

The Potential for Public Power in New Mexico

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About the Authors



Heather Bailey, President
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Over 40 years of experience in the utility industry, as a regulator, utility executive and consultant. Led the evaluation of Boulder Colorado's pursuit of Public Power ownership. Oversaw transmission, finance, telecommunications, and various other corporate functions at one of the largest public power utilities in the country.

Christopher Grier



Over 45 years of operations management and consulting experience in the power and utility industry. Prior to consulting, 20 years of utility operations and management experience in plant operations, engineering, and strategic planning. Chris' focus has been strategic planning, risk management, and asset management activities. Public power experience includes new build generation for OPPD, strategic business modeling for LIPA, and multiple engagements related to operational risk management.



Donald Harker

Donald Harker's professional career spans more than 30 years in the energy industry. Mr. Harker has extensive experience in business process improvement. He has led numerous engagements involving staffing analysis, critical infrastructure, cost allocation, benchmarking, power plant operations, reliability analysis, asset valuation, and privatization. He has consulted with public power entities in the US and Canada, federal government clients and private firms

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A high-angle, wide shot of a rugged mountain range. In the foreground, a dark evergreen tree stands on the left, and a rocky, forested slope descends towards the right. The middle ground shows a deep valley with green and brown patches, flanked by steep, rocky ridges. In the background, a vast, hazy valley stretches out under a cloudy sky. The overall tone is majestic and contemplative.

*There is a big difference between seeing
an opportunity and seizing an
opportunity.*

-Jim Moore

Executive Summary

New Mexico has the technical resource potential to generate at least 1.6 Billion MWh of renewable electricity annually. This is more than 40 times the electrical energy currently produced in NM.

With Public Power ownership of that energy, New Mexico could generate over \$1 BILLION from renewable energy exports annually, add incremental revenue of at least \$100 million per year in transmission wheeling fees, create 1,100 temporary construction jobs and 50 new permanent jobs for EACH major renewable energy generation project, many in rural areas, and improve the affordability and reliability of electricity for our residents.

- NREL Slope Study. Technical resource potential = achievable energy generation given system performance, topographic, environmental, and land-use constraints.

Introduction



This report is a high-level summary of the opportunity and potential for Public Power in New Mexico.

Research conducted included interviews of RETA staff, reviews of authoritative resources such as RETA study, NREL, APPA, CAISO, EIA, Utility Dive, regulatory findings, executive orders, reports and other industry publications.

Our research found that Public Power has exciting potential to enhance the generation and transmission of renewable electricity to serve not only New Mexico but the Western United States.

A Moment of Opportunity

The US energy sector will see trillions of dollars of investment in the next 15 years in order to upgrade energy infrastructure and facilitate the transition from fossil fuels to renewables.

The transition to renewable energy sources will necessitate a restructuring of not only the power grid and generation sources, but energy markets, ownership and control.

Changes are being driven by external forces - climate change, the dramatic decline of renewable energy and storage costs, economic opportunity, innovative new services, the need to electrify the transportation and housing sectors, and the need for local communities to have a voice in setting priorities.

Those who act boldly now will reap the benefits
for decades to come.

New Mexico's Unique Position

New Mexico has the 2nd highest solar capacity and 11th highest wind capacity of any state in the nation.

If we take advantage of this moment, New Mexico can deliver and profit from terawatts of energy to our neighbors and western states like California and Arizona, which are dramatically expanding demand as they electrify their transportation and building sectors, and require a 100% clean energy supply by or before 2045.



What is Public Power?

In 2017 there were nearly 2,000 publicly owned utilities serving 15% of US electricity customers.

Public power utilities are:

- Not for profit
- Community owned
- Locally controlled
- And revenue is repurposed back into the community

Three types of Electric Utilities



PUBLIC POWER UTILITIES



RURAL ELECTRIC COOPERATIVES



INVESTOR-OWNED UTILITIES

BUSINESS MODEL

✓ Not for profit, community-owned

✓ Not for profit, member-owned

✓ For profit, share-holder owned

REGULATED BY STATE PUBLIC UTILITY COMMISSION

✓ Very limited instances

✓ Some

✓ All

GOVERNED BY

✓ Elected/appointed boards—mayors, city council members, citizens

✓ Member-elected boards

✓ Private boards

FINANCIAL CONTRIBUTION TO LOCAL GOVERNMENT

✓ Exempt from most taxes; instead make payments in lieu of taxes or transfers to the general fund

✓ May neither pay taxes nor other contributions to local government

✓ Pay taxes to local government

Public Power Models

Public Owned Utilities provide operations under several models:

1. Fully integrated operations providing generation, transmission, and distribution.
2. Generation, transmission and distribution, with external investment or joint ownership.
3. Public-private model which outsources operations to a third-party provider.

We believe that a fourth model that combines locally owned utility services and state owned transmission is possible in New Mexico.

Established Benefits of Public Power

REVENUE AND ECONOMIC DEVELOPMENT - Public ownership allows energy profits to stay in the community - providing jobs, supporting local and tribal governments and businesses, and reducing rates.

LOCAL CONTROL AND DEMOCRATIC GOVERNANCE - Public Power entities are responsive to community priorities and may be subject to open meeting laws, freedom of information, prevailing wage laws and more.

INNOVATION - Public Power entities drive innovation because they have flexibility to respond to opportunities and challenges without the impediment of a profit motive.

AFFORDABILITY - On average public power residential customers pay 11% less than the customers of investor owned utilities. Community owned utilities have ready access to lower cost financing through municipal bonds, spend significantly less on executive compensation and pay no shareholder dividends.

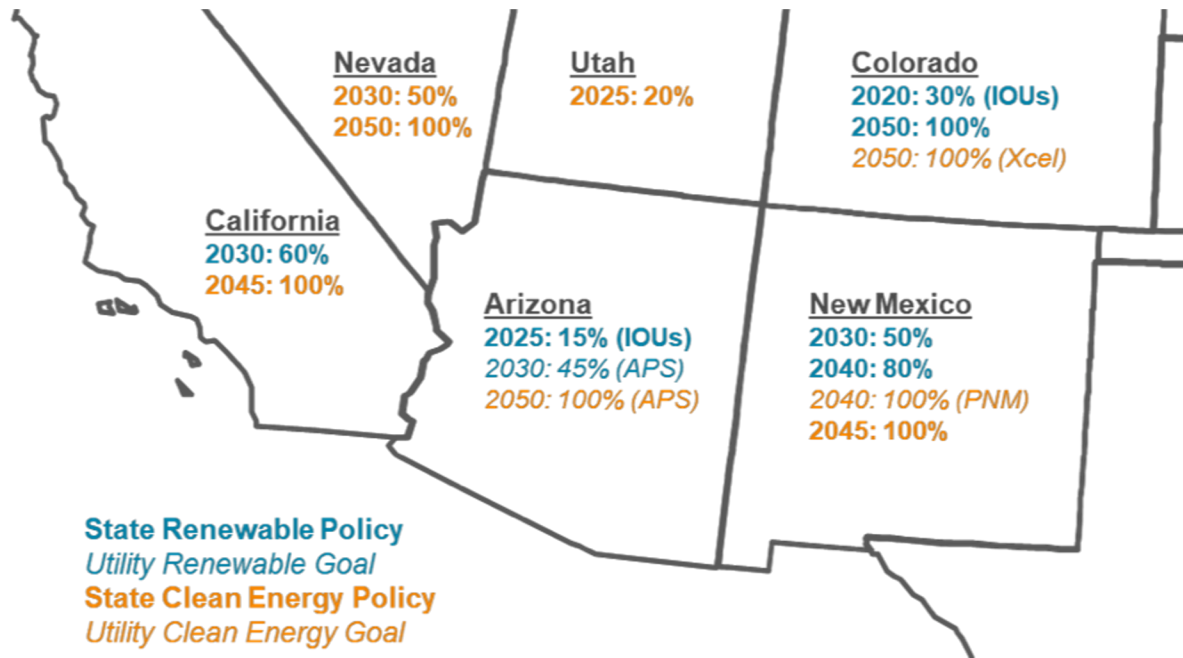
RELIABILITY - Customers of a public power utility are likely to be without power for less time - 62 minutes a year, compared to 150 minutes a year for customers of IOUs.

SUSTAINABILITY - Publicly owned power allows local values to inform utility decisions. Reliability, affordability and a rapid transition to 100% renewable energy can take priority over shareholder profits.

The Opportunity and Need for Action Now

We are on the cusp of the fastest, deepest, most profound disruption of the energy sector in over a century. Like most disruptions, this one is being driven by the convergence of several key factors: dramatically declining costs and increasing capabilities of technology in conjunction with increasing demand with consistent and predictable trajectories.

Exponential growth in Renewable Energy Demand is Here



Electrification policies and Renewable Portfolio Standards in New Mexico and neighboring states will result in more than 16X current demand within the next three decades.

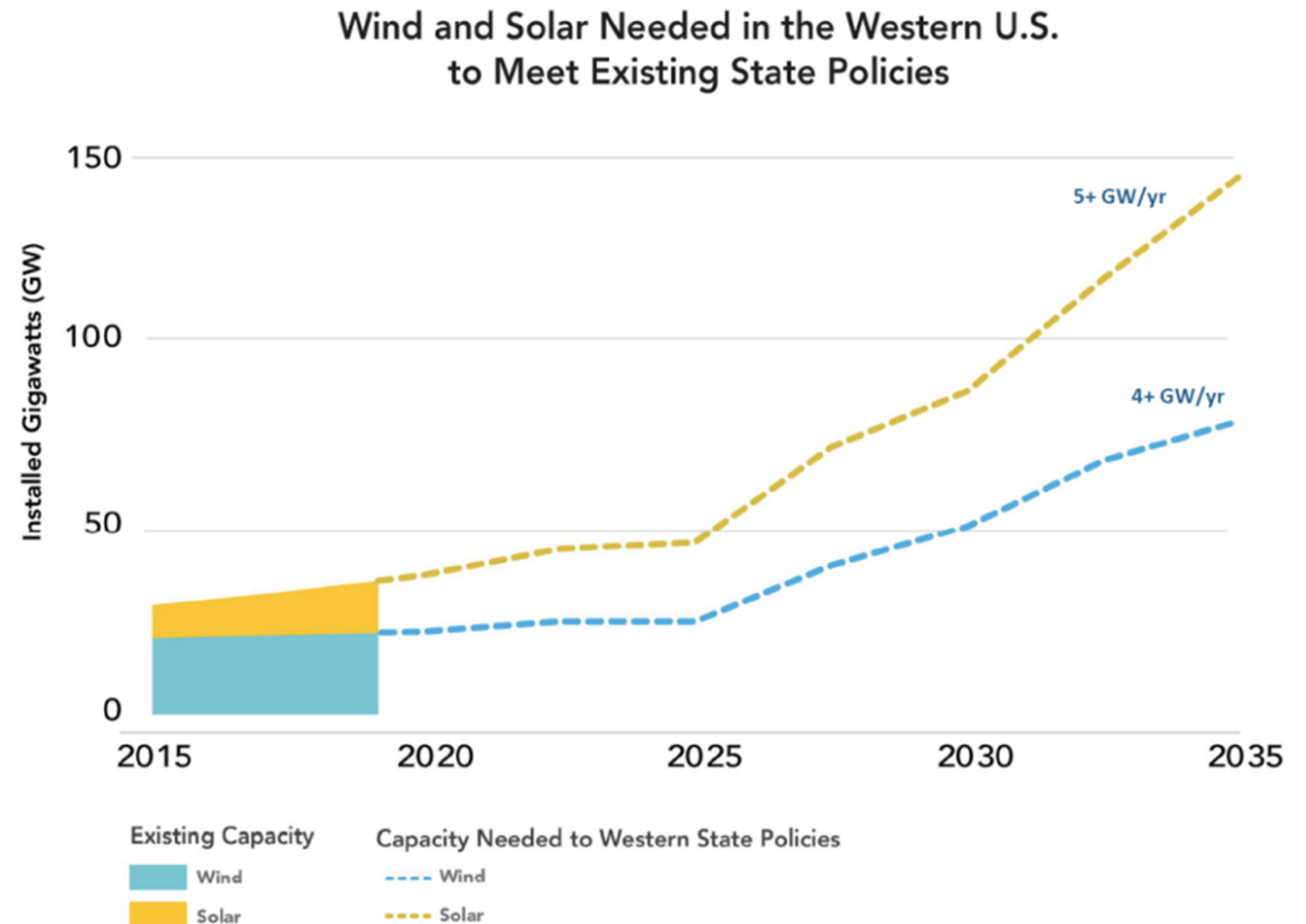
Imagine if New Mexico could meet even a 10th of that demand?

Grid modernization and renewable expansion are critical to that growth, and rapid action is necessary. In the 3rd quarter of 2021, state legislatures took up 498 policy and deployment actions related to grid modernization, utility business model and rate reform, energy storage, microgrids, and demand response.

Now is the time to learn, plan and act.

The Western US Needs More RE

- 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



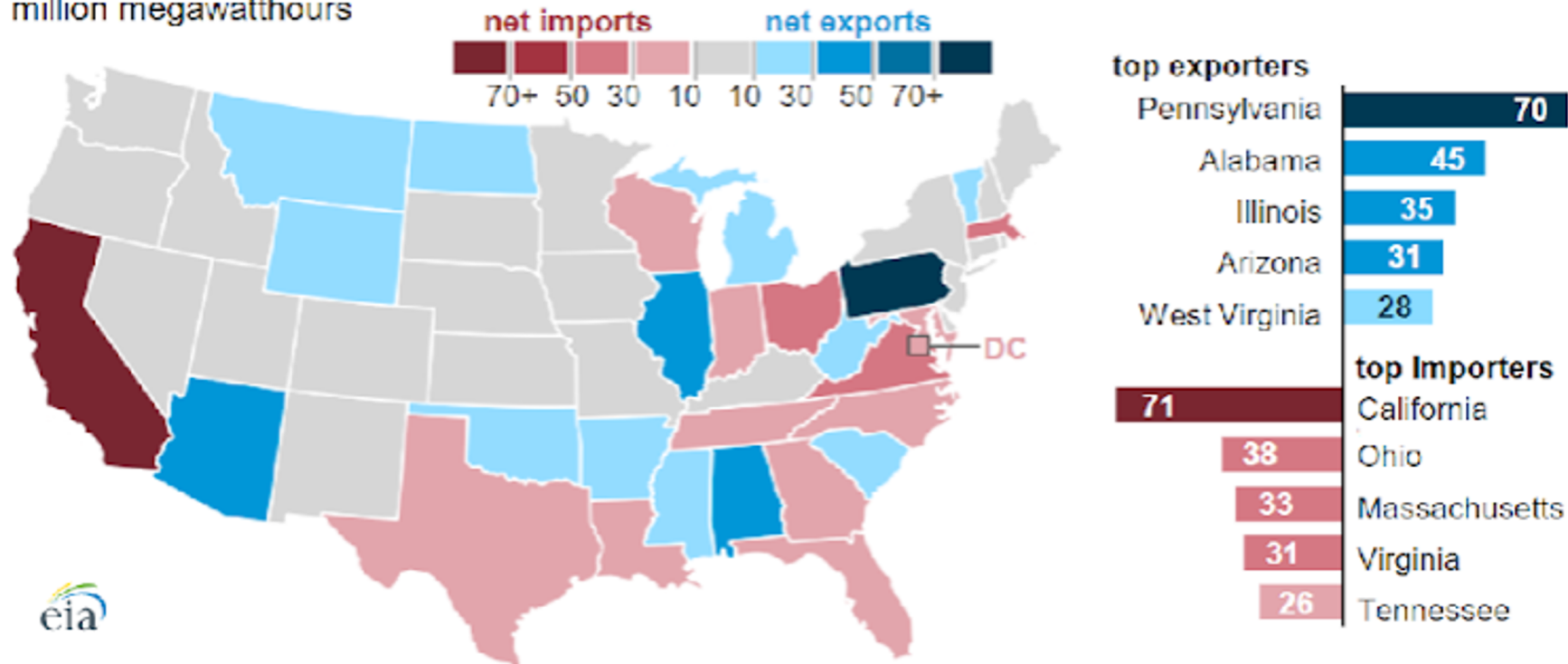
California alone will drive exponential growth

- California's renewable portfolio standard (RPS) requires that **60% of electricity retail sales** in California come from eligible renewable resources by 2030, and 100% by 2045.
California SB 100
- Executive Order N-79-20: All new passenger vehicles sold in California must be fossil fuel free by 2035.
- All new single-family homes and low-rise apartment buildings in California were required to achieve zero-net-electricity starting in 2020. Title 24 California Net Zero Energy Code
- No new fracking permits will be issued after 2024, further limiting fossil fuel generation availability. April 23, 2021 Executive Order
- The Energy Imbalance Market allows out-of-state utilities to participate in California's real-time electricity market, where they can buy power to fill in last-minute gaps between supply and demand. CAISO Section 8

California Alone Will Drive Exponential Growth

California was the largest net electricity importer of any state in 2019

State net electricity exports and imports (2019)
million megawatthours

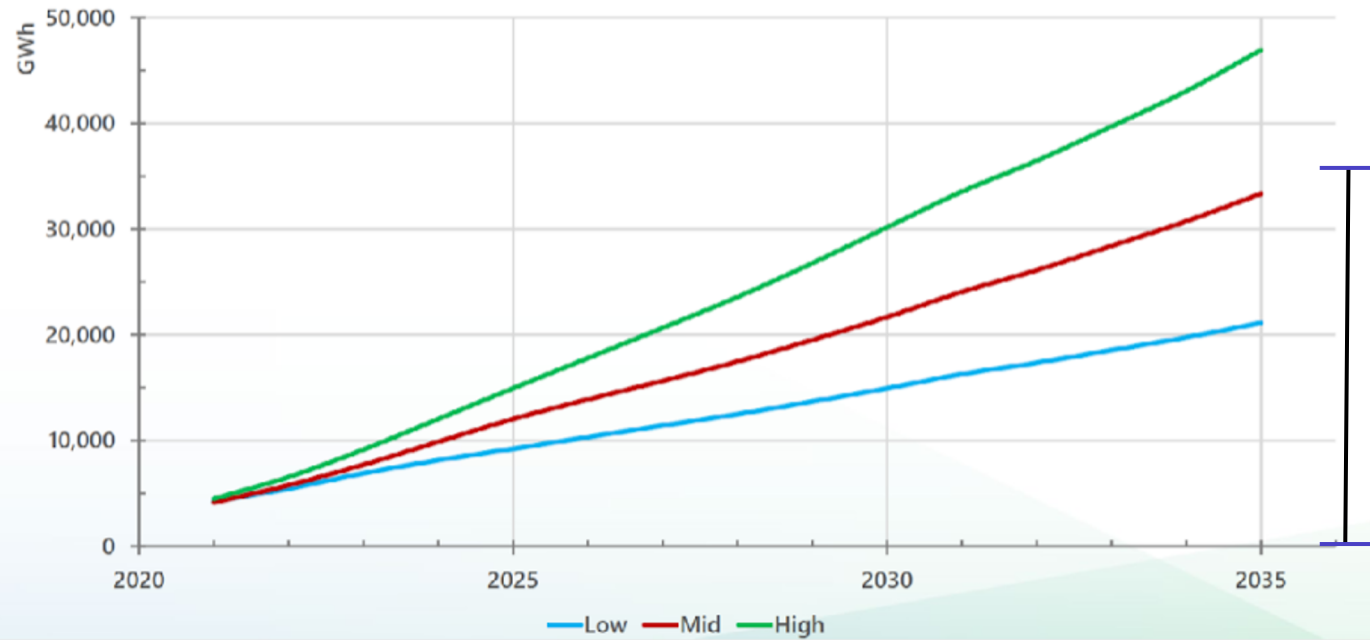


Source: U.S. Energy Information Administration. *State Electricity Profiles*

Electrification of California's Transportation Sector is a Major Driver of RE Demand Growth



Transportation Electricity Demand Forecast



Source: California Energy Commission 21-IEPR-03 14 Dec 2021

To provide
Perspective

NM
generated a
total of
34,705 GWh
in 2020 (EIA)

This graph illustrates the projected electrification demand growth resulting from Executive Order N-79-20, requiring all new passenger vehicle sales to be emissions free by 2035.

The California Energy Commission (CEC) approved a three-year \$1.4 billion plan to help California achieve its 2025 electric vehicle charging goals to speed up the state's zero-emission vehicle (ZEV) infrastructure build-out.

- Source: <https://www.energy.ca.gov/news/2021-11/cec-approves-14-billion-plan-zero-emission-transportation-infrastructure-and>

Expansion of Western Energy Markets Drives the Economic Opportunity for New Mexico

NM Renewable Wind Energy is anticipated to be cheaper than CA Renewable Energy, giving NM an edge in sales to the California Independent System Operator (CAISO).

-Energy and Environmental Economics slide 77 Clean Energy and Pollution Reduction Act Senate Bill 350 Study: Preliminary Results May 2016



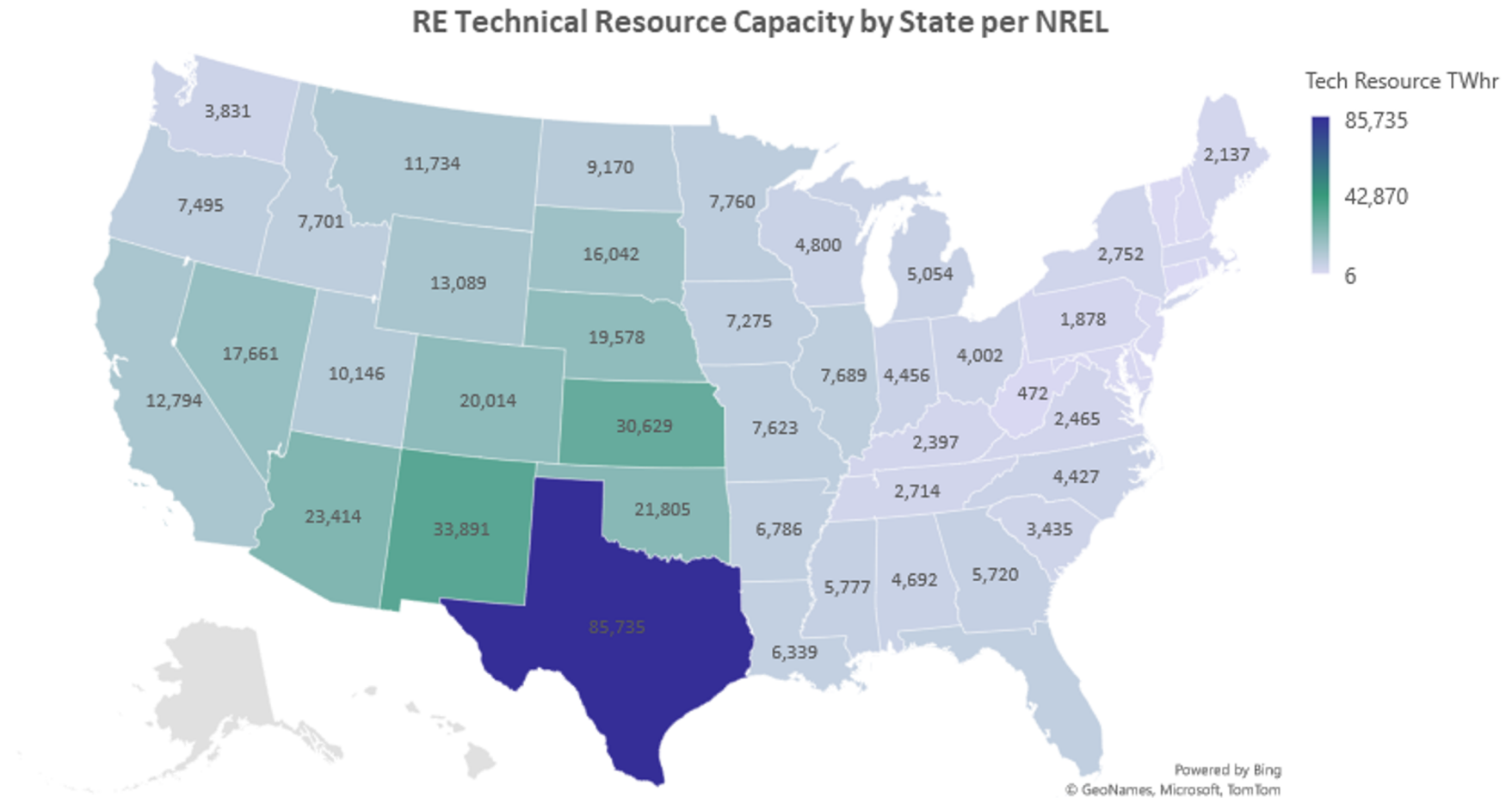
Source - Interwest Energy Alliance - Renewable Energy Growth Case & Expected Economic Benefits, Presentation to New Mexico Finance Authority Oversight Committee September 18, 2020

RETA Estimates Additional Transmission Capacity could increase exports to between 23,571,000 -16,725, 000 MWh and generate Annual Wheeling Revenues between \$136.5-\$96.8 million.

-RETA NM Renewable Energy Transmission and Storage Study Version 2 Section 4.2.3.4

New Mexico has Largest Technical Resource Potential for RE of any State that can export to CA

By Texas statute, renewable energy generated within the ERCOT region cannot be exported. ERCOT covers the majority of the state.

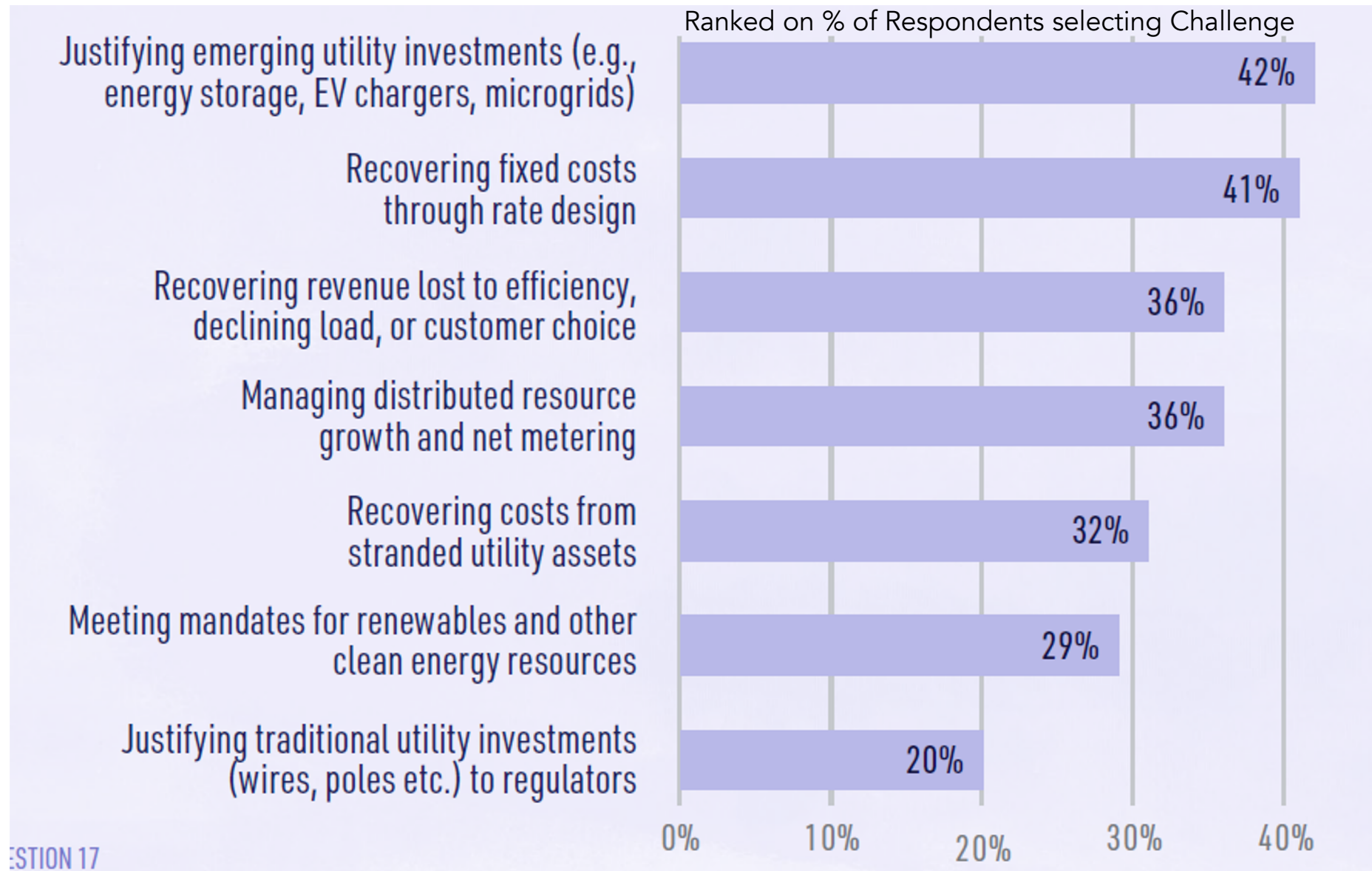


Investor Owned Utilities May be Constrained in Responding to this Moment

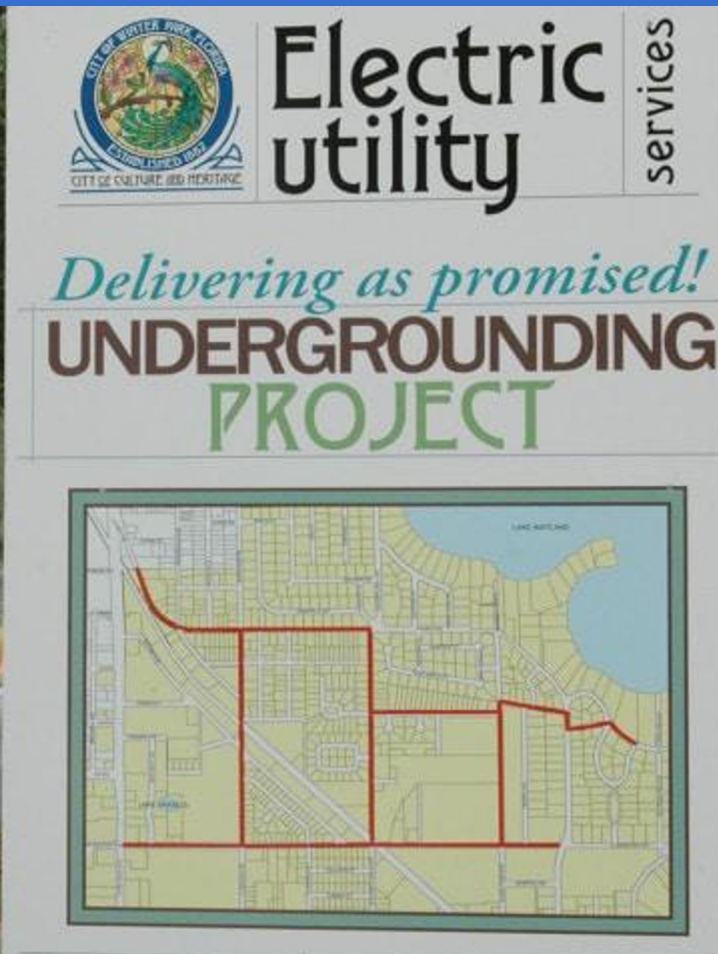
Investor Owned Utilities have a fiduciary duty to maximize the return for shareholders, creating a tension between the financial interests of shareholders and community priorities, including low rates, accelerated emissions reductions and efficiency. The guarantee of a 9 or 10% Return on Equity (ROE) may incentivize poor decision making on capital investments, leading to more expensive generation resources and wasteful spending. IOUs earn a ROE for *any* capital expenditures: from new vehicle fleets to building acquisitions to large generating stations. New Mexico IOUs have a disincentive to invest in energy efficiency, competitive and fair power resource procurement, and cost saving measures.

Many Investor Owned Utilities lack the agility and structural incentives to respond to the changing environment.

A Survey of the Main Challenges Facing Utilities Today

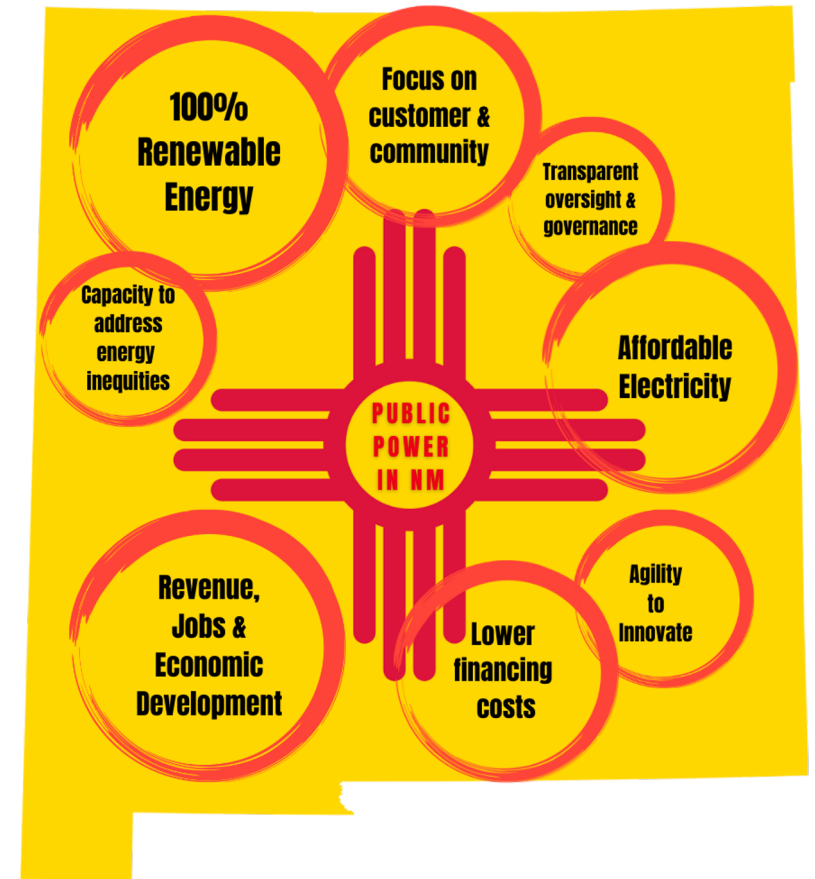


Examples of the Value Public Power has Brought to their Communities



- Winter Park Florida Municipalization - undergrounding lines, climate resiliency, improved reliability and customer service.
- Fort Collins Colorado - undergrounding lines, maintaining low rates below the local IOU and increasing reliability.
- The Republican-led State of Nebraska, served by 100% Public Power - boasts rate stability and has statewide decarbonization goals to save customer costs.
- CPS Energy of San Antonio Texas - by leveraging solar RFPs that required local investment in manufacturing creating new jobs.
- Picuris Pueblo -1 MW solar plant lowering electric bills for all customers, generating revenue for Tiwa language classes, sports field and tourist welcome center.

Findings: Potential Benefits of Public Power for NM



- Lower Costs and Lower Rates
- Accelerated transition to 100% Renewable Energy
- Economic Prosperity through state and local revenue, job creation & investment in local businesses.

Public Power Benefits - Lower Costs and Lower Rates:

Public Power offers Immediate Savings:

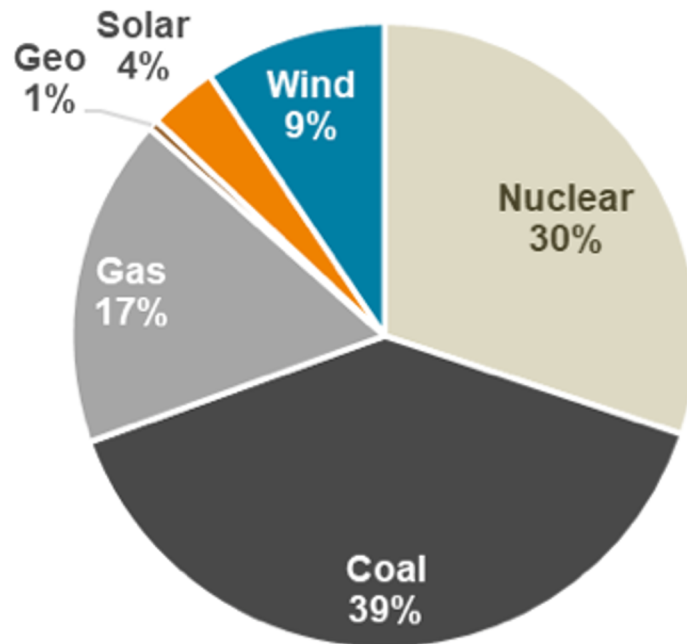
- Lower costs in key areas such as executive salaries: PNM \$8.9M compensation for CEO serving 530,000 customers vs CPS Energy (City of San Antonio) CEO earned \$930,000 for a city serving 840,750 electric customers and 352,585 gas customers. \$208,000 is the average Public Power CEO salary for cities of 20,000 to 40,000.
- No income tax, which is typically about 21% for PNM, and included in IOU rates.
- Lower cost of financing at tax exempt bond rates from 2-5% vs PNM weighted average cost of capital of 7.2%.
- No 9.575% return for corporate shareholders who are not part of the local community.

Affordability – Public Power rates are on average 11% lower than Investor-Owned Utilities and prices are based on budget set by a governing board.

Public Power Benefits - Accelerates Transition to 100% RE

IOU's have a fiduciary duty to maximize shareholder profits, while publicly owned utilities are accountable to community priorities.

PNM Generation Mix, 2019
(% of annual GWh)



Source: PNM's 2020 Integrated Resource Plan

Six of the six communities in the United States that have reached 100% renewable energy are served by public power utilities that are community owned, community governed, and empowered to make their own decisions.

Aspen, Colorado - Community Owned
Burlington, Vermont - Community Owned
Georgetown, Texas - Community Owned
Greensburg, Kansas - Community Owned
Kodiak Island, Alaska - Community Owned
Rockport, Missouri - Community Owned

Source: <https://www.sierraclub.org/ready-for-100/map>

Public Power Benefits - Accelerates Transition to 100% RE

PNM's 2019 Energy Mix:

Facility	Total CO2 Emissions (short tons)	Annual Net Generation (MWh)	Share of Annual Generation (%)	Carbon Intensity (lbs/MWh)
Nuclear	-	3,255,777	30%	-
<i>Palo Verde Generating Station</i>	-	3,255,777	30%	-
Coal	5,200,079	4,262,223	39%	2,440
<i>Four Corners Power Plant</i>	1,256,760	1,205,885	11%	2,084
<i>San Juan Generating Station*</i>	3,943,319	3,056,338	28%	2,580
Natural Gas	997,127	1,840,249	17%	1,084
<i>Afton Generating Station</i>	422,541	876,416	8%	964
<i>La Luz Energy Center</i>	12,027	19,460	<1%	1,236
<i>Lordsburg Generating Station</i>	13,057	19,906	<1%	1,312
<i>Luna Energy Center</i>	161,793	383,389	4%	844
<i>Reeves Generating Station</i>	144,290	188,048	2%	1,535
<i>Rio Bravo Generating Station</i>	187,837	269,483	2%	1,394
<i>Valencia Energy Facility</i>	55,582	83,547	1%	1,331
Geothermal	-	57,638	1%	-
Wind**	-	1,017,995	9%	-
Solar**	-	383,524	4%	-
Total	6,197,206	10,817,406	100%	1,146

* Includes 65 MW of PNM merchant capacity

** Individual renewable facilities not listed in this table, but detailed information is available in Appendix H

Public Power Benefits - An Economic Engine in Perpetuity



- According to NREL, New Mexico has the technical resource potential to generate over 1.6 Billion MWh of electricity annually. More than 40 times the electrical energy currently produced in NM.
- NM could meet all of NM 100% RE needs and export as much power to California and other Western States as New Mexico aspires to.
- RETA estimates that New Mexico could earn more than \$100M *annually* in transmission wheeling fees.
- NM could realize \$1 Billion in additional export revenues *annually* by building 5,000 -10,000 MW of wind based on 40% capacity factors and a range of market prices. This is 5 -10 additional projects the size of Western Spirit Wind.
- Each project of similar size can be expected to produce 50 permanent jobs and 1100 temporary construction jobs, many in rural areas.

NM Can Build on the Foundation that the Legislature Created with RETA

The Renewable Energy Transmission Authority (RETA) is an innovative state resource that was created by New Mexico lawmakers to facilitate the development of electric transmission and storage projects. RETA operates much like Public Power by:

- i) facilitating early and continuous community engagement, reducing the risk of bottlenecks in project development;
- ii) providing expertise in processing/expediting requests through regulatory bodies; and
- iii) providing or enabling financing with tax-free bonds.

RETA is key to expediting development of NM transmission capacity, helping NM attain its RPS goals and expand RE export capacity.

- RETA's current plan is for 11,500 to 13,000 additional MW of transport capacity to come online within 10 years. **However, if an additional 16,700 to 23,500 MW were added, to include transmission, RE export revenue could exceed \$1 Billion and annual wheeling revenue from transmission would exceed \$100 million (from RETA study 2020 report).**
- The Western Spirit Wind project is illustrative of the job and investment potential of this transition - 50 permanent jobs and 1100 temporary construction jobs for 150 miles of transmission and 1050 MW of wind generation. **Under RETA's current plan, a minimum of 550 permanent jobs and 5000-10,000 temporary construction jobs could be created, primarily in rural New Mexico. If an additional 16,700 to 23,500 MW were added those number would increase.**

If New Mexico adopted Public Power and a developer's mentality toward building transmission infrastructure, it would facilitate the rapid expansion of renewable energy and create revenue in perpetuity for the benefit of the people of New Mexico.



Pattern Energy and RETA developed the Western Spirit Project and then sold it to PNM. The revenue generated going forward will now benefit PNM shareholders. **With Public Power ownership, the revenue generated from projects like Western Spirit, including transmission expansion, transmission ownership and the sale of solar and wind energy can stay in the community. Other benefits include:**

- Accelerated build out of transmission and generation capacity.
- State control of transmission lines for additional revenues from RE generation projects.
- Ratepayer benefits from not having to pay shareholder dividends.
- Increased competition in the market and flexible business transaction opportunities.
- Increased access for solar developers to export power to markets beyond New Mexico.

Conclusion

What is the ideal model for Public Power in New Mexico? You get to choose! Various public power structure options exist, these will need to be evaluated and measured against the goals of local, regional, tribal and state stakeholders to determine which ones will be the most responsive in creating revenues, improving service and technology options, providing benefits to customers, jobs, and cleaning up the power supply.

Opportunities are there and waiting for New Mexico to take advantage of its abundant natural resources from the sun and wind! To do so, the electric system needs a new structure – Public Power could be the answer.

A comprehensive study is needed in order to determine the full benefits, feasibility & potential risks, and optimal structure. Resources need to be dedicated to engaging the public, defining a governance structure, setting goals, identifying transition issues and risks, developing partnerships and more.

Time is of the essence if NM is going to create the utility of the future and reap its benefits!

