DOCKETED	
Docket Number:	22-IEPR-05
Project Title:	Emerging Topics
TN #:	247873
Document Title:	Presentation - New Mexico Renewable Energy Transmission Authority
Description:	3.C Fernando Martinez, New Mexico RETA
Filer:	Raquel Kravitz
Organization:	New Mexico RETA
Submitter Role:	Public
Submission Date:	12/1/2022 3:13:20 PM
Docketed Date:	12/1/2022

New Mexico Renewable Energy Transmission Authority

Transmission Panel
Western Electricity System Integration Workshop
California Energy Commission

Fernando Martinez, Jr.
Executive Director

December 2, 2022

NM RETA Background

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

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

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

- RETA has completed multiple projects and has partnership agreements with three projects in development and MOUs with more.

RETA

Western Energy Policies Have Changed Rapidly in the Last Few Years

- RETA is an essential link in supporting New Mexico's Energy Transition Act (ETA), which requires 100% zero-carbon electricity for utilities by 2045 and rural electric cooperatives by 2050.
- The ETA drives ~4 Gigawatts (GW)* of renewables by 2030, but renewables growth to 11.5 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.

* A Gigawatt is a unit of power equal to one billion watts and is enough energy to power about 750,000 homes.

Great Economics Are Driving Wind & 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

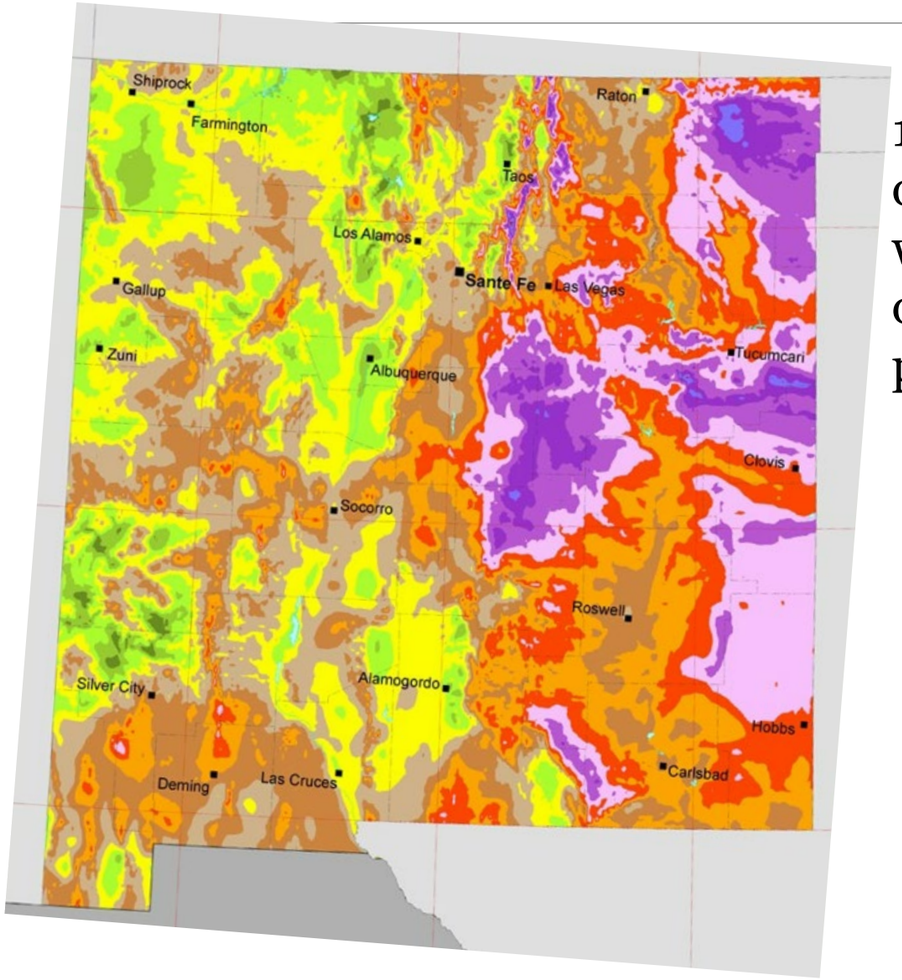
RETA Transmission Study, 2020. New Mexico Renewable Energy Transmission and Storage Study, consultant ICF Resources LLC. https://nmreta.com/nm-reta-transmission-study/

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

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

Wind Development Potential

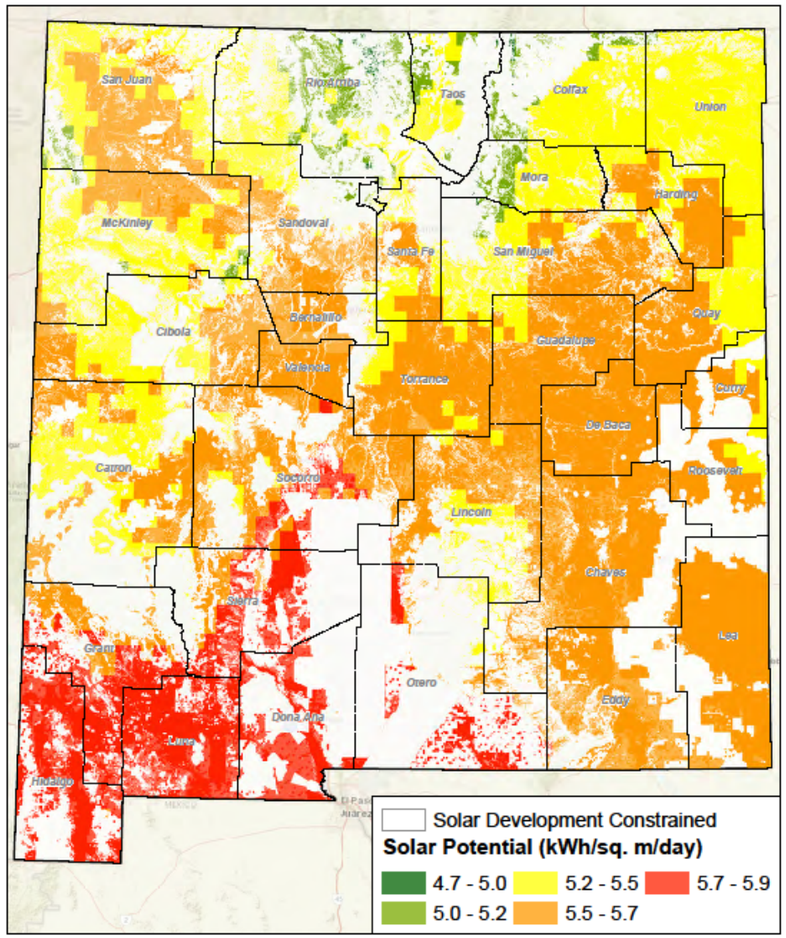
- **Total developable land area for commercially viable wind equals 20,500 sq. mi.**
- **18,500 sq. mi. on State Trust and private lands.**



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 sq. mi.**
- **49,000 sq. mi. on State Trust and private lands.**
- **Over 9,300 sq. mi. in highest output areas.**



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

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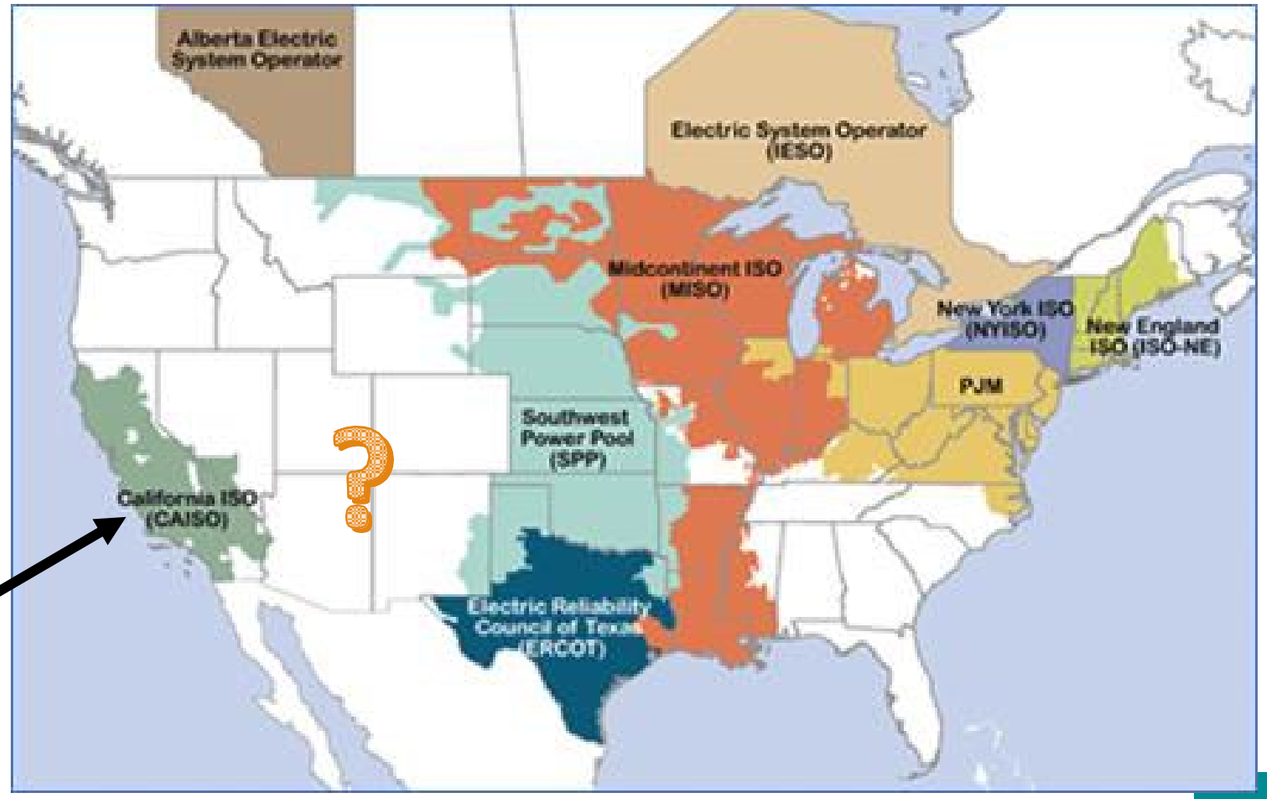
Regional Transmission Organizations

- RTOs…
  - independent synchronous grids
  - improve reliability
  - reduce consumer cost
- No RTO exists in Intermountain West
- RETA will work with NM utilities and policy makers to promote regional efforts
- California ISO (CAISO)



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It's 2022; What Has RETA Accomplished?

New Mexico Renewable Energy Transmission Authority

- High-Voltage Transmission Projects in Development
  - SunZia – Pattern Energy and Southwestern Power Group
    - 350 miles / 500 kV HVDC + 500 kV AC / 4500 MW
  - Mora Line – Ameren
    - 114 miles / 115 kV AC and 345 kV AC / 182 MW
  - North Path – Invenergy
    - 400 miles / 345 kV HVDC / 4000 MW

HVDC

- More efficient than AC over long distances.
- No interconnections except for endpoints.

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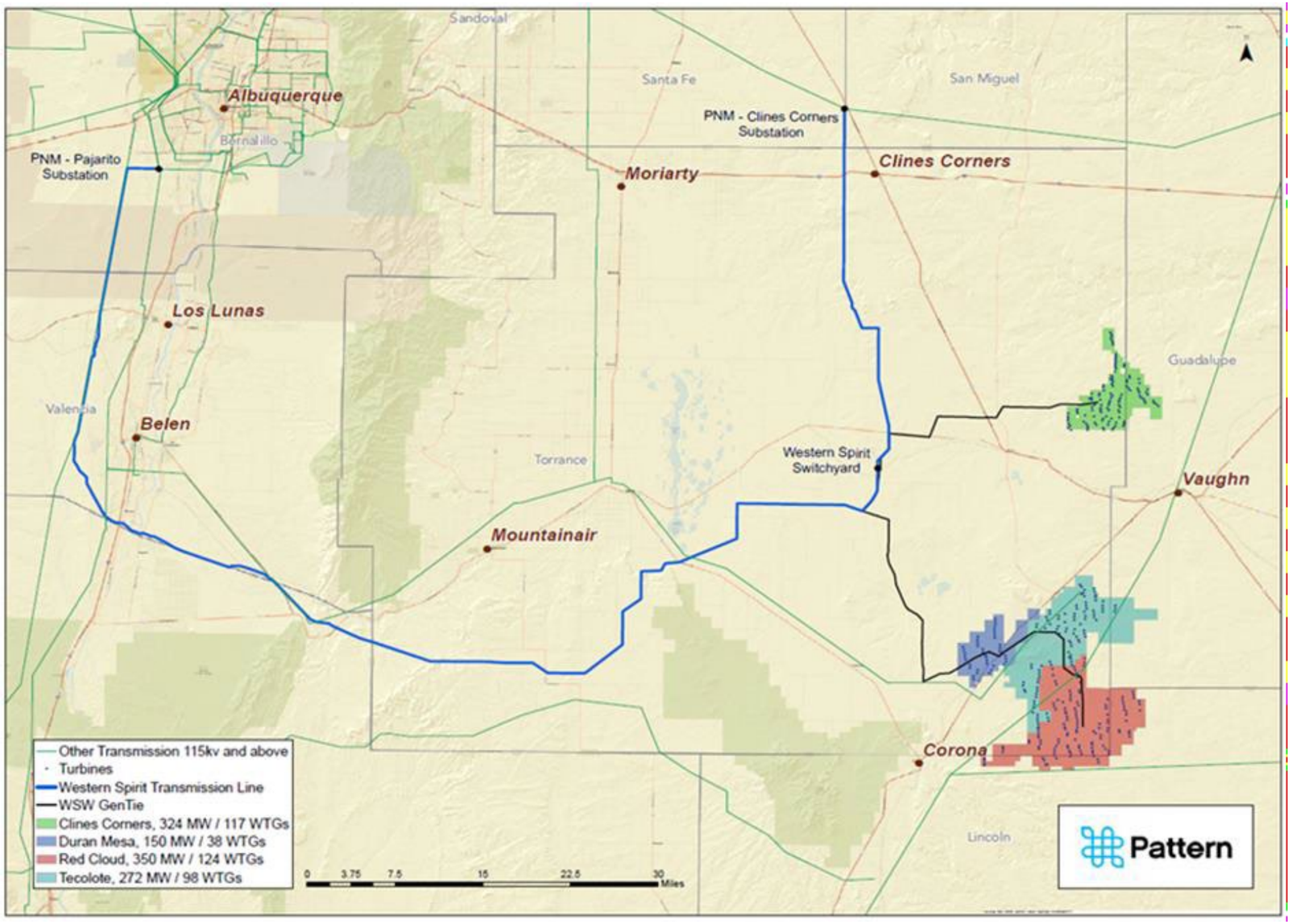
It’s 2022; What Has RETA Accomplished?

- Western Spirit Transmission Project
  - Development partner: Pattern Energy
  - Operational December 2021
  - 150 miles long, 345 kV, single circuit
  - Initially recommended in 2010
  - 800 MW wind approved for NM’s grid
  - $2B total project = jobs and NM economic activity

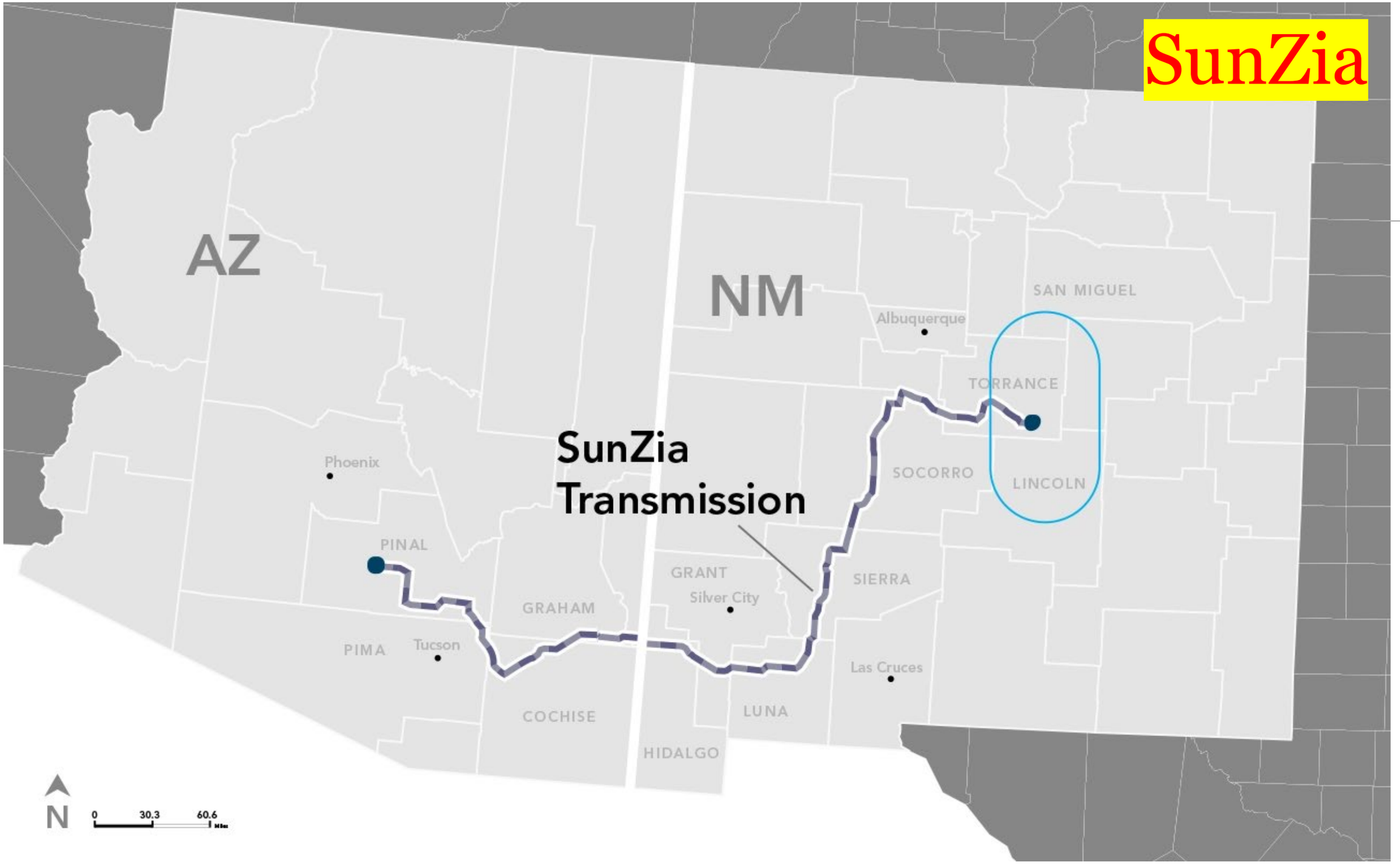


Western Spirit Project Map

RETA

SunZia and El Rio Sol Projects

- Pattern Energy Group LP (Pattern Energy) recently acquired the SunZia Transmission project from SouthWestern Power Group, a wholly owned subsidiary of MMR Group, Inc. SunZia Transmission consists of a 550-mile bi-directional ± 525 kV high-voltage direct current (HVDC) transmission line between central New Mexico and south-central Arizona, with the capacity to transport up to 3,000 MW of clean, renewable energy.
- SunZia Transmission previously awarded the full 3,000 MW of capacity on the transmission line to Pattern Energy. Pattern Energy is developing the SunZia Wind project, a 3,000+ MW facility in New Mexico, which will utilize the SunZia transmission line to provide enough safe, affordable, and renewable electricity to power the needs of 2.5 million Americans annually.
- SouthWestern Power Group will maintain ownership of a second 500 kV high voltage-alternating current (HVAC) transmission line rated at 1,500 MW, El Rio Sol Transmission.
- SunZia Transmission and SunZia Wind together comprise the largest renewable energy infrastructure project in U.S. history with a total investment of over $8 billion. Both projects are privately funded and will deliver widespread economic benefits across New Mexico and Arizona.


SunZia
AZ
NM
SAN MIGUEL
Albuquerque
TORRANCE
SunZia
Transmission
Phoenix
SOCORRO
LINCOLN
PINAL
GRANT
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Silver City
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RETA

It’s 2022; What Has RETA Accomplished?

New Mexico Renewable Energy Transmission Authority

- Transmission Study + Update Study + Storage Report
  - June 2020, *New Mexico Renewable Energy Transmission and Storage Study*
  - February 2022, *Update: Summary of Key Findings*
  - September 2022, *New Mexico In-state Energy Storage: Market Status and Anticipated Growth*

https://nmreta.com/nm-reta-transmission-study/

RETA

RETA Advantages

- Private development partners:
  - Provide transmission design and construction expertise
  - Contribute to RETA administrative expenses via lease agreements.
- Tax incentives:
  - Property, gross receipts, and compensating tax.
- Assistance with siting:
  - Powers of eminent domain
  - Government-level relationships with State Land Office, Dept. of Transportation, Middle Rio Grande Conservancy District, other state and local agencies
  - Streamline permitting, but not skirting environmental requirements.
- Bond financing:
  - if developer needs financing support.

NM RETA Key Engagement with Efforts to Streamline Federal Permitting

Federal Permitting Improvement Steering Council
(previously known as “FAST-41”)

- Historic slow pace of transmission line development risks missing renewable electricity targets.
- The Council is a Federal agency; comprised of cabinet-level agency executives, ensures federal agencies cooperate on NEPA infrastructure projects.
- Council coordinated on SunZia project NEPA process beginning in May 2021.
- RETA engaged in 2022 with Council Executive Director Christine Harada (POTUS appointee) and her Team to continue joint efforts on newer projects.
- Council-developer collaboration aligns with RETA goal to expedite project timelines, while also meeting environmental standards.

NM RETA Key Engagement with Efforts to Streamline Federal Permitting

Military Bases in New Mexico

- Significant to economy; undeniable control of Base land properties and extensive air space.
- RETA engages directly with all Bases at Commander office level and Office of Military Base Planning and Support (attached to NM Economic Development Department).
- RETA works with all Bases affected by infrastructure ROW alignments; early engagement and NEPA Cooperating Agency status are key.
- Resolution has been achieved on significant SunZia ROW issues for White Sands Missile Range; NEPA process is moving forward on SunZia's Draft EIS.

NM RETA Key Engagement with Efforts to Streamline Federal Permitting

Streamlining the Development Process

- …a significant way in which RETA contributes to formal development partnerships.
- RETA works with project stakeholders to streamline transmission siting development.
- Actively engaged with an array of parties at any one time:
  - NM utilities and transmission providers;
  - renewable energy and energy storage developers;
  - local, state, and federal agencies;
  - tribes, consumers, military installations, environmental groups;
  - private, state, federal, and tribal landowners.
- RETA absolutely does not skirt environmental or other state/federal requirements.
- RETA's growing efforts to streamline are now meeting the intent of the 2007 Act that created RETA.

TAKEAWAYS

- The Western energy market is demanding enormous amounts of renewable energy.
- An organized Western grid is necessary and will require transmission upgrades and a flexible grid.
- Renewables cannot rely on transmission alone. We need long duration utility scale storage. Renewables with storage will create firm capacity. Dispatchable power available 24/7 is what is required.
- Streamlining permitting processes without cutting corners is essential.

505.699.0651

Fernando@nmreta.net

www.nmreta.com

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