RENEWABLE ENERGY MARKET IN NEW MEXICO

Presentation to
New Mexico Economic Development & Policy Committee
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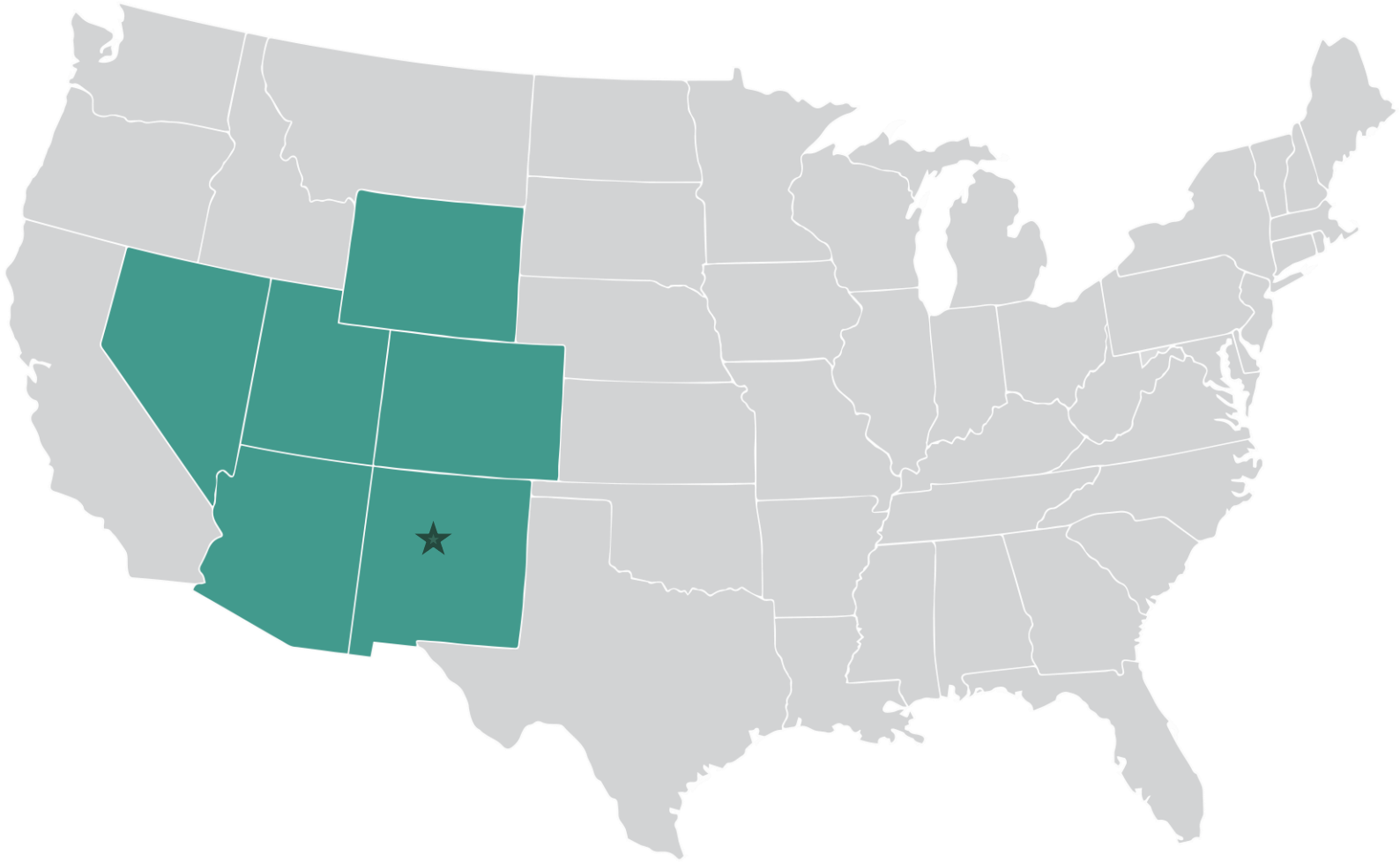
Rikki Seguin
Executive Director
Interwest Energy Alliance

INTERWEST ENERGY ALLIANCE

- **Regional non-profit trade association** representing nation's leading developers and manufacturers of wind, solar, geothermal, and storage technologies, working with environmental NGOs
- **Mission** is to make the Intermountain West a leader in deployment of **reliable, cost-effective, and diverse** renewable energy resources.



New Mexico, Colorado, Wyoming, Utah, Nevada, Arizona


8minute solar energy
aes
American Clean Power
APEX Clean Energy
Avangrid Renewables
aypa
BayWa r.e.
Clearway
ConnectGEN
Cypress Creek Renewables
EDF renewables
edp renewables
enel Green Power
ENGIE
eolus
GU Grid United
Hecate Energy
INNERGEX
Invenergy
Leeward Renewable Energy
NRDC
NextEra Energy Resources
Pattern
Pinegate Renewables
Primergy
ReVolve Renewable Power
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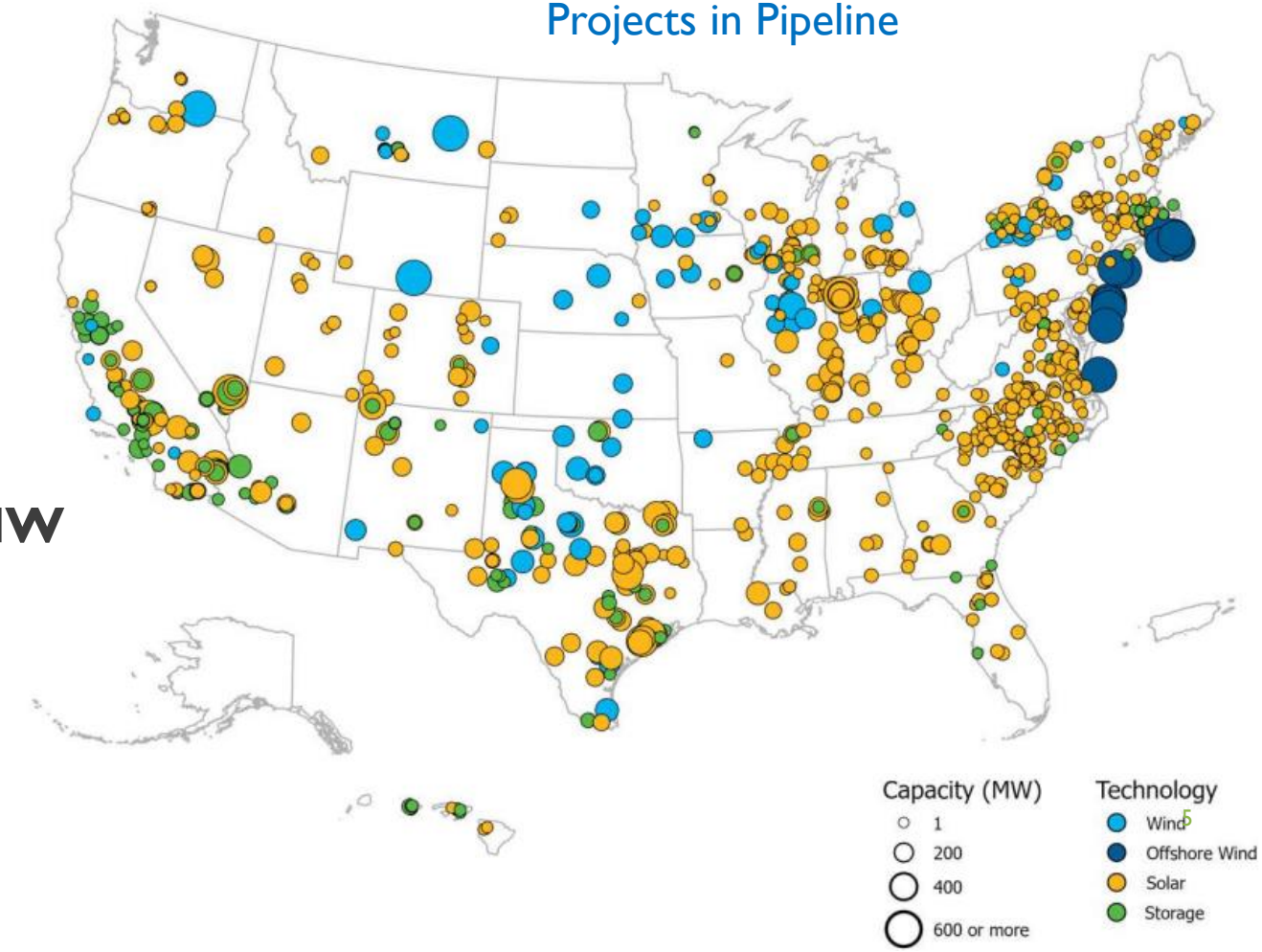
Sierra Club
Solariant
TRI Global Energy
Triple Oak
Union of Concerned Scientists
Utah Clean Energy
Vestas
Vote Solar
Western Resource Advocates

RENEWABLES IN NEW MEXICO

RENEWABLES IN NEW MEXICO

- Renewables online in NM: **5,105 MW**
  - Ranked 11th nationally
- Renewables under construction: **881 MW**
- Renewables in advanced development: **1,768 MW**

Projects in Pipeline



Source: American Clean Power Association Clean Power Quarterly Q2 2022 Market Report

ETA RELATED PROJECTS

San Juan Replacement Projects:
Total proposal solar generation = 650 MW
Total proposed 4-hr storage = 300 MW

Arroyo Solar + Storage:
- 300 MW solar PV
- 150 MW 4-hour storage
- Expected to come online April 2023
- McKinley County

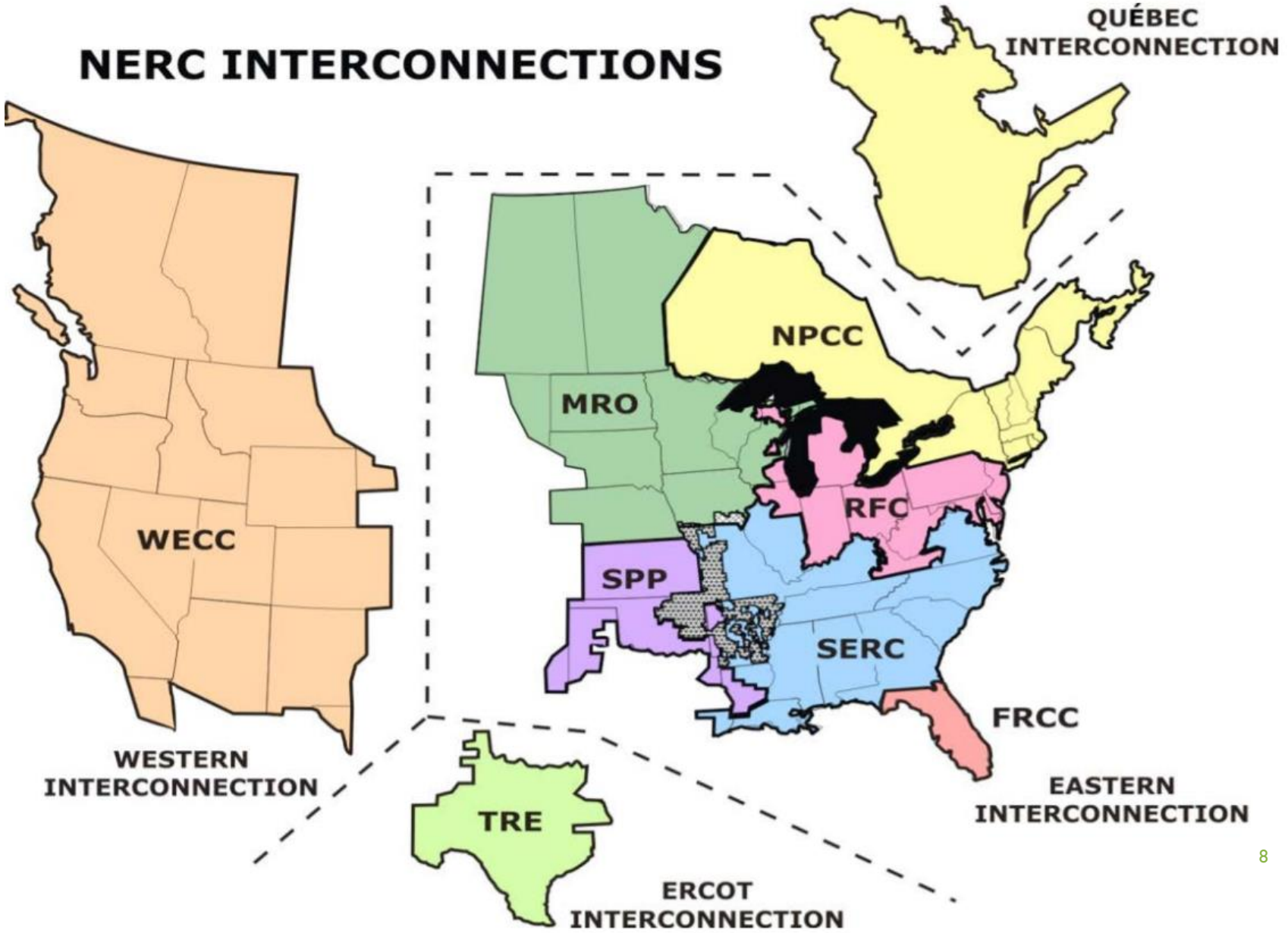
Jicarilla Solar + Storage:
- 50 MW solar PV
- 20 MW 4-hour storage
- Expected to come online March 2023
- Rio Arriba County

Rockmont Solar + Storage:
- 100 MW solar PV
- 30 MW 4-hour storage
- Timing uncertain, unlikely for summer 2023
- San Juan County, in CCSD

San Juan Solar + Storage:
- 200 MW solar
- 100 MW 4-hour storage
- Timing uncertain, unlikely for summer 2023
- San Juan County, in CCSD

REGIONAL DEMAND

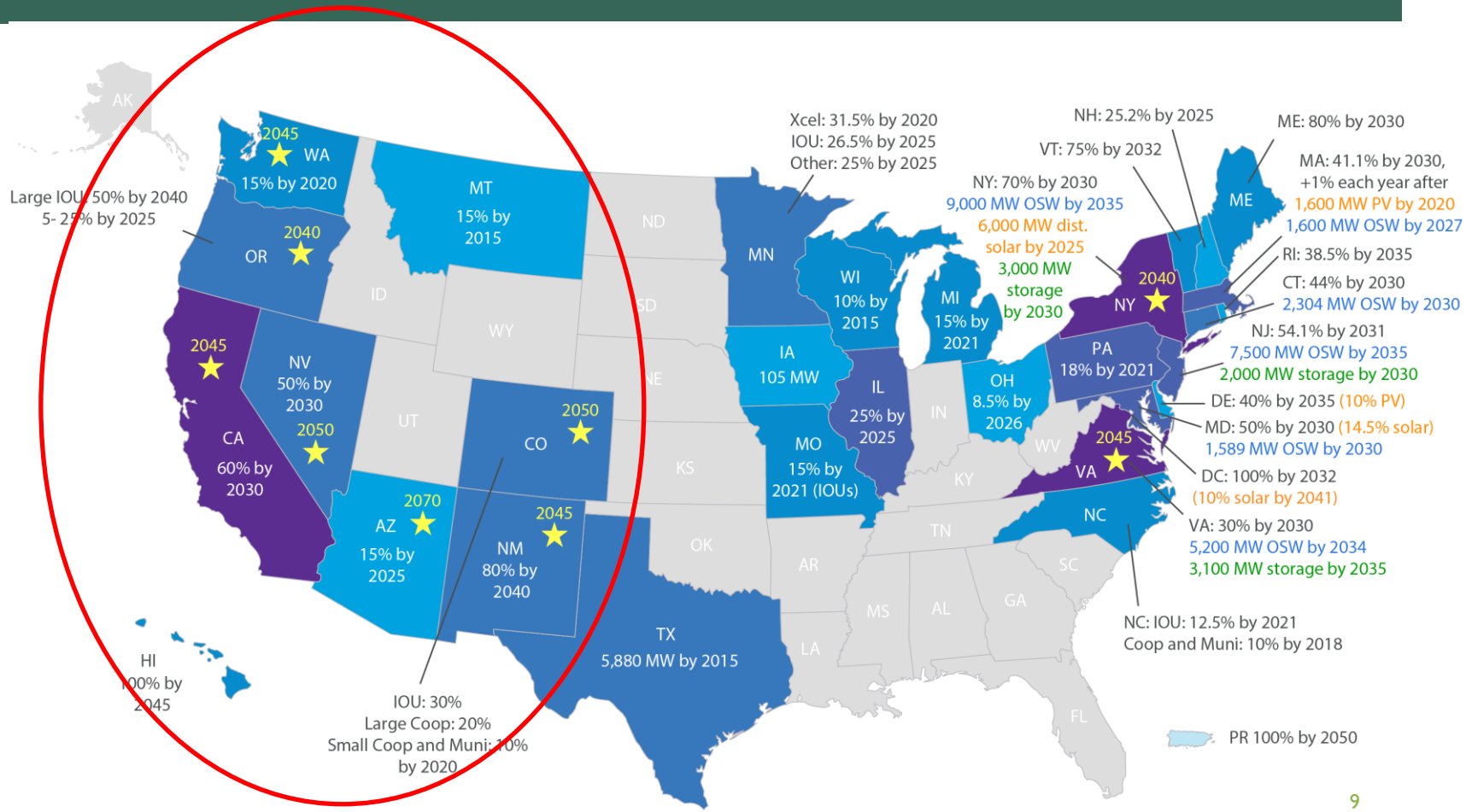
NM electricity demand makes up just 3.5% of total WECC demand



Source: WECC

REGIONAL POLICY DRIVERS

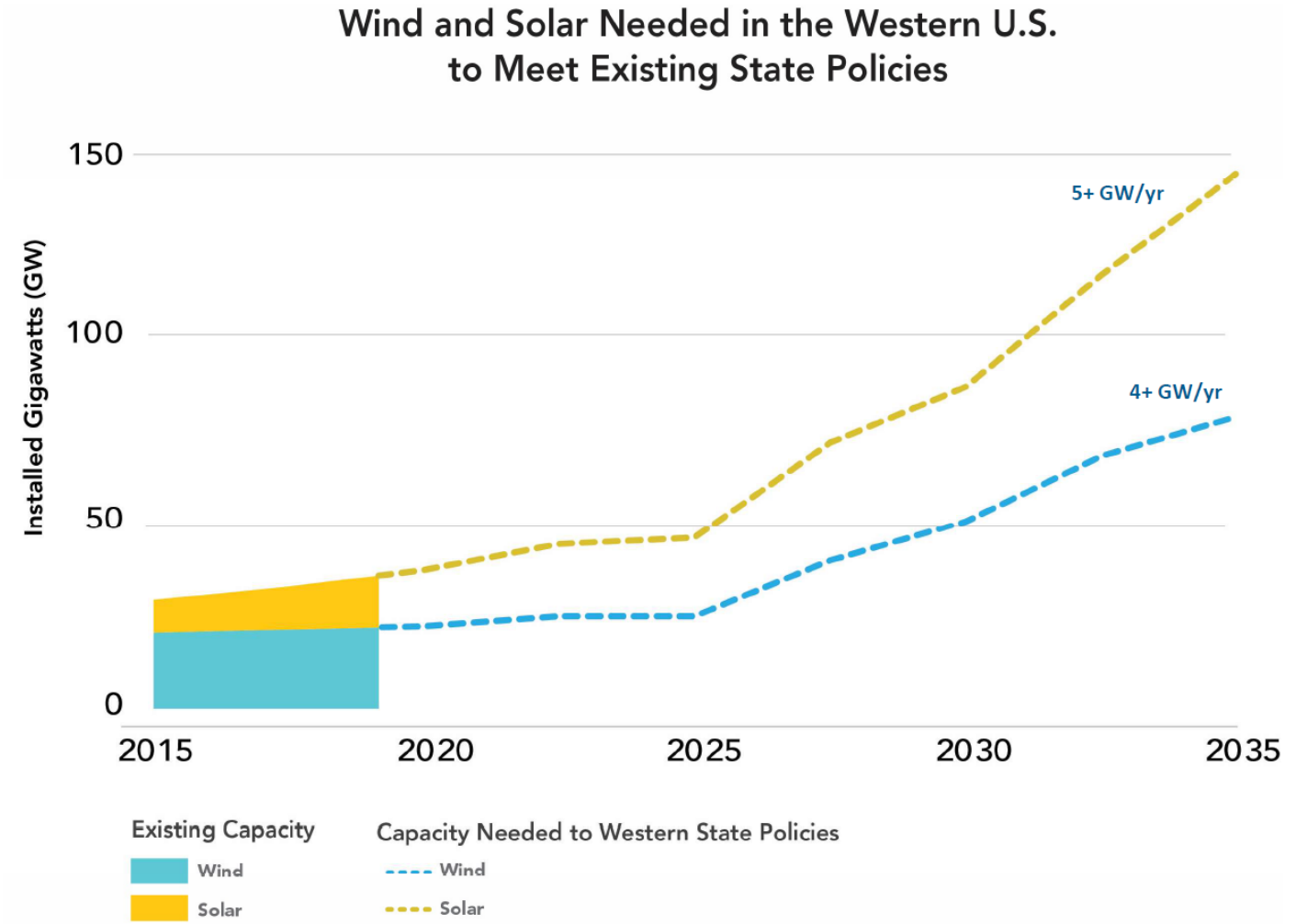
80% of energy use in the West is now aligned on decarbonization policies



Source: American Clean Power Association

INCREASED DEMAND FOR RENEWABLES

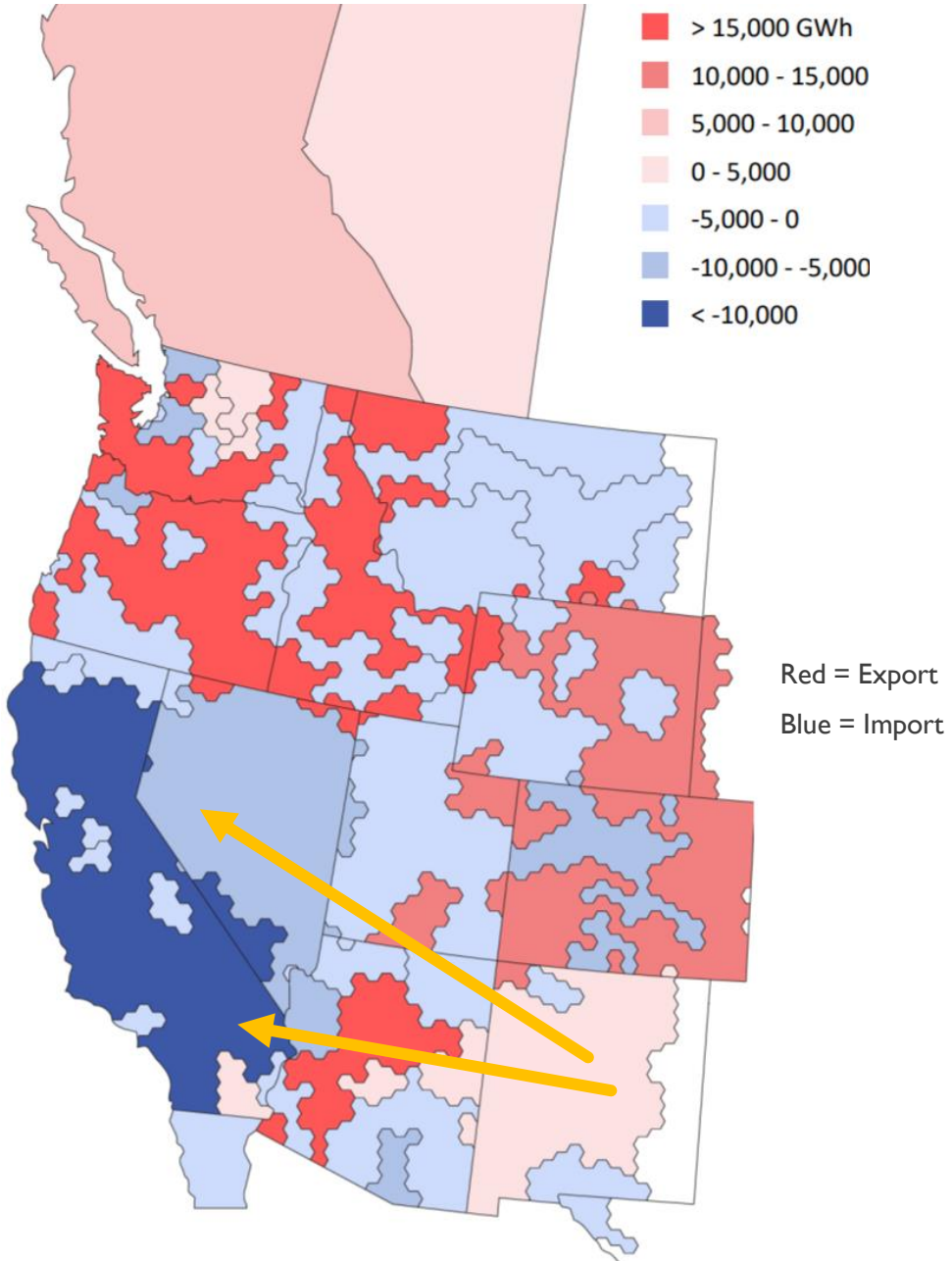
- Existing policies in the West require ~9 GW new renewables per year starting in 2026
- By 2050 the total demand in the West is upwards of 150 GW
- NM Renewables critical to meeting Western demand



Source: Energy Strategies, "Western Flexibility Assessment" (2019)

WHY NEW MEXICO?

2016 Net Interchange by Balancing Area



Source: WECC "State of the Interconnection Digest" (Summer 2018)

New Mexico projects can serve customers around the region, but projects must win competitive solicitations.

Standard steps:

- Utility issues RFP (request for proposals) for energy resource
- Companies bid in proposed projects from around the region
- Utility selects the best project (considering cost, resource type, etc.)
- **If bid is not selected, project does not get built.**

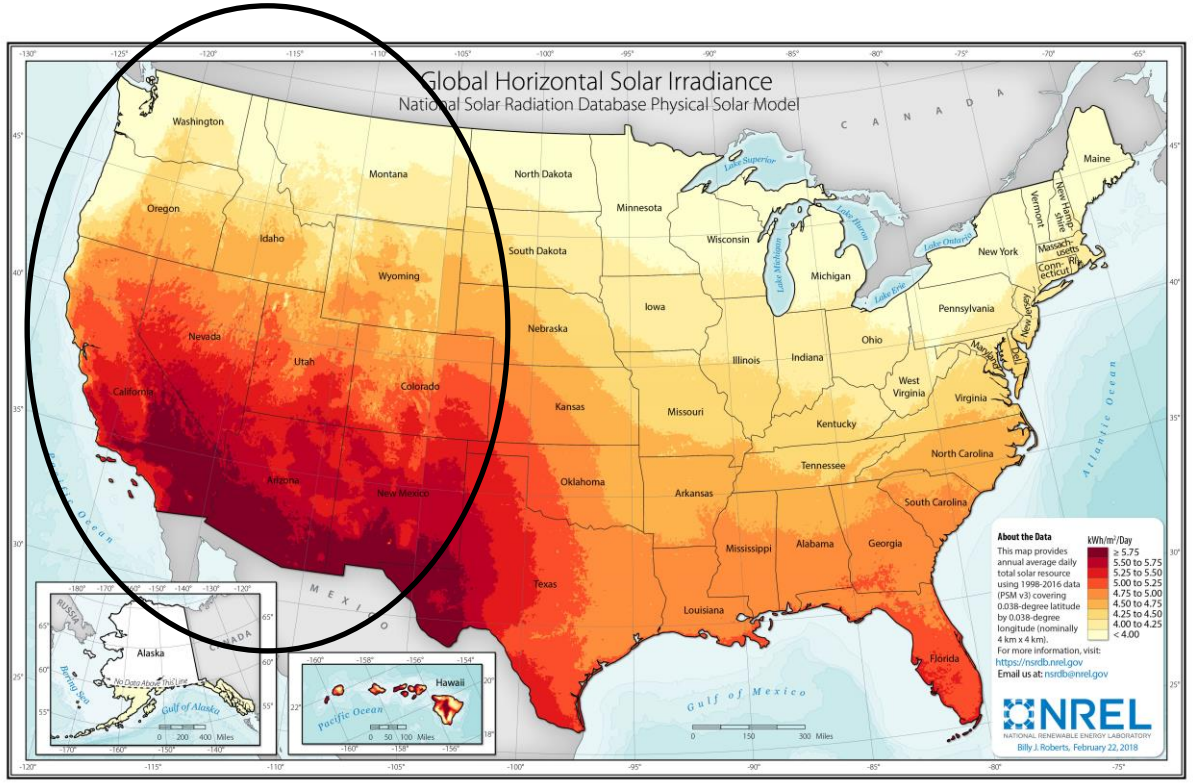
RFP RESULTS: PSCO 2018 RFP FOR 454 MW

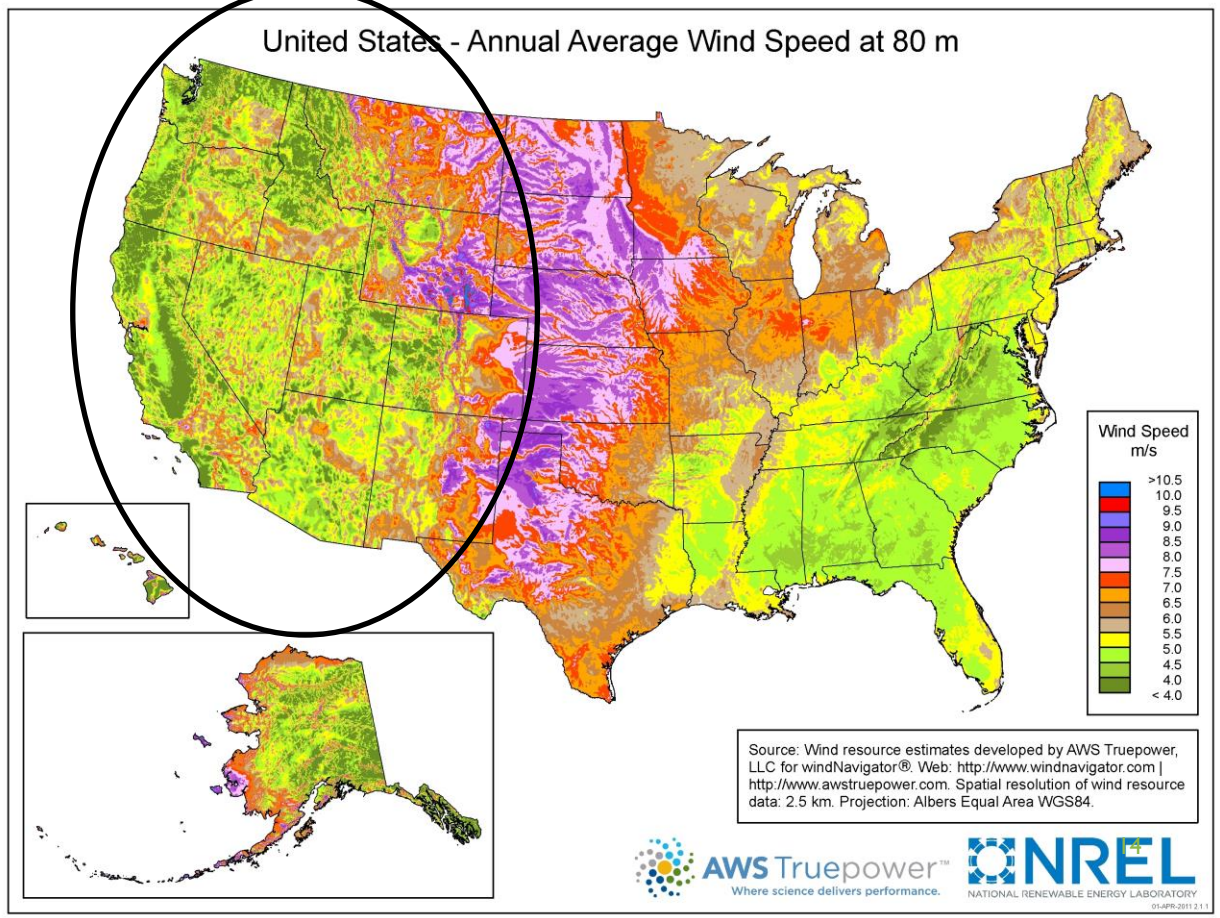
RFP Responses by Technology

Generation Technology	# of Bids	Bid MW	# of Projects	Project MW	Median Bid Price or Equivalent	Pricing Units
Combustion Turbine/IC Engines	30	7,141	13	2,466	$ 4.80	$/kW-mo
Combustion Turbine with Battery Storage	7	804	3	476	6.20	$/kW-mo
Gas-Fired Combined Cycles	2	451	2	451	6.70	$/kW-mo
Stand-alone Battery Storage	28	2,143	21	1,614	11.30	$/kW-mo
Compressed Air Energy Storage	1	317	1	317	14.60	$/kW-mo
Wind	96	42,278	42	17,380	$ 18.10	$/MWh
Wind and Solar	5	2,612	4	2,162	19.90	$/MWh
Wind with Battery Storage	11	5,700	8	5,097	21.00	$/MWh
Solar (PV)	152	29,710	75	13,435	29.50	$/MWh
Wind and Solar and Battery Storage	7	4,048	7	4,048	30.60	$/MWh
Solar (PV) with Battery Storage	87	16,725	59	10,813	36.00	$/MWh
IC Engine with Solar	1	5	1	5	50.00	$/MWh
Waste Heat	2	21	1	11	55.40	$/MWh
Biomass	1	9	1	9	387.50	$/MWh
Total	430	111,963	238	58,283		

Source: CoPUC Proceeding No. 16A-0396E

CONSIDERATIONS: RESOURCE



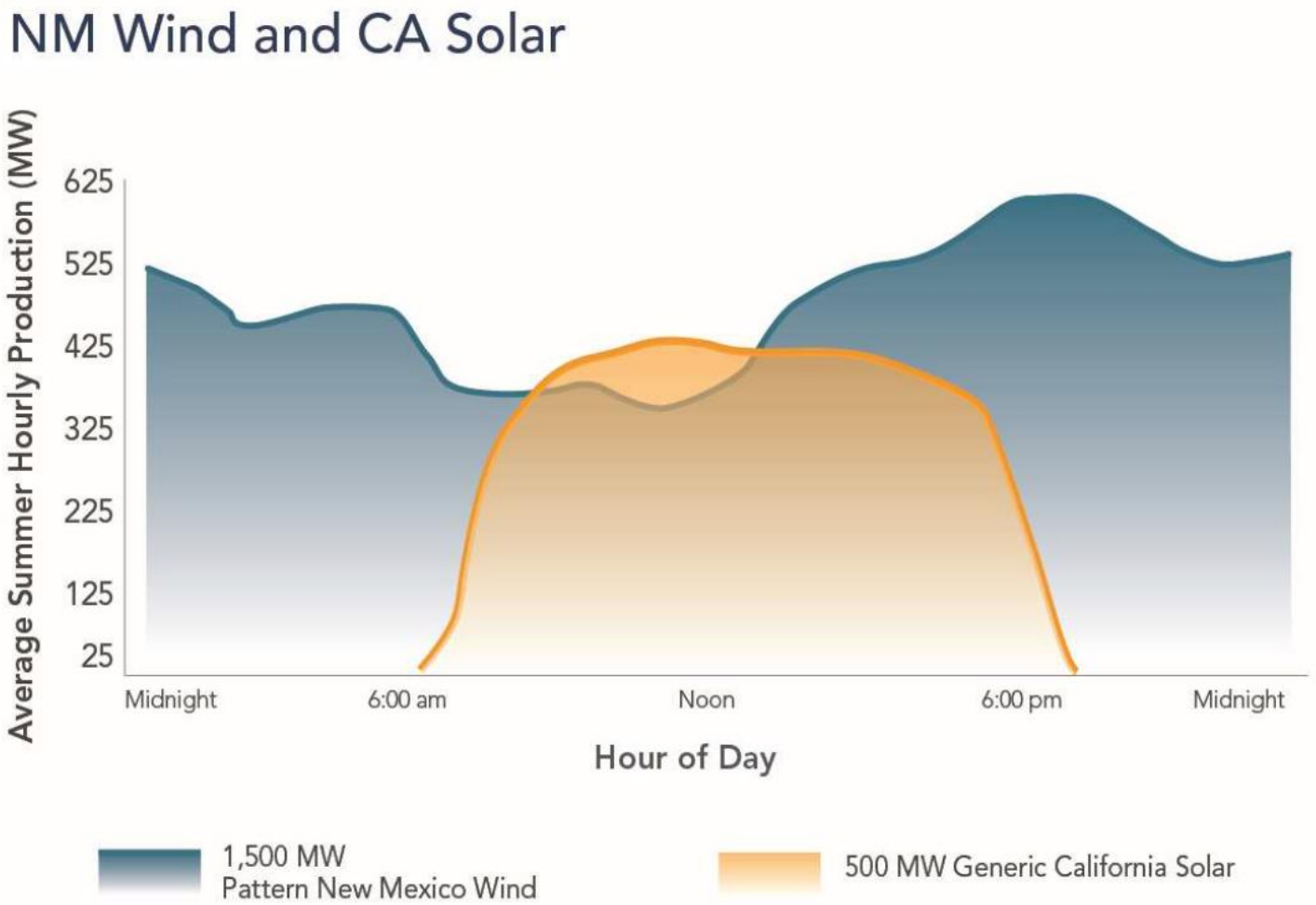


Source: NREL: Global Horizonal Solar Irradiance 1998-2016

Source: NREL: US 80m Wind Resource

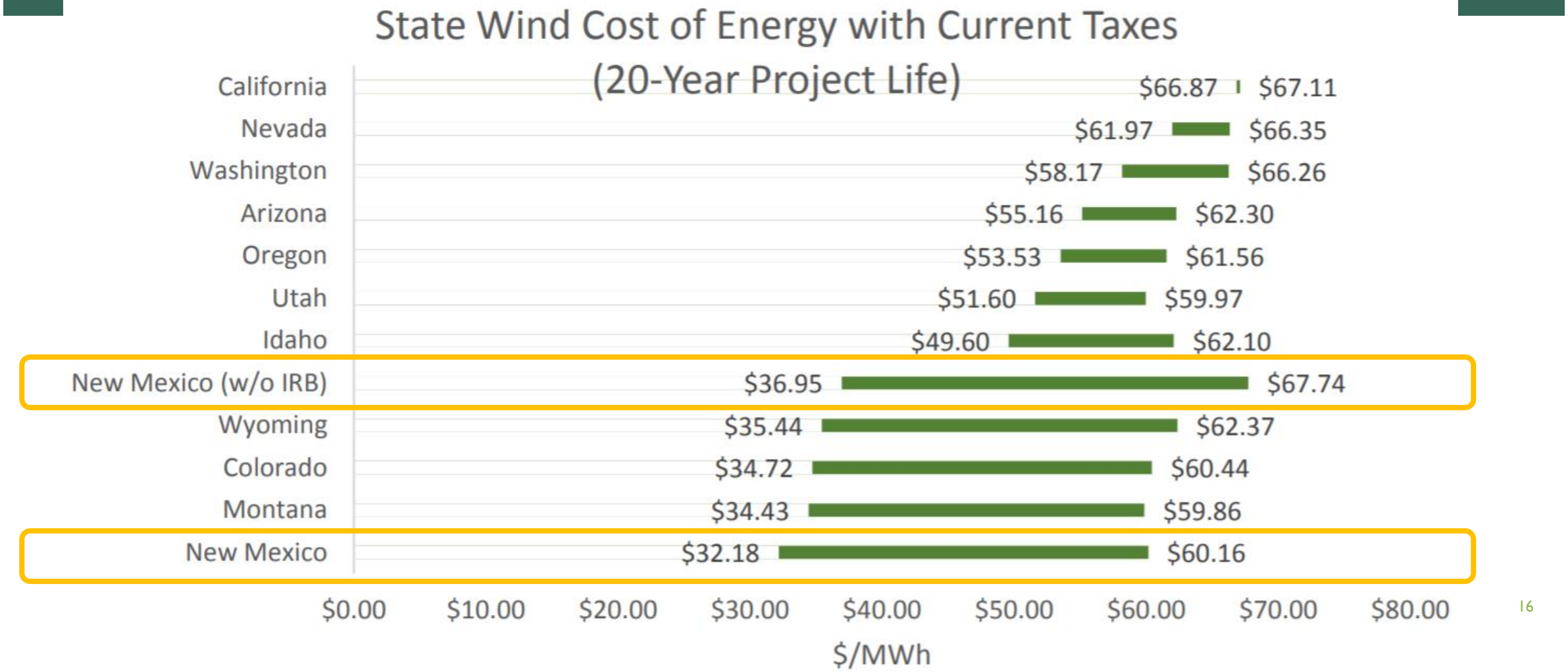
CONSIDERATIONS: RESOURCE

- Regional Electricity markets benefit from geographic diversity
- "Duck Curve" challenges are affecting many markets with high renewable penetration
- Regional coordination enables least cost, highly efficient pairing of wind and solar resources



Source: Pattern Energy

CONSIDERATIONS: COST



Source: Univ. of Wyoming, "Estimating the Impact of State Taxation Policies on the Cost of Wind Development in the West" (March 2019)

RFP RESULTS: NVE AND BHE

Price difference is a matter of cents

- NV Energy 2018 RFP Shortlist
  - Approx. difference between highest and lowest bid = $0.50/MWh
- Black Hills Energy 2019 RFP Shortlist
  - Approx. difference between highest and lowest bid = $0.87/MWh

Source: Calculations based on PWRR values published in each utility's RFP response filing with outliers removed.

ECONOMIC BENEFITS

TAXES FROM RENEWABLE ENERGY DEVELOPMENT

- **Gross Receipts Tax** (direct and induced) on:
  - Construction
  - Operations (example: any purchased services like maintenance)
  - Consumed electricity and other purchased commodities
- **Corporate Income Tax**
- **Personal Income Tax** on:
  - Payroll
  - Land Lease Payments to Property Owners
  - Operating revenue of vendors providing contract services
- **Property Taxes,** if a non-IRB project, or Payment in lieu of taxes **(PILT)** to each county and school district touched by the project with an IRB

ECONOMIC DEVELOPMENT

Capital Investment: $9 billion

Landowner Payments: $31.7 million annually

- Consistent income that flattens peaks and valleys
- Keeps local farmers and ranchers on their land

Jobs: 3,800 renewable energy jobs in the state

- Employment numbers highest during construction
- Additional jobs in Engineering, Tech, Law

Source: American Clean Power Association

REVENUE SHARING ON STATE TRUST LANDS

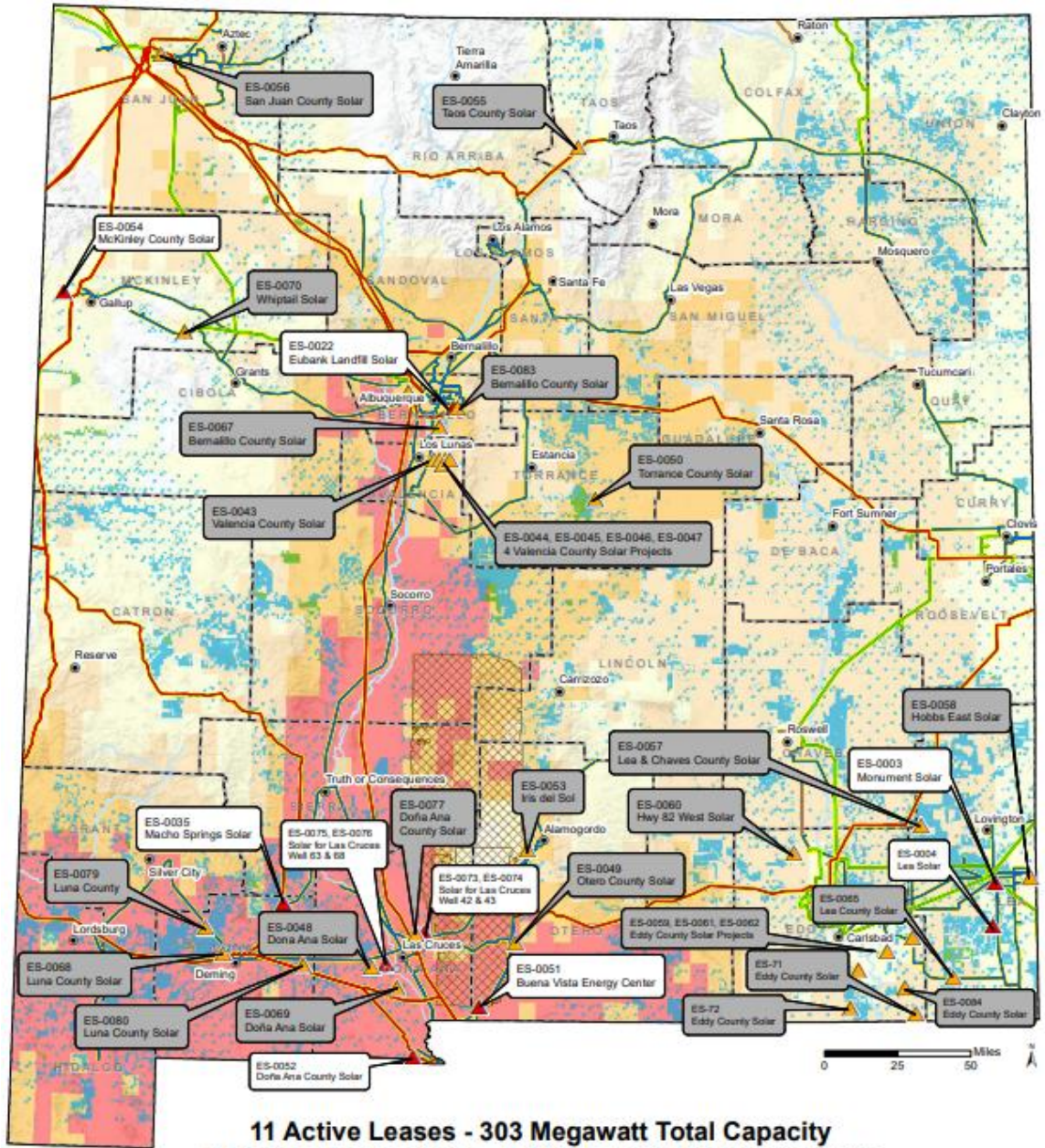
- According to the New Mexico State Land Office, there exists about nine million acres of land in the state available for lease to renewable energy companies.

- Current wind and solar leases bring in ~$2 million per year in lease payments to the state.
  - 16 Active Wind leases = 619 MW
  - 11 Active Solar leases = 303 MW

- More revenue on the horizon (expecting ~$3million per year):
  - 12 Wind Lease Applications = 2,570 MW
  - 35 Solar Lease Applications = 3,146 MW

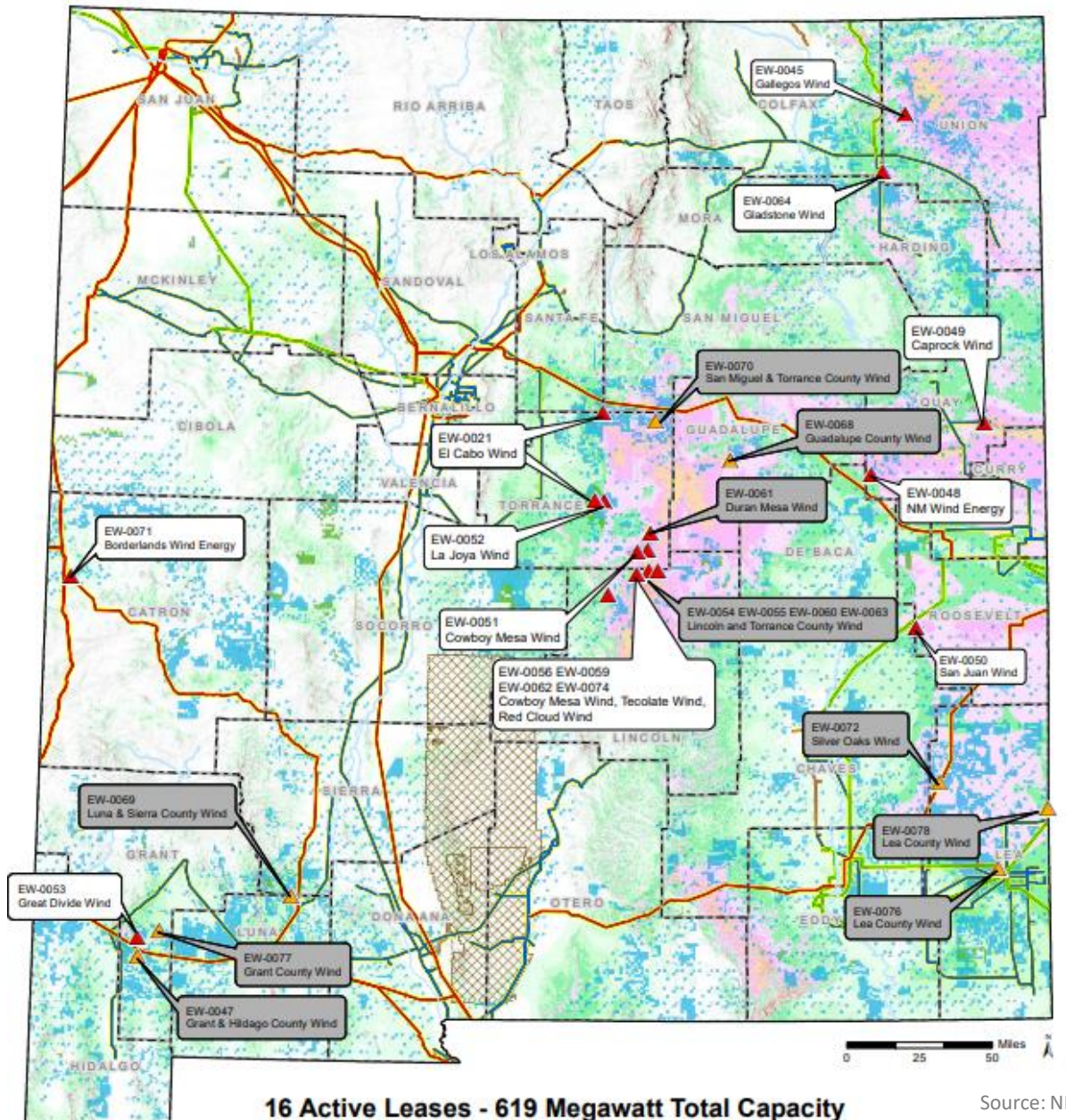
Source: NM State Land Office

Solar Energy Projects on NM State Trust Land



11 Active Leases - 303 Megawatt Total Capacity
35 Lease Applications - 3,146 Megawatt Total Capacity

Wind Energy Projects on NM State Trust Land



16 Active Leases - 619 Megawatt Total Capacity
12 Lease Applications - 2,570 Megawatt Total Capacity

Source: NM State Land Office

LOOKING FORWARD

NM WILL BENEFIT FROM GROWTH SCENARIO

- Additional renewable development means additional revenue for the state
  - Bulk of state tax collection comes during construction phase
- Need to stay competitive in order to win bids
  - Projects generally will not be built if they cannot win RFPs
- Transmission expansion/grid modernization
  - More transmission is needed to move electrons
  - A "Regional Transmission Organization" can help us achieve our goals

QUESTIONS?

Rikki Seguin
Executive Director

rikki@interwest.org

400 Gold Ave. SW Suite 700
Albuquerque, NM 87102

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