



## **R100**

# **The “Responsible 100%” Clean Plan**

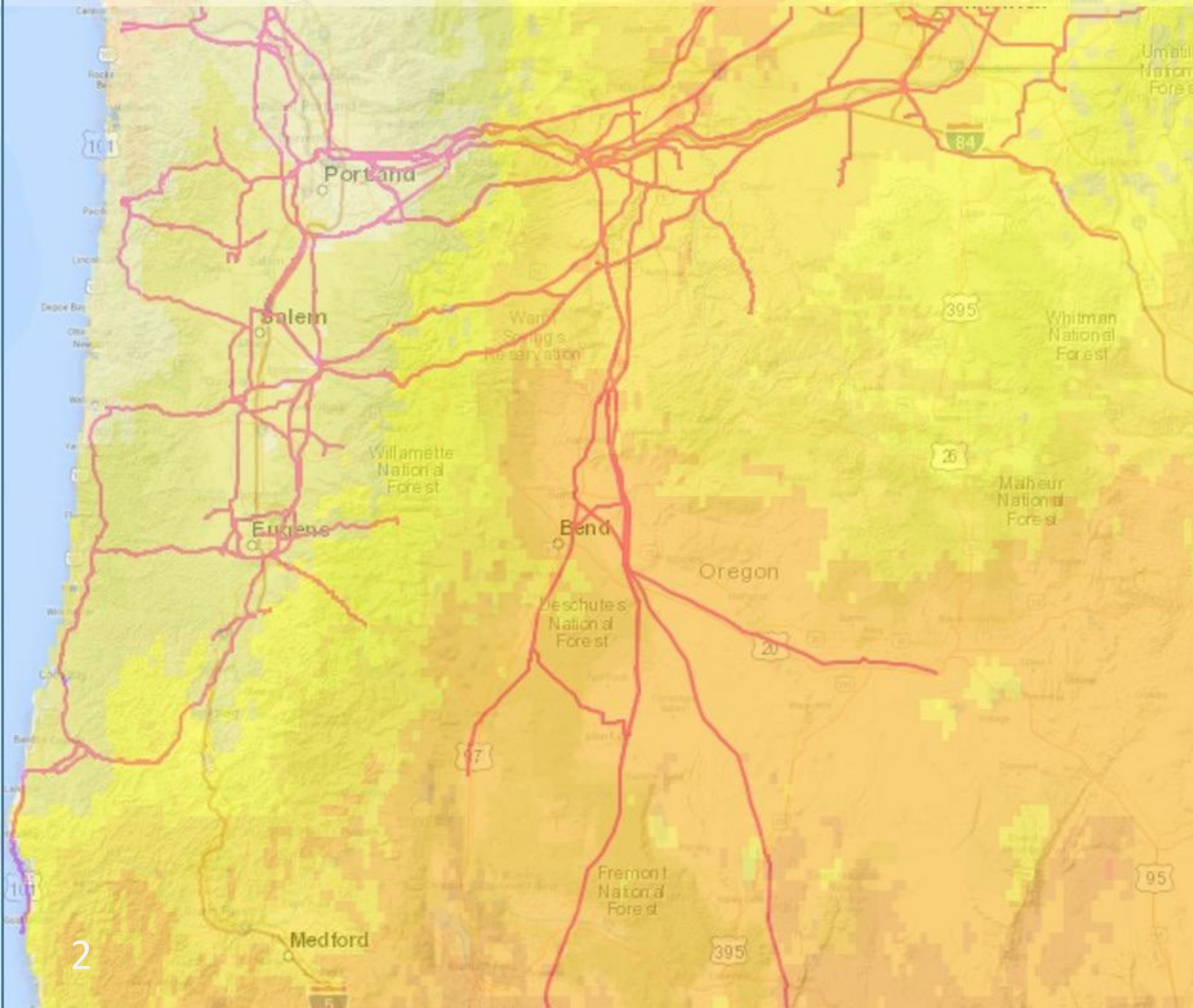
Solutions-Oriented, Economic Development, Aggressive-but-Pragmatic,  
Oregon-Benefits-Maximizing, Energy- & Fiscally-Smart,  
Investment-Unleashing, Fast-Track Decarbonization Plan

**For the Most Important Decade in the History of the World**

**Jake Stephens, CEO, NewSun Energy**

Friday, December 18, 2020

Oregon House Energy & Natural Resources Committee



# NewSun<sup>™</sup> ENERGY

- **Jake Stephens, Intro & Background**
- **Core Principles for 100%**
- **The Challenges**
- **The Good News – and Opportunities**
- **Key Solution needs**
- **R100: The Plan & Results**
- **The Imperative of NOW**



# Donation made



Jake Stephens (center), CEO of NewSun Energy, donates to the Harney County CattleWomen's Scholarship program during the Harney County Fair. Scholarship recipients (L-R) Risa Thompson, Tea Re...



**NewSun Energy**  
&  
**Harney District Hospital**  
*Specialty Care Clinic*

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ENERGY

# Core Principles - 100% Clean



- **#1 – Must Act Now! Most Important Decade in the History of World**
- **#2 – It Must Succeed: Policy Must Facilitate, Not Impede Climate Goals**
- **#3 – Maximize Oregon Winners: Major Econ Dev Opp & Post-COVID Stim**
- **#4 – Fix Known Limiters, including Transmission & Conflicting IOU Incentives**
- **#5 – Address Major PNW Capacity Shortages. Multi-\$B “Lights Out” Issue.**
- **#6 – Radically Limit Natural Gas Usage ASAP**
- **#7 – Expand Proven Tools: RPS + PURPA. Unleash Investment. Build Now.**
- **#8 – Maximize Non-Emitting Firm & Dispatchable: Go Greener Faster**
- **#9 – Avoid & Fix Major Cost Issues, re: cost of 90-100%.**



# The Challenges

## Practical

- **Lack of Transmission Capacity**
- **Long Development Timelines**
  - **Generation:** 4-7 Years
  - **Transmission:** 7-15 Years
- **The “Cost of Perfection”**
  - 100% “pure” = hard; 90-100% = \$\$\$\$
- **PNW Capacity Shortfall**
  - 8 GW (2030); 30 GW (2050)
  - No Dev Pipeline; Anti-Gas Backdrop
- **Other**
  - **Battery Costs @ 24-48 hrs very expensive**
  - Permitting at State Level (EFSC)
  - REC trading (CETA) work-arounds



## Structural

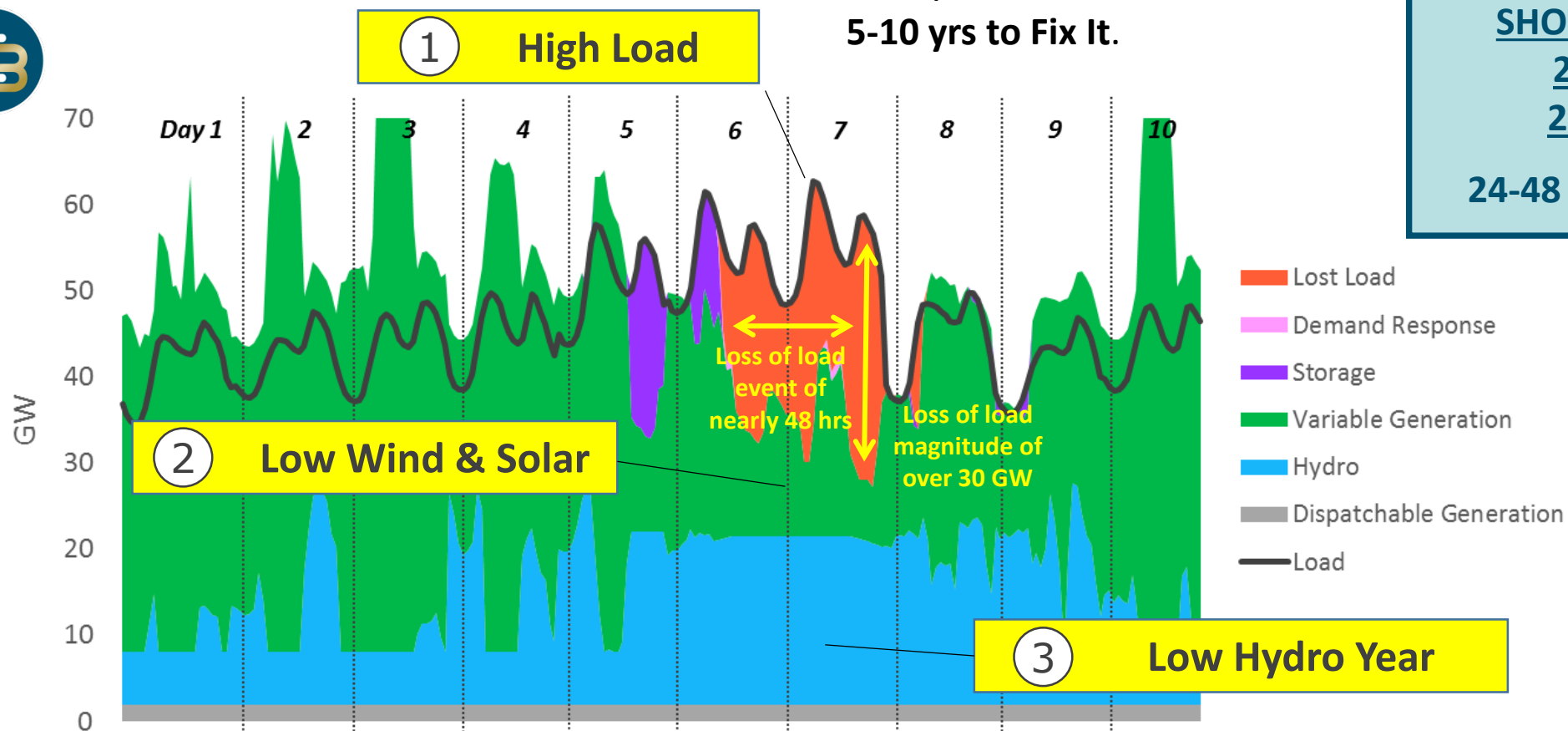
- **RPS Has No Teeth**
- **OPUC:**
  - Will never penalize IOUs
  - Slow, Overworked, Understaffed
- **The Utilities (IOUs)**
  - Ownership Bias = Conflicting Incentives
  - Bureaucratic, Slow, Not Cost Effective
  - Bad at Project Development
  - Resources to Suppress Competition
  - Interconnection Process/Time
- **Transmission Takes Forever.**
  - Permits
  - Planning
  - Triggering Investment
  - Etc.

# PNW Capacity Shortage

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Multi-\$B+ Problem  
5-10 yrs to Fix It.



SHORT-FALL EXPOSURE:

2030: 8,000 MW

2050: 30,000 MW

24-48 hr load loss exposure

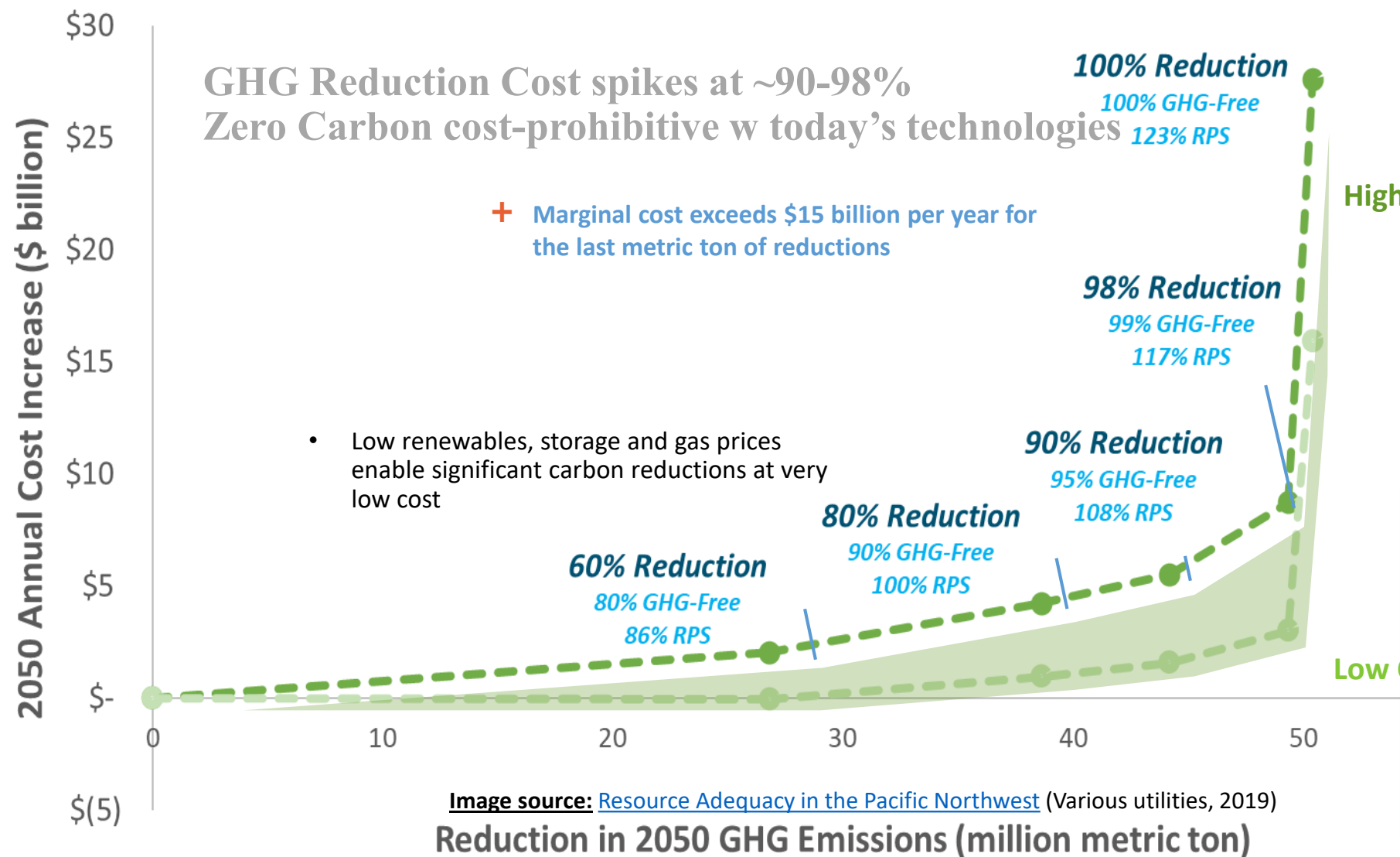
Must Have  
Firm Capacity  
Generation to  
“Keep the Lights On”

“Firm capacity”  
a resource that can  
run when needed for  
as long as needed

+ #1 Challenge for a Deeply-decarbonized PNW grid is when  
a multi-day cold snap occurs during a low-hydro year:

# Perfect is Expensive: 90-100%

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*E3's PNW & CA studies show very high cost of trying to achieve zero carbon with only wind, solar, hydro and storage*

**IMPLICATIONS:**  
***Critical to Keep Existing Hydro & Turbines;***  
***Major Cost-Reductions via Low-Use of Turbines***

# Good News & Opportunities



- **Renewables Are Cheap Now**
- **Major *Existing* Development Pipeline**
  - 2-3 GW Solar & Wind, In Oregon
  - We Can Start Now, Build Now. 2022, 2023, 2024, 2025...
- **Rs & Ds can Both Win:** Econ Dev is Good in Rural Oregon.
- **\$B Econ Dev Opp – ASAP – Post-COVID – No Cost to State Treasury**
- **Aggr. RPS reaches All Corners of Oregon**
- **Two Birds:** Helps Resiliency & Wildfire Risk
- **Existing, Proven Model w/ RPS + PURPA.**
- **PNW Hydro is Major Asset.** Carbon-free, Mega-Battery System!

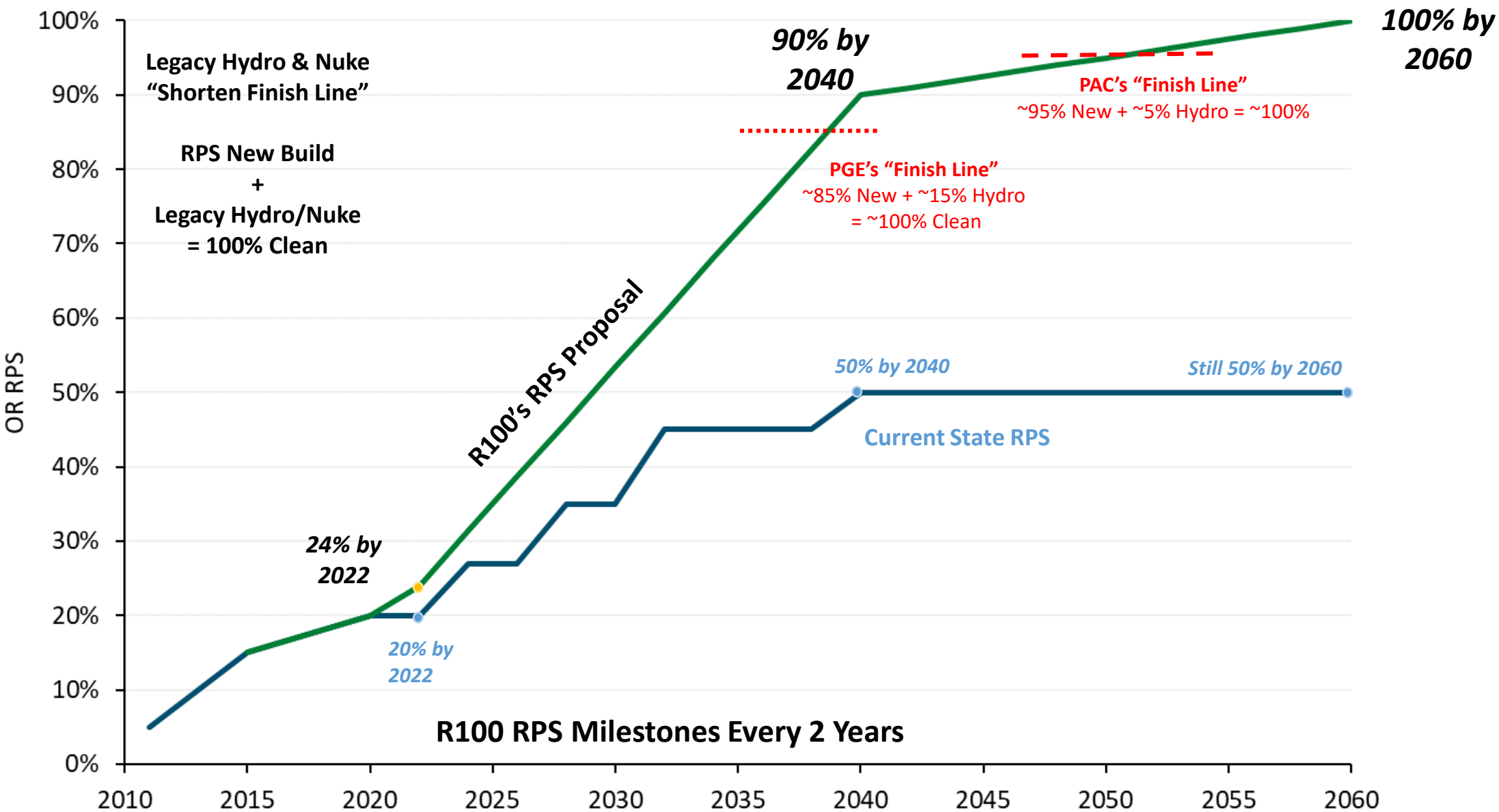


# R100 – Primary Features

## **BUILD RENEWABLES: Accelerates Decarbonization by:**

- **Steeper RPS Curve. 90% by 2040.** New Biannual Targets @ 2022.
  - Legacy Hydro/Nuke “Shortens the Finish Line” for IOUs
- **Strengthen PURPA:** Existing, Proven, Steel-in-Ground. \$.
  - 25 Year PPAs + 80 MW std contracts. For scale & competitiveness.
  - Ensures Geographic Diversification of Economic Benefits. Works for Rural Oregon.
  - Accelerates Investment; removes utility procurement as GHG-reduction delay
- **Add Teeth to RPS (and Community Renewables Std & FPO).**
- **Fix IOU Incentives:**
  - **Allow Cost Recovery/Profit on PPAs (incl. PURPA)**
  - **Rate Base DG:** Loss of Meters issue... but DG/EE must be part of solutions
  - **Performance Rate Making:** Reward Good (\$); penalize failures (\$)

# R100 RPS Curve: 90% by 2040



# Fossil Phase-Out Standard

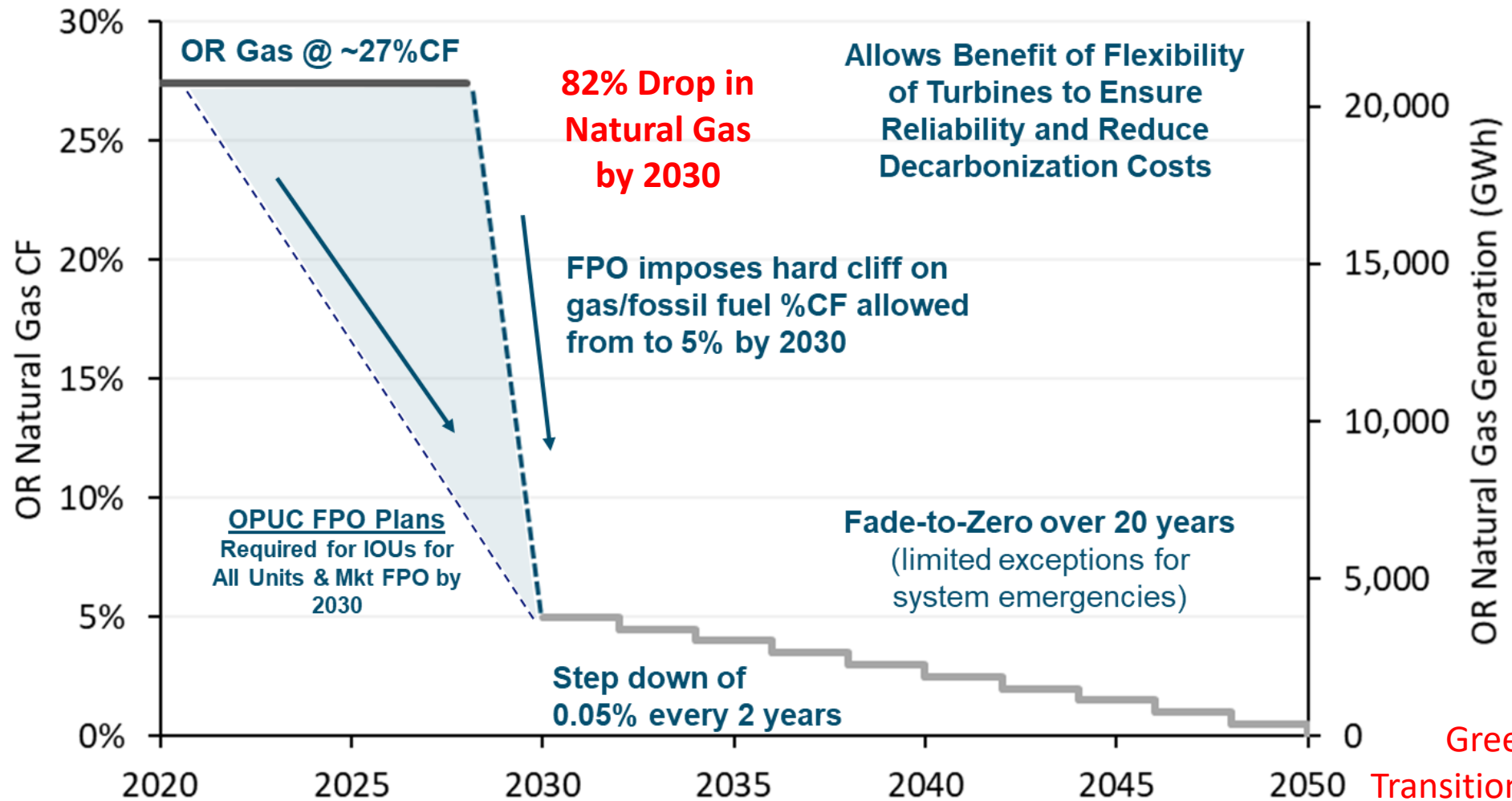
- **5% Fossil Inputs CAP by 2030; ~0% by 2050.**
- **PER UNIT + PER MKT:** On all NG/fossil gen by 2030
- **Fades to Zero by 2050:** 5.0%, 4.5%, 4.0%, ... 0.5%, 0%.
- **Limited Exceptions @ Reliability & Cost-Spike Events:** Protects Ratepayers
- **No Utility Profit on non-FPO Gen after 2030**
- **Hard Deed Restrictions & Fines;** facility removal risk.
- **Green Hydrogen Transition Platform**

## Benefits:

- **Radically Reduces Natural Gas Use (80-90+%)** – in Oregon & serving Oregon
- **Practical, Fast-Track Path to Zero/Low Carbon ASAP**
- **Allows Benefits of Existing Turbines** – without the carbon
- **Reduces Capacity Solution Costs.**
- **Avoids Major Ratepayer Risks.**
- **Mitigates Transmission Needs.**



# Fossil Phase Out (FPO) Standard



Source: EIA Oregon Natural Gas 2019 State Statistics

# R100 – Supporting Features

- **Oregon/PNW In-State Siting @ 50%: \$4-6 B build OR by 2040.**
  - Resiliency, Wildfire Risk Reduction
- **Adds Meaningful Requirements & Incentives for Key Target Outcomes**
  - Labor, Diversity, Local Content, DER/DG proliferation, Community Renewables
  - Protects Lowest 10% Income from any RPS costs
- **Forces Planning for Key Problems (IOUs @ PUC):**
  - RPS, FPO: Solution Schedule
  - Transmission: Needs, Planning, Construction.
- **Forces Full Solution Set to Achieve RPS:**
  - Distributed Gen + EE + DSM vs Transmission Timing & Cost
  - IOUs must consider & quantify re: Schedule Risk
- **Enables Energy Storage:** Charging, Non-Emit Preferred
- **Updates OPUC Mission Statement:** To Include GHG, Environment, Climate, SJ/EJ.



# STRENGTHEN EXISTING PURPA STATUTE

Fill-in-the-Blank & Invest

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**Proven: \$1B**  
of Direct Investment  
in Rural Oregon  
in just 4 years (2016-20)  
Via  
PURPA < 10 MW PPAs

**Proven, Steel-in-the-Ground, Model**

**Unleashes Direct Investment in Oregon**

**Maximizes Achievable Decarbonization**

Simple Fixes Needed:  
Typical Term Lengths  
25 Year Fixed Pricing

Full Economies of Scale:  
Std PPAs to 80 MW



# + The Opportunity to Agree

Let's Leverage What We Agree On:

**BUILDING SOLAR & STORAGE IN OREGON (\$4-6B)**

**D<sub>s</sub>**

**Major Econ Dev Opp  
Major Property Tax Opp  
Jobs, Jobs, Jobs  
COVID Recovery  
Sooner is Better**

**R<sub>s</sub>**

**ACT on Climate Change, Now.**

# RESULTS: What R100 Does



- **Geographic Diversification of Economic Benefits. All Corners.**
- **Jobs Jobs Jobs -- IN OREGON -- more than current labor capacity**
- **Full Hotels & Restaurants -- Build More**
- **Unleashes Private Capital & Entrepreneurship, NOW**
- **Accelerates Decarbonization, NOW**
- **Millions of Direct Investment for Development**
- **Billions of Direct Investment for Construction**
- **Millions of Local Property Tax Revenues**
- **Starts the “Solutions Clock” (transmission)**
- **Provides a Bipartisan-Supportable 100% CLEAN SOLUTION**

# **Why Now? We Have To.**

- **Most Important Decade in History of the World**
- **Development Lead Times Require Action Now**
- **Projects in Pipeline, Ready to Go - Build Those Now**
- **Trigger Investment Now**
- **Post-COVID, Treasury-Neutral, Econ Stim Bill!**
- **Bipartisan Opportunity**
- **Let's Do This.**



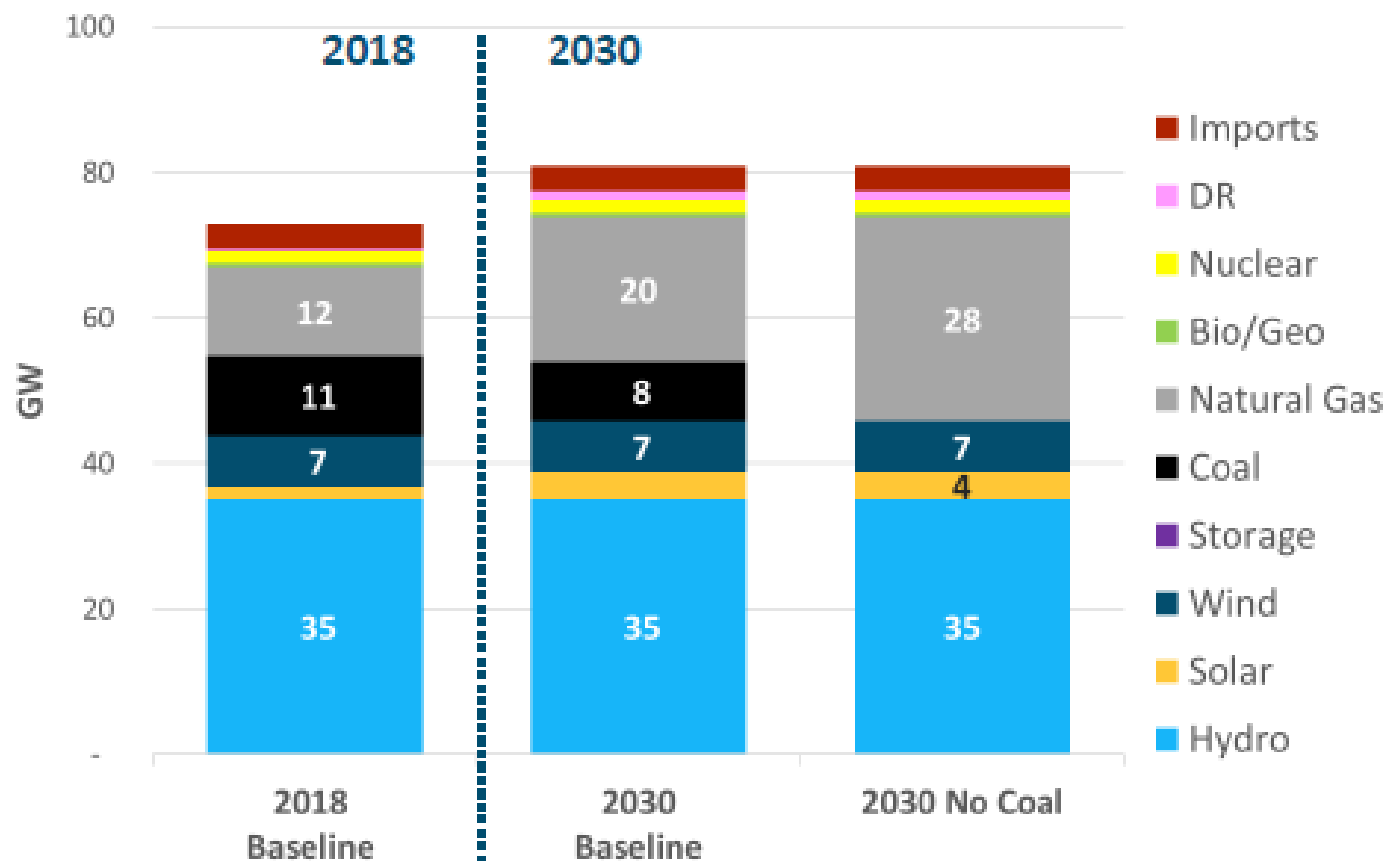


# Back-Up Slides

- Construction Images
- E3 Capacity Shortage
- BPA Transmission Map & Solar Resource
- BPA Solar & Wind Development Pipeline Map (Dec 2020)
- Existing OR RPS Standard



# E3 NW Resource Adequacy Study: 8 GW new capacity needed by 2030



With 3 GW of planned coal retirements, 8 GW of new capacity is needed by 2030 (730 MW/yr.)

If all coal is retired, then 16 GW of new capacity is needed by 2030 (1450 MW/yr.)

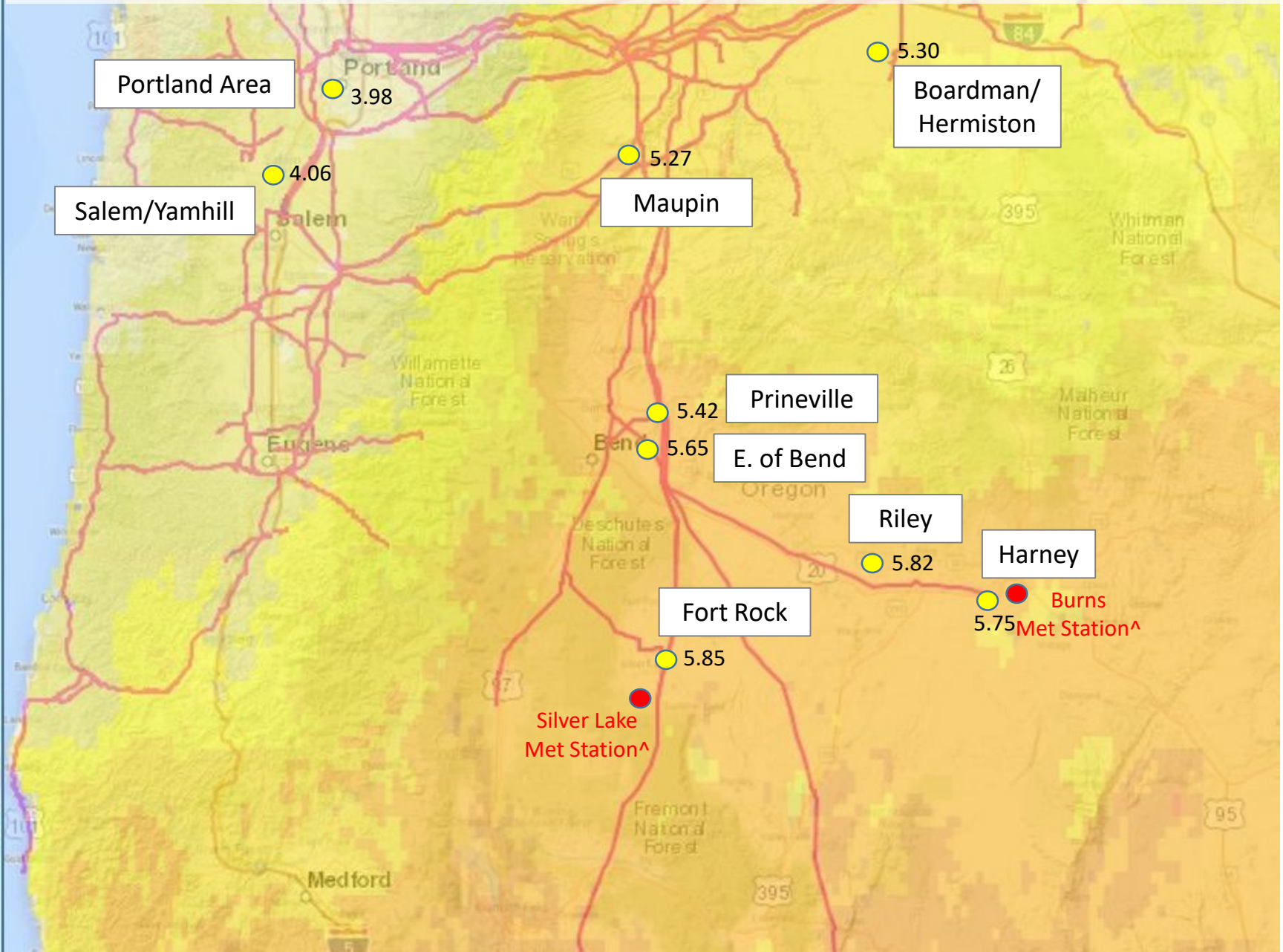
GHG Free Generation (%)	61%	61%
Carbon (MMT CO2)	67	42
% GHG Reduction from 1990 Level	-12%*	31%

\*Assumes 60% coal capacity factor





# Solar Resource Summary for Oregon BPA System



	2014NSRDB* (1998-2014) kWh/m <sup>2</sup> /day		
	TMY		TMY DNI**
● Resource Refs	GHI	DNI	% of Fort Rock
Fort Rock Sub	4.60	5.85	100%
Harney Sub	4.52	5.75	98%
Maupin	4.31	5.27	90%
Salem	3.70	4.06	69%
Portland	3.64	3.98	68%
Riley	4.55	5.82	100%
Bend	4.51	5.65	97%
Boardman	4.27	5.30	90%
Prineville	4.39	5.42	93%

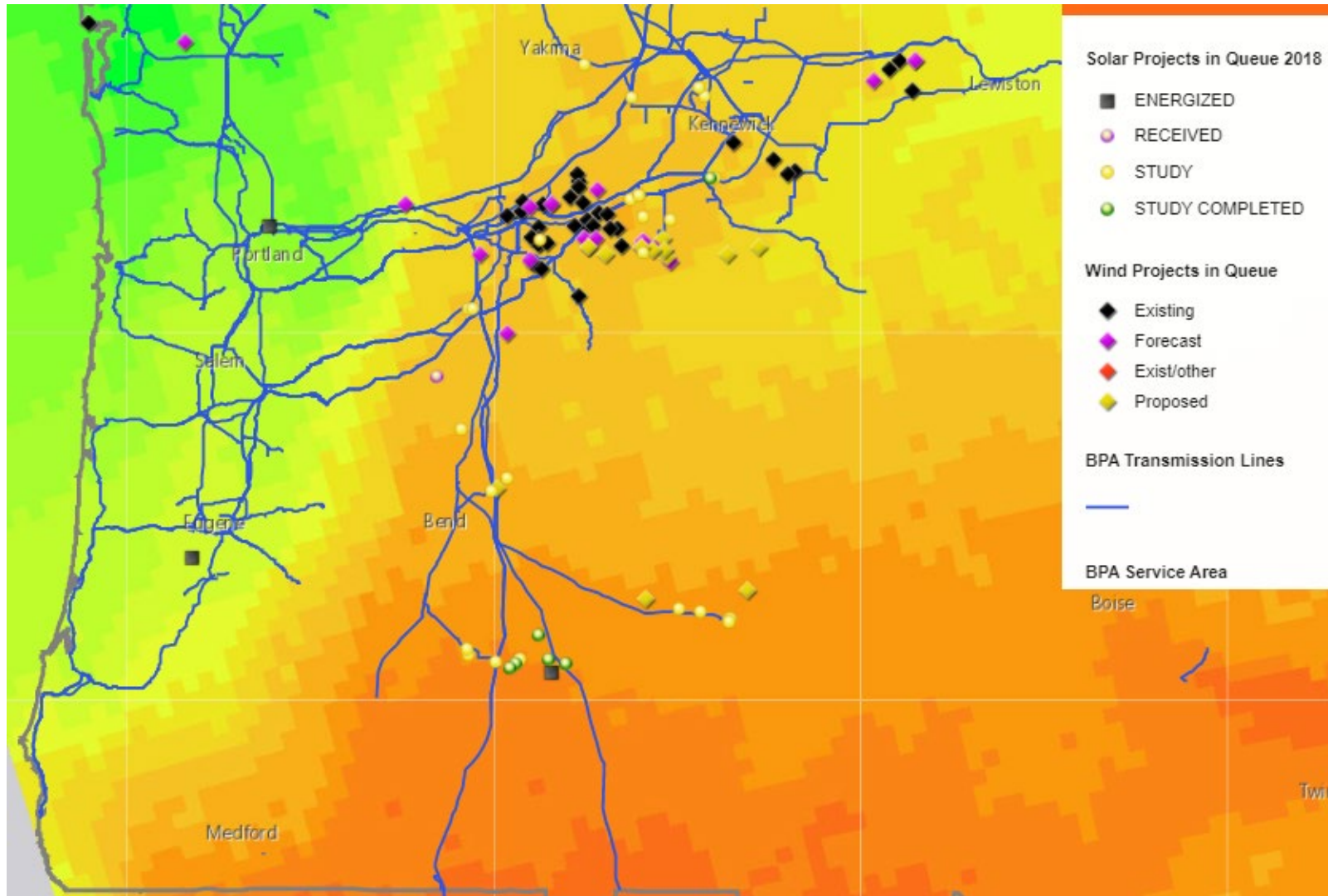
\*University of Oregon met stations in Burns and Silver Lake support 2014 NSRDB values for eastern Oregon.

\*\*Fort Rock used as comp/reference point proxy for best solar resource in OR.

● ^Univ. of Oregon SRML Met Stations network

# BPA Solar & Wind Projects in Queue

## 25 projects with 2811 MW in queue as of Dec 2020





# OREGON'S RENEWABLE PORTFOLIO STANDARD

	Oregon RPS
<b>Established</b>	2007 (SB 838) ; updated 2016 (SB 1547)
<b>Targets</b>	25% by 2025 and 50% by 2040 - entities serving 3% or more of the state's load 10% by 2025 - entities serving 1.5–3% of the state's load 5% by 2025 - entities serving less than 1.5% of the state's load
<b>Eligible Resources</b>	Wind energy; solar photovoltaic and solar thermal energy; wave, tidal, and ocean thermal energy; geothermal energy; biomass energy; hydroelectric energy built after January 1, 1995. Some exceptions for pre-1995 energy resources.
<b>Regulated Entities</b>	Retail electricity suppliers: investor-owned utilities, consumer-owned utilities, and retail electricity service suppliers.