

Washington DSM Advisory Group Meeting July 22, 2021





Agenda

- Review of and feedback on draft CBIs
- Initial look at 2021 IRP CETA compliant draft portfolio energy efficiency selections
- Non-energy impact (NEI) update
- Follow-ups from last meeting
- Other updates

Draft CBIs



Definitions Update

Highly-Impacted Communities*

A community designated with a score of 9 or 10 based on the DOH cumulative impact analyses or a census tract that is fully or partially on sovereign tribal territory. Scores are assigned based on several indicators that express: 1) environmental exposures, 2) environmental effects, 3) sensitive populations, and 4) socioeconomic factors. This information is available on the Washington Department of Health's Information by Location Environmental Health Disparities (EHD) map.

Vulnerable Populations*

Communities that experience a disproportionate cumulative risk from environmental burdens due to: (a) Adverse socioeconomic factors, including unemployment, high housing and transportation costs relative to income, linguistic isolation, and access to food, education, technology, broadband, health care, capital and credit; and (b) Sensitivity factors, such as mental health, low birth weight, and higher rates of hospitalization.

Named Communities*

A term for both “highly-impacted communities” and “vulnerable populations”

**We recognize these terms do not reflect the strength, individuality, and cultural values of the communities referenced. These are the terms we are using to align with CETA legislation, however, we modified CETA's Vulnerable Population definition to include the insights and perspectives of our EAG.*

Clustered Vulnerable Populations with Challenges

Vulnerable Populations

Education

Students

Age

65+ adults
Young children

Health

Hard of hearing
Mental health challenges
Physical/Mental disabilities

Income

Energy burdened
Low-income migrants
Low income

Challenges

low barrier access rural challenges
multi family housing language barriers
zoning affordable housing education and employment
cost of living limited income federal v state standards
mental health needs access to transportation
access to information lack of education
immigration status technology barriers mental health stigmas
financial barriers community engagement
trust building discrimination information on use
access to education seasonal work utility consistency access to broadband
monetary resources land management

Location and Housing

Unhoused
Multi-family households
Single parents
Gas heated homes
Multi-generational households
Agricultural/farm workers
People living in rural areas
People living in different land statuses

Immigration and Language

Non-English speakers
Immigration status (outside of U.S. citizen)

Customer Benefit Indicator Definition

A customer benefit indicator (CBI) is an **attribute**, either quantitative or qualitative, of resources or related distribution investments associated with customer benefits described in RCW 19.405.040(8). Customer benefit indicators will:

- Inform **program actions** and investment decisions
- Inform energy **resource planning** decisions

A customer benefit indicator is the “benefit” in this framework:

- Community: Customer segment
- Challenge: How they are affected
- Action: PacifiCorp program or resource
- **Benefit**: Improved outcome for customers



If this process was like a fairy tale:

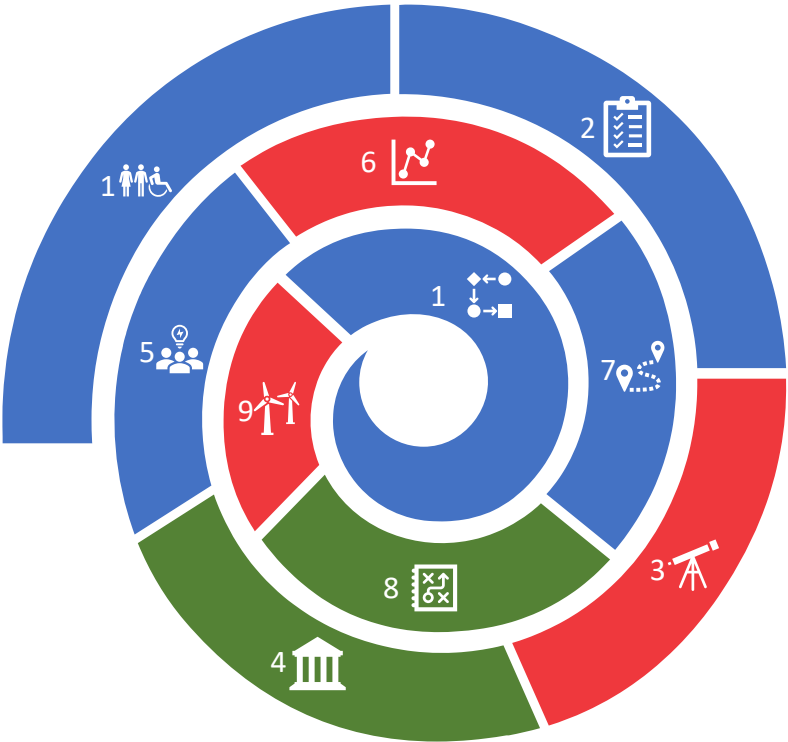
Once upon a time there was a (named community). Most days they struggled because (challenge). One day the utility did this (action). The (named community) got better because (CBI) improved.



Adapted from Hassan Shaban, Empower Dataworks
Images from Pixabay

EAG Feedback cycles
PacifiCorp-focused
Regulatory engagement

PacifiCorp's CBI and CETA Development Process



1. Named Populations

Map HICs and identify vulnerable populations and the challenges they face.

2. Identify Draft CBIs

Identify corresponding WA CETA CBI categories based on challenges faced by HICs and vulnerable populations as identified by the EAG, other PacifiCorp advisory groups, and Washington Customer base input.

3. Scoping for Utility

Determine which challenges faced by HICs and vulnerable populations PacifiCorp can influence.

4. Regulation Alignment

Align CBIs to Washington regulations and UTC expectations.

5. Validate CBIs

Refine and weigh CBIs based on stakeholder feedback to understand the significance and importance of each.

6. Metrics Development

Define metrics to monitor and track CBIs.

7. Input on Actions

Identify actions that PacifiCorp can take to positively influence CBIs and their defined metrics and present to EAG for feedback.

8. CEIP Feedback

Prioritize actions identified in Step 7 to include in the CEIP and submit drafts for external feedback, including UTC.

9. CEIP Implementation

Implement plan with actions and monitor results.

10. Iterate

Iterate on the CBIs and actions as a result of new ideas or monitoring for the next CEIP.

Customer Benefit Indicator Framework

Challenge Assignment	Draft CBI Outcome Related to Challenges
Can the challenge be addressed through increased awareness, engagement, marketing and outreach of PacifiCorp programs?	Improved education and awareness
Can the challenge can be addressed by reducing burdens attributable to participation barriers?	Reduced barriers for program participation
Can the challenge be addressed through the equitable implementation of community-based projects and investing in communities?	Increased economic/community engagement
Can the challenge can be addressed by having a higher amount of renewable energy that combats climate change?	Increased amount of renewable energy
Can the challenge be addressed through cleaner air, cleaner water, reducing greenhouse gas emissions and slowing climate change?	Reduced greenhouse gas emissions
Can the challenge be addressed through the reduction of income dedicated to energy expenditures?	Minimize cost of the clean energy transition
Can the challenge be addressed through air quality improvements that help to reduce health issues?	Improved Health and Well-being
Can the challenge be addressed through the reduction of duration and frequency of outages?	Low frequency and duration of energy outages
Can the challenge be addressed through the installation of energy infrastructure?	Improved local energy system

Challenge/Draft CBI Summary

Primary CBI Category	Draft CBI (Outcomes)	Challenges Addressed
Reduction of Burdens	Reduced barriers for program participation and Improved education and awareness	Access to education and outreach due to technology and financial barriers, support with housing inequity, access to educational resources, scarcity of sign language interpreters, access to language resources, access to information, lack of education, federal energy efficiency standards for trust land, linguistic isolation, access to employment opportunities, access to program information and the need to choose between utility bills and education
Nonenergy Benefit	Increased community/economic engagement	Employment opportunities, access to education, high rates of unemployment, limited income, lack of high-quality jobs, access to local employment resources, access to translation materials, employment/financial cost of living ratios, limited/fixed income and access to trade schools or higher education leading to quality jobs
Energy Benefit	Increased amount of renewable energy	Households with natural gas and/or wood as a primary heating source
Environmental	Reduced greenhouse gas emissions	
Cost Reduction	Minimize cost of the clean energy transition	Lack of support due to income challenges with multi-generational households, lack of parental financial support, cost of electricity, access to local financial resources, access to financial information about programs, the need to choose between utility bills and transportation, health, technology and financial resources, housing/financial cost of living ratio and limited/fixed income
Public Health	Improve Health and Well-being	Access to local health resources, lack of parental health support, rates of hospitalization and long-term COVID-19 health issues
Energy Resiliency/Risk Reduction	Low frequency and duration of energy outages	Lack of reliable heating source
Energy Security	Improve local energy system	Access to transportation
Unknown	Unknown	Support with needs such as food and isolation, depression, anxiety and loneliness, access to healthcare, access to accommodations, access to rehabilitation programs, unhoused access to education, housing and food, lack of affordable housing, undercounted and underrepresented, discrimination, access to legal and governmental support for finances, housing and education, access to insurance and access to resources to gain legal status

Draft Customer Benefit Indicators Flowing to Named Communities

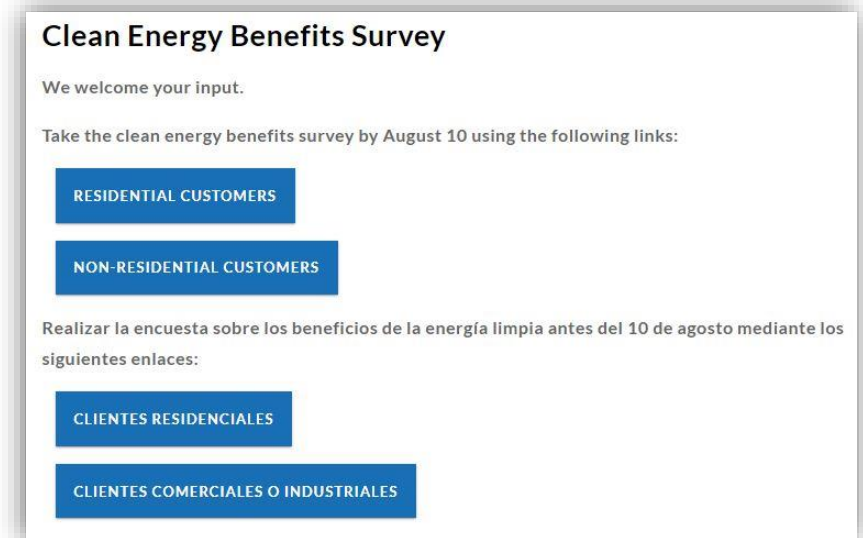
Primary CBI Category	Draft CBI (Outcomes)	Draft CBI (Examples)
Reduction of burdens	Improved education and awareness	<ul style="list-style-type: none"> • Increase efforts to support clean energy education • Improve marketing and outreach to increase awareness of energy and conservation programs
Reduction of burdens	Reduced barriers for program participation	<ul style="list-style-type: none"> • Increase participation in programs and grant opportunities • Expand Spanish translation services
Non-Energy benefit	Increased economic/community engagement	<ul style="list-style-type: none"> • Increase participation in community-focused efforts and investments • Provide support for job training programs • Track and support increased diversity in local program delivery
Energy benefit	Increased amount of renewable energy	<ul style="list-style-type: none"> • Expand electrification opportunities • Increase participation in company energy and efficiency programs

Draft Customer Benefit Indicators Flowing to All Customers Including Named Communities

Primary CBI Category	Draft CBI (Outcomes)	Draft CBI (Examples)
Environmental	Reduced greenhouse gas emissions	<ul style="list-style-type: none"> • Increase in renewable energy resources • Lower CO2 emissions
Cost Reduction	Minimize cost of the clean energy transition	<ul style="list-style-type: none"> • Reduce number of households experiencing high energy burden • Increase participation in company energy and efficiency programs • Increase awareness of and participation in billing assistance programs
Public Health	Improved Health and Well-being	<ul style="list-style-type: none"> • Decrease in wood use for home heating • Improve home comfort
Energy Resiliency/ Risk Reduction	Low frequency and duration of energy outages	<ul style="list-style-type: none"> • Emergency Preparedness: Improve system readiness to respond to major disasters • Optimize grid investments • Support customer programs related to community resiliency
Energy Security	Improved local energy systems	<ul style="list-style-type: none"> • Develop local/regional infrastructure to promote long-term reliable service

Ways to get involved

- Complete and share the “**Clean Energy Benefits Survey**” by August 10
 - Survey available for residential and non-residential customers in English and Spanish at **pacificorp.com/ceip**
 - Paper copies of the survey available upon request
- Attend CEIP public meetings
- Provide thoughts and feedback by emailing **CEIP@PacifiCorp.com**



Energy Efficiency Selections





July 22, 2021 update

- WA Price Policy case (social cost of carbon + non-energy impact credit) still under development review by IRP modeling team.
- Results expected soon.

NEI update



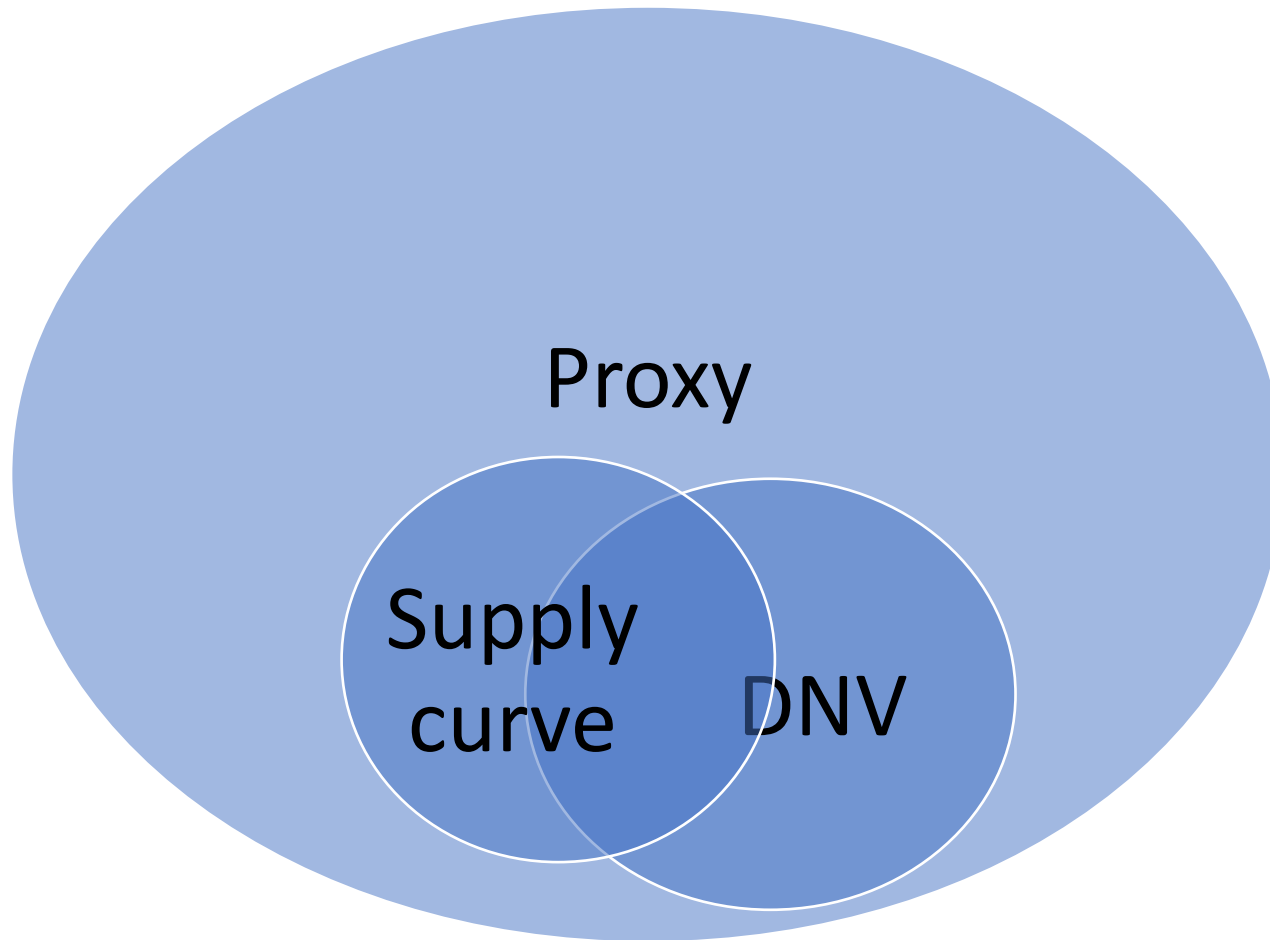
NEI QC

- DNV study QC (joint with AEG and Pacific Power planning)
 - **Metrics:** delineated metrics to identify the values originally in \$/kWh and those converted from household, project, etc. to kWh. Highest confidence in the \$/kWh that did not require a conversion.
 - **Woodsmoke:** conducted a second review of the various measures were mapped to the PAC Woodsmoke NEI (from Study 0049) to ensure all DHPs that replaced Zonal Electric Heat received this NEI.
 - **NEI Definitions** – modified the NEI definition table to be sector-specific and only include the NEIs and Study IDs that ended up in the final set of results for PAC. Changed the ‘Avoided Pollution’ NEI from Study0005 to “Avoided Illness From Air Pollution”. A comprehensive list of the studies in DNV database will be included in final report.
 - **Inflation adjustment update** – consumer price index (CPI) data was updated for 2021 – which was not originally available when DNV started the project. Minor impact from incorporating the most recent CPI.

NEI application

- Same as prior: Supply curves from 2021 CPA include NEIs (primarily from RTF and ABT woodsmoke). NEIs are a cost credit and lower the cost of EE resources in the IRP model. NEIs coming in through supply curves include:
 - Water/wastewater savings (flow reduction measures)
 - Avoided replacement (lighting)
 - Woodsmoke (heat pumps)
- New for 2021: Proxy NEI value.
 - Value is 2.8 c/kWh in 2017\$ (Table ES-1, high value of Pacific NW for Uniform EE). It will be grossed up to 2020 dollars to be consistent with the rest of the IRP model assumptions.
 - Link to study: <https://www.epa.gov/statelocalenergy/public-health-benefits-kwh-energy-efficiency-and-renewable-energy-united-states>
- DNV study expands the list of NEIs and measures they are applied to. Not all measures wind up with NEIs
- DNV study overlaps with NEIs in through supply curves (on a measure basis) and with all of the proxy NEI value.

NEI relationship/overlap



NEI application – proxy vs. DNV?

- High level analysis by AEG.
- Applying DNV NEIs to mapped measures (not all measures) and dividing by all measure savings (Jan 2017 to ~ end of Jan 2021).

Sector	Total NEIs Calculated by DNV-GL	Total PacifiCorp First-Year Program Savings (kWh)	NEI \$/kWh
Residential	\$160,147	22,493,760	\$0.007
C&I	\$1,564,958	108,297,143	\$0.014
Overall	\$1,725,104	130,790,903	\$0.013

NEI application - proposed

- Proposed ahead of IRP selections – may amend when selections are available
 - Supply curve NEIs and impacts in selections remain intact. No adjustment.
 - Proxy NEI added by IRP team and reflected in selection impacts remain intact. No adjustments
 - Since we have global and specific NEIs on all measures and reflected in selections, DNV values which are less certain will not be included as an adjustment to the target.
 - DNV values will be used in assessing cost effectiveness for as delivered 2022-2023 results.
 - Proxy values not included in assessing cost effectiveness for as delivered 2022-2023 results unless benefit cost ratios below 1.0

Follow-ups from last meeting



Wind facilities allocated to Washington

- How does legacy list of Washington allocated wind facilities align with current list?
- Legacy list - Slide 12 from June 17 2021 DSM AG presentation
 - Wind: GoodNoe Hills, Marengo I, Marengo II, Leaning Juniper
- Compare with Mike Wilding's testimony from GRC, page 30, Figure 3.

Wind facilities allocated to Washington

Figure 3

Production Tax Credits			
	WIJAM		WCA
	Total Generation (MWh)		Total Generation (MWh)
Glenrock	340,529		
Glenrock III	113,994		
Goodnoe	284,290		284,290
High Plains Wind	381,845		
Leaning Juniper I	299,842		299,842
Marengo	488,061		488,061
Marengo II	232,352		232,352
McFadden Ridge	116,455		
Rolling Hills	245,446		
Seven Mile	417,974		
Seven Mile II	87,580		
Dunlap I Wind	476,695		
Foote Creek I Wind	141,277		
Pryor Mountain Wind	811,936		
Cedar Springs Wind II	749,501		
Ekola Flats Wind	819,430		
TB Flats Wind	847,124		
TB Flats Wind II	819,430		
Total MWh Production	7,673,761		1,304,545
Tax Credit \$/MWh (2021)	\$	0.025	\$ 0.025
	\$	191,844,032	\$ 32,613,634
Gross up for Taxes (1.266%)	\$	242,874,545	\$ 41,288,860
WA Allocation Factor		7.81%	21.58%
Total PTC Benefits WA Allocated	\$	18,971,174	\$ 8,908,980

Home Energy Reports – provide additional support for keeping same groups

- Slide 17 – April 28th meeting
- Reviewed approaches for 2022-2023 in consultation with Bidgey.
 - Keep existing groups. Reforecast savings rate and ramp
 - Create new/re-randomized groups. New savings rate and ramp.
- Proposed approach is to keep existing groups with updated savings rates and ramp. Add kWh estimates to the target.
- Request was more analysis/support for proposal to keep same groups.
- Cadmus (Jim Stewart) has prepared a recommendation based on evaluating 10+ HER programs across the country.

Home Energy Reports – highlights from Cadmus recommendations

- HER savings are likely still ramping up and will increase before reaching a steady state. The experiment has not run long enough for the savings to reach a maximum, based on patterns of savings observed for other long-running utility programs.
- WA savings will ramp up for two reasons:
 - (1) Treatment group customers take time to internalize the report information, establish new energy savings habits, and to install new equipment or make other upgrades in their homes.
 - (2) The savings of previously treated customers in the control group will diminish over time as energy savings habits do not receive the necessary reinforcement from the HERs
- As the COVID pandemic recedes and home daytime occupancy moves closer to pre-pandemic levels, any negative effect of the pandemic on HER savings should diminish.

Home Energy Reports – highlights from Cadmus recommendations

- Restarting the experiment would not increase savings. Randomly re-assigning customers to the program treatment and control groups would diminish the measured savings and reduce the program's cost-effectiveness.
- Re-randomizing would increase the percentage of customers in the control group who had previously received an energy report, which would increase the efficiency of the baseline and reduce the measured savings.
- Cadmus recommends that Pacific Power not restart the experiment and allow the existing experiment to run for at least two more years.

Distribution Efficiency 2022-2023 plan*

- Propose a repeat of the last process for next period.
- Use the CYME model to assess four of Washington's approximately 142 distribution circuits with focus on Walla Walla region where VAR flow is high enough to cause voltage violations, seasonally high enough to create operational issues, or bring a circuit's average power factor below 0.95 lagging.
- Cost effectiveness for potential project(s) assessed with financial tools used to support recovery of other distribution system investments.
- In 2022, the Company will update the forecast of available projects that are cost effective feasible and reliable. Complete projects meeting these criteria.
- Subject to DSM AG feedback, report energy savings from completed projects against target.
- Since the circuit and project identification is on-going, the Company does not have any updated information on reliable cost-effective distribution efficiency for the 2022-2031 forecast period, and no savings from distribution efficiency are included in the Company's 2022-2023 Biennial Conservation Target.

*slide 17 – June 17 2021 DSM AG meeting

Distribution efficiency analysis

- Conservation Voltage Reduction (CVR) was the original focus of distribution efficiency in WAC.
- Company analyzed CVR on 25 of our circuits in Yakima several years ago by Science Applications International Corporation (SAIC). That study concluded that the economical options to improve efficiency have already been captured and the remaining options to implement CVR would not have the cost/benefit analysis needed to be economical.
- Moved from CVR to CYME circuit by circuit to find specific opportunities that improve distribution efficiency; volt/VAR optimization, thermal capacity issues, etc. These distribution planning efforts generate projects that also improve distribution efficiency.
- Selected four circuits in Walla Walla for evaluation:
 - 5W323 – Cannery
 - 5W305 – Prescott
 - 5W306 – Park
 - 5W342 – Pomeroy
- Assessed analysis resources (area engineering team) and overall workload/priorities including wildfire mitigation.
- Analysis to establish a distribution efficiency target not be available by September 2.
- In 2022, the Company will update the forecast of available projects that are cost effective feasible and reliable. Complete projects meeting these criteria.
- Subject to DSM AG feedback, report energy savings from completed projects against target.

Other updates



July 21, 2021 Forecast

Table 1 (BP)		2020-2021 Biennial Target Savings and Budget Projections by Program					
Program or Initiative	2020 PacifiCorp Washington Conservation ACTUALS			2021 PacifiCorp Washington REVISED JULY 2021 Conservation FORECAST			2020 + 2021
	Gross kWh/Yr Savings @site	Gross kWh/Yr Savings @gen	Estimated Expenditures	Gross kWh/Yr Savings @site	Gross kWh/Yr Savings @gen	Estimated Expenditures	Gross MWh Savings @gen
Low Income Weatherization (114)	69,527	74,864	\$ 347,189	145,860	157,056	\$ 865,000	232
Home Energy Savings (118)	4,720,378	5,082,714	\$ 2,672,704	5,219,627	5,620,286	\$ 4,225,227	10,703
Home Energy Reports (N/A)	3,542,270	3,814,175	\$ 259,013	256,730	276,437	\$ 266,500	4,091
Total Residential Programs	8,332,175	8,971,753	\$ 3,278,906	5,622,217	6,053,778	\$ 5,356,727	15,026
Wattsmart Business (140) - Commercial	21,182,321	22,792,601	\$ 4,240,996	20,391,395	21,941,549	\$ 5,394,809	44,734
Wattsmart Business (140) - Industrial	6,864,628	7,332,452	\$ 1,374,394	6,337,866	6,769,792	\$ 1,676,765	14,102
Wattsmart Business (140) - Irrigation	803,342	865,007	\$ 160,840	826,678	890,134	\$ 218,708	1,755
Total Business Programs	28,850,291	30,990,060	\$ 5,776,230	27,555,939	29,601,474	\$ 7,290,283	60,592
Northwest Energy Efficiency Alliance	5,569,225	5,996,719	1,002,231	3,023,217	3,253,636	842,389	9,250
Total Other Conservation Initiatives	5,569,225	5,996,719	\$ 1,002,231	3,023,217	3,253,636	\$ 842,389	9,250
Be wattsmart, Begin at Home	-	-	\$ -	-	-	\$ 64,523	-
Customer outreach/communication	-	-	\$ 249,711	-	-	\$ 250,000	-
Program Evaluations (& savings verification)	-	-	\$ 351,377	-	-	\$ 259,662	-
Potential study update/analysis	-	-	\$ 107,628	-	-	\$ 95,368	-
System Support	-	-	\$ 43,353	-	-	\$ 148,543	-
End use load research, RTF & CTA 2045	-	-	\$ 31,057	-	-	\$ 85,500	-
Total Portfolio-Level Expenses	-	-	783,126	-	-	903,596	-
Total PacifiCorp Conservation	37,182,466	39,961,813	\$ 9,838,262	33,178,156	35,655,253	\$ 13,550,606	75,617
Total System Benefit Charge Conservation	42,751,691	45,958,532	10,840,493	36,201,373	38,908,889	\$ 14,392,995	84,867
Total Conservation	42,751,691	45,958,532	\$ 10,840,493	36,201,373	38,908,889	\$ 14,392,995	84,867
						penalty target (gen)	95,108
							80%

RTF adjustments

- Reviewed RTF updates completed between CPA and June 1.
- Significant changes in measures with material savings used to make adjustments to selections/targets. Consistent with prior periods.
- All savings reporting for RTF measures in programs will utilize “current” even if not included in target adjustment.
 - as of June 1, 2021 for 2022
 - as of Oct 1 2022 for 2023.
- Still to be completed: identify measures deemed economic in IRP CETA-compliant portfolio. Adjustments to these measures will affect target.

Planned Measure Adjustments (pending mapping to IRP selections)

- Based on RTF updates and magnitude of potential, the following measures are proposed for adjustment

Sector	Measure	Justification
Residential	Lighting	Fast moving market
Residential	Heat Pump Water Heaters	Large potential, evolving market
Residential	Weatherization (insulation, doors, windows, air sealing)	Large changes to RTF UES values
Non-residential	Lighting	Fast moving market
Non-residential	Grocery Refrigeration - Floating Head Pressure	~3% of total commercial potential, large change in RTF UES
Non-residential	Irrigation Hardware	Align with program change to using Eastern Washington/Oregon RTF measures

- Examples of measures with RTF updates, but not recommended for adjustment due to immaterial potential or UES change
 - Residential ground source heat pumps
 - Manufactured home Energy Star design
 - Non-residential food service and laundry equipment

Wattsmart Business 2018-2019 Evaluation

- High level summary:
 - Realization rate: 98.9%
 - Program as evaluated was cost effective
 - PTRC: 1.32
 - UCT: 1.93
- Report available at <https://www.pacificorp.com/environment/demand-side-management.html>

Recommendation	Implementation plan
Adopt the deemed savings values by bulb type and lumen output from the RTF's Non-Residential Lighting Midstream	Implement effective 1/1/2022
Continue to monitor the program administrative systems for potential improvements, such as the ongoing effort to develop an online application portal for participants	Online application live 12/31/2020, continuing to monitor
Develop case studies of specific installers active in the small business program who can demonstrate measurable benefits as a result of their participation	Under consideration
Continue to develop and grow the lead generation campaign in order to increase participation in the Small Business Enhanced Incentive program further. Establish criteria for installers to be eligible for this initiative and promote it as a potential benefit for engaged participating installers.	Implementing Have criteria
Continue to focus on ways to expand the Small Business Enhanced Incentive offering,	Under consideration
Collect data from financing partner, National Energy Improvement Fund, on applications received and applications funded.	Under consideration