RETA
New Mexico Renewable Energy Transmission Authority

New Mexico Renewable Energy Transmission Authority Update
Science, Technology & Telecommunications Committee
September 14, 2021

RETA

NM RETA Background

- RETA was established by the NM legislature in 2007 to plan, finance, develop and acquire high voltage transmission lines and storage projects in order to promote economic development in New Mexico.

- RETA is one of seven state-level transmission authorities in the United States and only the second to have issued Bonds. RETA sponsored projects must include 30% of its power from renewable resources. RETA's current projects are planned to have 100% of their power originate from renewable resources.

- New Mexico has some of the most extensive and valuable wind and solar resources in the United States yet has virtually no transmission to utilize them. RETA was formed to aggressively help develop transmission and storage to cultivate this unique opportunity.

- RETA is working with developers to deliver clean electricity from wind and solar resources to both in-state and export markets.

- RETA is an essential link in supporting the Energy Transition Act, which requires 100% zero-carbon electricity for utilities by 2045 and rural electric cooperatives by 2050.

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Western Energy Policies Have Changed Rapidly in the Last Few Years

- The New Mexico ETA drives ~4 GW of renewables by 2030, but renewables growth to 11 GW is possible by new transmission accessing export markets of Western states.
- ~78% of energy use in the West is now aligned on decarbonization.
- Similar policies in the West drive ~100 GW renewables by 2035.

Great Economics Are Driving Wind And Solar

- Wind and solar are now cheaper than new gas and new coal, even without federal tax credit incentives.
- Wind and solar are a large part of new energy markets based solely on low costs.
- By the early 2030's new wind and solar will be cheaper than existing natural gas.
- An organized Western grid will require transmission upgrades and a flexible grid.

ICF study for NRDC

RETA Transmission Study, 2020. New Mexico Renewable Energy Transmission and Storage Study, consultant ICF Resources LLC. https://nmreta.com/nm-reta-transmission-study/

Sources: Energy Strategies, "Western Flexibility Assessment" (2019) and AWEA 2019 Q2 Market Report

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Sources: Lazard, "Lazard's Levelized Cost of Energy Analysis" (2018); IRENA Future of Wind (2019

NM RETA MAJOR PROJECTS

- The RETA/Pattern Western Spirit project completed a multi-billion dollar financing and is under full construction and will be in commercial operation by the end of 2021 (800 MW of central NM renewable energy will be transmitted on the line).
- RETA entered into a Co-Development relationship with SunZia. SunZia is a 520-mile transmission project in New Mexico and Arizona, with 315 miles located within New Mexico. SunZia is rated at 4,500 MW.
- RETA is working with Ameren (acquired Lucky Corridor, LLC.) for projects targeting the NE part of the state which has tremendous renewable resources.
- RETA entered into an MOU with Invenergy for possible development of several hundred miles of electric transmission lines and the associated thousands of MW of possible renewable energy projects.
- There are other major developers working with RETA that are interested in forming a relationship with RETA. RETA is currently working on these agreements.
- Multi-billion dollar transmission projects with thousands of jobs are moving towards completion. RETA is the essential link in allowing our State to make renewables work and upgrading our transmission grid. RETA transmission projects are supporting more renewable energy projects that will help meet the requirements of the Energy Transition Act.

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Western Spirit Transmission Line Project

- Western Spirit is an approximately 150-mile 345kV AC transmission line
- 100% of the power will come from renewable resources located in Central New Mexico
- A first of its kind public-private partnership
  - Owned by RETA but jointly developed with Pattern Development
- The project was identified in a study of the NM Transmission System by Los Alamos National Labs more than a decade ago
  - Western Spirit has been under active development by RETA since 2010
- When complete the Project will be sold to PNM and added to their existing grid
  - The purchase of the Project will **not** impact New Mexico rate payers, 100% of the cost will be borne by the wind farms who will transmit energy along the line
  - Western Spirit will be in commercial operation by the end of 2021

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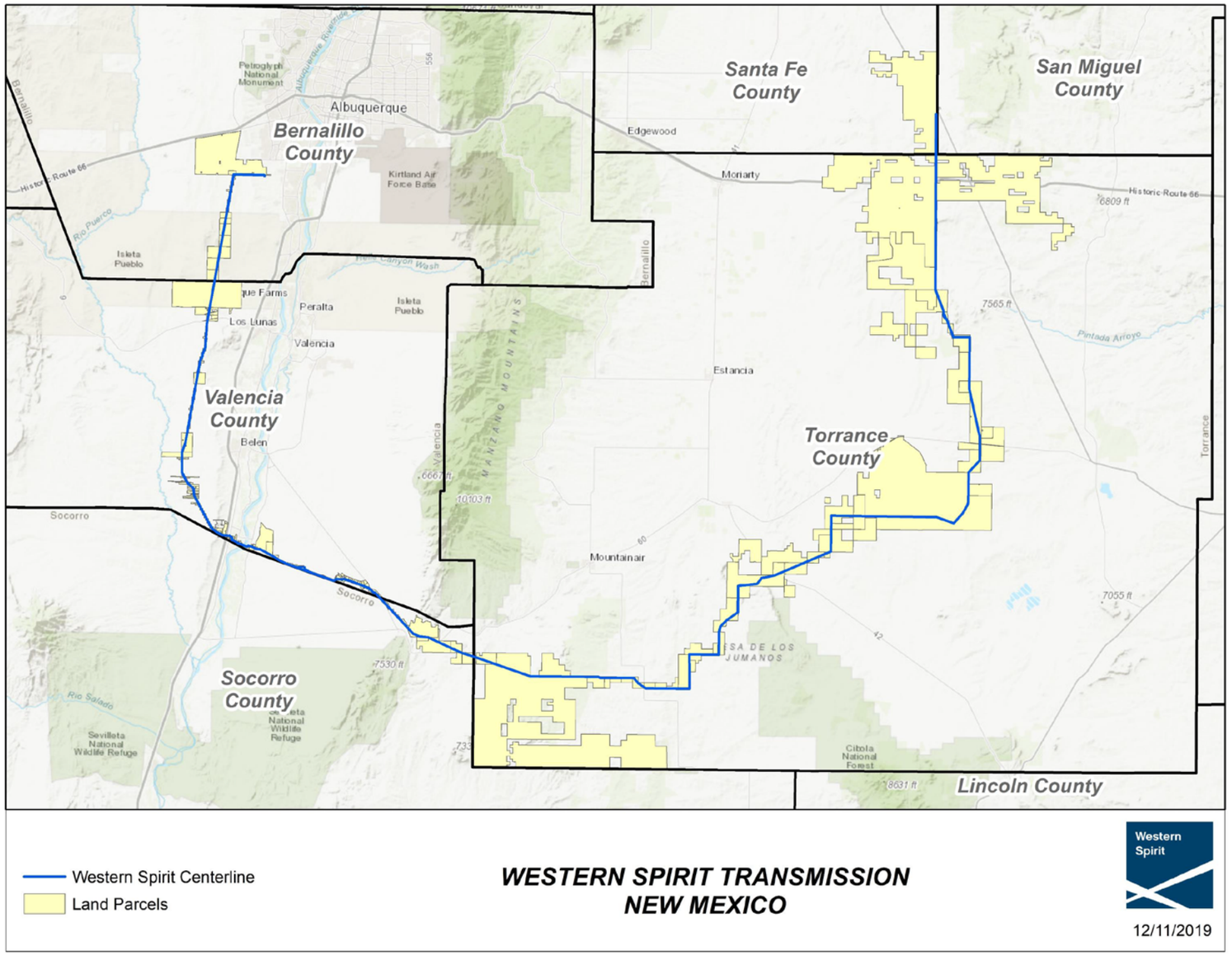
Western Spirit Project Map



Western Spirit Economic Benefits

Makes possible multi-billions of investment in renewable power projects that could not otherwise be built due to limitations of the existing electric transmission grid. The project will generate more than two billion dollars in net economic impact.

Estimated to provide over a thousand temporary construction jobs and several permanent jobs to maintain and operate associated wind farms.

Wind farms are anticipated to contribute approximately $88 million in property tax payments to NM counties over the first 30 years of operation.

More than 590,000 homes will be powered by the clean, renewable energy generated as a result of this project.

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Western Spirit Timeline

2021

- Q1 – Project Construction
- Q2 – Project Construction
- Q3 – Project Testing
- Q4 – Project In Service

SunZia Project

- Proposed in New Mexico and Arizona and will exceed 500 miles in length
- Brings high-quality renewable energy to western utilities and power markets
- Two 500kV lines providing up to 4,500 MW of transfer capacity
- One line is permitted as Alternating Current (AC) and one line may be AC or Direct Current (DC)
- SunZia's first customer is Pattern Energy that will own and operate wind generation facilities in central New Mexico
- Construction start planned in 2022; Target commercial operation of the first 500kV line is 2025

SunZia National Environmental Policy Act (NEPA)

Notice of Intent (NOI) to prepare EIS published in Federal Register on June 4, 2021

Public scoping period ended in July 2021

Draft EIS may be published by late 2021

Public comment period is expected to occur in early 2022

If all goes as planned the Final EIS will be published late 2022

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 <u>substantial</u> growth in clean energy exports
  - New Mexico's unique solar and wind resources are low cost compared to other states

100 MW = 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

ICF

Transmission Benefits and Issues

- **Improved Reliability and Cost Savings**
- **Efficient electric generation**
- **Efficient grid operations**
- **Economic Opportunities**

- **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

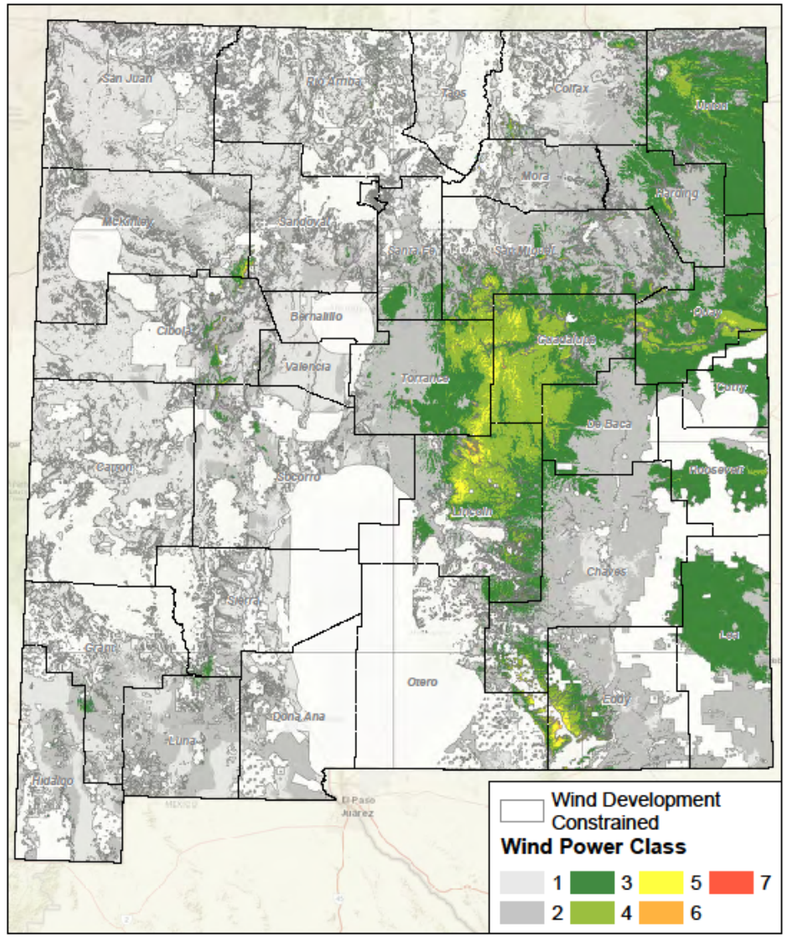
- Attracting renewable and transmission industries can lead to billions of dollars of investment.

Wind Development Potential

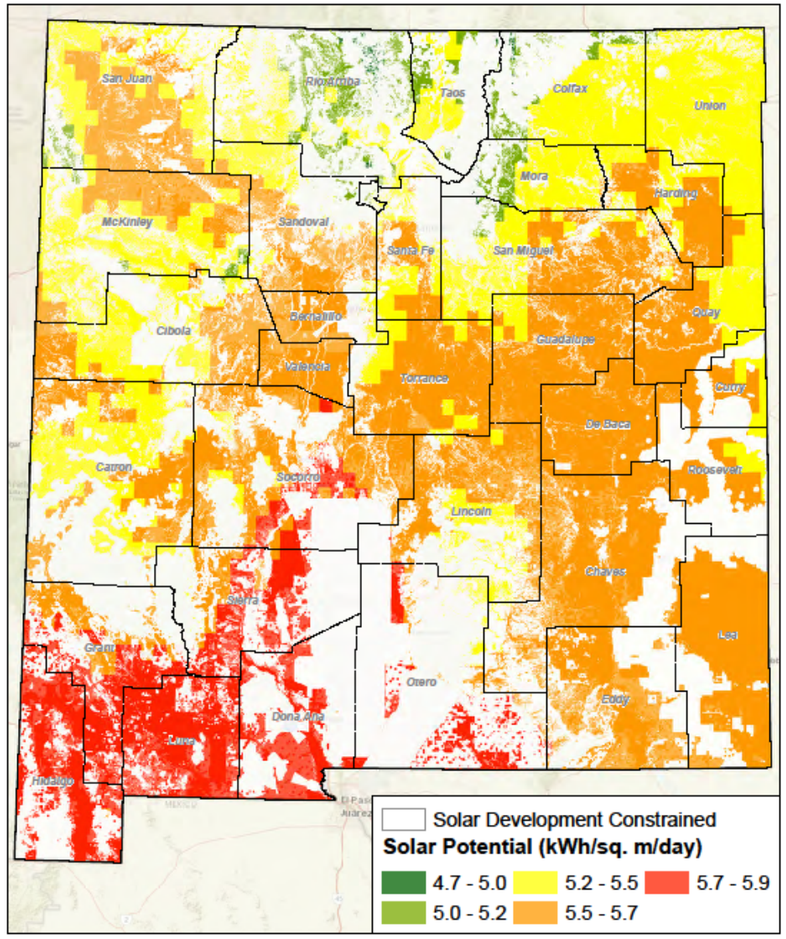
- Total developable land area for commercially viable wind equals 20,500 square miles.
- 18,500 square miles on State Trust and private lands.

Solar Development Potential

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



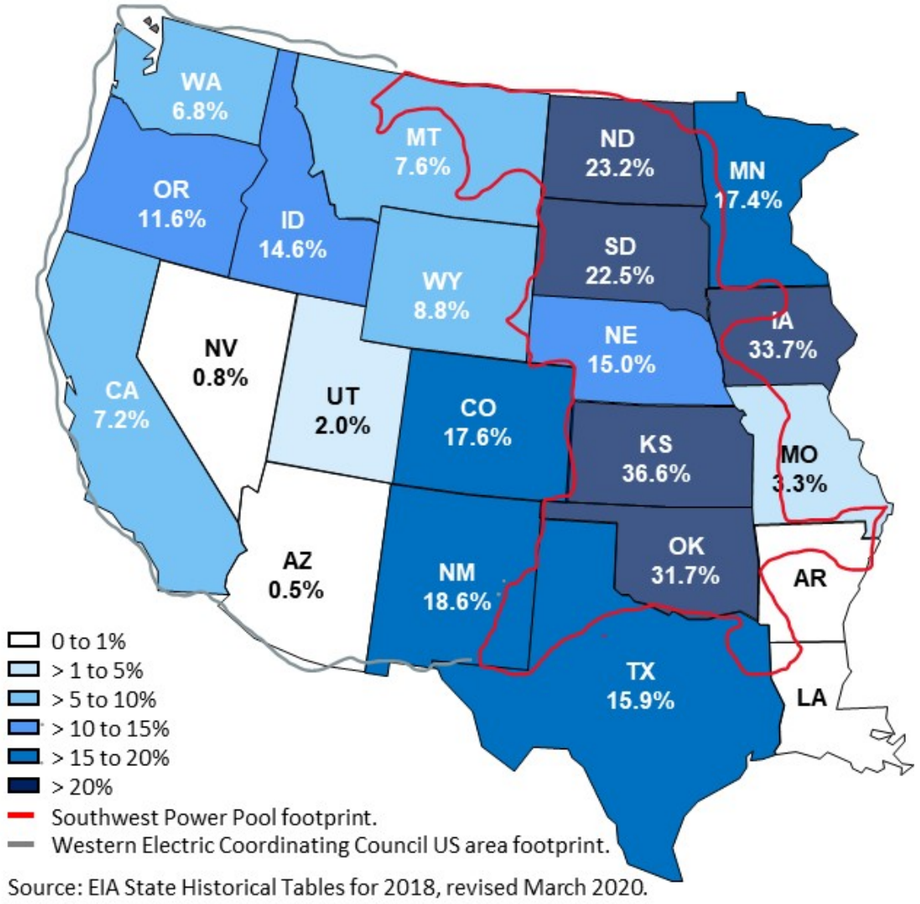
137,000 MW of highest quality wind potential on State Trust and private lands.



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

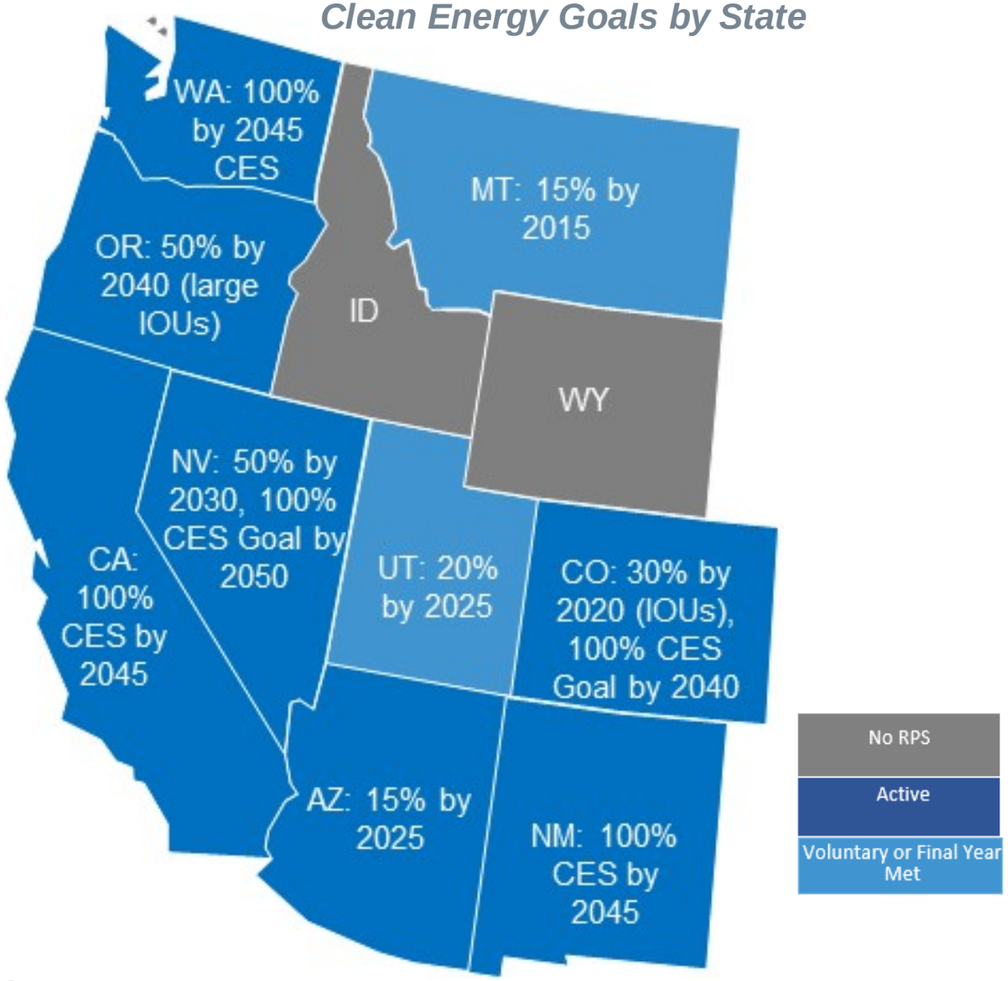


Source: EIA State Historical Tables for 2018, revised March 2020.

- 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

Clean Energy Goals by State



- **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.**

Required transmission infrastructure to support renewable development.

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

505-699-0599

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