



MEMORANDUM

To: Angela Long, PacifiCorp
From: Applied Energy Group (AEG)
Date: January 7, 2020
RE: 2021 Conservation Potential Assessment Measure List Development

This memorandum outlines AEG's process for developing and populating the list of energy efficiency measures assessed in PacifiCorp's 2021 Conservation Potential Assessment (CPA). The process is designed to build upon work from the 2019 CPA, incorporating new developments since that time.

General Measure List Development Process

The 2019 CPA assessed the technical and technical achievable potential for 359 unique measures,¹ including 46 emerging technologies.² When expanded across construction vintages, market segments, and states, this translated to over 37,000 measure permutations. An additional 50 emerging technologies were considered, but qualitatively screened out of the analysis based on technology maturity and reliability of cost or savings estimates.³ The 2019 CPA measure list provides an excellent foundation for this study, but must be updated to ensure alignment with recent developments since the time of that analysis. To update the measure list, AEG will perform the following steps:

1. Create a new measure list spreadsheet starting with the 2019 CPA measure list.
2. Review PacifiCorp programs, peer utility programs, and third-party sources (e.g., Regional Technical Forum, Northwest Power and Conservation Council 2021 Plan) and add any new measures to the 2021 CPA standard measure list.
3. Review updated emerging technology sources and add any new measures to the 2021 CPA emerging technology list.
4. Perform a qualitative screen on emerging technology measures to determine whether:
 - a. Measures previously assessed as emerging technologies should be considered standard technologies for the 2021 CPA,
 - b. Measures qualitatively screened out of the 2019 CPA now have reliable enough data to be included in the potential, and
 - c. Any of the newly identified emerging technologies pass the qualitative screen.
5. Combine standard and screened emerging technology lists to create the initial 2021 CPA measure list.
6. Review federal and state-specific codes and standards and remove any measures that are not above minimum requirements.
7. Provide draft measure list to PacifiCorp planning and program managers and incorporate feedback.

¹ *PacifiCorp Conservation Potential Assessment for 2019-2038 Volume 2*, Jun 2019, Page 10.

² *PacifiCorp Conservation Potential Assessment for 2019-2038 Volume 4*, Jun 2019, Page D-1.

³ *Id.* at D-2.

8. Share final draft measure list with PacifiCorp IRP stakeholders and incorporate feedback, as appropriate.
9. Work with PacifiCorp to finalize measure list and to send to stakeholders, if appropriate.

Measure Data Development

Identify Major Measures

Because of the size of the expanded measure list, we recognize it won't be possible for PacifiCorp staff to review every data input. To help PacifiCorp planning and program management staff focus their review on measures that are likely to receive either high potential or high scrutiny (or both) in this study, AEG will identify "major measures" based on:

- High potential in the 2019 CPA
- Large current or expected contributions to PacifiCorp's program portfolio
- Stakeholder comments and interest
- Preliminary inputs to the Council's 2021 Power Plan
- High potential in recent CPAs conducted by AEG

AEG will create a "major measure" flag in the measure list to help PacifiCorp staff efficiently review draft inputs.

Measure Cost, Savings, and Life

Once the measure list is finalized, AEG will compile measure-level data on incremental costs, annual energy savings, and measure lives. Where appropriate, measure inputs will be customized for each state to account for differences in weather, regulatory expectations, local codes and standards or market conditions, or other factors that may lead to differences in cost, savings, or other factors. Note, AEG does not intend to use deemed values directly from PacifiCorp's existing programs, as this is an opportunity to identify the latest, most relevant data that may inform future program planning and design. However, where local market data are available from PacifiCorp's programs (e.g., weatherization project costs), AEG may incorporate this information into the assessment.

Table 1 below provides the hierarchy of sources, by state, we intend to use to compile this information. The primary source for California, Idaho, and Washington is clear based on commission guidance and/or participation in regional measure development work. For Utah and Wyoming, primary sources are less clear, but through our measure development work for Rocky Mountain Power we have a strong sense of which sources provide the most applicable and appropriate information for PacifiCorp's service territory. For major measures, we will supplement this list with additional sources and measure research as appropriate. Through this review, we've also identified sources that, while tempting to use based on geography, are not well-maintained. As such, these sources are not included in the hierarchy.

Table 1. Source Hierarchy for Measure Cost, Savings and Lifetime

Source Hierarchy	Utah	Wyoming	Idaho	Washington	California
Primary	RTF with Adjustments [†] , National Sources, ^{**} Idaho Power TRM, Xcel Energy Colorado DSM Plan, Other Regularly Updated TRMs ^{***}		RTF, 2021 Power Plan		DEER and non-DEER Workpapers
Secondary			National Sources, ^{**} Idaho Power TRM, Other Regularly Updated TRMs ^{***}		RTF with Adjustments [†]
Other					National Sources, ^{**} Other Regularly Updated TRMs ^{***}

[†] Adjustments include weather and baselines (replace market with code/standard)

^{**} Includes national sources like the Annual Energy Outlook, ENERGY STAR® Savings Calculators, etc.

^{***} Includes Technical Reference Manuals from Illinois, Wisconsin, Pennsylvania, New York, Minnesota, Maine, and others as necessary

attributed and quantified by the RTF or 2021 Plan as well as quantified and monetized assumptions from studies conducted by PacifiCorp or Washington State agencies.

Applicability Factors

Measure applicability factors are used to account for the share of buildings where the measure is not applicable or is already in place. AEG primarily uses the following sources to develop these factors:

- PacifiCorp customer surveys
- Regional stock assessments (RBSA, CBSA, and IFSA)
- PacifiCorp program accomplishments
- Baseline studies from similar jurisdictions

As the experts on the local markets, PacifiCorp program managers and implementers may have valuable insight into these factors and AEG welcomes their review and input as measure data are finalized.

Market Adoption Rates

In previous studies, AEG has based these market adoption rates on ramp rates published by the Council, modified as appropriate per discussions with PacifiCorp staff. For this study, AEG will develop a customized approach for each jurisdiction. In Washington, where a CPA is required to follow Council methodologies, we will incorporate the most up-to-date Seventh Plan or 2021 Plan ramp rates if available before April 1, 2020. For major measures in other states, we will review these ramp rates for appropriateness but will ultimately develop participation rates using a variety of sources. For example, we will incorporate primary market research conducted by AEG in the Mountain region and throughout the country and benchmark against PacifiCorp's existing programs and utilities with similar jurisdictions. Since development of ramp rates always receives considerable attention from stakeholders, we will work closely with PacifiCorp in this step. AEG will make these ramp rates available to PacifiCorp and stakeholders in a transparent format.

Administrative and Incentive Costs

As part of the 2019 CPA, AEG developed jurisdiction-level administrative cost estimates for PacifiCorp's California, Idaho, Utah, Washington, and Wyoming territories using PacifiCorp Annual Reports from 2014 through 2016. AEG benchmarked these against similar utilities and programs for use in the analysis. For the 2021 CPA, AEG will first update this analysis using more recent annual reports (incorporating 2017 and 2018, if available). This will ensure that the analysis uses the most up-to-date data and incorporates any recent changes to the way that PacifiCorp administers programs.

Additionally, as new scope for this study, where applicable, AEG will summarize jurisdiction-specific incentive data for use in study benchmarking with actual utility spending. To accomplish this, we will review PacifiCorp's existing program offerings on the Pacific Power and Rocky Mountain Power websites and results for the 2014 through 2018 Annual Reports to develop incentive estimates on a \$/kWh, fixed incentive, or percent of incremental cost as prescribed for applicable measures and/or measure categories. AEG has recently updated LoadMAP to account for all of these different calculations, among others. For major measures and programs, AEG will compare these with the "maximum incentive" assumption of 70% of incremental cost and review with PacifiCorp Program Managers. If Program Managers agree that there is sufficient evidence to support DSM acquisition at lower incentive levels, AEG will use actual program incentives in the CPA analysis.