RENEWABLE ENERGY GROWTH CASE & EXPECTED ECONOMIC BENEFITS

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

Rikki Seguin
Executive Director
- 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
WHAT IS DRIVING DEMAND?
COST REDUCTIONS

Unsubsidized Wind LCOE

- Wind 10-Year Percentage Decrease: (70%)\(^{(1)}\)
- Wind 10-Year CAGR: (11%)\(^{(2)}\)
- Wind 5-Year CAGR: (7%)\(^{(2)}\)

Unsubsidized Solar PV LCOE

- Utility-Scale Solar 10-Year Percentage Decrease: (39%)\(^{(1)}\)
- Utility-Scale Solar 10-Year CAGR: (20%)\(^{(2)}\)
- Utility-Scale Solar 5-Year CAGR: (13%)\(^{(2)}\)

Source: Lazard’s Levelized Cost of Energy Analysis 13.0
COST REDUCTIONS

LCOE Comparison Across Technologies

- Residential Rooftop Solar PV: $242
- Gas Peaking: $199
- Nuclear: $192
- Solar Thermal with Storage: $156
- C&I Rooftop Solar PV: $154
- Community Solar PV: $148
- Geothermal: $112
- Coal: $152
- Gas Combined Cycle: $68
- Crystalline Utility-Scale Solar PV: $44
- Thin Film Utility-Scale Solar PV: $42
- Wind: $54

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

CAN NM PROJECTS WIN BIDS?
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, project does not get built.

Source: WECC “State of the Interconnection Digest” (Summer 2018)
CONSIDERATIONS: RESOURCE


Source: NREL: US 80m Wind Resource
### CONSIDERATIONS: RESOURCE

<table>
<thead>
<tr>
<th>State</th>
<th>Column A: Estimated Gross Capacity Factor Possible at top 5% of land (2014 Technology)</th>
<th>Column B: Estimated Net Capacity Factor Possible at top 5% of land (2014 Technology)</th>
<th>Column C: Net Capacity Factor after 20 years using 1% Degradation Rate</th>
<th>Column D: Net Capacity Factor after 30 years using 1% Degradation Rate</th>
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<tbody>
<tr>
<td>WY</td>
<td>56%</td>
<td>50.5%</td>
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<td>NM</td>
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<td>41.7%</td>
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<tr>
<td>MT</td>
<td>56%</td>
<td>50.5%</td>
<td>41.7%</td>
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<td>55%</td>
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<td>34.3%</td>
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<tr>
<td>OR</td>
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<td>NV</td>
<td>38%</td>
<td>34.3%</td>
<td>28.3%</td>
<td>25.6%</td>
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</table>

**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)
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
CONSIDERATIONS: COST

State Wind Cost of Energy with Current Taxes
(20-Year Project Life)

<table>
<thead>
<tr>
<th>State</th>
<th>$/MWh</th>
<th>$/MWh</th>
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<tr>
<td>California</td>
<td>$66.87</td>
<td>$67.11</td>
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<tr>
<td>Nevada</td>
<td>$61.97</td>
<td>$66.35</td>
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<tr>
<td>Washington</td>
<td>$58.17</td>
<td>$66.26</td>
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<td>Arizona</td>
<td>$55.16</td>
<td>$62.30</td>
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<td>Oregon</td>
<td>$53.53</td>
<td>$61.56</td>
</tr>
<tr>
<td>Utah</td>
<td>$51.60</td>
<td>$59.97</td>
</tr>
<tr>
<td>Idaho</td>
<td>$49.60</td>
<td>$62.10</td>
</tr>
<tr>
<td>New Mexico (w/o IRB)</td>
<td>$36.95</td>
<td>$67.74</td>
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<tr>
<td>Wyoming</td>
<td>$35.44</td>
<td>$62.37</td>
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<td>Colorado</td>
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<td>Montana</td>
<td>$34.43</td>
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<tr>
<td>New Mexico</td>
<td>$32.18</td>
<td>$60.16</td>
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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
CASE STUDY

“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.”

Source: NM Legislative Fiscal Committee “General Fund Revenue Tracking Report: Accruals through May 2020” (9/4/20)
“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.”
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
- **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

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

Growth Case:
Current Policy Drives market

Limited Case:
WY-Style tax Constrains market

Discussion Draft – New Mexico
Renewable Energy Development Impacts

Installed Wind Capacity (MW)
Before and After Wyoming "Wind Tax"
INCREASED BUSINESS OPPORTUNITY
Nationally, power purchasers of wind announced record 8,726 MW of PPAs in 2019.

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.
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.
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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