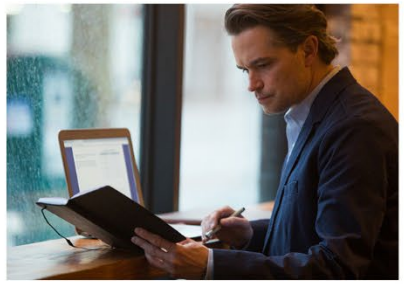
Clean Energy Plan Engagement Series

2nd Meeting

April 28, 2023





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Clean Energy Plan Engagement Series

April 28, 2023, 1-4 p.m. PT

This meeting will be recorded

For a Better Meeting Experience

Spanish or ASL?

- 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

Use Gallery View (icon at top right) when in group discussion

For technical support, chat "Kara Perkins / E Source" as recipient, and send your message

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

Agenda

TIMING	TOPIC
1 p.m.	Purpose & objectives
1:15 p.m.	Clean Energy Plan (CEP)
1:30 p.m.	Clean Energy Plan (CEP) Pathways
2:30 p.m.	BREAK
2:40 p.m.	Community Benefit Indicators (CBIs)
2:40 p.m.	Resilience
3 p.m.	Community-Based Renewable Energy (CBRE)
3:20 p.m.	External Engagement
3:40 p.m.	Public Comment
3:45pm	Wrap Up & Next Steps

Clean Energy Plan Engagement Series Purpose

Provide an integrated lens on clean energy planning with expanded learning opportunities to foster a deeper understanding of programs and outreach while gathering public input.

Ongoing Objectives

1. Brief on Clean Energy Plan (CEP)
2. Socialize Clean Energy pathways
3. Deepen understanding of:
   - Community Benefit Indicators (CBIs)
   - Community Benefits & Impact Advisory Group (CBIAG)
   - Resilience
   - Community-Based Renewable Energy (CBRE)

Clean Energy Plan

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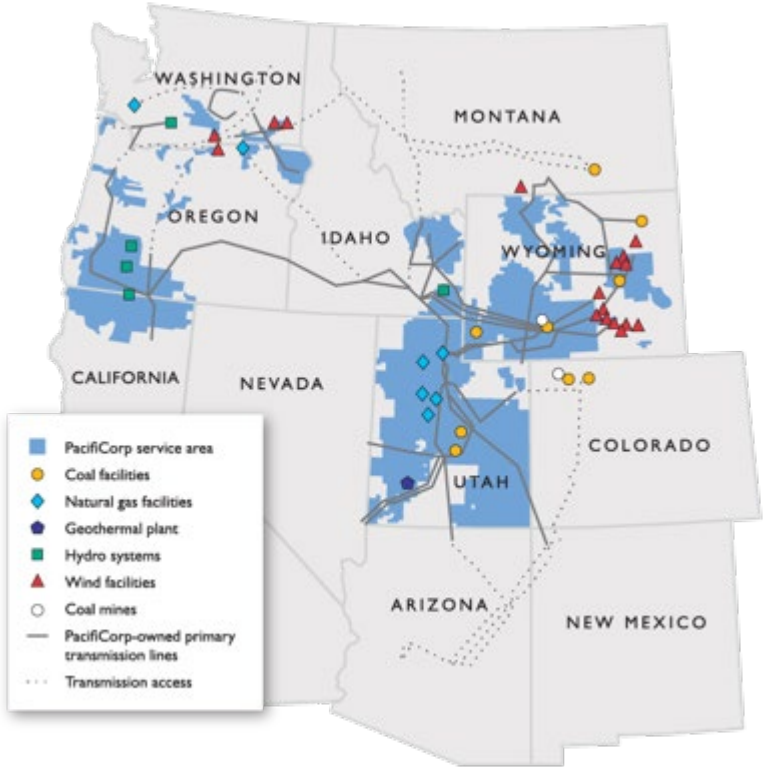
PacifiCorp - Meeting the Energy Needs of All Our Customers

Our planning is designed to meet customers' energy needs across six states



- PacifiCorp serves approximately 2 million customers across six states
- PacifiCorp serves customers in Utah, Idaho and Wyoming as Rocky Mountain Power
- PacifiCorp serves customers in Washington, Oregon and California as Pacific Power
- Extensive generation, transmission and distribution infrastructure across the west
- Large decarbonization efforts underway for years
- Extensive energy efficiency portfolio
- Long-term resource planning occurs in PacifiCorp’s Integrated Resource Plan on a two-year cycle

Clean Energy Plan – Meeting Oregon's Clean Energy Requirements

PacifiCorp's integrated resource planning is designed to serve customers across six states. In the context of Oregon's clean energy planning:

CHALLENGE

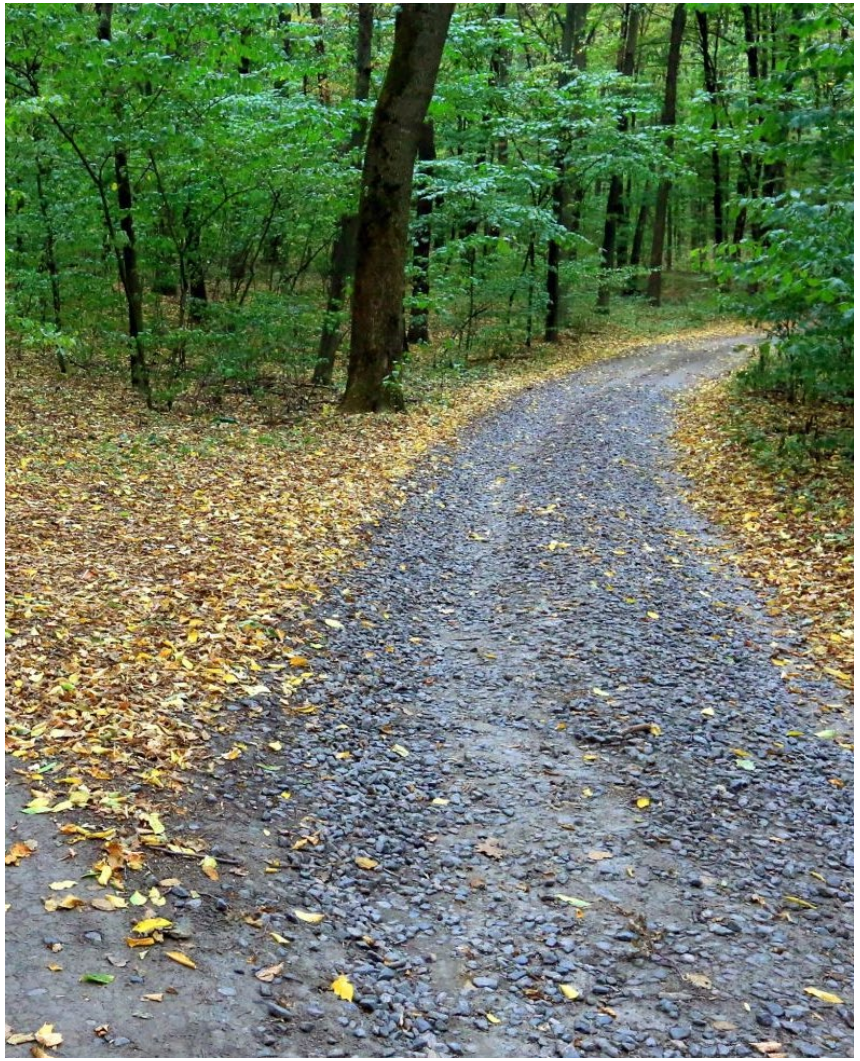
Oregon has specific clean energy planning requirements, impacted by:

- Oregon’s contribution to system capacity
- Load growth
- Small-scale renewable resources

OPPORTUNITY

PacifiCorp's six-state system in uniquely situated to meet Oregon's goals:

- Opportunities to site non-emitting generation in the best possible locations
- Economies of scale and efficiencies in planning



Clean Energy Pathways

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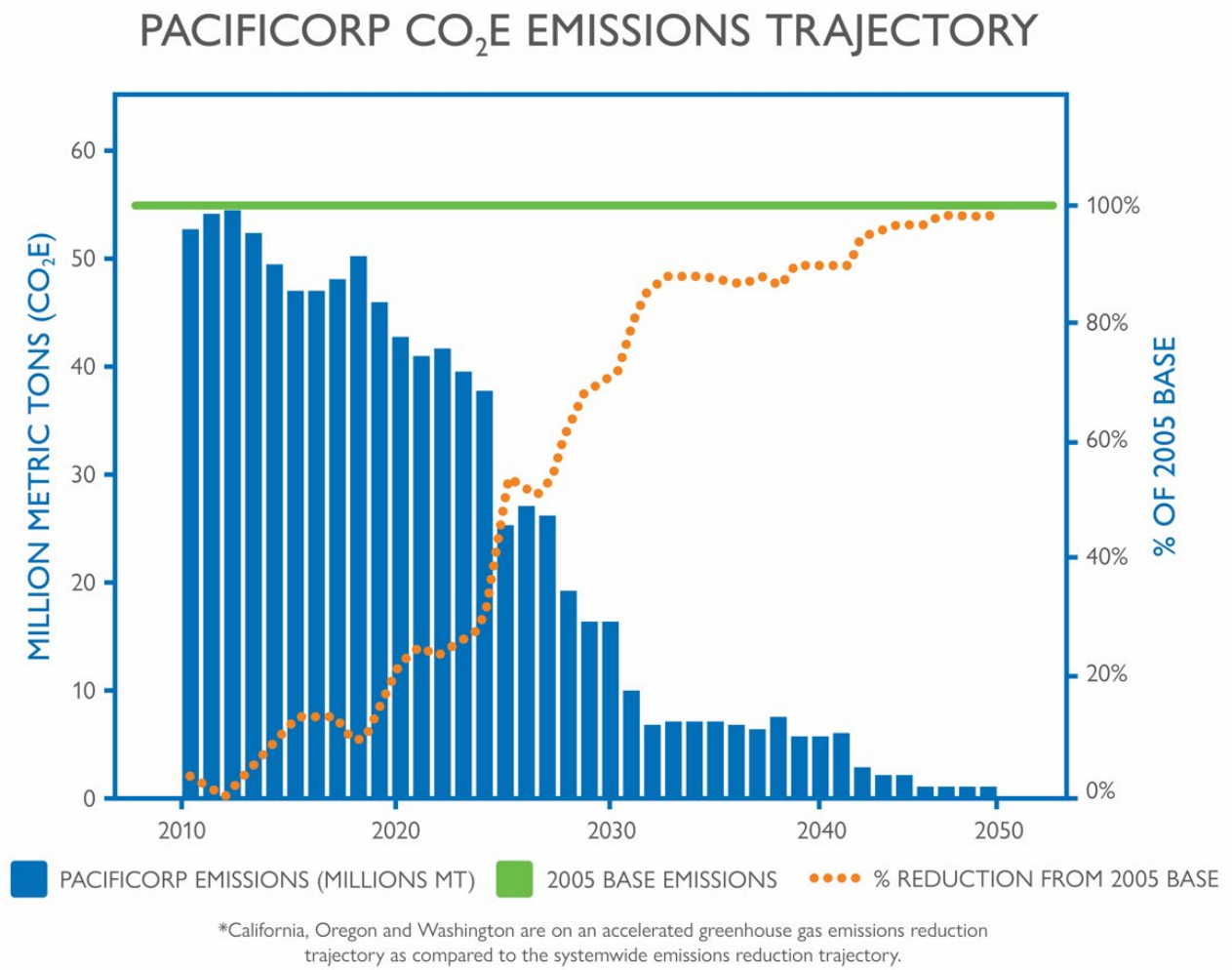
Clean Energy Trajectory: 2010-2050

2023 Integrated Resource Plan (IRP) emissions profile for six states depicts emissions reductions from 2005 that achieve net zero by 2050, achieving:

- 70% by 2030
- 87% by 2035
- 89% by 2040

For Oregon-allocated resource portfolio, the emissions reductions are accelerated by HB 2021



Long-term Resource Study Plan

20-year planning horizon
Plexos optimization software to plan resource growth

- Optimization ensures least-cost, least-risk planning to meet all requirements
- Study method is consistent with the 2023 Integrated Resource Plan

Clean Energy Plan (CEP) Portfolio Development Stages

1

2023 IRP preferred portfolio

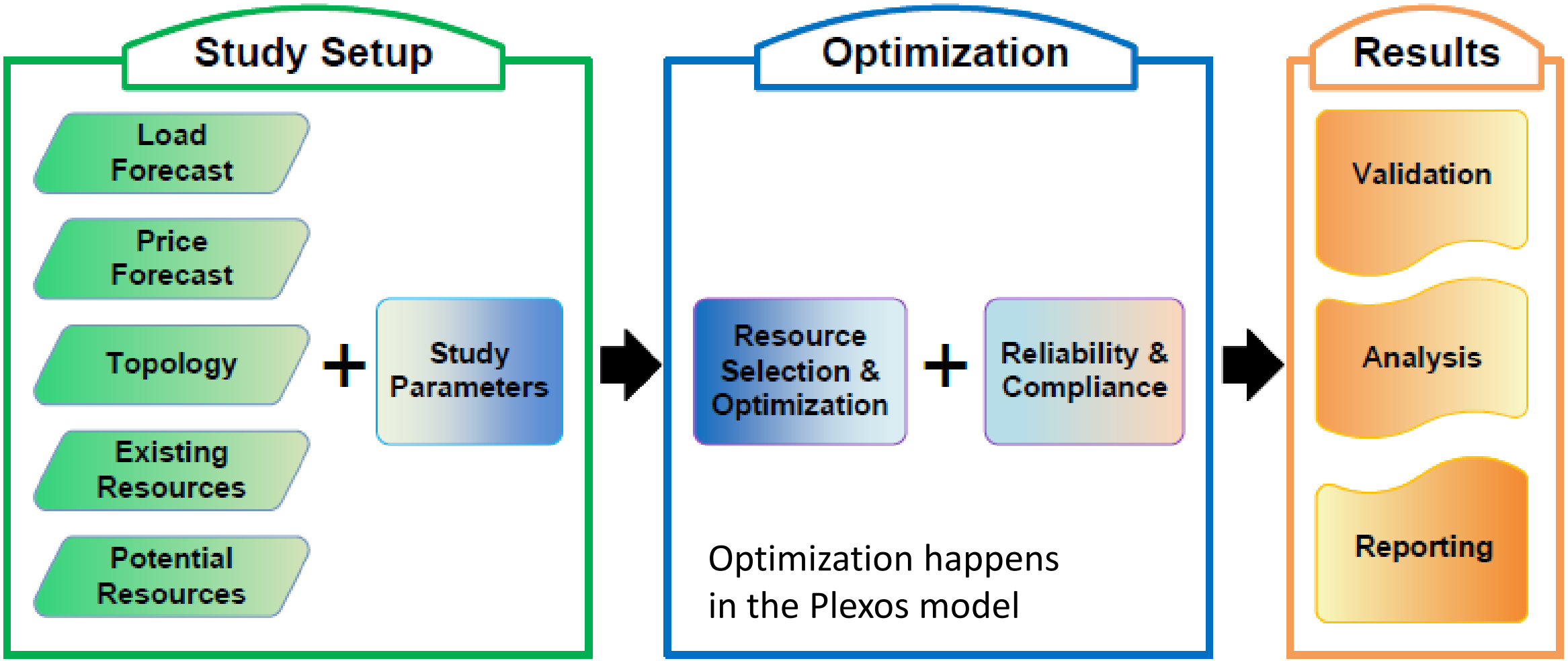
2

Create CEP portfolio by adding small-scale resources to meet 2030 and beyond 10% Oregon requirement

3

Finalize CEP with additional emissions reduction pathways to achieve 2030 and beyond Oregon emissions targets

Study Steps


Study Setup
Load Forecast
Price Forecast
Topology
Existing Resources
Potential Resources
+
Study Parameters
Optimization
Resource Selection & Optimization
+
Reliability & Compliance
Optimization happens in the Plexos model
Results
Validation
Analysis
Reporting

Resource Portfolios

1

2023 IRP preferred portfolio

The 2023 IRP preferred portfolio focuses on system-wide optimization and ensures system benefits to Oregon customers

2

Create CEP portfolio by adding small-scale resources to meet 2030 and beyond 10% Oregon requirement

Small scale portfolio considerations

- Includes 802 megawatts of small-scale
- 40 projects at the largest 20-megawatt size
- Higher cost than utility scale
- No incremental transmission assumed for small-scale resources
- No small-scale bids were received in the 2022 All-source RFP
- PacifiCorp benchmark options may be a necessary compliance backstop

2

Create CEP portfolio by adding small-scale resources to meet 2030 and beyond 10% Oregon requirement

Small-Scale Renewable (SSR) Results

2023 IRP – Preferred Portfolio

	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
SSR - Existing	358	356	352	350	346	346	345	321	319	300	292	292	292
SSR - Planned	12	12	12	12	12	12	12	12	12	12	12	12	12
SSR - Proxy	0	0	0	0	0	0	0	0	0	0	0	0	0
Total SSR	**370**	**368**	**364**	**363**	**358**	**358**	**357**	**333**	**331**	**312**	**304**	**304**	**304**
SSR %	4.6%	4.6%	3.8%	3.5%	3.4%	3.4%	3.4%	3.2%	3.3%	3.1%	3.3%	3.4%	3.4%

2023 CEP Portfolio

	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
SSR - Existing	358	356	352	350	346	346	345	321	319	300	292	292	292
SSR - Planned	12	12	12	12	12	12	12	12	12	12	12	12	12
SSR - Proxy	485	489	672	754	757	759	773	802	802	802	802	802	802
Total SSR	**855**	**857**	**1,036**	**1,117**	**1,115**	**1,117**	**1,130**	**1,135**	**1,133**	**1,114**	**1,106**	**1,106**	**1,106**
SSR %	10.0%	10.0%	10.2%	10.6%	10.5%	10.5%	10.5%	10.5%	11.0%	10.9%	11.7%	11.8%	11.8%

Changes in Planning Landscape

Primary changes impacting CEP portfolio emissions:

SIGNIFICANT LOAD GROWTH FORECAST IN OREGON

Growing load puts upward pressure on emissions trajectory:

- Emissions per megawatt-hour are decreasing over time, but more generation to serve load results in more emissions
- Growing system capacity creates proportional need for small scale renewable capacity

COAL TO GAS CONVERSION

- 2023 IRP modeling indicates that coal to gas conversions are economic
- Under Senate Bill 1547, coal facilities are excluded from serving Oregon starting 2030, but when converted to gas the same unit may continue to supply electricity to Oregon and increase Oregon emissions instead of removing the unit completely from Oregon rates

HB 2021 Baseline and Targets

- Retail electricity providers required to reduce Oregon retail greenhouse gas emissions by % below baseline emission levels:
  - 80% by 2030
  - 90% by 2035
  - 100% by 2040

- Increased small scale renewable capacity target from 8% to 10%*

PacifiCorp Baseline Emissions
Metric Tons of CO^2 Equivalent

2010	2011	2012	Baseline (2010-2012 avg.)	2030 (80% of base-line)	2035 (90% of base-line)	2040 (100% of baseline)
8,885,487	8,973,808	9,124,050	8,994,448	1,798,890	899,445	0

Excludes greenhouse gases associated with electricity acquired from net metering and qualifying facilities under the terms of the Public Utility Regulatory Policies Act

*HB 2021: AR 622

Oregon DEQ GHG Accounting

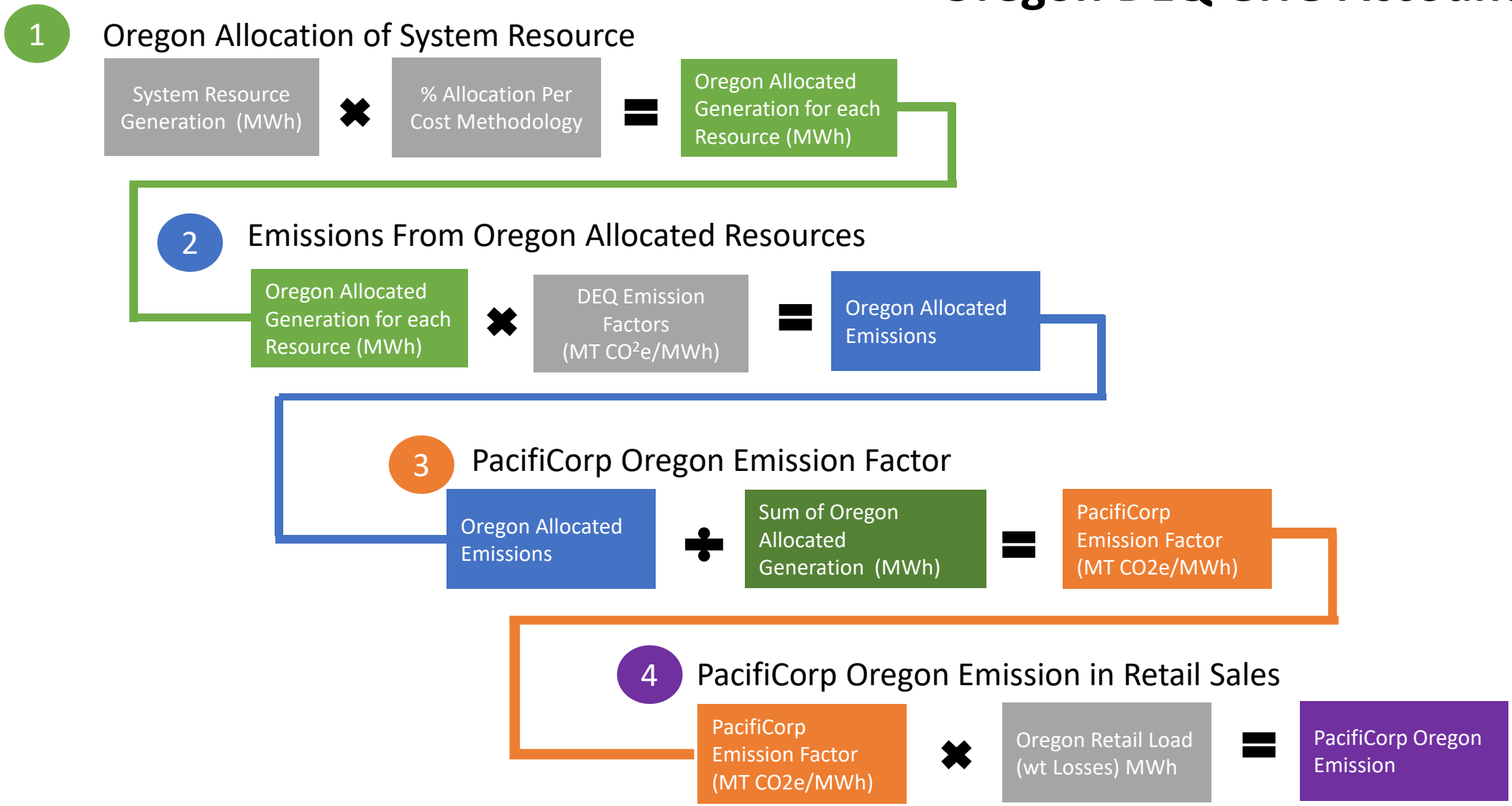
For CEP filing, the greenhouse gas accounting framework is based on Oregon Department of Environmental Quality Reporting Rules OAR 340, Division 215.

DEQ forecasting guidance:

- Existing owned or specified purchases - use 2021 vintage emission factors supplied by DEQ
- Unspecified purchases use default emission factor of 0.428 MT CO2e / MWh
- Proxy resources use generic emission factors
- Coal to gas converted resource do not have a default factor form ODEQ and will rely on IRP modeled emissions
- Multi-jurisdictional utility emissions are calculated according to a cost allocation methodology approved by the Oregon Public Utility Commission

SOURCE: HB2021EFGuidance.pdf(oregon.gov)

Oregon DEQ GHG Accounting

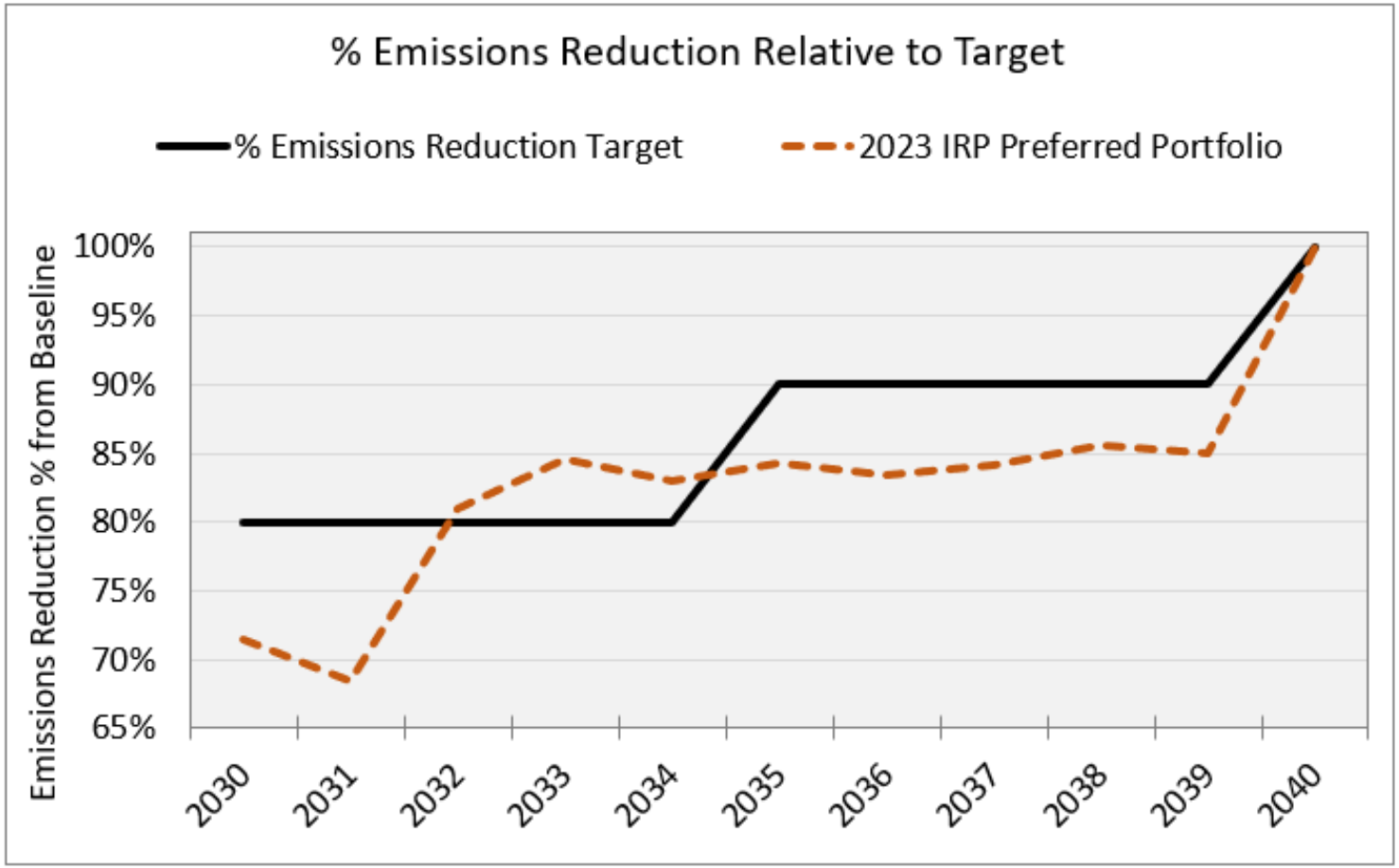


Oregon Emissions Results

In Oregon:

- 2030: No coal
- 2040: No thermal allocation or market purchases (post model adjustment)
- Excludes emissions from PURPA Qualifying Facilities per HB 2021

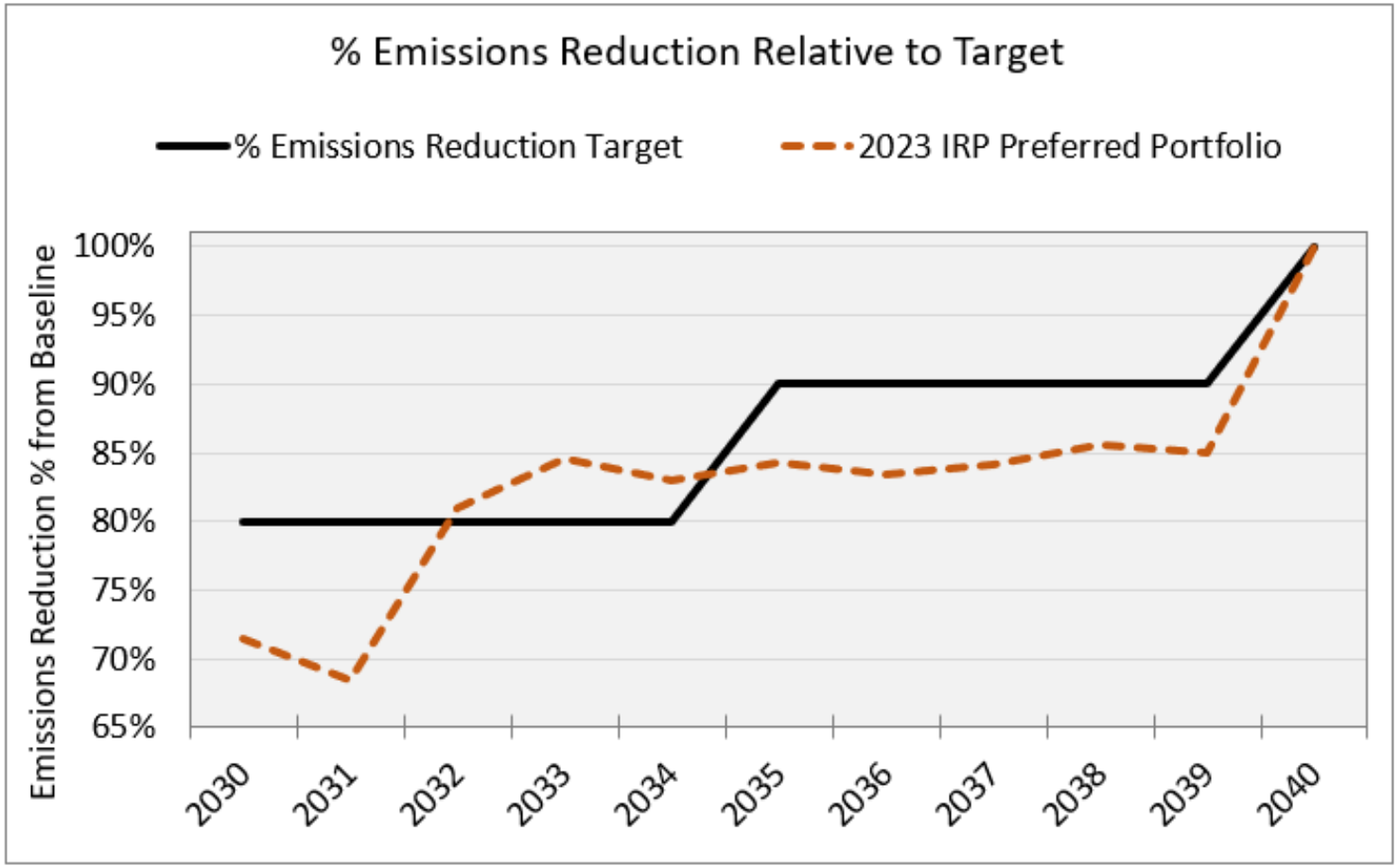
Incorporating above requirements for Oregon, 2020 cost allocation protocols are assumed to be extended through planning horizon with allocation factors increasing or decreasing based on load.



Oregon Emissions Results

RESULTS

2023 IRP preferred portfolio allocated to Oregon prior to adding new small-scale renewable capacity meets HB 2021 emissions reduction targets in 2032-2034.



2

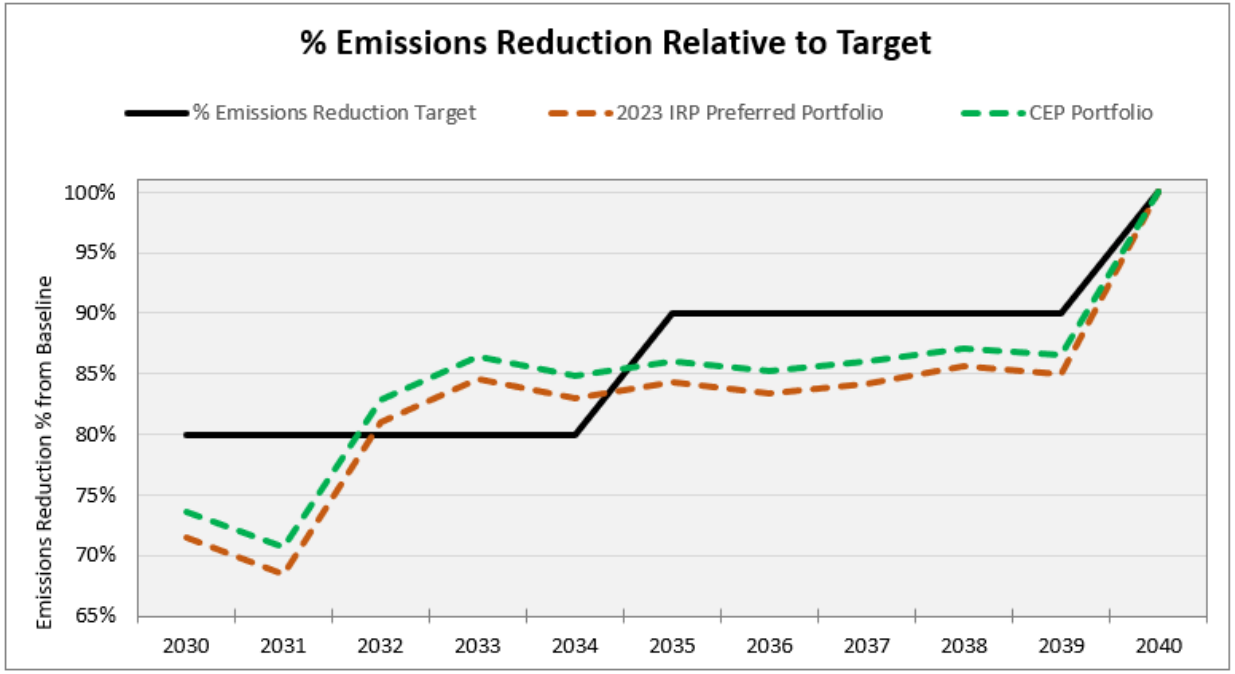
Create CEP portfolio by adding small-scale resources to meet 2030 and beyond 10% Oregon requirement

CEP Portfolio Emissions Results

Oregon adding small-scale renewable capacity sufficient to meet 10% target starting 2030

- New small-scale renewable generation allocated to Oregon at 100%

2020 cost allocation protocol assumed extended through planning horizon.



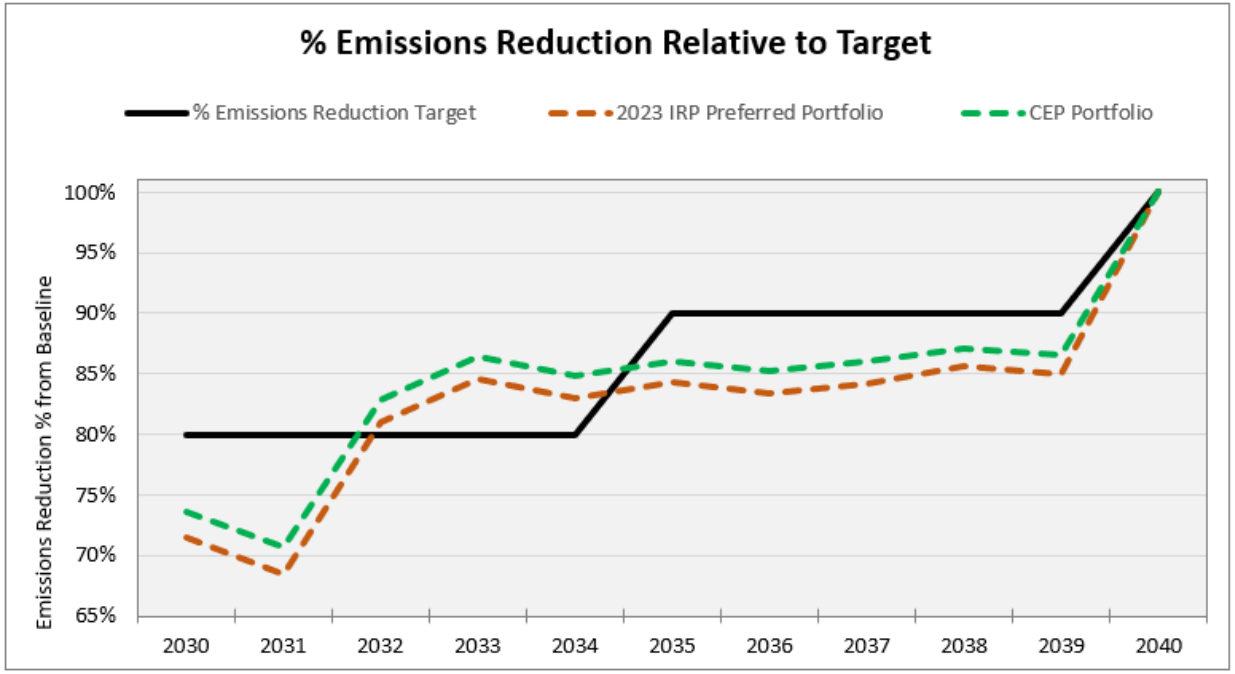
Step 1 to 2: **Difference Between Preferred Portfolio to CEP Portfolio**

	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
New SSR Capacity (MWs)	485	489	672	754	757	759	773	802	802	802	802
New SSR Gen. (GWh)	1,368	1,379	1,874	2,112	2,133	2,139	2,179	2,262	2,262	2,262	2,183
Change in Thermal Gen. (GWh)	(168)	(204)	(210)	(248)	(234)	(222)	(213)	(354)	(162)	(184)	-
Change in Oregon retail sales GHG (Thousand MT CO2e)	(196)	(206)	(167)	(169)	(172)	(153)	(160)	(171)	(140)	(146)	-

2

Create CEP portfolio by adding small-scale resources to meet 2030 and beyond 10% Oregon requirement

CEP Portfolio Emissions Results



RESULTS

Adding small-scale renewables results in a modest improvement of emissions but does not resolve the emissions target shortfalls.

Additional emissions reduction pathways are required to resolve emissions target shortfalls in 2030, 2031 and 2035-2040.

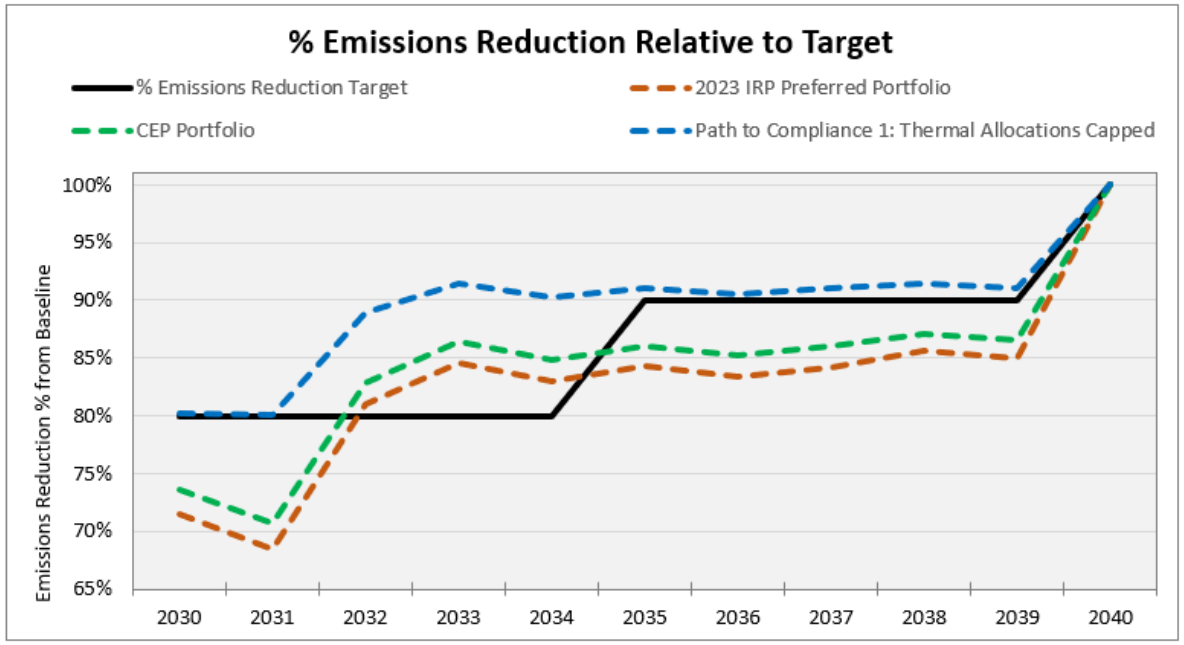
3

Finalize CEP with additional emissions reduction pathways to achieve 2030 and beyond Oregon emissions targets

Path to Emissions Targets 1:
Thermal Allocations Capped

All other factors remaining equal, the following changes are made to allocations:

- Remaining emitting resource allocation factors are capped at a level that supports targets
- Non-emitting energy allocated using factors from 2020 protocols



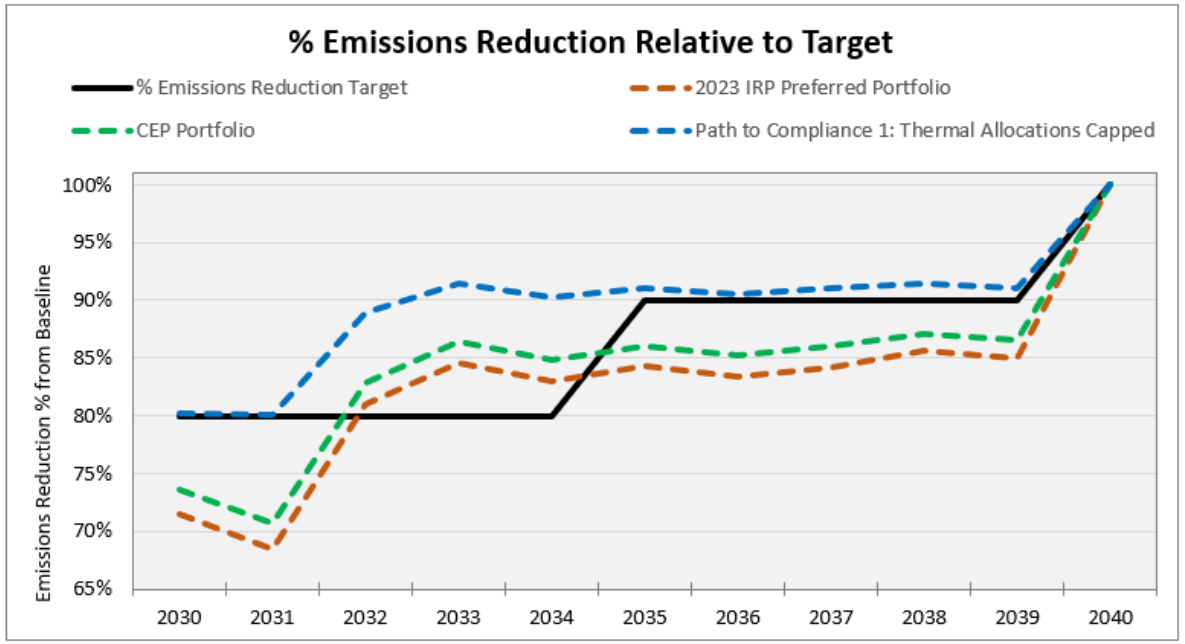
Step 2 to 3: **Change from CEP Portfolio To Thermal Allocations Capped**

	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
New SSR Gen. (GWh)	1,368	1,379	1,874	2,112	2,133	2,139	2,179	2,262	2,262	2,262	2,183
Change in Thermal Gen. (GWh)	(2,017)	(2,824)	(1,881)	(1,521)	(1,687)	(1,543)	(1,628)	(1,509)	(1,374)	(1,419)	-
Change in Oregon retail sales GHG (Thousand MT CO2e)	(595)	(842)	(548)	(443)	(482)	(449)	(480)	(447)	(387)	(403)	-

3

Finalize CEP with additional emissions reduction pathways to achieve 2030 and beyond Oregon emissions targets

Path to Emissions Targets 1:
Thermal Allocations Capped



RESULTS

Thermal allocation capping achieves targets.

This approach could be applied in multiple ways. For example, coal to gas conversions can be excluded from serving Oregon categorically, or specific gas units may be excluded from serving Oregon.

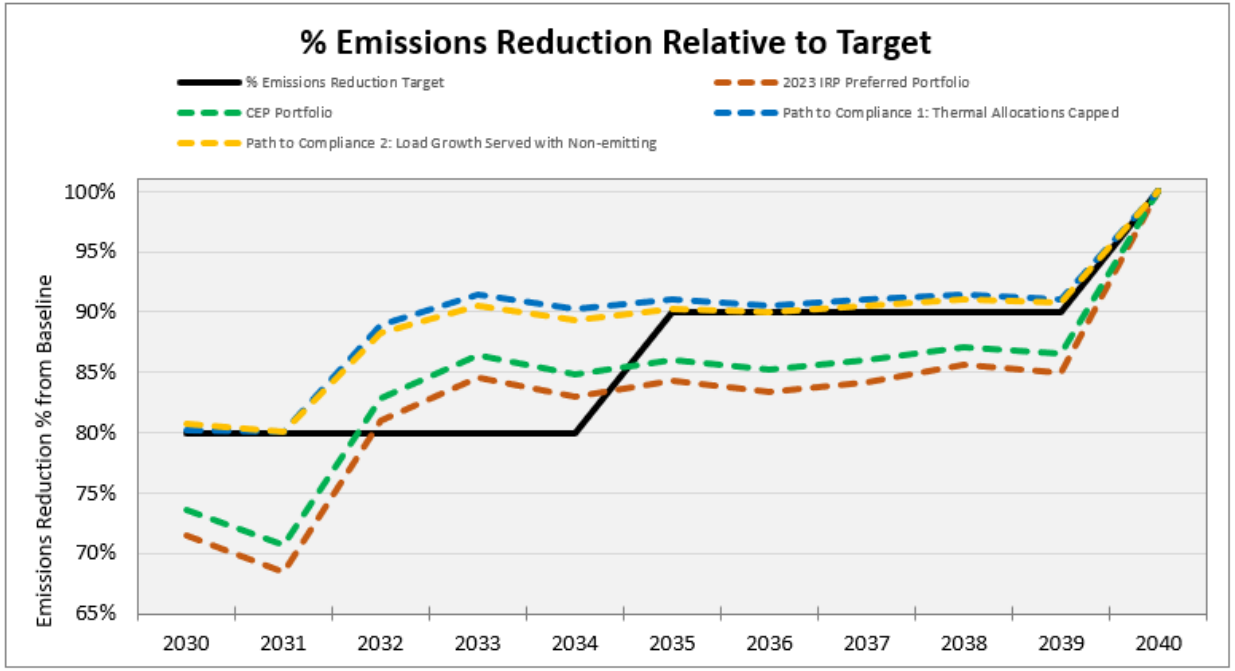
3

Finalize CEP with additional emissions reduction pathways to achieve 2030 and beyond Oregon emissions targets

Path to Emissions Targets 2:
Load Growth Served with Non-emitting

All other factors remaining equal, the following changes are made to allocations:

- Existing Oregon load is served with system resources
- Large new Oregon customer load is assumed to be served with 100% non-emitting generation through voluntary renewable options, and that there is sufficient supply available to meet customers' sustainability goals in all years
- Some capping of thermal generation continues to be necessary to achieve targets



Step 2 to 3: **Change from CEP Portfolio to Oregon Load Growth Served with Non-emitting Resources**

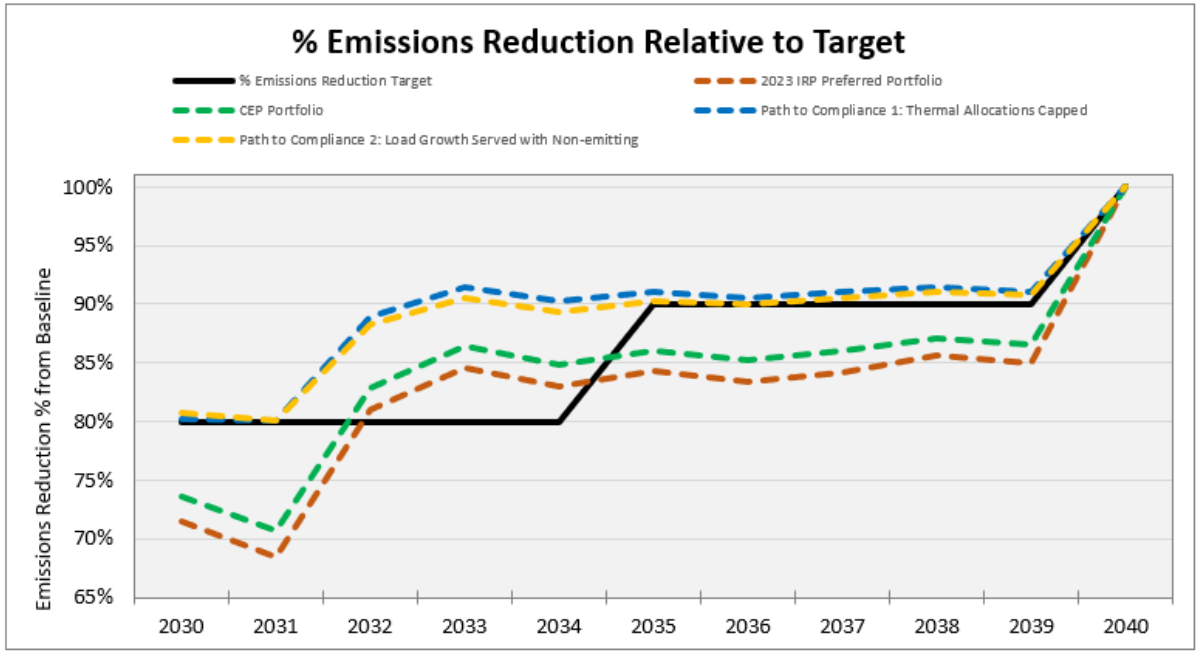
	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
New SSR Gen. (GWh)	1,368	1,379	1,874	2,112	2,133	2,139	2,179	2,262	2,262	2,262	2,183
Change in Thermal Gen. (GWh)	(999)	(1,553)	(1,050)	(830)	(925)	(849)	(1,031)	(953)	(869)	(898)	-
Change in Oregon retail sales GHG (Thousand MT CO2e)	(642)	(847)	(484)	(367)	(407)	(376)	(435)	(401)	(358)	(373)	-

Numbers are subject to change in May filing.

3

Finalize CEP with additional emissions reduction pathways to achieve 2030 and beyond Oregon emissions targets

Path to Emissions Targets 2:
Load Growth Served with Non-emitting



RESULTS

This approach achieves targets.
Requires a small adjustment of thermal resource allocation factors in years 2031, 2035-2037 and 2039.

Next Steps

May filing of the CEP will include additional analysis which may influence final proposal:

- Multiple sensitivities
- Incremental Costs
- Challenges and opportunities for achieving 100% non-emitting energy

BREAK

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CBIs

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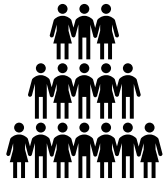
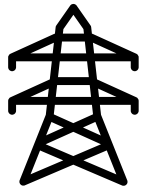
CBI Development Process

REGULATORY ALIGNMENT



IDENTIFY INTERIM CBIs AND METRICS



SCOPING FOR ENERGY PROVIDER

DEVELOP AND VALIDATE CBIs AND METRICS

STAKEHOLDER INPUT

Oregon Proposed Interim Community Benefit Indicators

CBI Category	Interim CBIs	Interim CBI Metrics	Purpose
Rulemaking Language	**Outcomes**	**How we measure outcomes**	**Why**
Resilience (System and Community)	Reduce frequency and duration of energy outages	• SAIDI, SAIFI and CAIDI at area level including major events • Metric of Energy Not Served (ENS)* for IRP portfolios are included as an output from portfolio development	SAIDI, SAIFI and CAIDI scores show how reliable and resilient areas of PacifiCorp's system are. Producing these metrics for Census Tracts will demonstrate how reliable and resilient our system at the community level. By beginning to track these metrics, the Company can establish a detailed baseline to measure the impact of future investments
Environmental Impacts	Increase energy from non-emitting resources and reduce CO^2 emissions to meet HB 2021 targets	Oregon CO^2 emission from Oregon allocated resources	Reduce fossil fuel resources and increase renewable and non-emitting resources that currently power Oregon's grid, thereby leading to increased environmental benefits, while maintaining system reliability and on-demand service to customers

*ENS represents shortfalls when available resources fail to meet load obligations. IRP portfolios must meet required reliability targets, however lower ENS indicates a relatively more reliable portfolio. ENS is an output of all IRP portfolios.

Oregon Proposed Interim Community Benefit Indicators (continued)

CBI Category	Interim CBIs	Interim CBI Metrics	Purpose
Rulemaking Language	**Outcomes**	**How we measure outcomes**	**Why**
Energy Equity (Distributional and Intergenerational Equity)	Decrease proportion of households experiencing high energy burden	• Energy burden by census tract • Energy burden for low-income customers, bill assistance participants and Tribal members	Energy equity is a concept that all members of society should be able to afford and have access to a necessary and basic amount of energy. Energy-burdened households spend a disproportionate amount of their income on home energy costs. Tracking energy burden by Census Tract indicates energy equity for communities in PacifiCorp's Oregon service area
Economic Impacts	Increase community-focused efforts and investments	• Headcount of DSM program delivery staff & grants • Public charging stations • Pre-apprenticeship / educational program participation • Resource development workforce and spend	Economic impacts begin when an organization spends money, which creates ripple effects in the economy through the spending of local businesses and household spending of people earning income from those businesses. Tracking community-focused investments in communities helps us understand the economic impact that PacifiCorp is having in communities
Health and Community Well-being	Decrease number of residential disconnections	Number of residential customer disconnections	Access to energy affects the provision and sustainability of basic human needs. Disconnections could be the result of a customer's decision whether to pay utility bills or pay for other basic needs like paying rent, buying food, or purchasing prescription drugs. Tracking disconnections by Census Tract provides an indicator of how communities may be struggling with their basic needs

Next Steps on CBIs

The inaugural CEP will be filed with interim CBIs. Stakeholder input will be critical to formalizing and finalizing CBIs and metrics

- 2023: we will continue to gather and utilize stakeholder feedback throughout to further adjust, modify or expand CBIs
- Q2 2024: More fully formed CBIs and metrics will follow IRP update

Resilience

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What are Resilience & Reliability?

They mean keeping the power on day-to-day and during extreme events

Resilience
the capacity to withstand or to recover quickly from difficulties; toughness.

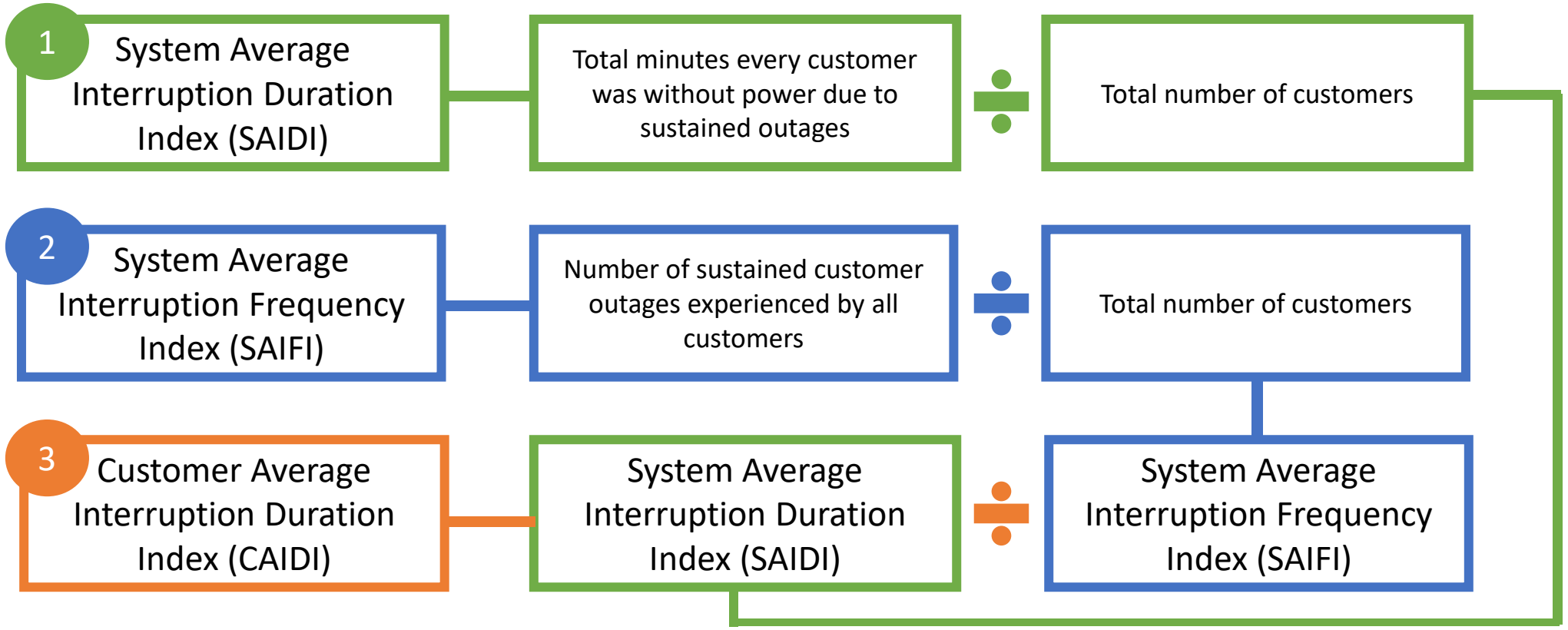
Resilience in energy: preparedness of the system and its ability to cope with various hazards that can disrupt electricity.

Reliability
the quality of being trustworthy or of performing consistently well

Reliability in energy: availability of the electric system when it is needed.

Measuring Reliability

Three traditional metrics used for reliability

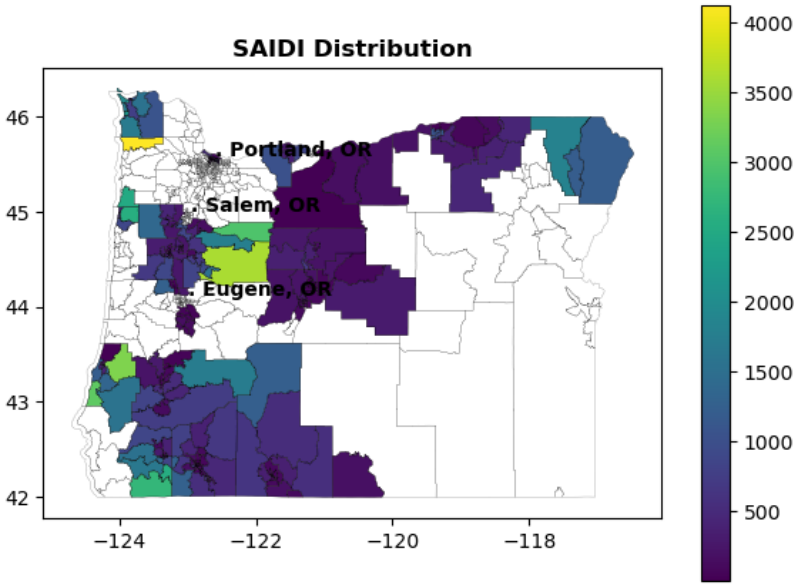


** **Note**: These metrics can be calculated at many spatial scales! **

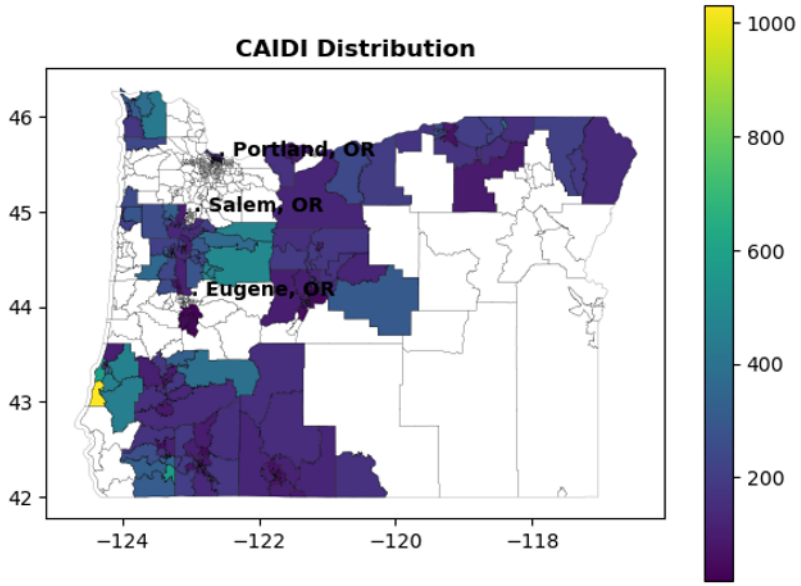
Reliability Metrics per Census Tract

Reliability metrics per census tract in 2022

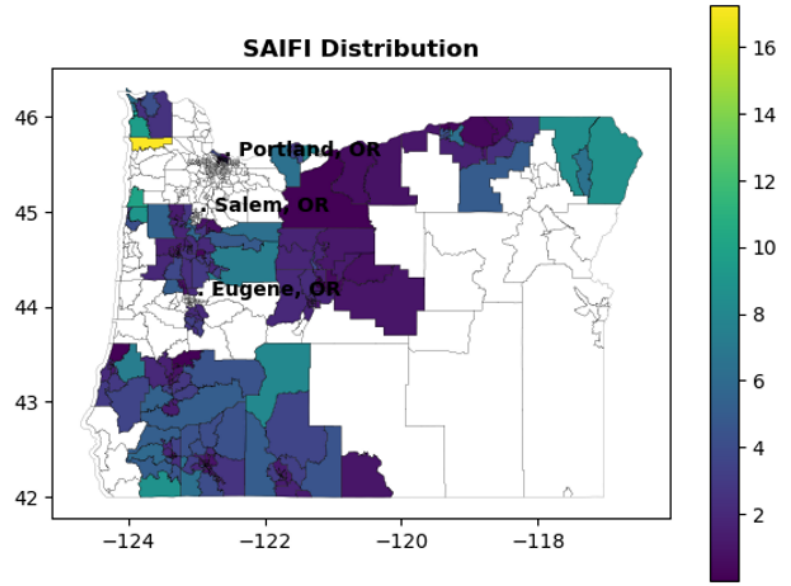
SAIDI per Census Tract (2022)



CAIDI per Census Tract (2022)



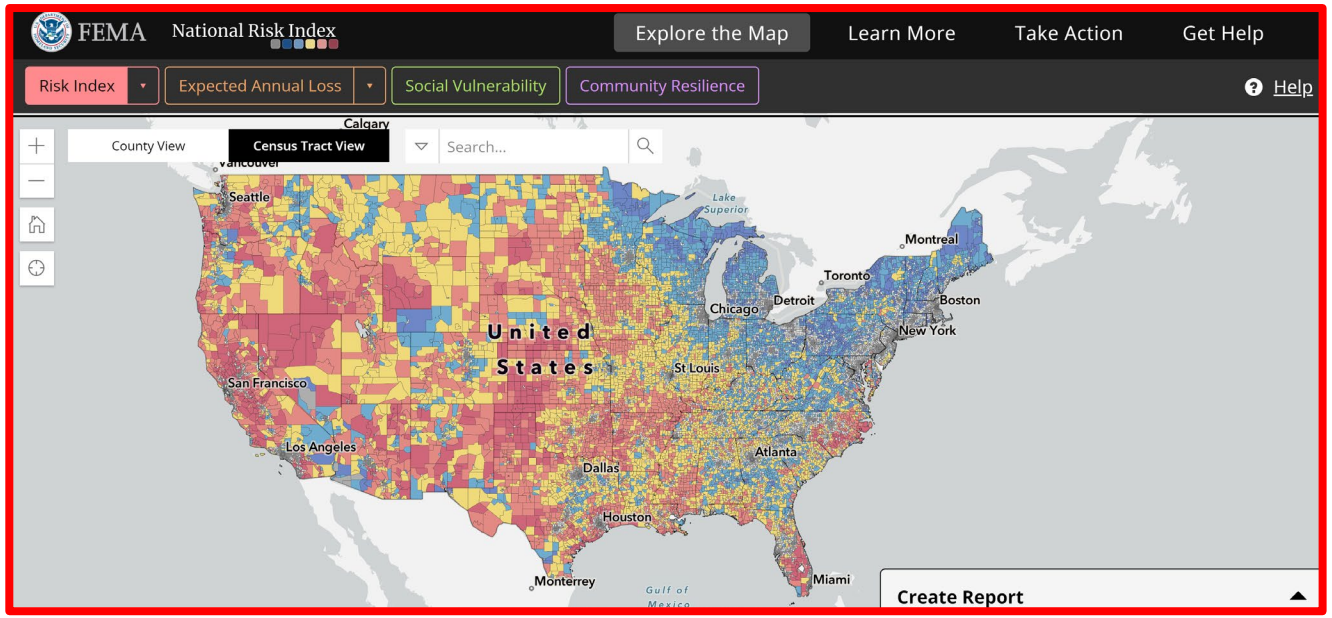
SAIFI per Census Tract (2022)



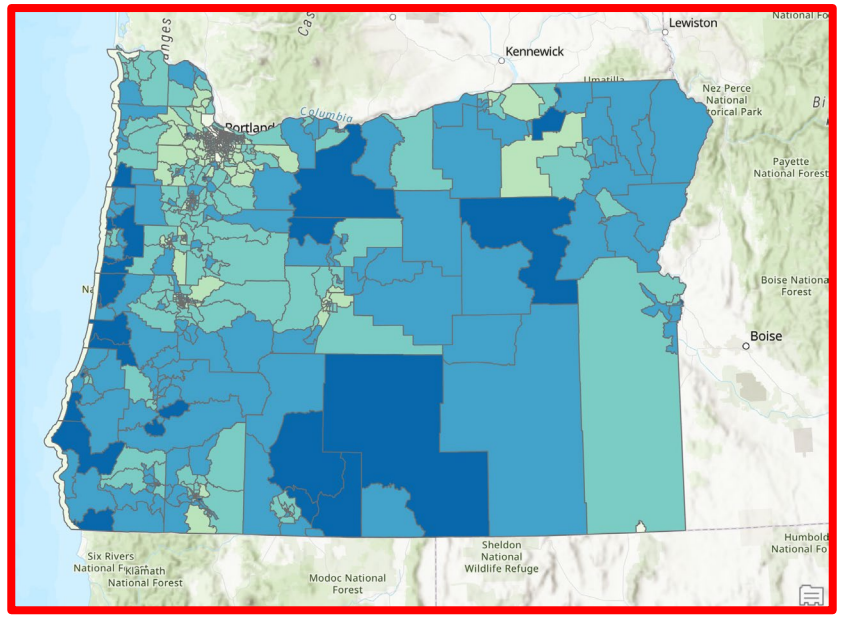
CAIDI = Customer Average Interruption Duration Index
SAIDI = System Average Interruption Duration Index
SAIFI = System Average Interruption Frequency Index

National Risk Index (NRI)

The National Risk Index (NRI) is a dataset produced by the Federal Emergency Management Agency (FEMA) at the census tract level. It includes information on social vulnerability, resilience, susceptibility to natural disasters and other pertinent information.



Social Vulnerability Score (Oregon)



Source: [National Risk Index for Natural Hazards | FEMA.gov]

Calculating Community Resilience

BRIC

Baseline Resilience Indicators for Communities

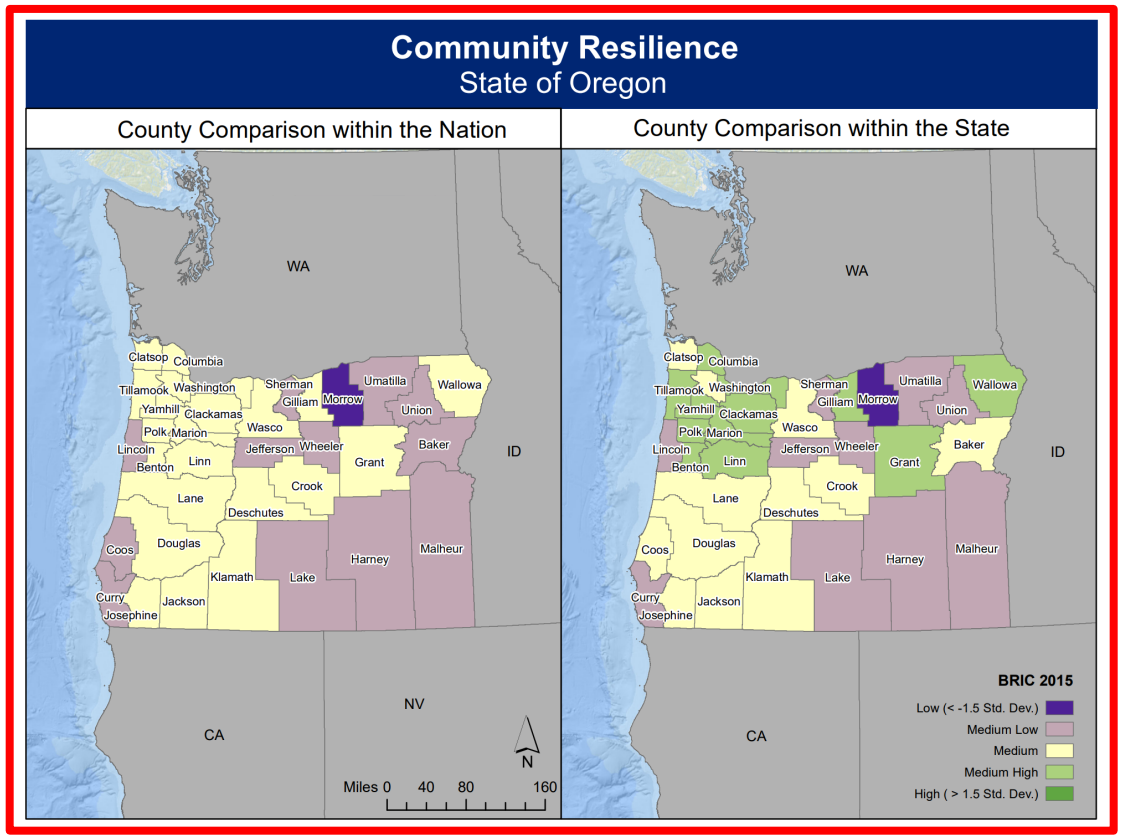
Community resilience (BRIC) is calculated using 49 variables in these grouping categories:

Variable Grouping Categories
Human Well-Being/Cultural/Social
Economic/Financial
Infrastructure/Built Environment/Housing
Institutional/Governance
Community Capacity
Environment/Natural

SOURCE: Table 4: Variable categories used for community resilience.

Mapping of Composite

Community Resilience per County (Oregon)



Social Vulnerability – what variables are used?

Social Vulnerability (SOVI) is calculated using 29 total variables in these grouping categories:

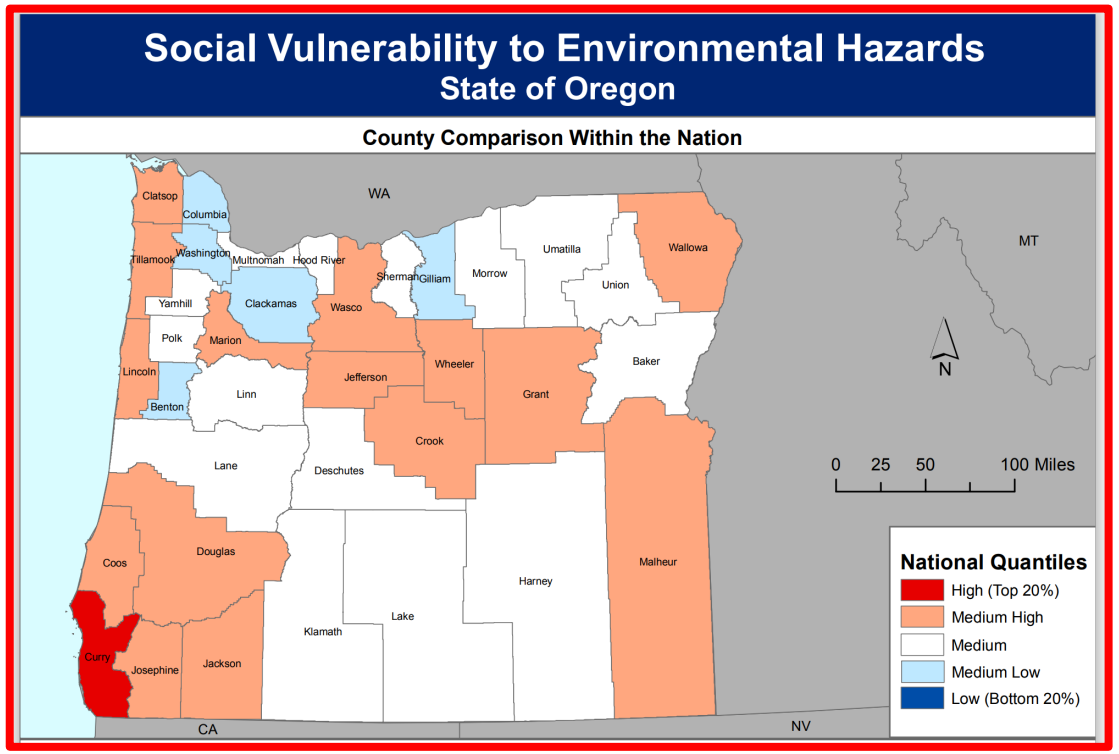
Socioeconomic Variable Groupings
Wealth
Race
Age
Ethnicity
Special Needs
Gender
Service Sector Employment

SOURCE: Table 2: Variable categories used for SOVI.

Mapping of Composite

SoVI® — Social Vulnerability Index

Social Vulnerability per County (Oregon)



Reliability and NRI Results (Top 5 Census Tracts)

We associated the resilience, social vulnerability, and reliability data to each census tract to assess the link between these metrics.

Table 1: Reliability and NRI Data for Top 5 Census Tracts (lowest reliability).

Census Tract I.D.:	County:	SAIDI:	CAIDI:	SOVI Rating:	SOVI Score:	RESL Rating:
41057960100	Tillamook	4,126	239	Relatively Moderate	34.86	Relatively Moderate
41043030300	Linn	3,595	494	Relatively Moderate	33.08	Relatively Moderate
41011000200	Coos	3,334	459	Relatively High	35.16	**Relatively Low**
41011001000	Coos	3,095	1,031	Relatively High	37.39	**Relatively Low**
41047010600	Marion	2,967	473	Relatively High	35.64	Relatively Moderate

CAIDI = Customer Average Interruption Duration Index
SAIDI = System Average Interruption Duration Index
RES = Resilience
SOVI = Social Vulnerability

Resilience Summary

Findings

- We did not identify a strong correlation between social vulnerability and resilience and the reliability metrics.
- These findings indicate that there is “something” there that we need to continue to flesh out.
- Findings show we need to continue with newer datasets and get SME input on potentially important variables.

Expected Next Steps

- Additional analysis with new demographic data from the U.S. Census Bureau (education, poverty rate, health)
- Develop composite resilience scores for each circuit and census tract
- Finalize strategy to incorporate resilience analysis into project planning and prioritization

Community-Based Renewable Energy

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Community-Based Renewable Energy (CBRE) Defined

Allows community-level participation in a renewable energy source that promotes climate resilience and broader benefits. In Oregon, CBRE has three components:

RENEWABLE ENERGY RESOURCE(S)

- Solar, wind or other renewable energy
- Microgrids, storage systems
- Demand response

CONNECTS TO THE GRID

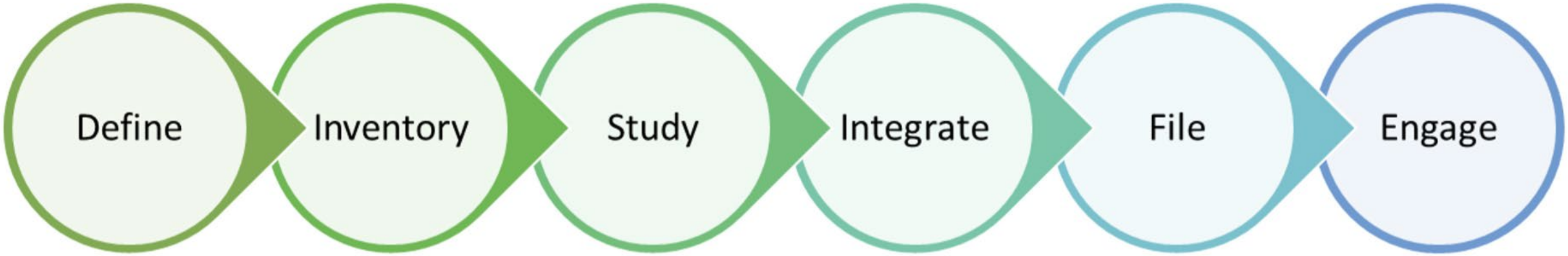
Interconnects to power company distribution or transmission assets

BENEFITS OR OWNED BY THE COMMUNITY

- Includes Community benefits agreements, ownership or other form of direct benefit
- Benefits may include increased resilience, community stability, local jobs or economic development

Source: HB 2021 Legislation

CBRE Development Plan



CBRE Requirements in CEP: Outline requirements, interdependencies and sequence

Inventory of current programs and projects and how they align with the CBRE requirements

CBRE "Potential Study" Develop initial view of potential CBRE impact within Service Area

CBRE in the IRP Process: Work with IRP modeling team to incorporate a "CBRE Portfolio" into the IRP model to meet the requirements to "model offsetting fossil fuels with CBRE"

Prepare CEP filing with interim CBRE Potential Study and Proposed Next Steps/Action Plan

CBRE Content in CEP Engagement Series: Actively engage with CBIAG, Tribal and CEP Stakeholders on CBRE opportunities, approaches, potential measurements, etc. and update the Initial CBRE Action Plan as appropriate

Inventory-Informed "Potential Study"

1) **Group 1:** Total ~ 92 MWs
    a. Community Solar: Customers participate in offsite solar for a monthly bill reduction. Total 65 MWs
    b. Blue Sky Program: Long-running voluntary renewables add-on. Total 4.3 MWs
    c. Energy Trust-Identified Opportunities: Small hydro + Community-focused solar. Total ~ 23 MWs

2) **Group 2 - Small Scale, Community-Based Solar + Storage projects:** Total ~ 3.5 MWs
    a. Based on experience from the PacifiCorp's Community Battery Storage Pilot program and OR Dept. of Energy Community Renewable Energy Project grant funding requests
    b. This portion of the potential reflects the possibility for small-scale, community-based solar + storage opportunities
    c. These may include opportunities like "resilience hubs", small solar connected micro-grids or other community-focused renewable opportunities

CBRE Next Steps

- Continue to refine the Initial CBRE “Potential Study”
- Work with IRP Modeling team to complete CBRE Portfolio in IRP model to highlight potential costs/benefits and “(d) Examine the costs and opportunities of offsetting energy generated from fossil fuels with community-based renewable energy”
- Prepare initial CBRE Action Plan items including key discussion topics for soliciting community and stakeholder input for subsequent Engagement meetings
- Provide introduction to CBRE, outline plan and timeline for stakeholder input and capture any initial feedback on CBRE approach
- Prepare and file the Initial CEP on May 31, 2023
- Actively engage with CBIAG and CEP Stakeholders throughout the CEP Engagement series to gather input on CBRE opportunities, approaches, potential measurements, etc. and update the Initial CBRE Action Plan as appropriate (Please reach out with what you want to see prioritized!)

External Engagement

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Stakeholder Engagement Venues

Oregon Community Benefit & Impact Advisory Group

Clean Energy Plan Engagement Series

Tribal Nations Engagement Series

*Transportation Electrification

Integrated Resource Planning

Distribution System Planning

Public Comment

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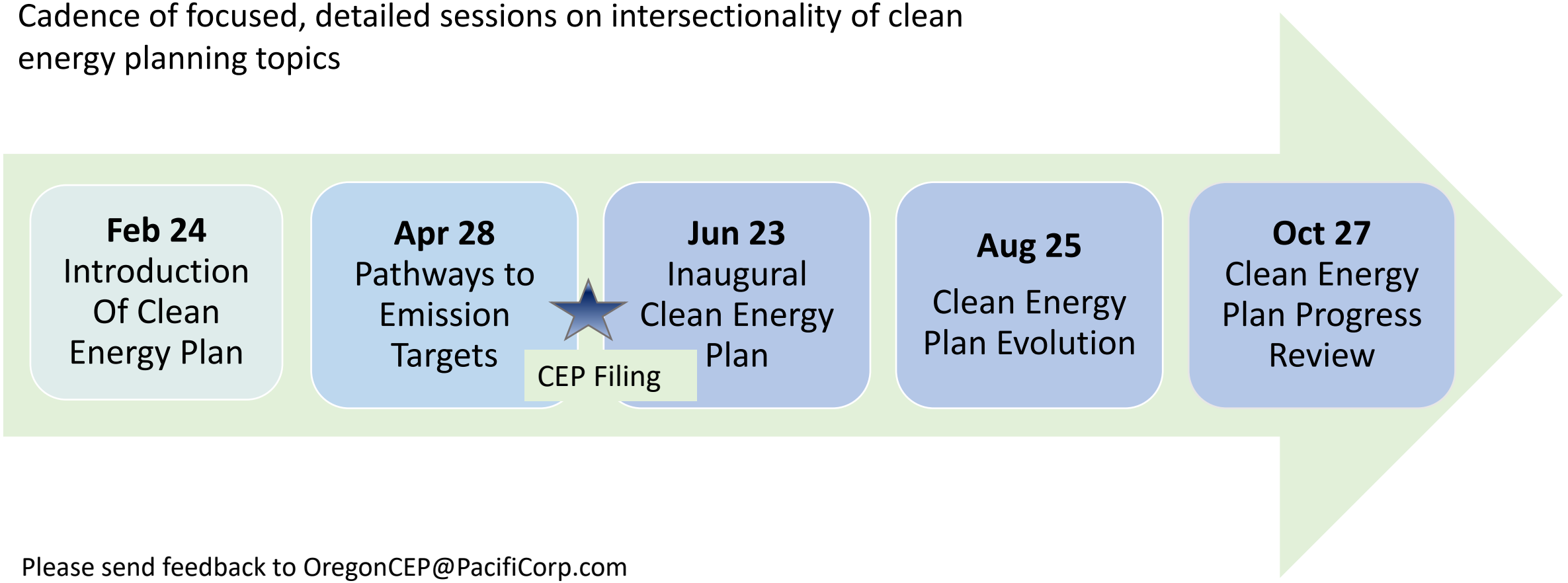
Next Steps

Clean Energy Plan Engagement Series

Cadence of focused, detailed sessions on intersectionality of clean energy planning topics



Please send feedback to OregonCEP@PacifiCorp.com

Dates are subject to change. Stay update-to-date on engagement opportunities, please visit Oregon Clean Energy Plan (pacificorp.com).

Appendix

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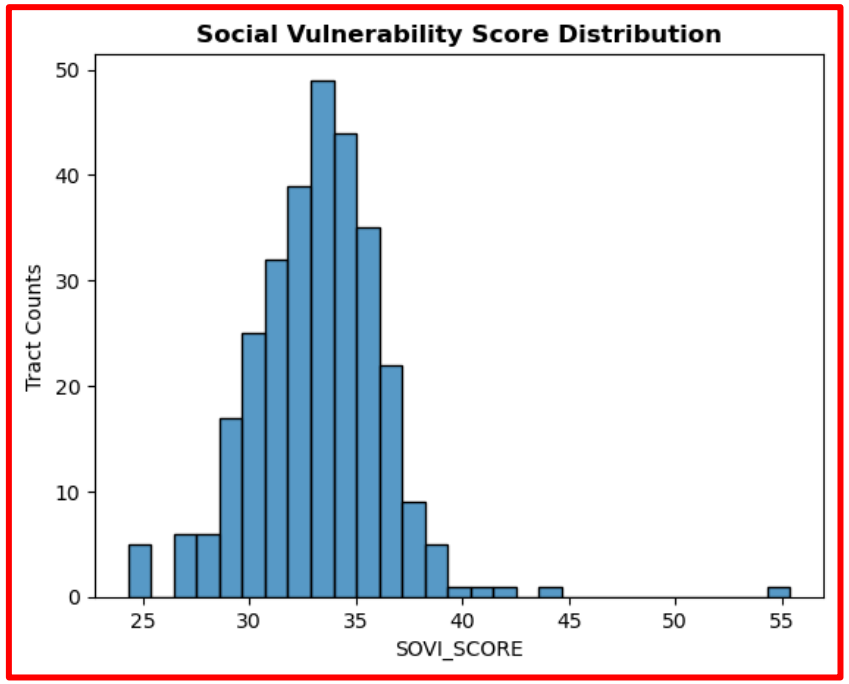
Social Vulnerability – what is the distribution in Oregon?

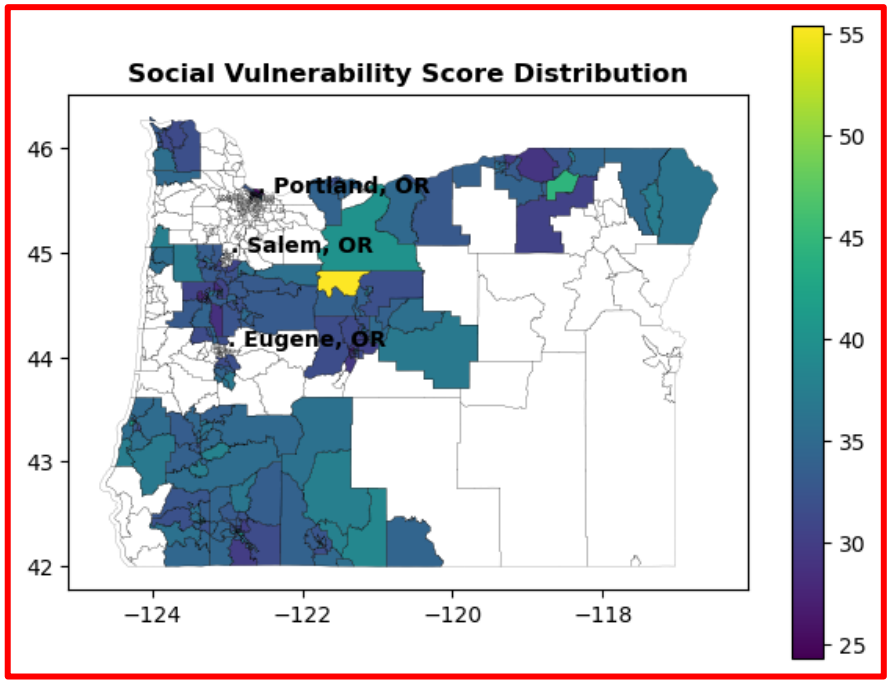
Overview: Social Vulnerability (SOVI) is calculated using several socioeconomic variables. Census tracts where Pacific Power serves, and their SOVI mapping is below:

Distribution of Scores



Mapping of SOVI

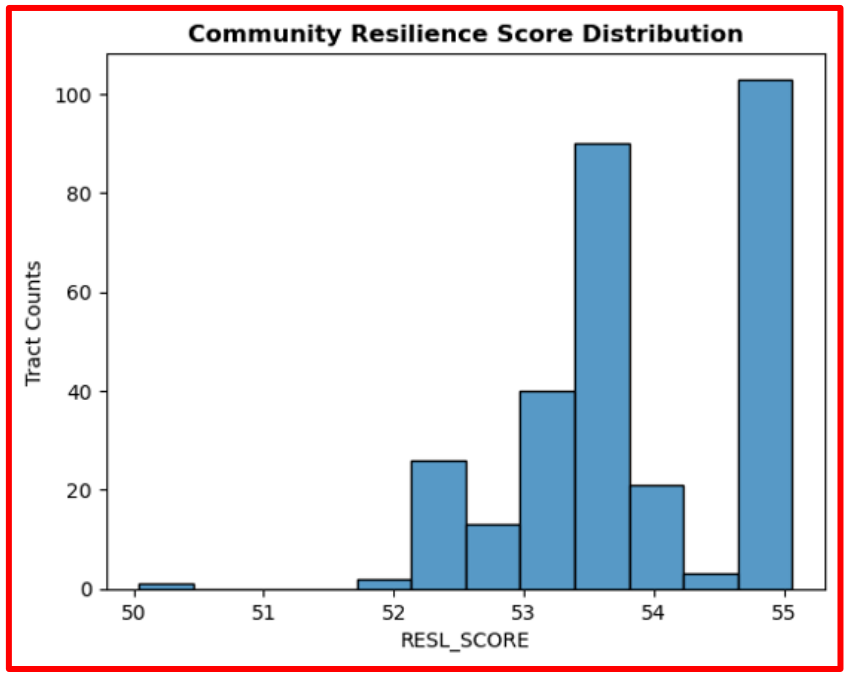
Mapping of SOVI per Census Tract



Resilience – what is the distribution in Oregon?

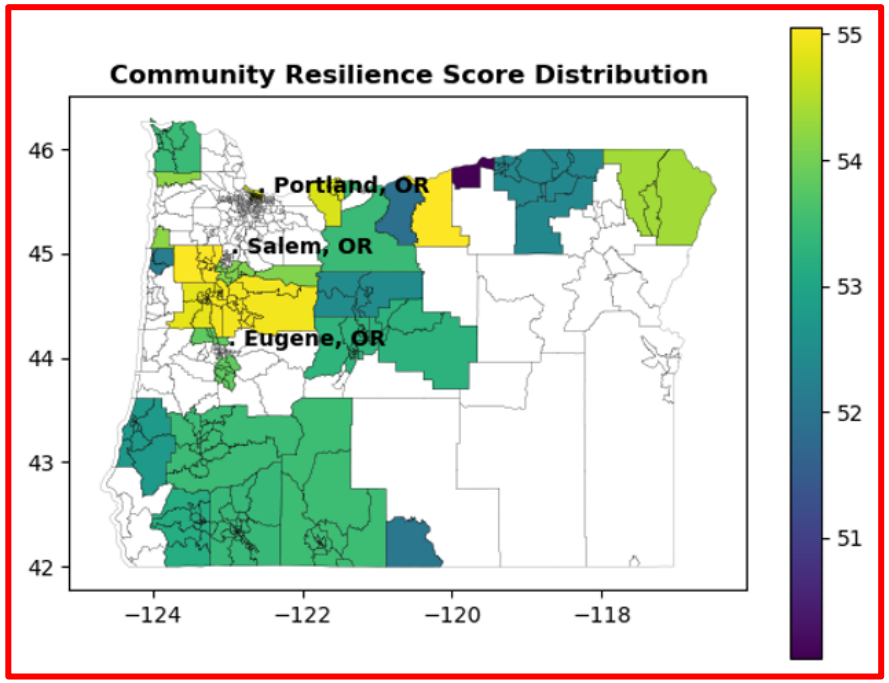
Overview: Community Resilience (RESL) is calculated using several socioeconomic variables. Census tracts where Pacific Power serves, and their RESL mapping is below:

Distribution of Scores



Mapping of RESL

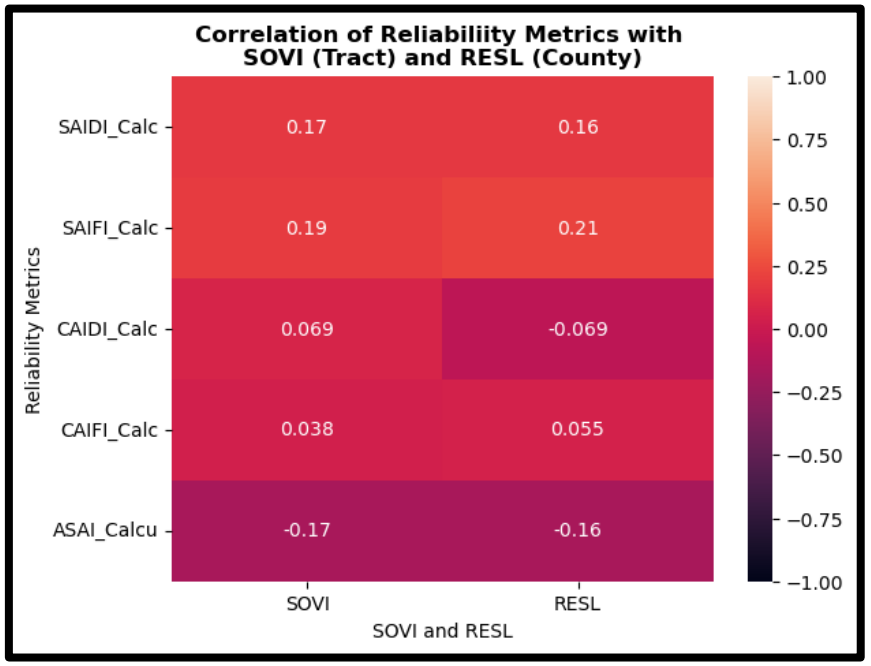
Mapping of RESL per Census Tract



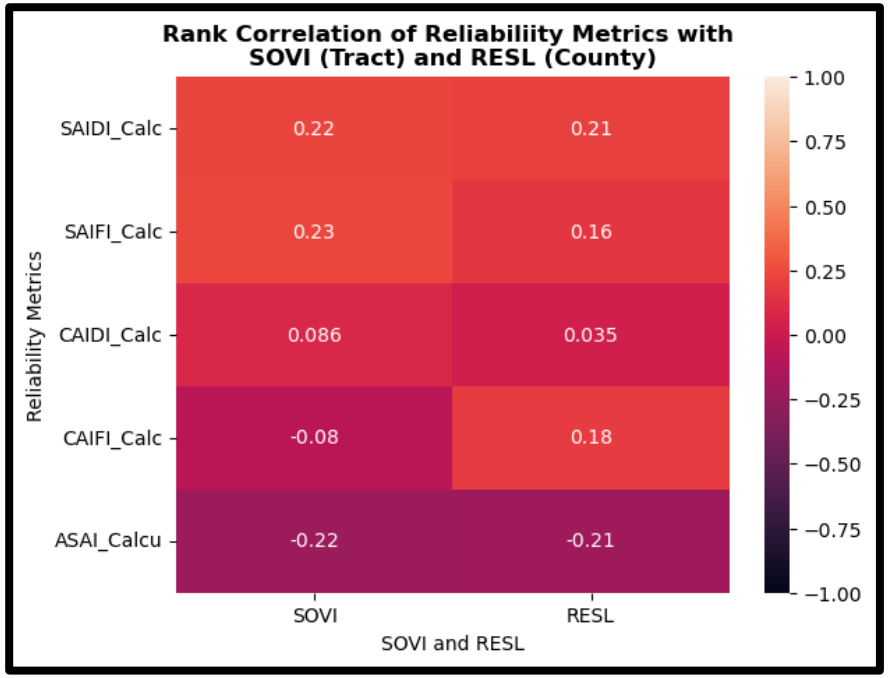
Reliability and NRI Results (Correlation Analysis)

Overview: Correlation analysis was completed for the reliability metrics and social vulnerability and resilience.

Correlation Heat Map



Ranked Correlation Heat Map



Correlation Ranges:

- 1 **0** **1**

Negative Correlation **No Correlation** **Positive Correlation**

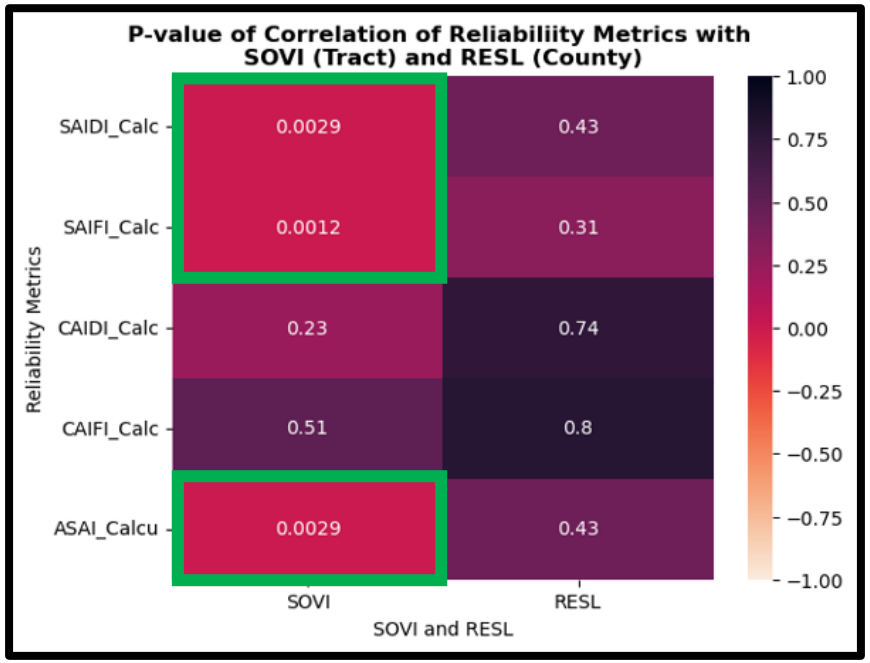
Var 1 **Var 2** **Var 1** **Var 2**

These are considered “weak” correlations.

Reliability and NRI Results (Significance?)

Overview: Correlation analysis was completed; however, we'd like to know if there was a statistically significant relationship.

Statistical Significance?



Note: Statistical significance = $p \leq 0.05$.

❑ Statistical Significance Findings:

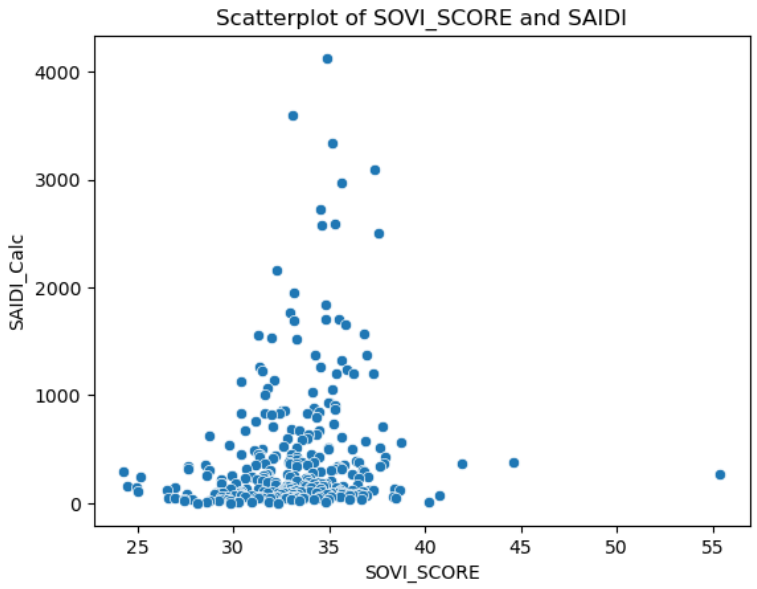
- Social Vulnerability seems to have a statistically significant relationship with SAIDI, SAIFI, and ASAI.
- Community resilience does not appear to have any significant relationship with the reliability metrics.
- **Next Steps**: try other variables in the NRI dataset.

These are considered "weak" correlations.

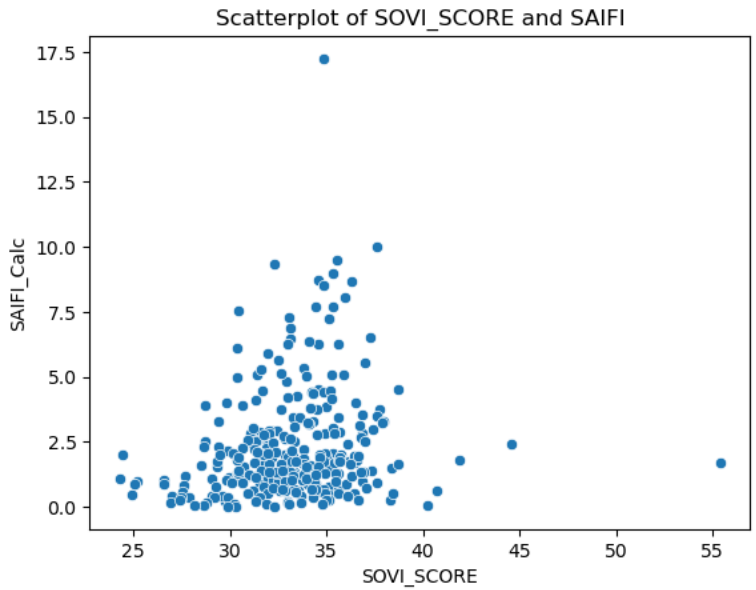
Reliability and NRI Results (Scatterplots)

Overview: How are the reliability metrics and NRI varying?

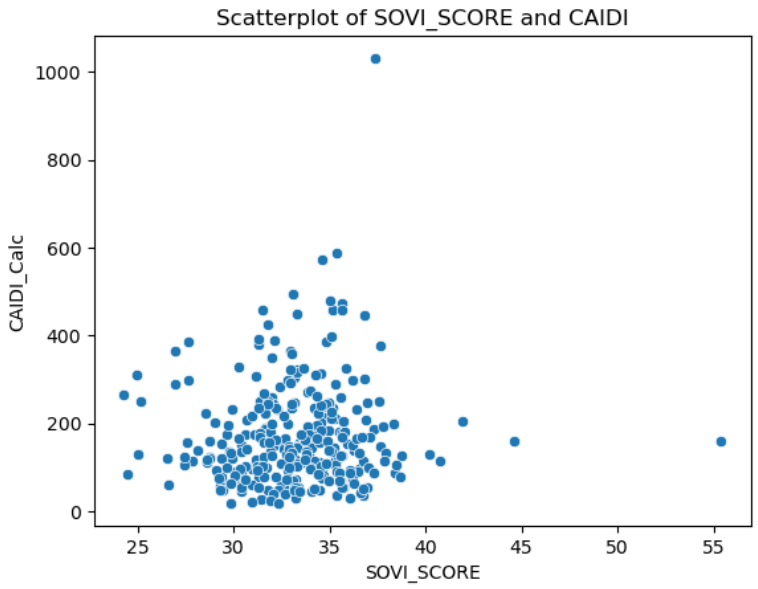
SAIDI vs. Social Vulnerability



SAIFI vs. Social Vulnerability



CAIDI vs. Social Vulnerability



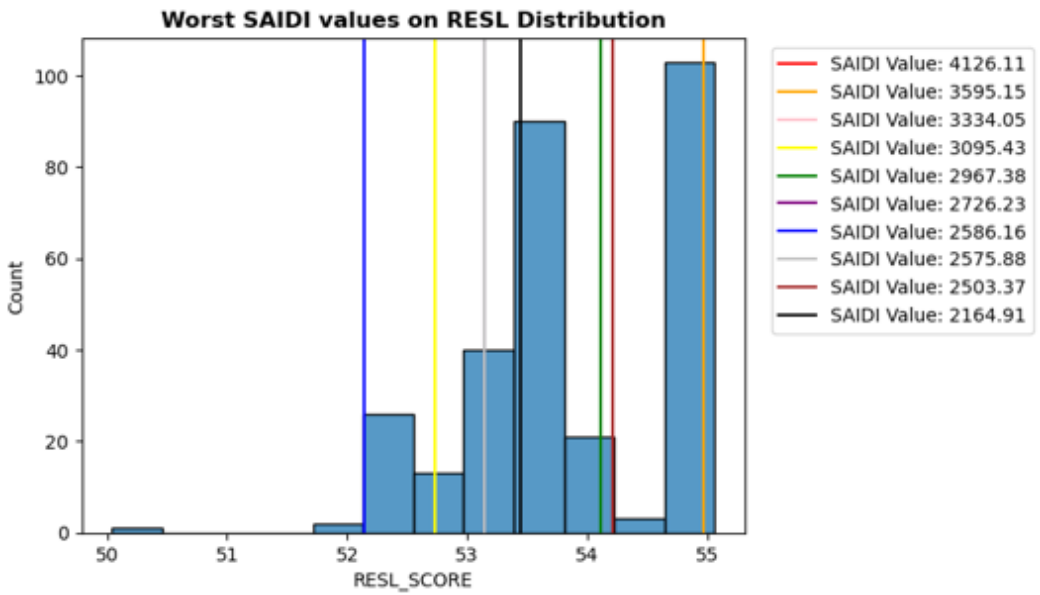
These scatterplots tell us the <u>relationship</u> between the variables.

Top 10 Worst Performing SAIDI

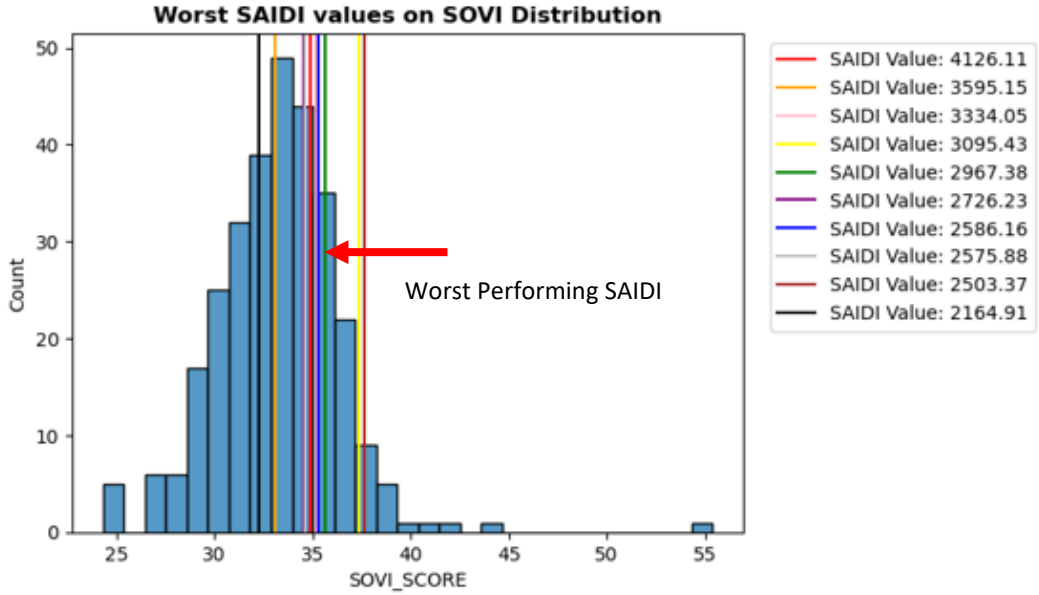
SAIDI

Overview: How are the reliability metrics and resilience/vulnerability for the 10 top worst reliability census tracts?

SAIDI vs. Resilience



SAIDI vs. Social Vulnerability



** Lines indicate where the worst reliability metric falls. **

Summary of Findings and Key Takeaways

Overview: Our analysis reveals some interesting findings when using the FEMA datasets and our reliability data from 2022

❑ **Correlations:**

✓ We do see some weak correlations regarding social vulnerability and resilience and the reliability metrics

✓ These findings indicate that there is “something” there that we need to continue to flesh out

✓ Findings show we need to continue with newer datasets and get SME input on potentially important variables

CEP Resilience Work (High-Level Results)

Objective: Review some high-level socioeconomic and reliability metrics in Oregon.

This analysis is *high-level* only and the results do not indicate causation. The results only show patterns in reliability vs. socioeconomic factors.

❑ Socioeconomic Data Used (census tract; not all-inclusive):

- Race breakdown
- Population (age breakdown)
- National Risk Index (NRI) – social vulnerability, resilience, recovery from disasters.
- NRI also includes vulnerability to wildfires.

PacifiCorp Stakeholder Engagement

Oregon Tribal Nations Engagement Series Meeting	**5/19/2023**	**9-11am PST**	**Oregon Tribal Nations Clean Energy Engagement Zoom**
Clean Energy Plan Engagement Series	6/23/2023	1-4 pm PST	Clean Energy Plan Engagement Series Zoom
Oregon Community Benefits + Impacts Advisory Group	5/18/2023	1-4 am PST	Oregon Community Benefits Impacts Advisory Group Zoom