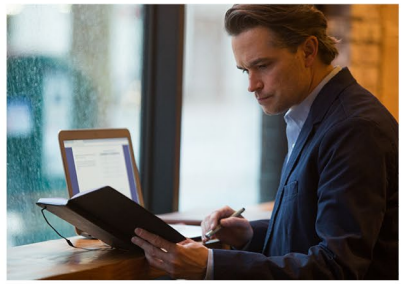
Clean Energy Plan Engagement Series

May 28, 2025





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This meeting will be recorded

Clean Energy Plan Engagement Series

May 28, 2025, 9:00 a.m. - 12:00 p.m. PT

For a Better Meeting Experience

Spanish and American Sign Language interpretation services are available!

- Navigate to "Interpretation" at the bottom of Zoom
- Select "ASL" under Watch or "Spanish" under Audio
- If the interpretation icon is missing, try the "More" icon

We recommend adding your organization, if applicable, to your name to let participants know who is in the meeting and using gallery view (icon at top right) when in group discussion.

For technical support, chat ***"Morgan Westberry/ E Source"*** as recipient, and send your message.

Engagement encouraged!

- Questions are welcome at any time
- Please mute until speaking
- Speak by clicking the "Raise Hand" in the tool bar

E Source

Facilitation Team

Jeffrey Daigle

Zanya Morgan

Morgan Westberry

Collaborators

Clean Energy Planning

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Integrated Resource Planning

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Manager, Stakeholder Policy & Engagement

Resource Planning & Acquisitions

Thomas Burns
Vice President,
Resource Planning
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Hannah Smith
Resource &
Commercial Strategy

Ian Hoogendam
Director,
Distribution
System Planning

Agenda

Purpose: PacifiCorp's Oregon Clean Energy Plan Engagement Series provides a space for joint consultation among various Oregon interested parties and members of the public. Participants have the opportunity to provide input on PacifiCorp's developing Clean Energy Plan (CEP), CEP process, as well as other supporting topics. This addition aims to help foster shared understanding of complex clean energy planning topics as well as provide pathways for meaningful engagement and input.

TIMING	TOPIC
9:00am	Meeting Opening
9:05am	Regulation: Introductions & Updates
9:15am	Clean Energy Planning • 2025 Integrated Resource Plan (IRP) • 2025 Clean Energy Plan Modeling
10:15am	Break
10:25am	Community Benefits and Impacts
11:25am	Procurement Updates
11:50am	Public Comment
12:00pm	Next Steps & Engagement Survey

Regulation

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Introductions

Please join us in welcoming PacifiCorp's newest State Regulatory Affairs Manager and Director of Regulation!

Amira Streeter
State Regulatory Affairs Manager

Robert Meredith
Director, Regulation

Updates

- Oregon Renewable Adjustment Clause
  - Filed April 1, 2025; Rates effective January 1, 2026
  - New wind and transmission into rates
  - 2.5% rate increase
- Oregon Transition Adjustment Mechanism
  - Filed April 1, 2025; Rates effective January 1, 2026
  - Updated net power costs
  - 0.5% rate decrease
- Oregon Power Cost Adjustment Mechanism
  - Filed May 15, 2025; Rates effective January 1, 2026
  - 0.8% rate increase

Ongoing Activities

UM 2348 (Modernization Docket)

Status: Ongoing

Purpose: To update the guidelines and, as necessary, adopt new rules for both the IRP and RFP processes.

This effort is motivated by:

- Increased pace of change in both policy and technology
- Increase in complexity of IRP analysis
- Desire for a nimbler process to support actions that promote reliability and policy goals
- High workload to effectively engage in IRPs and RFPs across PUC Staff, stakeholders, and utilities

Updates:

- OPUC Staff presented their report and recommendations at the UM 2348 Investigation into IRP/RFP Modernization Part 2 Special Public Meeting on March 20, 2025.
- "Motion was made by Chair Decker to adopt Staff's Recommendation with Modifications: Staff recommends that the Public Utility Commission of Oregon (Commission) open a rulemaking docket to consider updates for integrated resource plans (IRP) and the competitive bidding rules consistent with Staff's Final Proposal."

Ongoing Activities (continued)

UM 2345 (PacifiCorp Continual Progress)

Status: Ongoing

Updates:

- On March 12, 2025, the Commission issued Order 25-098 concluding that the Commission has the authority to direct PacifiCorp to issue a Request for Proposals (RFP) and review bids resulting from such an RFP, but the Commission does not exercise that authority at this time
- If PacifiCorp does not "issue an RFP by June 1, 2025" the company must show cause through an opening round of testimony and exhibits by June 16, 2025.
- On April 16, 2025, PacifiCorp filed several waiver requests, including a partial waiver of certain competitive bidding requirements and approval of the Draft 2025 Oregon Situs RFP, to facilitate the company's ability to issue an RFP to market by June 1, 2025.
- Several parties filed a motion for reconsideration of order 25-098 on May 7, 2025.
- PacifiCorp filed a response brief on May 22, 2025

LC 82 (PacifiCorp's 2023 IRP/CEP)

Status: On appeal/legal hold

Updates:

- PacifiCorp filed a small-scale renewable (SSR) acquisition strategy consistent with Commission order no. 24-297
  - Includes the most recent estimate of a 2030 SSR need (10% of future aggregate capacity allocated to Oregon customers)
  - Included multiple strategies to reach the SSR target by 2030 and an overview of the 2025 SSR request for proposal (RFP) process

Clean Energy Planning

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2025 Clean Energy Plan

PacifiCorp's 2025 Integrated Resource Plan (IRP)

- Filed on March 31, 2025
- Included Appendix P – Oregon Clean Energy Plan Update (see Vol. II pp. 489-518)

OPUC Granted 90 Day Extension for PacifiCorp's 2025 Clean Energy Plan

- Builds off the 2025 IRP, but includes some modeling updates
- Includes a refinement to the compliance strategy

PacifiCorp's 2025 CEP Filing

- PacifiCorp updated filing date will be ***June 30, 2025***

Follow along Oregon Commission docket **LC 85** which will track the 2025 IRP and CEP process: https://apps.puc.state.or.us/edockets/DocketNoLayout.asp?DocketID=24492

2025 Integrated Resource Plan

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2025 IRP – Oregon Shares

OR Shares by Resource Type and Year, Installed MW																					
	Installed Capacity, MW																				
Resource	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	Total
Nuclear	-	-	-	-	-	-	-	130	-	-	-	-	-	-	-	-	-	-	-	-	-	130
Renewable Peaking	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19	-	4	-	18	40
DSM - Energy Efficiency	-	-	97	101	107	114	115	110	113	108	109	111	110	106	102	116	123	107	114	92	90	2,044
DSM - Demand Response	-	0	-	48	16	7	-	5	1	3	3	11	-	11	4	23	4	-	9	-	8	153
Renewable - Wind	-	-	-	16	445	460	-	1	-	22	260	30	131	28	0	282	37	-	15	-	72	1,799
Renewable - Utility Solar	-	-	-	167	135	1,268	136	180	302	169	10	-	0	0	416	78	9	-	-	148	56	3,074
Renewable - Small Scale Solar	-	-	-	-	-	320	2	18	26	21	30	132	0	309	-	-	110	-	-	143	36	1,147
Renewable - Battery, < 8 hour	-	-	1	280	100	128	-	119	39	210	20	47	-	46	-	107	55	-	-	-	-	1,152
Renewable - Battery, 24+ hour	-	-	-	-	-	272	88	-	-	-	-	-	7	79	33	934	102	210	397	192	353	2,667
Potential Solar Acceleration[2]				*794*		*(794)*																

- Resource additions are shown in the first full year of operation.
- In the top row, the nuclear resource is considered a system resource of which Oregon has a share.
- The bottom row shows the potential to accelerate new resources to achieve lower emissions ahead of the 2030 compliance.
- 479 MW of wind were incorrectly shown as allocated to Oregon in 2030 in the 2025 IRP

2025 IRP – Oregon Small Scale Renewables (SSRs)

HB2021 SSR Amendments:

1. Postpones compliance until 2030
2. Increases SSR requirement from **8%** to **10%** of PacifiCorp's aggregate electrical capacity
3. SSRs are now designed to be enforceable, whereas previously they were a goal

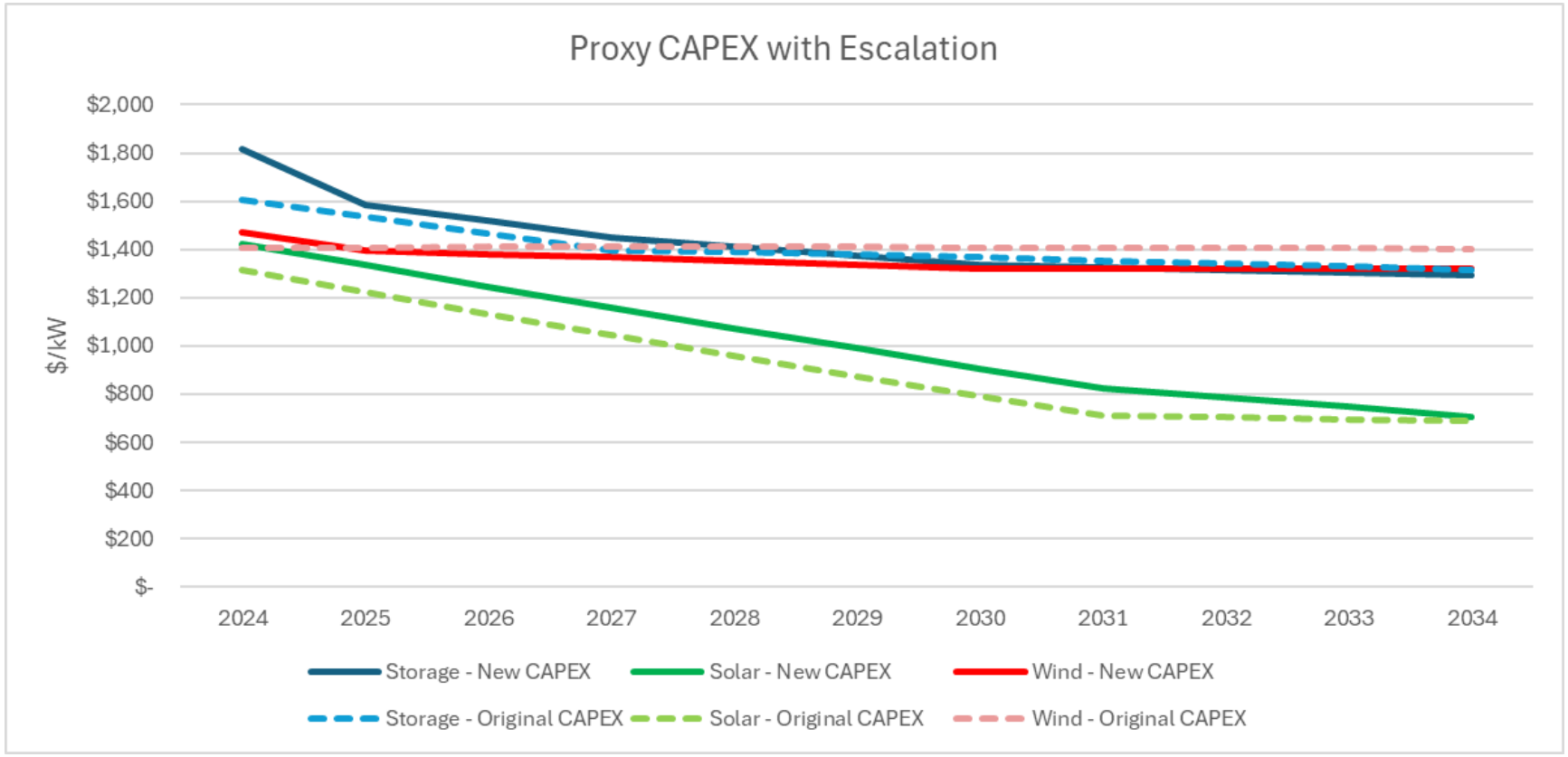
Oregon Small-Scale 2030	Nameplate (MW)	Credit (Requirement MW)	Notes
Existing Resources			
All Resources	3784	(378)	Small-scale requirement is 10% of existing nameplate
Small-Scale	403	403	Existing small-scale eligible resources
Surplus (Need)	27	25	Excess existing small-scale resources*
Existing Resources + Incremental Proxy Resources			
All Resources	6754	(675)	Small-scale requirement is 10% of total nameplate
Small-Scale	723	723	Total small-scale eligible resources
Surplus (Need)	53	48	Excess small-scale resources*

PacifiCorp estimates the additional need for SSRs to be 272 MW of small-scale proxy resources to meet the target of 675MW

Modeling Enhancements

- Escalation Rates
  - Updated escalation rates for proxy resources to correct the start year
- Production Tax Credit (PTC) Adjustment
  - Using levelized PTCs to avoid over-valuing credits over the time horizon
- Energy Efficiency (EE) Reserve Credit
  - Updated EE reserve credit to address error causing “free” reserves
- Chehalis Climate Commitment Act (CCA) Cap-And-Invest Price
  - Updated to reflect most recent auction price of $50/metric ton of greenhouse gas emissions
- March 2025 Price Curve
  - Update price-policy scenarios from September 2024 values to March 2025 values
- Department of Environmental Quality (ODEQ) Emissions Factors
  - Updated emissions factors for Oregon coal-to-natural gas converted units to reflect Oregon Department of Environmental Quality (ODEQ) approved factors

Modeling Updates: Escalation Rate Adjustment



- In the 2025 IRP, escalation rates for proxy resources started in 2025 but should have been applied from the earliest commercial operation year.
- New escalation rates used in the 2025 CEP have less than a 10% impact on proxy resource capital expenditure (CAPEX) costs
- The impact on total resource costs is smaller as other cost inputs such as fixed operations and maintenance (FOM) expense were unaffected.

2025 Clean Energy Plan Modeling

PACIFICORP | Pacific Power | Rocky Mountain Power

2025 CEP Methodology

- The 2025 CEP re-optimizes resource selections for Oregon only, and the portfolio is re-dispatched for the whole system
  - Washington and Utah-Idaho-Wyoming-California (UIWC) resource selections from the 2025 IRP are locked in every run
    - All thermal resource selections from the 2025 IRP are locked in every run
- Compliance with HB 2021 annual emissions reduction targets, Western Resource Adequacy Program (WRAP), and small-scale requirement for Oregon are modeled
  - The 2025 CEP Preliminary Draft HB 2021 portfolio assumes access to a “clean market” to achieve compliance
  - A portfolio that does not include a “clean market” will be included in the final 2025 CEP filing

2025 CEP Sensitivities

- Counterfactual without HB 2021 compliance
- Counterfactual without small-scale renewables target
- CBRE valuation study
  - Includes 20 MW of CBRE hydro and 80 MW of CBRE solar
- Maximum customer benefit
  - Oregon in-state resources only with 200% OR DSM potential and no transmission
- In-state only
  - Allows transmission and includes 20% cost decrease for OR DSM
- Accelerated clean energy resources
- With and without HB 2021 compliance portfolios re-dispatched without new production/investment tax credits for proxy resources

2025 CEP Portfolio Updates

This table compares the 2025 CEP Preliminary Draft Portfolio with the filed 2025 IRP preferred portfolio – both portfolios meet annual HB 2021 greenhouse gas reductions goals. Values are shown as **deltas**

Positive values indicate years in which the 2025 CEP Preliminary portfolio selected more MWs of a resource while a (negative) value indicates years in which the 2025 IRP preferred portfolio selected more MWs of a resource

25 CEP Preliminary Less 25 IRP Preferred Portfolio

Resource	Installed Capacity, MW																				
	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	Total
Nuclear	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Renewable Peaking	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(19)	-	(4)	-	(18)	(40)
Renewable - Wind	-	-	-	(5)	(305)	1,190	165	127	172	52	(260)	(29)	(130)	(28)	(0)	(282)	(38)	-	(15)	-	78	213
Renewable - Utility Solar	-	-	-	(165)	(135)	(854)	(136)	(180)	(302)	(78)	221	243	266	265	(158)	167	(9)	-	33	(44)	(56)	(922)
Renewable - Small Scale Solar	-	-	-	-	-	(45)	(2)	(4)	(7)	(3)	(4)	(105)	29	(247)	-	23	147	154	84	(125)	(10)	(115)
Renewable - Battery, < 8 hour	-	-	(2)	(95)	(99)	300	-	(119)	(4)	(210)	5	28	137	99	114	294	125	266	241	(0)	0	1,080
Renewable - Battery, 24+ hour	-	-	-	-	-	14	(88)	(0)	0	8	0	2	(7)	(79)	(33)	(112)	(103)	(205)	(269)	(16)	(178)	(1,064)

Between 2025 and 2034:

- The 2025 CEP Preliminary portfolio builds **fewer** utility-scale resources and builds more wind rather than solar resources.
- The CEP preliminary portfolio also builds **fewer** storage resources.

Between 2035 and 2045:

- the 2025 CEP preliminary portfolio builds **more** utility-scale resources, including relatively more solar
- The CEP preliminary portfolio shifts toward shorter-duration batteries and builds somewhat **more** storage overall.

Overall, the 2025 CEP portfolio pushes resource procurement out into the back 10 years, though overall does include ~800 MWs fewer new resource selections (mostly less small-scale resource selections and utility-scale solar)

2025 CEP Portfolio Driven by HB 2021 Compliance

This table compares the 2025 CEP Preliminary Draft Portfolio with a 2025 CEP portfolio that is not optimized to meet HB 2021 greenhouse gas reductions; values are shown as **deltas**

Positive values indicate years in which the 2025 CEP Preliminary portfolio selected more MWs of a resource while a (negative) value indicates years in which the No HB 2021 portfolio selected more MWs of a resource

25 CEP Less No HB 2021

	Installed Capacity, MW																				
Resource	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	Total
Renewable - Wind	-	-	-	-	139	378	122	45	141	73	-	-	-	-	-	-	-	-	-	-	151	1,049
Renewable - Utility Solar	-	-	-	2	-	415	-	-	(107)	(34)	64	75	65	44	78	245	-	-	(31)	52	(118)	750
Renewable - Small Scale Solar	-	-	-	-	-	122	(5)	5	4	4	7	8	7	37	(23)	(173)	37	36	55	-	-	121
Renewable - Battery, < 8 hour	-	-	-	-	-	(145)	(8)	-	(20)	(48)	(9)	(12)	(8)	(8)	(5)	125	116	266	241	(47)	-	438
Renewable - Battery, 24+ hour	-	-	-	-	-	48	-	-	-	7	-	2	-	-	-	(105)	(91)	(203)	(176)	44	23	(451)

Between 2025 and 2034:

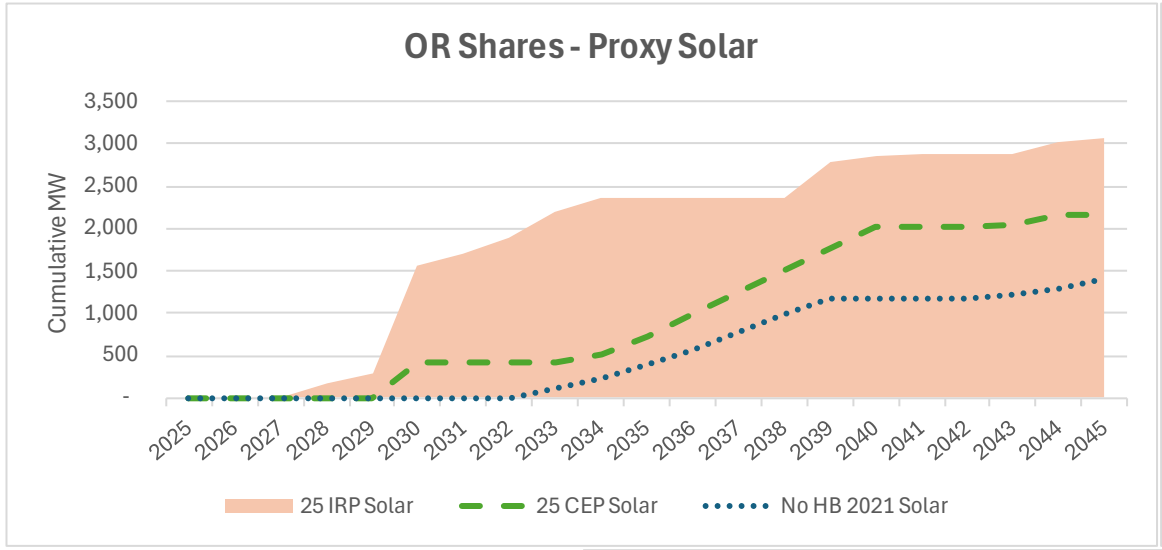
- The 2025 CEP preliminary portfolio selects over 1,100 MWs **more** resources, including mostly additional utility-scale wind, a little bit more utility-scale solar that is also accelerated to 2030, and additional small-scale solar
- On the other side, the No-HB 2021 portfolio selects around 166 MW **more** of batteries to meet capacity needs

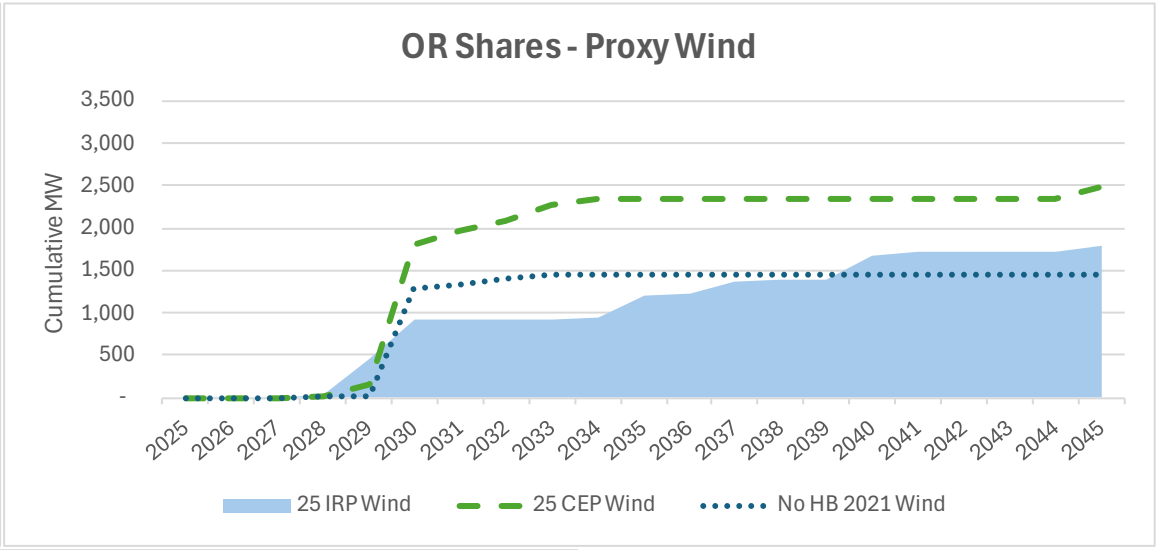
Between 2035 and 2045:

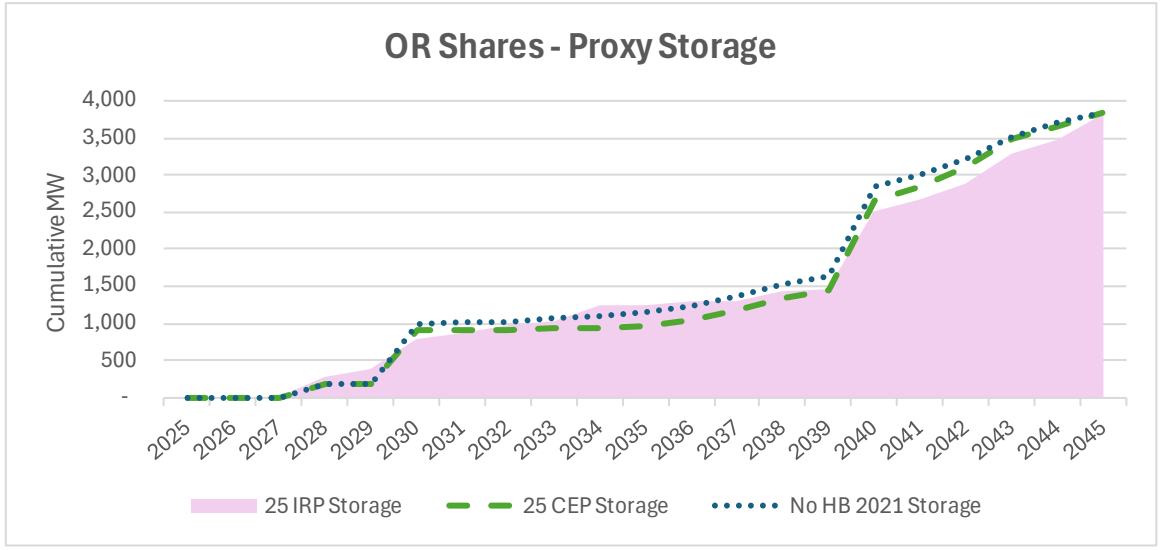
- The 2025 CEP preliminary portfolio selects 625 MWs **more** of utility-scale wind and solar and 153 MWs more of batteries in the out-years

Overall, with the inclusion of the HB 2021 greenhouse gas emissions reductions goals, the **2025 CEP portfolio includes nearly 2 gigawatts (GWs) more resources**, mostly comprised of additional utility-scale renewables and some additional small-scale renewables to meet the additional capacity need relative to the SSR target; with the inclusion of HB 2021 the model selects slightly less batteries but mostly just sees a change in timing of resource selections across the horizon

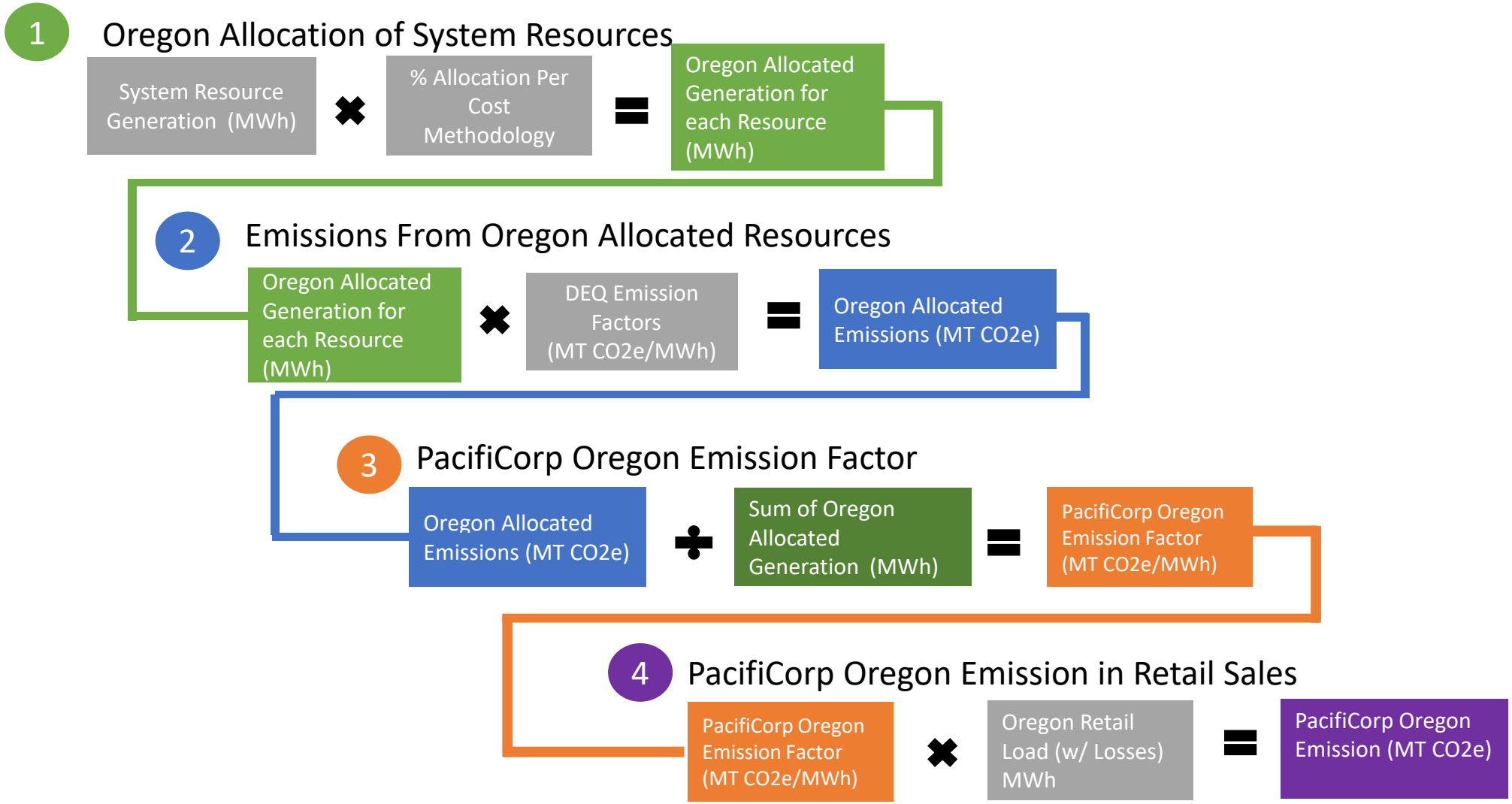
2025 CEP Portfolio Updates







Stepping through the ODEQ Methodology



HB 2021 Compliance Calculation

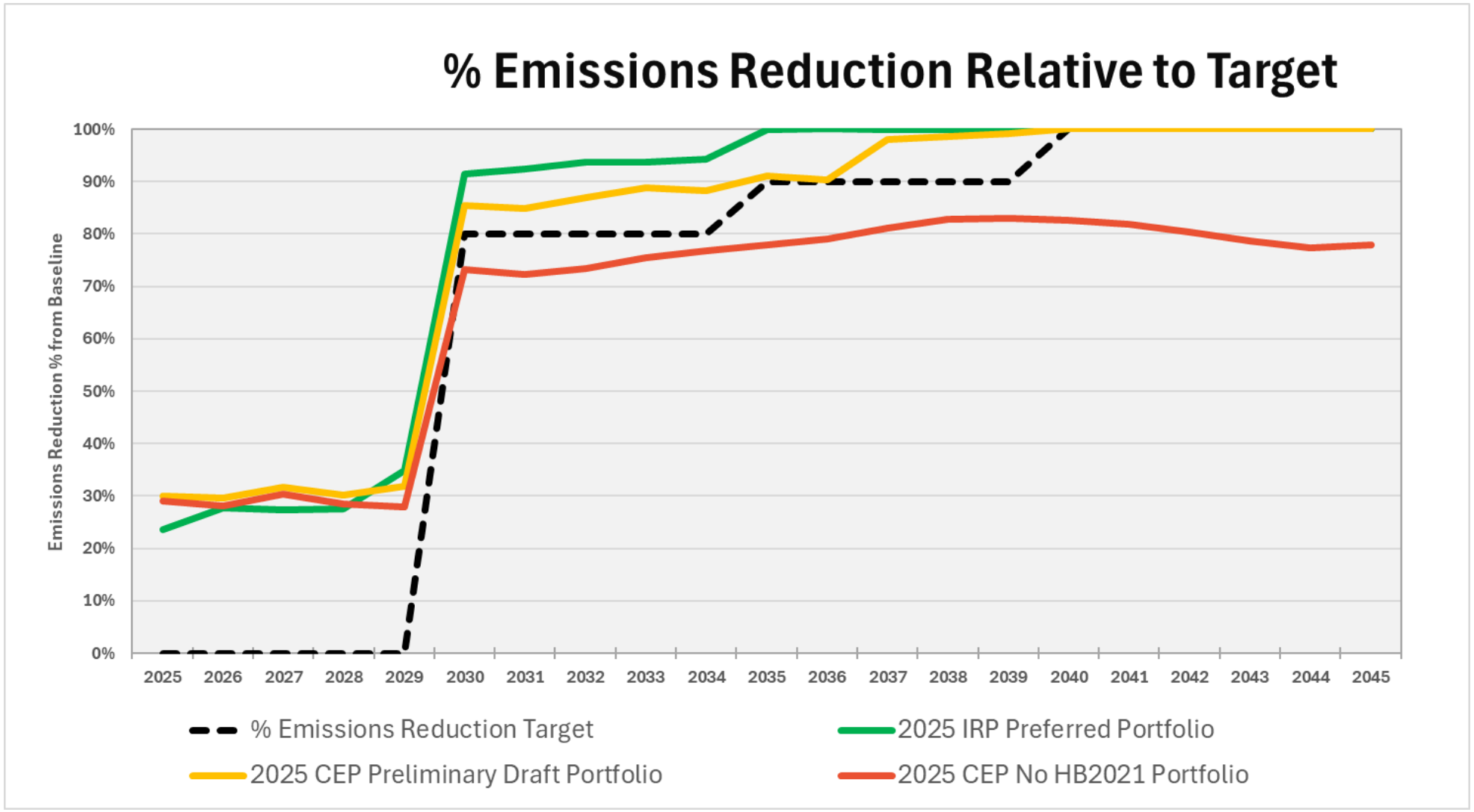
Using the preliminary draft CEP preferred portfolio, this is a step-through of annual compliance in accordance with the ODEQ methodology for the years 2030 and 2036

2030	Emissions (a)	Energy (b)	Rate (c) = (a) / (b)	Reduction
Category	**MT CO_2e (000s)**	**GWh**	**MT CO_2e / MWh**	**%**
Coal	0	0	0.000	
Coal to Gas Conversion	64	100	0.637	
Natural Gas	583	1,488	0.392	
Existing	0	5,788	0.000	
Proxy	0	5,929	0.000	
Sub-total	***647***	***13,305***	***0.049***	
Market (System)	786	1,837	0.428	
Market (OR Energy Shortfall)	0	0	0.000	
Total	**1,433**	**15,142**	**0.095**	
Retail Sales w/ 2% Losses	**1,400** ←	**14,794** ←	**0.095**	84.4%
2030 Target 80% Reduction	1,799		**0.122**	80.0%

2036	Emissions (a)	Energy (b)	Rate (c) = (a) / (b)	Reduction
Category	**MT CO_2e (000s)**	**GWh**	**MT CO_2e / MWh**	**%**
Coal	0	0	0.000	
Coal to Gas Conversion	0	0	0.000	
Natural Gas	197	504	0.392	
Existing	0	5,232	0.000	
Proxy	0	9,249	0.000	
Sub-total	***197***	***14,985***	***0.013***	
Market (System)	842	1,968	0.428	
Market (OR Energy Shortfall)	0	0	0.000	
Total	**1,040**	**16,954**	**0.061**	
Retail Sales w/ 2% Losses	**920** ←	**15,000** ←	**0.061**	89.8%
2036 Target 92% Reduction	720		**0.048**	92.0%

In 2030, natural gas makes up 10% of Oregon resources, while market purchases are another 12%. Total emissions are slightly below the target.

In 2036, Oregon's natural gas resources are limited based on emissions requirements and fall to 3%. System market purchases can't reflect Oregon emission requirements, and remain at 12%, exceeding the target on their own.

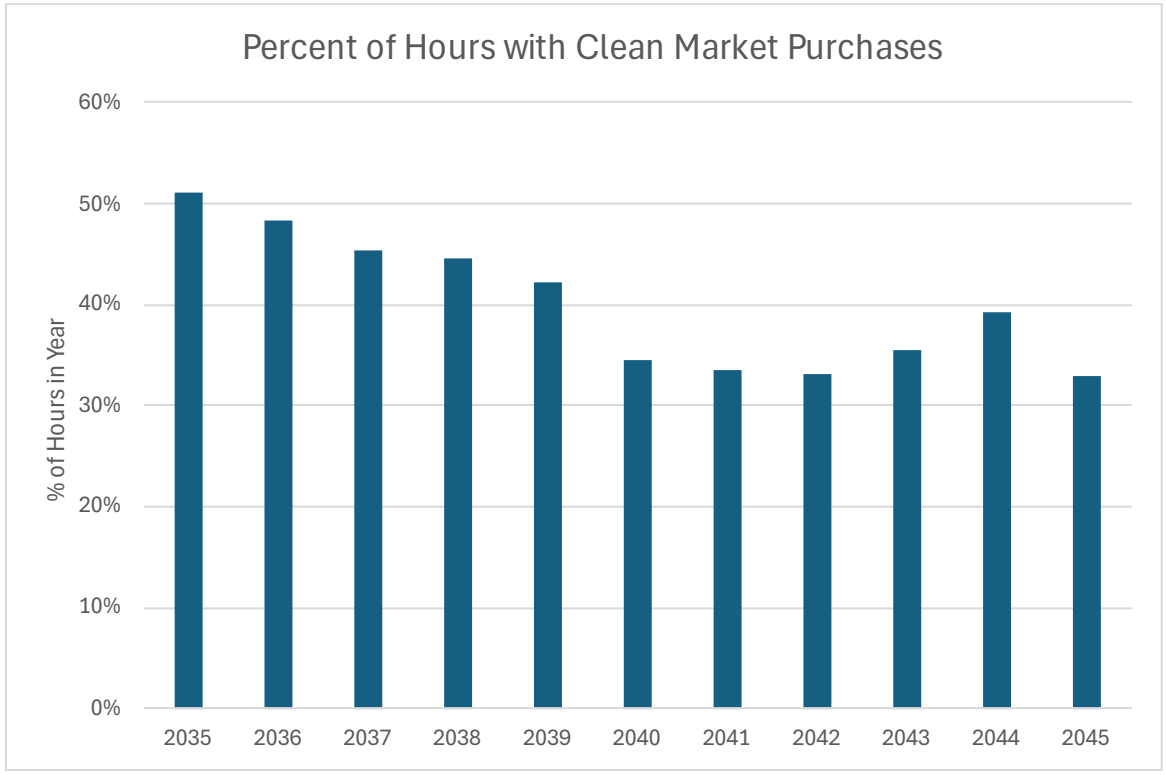

% Emissions Reduction Relative to Target
Emissions Reduction % from Baseline
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
2025
2026
2027
2028
2029
2030
2031
2032
2033
2034
2035
2036
2037
2038
2039
2040
2041
2042
2043
2044
2045
% Emissions Reduction Target
2025 IRP Preferred Portfolio
2025 CEP Preliminary Draft Portfolio
2025 CEP No HB2021 Portfolio

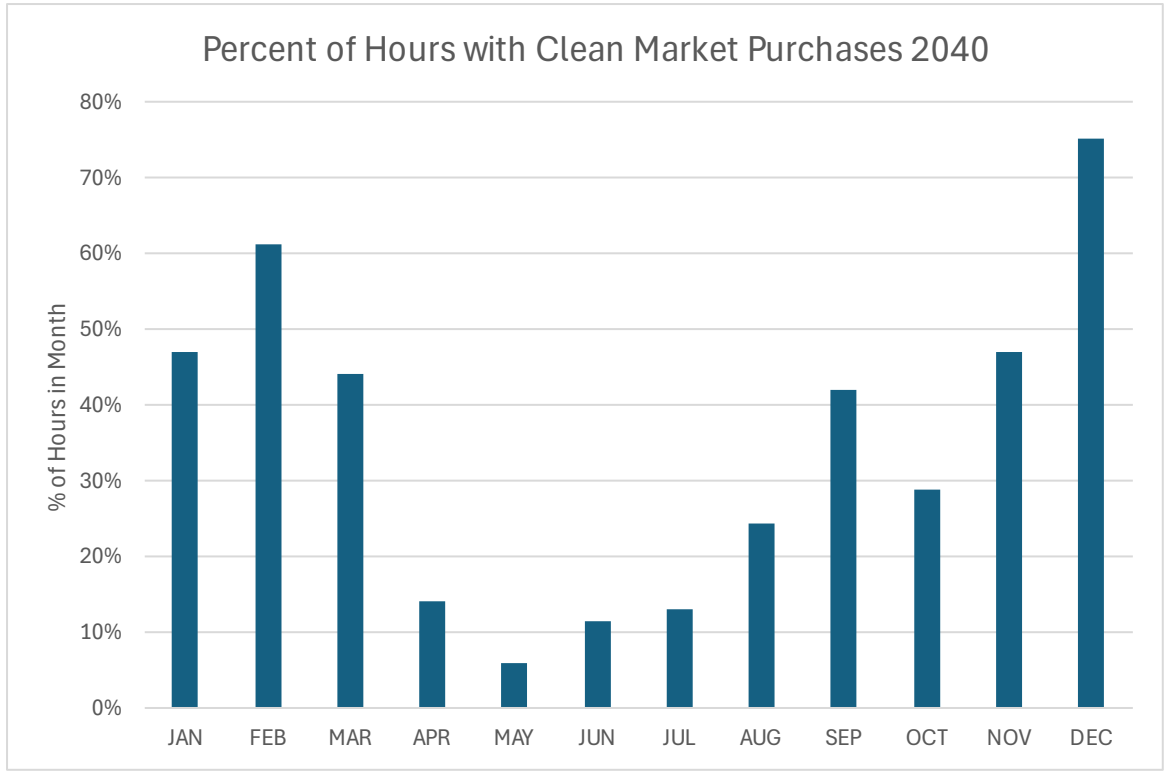
Annual vs. Hourly Compliance

- The 2025 IRP preferred portfolio and the current draft preliminary CEP portfolio present a least-cost path to HB 2021 compliance under the assumption that Oregon customers will have access to a “green” or non-emitting (or low-emitting) market either by 2040 or potentially a few years earlier
  - Per the DEQ methodology, HB 2021 compliance is demonstrated on an annual basis as described in the prior two slides
  - The optimized portfolios meet HB 2021 compliance on an annual basis
  - However, while an “hourly clean” view is not required by the rule, it would be required in actual operations in any hours where market purchases are used to meet load because owned/contracted resources are not sufficient (existing clean and emitting resources, before 2040, only clean after 2040)
  - In 2035 and onwards, it is not possible to be hourly balanced at all times with only the draft preliminary CEP portfolio resources, implying some reliance on market purchases – there are two options:
    1. Gain access to a “clean market” (with no emissions, likely with a higher cost)
    2. Build resources to meet all load in all hours (at a significant incremental cost)

CEP Preliminary Draft Compliant Portfolio Clean Market Analysis

- The preliminary draft CEP portfolio achieves annual compliance consistent with the current Oregon DEQ methodology but has many individual hours in which Oregon's load is higher than its resource allocation. Access to a clean market or additional resources would be required.





BREAK

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Community Benefits and Impacts

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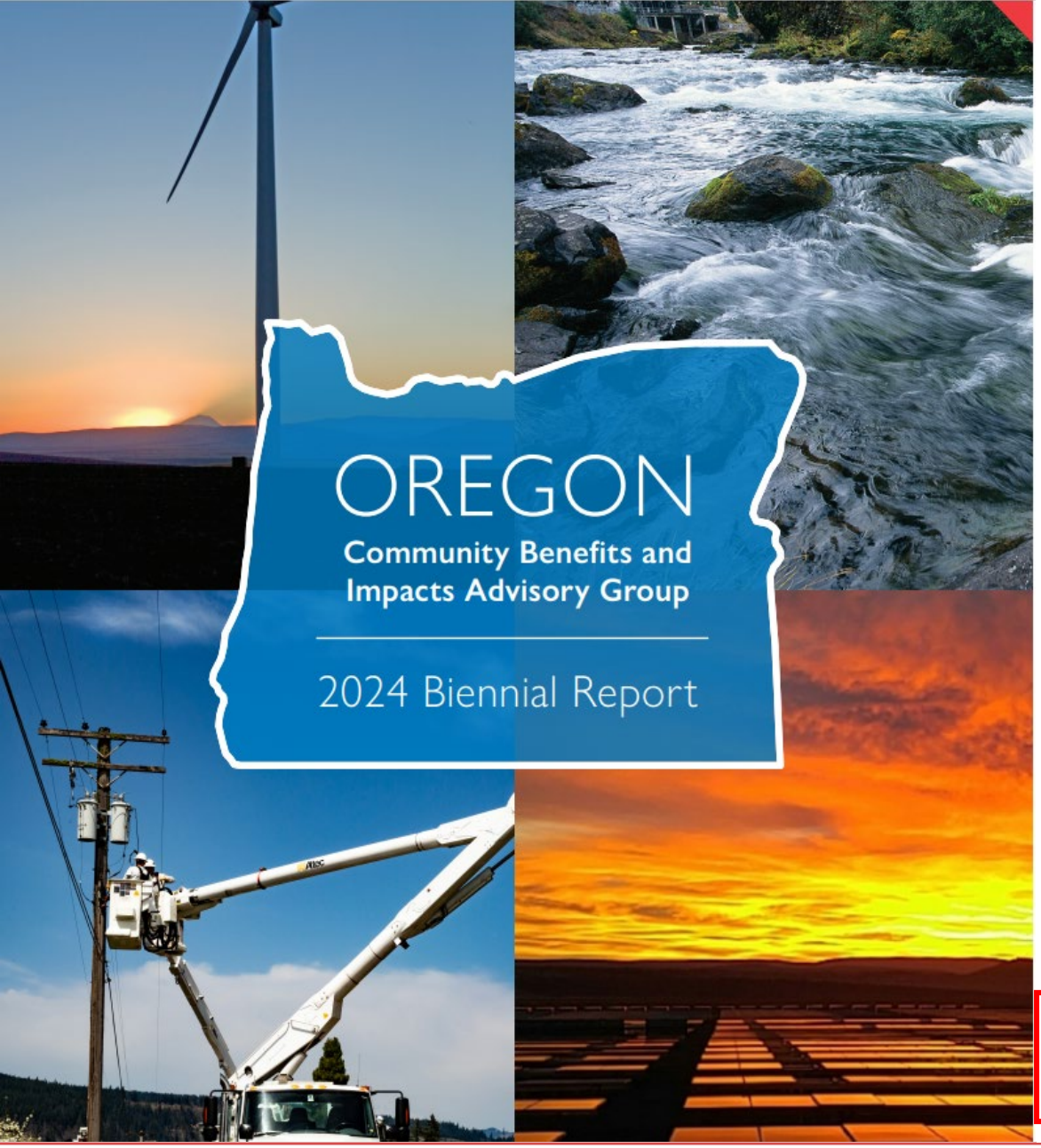
2024 Biennial Report



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Public Participation and Advisory Group Meetings

[Community Benefits and Impacts Advisory Group Web Page]

The following provides a 2025 meeting schedule, subject to change:

1/16/2025	1:00-4:00 p.m. PT; January CBIAG meeting (slides and notes)
3/20/2025	1:00-4:00 p.m. PT; March CBIAG meeting (slides and notes)
4/17/2025	1:00-4:00 p.m. PT; April CBIAG meeting (slides and notes)
6/19/2025	1:00-4:00 p.m. PT; June CBIAG meeting
7/17/2025	1:00-4:00 p.m. PT; July CBIAG meeting
9/18/2025	1:00-4:00 p.m. PT; September CBIAG meeting
10/16/2025	1:00-4:00 p.m. PT; October CBIAG meeting
12/18/2025	1:00-4:00 p.m. PT; December CBIAG meeting

Biennial Report

2024 Community Benefits Biennial Report

Section 6 Key Considerations

Each section must:

- Describe the topic with additional context and clarity
- Outline relevant public processes
- Is the topic covered by existing CBIs? If so, how?
  - If not, where can CBIs be advanced to fully cover the topic?
- Identify next steps, actions, and impacts

Oregon engagement spaces:

Community Benefits and Impacts Advisory Group (CBIAG)	Tribal Nations Community Benefits & Impacts Advisory Group (Tribal CBIAG)
Energy Advocates Meetings	Clean Energy Plan Engagement Series

Feedback Areas

Identify the most important aspects to include in the community summaries	Help to tell the story of the Community Benefits and Impacts Advisory Group and member perspectives.
Provide feedback on CBI-related information such as approach, methodology, etc.	Shape some of the key stories related to next steps and areas the CBIAG wants to further explore

Feedback

Feedback Received:

- Input received on the development of the low-income discount survey:
- Increase program awareness by distributing flyers in senior and disability service centers, doing additional bill inserts, and creating incentives and materials for referrals from friends
- Offer resources to participants with children to reduce energy use
- Update marketing materials to include customers in community that participate in the program
- Initiate stakeholder engagements for development of Energy Burden Assessment (EBA) metrics
- Coordinate EBA metrics with other utilities across the state of Oregon
- Provide results of EBA to OPUC staff no later than October 2024

Feedback Impacts:

- Low-income discount survey and program distribution methods adapted from input
- Expanded outreach to include additional postcards, emails, and the use of social media channels
- Modified residential survey approach to include both email and phone to capture customers that do not have an email on file with the Pacific Power

Feedback

Feedback Received:

- PacifiCorp might contact long-term recovery groups to help identify resilience hubs currently in development, leverage local jurisdictions' emergency management planning and the Oregon Office of Resilience and Emergency Management's resilience hub grant advancement.
- Possible metrics used to track CBRE advancement as well as metrics to incorporate into the Company's resilience evaluation approach.

Feedback Impacts:

- The Company will use resilience metrics to prioritize early outreach to vulnerable communities identified using resilience metrics and will include the suggestion to consider the enhancement of resilience at National Shelter Sites identified by the Federal Emergency Management Agency.
- In addition, the Company will leverage local engagement during Distribution System Planning activities to outline CBRE-RH Pilot opportunities.

Feedback

Feedback Received:

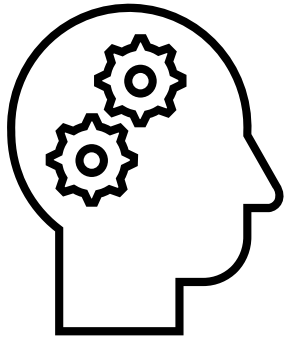
- Customers indicated the need for communications translations in languages other than Spanish to promote more engagement and interaction.
- Psychological Safety and the perceived importance of consistent representation by CBIAG Members
- Continuing the pre-reads and creating other resources/collateral is crucial to encouraging input
- Emphasis on impacts and the ‘story’ they tell

Feedback Impacts:

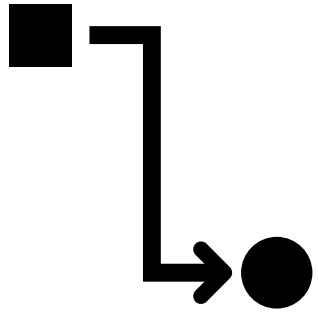
- Expansion of Communication Channels for Spanish-Language Outreach
- Conducting a "who is in the room" walk through at the start of each meeting.
- Sharing information in advance the meetings as well as closing the loop in every meeting to help table set and orient the participants in the space.

Next Steps

Continue to develop meeting agendas which support input opportunities related to Community benefits and Impacts of the electric company



Establish clear roadmaps with benchmarks toward the 2026 Biennial Report filing



Learn from feedback and continue to co-develop

An Environmental Justice Framework

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Setting the Stage

Why Build an Environmental Justice Framework?

Building an Environmental Justice (EJ) framework that geographically identifies vulnerable communities in our service territory is essential to ensure that the benefits of the transition to clean energy are distributed equitably.

An EJ framework can support the company's effort to:

- Address historic inequities.
- Promote fair access to the benefits of the transition to clean energy.
- Strengthen community trust and engagement.
- Deliver customer support programs in a way that is more targeted, efficient and impactful.
- Meet regulatory requirements.
- Support long-term community resilience.

Setting the Stage

What is an Environmental Justice (EJ) Community?

Section One of HB 2021 defines Environmental Justice Communities as: “communities of color, communities experiencing lower incomes, tribal communities, rural communities, coastal communities, communities with limited infrastructure and other communities traditionally underrepresented in public processes and adversely harmed by environmental and health hazards, including seniors, youth and persons with disabilities.”

The importance of narrowing down definition(s)

- A **lack of precision** can make any framework challenging to operationalize.
- Having **clear objectives** makes it easier to outline what success will look like.
- Really understanding **what it means** to be an EJ community will:
  - Help us **get the most out of our community investments**.
  - Improve **collaboration** between all stakeholders.
  - Sets the stage for **measuring success**.

Being able to geographically identify an Environmental Justice (EJ) community is also the cornerstone of building an effective CBI framework.

Dimensions of an Environmental Justice Framework

Socioeconomic	Health	Housing & Infrastructure	Demographics	Weather & Climate
• Greater exposure to hazards • Limited Resources • Health Vulnerability • Reduced Political Power • Barriers to Adaptation of Clean Energy • Compounded Burdens	• Increased sensitivity to pollutants • Higher morbidity • Less Resilience to Emergencies • Limited Access to Healthcare	• Location • Substandard Housing • Barriers to Energy Efficiency • Poor/ Aging Infrastructure • Barriers to Clean Energy Adaptation • Internet Access • Access to Emergency Services or Egress	• Race/ Ethnicity • Age • Disability Status • Language and Immigration Status • Rurality • Tribal Land	• Unequal Exposure to Climate Risks • Limited Adaptive Capacity • High Energy Burden • Intensified Health Disparities • Displacement and Housing Insecurity • Infrastructure Strain

Data Sources and Justification for Using

American Community Survey (ACS)

- ✓ Households and group quarters are subdivided into strata.
- ✓ Samples from each strata are selected at random to ensure that they truly represent geographic areas and populations.
- ✓ Weighting techniques also account for sampling error (under/ over-coverage), nonresponse, and alignment with known population controls, like the decennial Census.
- ✓ Published data are also accompanied by margins of error and reflect the statistical standard of a 95% confidence interval.
- ✓ ACS data is widely used and trusted by federal agencies, state and local governments, academic researchers, and businesses.

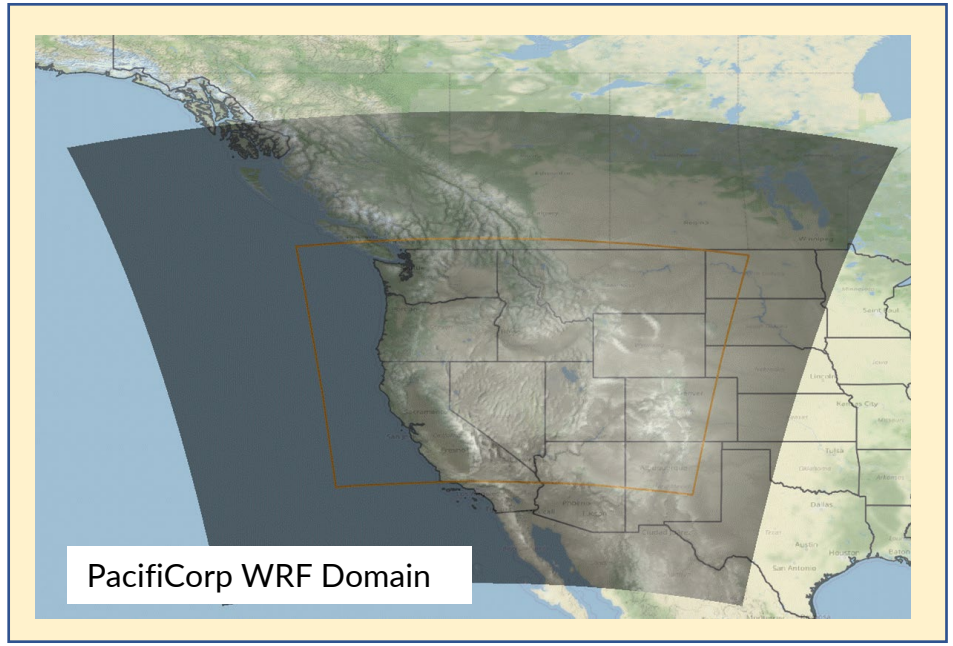
CDC PLACES

- ✓ PLACES is built on data from the Behavioral Risk Factor Surveillance System (BRFSS) — the largest continuously conducted health survey system in the world.
- ✓ The data is updated annually, which keeps it relevant and allows for tracking trends over time. Consistency in the methodology across years also makes comparability easier.
- ✓ The PLACES methodology has been peer-reviewed and published in scientific journals. It is widely used and trusted by public health professionals, universities, and policymakers.

Data Sources and Justification for Using

PacifiCorp's 30-Year Historic Weather Research Forecast (WRF) Model

- ✓ Pacific Power uses a twice-daily, 2-km resolution WRF model that covers its six-state service area and much of the Western U.S.
- ✓ WRF contains comprehensive set of high resolution (2-kilometer) weather data that provides:
  - ✓ Atmospheric conditions
  - ✓ Fire weather variables (hot-dry-windy index) and
  - ✓ NFDRS (National Fire Danger Rating System) parameters.
- ✓ In addition to its twice-daily operational WRF, the meteorology department also maintains a companion **30-year historic WRF**.
- ✓ The 30-year historic WRF contains **the same parameters** as the operational WRF.
- ✓ It enables in-depth analysis of historic weather trends that support company-wide:
  - ✓ Long-term planning and
  - ✓ Risk-informed decision-making.


PacifiCorp WRF Domain

Socio-Economic

Variable	Justification for Including
Agricultural Workers	• Workers earn low wages, have unstable employment, and lack access to benefits. • The work is often physically demanding and can even become dangerous in periods of extreme heat. • Workers may also live in substandard or temporary housing with poor insulation and inadequate heating/ cooling.
SNAP Particpation	• SNAP participation is often used as a proxy for economic hardship. • It can be reflective of income, limited access to enough/ nutritious food and eligibility for other social services (Medicaid, energy assistance, etc.)

No Health Insurance	• Not having health insurance is linked to:
	  • Limited access to healthcare
	  • Higher rates of preventable illness and death
	  • Greater financial risk from high out of pocket medical costs.

Below Poverty Level	• Households living in poverty spend a higher portion of their income on utilities and are at greater risk of disconnection. • Housing in low-income areas tends to be older, less efficient and less suitable for weatherization, which can also make it more susceptible to extreme temperatures.

Single Parents	• Single parents, and mothers in particular, often have lower-income. This can lead to:
	  • Increased vulnerability to economic shock (job less, illness, emergencies).
	  • Higher stress and susceptibility to mental illness (depression and anxiety).
	  • Lower access to healthcare and childcare.
	  • Housing instability and less flexibility for employment.

Socio-Economic (Cont.)

Variable	Justification for Including
Education <=12th Grade (No Diploma)	• Lower education is linked to lower income, job instability, and fewer job benefits. • Higher education is associated with better health. • Education affects access to clean energy programs and the ability to benefit from energy savings. • Limited education can block participation in the clean energy economy.
Unemployment	• Unemployed households face greater economic stress. • They bear a **higher energy burden**. • More likely to live in **inefficient, outdated housing**. • Often excluded from incentive programs due to upfront costs.

Energy Burden >6%	• Climate change is causing more extreme temperatures.
	• Households and individuals must adapt to protect health and well-being. This includes:
	  • Maintaining safe and comfortable indoor temperatures.
	  • Access to energy-efficient heating and cooling and/ or weatherization.
	• Vulnerable households limiting energy use because of the cost may struggle to adapt.

Fixed Income (Social Security)	• Households and individuals on fixed incomes are:
	  • Often subject to higher energy burden
	  • Less resilient during emergencies
	  • Have limited access to energy efficiency programs (high upfront costs)
	  • May avoid heating and cooling, risking exposure to extreme temperatures.

Households w/out a Vehicle	• Individuals and households with no vehicle may have:
	  • Limited access to jobs, healthcare, and nutritious food
	  • Reduced ability to evacuate in emergencies.
	• Households without a vehicle may also be geographically isolated.

Health

Variable	Justification for Including
Disabled Individuals	• Disabilities often limit involvement in public participation. • Natural disasters and other emergencies can have a more severe impact on individuals with disabilities. • Some disabilities may increase sensitivity to pollutants.
Adults with Asthma	Vulnerable populations have higher rates of respiratory illness, often caused by: • Outdoor pollution from traffic and industry, • Poor indoor air quality
Adults with Coronary Heart Disease	• Cardiovascular mortality is known to be closely linked to extreme temperatures, especially in vulnerable populations.
Adults with Depression	• Depression related to energy insecurity often intersects with other social determinants of health. • These combined challenges are typically more severe in communities of color, rural areas, and historically disinvested neighborhoods.
Adults with Diabetes	• Energy insecurity (unreliable electricity, shutoffs, outages) can compromise medication storage and effectiveness. • "Trade offs“ from energy insecurity may limit the ability to cook healthy meals. • Lack of access to heating or cooling from energy insecurity can make diabetes more difficult to manage.

Housing and Infrastructure

Variable	Justification for Including

Mobile homes	• Mobile homes are:
	  • Often located in low-value areas due to zoning laws
	  • Commonly inhabited by farm workers
	  • Correlated to a lack of land ownership, which can reduce policy influence
	  • Poor construction and inefficiency increase vulnerability during emergencies and increase exposure to air pollution and extreme heat

Houses Built Before 1980	• Older homes often have health/safety issues (e.g., mold, asbestos, leaks) that must be fixed before retrofits. • Existing programs may lack funding or authority to address these issues. • Homes with unresolved issues are often deferred or excluded from energy efficiency upgrades. • Heating and cooling older houses can also be more expensive than newer, more efficient housing.

Housing with Incomplete Plumbing or Kitchen Facilities	• Housing without complete plumbing or kitchen facilities is an indicator of vulnerability because it reflects poor living conditions and limited ability to meet basic needs. This can result in:
	  • Increased sanitation and health risks
	  • Food insecurity.
	• Homes without complete kitchen or plumbing are frequently in disrepair and ineligible for weatherization and energy efficiency programs.

Housing >1 Occupant Per Room	• Housing with more than one occupant per room indicates:
	  • Economic hardship
	  • Increased risk infectious disease spread, chronic stress and poor mental health
	  • Poor indoor air quality
	• Overcrowded households may also avoid seeking assistance for fear of eviction and/ or scrutiny from landlords or authorities.

Renter-Occupied Housing	• Individuals and households that rent often:
	  • Lack of control over property upgrades
	  • Have higher energy burden because the housing is older/ more inefficient
	  • Have greater housing instability.
	  • Have limited access to weatherization or energy efficiency programs.
	  • Are less resilient to emergencies or disasters.

Housing and Infrastructure (Cont.)

Variable	Justification for Including
Housing - Bottled, Tank, or LP Gas Fuel	Bottled, tank or LP/ gas fuel • Can be more expensive and sensitive to price fluctuations. • Subject to delivery disruptions (e.g., during emergencies). • Can pose fire or explosion risks. • Are often used in homes that lack access to piped natural gas or electric infrastructure. • Have tanks and related equipment that require upkeep and inspections, which can be cost-prohibitive.
No Telephone	• About 17.7% of Oregon households (1 in 6) lack telephone service • No phone access can limit participation in energy assistance programs and payment plans. • Programs like LIHEAP and shut-off protections require communication to access. • During extreme weather or outages, those without phones may not receive safety updates.
No Internet Access	• Many utilities and service providers are shifting to web-based customer tools. • Nearly 25% of rural residents lack reliable internet access. • Limited internet access can create barriers to communication during emergencies. • Online outreach is often critical during environmental events, leaving those without access at risk.
Multi-Unit Housing >=10 Units	• Shared infrastructure limits control over heating, cooling and ventilation. • Older buildings may lack weatherization, or energy-efficient systems, and tenants often can't make upgrades. • High density can increase exposure to indoor air pollutants or heat. • Emergency evacuations can be more difficult in large or poorly maintained buildings.
Housing Burden >=30%	• Fewer resources for essentials like food, healthcare, and energy. • Higher risk of utility shut-offs, especially during extreme weather. • Limited ability to invest in energy efficiency or home upgrades. • Greater housing instability. • Increased financial stress, which can lead to negative health impacts.

Socio-Demographic

Variable	Justification for Including

Children <17 Years	• Children in energy insecure homes are more likely to:
	  • Experience food insecurity and hospitalization.
	  • Have health rated by caregivers as fair or poor.
	  • Show withdrawn or depressive behaviors or engage in rule-breaking behavior.

Adults > 65 Years	• Older adults often face high energy burdens and may face barriers to accessing assistance. • They are especially vulnerable during extreme heat or cold events, which can worsen chronic illness. • Older adults living alone may also experience social isolation and lack support systems for help or wellness checks.

Foreign Born	• Foreign born individuals often reside in lower cost housing near environmental hazards, are disproportionately exposed to pollutants.
	• They:
	  • Are often overrepresented in in high-risk, low-wage job sectors that offer limited protection from environmental hazards, minimal (if any) benefits and lack job security.
	  • May have higher baseline health risks, lack access to healthcare and fear seeking public resources for fear of deportation.
	  • Are often under-represented in public decision-making and planning processes.

Speak English Less Than Well	• Language barriers can easily compound risk during disasters and other crises because of missed evacuation alerts, hazard notices or other advisories. • Language barriers can also limit individuals' access to healthcare, legal aid and/ or other services, such as bill payment assistance. • Individuals that do not or speak very little English may be underrepresented in community proceedings or other decision-making processes.

Socio-Demographic (contd.)

Variable	Justification for Including

Race/ Ethnicity	• Race is a key factor in energy cost disparities, as communities of color often spend a higher share of their income on household energy. Contributing factors include:
	  • Lower average incomes and housing in under-resourced, energy-inefficient areas
	  • Limited access to clean energy programs due to high upfront costs.
	  • Greater exposure to environmental pollutants and higher rates of chronic health conditions.

Rurality	• Rural communities are especially vulnerable to climate change due to:
	  • Geographic isolation and exposure to climate hazards
	  • Reliance on natural resources for income
	  • Limited infrastructure and adaptive capacity.
	• They also face barriers to clean energy adoption, including:
	  • High upfront costs
	  • Inadequate infrastructure
	  • Limited access to information and programs (e.g., rooftop solar, EVs).

Tribal Land	Tribal communities should be considered environmental justice communities because: • They have a long history of displacement and land loss. • They often face legal barriers that can restrict autonomy over land use and energy development. • Energy Insecurity and higher energy burden tend to be more common in tribal communities.

Weather & Climate

Variable	Justification for Including

Energy Release Component	• It is known that wildfires disproportionately impact vulnerable communities, because:
	  • Vulnerable communities, especially rural communities, have higher geographic risk.
	  • Evacuation resources, like access to a reliable vehicle or a place to stay can make it difficult for vulnerable households and individuals to evacuate safely and bounce back from disasters like wildfire.
	  • Chronic illnesses that can be exacerbated by wildfire smoke tend to be more prevalent in vulnerable communities. Compounded with a lack of access to preventive healthcare, this can result in increased utilization of emergency care.

Temperature	• Measuring fluctuations in temperature, especially at a more granular level like census tracts, can be a powerful indicator of inequality relative to exposure to extreme heat or cold because vulnerable households are:
	  • Less likely to have or use air conditioning or heating to keep their homes at safe temperatures.
	  • More likely to live in housing that is not weatherized and/ or more expensive to heat and cool.

Hot-Dry-Windy Index (HDWI)	• The HDWI combines temperature, humidity and wind speed together to quantify wildfire ignition and spread. When the HDWI is elevated, vulnerable communities can be disproportionately impacted by outages like PSPS because these communities:
	  • Frequently lack resources like backup power.
	  • Have limited egress (e.g., no car).
	  • Are more likely to face greater financial strain from a long duration outage.

The Model

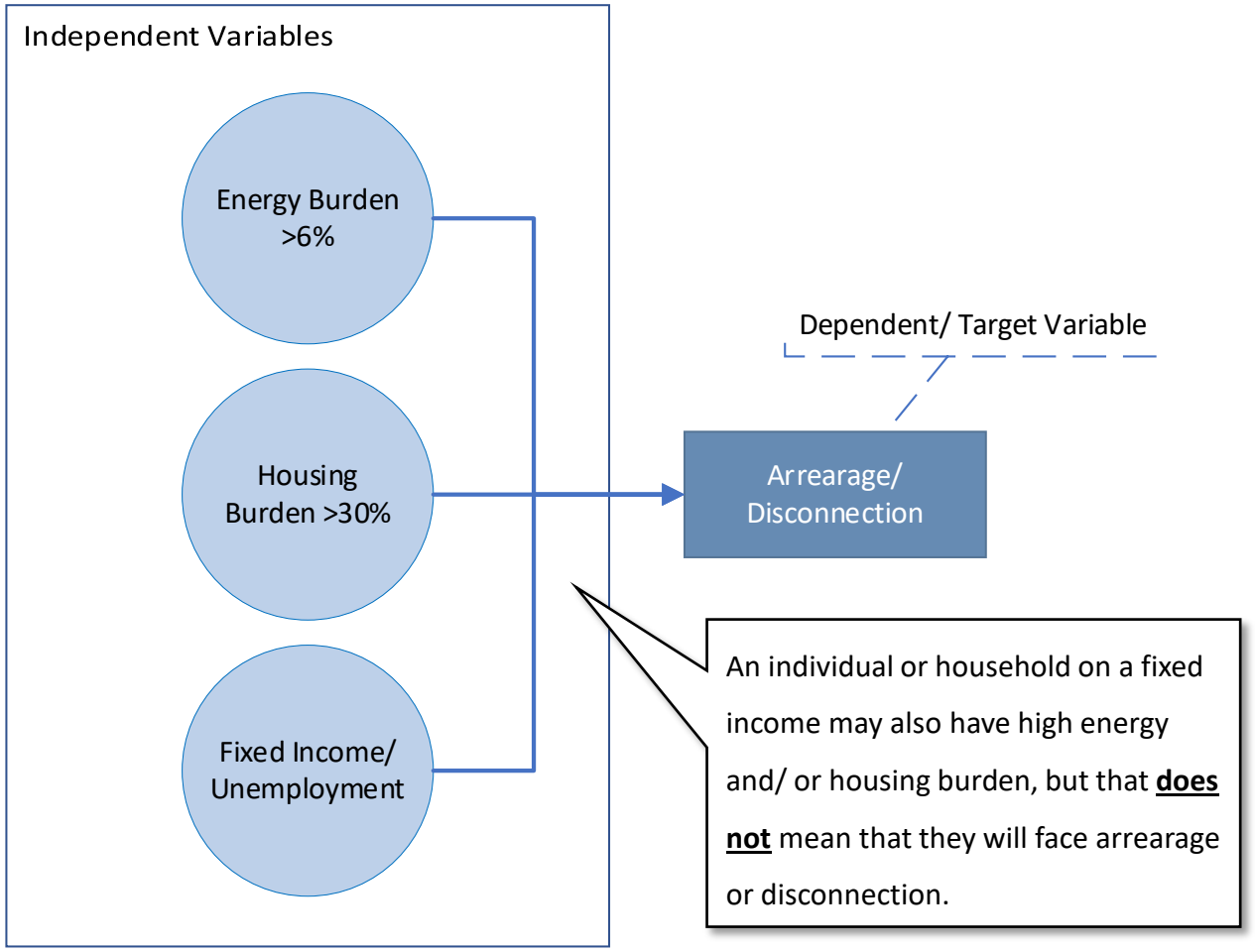
Why Build A Model?

Removes Bias	Handles Redundancy	Simplifies Complexity	Improve Objectivity	Scale Better
• **Avoids** subjective human judgment. • Finds patterns directly from the data.	• Combines highly correlated variables into clearer, unrelated components.	• Reduces many variables **to a few key components** without losing much information.	• Provides results grounded in math – **not** assumptions.	• More efficient for mining large, complex datasets where manual models can fail.

Key Concepts

Variable Types

- Dependent Variables
  - Variables that change when acted upon by other variables.
  - In machine learning, the dependent variable is known as the **target variable**, or outcome.
  - The presence of a dependent variable **does not** imply that there is causation by an independent variable.
- Independent Variables
  - Variables that are not affected by other variables, but that can impact a change in other variables.
  - In machine learning, independent variables are referred to as features, or predictors, or **dimensions**.

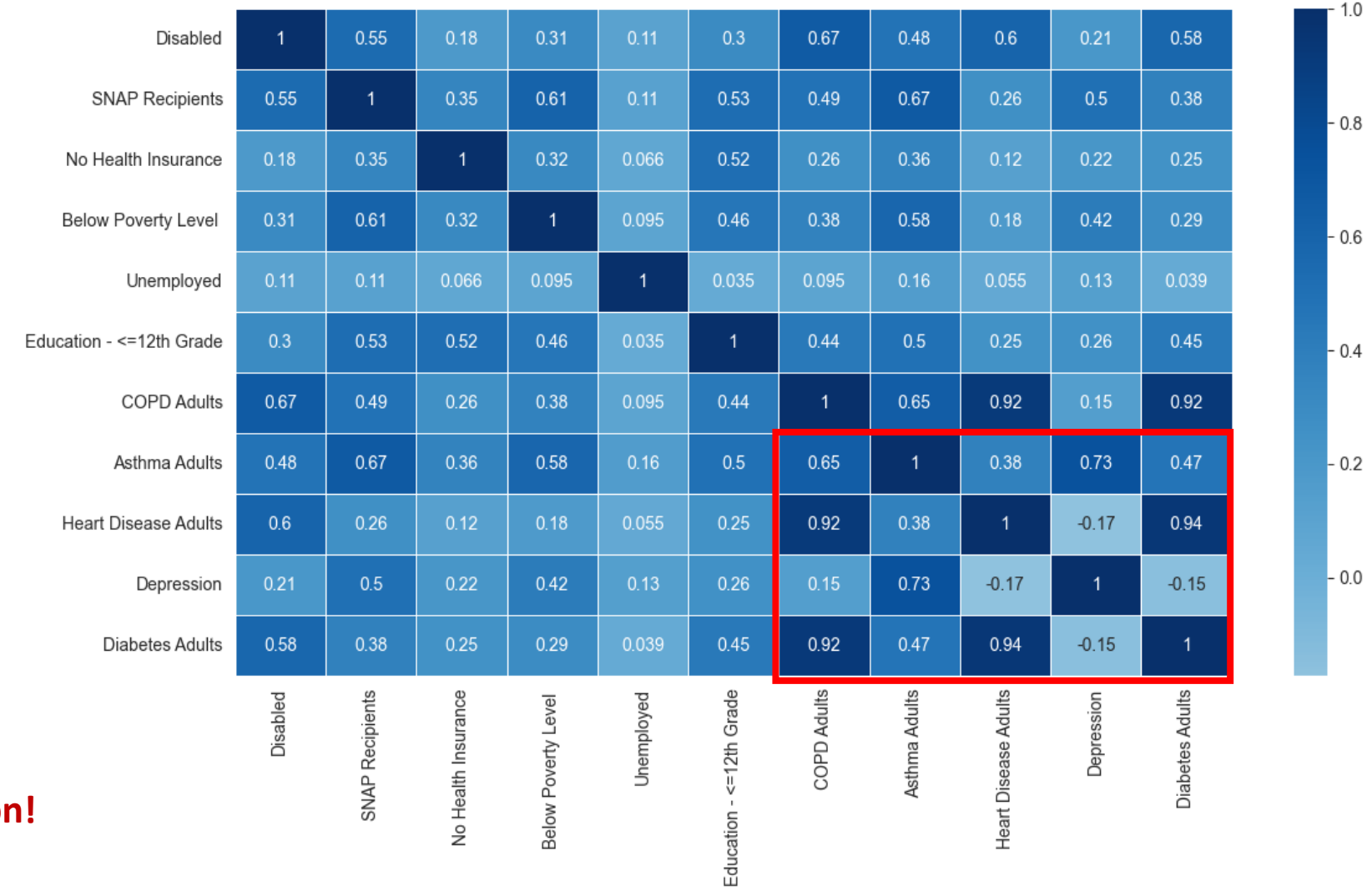


Key Concepts (contd.)

- Correlation
  - A statistical relationship, or association, between one variable and another.
  - Indicates that a change in one variable tends to coincide with another.
  - Represented by values between 1 and -1. Correlations can be positive **or** negative.
    - 0 to +1: Positive correlation
    - 0 to -1: Negative correlation
    - 0: No correlation

- Causation (causal inference)
  - A change in one variable is directly responsible for a change to another.

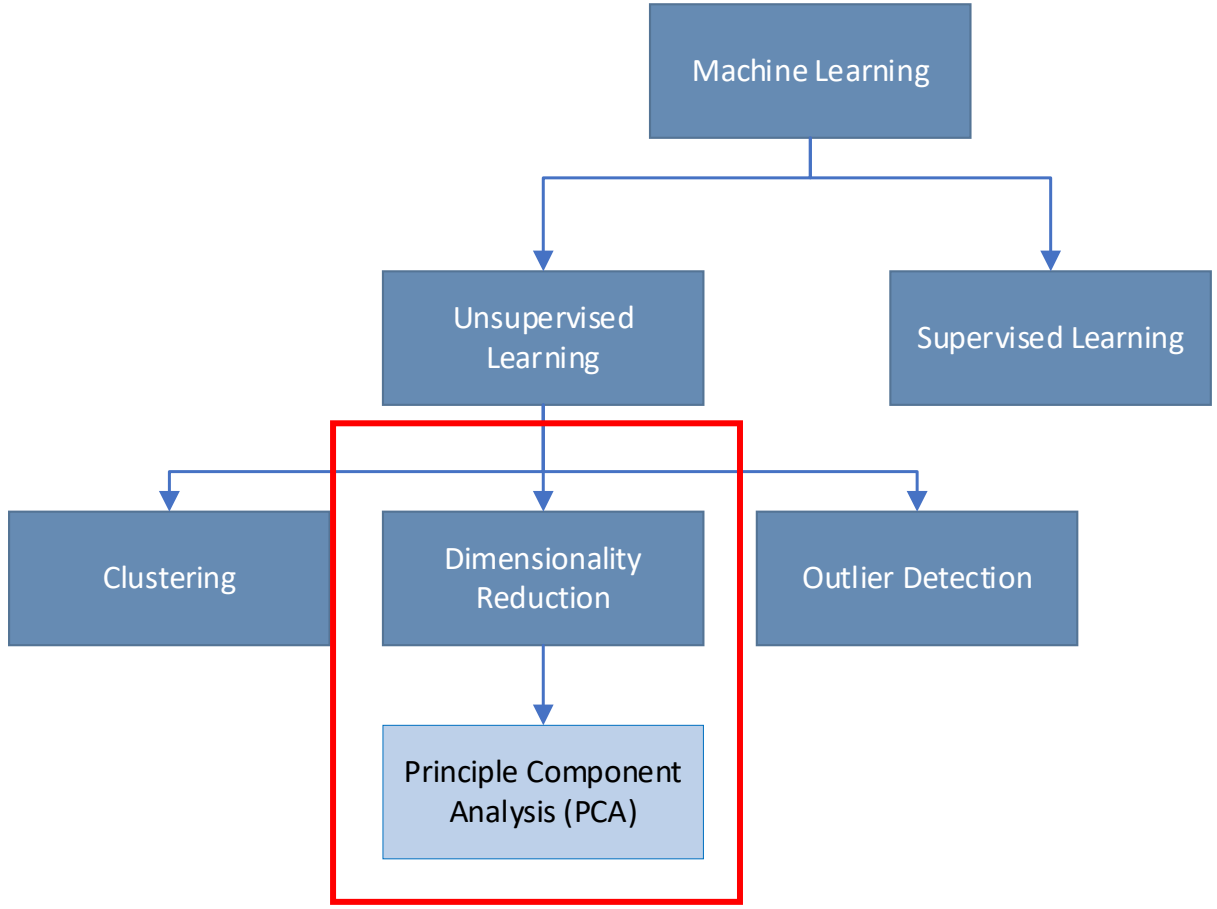
Correlation does not imply causation!



Key Concepts

Machine Learning

- Supervised Learning
  - A type of machine learning model where a model learns from patterns from a data set that has already been labeled/ categorized
- Unsupervised Learning
  - A type of machine learning that analyzes an finds patterns in a data set on its own. Techniques include:
    - Clustering - grouping similar data points together
    - Outlier detection – Identifying data that doesn't fit a general pattern
    - Dimensionality Reduction – Simplifying data while preserving its structure

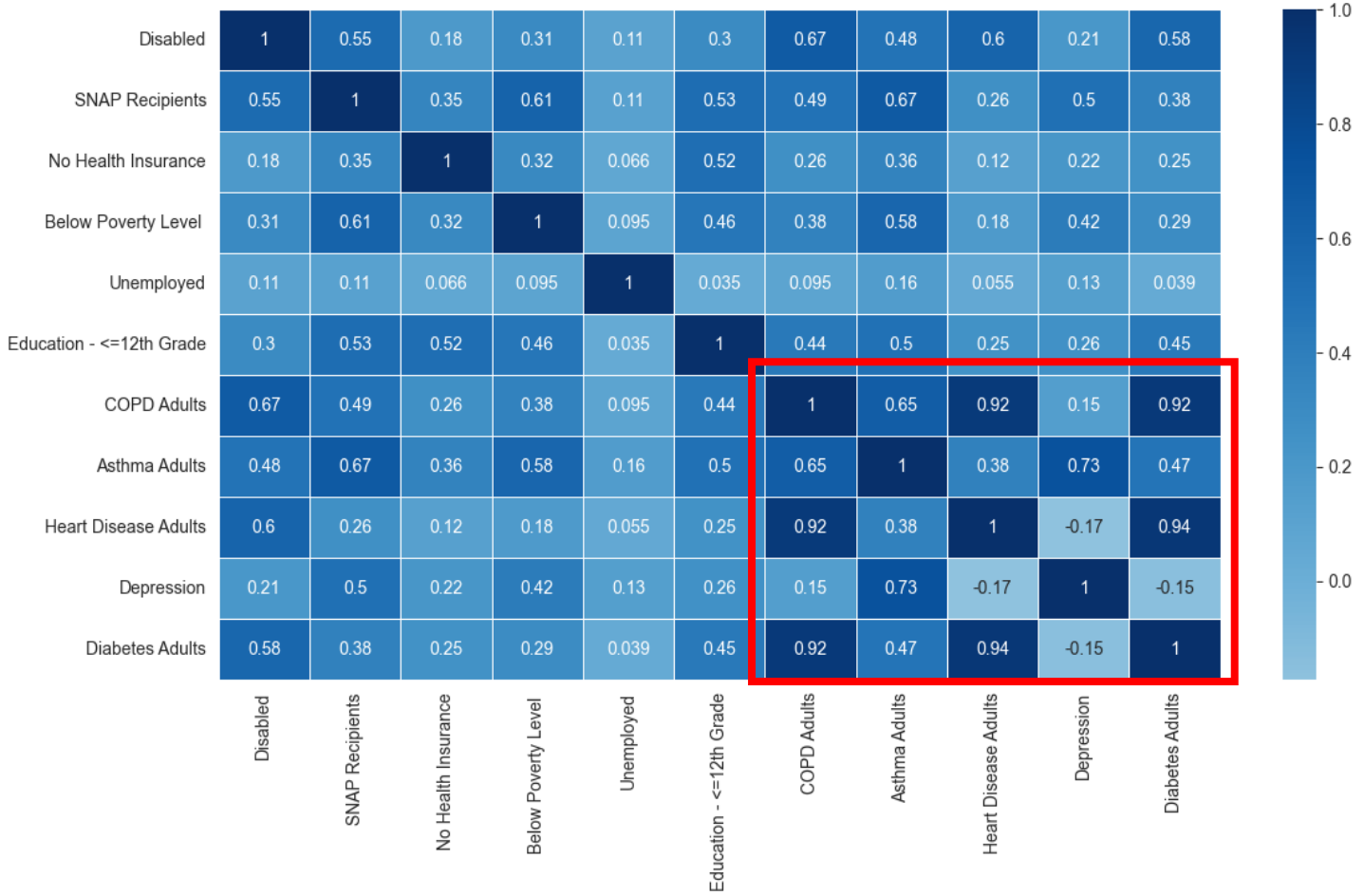


This proposed model uses a dimensionality reduction technique called Principal Component Analysis, or PCA.

Key Concepts

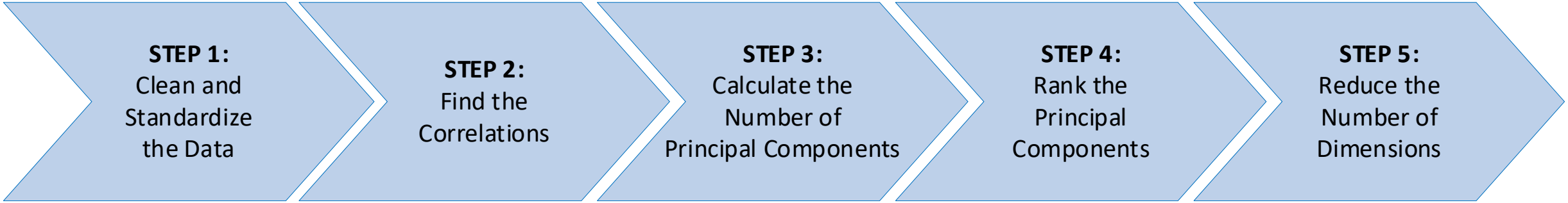
Principal Component Analysis (PCA) – What It Is

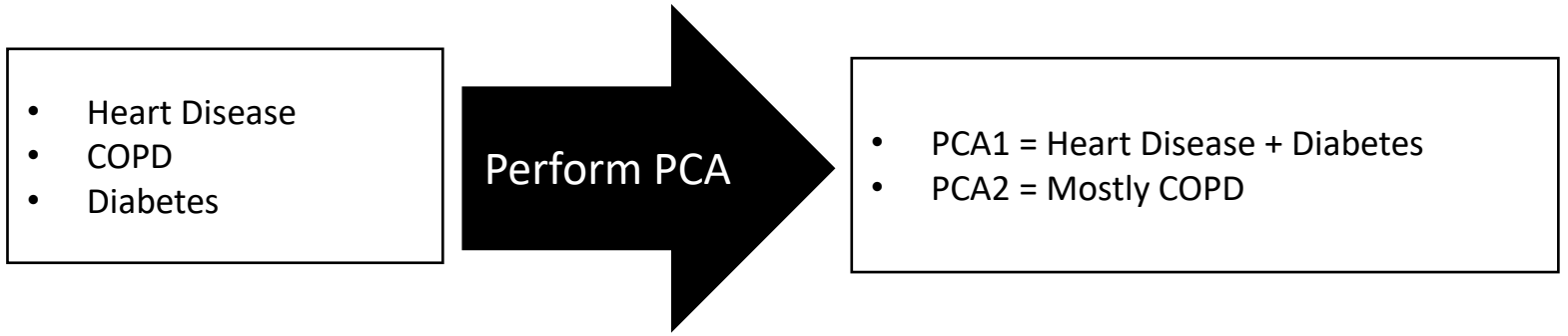
- PCA is an unsupervised learning algorithm that simplifies complex, high-dimensional data. PCA:
  - Looks for **patterns** in **variations** within data sets to "understand" how variables are related.
  - Creates new, "summary" variables called principal components.
  - The first principal component captures the most information, the second captures the next, and so on, until most of the variance has been explained.
  - The number of principal components needed to explain the most variation (typically 85% - 90%) i set before running the model – this is how PCA reduces dimensionality.



Principal Component Analysis (PCA) – How It Works

- PCA is a five-step process:





Key Concepts

Now what?

- PCA simplifies large, complex data sets and reveals key patterns but, **it doesn't support prioritization.**
- **Another technique is needed to prioritize EJ communities.**

Pareto Ranking

- When applied to census tracts, identifies communities that can be most impacted across **multiple dimensions**, such as socio-demographics, housing and infrastructure, and health. It:
  - **Allows** for multi-criteria comparison.
  - **Highlights** the strengths and weaknesses between variables.
  - **Avoids** bias that can be introduced by weighting.
- When **combined with PCA**, Pareto ranking can:
  - Identify the communities of deepest need against multiple variables.
  - Show overlapping burdens.
  - Help to support **objective** prioritization of energy equity initiatives.

Discussion/Questions

- Do you have initial feedback about the environmental justice framework?
- Are there specific demographics that should be represented that are not?

Procurement Updates

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2025 Oregon Request for Proposals

2025 Oregon Small Scale Resource RFP

- The PacifiCorp 2025 Integrated Resource Plan (IRP) and PacifiCorp's 2023 Clean Energy Plan established an action item to conduct a small-scale renewable request for proposals (or "bids") (2025 OR SSR RFP) to acquire small-scale renewable resource (SSR) capacity sufficient to meet the requirements of Oregon House Bill 2021.
- PacifiCorp is looking to procure up to 320 MW of small-scale resources to meet this requirement.
- PacifiCorp's goal is to have a transparent, consistent process to obtain the lowest cost reliable resources for the benefit of our customers.
- Likelihood of issuing multiple SSR RFPs in future years, potentially on a rolling basis to ensure ongoing compliance with the law after 2030.
- 2025 Small-Scale RFP information will be provided as it is developed; Bidders are encouraged to check the site periodically for updates: 2025 Oregon Small-Scale Request for Proposals.
- Questions or comments regarding this RFP can be submitted at this email: 2025SSR_RFP@pacificorp.com, Responses to questions (Q&As) received will be posted anonymously on PacifiCorp's 2025 Small-Scale RFP website

2025 Oregon Situs RFP

- The PacifiCorp 2025 Integrated Resource Plan (IRP) established an action item to initiate a Request for Proposals (RFP) to procure resources for its Oregon customers that are aligned with the 2025 IRP preferred portfolio and that can achieve commercial operations by the end of December 2029.
- Based on current estimated projections, the 2025 IRP calls for:
  - 1,570 MW of utility scale solar resources,
  - 1,400 MW of utility-scale wind resources,
  - 320 MW of small-scale solar resources,
  - energy storage resources, including 509 MW of lithium-ion batteries with four-hour duration, and
  - 272 MW of iron-air storage with 100-hour duration.
- In Order No. 25-098, the Oregon Commission provided a directive that PacifiCorp should issue an RFP by June 1, 2025
- On April 16, PacifiCorp filed UM 2383, Expedited Application for Partial Waiver of OAR Chapter 860-089, Request to Engage Independent Evaluator, and Expedited Approval of 2025 Draft RFP to meet this June 1, 2025 directive.
- **PacifiCorp is awaiting a decision on this waiver from the Oregon Commission; all elements of the OR Situs RFP are pending**

Eligible Resources

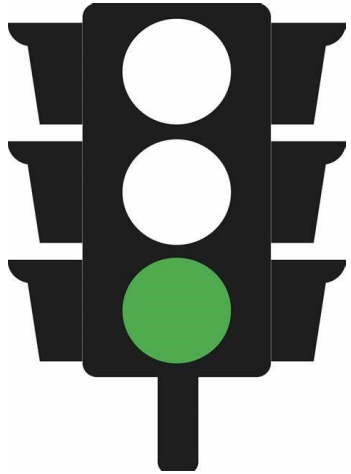
- Must have a nameplate capacity of at least 1 MW but no greater than 20 MW, *and*
- Have a Guaranteed Commercial Operation Date (GCOD) by December 31, 2029, *and*
- Generate electricity utilizing one of the following sources:
  - Wind
  - Photovoltaic Solar
  - Wave
  - Geothermal
  - Hydroelectric
  - Biomass that generates thermal energy for a secondary purpose
  - Other sources only if they meet the Renewable Portfolio Standard (RPS) criteria outlined in ORS 469A.025. oregonlegislature.gov/bills_laws/ors/ors469A.html
- Resources must be approved or certified by the Oregon Department of Energy as RPS-eligible generation resources (RPS Certification) within 90 days of Commercial Operation Date (COD), and will maintain RPS Certification throughout the term of any agreement with PacifiCorp
- Must have an executed interconnection agreement or completed interconnection study, confirming ability to interconnect to PacifiCorp's transmission or distribution system, or interconnection request has passed the Initial Review or Supplemental Review process in the Fast Track Process for small generation interconnection service
  - https://www.oasis.oati.com/ppw/index.html;
  - https://www.oasis.oati.com/woa/docs/PPW/PPWdocs/Transmission_Wall_Map,_E-Size.pdf

Link: oregonlegislature.gov/bills_laws/ors/ors469A.html
Link: HB2021

Proposed RFP Schedule

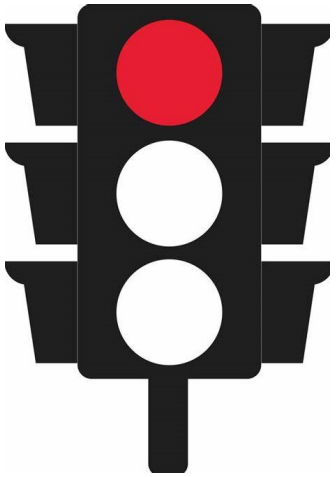
Event	Date
RFP issued to market and publicized	4/23/2025
Bidder workshop	5/6/2025
Last day for Bidder questions to PacifiCorp	6/24/2025
Bid submissions due	**7/2/2025**
Round 1 Transmission Consulting Agreement Studies commence	7/22/2025
Round 1 Transmission Consulting Agreement Studies complete	10/21/2025
Round 2 Transmission Consulting Agreement Studies commence	11/12/2025
Round 2 Transmission Consulting Agreement Studies complete	2/12/2026
Evaluation of bid energy performance report complete	2/12/2026
Bid evaluations complete	3/10/2026
RFP final shortlist complete	3/17/2026
Agreements finalized and executed	Second Quarter 2026
Guaranteed commercial operation date (GCOD)	12/31/2029

Next Steps



2025 Oregon Small Scale Resource RFP

- Continue responding to questions from potential bidders
- Continue moving forward with the process and published timelines for completion



2025 Oregon Situs RFP

- Awaiting decision from Oregon Commission before determining next steps

Public Comment

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Next Steps

Clean Energy Plan Engagement Series

Clean Energy Plan Engagement Series #3
August 20, 2025, 9:00am-12:00 pm PST
Registration Link:

https://esource.zoom.us/meeting/register/IB8B2LQOTl2shz4BupgeTQ

Clean Energy Plan Engagement Series #4
November 19, 2025, 9:00am-12:00 pm PST
Registration Link:

https://esource.zoom.us/meeting/register/sXCsyIMJTB2b-BB6u4tjxg

For more information:
Oregon Clean Energy Plan
Email comments to:
OregonCEP@pacificorp.com

Pacific Power Stakeholder Engagement

Community Benefits and Impacts Advisory Group Meeting
June 19, 2025, 1:00-4:00 pm PST
https://esource.zoom.us/j/82677444296?pwd=vCz68gBJuzpzq9o1nVwNxbqt8bBOMf.1

Oregon Tribal Nations Community Benefits and Impacts Advisory Group Meeting
June 27, 2025, 9:00-11:00 am PST
https://esource.zoom.us/j/88997540444?pwd=nloclKlwZPxFJh19vSf7HfhuboU1rM.1

For more information:
Oregon Community Benefits and Impacts Advisory Group
Email comments to:
ORCBIAG@pacificorp.com

(In-Zoom) Meeting Experience Survey

We value your feedback and want to continue shaping engagement spaces that resonate with participants and align with the feedback heard.

- ✓ There are a total of 3 questions
- ✓ Takes less than 5 minutes to complete
- ✓ Anonymously submitted to Pacific Power
- ✓ Tracks meeting satisfaction and understanding
- ✓ Your input will help shape future meeting topics (new or resurfacing)

Appendix

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Community Benefit Indicator Recap

Review of CBI Categories

Five topic areas:

✓Resilience (System and Community)

✓Health and Community Well-Being

✓Environmental Impacts

✓Energy Equity (distributional and intergenerational)

✓Economic impacts

CBI Categories

Resilience (System & Community)

- **Resilience** - the combined ability of a community and the electric grid to withstand, respond to, and recover from events that result in long-duration power disruptions.
  - Examples…
    - Health, outage preparedness, and evacuation vulnerabilities of a community
    - Frequency of long-duration outages in a community
- **Reliability** – the ability of the grid to deliver continuous electricity to customers.
  - Examples…
    - Frequency of interruptions
    - Duration of interruptions
    - Average restoration time for when interruptions occur

CBI Categories contd.

Health & Community Well-Being

- **Access to Energy** – Access to energy profoundly impacts the provision and sustainability of basic human needs in the 21st century. But access to energy, and the ability to meet basic needs in the modern world, is not equitable for vulnerable communities.
  - Examples…
    - Disproportionate energy burden and an increase in disconnections and arrearages can lead to...
      - Forgoing indoor comfort during periods of extreme heat or cold
      - Higher rates of housing or food insecurity
      - Exacerbation of existing health conditions
      - Higher rates of depression and anxiety.

CBI Categories contd.

Environmental Impacts

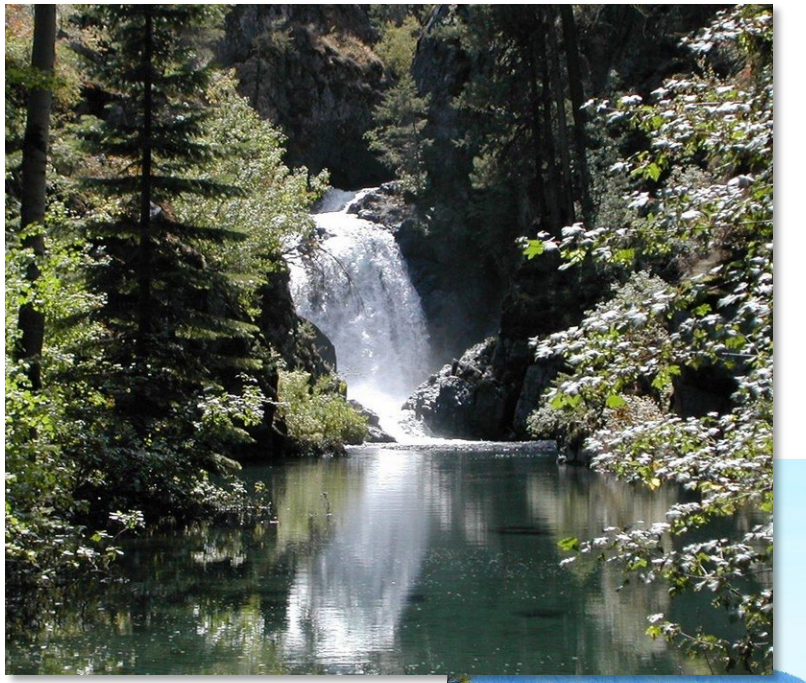
Striving to reduce emissions from greenhouse gasses (GHGs) and local pollutants (SO2 and NOx)

Greenhouse Gases (GHGs)

- Primary Source - Emissions from natural gas-fired electricity.
- Impact - Contributes to global warming and long-term climate change.

Local Pollutants

- Primary Source - Fossil fuel combustion.
- Key Pollutants: Sulfur dioxide (SO_2) and nitrogen oxides (NO_x).
- Impact - Can cause local health issues like asthma and COPD.



CBI Categories contd.

Economic Impacts

- **Affordability Determines Access**
  - High energy burden can strain low-income households, forcing trade-offs with basic needs.
- **Participation in the Clean Energy Transition**
  - High upfront costs can exclude underserved communities from participating in transportation electrification and energy efficiency incentive programs.
- **Vulnerability & Economic Resilience**
  - Economically disadvantaged communities are less able to recover from outages and price shocks.
- **Workforce and Economic Opportunities**
  - Equitable access to jobs in clean energy and investments can support development of underserved communities.
- **Rectifying Structural Inequality**
  - Placing emphasis on economic equity can help to address systemic underinvestment and other injustices.