

# PacifiCorp - Stakeholder Feedback Form

## 2023 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 2023 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.

\*Name: Sarah Puzzo Title: Regulatory Associate

\*E-mail: [spuzzo@utahcleanenergy.org](mailto:spuzzo@utahcleanenergy.org) Phone: 801-363-4046

\*Organization: Utah Clean Energy

Address: 1014 2<sup>nd</sup> Ave

City: Salt Lake City State: Utah Zip: 84103

Public Meeting Date comments address:  Check here if not related to specific meeting

List additional organization attendees at cited meeting: \_\_\_\_\_

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

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

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

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**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.

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

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Please submit your completed Stakeholder Feedback Form via email to [IRP@PacifiCorp.com](mailto:IRP@PacifiCorp.com)

Thank you for participating.

\* Required fields

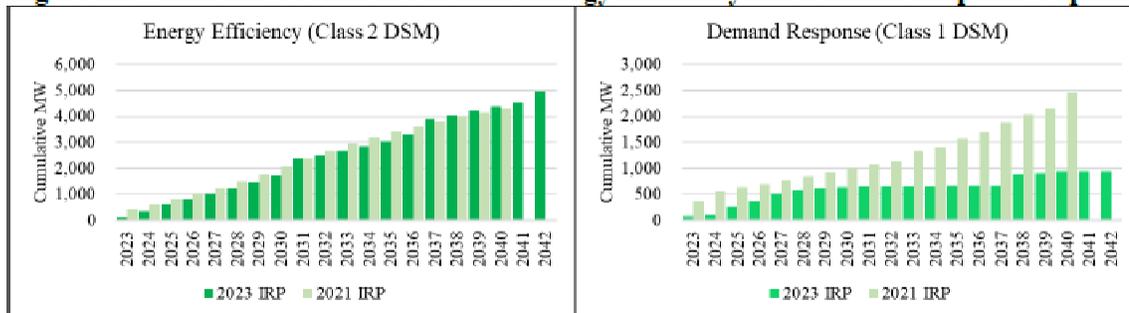
## Demand Side Management

Utah Clean Energy and SWEEP appreciate the work PacifiCorp has put into modeling and planning for cleaner electricity resources over the next 20 years. While we agree with the over-arching goals, we have some questions and comments especially regarding the planned procurement of Demand Side Management (DSM) resources

The 2023 Conservation Potential Assessment and the Rocky Mountain Power 2023 Program Forecast tend to show that the 2023 IRP modeling does not reflect the full potential of DSM on the PacifiCorp system. Further, the 2023 IRP draft does not reflect the way that DSM is actually implemented. We have the following comments that could be addressed through modifications to the 2023 IRP Action Plan. Utah Clean Energy would like PacifiCorp to pursue all cost-effective resources at levels consistent with the system’s Available Technical Potential.

### Class 2 DSM: Energy Efficiency

**Figure 1.8 – 2021 IRP Preferred Portfolio Energy Efficiency and Demand Response Capacity**



1. Please confirm that Home Energy Reports are not included in the IRP DSM forecast, and rather that the effect of HER is considered in the 2023 IRP load forecast. If the latter is the case, what is the annual MWh savings that are associated with HER program each year in the load forecast broken out by state?

Answer: Only incremental home energy reports savings potential beyond historical programs are included in the DSM forecast. The savings from existing home energy report programs are embedded in the historical loads used in load forecast regression modeling. Annual MWh savings that are associated with the HER programs can be provided through the data request process.

2. Please provide details about the degree to which building electrification and electric vehicle adoption contributes to the load forecast referenced in the 2023 IRP. Please present the data in MWh per year and by state.

Answer: Details about electrification are provided in appendix A. Contributions of electrification to the overall load forecast can be provided through data request processes.

3. Please confirm that Figure 1.8 shows a comparison of the 2021 IRP Preferred Portfolio with the 2023 IRP Preferred Portfolio for Energy Efficiency and Demand Response Cumulative Capacity.

Confirmed.

4. The model’s Class 2 DSM selections (see chart below) do not represent how energy efficiency resources can be implemented and procured. While the 20-year 2023 IRP projection for DSM is higher than in the 2021 IRP

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(see Figure 1.8), the uptake of DSM lags that projected in the 2021 IRP until 2031, when it suddenly catches up. Then it lags again until 2037, when the 2023 DSM projection finally exceeds the 2021 projection. The model clearly shows that Class 2 DSM is an economic resource, selecting approximately 2% of load by 2031.

Answer: The model optimizes around the economics in a given year and may not reflect how energy efficiency portfolios change or evolve over time. In action planning and target setting, programs may develop targets that accelerate adoption where appropriate to avoid volatility in delivery and rate impacts.

Given that there are many uncertainties with respect to supply-side resources in the later years of the draft Plan, DSM provides a cost-effective hedge against potential procurement delays associated with these resources. The Action Plan should include strategies to build cost-effective Class 2 resources to meet 2% of load by 2031. Given that the IRP selects this level of Class 2 DSM for 2031 and 2037, these resources should be acquired and maintained throughout the IRP timeline. ***UCE recommends a consistent ramp rate with the goal of achieving Class 2 DSM resources equal to 2% of load by 2031.***

Answer: DSM is selected on a cost-effectiveness basis and that selection is not constrained by a proportion of load but rather the economics in each year and state. A 2% of load target does not reflect the cost or benefits associated with differing amounts of energy efficiency or specific measures that might bring more or less net benefits in comparison to other resources in IRP modeling.

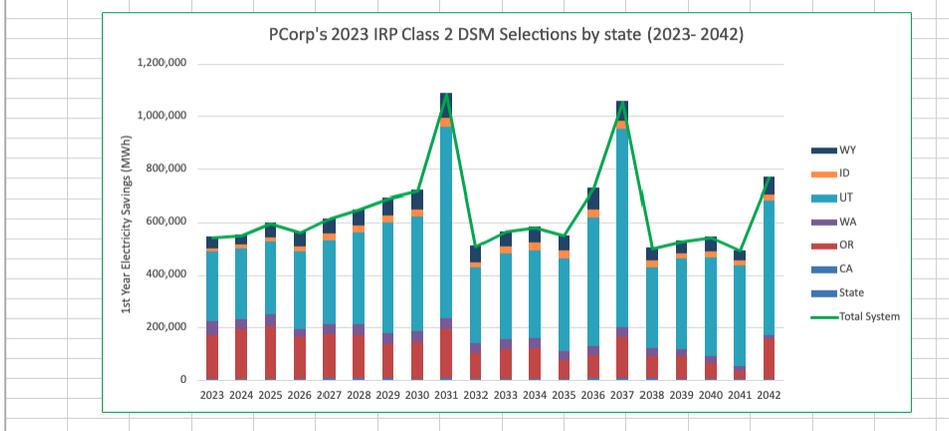
5. Regarding “All DSM Programs Variant (P13-All DSM), Figures 9.24 and 9.25: The results of this sensitivity run indicate that the model’s selection of DSM is not consistent with the incremental way in which DSM programs are developed and procured. This sensitivity run results in an increase in DSM (Class 1 and 2) from 2,500 MW in 2041 to 4,000 MW in 2042. This is not achievable in a one-year timeframe. Furthermore, the results indicate that this model's run increases costs more than \$3 billion. ***UCE would like clarification on how this sensitivity run was developed and why so much of the DSM is applied in the last year of the 20-year period. An All-DSM run should require realistic implementation and procurement of DSM resources to realistically represent resulting costs.***

Answer: The All-DSM model run reflects the maximum DSM potential available, so the model did not "select" any of this DSM, rather it was forced into the model regardless of economics. The sensitivity is not intended to reflect realistic procurement constraints but serves as a bookend for the theoretical limit of DSM acquisition. The Company will consider whether constraints should be included in future scenarios.

6. While the Action Plan reflects the 2023 IRP Preferred Portfolio, it does not reflect the historical effectiveness of current Class 2 DSM programs nor the capacity of future Class 2 DSM programs. **The Action Plan should reflect the capacity and effectiveness of current DSM resources rather than simply reflecting the modeling which under-represents the capacity of ongoing and planned DSM programs.**

Answer: PacifiCorp will work with stakeholders in subsequent forums such as DSM advisory group meetings to better understand these issues and how we might address them in future planning processes. Note that capacity impacts of current DSM resources are included appropriately in the load forecast.

Source: Table D.4 – First Year Energy Efficiency Resource Selections (2023 IRP Preferred Portfolio), 2023 Integrated Resource Plan Volume 2, Appendix D: [https://www.pacificorp.com/content/dam/pcorp/documents/en/pacificorp/energy/integrated-resource-plan/2023-irp/2023\\_IRP\\_Volume\\_II\\_A-P.pdf](https://www.pacificorp.com/content/dam/pcorp/documents/en/pacificorp/energy/integrated-resource-plan/2023-irp/2023_IRP_Volume_II_A-P.pdf)



7. Based on the data in the 2023 IRP and the 2023 CPA, in the first four years of the planning horizon, the IRP selects less DSM than the CPA designates (see table below, compiled from IRP and CPA documents and data files). The CPA indicates an incremental savings growth rate of 13% - 20% between 2023 and 2026, whereas the IRP stays flat in 2024 and then only increases by 2% and 7% in 2025 and 2026. See the table and citations below. The IRP DSM selections should mirror the year-on-year increase of technical achievable potential identified in the 2023 CPA. **We request that RMP incorporate strategies in its Action Plan to achieve DSM targets that are more in line with the level of DSM identified in the CPA.**

Answer: Targets in the IRP are based on cost-effectiveness and resource performance, which are critical for determining DSM selections. The CPA does not include an assessment or optimization of energy efficiency based on economics or cost-effectiveness in its quantification of potential and it would be inappropriate to assume that the goal is to select all, rather than an optimal selection of DSM. The Company plans to incorporate strategies to maximize energy efficiency savings each year, while minimizing rate impacts in a manner consistent with least-cost least-risk planning.

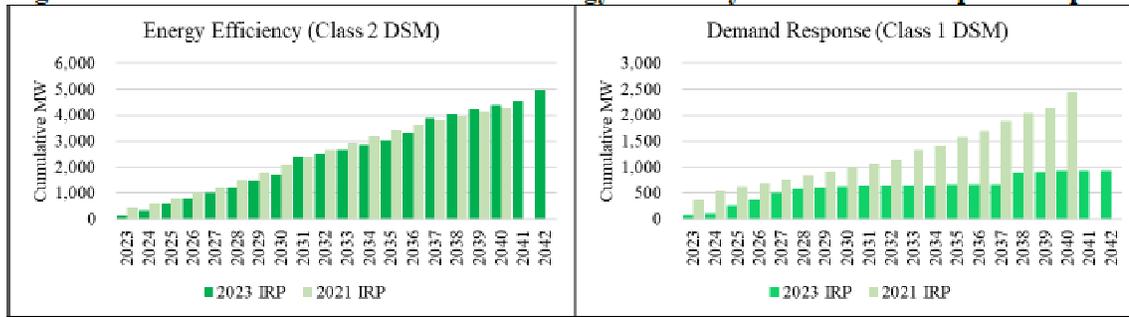
#### Utah Energy Efficiency Selections in CPA and IRP

	2023	2024	2025	2026	Total
Incremental Technical Achievable Potential in CPA (MWh) ( <a href="#">Appendix H, 2023 Conservation Potential Assessment</a> )	257,539	307,951	372,839	419,671	1,358,000
First Year EE in 2023 IRP Selections (MWh) (Table D4, 2023 IRP Vol 2, pg. 108)	266,500	266,661	273,564	292,860	1,099,585
2023 DSM Forecast (MWh)	265,674				

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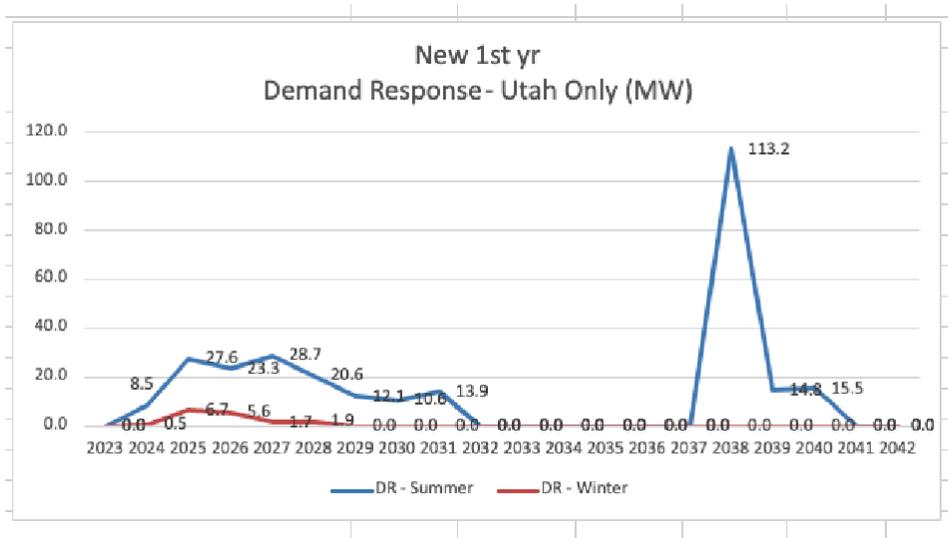
## Class 1 DSM: Demand Response

**Figure 1.8 – 2021 IRP Preferred Portfolio Energy Efficiency and Demand Response Capacity**



1. The modeled DR resource allocations are highly variable and are significantly below the 2021 IRP DR allocation. *See infra* and Figure 1.8. This is despite the fact that the draft IRP projects a large increase in private generation from solar (3.18 MW) and a corresponding increase in private generation battery storage, both of which include notable projected DR benefits. The year-by-year variability of DR chosen by the IRP is not reflective of DR program growth, and maintenance and increased program uptake should be managed intentionally to reflect the ongoing value and reliability of this resource with more stable implementation during the planning period. ***Given that the 2023 IRP calls for 113.2 MW of new DR by 2038, we recommend that the Action Plan be modified to call for a consistent year-by-year increase in DR starting in 2024 to achieve 113.2 MW of DR in 2038.***

Answer: As with any other competing resources, if additional cost-effective demand response resources become available, the Company will seek procurement regardless of whether the resource was in our forecast. The action plan focuses on near-term acquisition, and if additional demand response is acquired through participation in current demand response offerings, the Company will procure it. The Company will continually assess its position relative to IRP volumes and determine if an acceleration of acquisition is needed for a more consistent ramp.



Source: Table D3, Volume 2 (pg 108), PacifiCorp 2023 IRP: [https://www.pacificorp.com/content/dam/pcorp/documents/en/pacificorp/energy/integrated-resource-plan/2023-irp/2023\\_IRP\\_Volume\\_II\\_A-P.pdf](https://www.pacificorp.com/content/dam/pcorp/documents/en/pacificorp/energy/integrated-resource-plan/2023-irp/2023_IRP_Volume_II_A-P.pdf)

2. PacifiCorp does not allocate wintertime DR, even though many of the most significant winter resources utilize the same infrastructure as summer programs (namely batteries, and HVAC load control as electric heating implementation grows as projected). ***UCE recommends implementation of Winter Load Control resources***

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*to easily maximize this DR potential as home, building and transportation electrification proceeds.*

Answer: This statement is incorrect; the company includes winter specific demand response impacts in the IRP modeling and select resources based on their ability to provide winter and/or summer capacity benefits.

More and more loads are being electrified; from home heating, to electric vehicles, to water heating—all of which can provide demand response capabilities. It does not appear that the model takes advantage of these potential demand response resources. ***In the Action Plan, the Company should seek to design plans through the DSM Steering Committee that procure DR that is at a cost in range with the DR resources selected by the model.***

Answer: Benefits are also important when considering a demand response resource for selection even in instances where costs are similar. All demand response programs in the same cost range will not be equally cost-effective. However, the Company welcomes subsequent discussion about how to acquire demand response with the DSM Steering Committee.

3. The 20-Year Potential for DR in the “East Control” region for Summer and Winter combined is approximately 990 MW. *See* 2023 IRP, Volume I, p. 207, Table 7.6. However, the total DR selected in the 2023 IRP Preferred Portfolio for Summer and Winter combined is 305.2 MW. ***Why does the Preferred Portfolio select less than 31% of the 20-Year Potential?*** It appears that the Preferred Portfolio selection of DR is compensating for swings in other resources. However, DR resources do not ramp up and down so rapidly but rather build gradually over time. ***Shouldn’t the IRP Action Plan reflect the gradual ramp up and persistent strength of Demand Response as a resource?***

Answer: The selection of demand response is based on the cost-effectiveness of a resource in a given year and the percentage selected is based solely on the cost-effectiveness of the resource relative to other resources available in the model. The Company will expand existing demand response resources as additional volume is identified and gradually incorporate new demand response resources consistent with the preferred portfolio. As with other resources the Company begins building and developing resources prior to the year that they are selected. The Company looks forward to working with stakeholders in future forums and processes to determine the best method for ramping DSM and demand response resources.

4. According to the 2023 Conservation Potential Assessment, there is significant potential for critical peak pricing and peak time rebate rates by 2042. See 2023 Conservation Potential Assessment, Vol. I, p. 48. **Can We request that PacifiCorp provide an annual breakdown leading up to 2042 that shows this growth. Additionally, what are PacifiCorp’s current plans to tap into this potential? California and Maryland have had success implementing these rates. We recommend that PacifiCorp evaluates utilities in these other jurisdictions to develop innovative rates.**

Answer: Below is an annual breakdown of growth for critical peak pricing and peak time rebate rate structures. PacifiCorp is awaiting implementation of its new billing system prior to developing plans for critical peak pricing and peak time rebate rates. We also note that these impacts cannot be summed across DSR or DR program options since they don’t account for resource competition. Therefore, results should only be used in isolation and to compare relative impacts of the different DSR offerings. This is particularly true when comparing CPP and PTR as they would be competing for the same customers.

Thank you for the recommendation, we will take this under advisement.

State	Program Option	Cumulative Summer Total Peak Reduction (MW @generator)																		
		2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
CA	CPP	0	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
CA	PTR	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ID	CPP	1	3	8	11	12	11	11	11	12	12	12	12	12	13	12	12	12	12	13
ID	PTR	0	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
OR	CPP	4	13	30	39	45	46	47	47	49	48	49	49	50	50	51	51	52	53	55
OR	PTR	1	4	9	12	13	12	13	13	14	14	14	15	15	15	16	16	17	17	18
UT	CPP	8	25	58	76	85	85	85	85	86	86	87	88	89	90	91	92	93	94	96
UT	PTR	3	9	22	28	32	32	33	33	34	35	36	37	38	39	40	42	43	44	45
WA	CPP	1	4	10	12	14	14	14	14	14	15	15	15	15	16	16	16	16	16	17
WA	PTR	0	1	3	4	5	5	5	5	5	5	6	6	6	6	6	6	6	6	7
WY	CPP	2	6	14	17	19	19	19	19	19	18	18	18	18	18	18	18	18	18	18
WY	PTR	0	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
<b>Total</b>	<b>CPP</b>	<b>17</b>	<b>51</b>	<b>122</b>	<b>157</b>	<b>177</b>	<b>178</b>	<b>179</b>	<b>179</b>	<b>182</b>	<b>182</b>	<b>182</b>	<b>184</b>	<b>185</b>	<b>188</b>	<b>190</b>	<b>191</b>	<b>193</b>	<b>195</b>	<b>198</b>
<b>Total</b>	<b>PTR</b>	<b>5</b>	<b>16</b>	<b>38</b>	<b>48</b>	<b>54</b>	<b>55</b>	<b>56</b>	<b>57</b>	<b>58</b>	<b>59</b>	<b>61</b>	<b>62</b>	<b>64</b>	<b>66</b>	<b>67</b>	<b>69</b>	<b>71</b>	<b>72</b>	<b>74</b>

State	Program Option	Cumulative Winter Total Peak Reduction (MW @generator)																		
		2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
CA	CPP	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
CA	PTR	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ID	CPP	0	1	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
ID	PTR	0	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
OR	CPP	2	7	17	22	25	26	25	25	26	25	25	25	25	26	26	26	26	26	27
OR	PTR	1	4	10	12	14	13	13	13	13	13	14	14	14	14	14	15	15	15	15
UT	CPP	3	10	23	30	34	34	35	35	36	36	37	37	38	39	40	41	42	43	44
UT	PTR	2	5	12	15	17	18	18	19	19	20	21	21	22	23	24	25	26	26	27
WA	CPP	1	2	5	6	7	7	7	7	7	7	6	6	6	6	6	6	7	7	7
WA	PTR	0	1	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
WY	CPP	1	3	7	9	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
WY	PTR	0	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
<b>Total</b>	<b>CPP</b>	<b>8</b>	<b>23</b>	<b>55</b>	<b>71</b>	<b>80</b>	<b>81</b>	<b>81</b>	<b>81</b>	<b>82</b>	<b>82</b>	<b>82</b>	<b>83</b>	<b>84</b>	<b>84</b>	<b>85</b>	<b>86</b>	<b>88</b>	<b>89</b>	<b>91</b>
<b>Total</b>	<b>PTR</b>	<b>4</b>	<b>12</b>	<b>28</b>	<b>36</b>	<b>40</b>	<b>40</b>	<b>41</b>	<b>41</b>	<b>42</b>	<b>43</b>	<b>44</b>	<b>44</b>	<b>45</b>	<b>46</b>	<b>48</b>	<b>49</b>	<b>50</b>	<b>51</b>	<b>54</b>

5. The IRP clearly shows that DR is a valuable resource. **DR is a critical part of a flexible electricity system that is adding more and more variable electricity resources and should be prioritized.**

Answer: The Company agrees with this observation and plans to expand demand response volume in the near-term.

6. **It appears that the model underestimates Utah’s potential for Demand Response.** The 2023 IRP selects very low levels of incremental demand response (DR). See 2023 IRP, Volume II, p. 108, Table D3. For example, RMP’s 2023 DSM forecast 399 MW of DR during 2023 alone See RMP’s 2023 DSM forecast at <https://pscdocs.utah.gov/electric/22docs/2203537/326019RMPAnIDSMDfrdAcntFrcstRprt11-1-2022.pdf>. This is compared to the 2023 IRP DR selection of only 305.2 MW (summer and winter) from 2023–2043. The 2023 DR forecast appears to be comprised of the following programs/capacity: Wattsmart Battery Program (27 MW), Cool Keeper (276 MW), and C&I Load Control (82 MW), all of which have increased in

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recent years. The 2023 IRP does not reflect this amount of DR in 2023. The 2023 IRP Action Plan only indicates 72 MW of incremental DR for the year 2023, which exists entirely in Oregon and Washington, despite Utah’s large contribution to the system’s DR capabilities. ***The 2023 IRP should reflect Utah’s current DR capability and recent growth, which has proven to be reliable, and its predictability has significant value in resource planning. Further, the Action Plan should be structured such that it calls for all cost-effective demand response resources.***

Answer: The company is committed to pursuing all cost-effective DSM, in competition with all resources alternatives, and will continue to evaluate action plans in this pursuit.

7. Table 6.10 of Volume I includes 625 MW of existing demand response resources for the 2023–2042 planning period. Further, it is unclear how these existing resources are being recognized in the Action Plan. ***Please explain how these existing DR resources are included or excluded by the 2023 IRP model. Also, we request that the Company’s existing DR resources be clearly acknowledged in the Action Plan.***

Answer: Existing resources are presumed to be available and included as resources throughout the planning horizon.

8. In Tables 6.11 and 6.12 of Volume I, the 2023 IRP reflects “Existing – Demand Response” for each year in the East and West control areas in summer and winter. Table 6.11 reflects 159 MW of “Existing – Demand Response” in summer 2023 for the East control area. As acknowledged above, the RMP 2023 forecast projects 399 MW of demand response for Utah alone. ***These two figures appear contradictory. Please explain the rationale behind these two figures.***

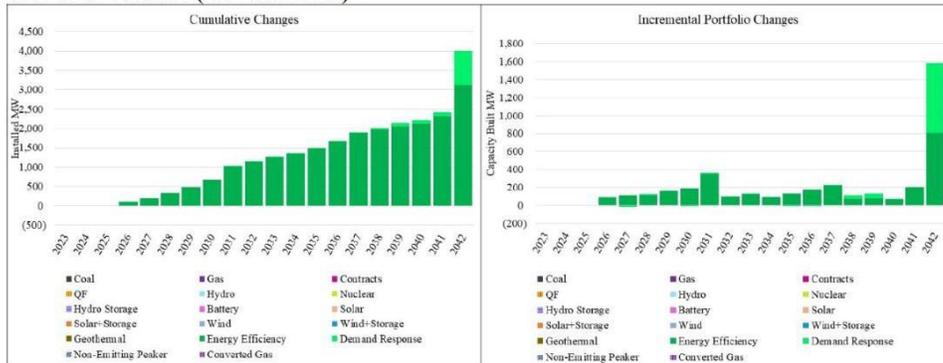
Answer: The values provided in the RMP forecast differ for a few reasons that are not necessarily in contradiction with one another. First, the cool keeper program in Table 6.10 “Existing-Demand Response” is characterized by the program’s ability to provide multiple hour duration events. However, the program can also be used for fast acting events, such as frequency response, when characterized as a frequency response event, these programs are on scale with what the 2023 RMP forecast projects. A footnote has been added to clarify the resource characterization in Table 6.10. Additionally, the vintage of data may not reflect newly adopted or expanded demand response actions, this is particularly true for the commercial and industrial curtailment which was only recently effective in Utah.

### **P13-All DSM model variant:**

In Chapter 9, model variant P13-All DSM “forces the model to select all demand response and energy efficiency available in addition to what is selected in the PMM portfolio.” However, a cursory glance at the model results (pasted below) raises red flags, especially the lack of DSM throughout the model run until the very last year, and then the very large increase in energy efficiency and DSM in the year 2042. This is further evidence that the DSM part of the PLEXOS model is not working as expected and is producing anomalous results. This variant is also one of the most expensive ones, as indicated in Table 9.13.

**Given all of the issues identified in our comments above about the DSM modeling, we do not think that the P13-All DSM model variant is accurate. Once the issues identified above have been addressed, this model variant should be re-run.**

**Figure 9.24 - Increase/(Decrease) in Proxy Resources when all DSM programs are selected in P-MM Variant (P13-All DSM)**



Answer: These charts represent the change in the portfolio for the Preferred Portfolio versus P13-All DSM Variants. Furthermore, the chart on the left (cumulative changes) does not align with your assertion that there is a “lack of DSM throughout the model run.” As stated previously, this variant is intended to be a bookend to illustrate the cost that might be incurred if the maximum DSM potential were selected.

**Private Generation (PG):**

1. Provisions in the Inflation Reduction Act (IRA) provide many opportunities to expand private generation in the residential, commercial and industrial sectors. PacifiCorp uses DNV’s Private Generation Forecast to account for Federal tax credits in the base case. However, it is not clear whether all of the IRA provisions are adequately accounted for in the IRP assessment. **Can PacifiCorp clarify whether the additional incentives mentioned below are accounted for in their assessment?**

- Additional 10% credit for meeting domestic content requirements

Answer: Our study does not estimate content of proxy solar resource panels and therefore does not include an assumption around this credit.

- Additional 10% credit for projects located in an “energy community”
- Provisions of the Section 48(e), Environmental Justice Wind and Solar Program, including:
  - Category 1): Additional 10% credit for qualified solar facilities located in a low-income community
  - Category 2): Additional 10% credit for qualified solar facilities on Tribal land
  - Category 3): Additional 20% credit for projects that are part of a qualified low-income residential building project
  - Category 4): Additional 20% credit for projects that deliver qualified low-income economic benefits

Answer: It’s unclear how these credits apply to smaller scale projects in our private generation study and therefore they were not included at the time of modeling for private generation. Also, as pertains to generally to IRP long-term planning proxy resource selection, manufacturers and specific communities are not known prior to bid responses in an RFP.

- \$29 billion Greenhouse Gas Reduction Fund, which includes \$7 billion toward the Solar For All Competition, which will provide funds for increasing residential solar adoption particularly in low-income communities.

Answer: At the time of modeling (summer 2022), it was unknown how and when these funds would be

\* Required fields

administered and allocated to states, therefore they were not included in the study.

2. DNV’s assessment finds that lower technology costs and higher energy prices used to model the “high” private generation forecast have a nearly negligible effect on private generation adoption, and only result in 0.5% additional cumulative capacity compared to the base case. Comparatively, the Navigant Private Generation Assessment from 2020 looks at a high case for 2016, 2018 and 2020 which are all 30%–50% higher than the base case. *See [https://www.pacificorp.com/content/dam/pcorp/documents/en/pacificorp/energy/integrated-resource-plan/2021-irp/2021-irp-support-and-studies/PacifiCorp\\_2021\\_IRP\\_PG\\_Resource\\_Assessment.pdf](https://www.pacificorp.com/content/dam/pcorp/documents/en/pacificorp/energy/integrated-resource-plan/2021-irp/2021-irp-support-and-studies/PacifiCorp_2021_IRP_PG_Resource_Assessment.pdf), Figures 5 and 6.* Given the small difference between the “base” and “high” cases in the 2023 IRP, Sensitivity S-05 is unlikely to provide meaningful information about how higher than expected private generation adoption affects portfolio selection. ***We request that PacifiCorp run a high Private Generation scenario that is 30% higher than the 2023 base case to adequately assess the impact of increased uptake of private generation.***

Answer: Thank you for the feedback given the timing and scope of this request, we will take this into consideration for future planning cycles.

### **Robust Procurement Planning for Implementing the 2023 IRP**

We are encouraged by the significant planned increase in wind, solar and storage resources in the 2023 IRP. This represents the rapid deployment of clean energy that is needed to prevent the worst impacts of the changing climate. One potential challenge is that many utilities across the country and globally are also making these investments at the same time, so there is risk for procurement delays. The IRP Action Plan discusses a number of strategies to mitigate this risk on page 359, but many of them are problematic. For example, if PacifiCorp installs temporary generators, that could result in substantial unplanned emissions, which could raise costs, create additional harmful emissions, and present additional environmental compliance risks.

There are other issues in this section: for example, if there are supply chain constraints it would not be possible for the Company to “accelerate delivery date” of resources. Also, dropping below planning reserve margins could compromise the system’s reliability.

***We find this section does not provide an adequate discussion of the risks and undesirable consequences of each contingency, and it should be updated to thoroughly explore the consequences of each contingency.*** It would also be useful to identify options and contingencies that PacifiCorp could directly control, such as accelerating the acquisition of efficiency and direct load control programs.

***In line with our comments above, expanding energy efficiency and DSM should be a key component of the action plan and should be added to the list of available contingency options as part of a robust procurement plan.***

## Evaluating Critical Emerging Technologies

1. We are excited that the 2023 IRP begins to evaluate emerging technologies that can provide firm dispatchable energy with zero carbon emissions that are a suitable complement to a predominantly wind-solar-storage generation portfolio. The 2023 IRP states “[t]he advancement of these new technologies are critical to the planned transition of PacifiCorp’s coal fleet.” ***While this is a step in the right direction, we find that the evaluation of these technologies is incomplete in the 2023 IRP.***

Answer: We recognize that we are still in an evolving planning environment as some tax incentives from the Inflation Reduction Act are not finalized. Thus, some of this information may not be available until the 2023 IRP update or the 2025 IRP process. However, we wanted to identify topics that will need additional clarity going forward.

- a. Volume I, Chapter 7 – Resource Options, p. 195: In the Resource Options section on geothermal energy, we noted that PacifiCorp commissioned several reports in 2010–2013 to evaluate if geothermal assets can be added to the portfolio in a cost-effective manner. Those reports are now over a decade old and there are many recent advances in the development of advanced geothermal energy that are not reflected in this IRP. In the discussion of this technology, PacifiCorp proposes to utilize the RFP process to mitigate risk to customers and the company. That approach is not consistent with the concept of evaluating new technologies that are “critical” to PacifiCorp’s planning horizon.

***We would like to see PacifiCorp describe the emerging developments in advanced geothermal energy in Chapter 7 – Resource Options of the 2023 IRP as well as discuss plans to further evaluate the technology in its Action Plan. We would like to see PacifiCorp commission a new study to evaluate the potential for advanced geothermal assets to be added to the portfolio in a cost-effective manner.***

Answer: Please refer to the description of geothermal resource options in section 3 of the PacifiCorp 2023 Renewables IRP Report in which emerging geothermal technology is considered. The report provides cost and technical data based on emerging technology. The report is available at: [2023 Renewables IRP Report.pdf \(pacificorp.com\)](#). At this time, no additional study is anticipated.

- b. Supra, and Volume I, Chapter 8 – Modeling and Portfolio Evaluation, p. 225: On page 225, the IRP states “[t]he non-emitting peaking resource is assumed to use a non-CO2 emitting fuel such as hydrogen.” As noted above, the advancement of this technology is viewed as “critical” for PacifiCorp’s planning horizon. Despite the critical nature of non-emitting peaking hydrogen resources, hydrogen does not have a devoted

section in Chapter 7 – Resource Options. Hydrogen is only briefly mentioned in the section describing natural gas peaking plants.

***Since the deployment of hydrogen peaking plants will require significant planning in order to produce, store, and utilize the fuel, hydrogen should have its own section in Chapter 7 – Resource Options. This section should at minimum describe the ways that hydrogen can be produced and PacifiCorp’s plans for further evaluating this critical technology in its Action Plan. This section should note that the IRS is still finalizing the clean hydrogen production tax credit. While it is not possible to make concrete plans at this time, there should still be a roadmap to evaluate this technology in the Action Plan.***

Answer: Thank you. We will consider adding a discussion of the hydrogen supply chain in future IRP’s and as the hydrogen industry and incentives develop. As an energy storage medium, hydrogen has a very low round trip efficiency compared to other energy storage options, For this reason, hydrogen is not likely to be available for preferred portfolio selection in the near-term; however, tax credits have the potential to make hydrogen more cost competitive. Also consider that as proxy resources based on forwarded-looking technology, non-emitting peakers may not ultimately be hydrogen fueled. We will continue to monitor developments.

- c. Volume I, Chapter 7 – Resource Options, p. 204: The 2023 IRP discusses the development of advanced nuclear Sodium resources in some detail, but there are many unanswered questions. ***These questions include how the Company plans to address supply chain challenges with securing HALEU (High Assay Low Enriched Uranium) fuel in sufficient quantities; costs; water consumption; and plans for long-term waste disposal. Stakeholders need these additional details in order to evaluate the plans for deploying this technology.***

Answer: It is the responsibility of TerraPower, in partnership with the Department of Energy, to build the supply chain for sodium fast reactors in the United States. This includes support for development of a HALEU fuel supply chain through the Advanced Reactor Demonstration Program (ARDP). Recently, the DOE formally begun the Environmental Impact Statement (EIS) scoping process for its proposed program to support the commercial production of HALEU fuel. More information can be found at [U.S. Department of Energy to Acquire High-Assay Low-Enriched Uranium Material | Department of Energy](#) with the draft RFPs open for public comment until July 6.

PacifiCorp is working with TerraPower to jointly study the feasibility of additional Sodium units to seek opportunities to reduce cost for PacifiCorp’s customers and more broadly deploy advanced Sodium reactors. The study includes assessments of long-term operating and maintenance costs, fuel availability, water consumption, and other factors. The commercial arrangements for acquiring any Sodium asset considers these factors (as well as many others) to ensure we meet our commitments to our customers and stakeholders.

***For each of the above critical technologies, more information is needed in the current 2023 IRP, and plans to further evaluate them on an equal playing field are needed in the Action Plan.***

## **Impacts on Natural Gas Prices from Methane Leakage and Regulatory Risk**

The discussion of natural gas market conditions on page 50 of the 2023 IRP is thorough, but it is missing a key discussion of the impacts of methane leakage on natural gas prices. Natural gas is 95% methane, and in our public input comment 2023.023 we described how methane leakage from natural gas infrastructure presents an environmental and regulatory risk to PacifiCorp and ratepayers. In our comment we provided a brief summary of the scientific literature to explain why real-world methane leakage is likely higher than estimated in emission inventories since emission inventories assume leakage rates from components working as designed while significant amount of leakage is due to faulty components or improper operation. PacifiCorp’s response cited an August 2022 CBO report (<https://www.cbo.gov/publication/58444>) that estimated \$6.35 Billion from the methane fees from 2026–2031 assuming leakage rates from EPA’s emission inventory. That same CBO report also acknowledges that “accurately estimating methane emissions is a challenge” and cites many of the same research

\* Required fields

papers we included in our comment demonstrating that EPA’s emission inventory is likely far too low.

As a reasonable precaution we suggested that PacifiCorp include the price impacts of at least 2% leakage rates in their natural gas price forecast. PacifiCorp responded by saying “[t]he company will consider a scenario with leakage rates of at least 2% although the [CBO] findings are lower.” This scenario was not included in the 2023 IRP, and the terms “methane,” “leakage,” or “fugitive emissions” do not appear anywhere in the 2023 IRP text. This is especially concerning because the Methane Emission Reduction Program will go into effect in the Action Plan timeframe.

The discussion about methane leakage is relevant to multiple sections of the 2023 IRP including p. 50 Natural Gas Prices and p. 56 Federal Policy Update, the discussion of the model variants with a high gas price assumption (Table 9.16, p. 265), and the Action Plan. That is only a partial list, it may be relevant to other sections as well.

Overall, we are encouraged that the Preferred Portfolio envisions a reduction in natural gas utilization over the next 10 years. We also hope that the Methane Emission Reduction Program can cost-effectively reduce methane emissions and therefore have a minimal impact on natural gas prices. However, the 1992 Standards and Guidelines require PacifiCorp to consider environmental externalities in its IRP planning process. Because methane leakage from natural gas infrastructure presents an environmental risk, we feel this topic must be addressed. Since PacifiCorp has failed to incorporate our feedback up to now, and since this would affect every model run, we are not asking PacifiCorp to start over from scratch at this time. ***We think it would be sufficient to update the 2023***

Answer: PacifiCorp has modeled emissions and regulatory risk consistent with the regulatory policies currently enacted. Including a 2% leakage rate in the natural gas price forecast would be inconsistent with the current regulatory framework.

***IRP narrative in (at least) the locations identified above and note how the new Methane Emissions Reduction program may affect natural gas prices in the future. Additionally, we ask that PacifiCorp include this topic in their Action Plan so that we can be sure that it does not continue to be overlooked in the 2023 IRP Update and the upcoming 2025 IRP.***

## **Climate Change Impacts and Environmental Policy Risks**

The 1992 Guidelines and Standards for integrated resource planning require the Company to consider two components of environmental risk in its IRP. The Company is required to include (i) the quantification of emissions as well as dollar amounts for externalities in each acquisition strategy, and (ii) a consideration of “the long-run public interest.” The Guidelines clarify that the “long-run public interest” includes “environmental ramifications of the production and consumption of electric energy services.” The Guidelines impose an obligation on the Company to “pursue resource acquisitions that minimize adverse environmental impacts as a method of reducing risk.” See Public Service Commission Docket No. 90-2035-01, Order Issued June 18, 1992.

PacifiCorp’s 2023 IRP does make incremental progress in exploring load changes as a result of climate change, projected emissions reductions, and increased extreme weather impacts on wind, solar, and hydro generation. However, the 2023 IRP does not satisfy the obligations set out in the Standards and Guidelines, which we requested in the 2021 IRP when we previously raised this concern. For example, while there is a discussion of weather-related impacts on variable generation in Chapter 5, there is no discussion of weather-related impacts on thermal generation sources, which have reduced output during extreme high temperatures. There is also no discussion about how fossil fuel combustion from PacifiCorp’s existing thermal fleet is contributing to climate change. Further, we think that there needs to be additional focus on examining how extreme weather events will impact PacifiCorp’s generation fleet in general since this is an emerging area of scientific research and a key vulnerability to the reliability of the system.

We find that PacifiCorp has made minor but inadequate progress on addressing the “long-run public interest” including the “environmental ramifications of the production and consumption of electric energy services” in the 2023 IRP. ***We request that PacifiCorp address how climate change might affect PacifiCorp’s thermal fleet, discuss how its existing thermal resources are contributing to climate change, and conduct further studies on the impacts of extreme weather events caused by climate change.***

**Answer:** The company has made climate change a base assumption in its 2023 IRP and continues to evaluate the analytical role of extreme weather events. The “No Climate Change” sensitivity provides a counterfactual to consider impacts on the thermal fleet. We look forward to continued discussion of these topics in future IRPs.

## **Conclusion**

As stated, Utah Clean Energy appreciates the opportunity to provide stakeholder feedback to PacifiCorp as it finalizes its 2023 Integrated Resource Plan. We are encouraged by the Company’s commitment to clean energy technology evinced by this draft. We look forward to the Company’s consideration of each of our concerns and questions raised above. As ever, we are happy to provide clarification on any of the points we have raised.

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**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.

Any external links or data support goes here.

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

Bulleted list of requests.

- Demand Side Management:

- Class 2 DSM: Energy Efficiency: requests and questions numbered 1–7.
- Class 1 DSM: Demand Response: requests and questions numbered 1–9.
- P13-All DSM model variant
- Private Generation (PG), requests and questions 1–2.
- Robust Procurement Planning for Implementing the 2023 IRP
- Evaluating Critical Emerging Technologies, requests and comments 1 a–c.
- Impacts on Natural Gas Prices from Methane Leakage and Regulatory Risk
- Climate Change Impacts and Environmental Policy Risks

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Please submit your completed Stakeholder Feedback Form via email to [IRP@PacifiCorp.com](mailto:IRP@PacifiCorp.com)

Thank you for participating.