bundle in 2027-2038.[25]

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[24] Docket No. 90-2035-01, IRP guidelines, Order on June 18, 1992.

[25] Calculated by comparing the DSM bundles selected according to the DSM_Energy tab of Table D.3-D.4 *found at* confidential data disks, Chapters + Appendices _ Appendix D – DSM Resources, to the DSM available in Table 6.9

The $50-60 DSM bundle has an average levelized cost of $47.03/MWh or $0.047/kWh.[26] The fact the model selects [redacted] of the Class 2 DSM available up to a certain price suggests that it would select significant additional Class 2 DSM resources if they were available to the model within one of the cost bundles selected.

In 2018, PacifiCorp delivered Class 2 DSM at an average levelized cost of $0.0254/kWh.[27] The average levelized cost in 2017 to achieve DSM savings was similar.[28] This average levelized cost to deliver real DSM savings is significantly less than the marginal cost of Class 2 DSM bundles selected in the IRP. This disconnect highlights one of the problems with developing DSM targets based solely on modeling in the IRP. The IRP selects a quantity of Class 2 DSM resources, but it does that by choosing resources based on cost. If additional DSM is available to PacifiCorp below this price it would be reasonable to assume that it would also be in customer's best interest to pursue these resources.

To test this assumption, SWEEP/UCE submitted numerous Stakeholder Input Form requests, asking PacifiCorp to run various scenario and sensitivity options to see if the availability of additional DSM would reduce the cost and risk of selected portfolios. PacifiCorp declined.

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in file 310615Chapter 6 Tables6.9and6.10DSMPotentialandCosts10-25-2019, *found at* https://psc.utah.gov/2019/01/28/docket-no-19-035-02/.

[26] PacifiCorp's 2019 IRP, Volume 1, page 167, Table 6.10.

[27] Docket No. 19-035-22, 2018 Energy Efficiency and Peak Reduction Report, PY2018 Utah Cost Effectiveness Results – Portfolio, page 2, Table 5, *found at* https://pscdocs.utah.gov/electric/19docs/1903522/308805RedRMPDmdSideMngnt2018AnEngyEffPLoadRedReport6-18-2019.pdf.

[28] Docket No. 18-035-19, 2017 Energy Efficiency and Peak Reduction Report, PY2018 Utah Cost Effectiveness Results – Portfolio, page 3, Table 5, *found at* https://pscdocs.utah.gov/electric/18docs/1803519/302258RedacDSM2017Rep5-18-2018.pdf.

Without this information, SWEEP/UCE believe that the scenario selected is not least-cost and least risk, because recent program performance would lead us to believe that significantly more DSM resources would be available up to the marginal cost of the most expensive DSM bundle selected and it would be useful to see if there is a limit to the amount of DSM selected within these cost bundles, or if the model would select all DSM available up to a reasonable maximum (e.g., up to 1.5-2% of sales per year).

If it were cost-effective within the IRP to select all DSM up to a certain cost, then it would be prudent for PacifiCorp to pursue all cost-effective DSM up to the average levelized cost of the most expensive cost-bundle in order to ensure that it is trying to minimize the costs to serve its customers.

Similarly, the deficiencies in modeling Class 1 DSM resources discussed above will also increase the amount of generation resources and energy storage procured within the IRP modeling process by assigning the full cost of Class 1 DSM measures to the available resources and failing to account for the ability of Class 1 DSM to provide ancillary and other services.

VII. CONCLUSIONS

The PacifiCorp IRP fails to adequately consider the ability of Class 1 and Class 2 DSM resources to meet the resource needs of the utility. By failing to fully consider DSM resources, the IRP preferred portfolio is not the least cost, least risk portfolio of resources available to meet future demand. SWEEP/UCE ask the Commission to not acknowledge the DSM portion of the IRP. Further, recent PacifiCorp policy to treat the amount of DSM resources modeled in the IRP as a cap on DSM exacerbates the errors discussed above. SWEEP/UCE ask that the Commission also find that 105% of the Class 2 DSM resources selected in the IRP is not a cap on DSM resources for PacifiCorp if additional cost-effective resources are available. SWEEP/UCE also

request the Commission to direct PacifiCorp to make the following changes to its 2021 CPA and IRP process.

1. Develop Low, Medium, and High Cases for Technically Achievable Potential in the CPA by working with stakeholders to adjust assumptions around cost and availability of DSM resources. Multiple DSM supply curves will allow PacifiCorp and stakeholders to test the sensitivity of the IRP modeling process to assumptions about the availability and cost of Class 1 DSM resources.
2. Update assumptions and modeling of Class 1 DSM resources to realistically represent program costs and utilize the full benefits of Class 1 DSM to integrate variable renewable energy resources.
3. Include an analysis as part of the 2021 CPA comparing measure-level levelized cost and supply assumptions from the 2019, 2017, and 2015 CPAs with historical measure-level cost and program achievements in Utah. Given that PacifiCorp develops a CPA every two years, SWEEP/UCE believe it would be prudent to compare CPA estimates with actual DSM program performance to identify any potential errors or systematic bias in the CPA. Such an analysis would allow PacifiCorp to ground-truth its CPA supply curves with real program data and will likely provide valuable information to PacifiCorp and the Commission.
4. Direct the Company to increase DSM targets and spending if program performance differs from targets modeled in the IRP.

Dated this 4th day of February 2020.

Respectfully submitted,

/s/ Hunter Holman
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CERTIFICATE OF SERVICE
Docket No. 19-035-02

I hereby certify that a true and correct copy of the foregoing was served by email this 4th day of February 2020, on the following:

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