



NEW MEXICO FINANCE AUTHORITY OVERSIGHT COMMITTEE PRESENTATION

New Mexico Renewable Energy Transmission and Storage Study

September 2020



Study Background & Results

The New Mexico Renewable Energy Transmission Authority (NM RETA) partnered with ICF, an international consulting firm, to evaluate the future potential for New Mexico's vast renewable energy resources and the needed electricity transmission system.

This work focused on four key areas of investigation into our state's energy future:

- Potential of renewable resources
- Renewable resources development for clean electricity
- Transmission to support renewable resources development
- Economic benefits of transmission and renewable resources development
- **Study period: 2020 to 2032**
- **Overall results:**
 - Renewables will need to be developed at unprecedented pace, 2,500 → 11,500 MW
 - Will satisfy New Mexico's clean energy goals
 - Expanded transmission will enable substantial growth in clean energy exports
 - New Mexico's unique solar and wind resources are low cost compared to other states

100 MW = annual power for 120,000 NM homes

Benefits to New Mexico of Transmission Development & Expansion

Total Renewable Capacity

11,500 MW

Operating in 2032

- 11,500 MW comprised of 2,500 MW existing, 3,100 MW currently under development, and 5,900 MW identified in this study
- State renewable share reaches 54% (meets 2030 ETA milestone)
- Given current market conditions, by 2032, 5,900 MW of new renewables can be exported if firm transmission barriers removed

Jobs per Year

Up to **3,700/800**

Construction Phase /
Beyond 2032

- Development, construction, and operation of new renewables and transmission result in an average of 3,300 to 3,700 jobs during the construction periods through 2032
- 600 to 800 permanent jobs associated with this development will continue beyond 2032

Investment in New Mexico

Up to **\$11 Billion**

2021-2032 / Beyond 2032

- Total investment in the development, construction, and operation of new renewables and transmission ranges from \$9 billion to \$11 billion through 2032
- Additionally, annual operations and maintenance investments total \$155 million to \$190 million each year

Transmission Benefits and Issues

- **Improved Reliability and Cost Savings**
- **Efficient electric generation**
- **Efficient grid operations**
- **Economic Opportunities**
- **RETA is an essential link in supporting the Energy Transition Act (ETA), which requires 100% zero carbon electricity for utilities by 2045 and rural electric cooperatives by 2050.**
- **As a part of statewide grid modernization, it is imperative to expand transmission; otherwise, renewable and clean electricity targets are unattainable.**

Permitting Transmission

- Successful strengthening of relationships and siting are essential if transmission projects critical for renewables are to be built.
- Main barrier: the siting process can discourage needed transmission development.
- Process challenges can lead to higher transmission costs or complete project failure.
- Agreements required with up to hundreds of landowners and several government agencies.
- Landowners' refusal to lease/sell are ever-present risks.
- Public opposition from environmental groups and communities can delay or terminate projects.

Collaboration on Policies and Development

Communication on Policies

- **Maintain communication between local and state leaders, to implement energy policies that benefit New Mexico.**

Avoid Damage to Critical Projects

- **Well-meaning local advocacy to prohibit all development could counter state renewable goals and damage critical projects.**

Avoid Taxation

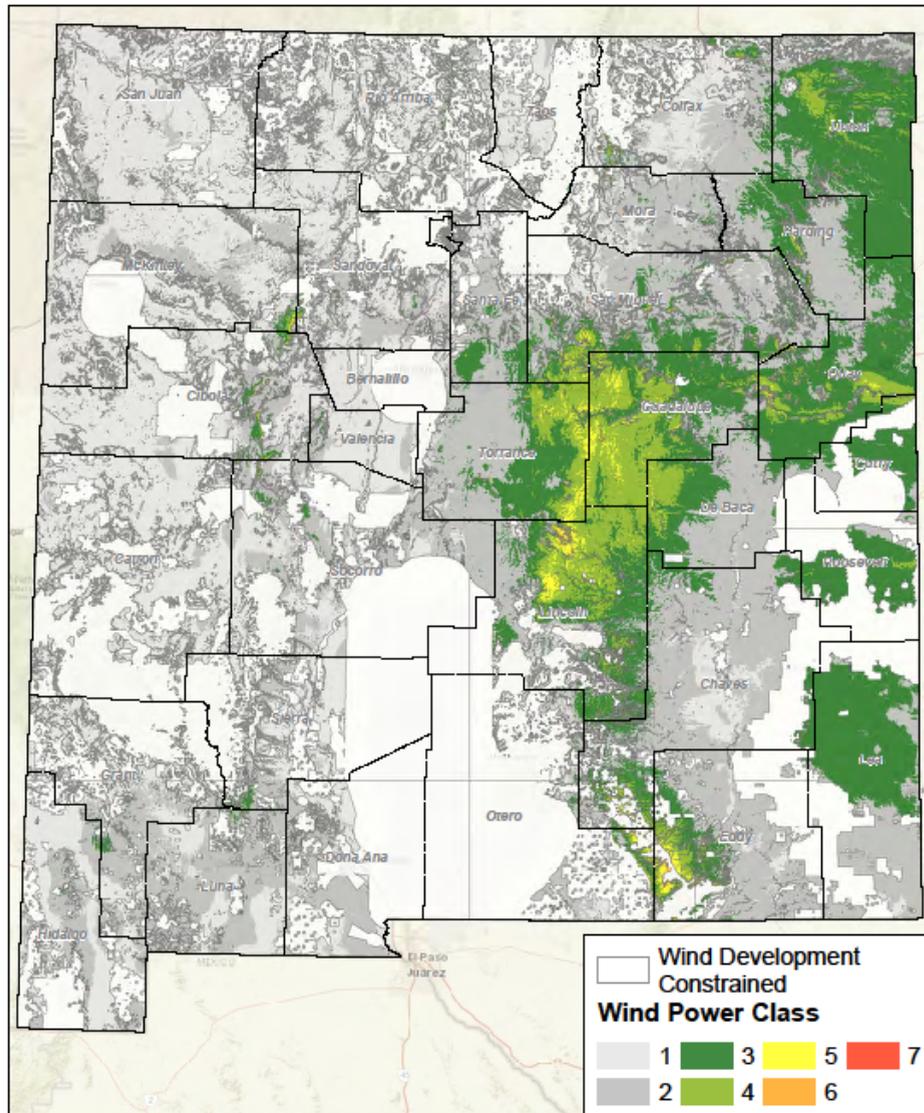
- **New taxation of renewable and transmission industries should be avoided in the near term; will shift competition in favor of other Western states.**

Attract Industry and Investment

- **Attracting renewable and transmission industries can lead to billions of dollars of investment.**

Wind Development Potential

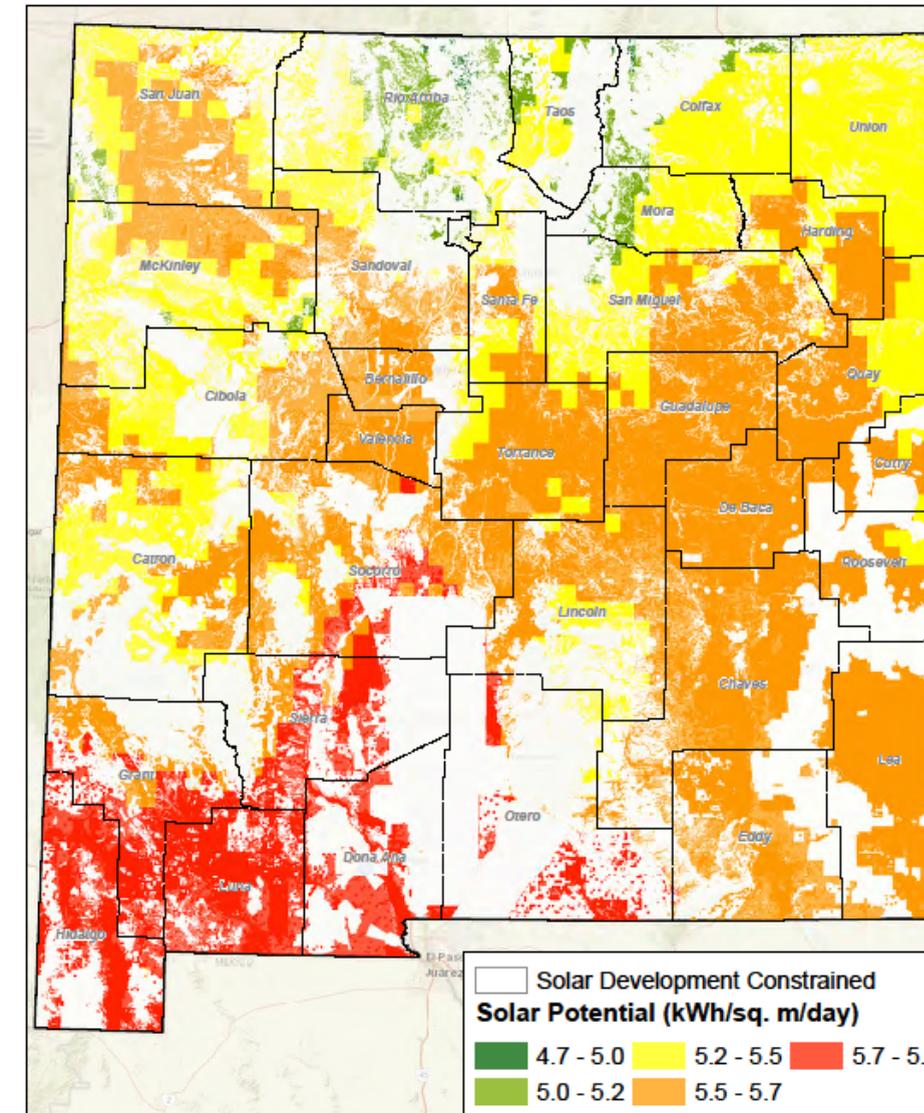
- Total developable land area for commercially viable wind equals 20,500 square miles.
- 18,500 square miles on State Trust and private lands.



137,000 MW of highest quality wind potential on State Trust and private lands.

Solar Development Potential

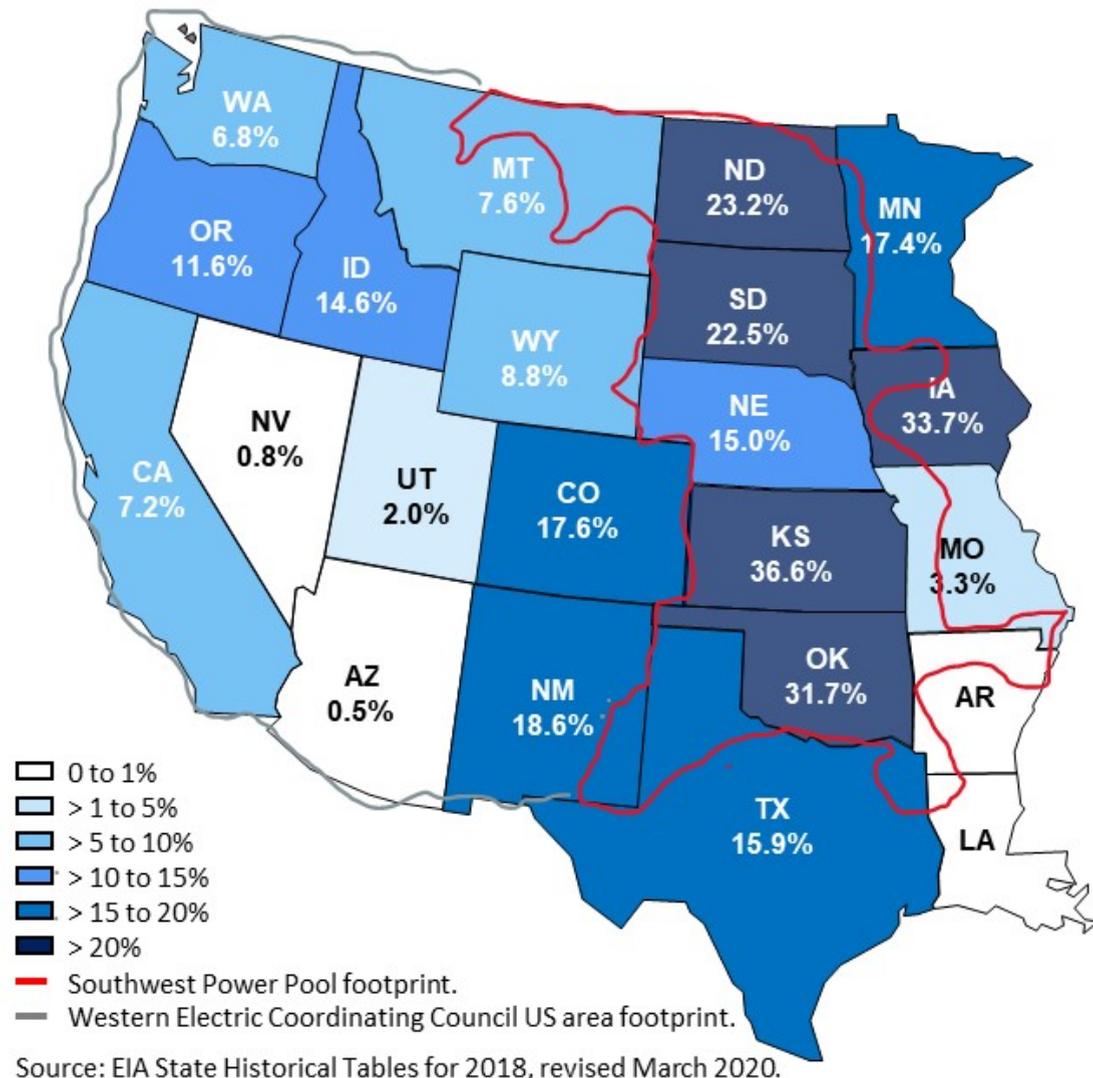
- Total developable solar land area equals 68,000 square miles.
- 49,000 square mile on State Trust and private lands.
- Over 9,300 square miles in highest output areas



824,000 MW of highest quality solar potential on State Trust and private lands.

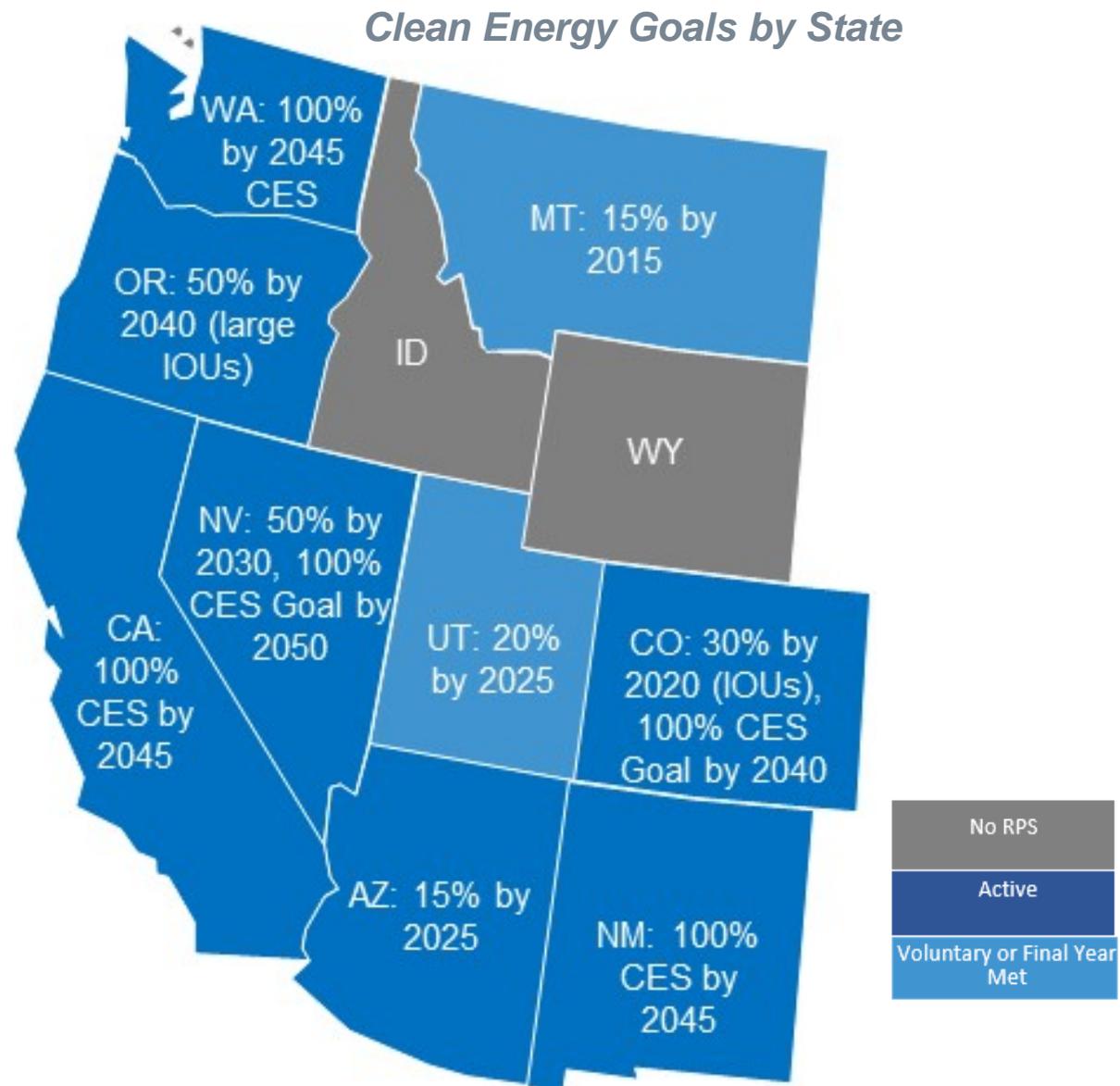
Significant Opportunity to Provide Wind Resources to the West

Wind Energy's Share of Electricity Generation by State



- **New Mexico has direct access to transmission grids supporting the western and midwestern U.S.**
- **Neighboring states in the Midwest like Texas and Oklahoma already have significant wind penetration.**
- **To the West, wind penetration has lagged the Midwest.**
- **The western markets provide a significant opportunity for New Mexico wind facilities.**

Renewable Energy Demand will Grow in the West



- **Many western U.S. states have aggressive clean energy goals:**
 - New Mexico, California, and Washington require 100% clean energy supply or zero carbon resources by 2045.
 - Nevada and Oregon require 50% renewable supply by 2030 and 2040, respectively. Nevada further aims to reach 100% clean energy by 2050.
 - Colorado has implemented a 30% RPS by 2030, with a goal of 100% clean energy by 2040.
 - Montana and Arizona have near-term targets similar to New Mexico's 2020 RPS targets.
 - Voluntary standards exist in Utah.

Alternative Transmission Development Plans to Support Growth in Renewables

	Plan 1	Plan 2	Plan 3
Renewable Capacity	5,900 MW incremental wind and solar through 2030		
Renewable Siting	Centralized siting in key renewable development zones		Distributed siting across most renewable development zones
Key Expansion Elements	2 new export paths to Arizona	New export path to Arizona via SunZia	2 new export paths to Arizona
Estimated total length (miles)	911	929	1,276

- Three transmission expansion plans capable of reliably supporting 5,900 MW were identified.
- All plans add a new export path to enable renewable energy exports.
- Transmission solutions were found to be more effective than storage.
- Between 911 and 1,276 miles of new lines are required.

Average Annual Economic Benefits

- **Transmission expansion and renewable generation results in roughly 3,300 to 3,700 annual jobs during the 8-year construction phase.**
 - Permanent impacts, resulting from operational needs that follow the construction phase result in an additional 639 to 765 annual jobs.
 - Similarly, there are annual increases in gross state product (GSP), personal income, and state and local tax revenues both during the construction phase and longer term thereafter.

	Construction Phase ¹		Permanent Impacts ²	
	Low	High	Low	High
Jobs (Jobs per year)	3,257	3,678	639	765
GSP (\$million)	\$270	\$332	\$52	\$63
Income (\$million)	\$172	\$194	\$30	\$36
Tax ³ (\$million)	\$23	\$27	\$4	\$5

1. Construction takes place from 2021-2025 and 2028-2030

2. Permanent impacts (O&M) take place from 2024-2050

3. Tax impacts include state and local (i.e., excludes Federal)

RETA'S Action Plan

The following listed actions are selected as short term, actionable measures to be taken by RETA to address administrative, policy, and technical issues raised by ICF's report.

- **Expand RETA's public outreach regarding the transmission and energy storage study.**
- **Continue working with existing partners and expand relationships.**
- **Develop new agreements and partnerships with world class renewable energy and transmission developers.**
- **Work with the major participants in renewable energy development to prioritize transmission corridors to simplify transmission siting.**
- **Continue to evaluate the delivery of renewable energy to in-state customers.**

RETA'S Action Plan

Continued...

- Monitor the technological advances and potential implementation of large-scale storage facilities in New Mexico and follow the development of microgrids.
- Participate in WestConnect/Southwest Area Transmission planning process to advocate for best-candidate transmission projects.
- To view the full study, please visit:
→ www.nmreta.com ←



Growing While Preserving Our State's Beauty

THE HEART OF RENEWABLE ENERGY IS PRESERVATION OF OUR RESOURCES