

# Reliability, Energy Markets, and the Clean Energy Transition

April 6, 2023, 1:00 – 2:00pm ET

MODERATED BY



**Maria Pope**

President and CEO,  
Portland General Electric  
C3E Ambassador

## PANELISTS



**Rebecca Dayhuff Matsushima**

Vice President, Resource Procurement,  
Hawaiian Electric



**Kristen Sheeran**

Director of Sustainability and Resource Planning,  
Portland General Electric



**Pam Sporborg**

Director of Transmission and Market Services,  
Portland General Electric



**Jessica Waldorf**

Chief of Staff & Director of Policy Development,  
New York State Department of Public Service

To Register, visit [c3e.org/webinars](https://c3e.org/webinars)

# Clean Energy Education & Empowerment (C3E)

- Welcome!
- C3E is a DOE-led initiative in collaboration with MIT, Stanford, and Texas A&M
- Closing the gender gap and increasing the participation, leadership, and success of women in clean energy
- Four pillars: Ambassadors, Awards, Symposium, and Community
- C3E Webinar Series - forum to hear the latest on clean energy topics & foster discussion



# Upcoming 2023 C3E Webinars

## **Hydrogen: A rising pillar of our clean energy future**

- July 13, 1:00-2:00 pm ET

## **Energy Access - an Enabler for People and Planet**

- November 2, 2:00-3:00 pm ET

Register at: [c3e.org/webinars](https://c3e.org/webinars)



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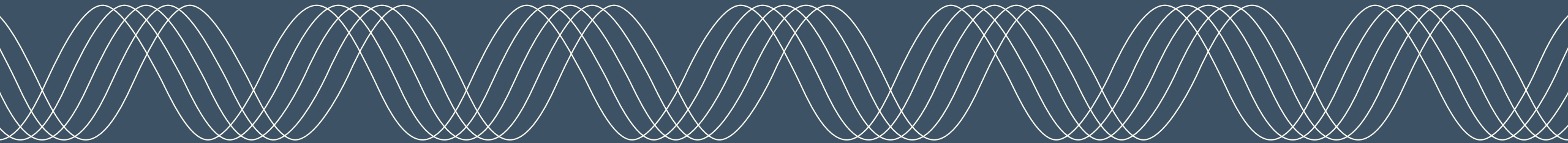
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# Reliability, Markets, & the Clean Energy Transition

Maria Pope, Kristen Sheeran, & Pam Sporborg

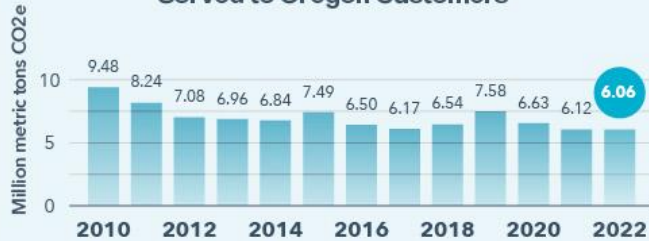
Portland General Electric

April 6, 2023



# 2022 PGE emissions & targets at a glance

GHG Emissions from Power Served to Oregon Customers

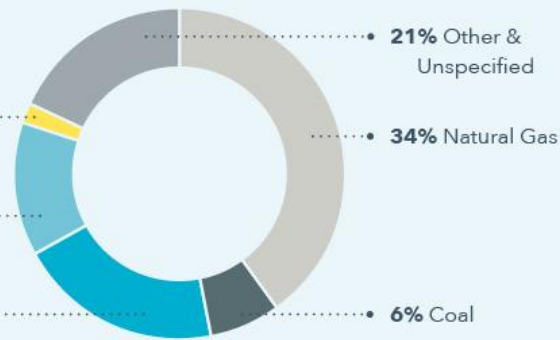


GHG Intensity for Power Served to Oregon Customers

**0.30** metric tons of CO2e per MWh

Resource Mix for Power Served to Oregon Customers

Non-Emitting Resources in PGE's Portfolio



Scope 1

**5.6** million metric tons of CO2e

Scope 1 emissions includes all of PGE's direct emissions, this is made up of fuel burned by thermal generating resources, fuel burned by PGE's vehicle fleet and natural gas used at PGE's office facilities.

Scope 2

**0.05** million metric tons of CO2e

Scope 2 emissions are emissions related to Transmission and Distribution line loss and emissions associated with power purchases from a third party that is consumed by PGE.

Scope 3

**2.6** million metric tons of CO2e

Scope 3 emissions for generation of purchased electricity that is sold to end users. Reporting and data collection capabilities are still being developed for other Scope 3 sources of emissions.

## Emissions targets

By 2030:

- 80% reduction below baseline for retail sales

By 2035:

- 90% reduction below baseline for retail sales

By 2040:

- 100% reduction below baseline for retail sales
- Net zero emissions company-wide

Based on energy served to retail customers within the State of Oregon, as required by Oregon Department of Environmental Quality (ODEQ)

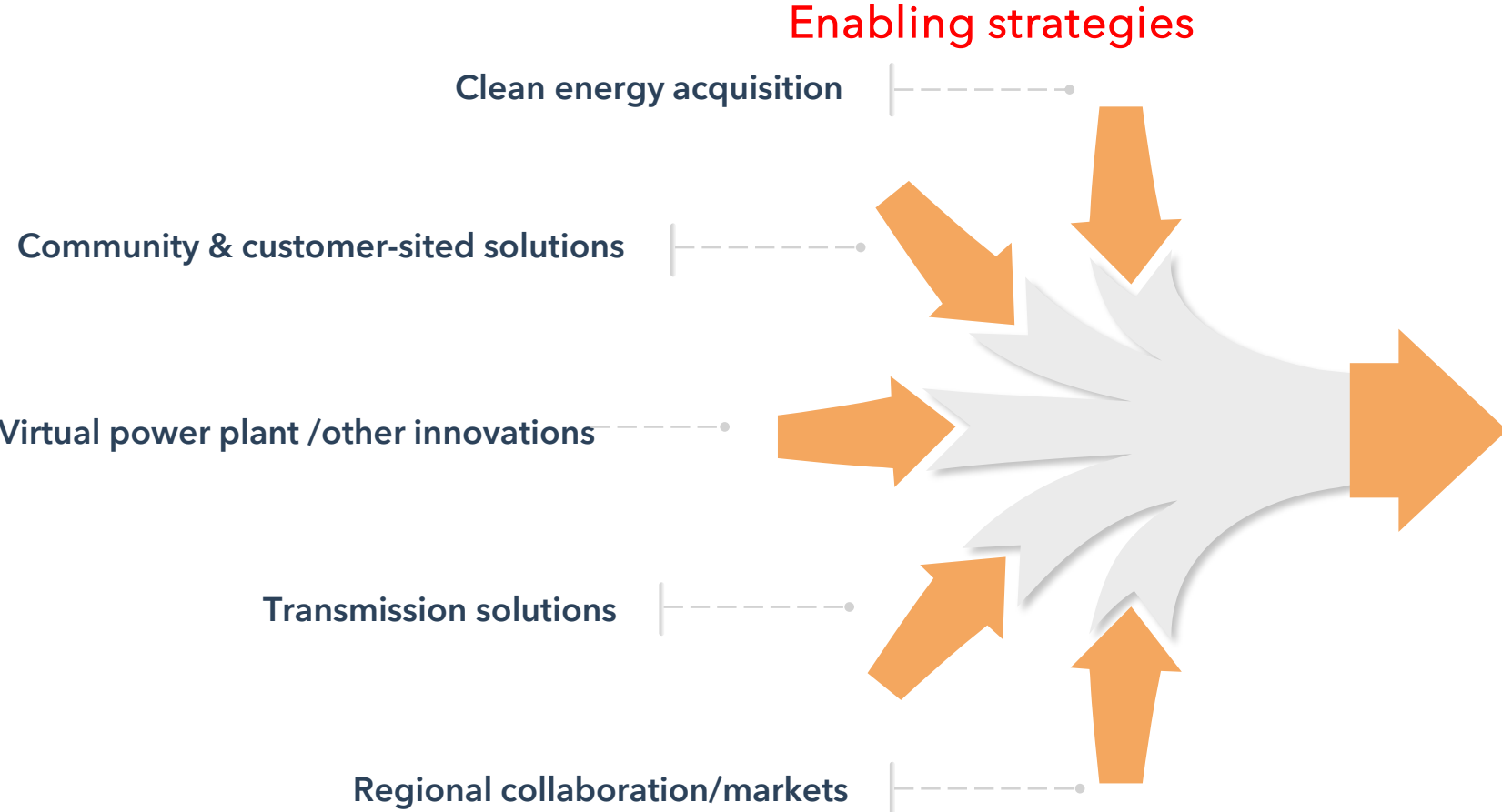
Some or all the renewable energy attributes associated with PGE's Basic Service Mix may be sold, claimed, or not acquired

1. This includes power purchased from Bonneville Power Administration

All 2022 emissions data is preliminary and subject to change as internal review procedures are performed. Certain emissions information is subject to review and approval by the ODEQ and Environmental Protection Agency.

# PGE's Clean Energy Transition

Our decarbonization strategy is multi-faceted to support reliable and affordable power

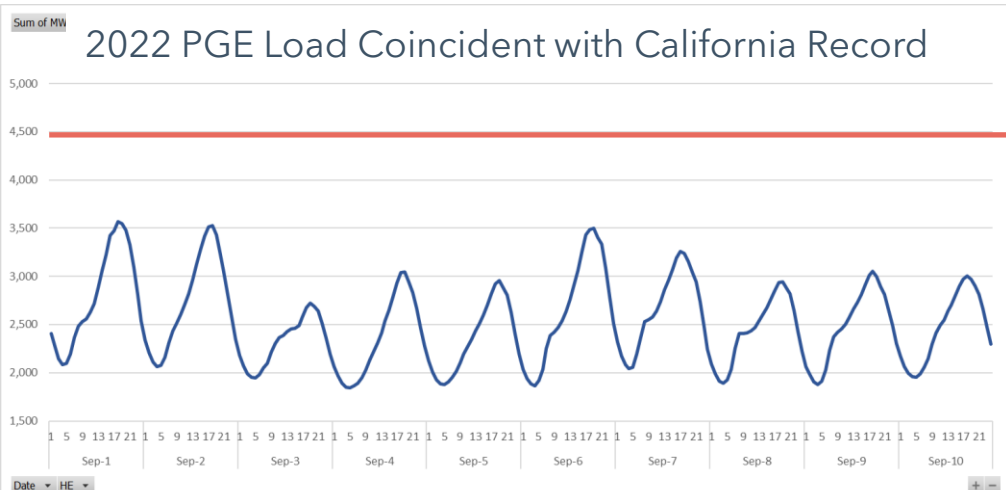
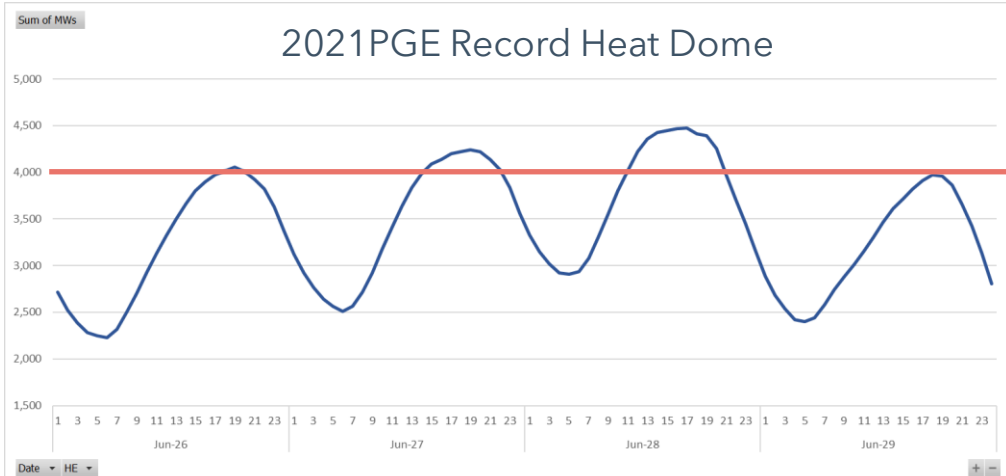


**Emissions are already  
25% below target  
baseline levels**

# Western Market Integration is Critical for Reliability, Decarbonization and Affordable Energy Prices

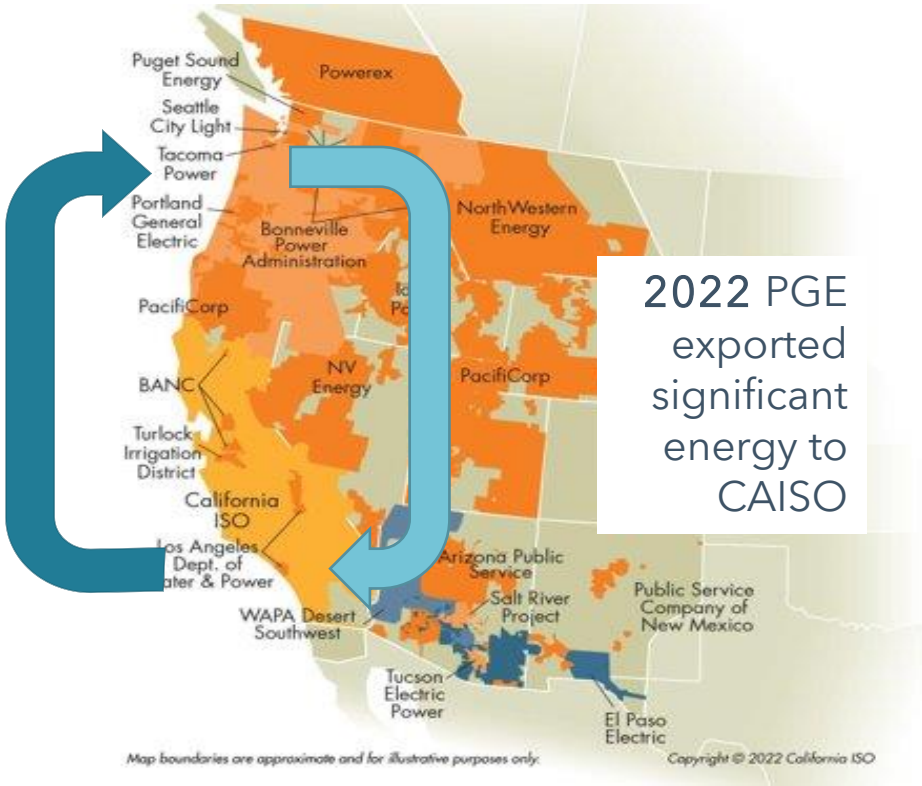
PGE customers over \$120M in benefits since joining EIM in 2017, total West-wide benefits over \$156B

June 2021 Super Peak Heat Dome vs September 2022 Sustained West Wide Record Heat



2021 PGE imported significant energy from CAISO

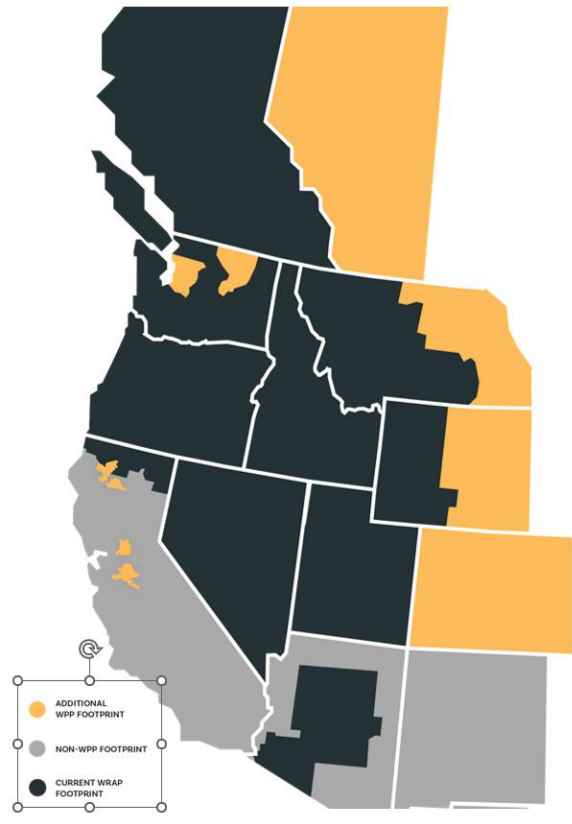
2022 PGE exported significant energy to CAISO



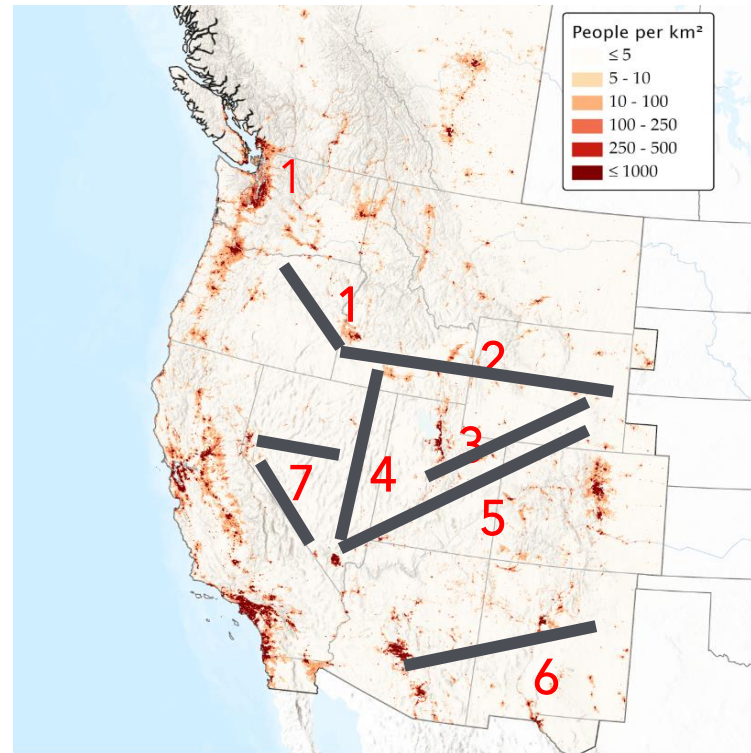


# Collaboration for Regional Reliability

Resource Adequacy

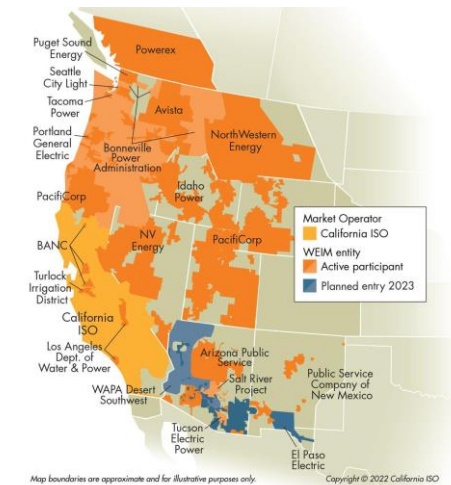
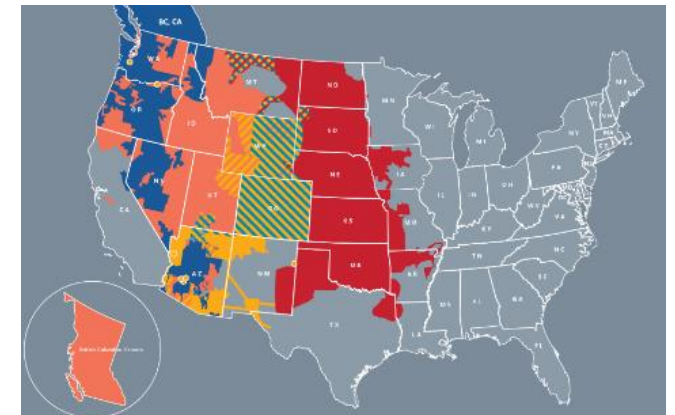


New Transmission Development

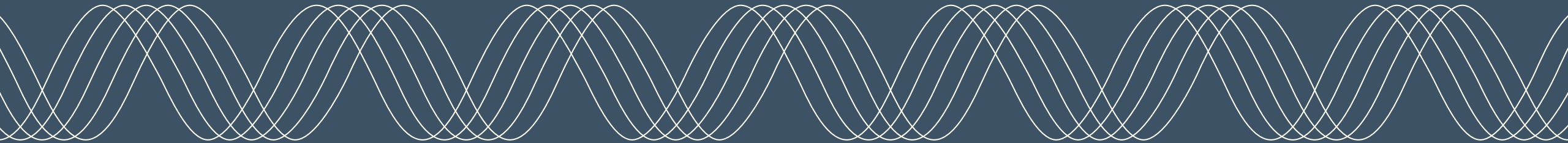


Map outline courtesy WECC

Energy Market Expansion



# Thank you





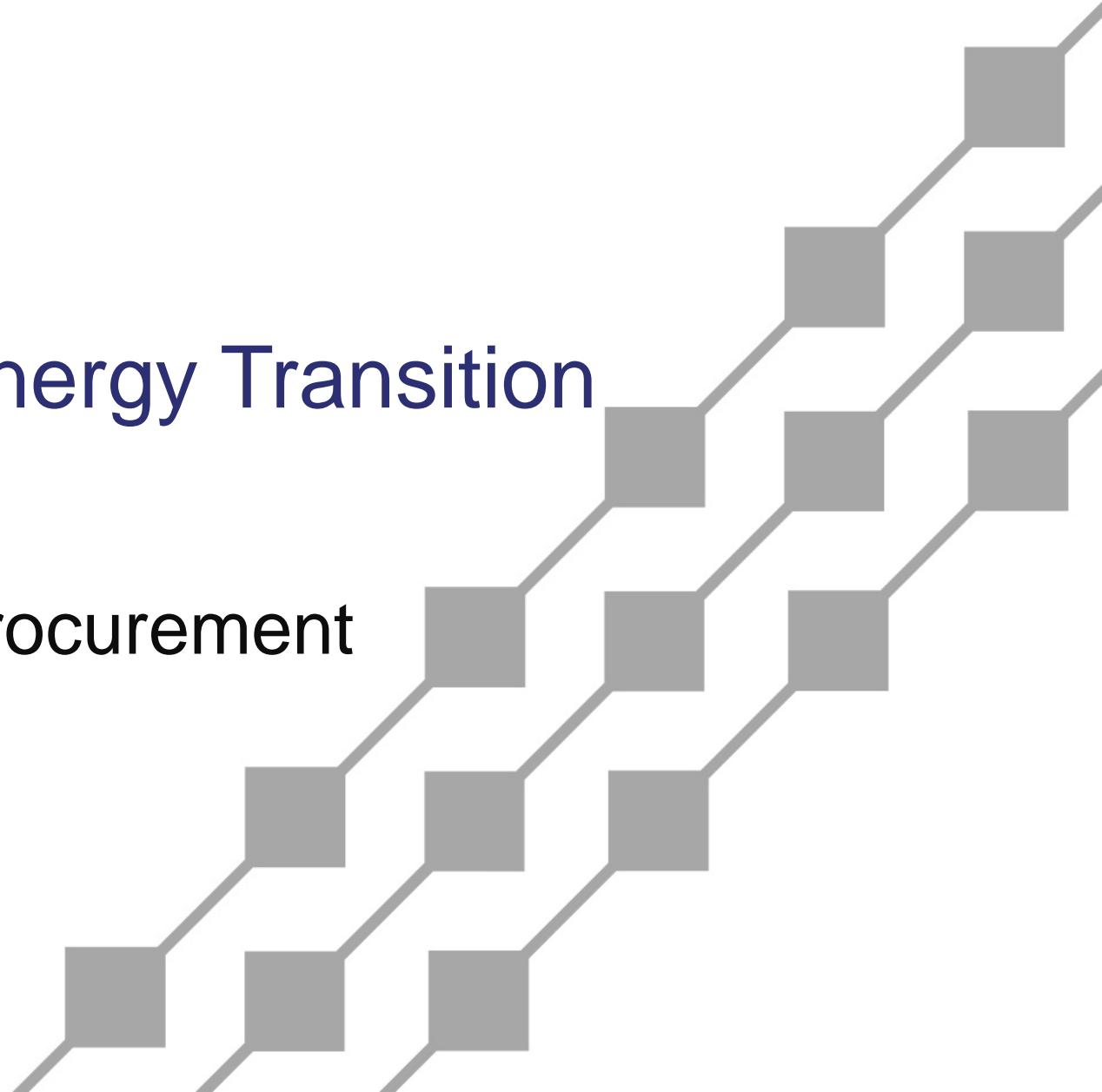
**Hawaiian  
Electric**

# Reliability and the Clean Energy Transition

Becca Dayhuff Matsushima

Vice President, Resource Procurement

April 6, 2023





HAWAII

PACIFIC  
OCEAN



# Climate Change Action Plan

## Our path to cut carbon emissions 70% by 2030\*



**Shutting down** the state's last coal plant in September 2022



**Retiring** at least 6 fossil-fueled generating units and significantly reducing the use of others as new renewable resources come online



**Using more** grid-scale and customer-owned energy storage



**Promoting** energy efficiency



**Adding** nearly 50,000 rooftop solar systems to the 97,000 now online



**Adding** renewable energy projects capable of generating a total of at least 1 gigawatt, including shared solar (community-based renewable energy)

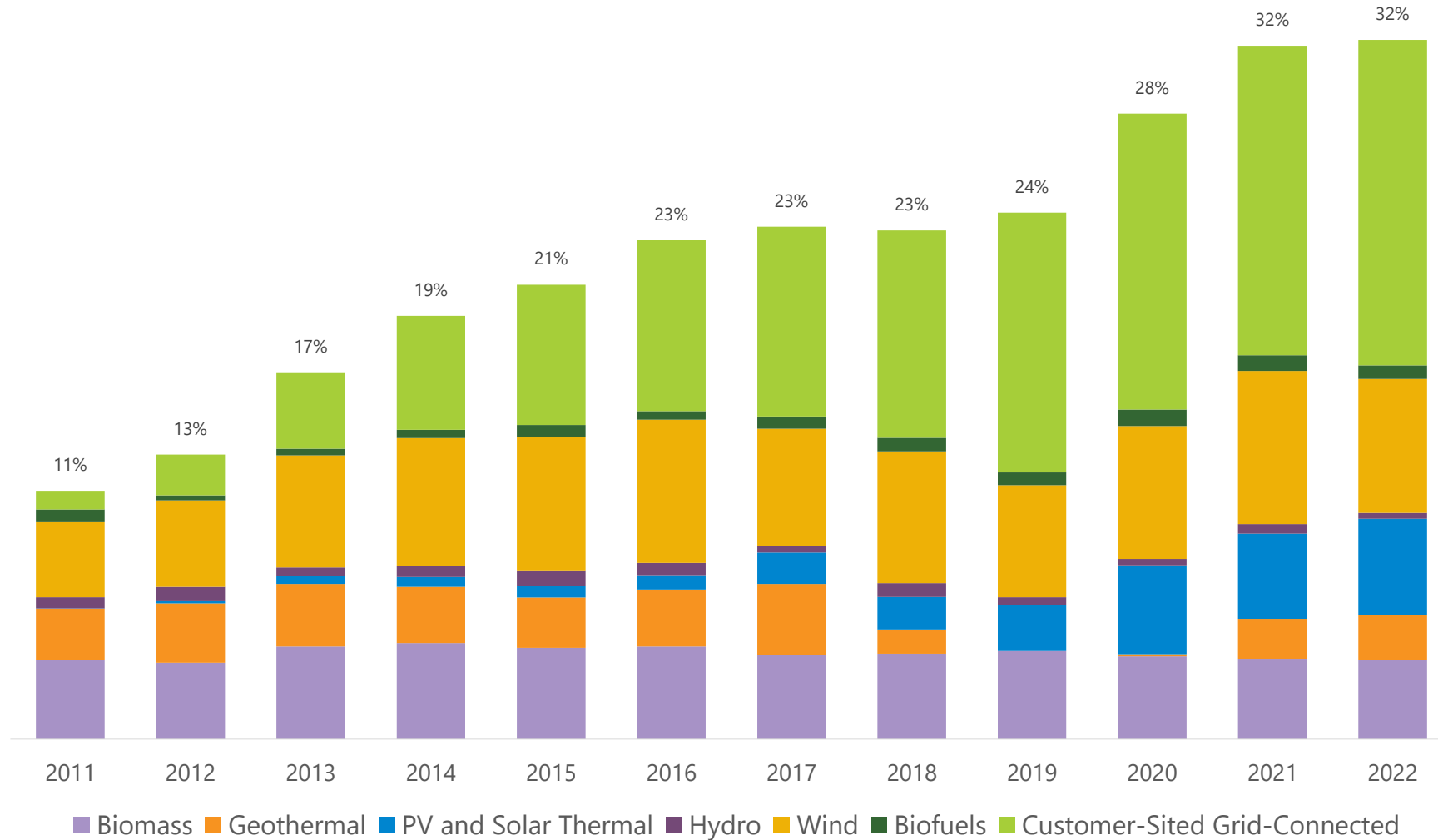


**Expanding** geothermal



**Creating** innovative programs that provide customers incentives for using clean, lower-cost energy at certain times of the day and using less fossil-fueled energy at night

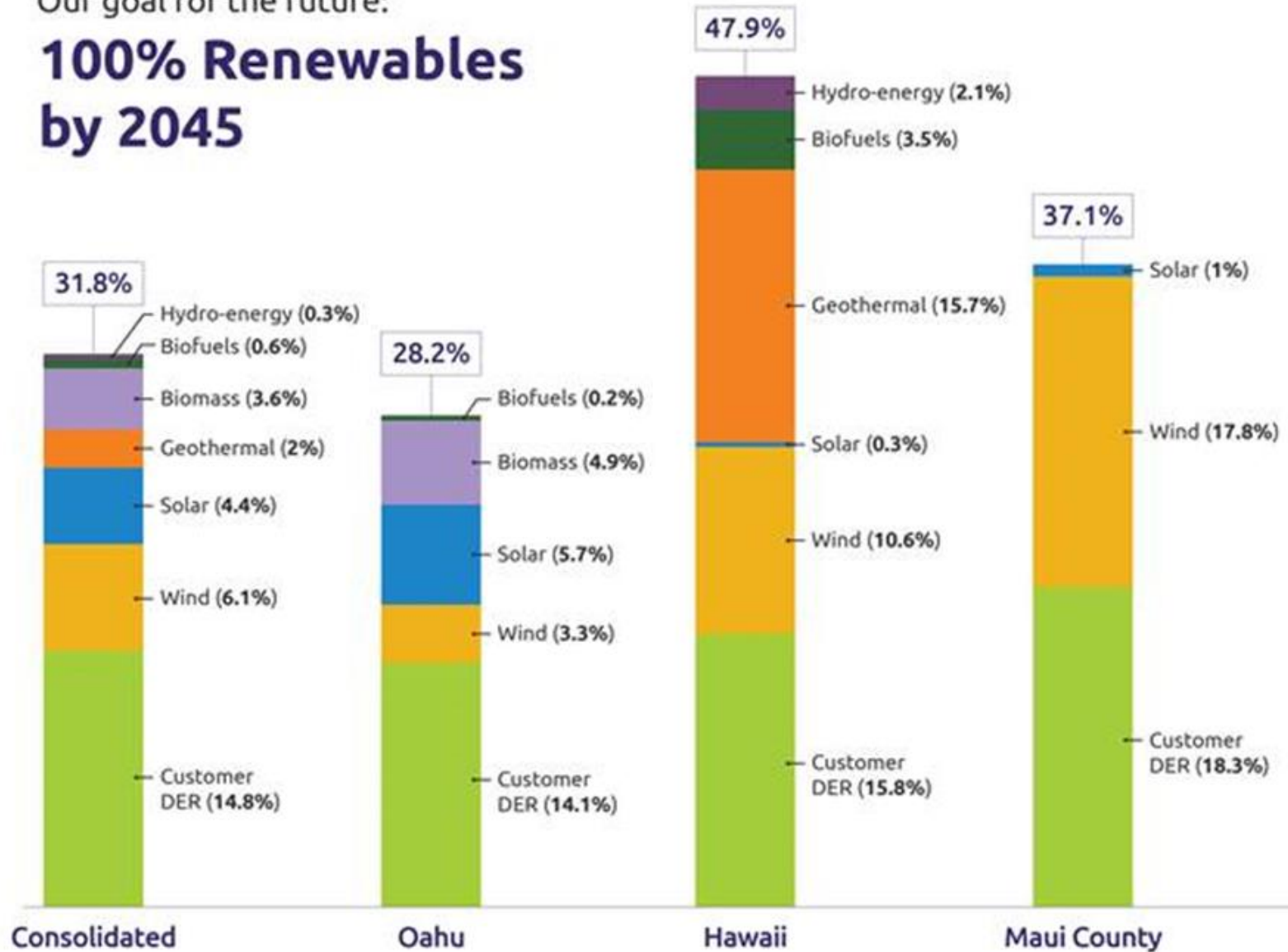
# Renewable Energy Growth



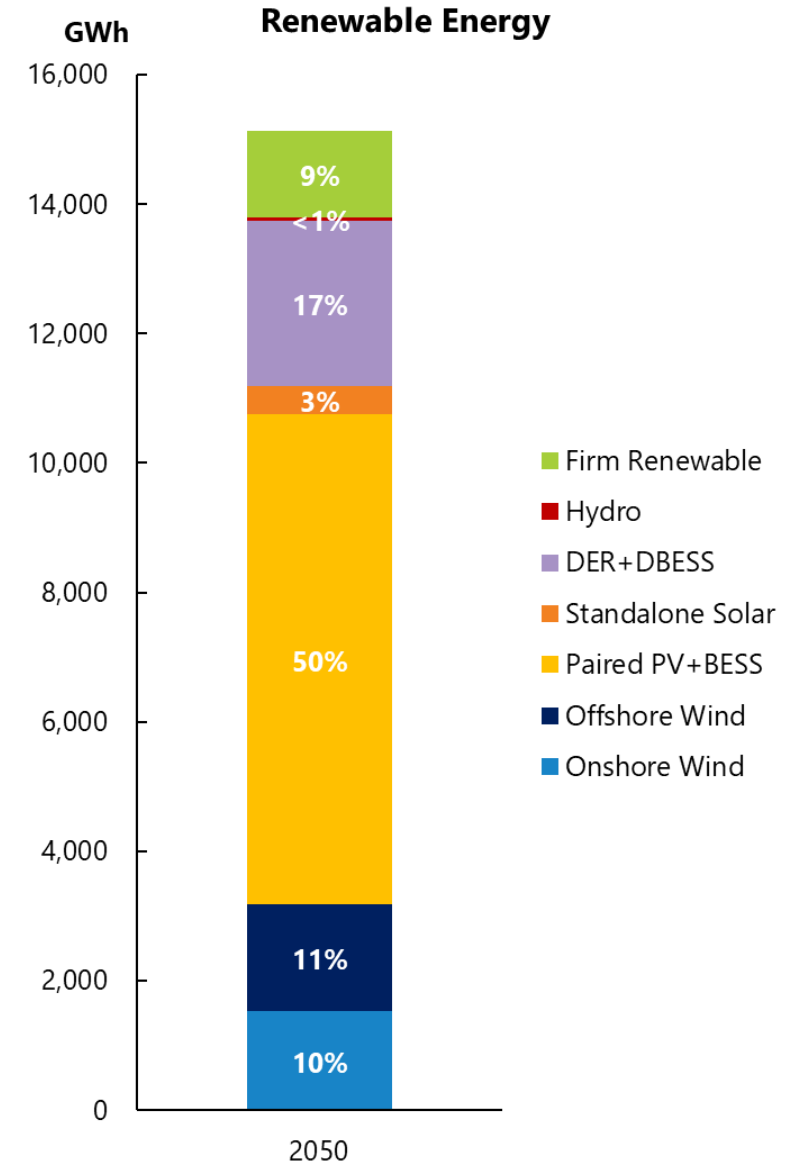
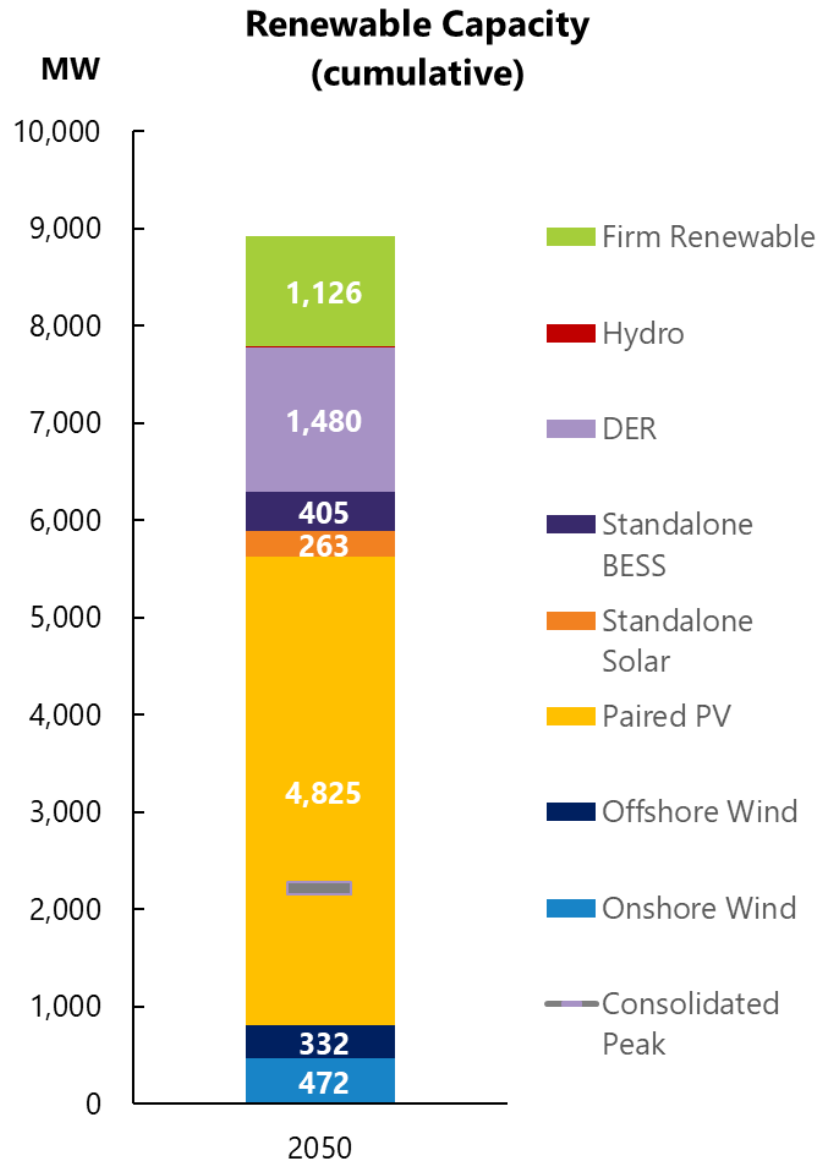
# 100% Renewables by 2045

Our goal for the future:

## 100% Renewables by 2045



# 2050 Resource Portfolio



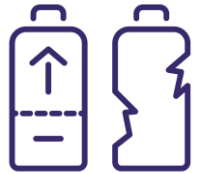


# Immediate Action to Meet Goals and Maintain Reliability

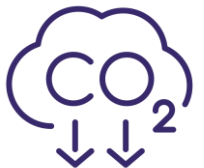
We must move swiftly to:



Fortify the grid against extreme weather.



Meet growing energy demands.



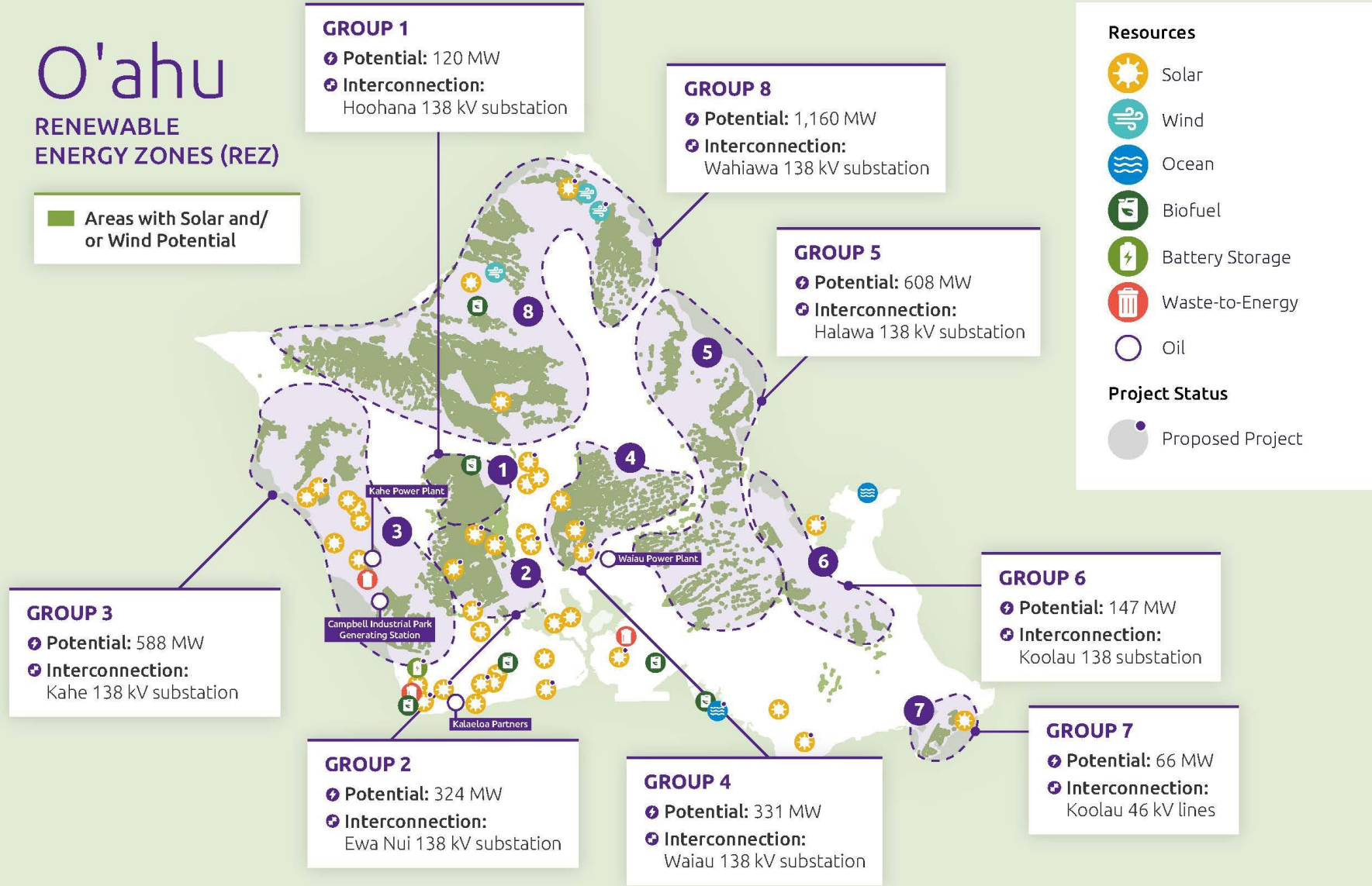
Cut carbon emissions by 70% in 7 years.



# Renewable Energy Zones

## O'ahu RENEWABLE ENERGY ZONES (REZ)

Areas with Solar and/  
or Wind Potential





Mahalo for your time.

Any questions?



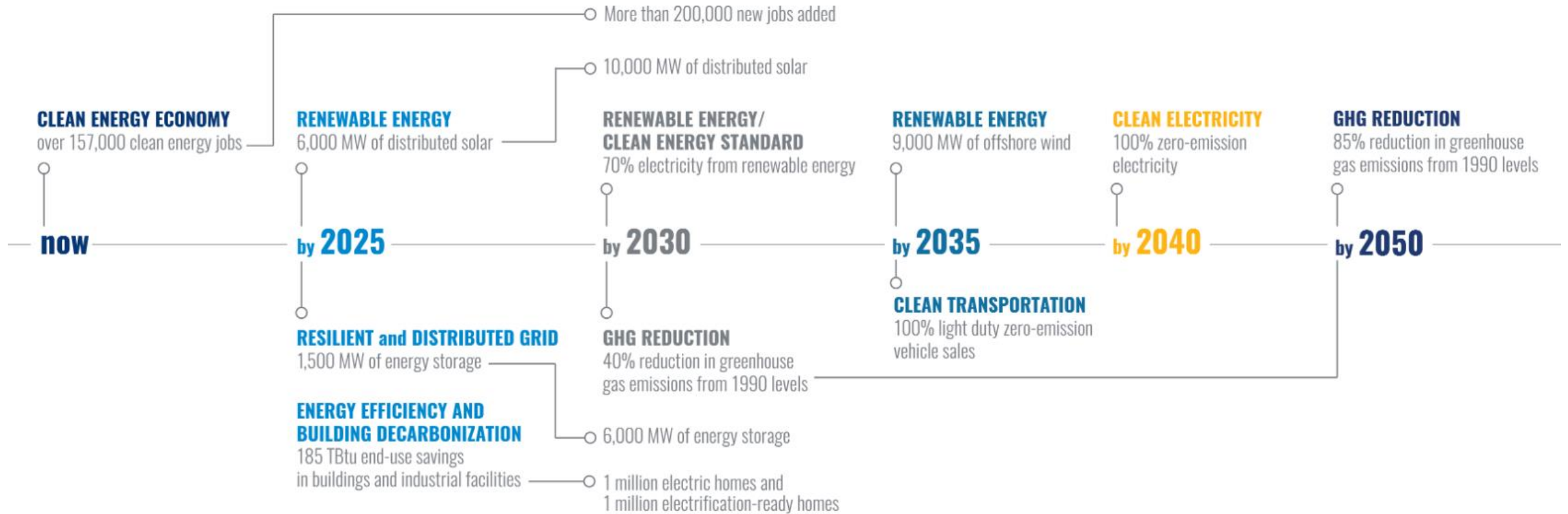
Department  
of Public Service

# Reliability, Energy Markets, and the Clean Energy Transition

Jessica Waldorf, Chief of Staff & Director of Policy Implementation  
New York State Department of Public Service

# New York Climate Targets

Targets as outlined under the NY Climate Leadership and Community Protection Act (Climate Act)



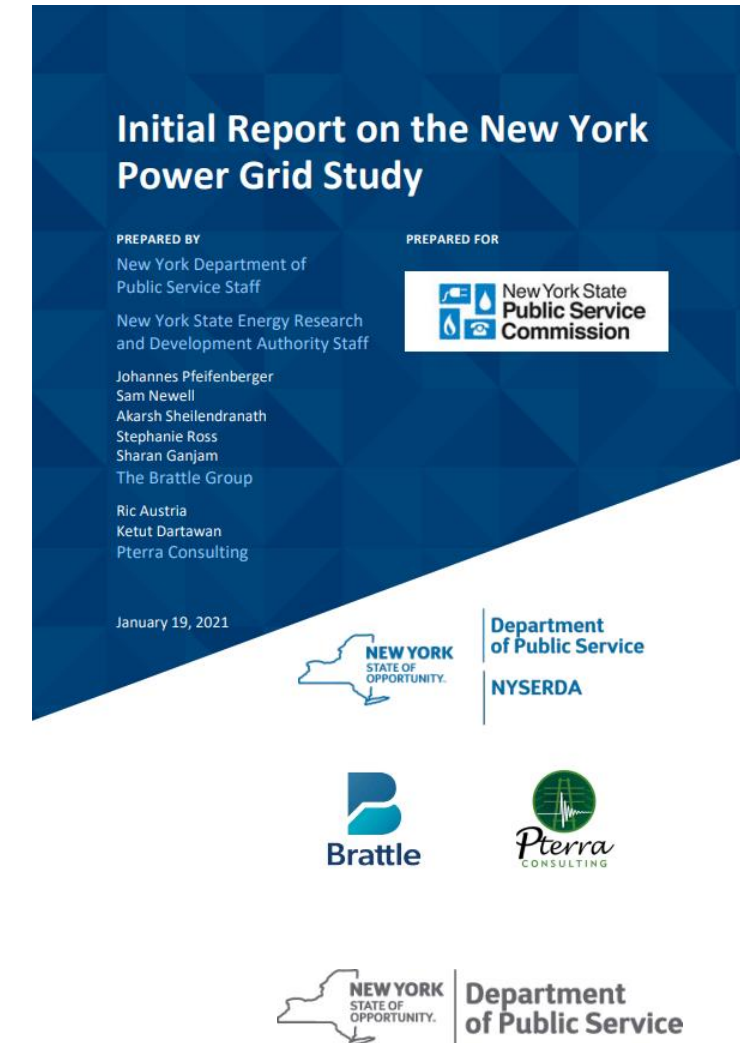
# Planning for the Future

## ➤ Completed Planning Efforts:

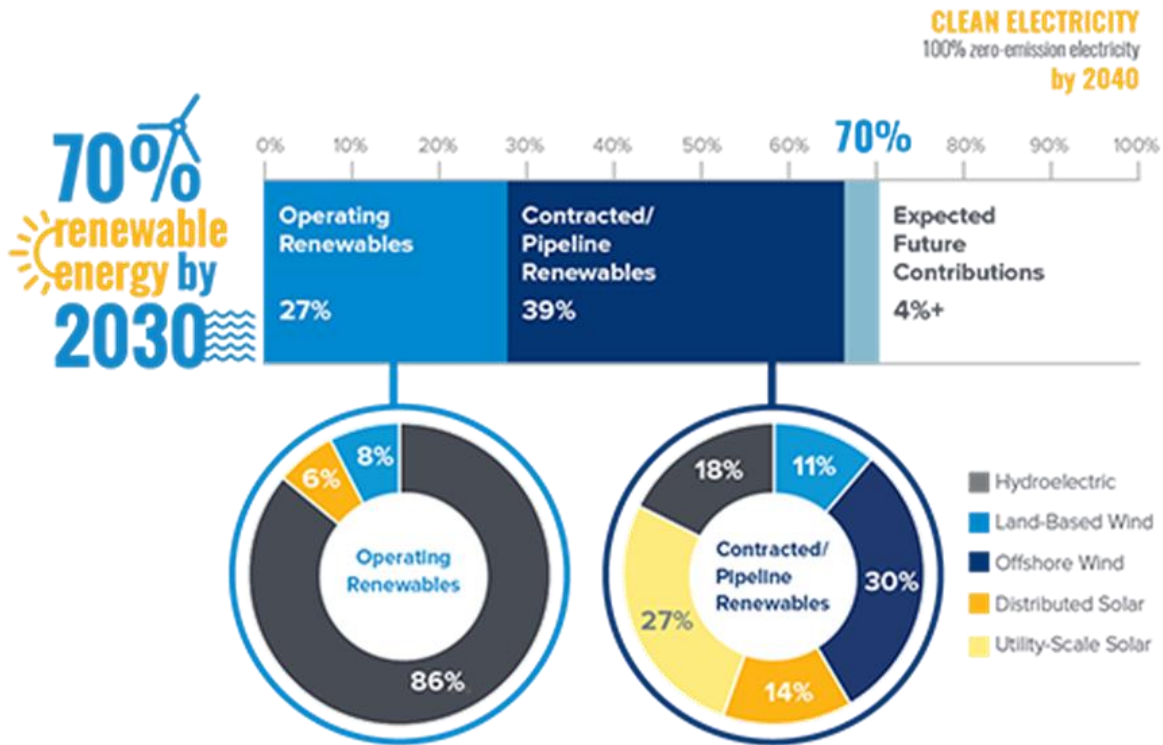
- New York State's Climate Action Council recently released its final Scoping Plan in December 2022
- The State has also issued several other planning studies including the Power Grid Study released in January 2021

## ➤ Future Planning Efforts:

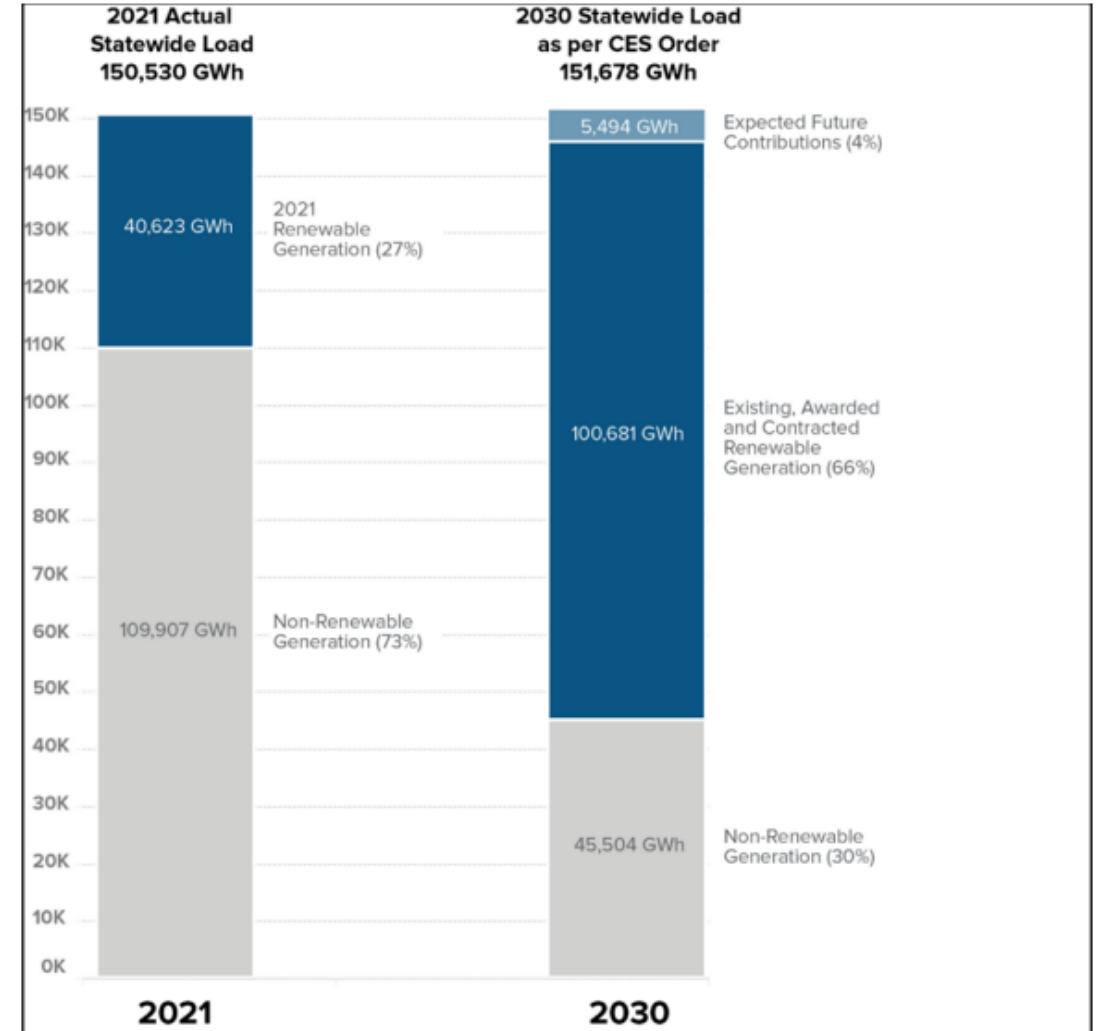
- Next State Energy Plan
- Transmission planning processes
- Program development and implementation



# Clean Energy Progress

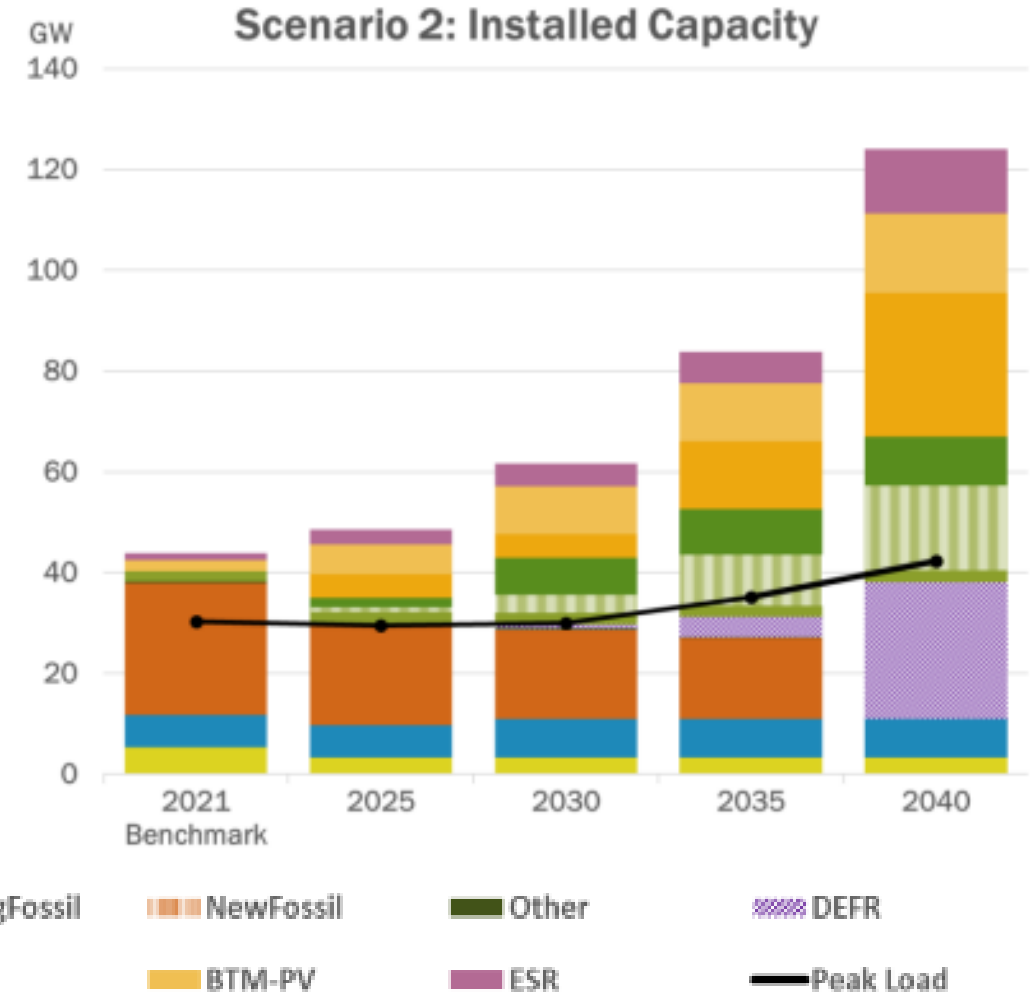
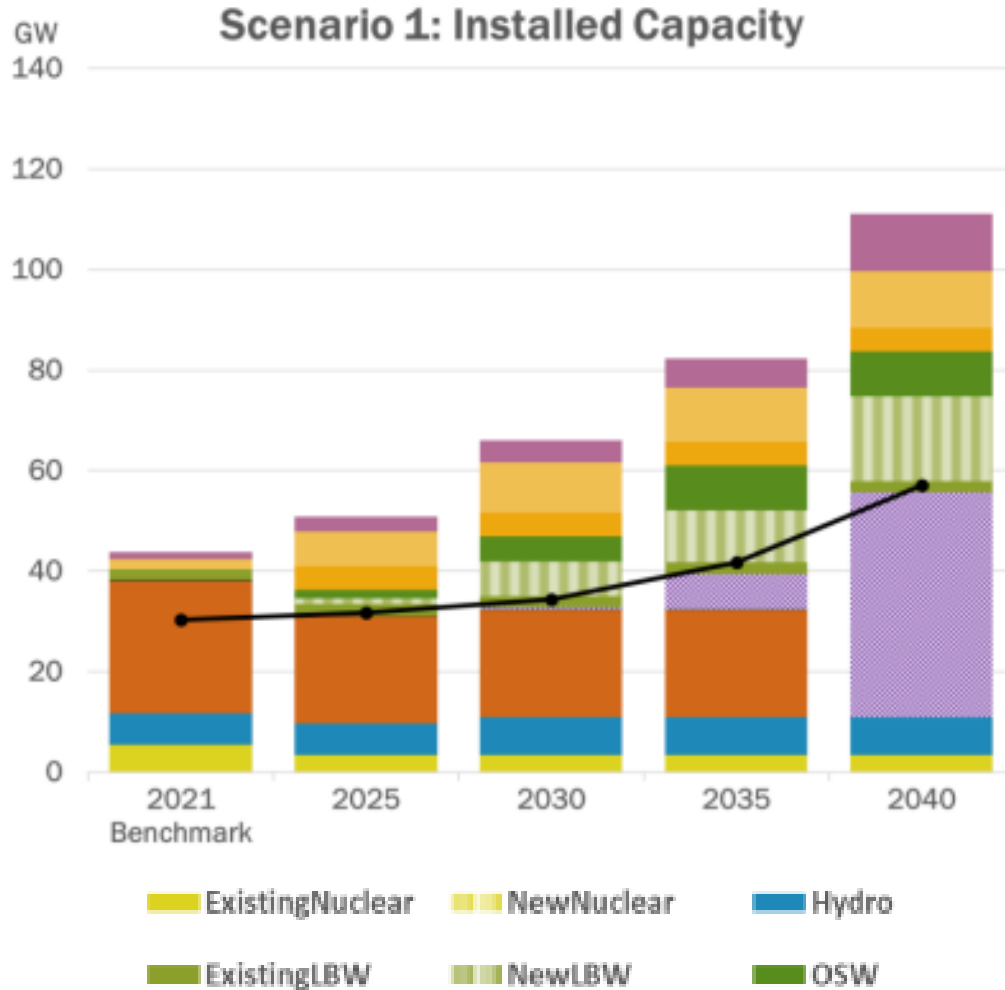


Credit: NYSERDA Progress Toward Renewable Energy Goals



NYSERDA Clean Energy Standard Annual Progress Report: 2021 Compliance Year

# Projected Capacity Needs

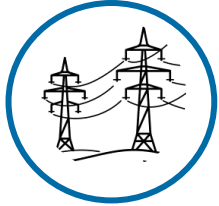




# PSC/DPS Actions to Meet State Energy Goals



Renewable energy and zero-emission resources



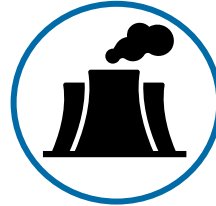
Transmission and grid resiliency



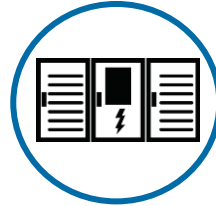
Building electrification, energy efficiency, & demand response



Transportation Electrification



Transition to clean heating and cooling systems



Energy Storage



Energy Affordability

*The Department and Commission are actively implementing these policies alongside our mission to ensure affordable, safe, secure, and reliable access to electric, gas, steam, telecommunications, and water services for consumers, at just and reasonable rates, and while protecting the natural environment.*

# Key Principles for Implementation

- **Climate Justice** – linking social and environmental justice principles with energy and climate decisions and ensuring every community has access to clean energy solutions and the economic opportunities the transition to a just and equitable energy system will provide
- **Just and Equitable Transition** – ensuring the transition to clean energy builds connections, creates jobs, and ensures a good quality of life for all New Yorkers
- **Stronger and More Resilient Energy Systems** – strengthen and enhance energy infrastructure is strengthened to be better prepared for and withstand, adapt, and quickly recover from disruptions such as severe weather and natural and man-made disasters
- **Clean and Safe Energy Efficient Buildings:** Clean heating and cooling technologies, such as electric heat pumps and smart thermostats, combined with energy efficiency, will improve comfort, and save New Yorkers energy costs
- **Cost Mitigation** – ensuring New Yorkers have affordable and accessible access to energy and climate-friendly options
- **Better Energy Choices and Health Benefits** – provide consumers access to clean technologies that can reduce emissions and provide positive health outcomes