INTERWEST ENERGY ALLIANCE

RENEWABLE ENERGY GROWTH CASE & EXPECTED ECONOMIC BENEFITS

Presentation to New Mexico Finance Authority Oversight Committee
September 18, 2020

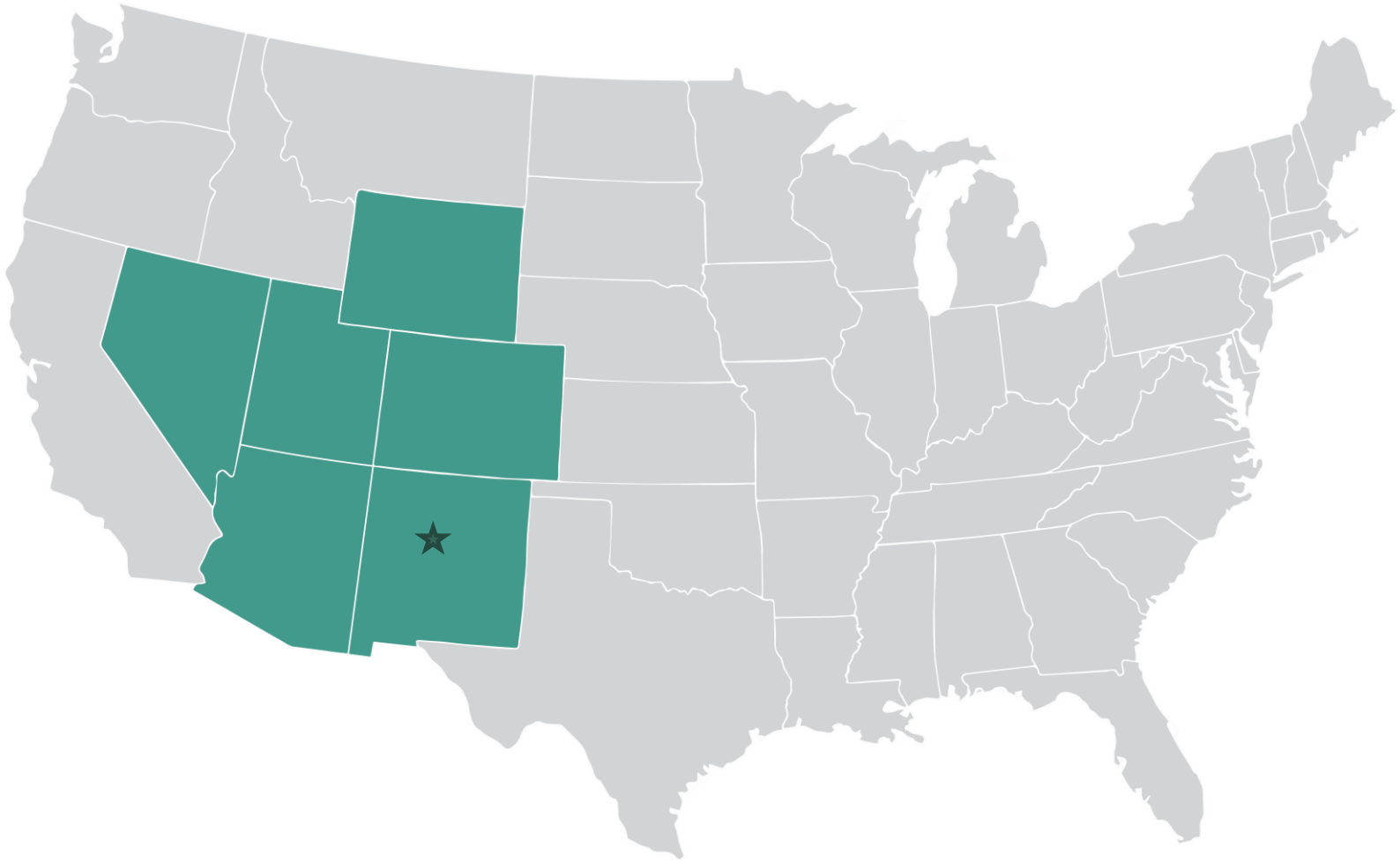
Rikki Seguin
Executive Director

PRESENTATION OVERVIEW

- Interwest Introduction
- What is Driving Demand?
- Can New Mexico Projects Win Bids?
- Economic Impacts of Renewable Development
- Increased Business Opportunities
- Looking Forward

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.

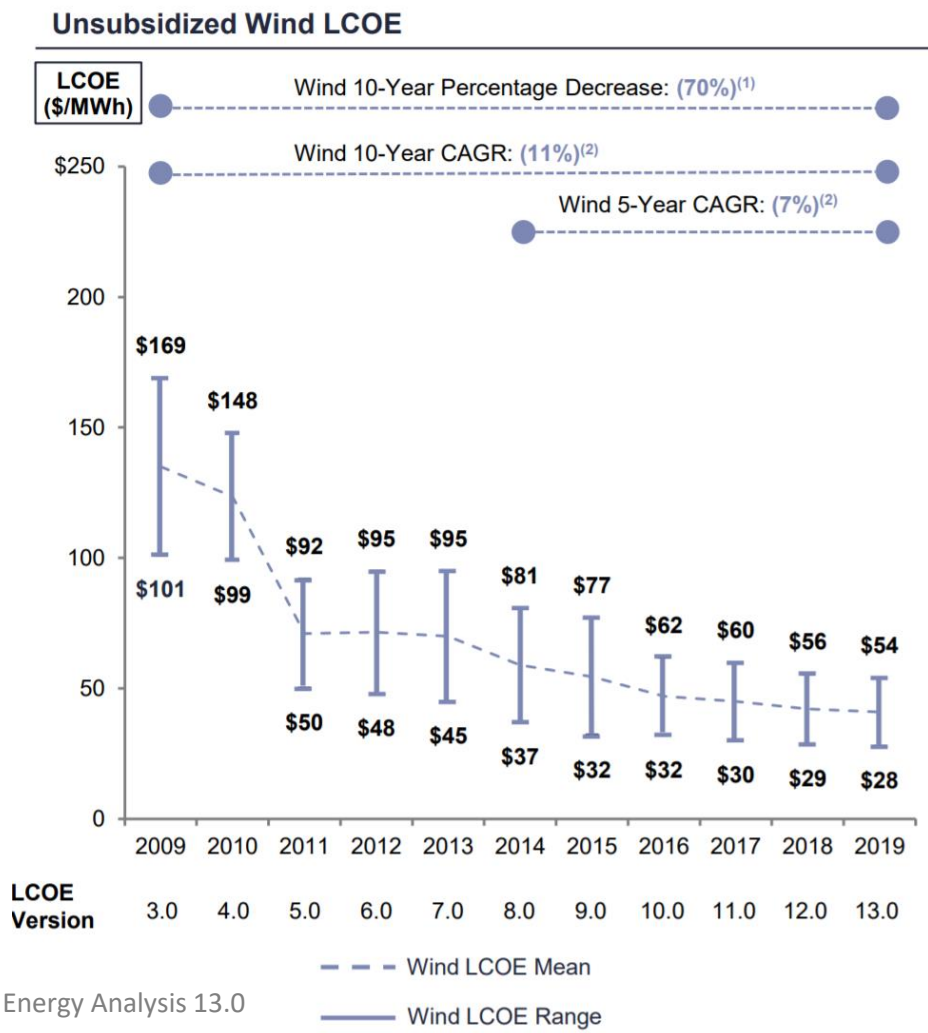


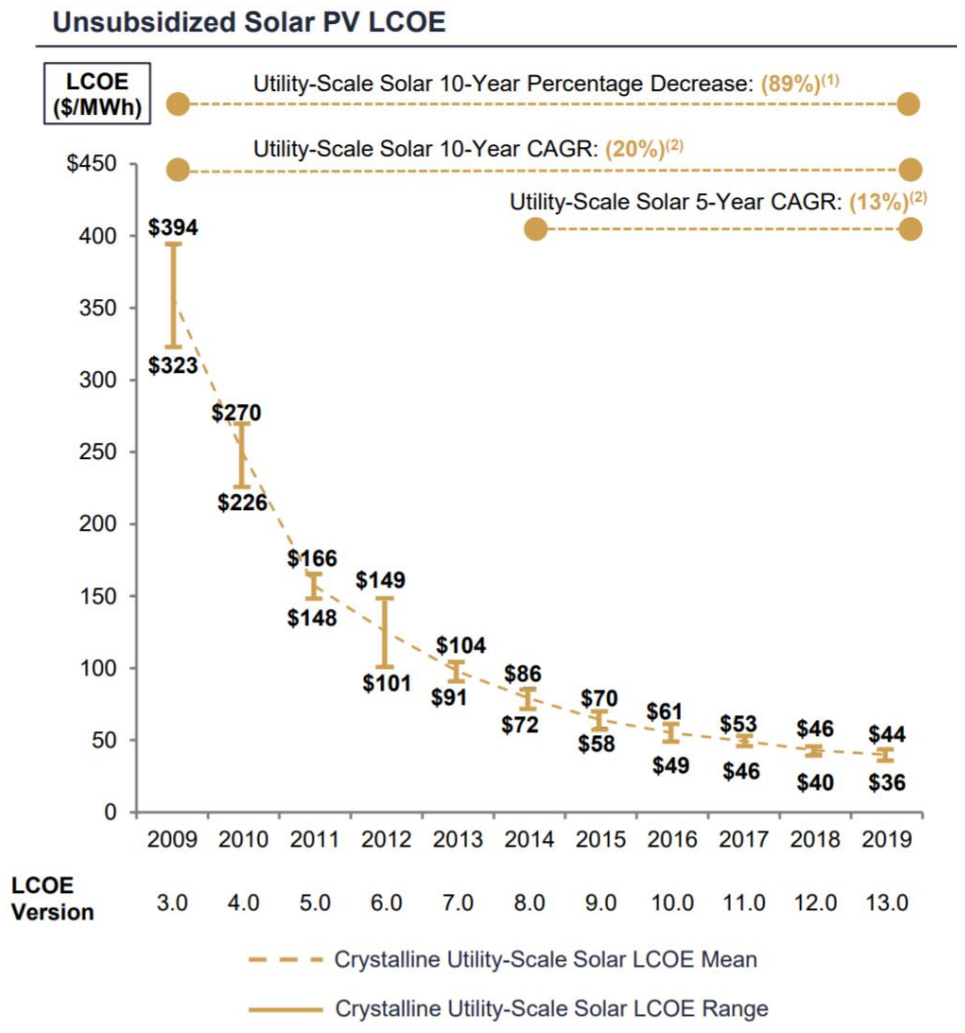
New Mexico, Colorado, Wyoming, Utah, Nevada, Arizona


edp renewables
WESTERN RESOURCE ADVOCATES
Pattern
AWEA
First Solar
AVANGRID RENEWABLES
RECURRENT ENERGY
CYPRESS CREEK RENEWABLES
UTAH CLEAN ENERGY
NRDC
HEELSTONE RENEWABLE ENERGY
SOLARIANT
Invenergy
ecoplexus
INNERGEX
Union of Concerned Scientists
RWE
Vestas
NEXTera ENERGY RESOURCES
ConnectGEN
8MINUTE SOLAR ENERGY
enel Green Power
COMMUNITY ENERGY
eolus
VOTE SOLAR
EDF renewables
APEX CLEAN ENERGY
S·POWER SUSTAINABLE POWER GROUP
Clearway
SIERRA CLUB

WHAT IS DRIVING DEMAND?

COST REDUCTIONS

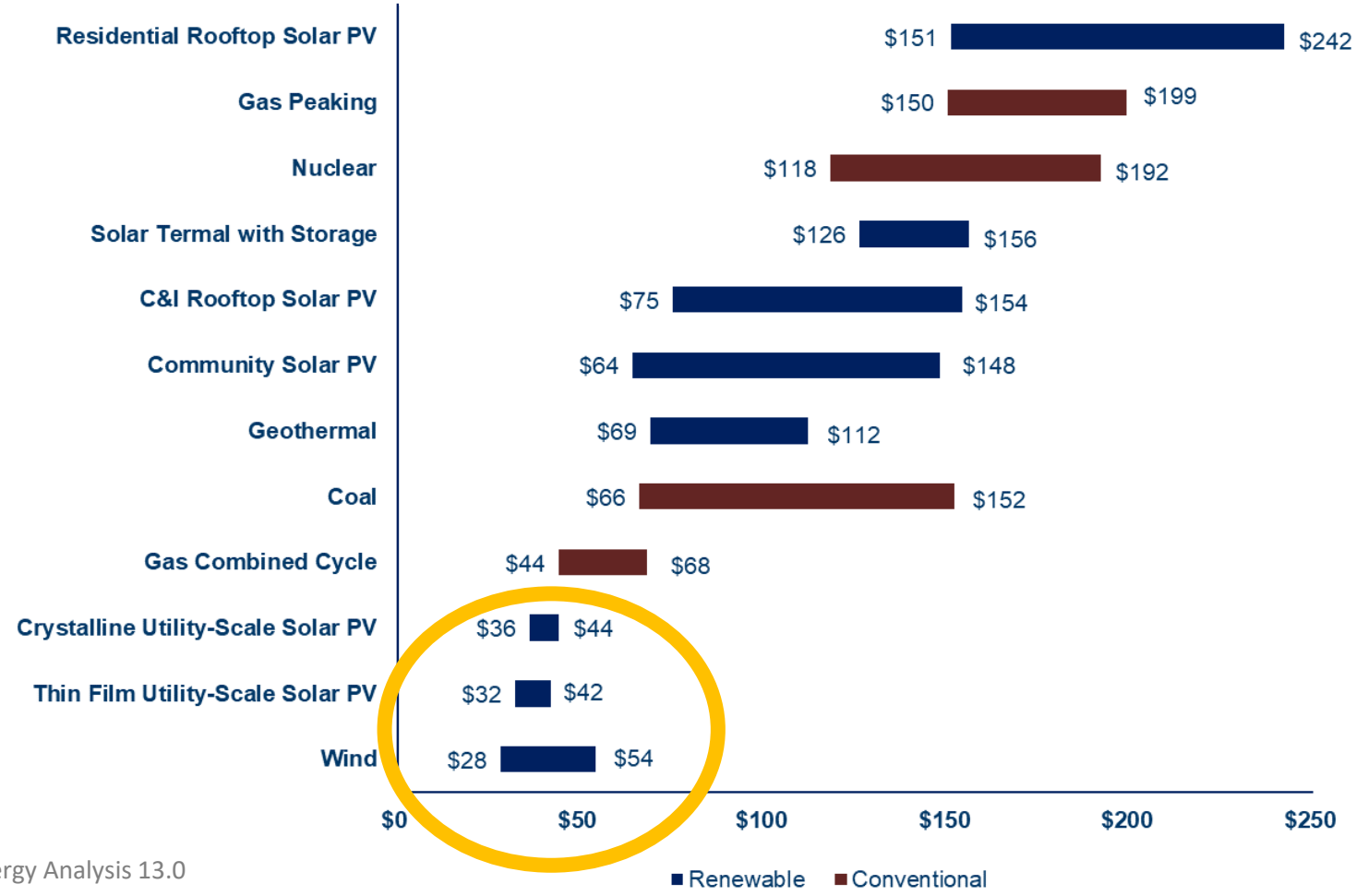




Source: Lazard's Levelized Cost of Energy Analysis 13.0

COST REDUCTIONS

LCOE Comparison Across Technologies

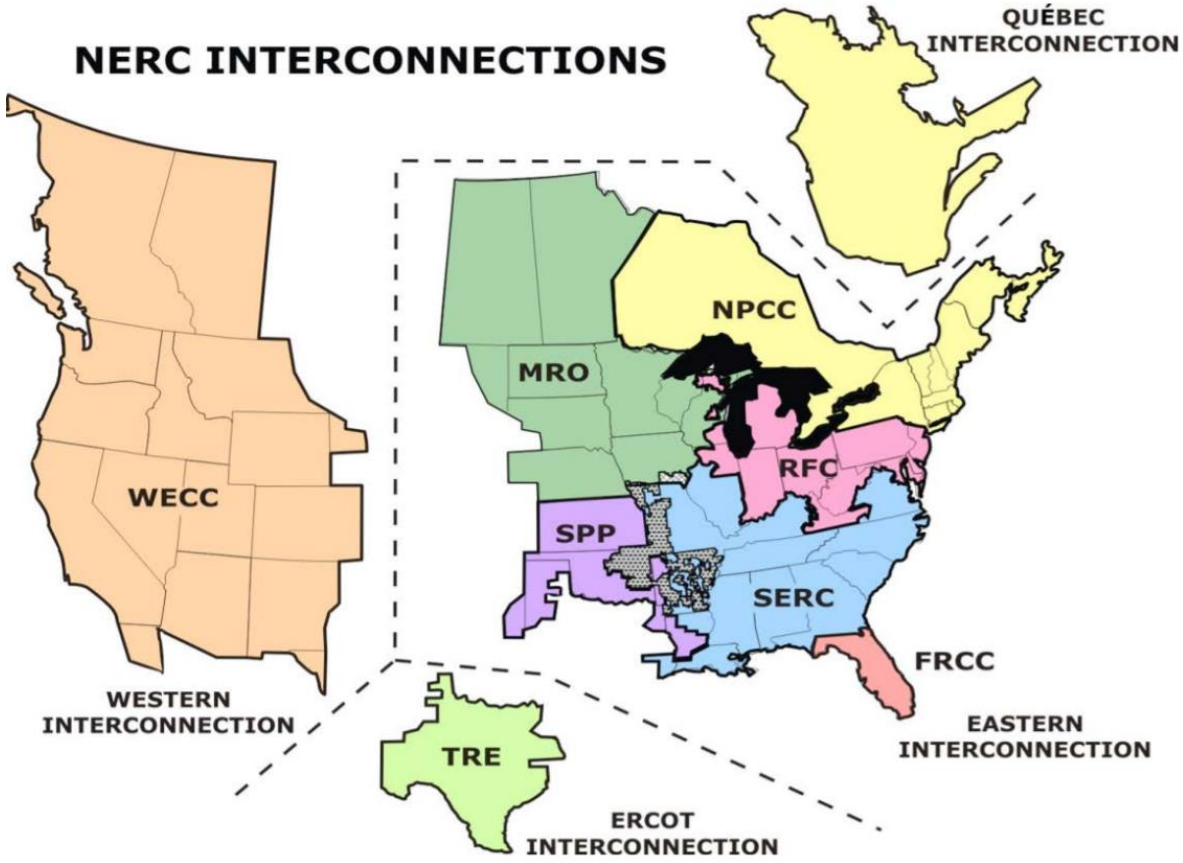


Source: Lazard's Levelized Cost of Energy Analysis 13.0

IN-STATE POLICY DRIVERS

- **Energy Transition Act** in 2019
  - 100% carbon-free by 2045
  - 50% RPS by 2040
  - Goal of 80% renewable by 2040

- **New Mexico Load is Small**
  - NM electricity demand makes up just 3.5% of total WECC demand
  - PNM System Peak: 7/10/20 = 1,935 MW demand
  - Total renewables online in NM:
    - Wind 1,952 MW
    - Solar 1,068 MW

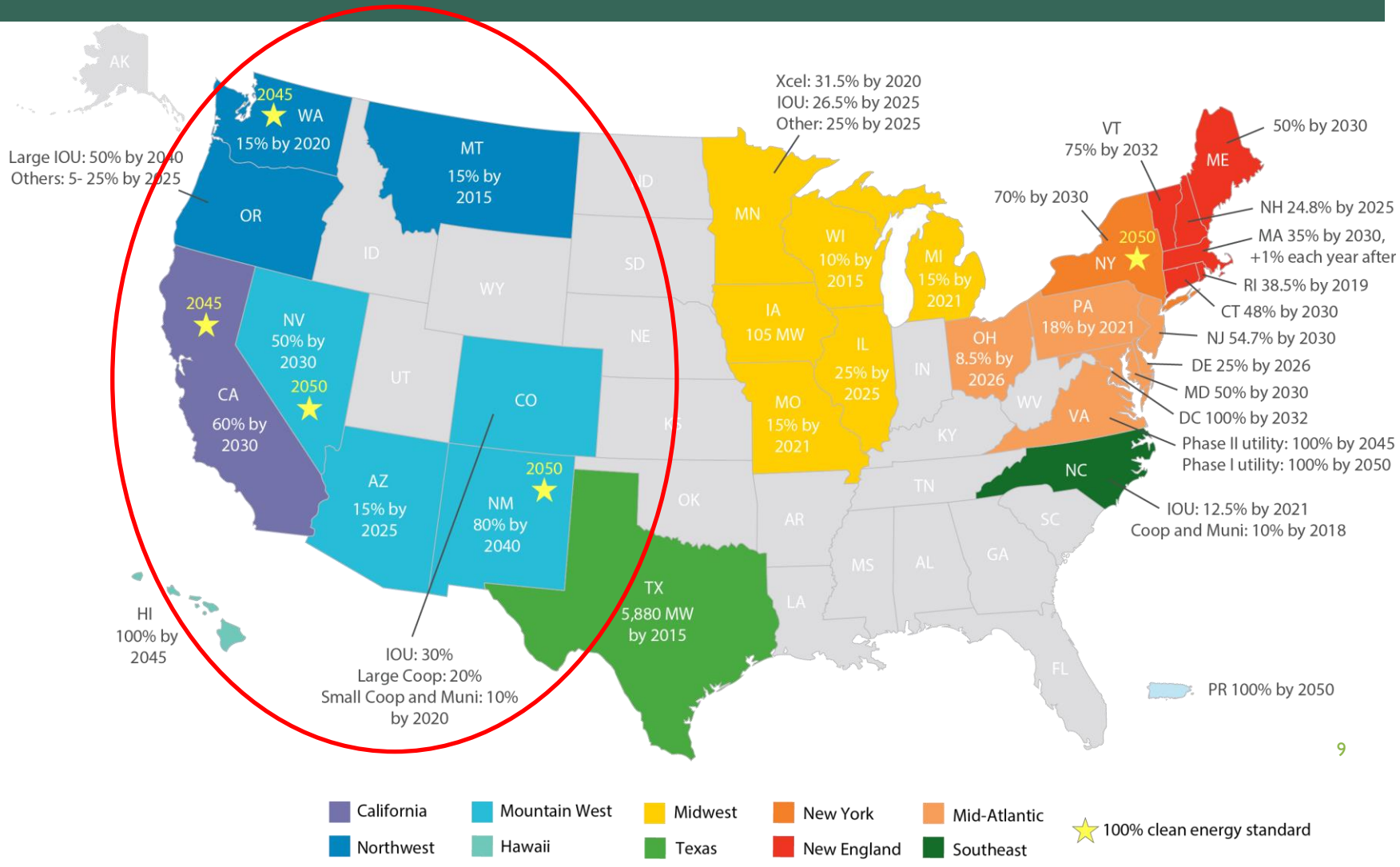


Source: Peak load data: PNM 2020-2040 Integrated Resource Plan presentation Aug. 25, 2020; Wind data: AWEA; Solar data: SEIA

Source: WECC

REGIONAL POLICY DRIVERS

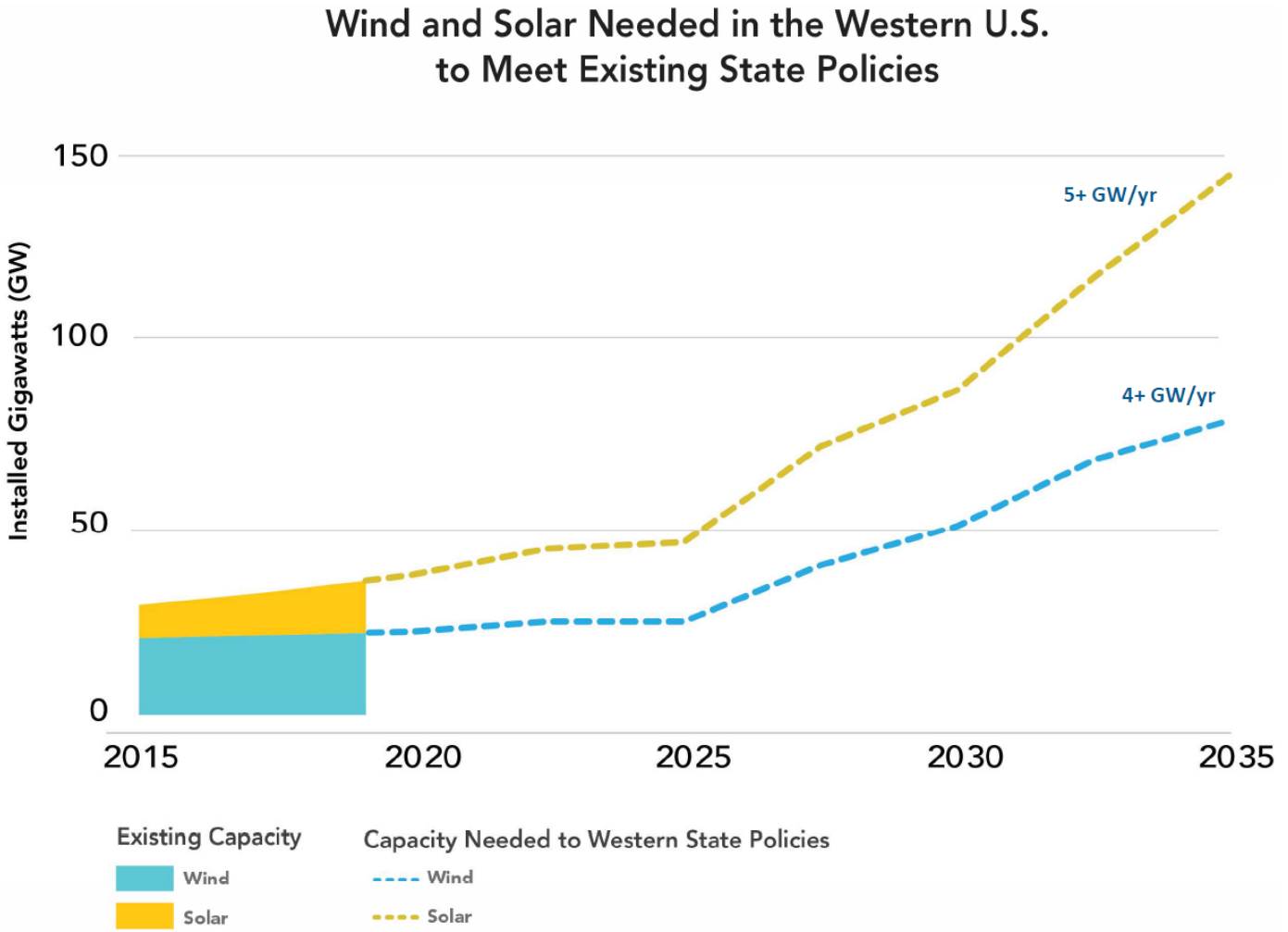
80% of energy use in the West is now aligned on decarbonization



Source: AWEA

INCREASED DEMAND FOR RENEWABLES

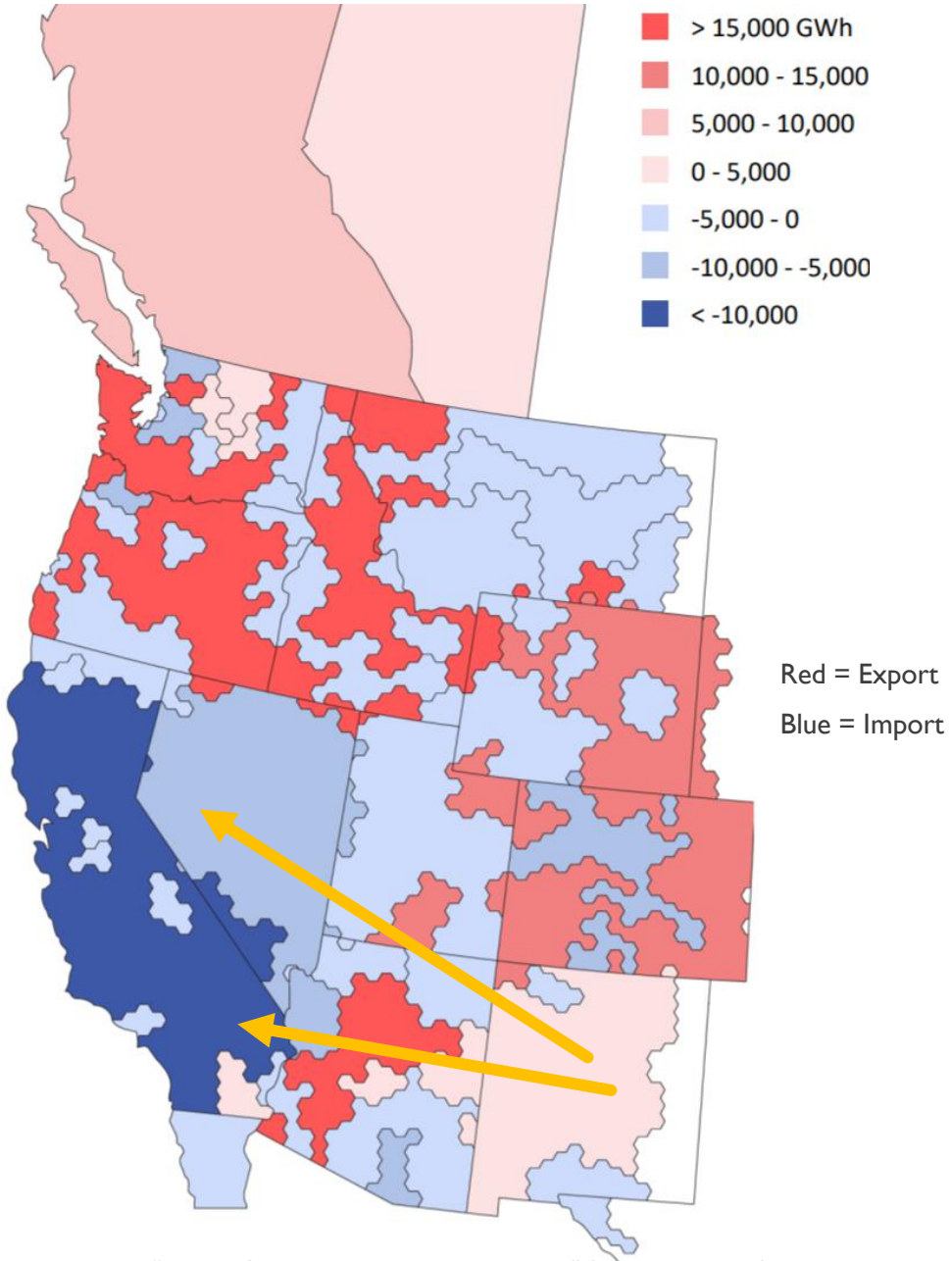
- Existing policies in the West require ~9 GW new renewables per year starting in 2026
  - NM has ~3GW installed today
- By 2050 the total demand in the West is upwards of 150 GW



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

CAN NM PROJECTS WIN BIDS?

2016 Net Interchange by Balancing Area



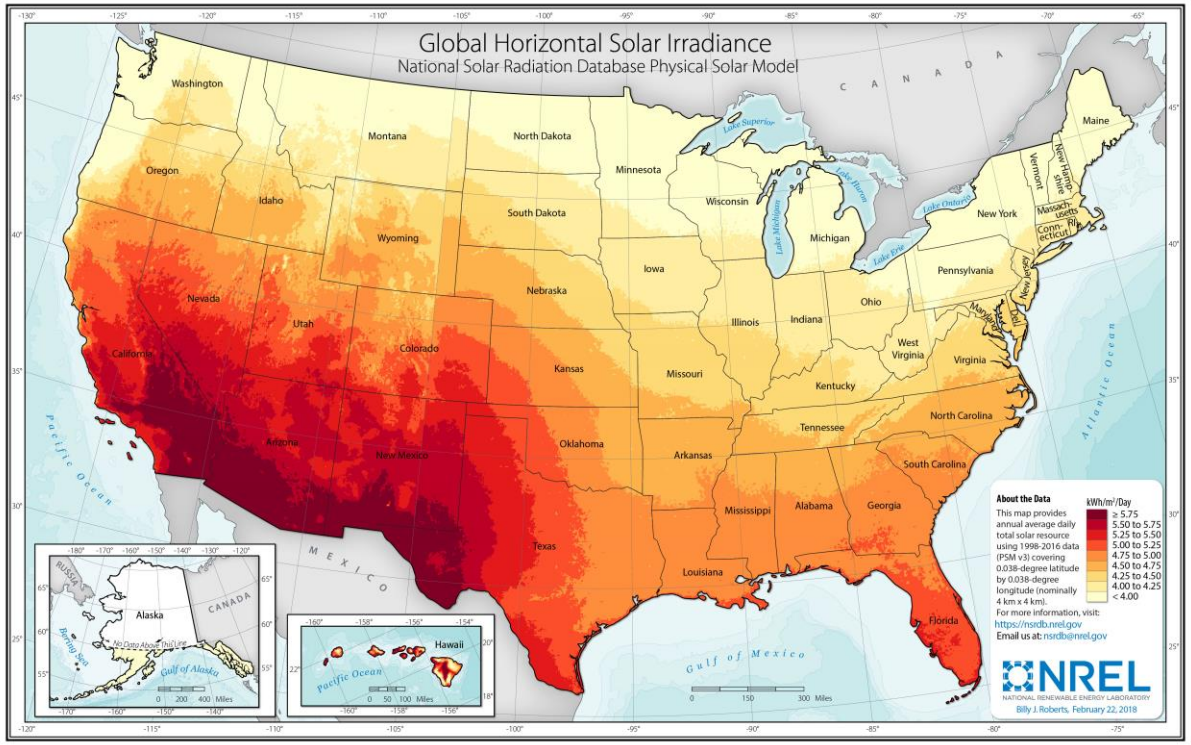
Source: WECC "State of the Interconnection Digest" (Summer 2018)

YES - New Mexico can sell clean energy to these states, but we need to win in competitive solicitations.

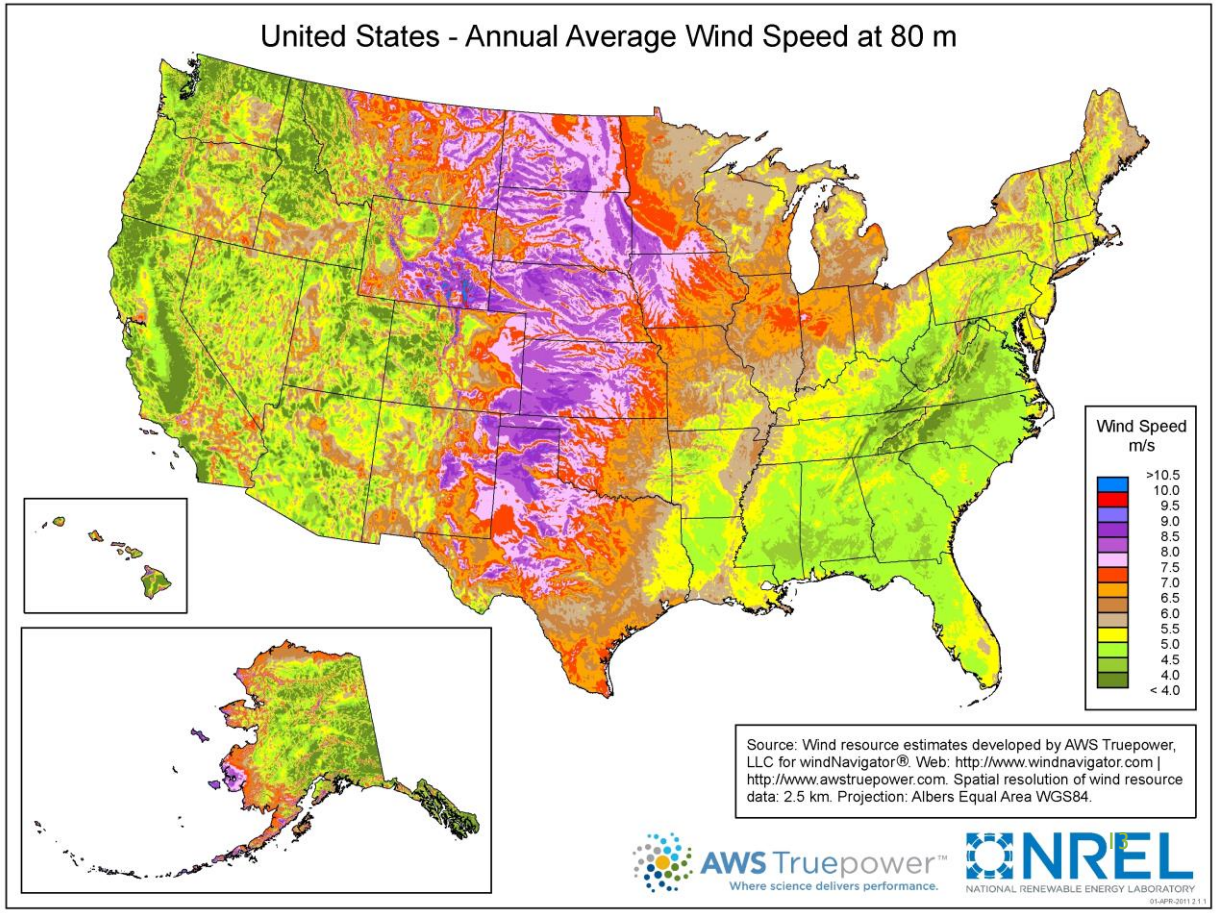
Standard steps:

- Utility issues RFP for clean energy resource
- Companies bid in from around the region
- Utility selects the best project (considering cost, resource type, etc.)
- **If bid is not selected, <u>project does not get built.</u>**

CONSIDERATIONS: RESOURCE



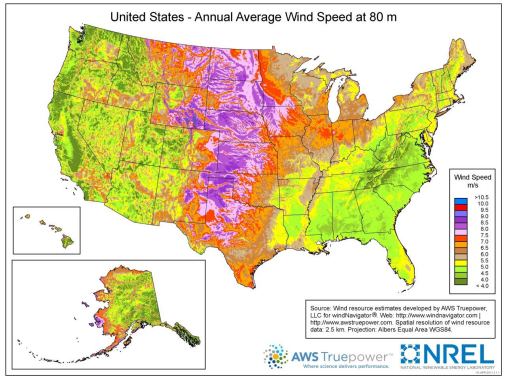
Source: NREL: Global Horizonal Solar Irradiance 1998-2016



Source: NREL: US 80m Wind Resource

CONSIDERATIONS: RESOURCE

State	Column A Estimated Gross Capacity Factor Possible at top 5% of land (2014 Technology)	Column B Estimated Net Capacity Factor Possible at top 5% of land (2014 Technology)	Column C Net Capacity Factor after 20 years using 1% Degradation Rate	Column D Net Capacity Factor after 30 years using 1% Degradation Rate
WY	56%	50.5%	41.7%	37.7%
NM	56%	50.5%	41.7%	37.7%
MT	56%	50.5%	41.7%	37.7%
CO	55%	49.6%	41.0%	37.1%
CA	46%	41.5%	34.3%	31.0%
OR	45%	40.6%	33.5%	30.3%
WA	45%	40.6%	33.5%	30.3%
ID	45%	40.6%	33.5%	30.3%
UT	42%	37.9%	31.3%	28.3%
AZ	41%	37.0%	30.6%	27.6%
NV	38%	34.3%	28.3%	25.6%



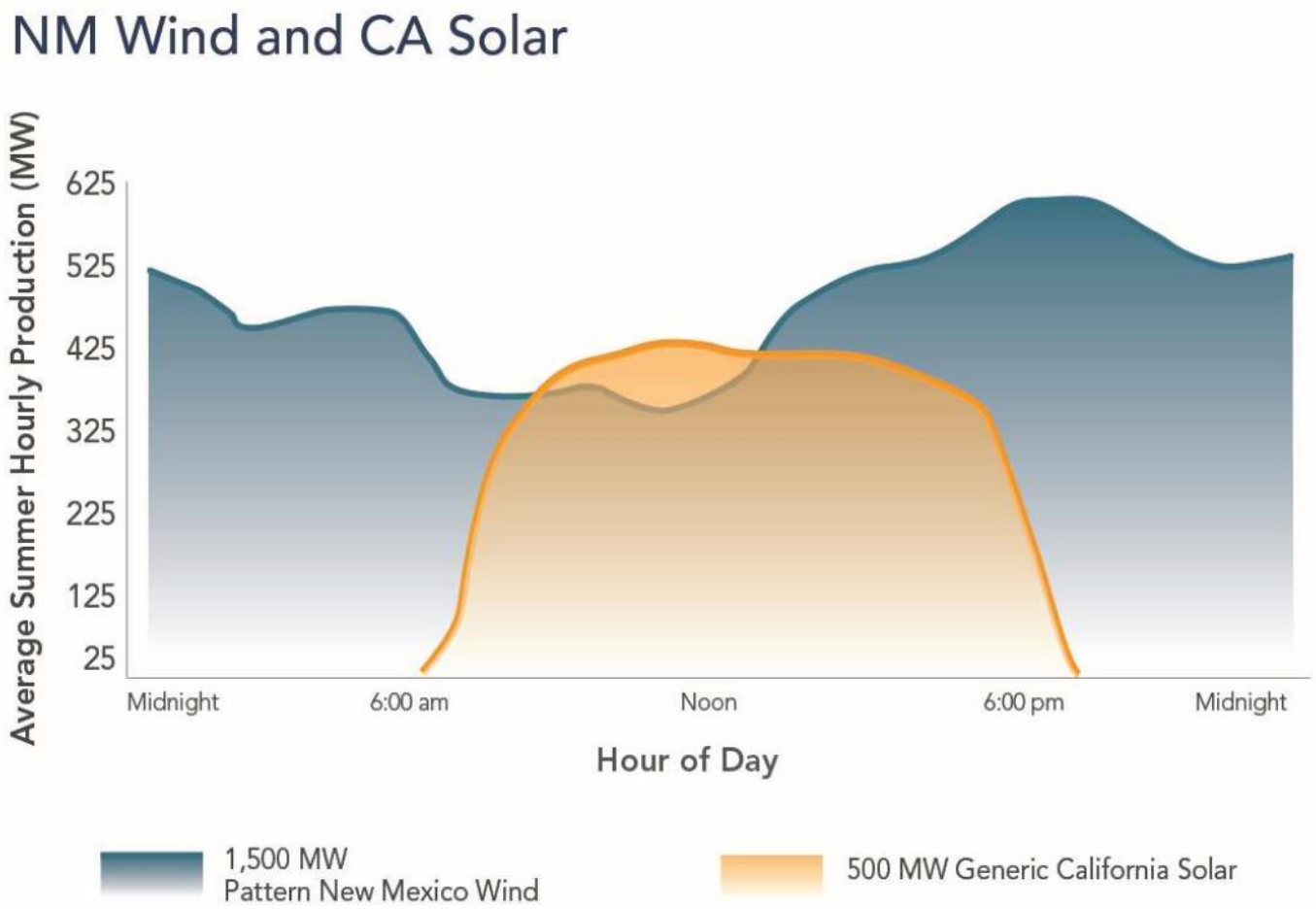
Capacity Factors Determined for Each WECC State

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

Source: NREL: US 80m Wind Resource

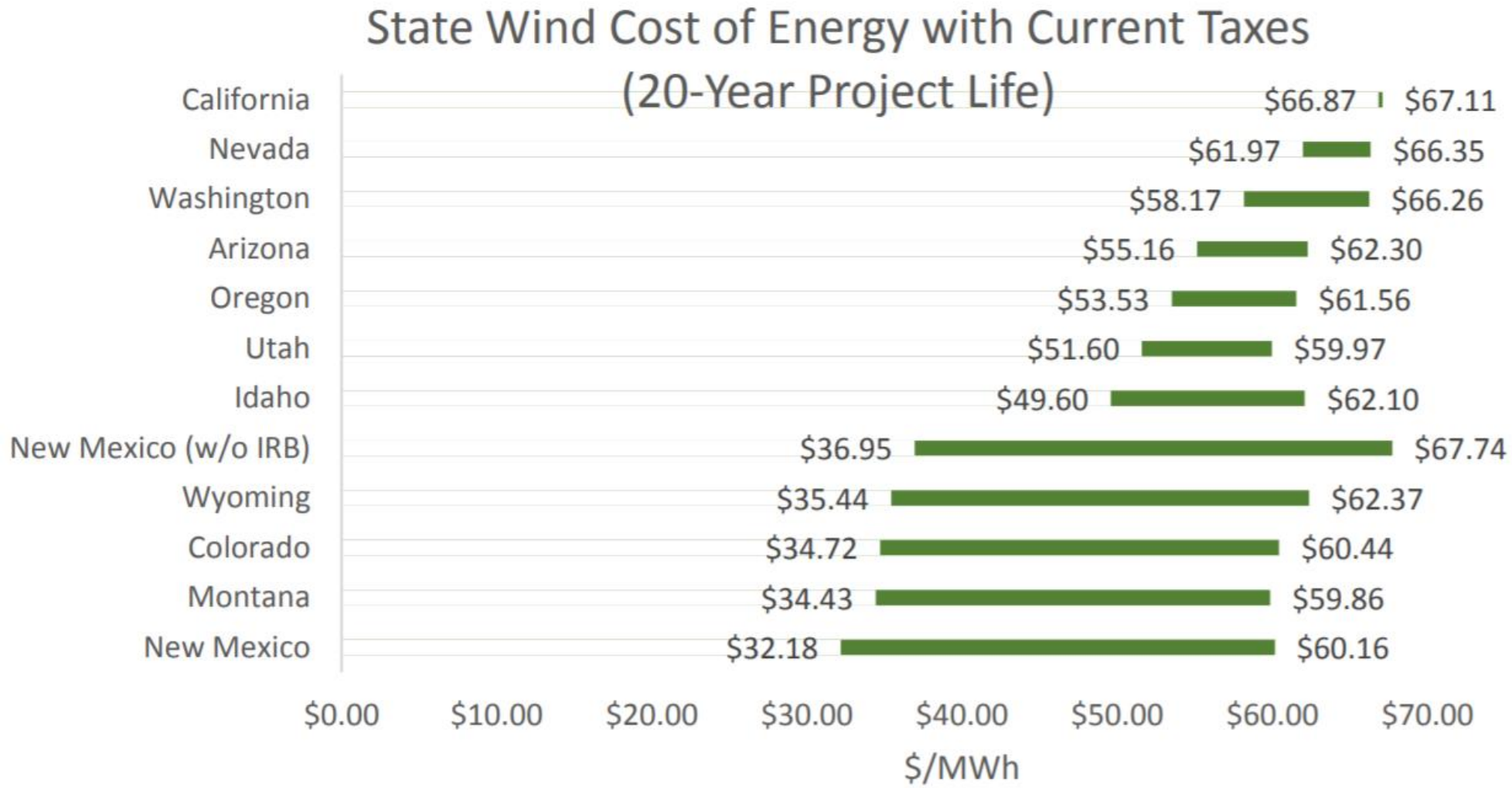
CONSIDERATIONS: RESOURCE

- 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

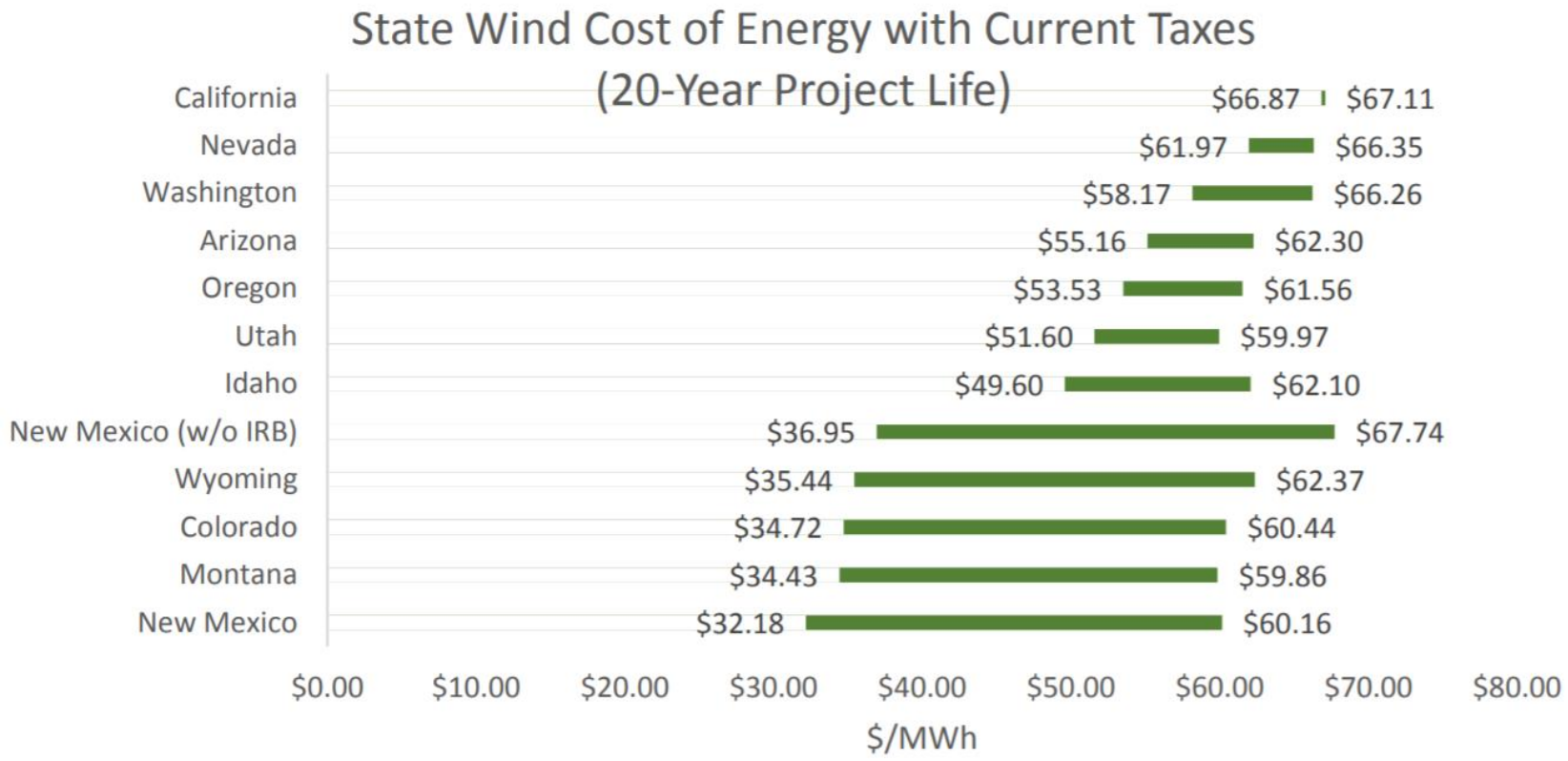
CONSIDERATIONS: COST



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

MUST REMAIN COMPETITIVE TO WIN BIDS

- NV Energy 2018 RFP Shortlist (9 projects):
  - 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.

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

ECONOMIC IMPACTS

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

Matched Taxable Gross Receipts by Industry - Fourth Quarter FY20

Industry	April MTGR Growth	April Percent Growth	May MTGR Growth	May Percent Growth	June MTGR Growth	June Percent Growth
Mining, Quarrying, and Oil and Gas Extraction	-$91,247,605	-15.4%	-$195,385,900	-37.3%	-$269,087,142	-47.0%
Leisure and Hospitality Services	-$161,585,586	-40.0%	-$158,943,426	-35.1%	-$128,723,902	-27.7%
Utilities	-$12,091,941	-5.5%	$31,546,806	16.8%	$50,739,694	24.0%
Construction	$211,250,729	32.4%	$131,492,399	20.1%	$219,517,475	31.5%
Manufacturing	-$61,361,529	-30.3%	-$39,750,688	-22.6%	-$31,473,940	-15.1%
Wholesale Trade	-$51,909,747	-19.6%	-$136,549,801	-39.7%	-$106,790,996	-33.8%
Retail Trade	$29,324,131	2.6%	$172,775,214	14.8%	$186,530,700	15.4%
Transportation and Warehousing	$8,363,599	9.9%	-$33,438,308	-36.1%	-$25,655,614	-30.0%
Information	$23,345,229	10.8%	$45,326,818	21.0%	$36,135,090	15.9%
Real Estate and Rental and Leasing	-$14,634,016	-9.6%	-$34,796,193	-22.7%	-$30,140,601	-17.8%
Professional, Scientific, and Technical Services	-$2,267,563	-0.4%	$14,254,986	2.9%	$20,711,159	3.8%
Administrative/Support & Waste Management/Remediation	-$214,683,626	-67.6%	$108,184,457	51.4%	$23,434,295	
Health Care and Social Assistance	-$9,724,018	-3.5%	-$21,629,788	-7.5%	$51,081,808	
Other Industries	$9,853,037	14.5%	$31,229,497	1.8%	$12,236,735	
Total	**-$337,368,906**	**-6.0%**	**-$85,683,927**	**-1.5%**	**$8,514,759**	

Note: compared to same month in 2019

So

"Construction receipts also propped up MTGR in FY20-Q4, posting double-digit growth each month despite the pandemic, largely due to large wind projects in Roosevelt and Torrance Counties, border wall construction in Luna and Doña Ana Counties, and other ongoing projects in Sandoval County."

Matched Taxable Gross Receipts by County FY20 vs. FY19

Jurisdiction	Year-over-Year Amount	Year-over-Year Percent	Jurisdiction	Year-over-Year Amount	Year-over-Year Percent
Bernalillo County	$208,822,287	1.1%	McKinley County	$57,560,815	5.3%
Catron County	$2,768,445	7.8%	Mora County	$34,392	0.1%
Chaves County	$57,730,391	4.5%	Otero County	$54,791,120	5.7%
Cibola County	$17,116,887	4.9%	Quay County	-$14,722,021	-8.9%
Colfax County	$20,200,147	7.3%	Rio Arriba County	$321,621	0.1%
Curry County	-$32,185,065	-3.3%	Roosevelt County	$374,226,534	141.2%
De Baca County	-$9,113,230	-25.7%	San Juan County	$40,475,468	1.4%
Dona Ana County	$349,236,564	9.4%	San Miguel County	$29,868,686	8.0%
Eddy County	$711,901,225	10.1%	Sandoval County	$276,860,835	17.3%
Grant County	$8,972,119	1.8%	Santa Fe County	$12,237,283	0.3%
Guadalupe County	$5,162,853	5.7%	Sierra County	$14,864,323	8.4%
Harding County	-$4,717,316	-23.0%	Socorro County	$4,352,405	2.2%
Hidalgo County	$2,094,769	2.8%	Taos County	$31,635,830	4.6%
Lea County	-$317,891,960	-4.5%	Torrance County	$118,888,921	75.2%
Lincoln County	$35,881,228	6.7%	Union County	-$5,677,568	-5.1%
Los Alamos	$85,262,660	5.2%	Valencia County	-$1,547,496	-0.1%
Luna County	$210,041,247	59.8%	Out of State	$3,072,859,313	37.8%

Source: NM Legislative Fiscal Committee "General Fund Revenue Tracking Report: Accruals through May 2020" (9/4/20)

Source: RP 500

CASE STUDY

“Rio Arriba County Avoids Large Budget Cuts with Solar Deal”

August 13, 2020

“Rio Arriba County’s budget for the new fiscal year avoids any major cuts to public services or employees’ hours and pay because of a windfall from a major solar energy development…

But the County made a deal with the Chicago-based energy company Hecate Energy around the construction of a solar array on the Jicarilla Apache Nation, and through that agreement, the County will receive $800,000 in two installments, one in August and one in February 2021.”

Source: Rio Grande Sun (August 2020)

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 ~$1 million per year in lease payments to the state.
  - 9 Active Wind leases = 345 MW
  - 6 Active Solar leases = 221 MW

- More revenue on the horizon:
  - 19 Wind Lease Applications = 1,835 MW
  - 27 Solar Lease Applications = 2,917 MW

Source: NM State Land Office

ECONOMIC DEVELOPMENT

- **Landowner Payments:** $12 million annually
  - Consistent income that flattens peaks and valleys
  - Keeps local farmers and ranchers on their land consistent income that flattens peaks and valleys
- **Jobs:** 4,000-5,000 wind and solar jobs in the state
  - Employment numbers highest during construction
  - Additional jobs in Engineering, Tech, Law

Source: AWEA and SEIA

ECONOMIC DEVELOPMENT

Figure NM-2.
Electric Power Generation Employment by Detailed Technology Application

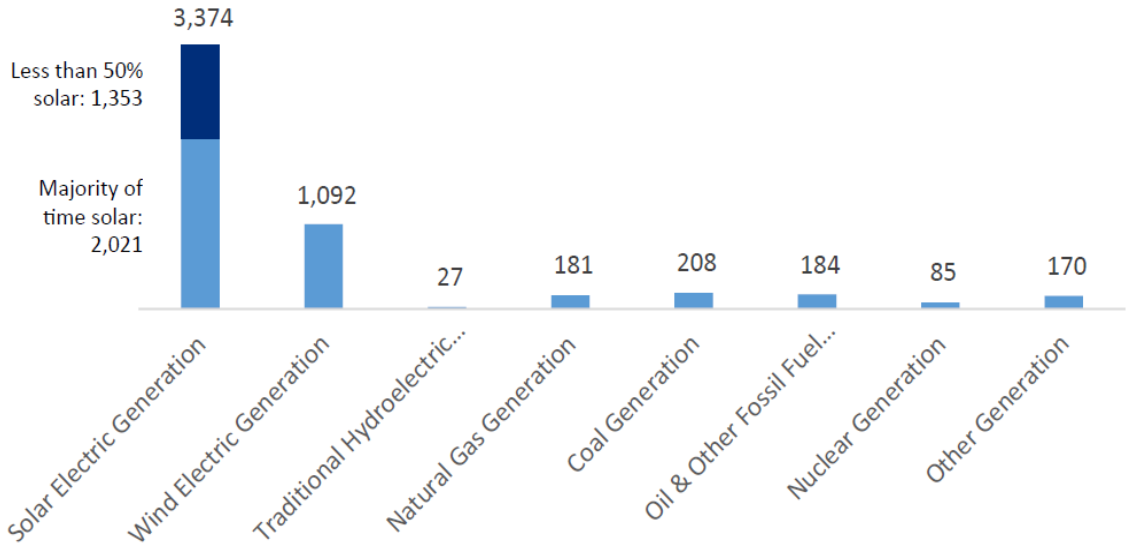
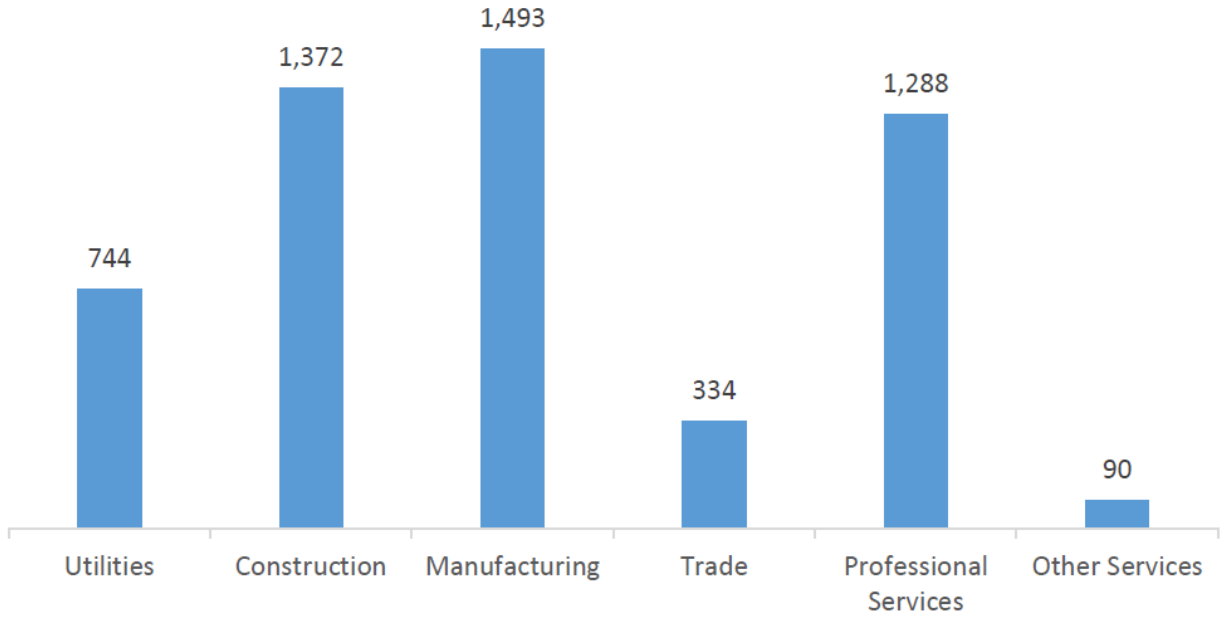


Figure NM-3.
Electric Power Generation by Industry Sector



Source: "US Energy + Employment Report, New Mexico" (2020)

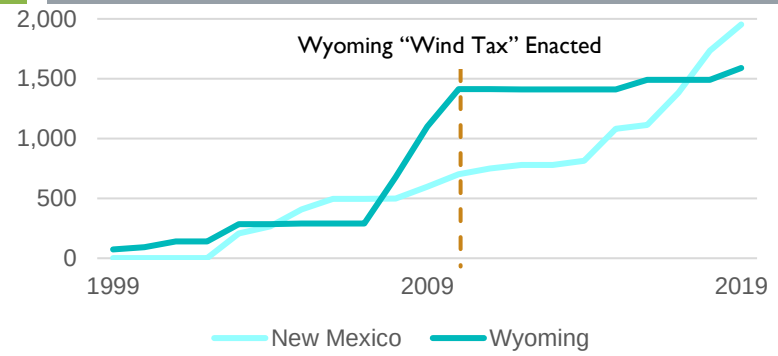
Discussion Draft – New Mexico
Renewable Energy Development Impacts

Renewable Tax Policy Impacts:

- Gross Receipts Tax (GRT): **$65.4 Million** ⬇
- Local Economic Benefits: **$6.7 Billion** ⬇
- Clean Electricity Tax Revenue: **$55.6 Million** ⬆
- Employment and Labor: **4,830 Jobs** ⬇

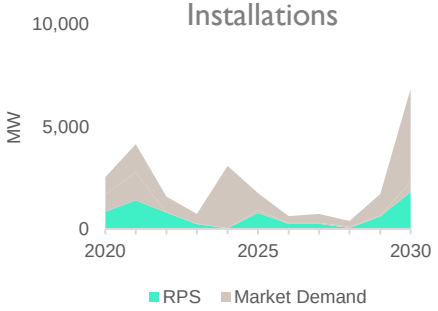
Net Loss to NM
from a WY-style
Clean Electricity
Generation Tax:
$6.71 Billion

Installed Wind Capacity (MW)
Before and After Wyoming "Wind Tax"

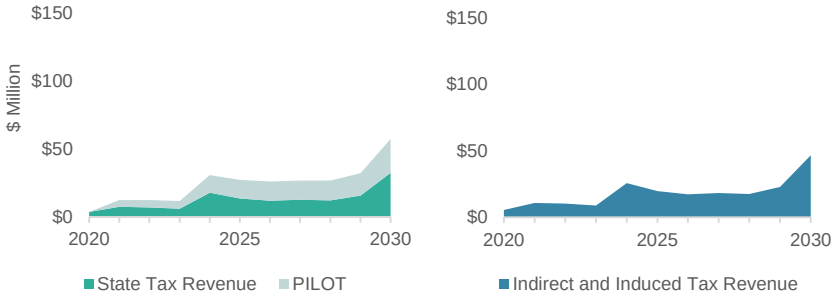


Growth Case:
Current Policy
Drives market

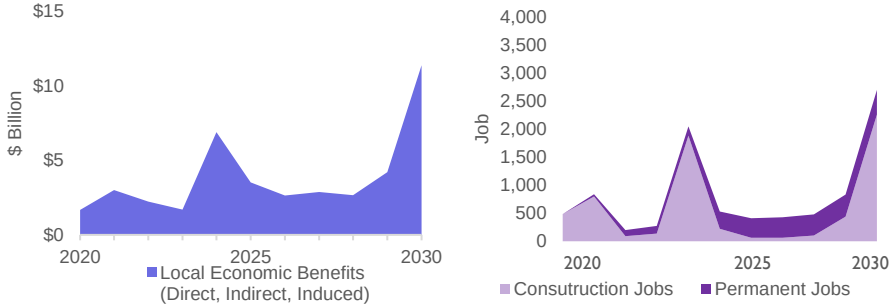
Annual
Wind and Solar
Installations



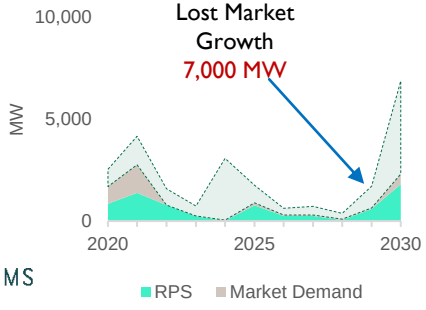
State & Local Revenue

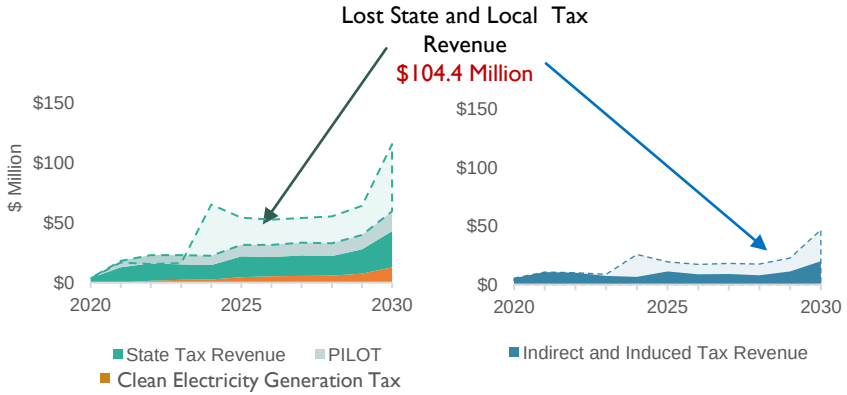


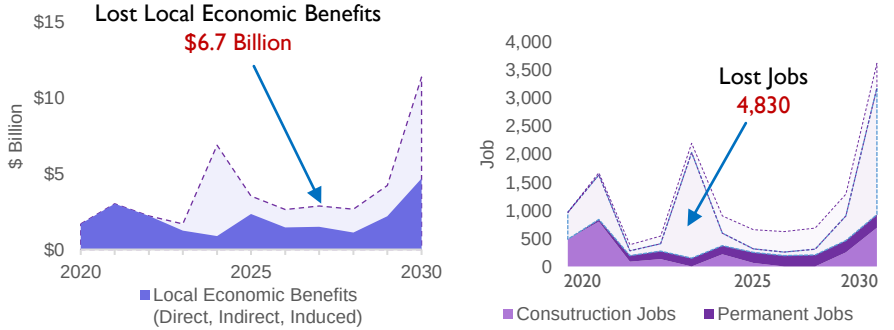
Local Economic Impact &
Direct Renewable Job
Creation



Limited Case:
WY-Style tax
Constrains
market





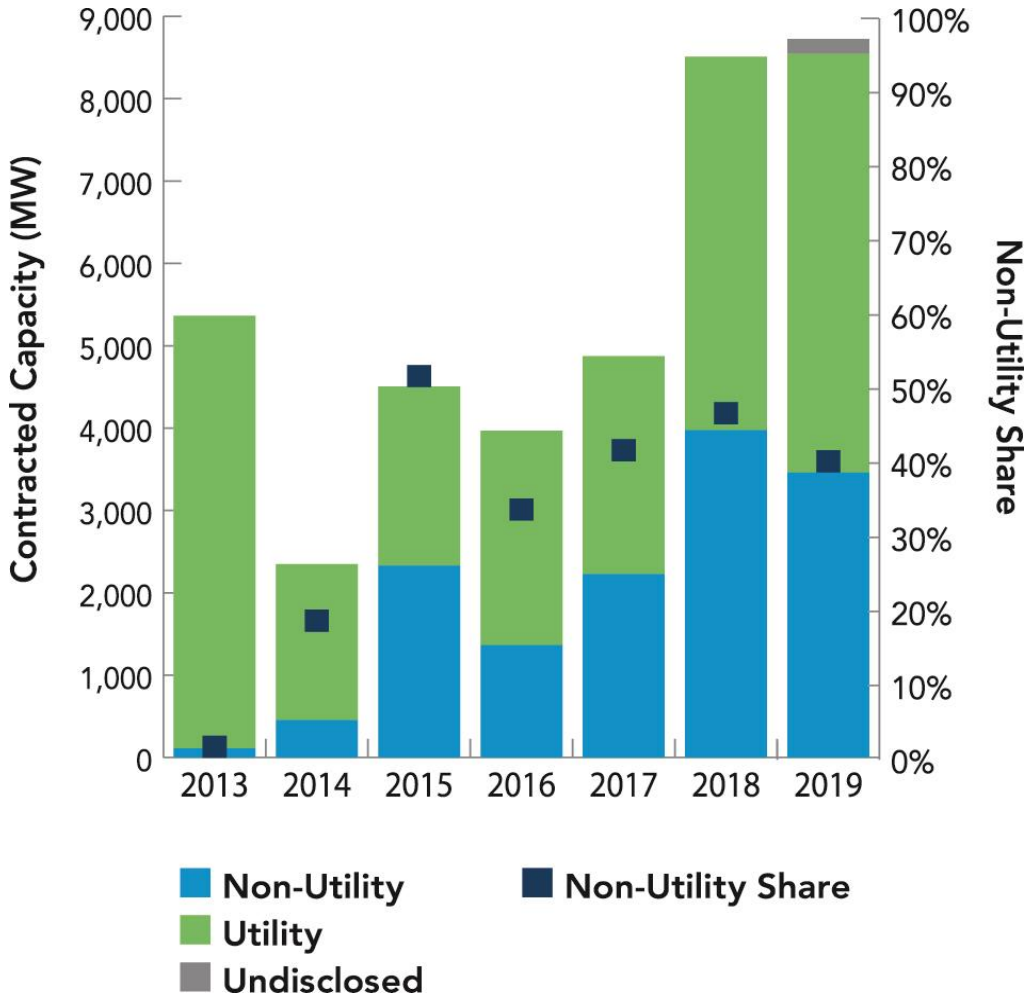


MOSSADAMS

INCREASED BUSINESS OPPORTUNITY

Nationally, power purchasers of wind announced record 8,726 MW of PPAs in 2019

PPAs by Type of Purchaser



Source: AWEA Wind Powers America Annual Report 2019

- “RE 100” has 223 companies publicly committed to 100% renewable electricity
- 2028 is average target year for RE100 companies to reach 100% renewable electricity

Source: RE 100 Annual Report (2019)

FACEBOOK LOS LUNAS DATA CENTER

- Facebook is committed to reducing overall greenhouse gas footprint by 75% from 2017 levels and supporting its global operations with 100% renewable energy in 2020.
- Partnered with PNM to identify and contract for six new wind and solar developments for a total of 396 MW

Source: Facebook; Photo courtesy of Facebook

FACEBOOK LOS LUNAS DATA CENTER

- Projects expected to
  - bring approximately $800 million of investment to the state
  - Support over 1,300 construction jobs
  - Economic development in Valencia, Bernalillo, Quay, Torrance, Cibola, and Sandoval Counties
- Data Center itself represents more than $1 billion investment in NM

Source: Facebook

LOOKING FORWARD

NM WILL BENEFIT FROM GROWTH SCENARIO

- Need to stay competitive in order to win bids
  - Projects generally will not be built if they cannot win bids
- Additional development means additional revenue for the state
  - Bulk of state tax collection comes during construction phase
- Transmission expansion/grid modernization
  - NM project must be able to compete regionally
- Renewables can help attract new business
  - Low-cost power and green opportunities

QUESTIONS?

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