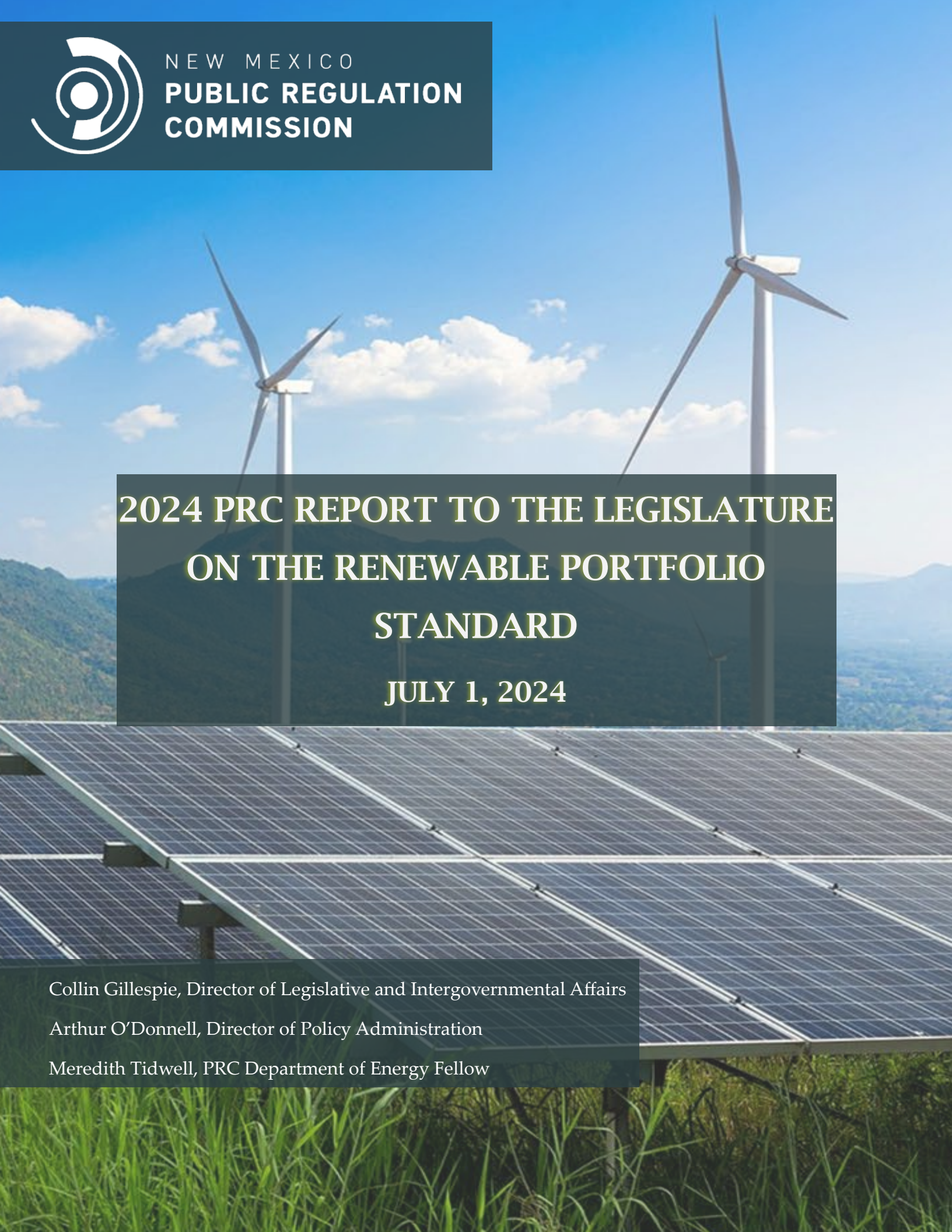


NEW MEXICO
PUBLIC REGULATION COMMISSION

2024 PRC REPORT TO THE LEGISLATURE ON THE RENEWABLE PORTFOLIO STANDARD

JULY 1, 2024

Collin Gillespie, Director of Legislative and Intergovernmental Affairs

Arthur O'Donnell, Director of Policy Administration

Meredith Tidwell, PRC Department of Energy Fellow

Table of Contents

Relevant Cases

IRPs	Case	File Name
PNM	23-00409	PNM's Integrated Resource Plan for the Period 2023-2042
SPS	23-00073	Southwestern Public Service Company's 2023 Integrated Resource Plan for New Mexico
EPE	21-00242	El Paso Electric Company's amended 2021 Integrated Resource Plan

RPS	Case	File Name
PNM (2025)	24-00207	Application for Approval of PNM's Renewable Energy Act Plan for 2025 and Proposed 2025 Rider Rate Under Rate No. 36 with Advice Notice No. 618
SPS (2024)	23-00230	SPS Renewable Energy Portfolio and Plan, Direct Testimony of Zoe E. Lees
EPE (2025)	24-00176	El Paso Electric Company's Application for Approval of Its Renewable Energy Act Plan and Eighth Revised Rate No. 38 – RPS Cost Rider
EPE (2024)	23-00086	EPE's Application for Renewable Energy Act Plan
PNM (2024)	23-00196	Public Service Company of New Mexico's Application for Approval of its 2024 Renewable Energy Act Plan and Rider No. 36 Rate for 2024

1. Executive Summary

New Mexico's goals for reducing greenhouse gas emissions and replacing legacy fossil-fueled electric generation with renewable energy and other clean energy sources reach a major milestone on January 1, 2025. That is when the State's Renewable Portfolio Standard (RPS) requirements mandate that 40 percent of electricity delivered to investor-owned utility customers must be from renewable resources, doubling the quota for renewable energy that has been in place since 2020. This report is provided to the New Mexico Legislature in fulfillment of a requirement in the Renewable Energy Act.[1]

This change is one result of the amendments to the Renewable Energy Act (REA) in 2019, which establish a goal of a 100 percent zero-carbon utility generation fleet by the year 2045 for investor-owned utilities and 2050 for rural electric co-operatives. Under the REA's amendments, the RPS requirement for IOUs will further increase to 50 percent by 2030, 80 percent in 2040, and, eventually, "zero-carbon resources shall supply one hundred percent of all retail sales of electricity in New Mexico." [2]

Rural electric distribution cooperatives are currently responsible for an RPS of 10 percent as of 2020. Rural electric distribution cooperatives have the following targets and requirements for renewable energy and zero carbon resources as a percentage of their total retail sales in New Mexico:

(a) 40 percent renewable energy by January 1, 2025;
(b) 50 percent by January 1, 2030; and
(c) achieving the zero-carbon resource standard by January 1, 2050, composed of at least 80 percent renewable energy. [3]

This report on the status and implementation of the RPS program was required by amendments to the REA that were passed as part of Senate Bill 489 in 2019, referred to as the Energy Transition Act (ETA).[4] The REA directs the New Mexico Public Regulation Commission "in consultation with electricity transmission system operators responsible for balancing New Mexico electricity loads and resources," to issue a report to the legislature by July 1, 2020, and each July 1 every four years thereafter. The report shall include:

(a) review of the standard, with a focus on technologies and forecasts, existing transmission, environmental protection, public safety, affordability, and electricity transmission and distribution system reliability;

[1] NMSA §62-16-4(B)(7)
[2] NMSA §62-16-4(A)
[3] NMSA §62-15-34(A)(3)
[4] NMSA §62-16-1 through 62-16-10, S.B. 489, 54th Legislature, First Session (2023)

(b) evaluation of the anticipated financial costs and benefits to electric utilities in implementing the standard, including the impacts and benefits to customer electricity bills; and
(c) identification of the barriers to, and benefits of, achieving the standard. [5]

Utility Compliance

In addition to addressing these specific concerns, this report also provides a review of utility compliance with the RPS since the 2019 amendments to the REA, including documentation of utility acquisition of renewable power and the associated Renewable Energy Certificates (RECs) that are used to demonstrate compliance, as well as pricing trends for renewable power. The report includes a focus on how jurisdictional utilities expect to achieve the 40 percent requirement, what actions those utilities are taking to reach the 50 percent goal by 2030, and the expected changes to the state's generation portfolio and carbon emission reductions that will result.

Using existing resources and new power purchase agreements the utilities have met the 20 percent RPS requirement for 2024. They project meeting the 40 percent requirement in 2025, with El Paso Electric Company (EPE) diverting energy and corresponding RECs to New Mexico customers from energy initially allocated to its Texas customers.[6]

Table 1: Utility RPS Projected Compliance 2024 and 2025[7]

Metric	Year	PNM	SPS	EPE
RECs Required (GWh)	2024	1,596	2,201	356
	2025	3,276	4,940	717
RECs Excess/(Deficiency) (GWh)	2024	1,687	1,576	34
	2025	2,754	-1,228	10
Percent Requirement	2024	20		
	2025	40		
Percent Met	2024	41.14	34	21.9
	2025	73.63	40	40.6

Source: Utility RPS Reports 2023-24

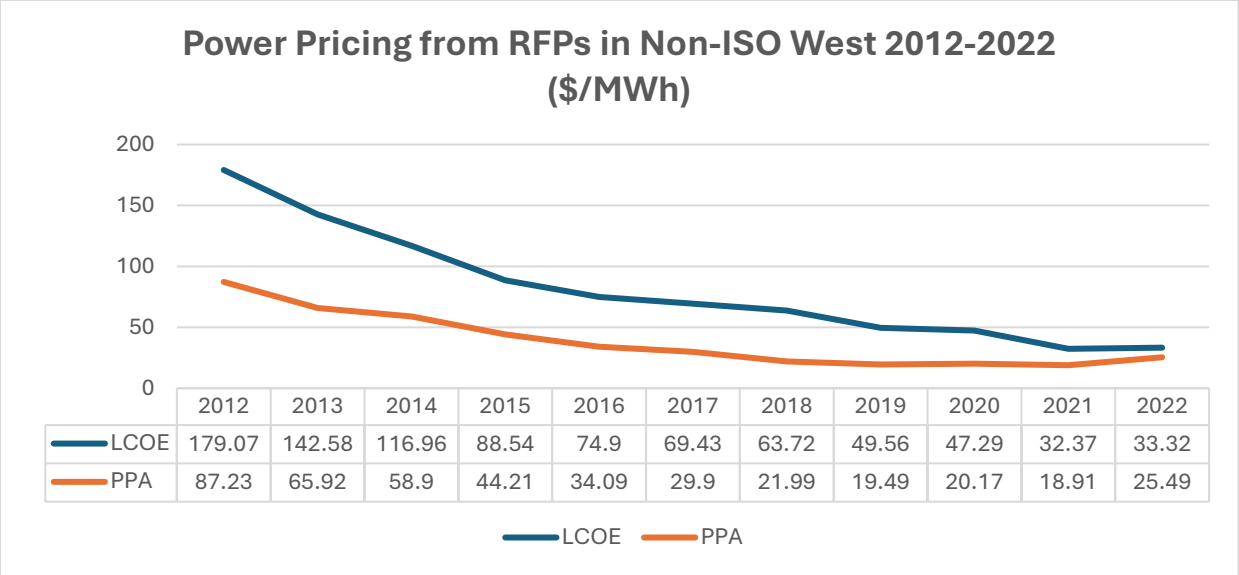
[5] NMSA §62-16-4(B)(7)
[6] EPE's June 2024 filing in Docket 24-00176-UT
[7] Data as reported by utilities. For 2025 projections, SPS and PNM will rely on previously banked RECs to meet the 40 percent mandate.

Affordability

An important aspect of the RPS is concern about the ratepayer affordability of meeting the standard. The REA established a "reasonable cost threshold" (RCT) calculated at an average annual levelized cost of $60/MWh, adjusted for inflation after 2020, currently estimated at $72.41 per MWh in 2024.

Over the past decade in the United States, the cost of renewable energy has substantially decreased, due to economies of scale, the phenomenon whereby prices decrease proportionally with respect to increases in production. As a result, recent utility contracts for solar energy are less than half of the RCT, and the ratepayer impact of meeting the RPS (over and above general commodity energy and delivery costs) is between $4/MWh and $15/MWh, recouped via the RPS rider, depending on utility territory. In addition, the lower variable costs for renewable energy have resulted in lower per MWh power prices in utility requests for proposals.

Figure 1: Request For Proposal Pricing in the West 2012-2022



	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
LCOE	179.07	142.58	116.96	88.54	74.9	69.43	63.72	49.56	47.29	32.37	33.32
PPA	87.23	65.92	58.9	44.21	34.09	29.9	21.99	19.49	20.17	18.91	25.49

Source: Lawrence Berkely Lab 2023[8]

[8] Lawrence Berkeley National Laboratory, "CapEx, LCOE, and PPA Prices by Region," Accessed June 10, 2024, https://emp.lbl.gov/capex-lcoe-and-ppa-prices-region.
Levelized Cost of Energy (LCOE) is a measure of the average cost per unit of electricity generated by an energy system, accounting for all the costs over its lifetime. This metric includes initial capital investments, operations and maintenance (O&M) costs, fuel costs (if applicable), and the cost of capital. The LCOE allows for the comparison of different energy generation methods on a consistent basis, reflecting the total cost per kilowatt-hour (kWh) or megawatt-hour (MWh) of electricity produced.
PPA: Power Purchase Agreement

However, the overall trend of decreasing power prices in utilities' requests for proposals may be abating. Post-pandemic supply chain issues and heavy demand for renewable energy from other utilities, regionally and globally, may result in a change in the cost curve. So far, the uptick in reported prices has been modest, and new contracts for renewable power in the West and Southwest remain a relatively small fraction of prices reported only a decade ago.

Two of New Mexico's major utilities, Public Service Company of New Mexico (PNM) and Southwestern Public Service Company (SPS), are expecting significant resource acquisitions stemming from their latest Integrated Resource Plans (IRPs). These additional resources will be acquired for commencing operations in the 2028-2032 period and beyond.

Aside from adding new renewables to meet future RPS milestones, including 50 percent by 2030, the utilities also foresee much higher summer peak demands attributable to increasing load, replacement of fossil-fueled generation, and the potential for electrification of transportation and buildings.

In July of 2024, SPS intends to issue an "all source" request for proposals (RFP) for up to 3,338 MW to be online by 2030, including expressions of interest in longer-term acquisitions up to 12,500 MW to 23,600 MW by 2042.

PNM has communicated a need for about 2,000 MW in the 2024-30 period and between 5,400 MW and 8,700 MW through the end of its 20-year planning horizon in 2042. PNM plans to issue its RFP by December 4, 2024.

Although energy storage facilities do not directly contribute to the RPS, they can maximize the value of renewable power to the utility system by storing energy during times when there is more generation than needed to meet load and discharging that energy back into the system during periods when energy demand is high. Energy storage also facilitates the integration of larger amounts of variable energy resources into the electric grid. Increasingly, bidders in utility RFPs are proposing storage paired with solar power and/or wind projects, or as stand-alone resources. This trend is expected to continue as battery manufacturers improve battery efficiency and reduce their costs, and as utilities continue to add variable energy resources to the grid.

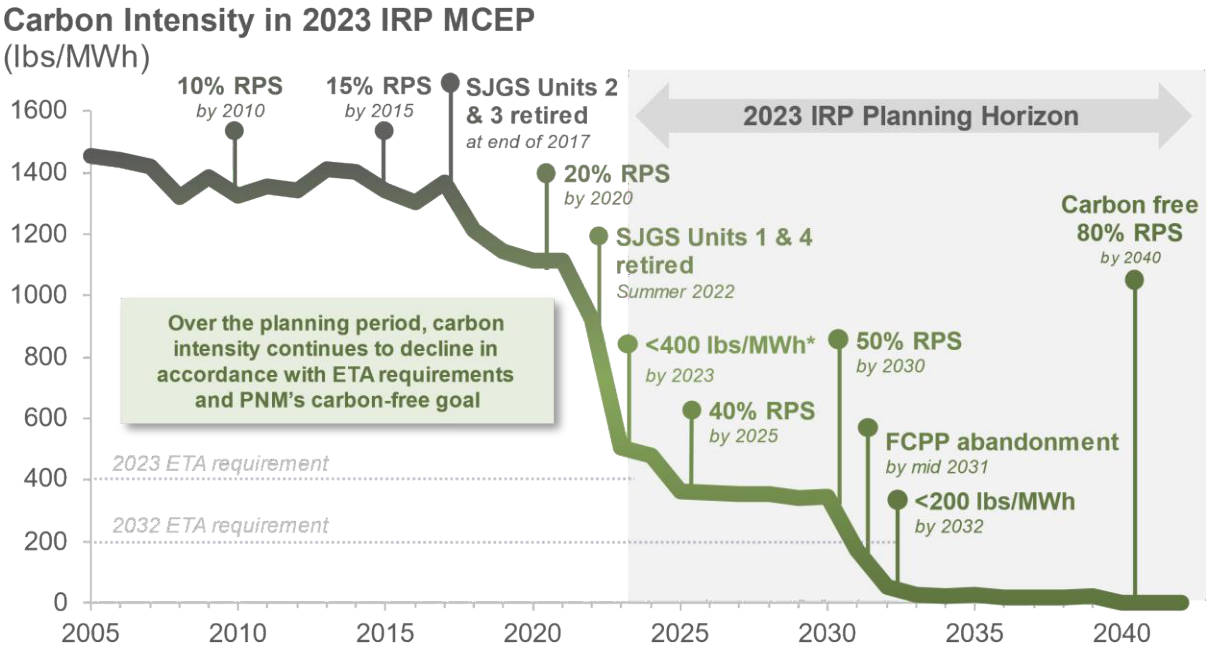
New Mexico's need for additional renewable energy resources is echoed throughout the Western Interconnection, with several utilities already in the market for or soon to seek more renewable resources to meet their own RPS or carbon-reduction mandates. An ongoing concern is how such market demand will impact prices offered by developers.

Benefits of RPS

Although the goals of the ETA and the REA are to replace legacy fossil-fueled power generation with zero-carbon emitting resources to meet the 2045 standard for investor-owned utilities, the milestones are generally expressed in terms of establishing a graduated RPS level.[9]

Only one utility, PNM, has an explicit requirement to reduce GHG emissions according to a carbon-emissions performance standard spelled out in the ETA.[10] PNM's 2023 Integrated Resource Plan provides an illustration of how the increasing RPS and abandonment of coal-fired generation align to reduce GHG over time.[11]

Figure 2: PNM Carbon Intensity as RPS Increases 2005-2040



Source: PNM, NMPRC Docket 23-00409-UT

Other benefits to New Mexico include increased economic development opportunities, as corporations seeking to locate new facilities often look for higher levels of renewable energy as part of their own sustainability goals.[12] In addition, the introduction of non-traditional utility

[9] NMSA §62-16-4(A)
[10] NMSA §62-18-10(D). Note: The Statute does not single out PNM, but the only qualifying facilities under this Section are operated by PNM.
[11] PNM's Integrated Resource Plan, Docket 23-00409-UT, Filed on December 15, 2023. See Figure 2.
[12] NMSA §62-16-2(A)(1), Deloitte Development LLC, Renewable Energy Industry Outlook 2024, https://www2.deloitte.com/us/en/insights/industry/renewable-energy/renewable-energy-industry-outlook.html

resources provides an impetus for job training and apprenticeship positions in the emerging clean tech industries.

Barriers to Reaching the Transition

Among the most significant barriers to New Mexico realizing the full benefits of its RPS program are the costs and delays experienced by renewable energy generation projects seeking interconnection to utility transmission and distribution systems. This problem is recognized as a national problem by the Federal Energy Regulatory Commission, which recently declared that "backlogs and delays, and the resulting timing and cost uncertainty, hinder the timely development of new generation, [and] stifle competition in the wholesale electric market…"[13]

According to the New Mexico Renewable Energy Transmission Agency (RETA), 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. While initial transmission projects were specifically to take advantage of export markets, RETA transmission projects will also support more renewable energy projects that will help meet the requirements of the Energy Transition Act.[14]

Utilities and customers also experience delays and higher costs for smaller renewable projects that seek to interconnect to the distribution system.

Conclusion

Despite these challenges, New Mexico's RPS program to date has successfully reached one of its milestones and is a major contributor to the clean energy transition by effectively replacing the aging, high greenhouse gas emitting generation fleet with affordable and clean renewable energy.

[13] FERC Orders 2023 and 2023-A
[14] RETA Update to Science, Technology and Telecommunications Committee of State Legislature, September 14, 2021.

2. Legislative Background

The Renewable Energy Act (REA) of 2004 changed energy policy in New Mexico greatly. The Legislature found that the generation of renewable energy resources could result in increased self-sufficiency, natural resource conservation, and environmental improvement for the State.[15] Based on these findings, the Legislature's stated purposes in passing the REA were to prescribe amounts of renewable energy resources in public utility energy supply portfolios, allow cost recovery for public utilities for complying with those prescribed amounts, and protect those utilities and utility ratepayers from unreasonable costs associated with compliance.[16] The REA, amended in 2007, 2019, and 2021, currently provides the following framework for encouraging the transition to more sustainable resources:[17]

Renewable Energy Certificates: The REA outlines the creation and use of Renewable Energy Certificates (RECs) that could be retired by utilities to demonstrate compliance with the RPS requirements.[18] The REA directs the Commission to develop a REC system, but it sets the minimum value of a REC at one kilowatt-hour of renewable energy.[19]

Rate Recovery: Utilities are permitted to recover the reasonable costs of RPS compliance through rate adjustments under the REA.[20] Such provisions allow utilities to invest in renewable energy technologies and recover those costs within a reasonable cost threshold.[21]

Reporting and Compliance: The REA directs the Commission to adopt rules to implement the RPS, including provisions for public utility records and reports.[22] Additionally, Utilities are required to file an annual report to the Commission detailing utility purchases of renewable energy.[23] This includes a procurement plan that specifies and demonstrates cost of compliance, least cost resource selection, and public interest consideration.[24]

Support for Diverse Technologies: The legislation includes a variety of renewable energy technologies such as solar, wind, biomass, and geothermal energy, promoting a diverse energy portfolio.[25]

2.1 History of Amendments and Policy Changes

The 2007 Amendment introduced additional foundational elements of the REA, emphasizing the consumption of electric energy generated by renewable resources by end-use customers. This set

[15] NMSA §62-16-2(A)(1)
[16] NMSA §62-16-2(B)
[17] NMSA §62-16-3(I), 62-16-4(A)
[18] NMSA §62-16-4(A)
[19] NMSA §62-16-5(A)
[20] NMSA §62-16-6(A)
[21] NMSA §62-16-2(A)(4-5), §62-16-2(B)(2), §62-16-3(E)
[22] NMSA §62-16-7(A)
[23] NMSA §62-16-4(F)
[24] Id.
[25] NMSA §62-16-2-D(2)

the baseline for how RECs are to be handled and began the formal structuring of renewable energy contributions to the state's energy portfolio.

The 2019 amendment required that public utilities demonstrate compliance with the renewable portfolio standard requirements by their retirement of renewable energy certificates, provided additional duties for the public regulation Commission in administering new standards, expanded the application of certain provisions to educational institutions with an enrollment of 20,000 students or more, expanded a directive to the public regulation commission to provide incentives to public utilities to exceed the law's renewable requirements, and provided additional reporting requirements for public utilities.[26]

The 2019 Amendment was passed into law as part of a transformational omnibus bill titled "The Energy Transition Act."[27] This Act was designed to facilitate the state's transition away from coal-fired power generation by providing a mechanism to issue energy transition bonds for the retirement of coal-fired generation facilities, of which there were three qualifying facilities. However, the Bill, SB 489, also significantly accelerated the RPS targets for IOUs and Rural Electric Cooperatives under the REA.[28] The accelerated schedule of the RPS requirements is given in the tables below:

Table 2: RPS Targets for IOUs under the REA

Year	Percentage of Retail Sales from Renewable Energy
2020	20
2025	40
2030	50
2040	80
2045	100

Table 3: RPS Targets for Rural Electric Cooperatives

Year	Percentage of Retail Sales from Renewable Energy
2020	10
2025	20
2030	40
2040	50
2050	80

[26] NMSA §62-16-4 (New Mexico Compilation Commission), annot.
[27] S.B. 489, 54th Legislature, First Session (2023)
[28] It is worth mentioning, here, that SB 489, with the short title "Energy Transition Act", created the Energy Transition Act in NMSA §62-18-1 through §62-18-23. It is important to note, here, that while SB 489's short title is "Energy Transition Act", the Statutory Section for the Energy Transition Act is Title 62, Article 18. SB 489, known as the Energy Transition Act, amended portions of the REA, found in Article 16. Thus, the terms Energy Transition Act or ETA may colloquially refer to either the Bill or the Statute.

The 2021 Amendment to the REA, effective June 18, 2021, further refined the management and ownership of RECs, particularly in community solar projects.[29] The 2021 amendment provided that RECs are owned by the public utility in the territory where the community solar facility is located, with exceptions for native community solar projects.[30]

These amendments indicate a progressive tightening of regulations around the use and management of renewable energy sources, reflecting an increasing legislative and regulatory emphasis on renewable energy as a core component of New Mexico's energy strategy.

2.2 Energy Programs and Rates Subject to the RPS and Exemptions

Programs Subject to RPS

Power purchases for renewable energy must bundle the energy and RECs to be counted toward compliance.[31] Any utility-scale renewable energy projects generating electricity from sources like solar, wind, or hydro that are directly connected to the distribution systems of public utilities count towards the RPS.[32] Community solar projects are also significant contributors, especially with the specific mention in the 2021 amendments emphasizing their role within the RPS framework.[33]

Programs That Do Not Contribute to RPS Compliance

Utilities generally follow the principle that RECs associated with customer generation belong to that customer unless the utility purchases them under a net-metering contract. Also, customers who enter so-called voluntary renewable programs, or "green pricing" programs, such as Solar*Connect for SPS, PNM Solar Direct for Large Customers, and PNM's Sky Blue to claim a higher level of renewable energy than the standard utility mix also claim ownership of their RECs.[34] Thus, these RECs do not count toward RPS compliance.[35]

[29] NMSA §62-16-5, (New Mexico Compilation Commission), annot.
[30] Id.
[31] NMSA §62-16-4(A)
[32] NMSA §62-16-3(H) and (I)
[33] NMSA §62-16-5(B)(1)(d)
[34] NMSA §62-16-7(B)(1)
[35] NMSA §62-16-7(B)(2)

3. RPS Compliance by IOUs and Rural Electric Distribution Cooperatives

Since the 20 percent RPS took effect in 2020, New Mexico's utilities have followed a progressive program of retiring fossil-fueled generation resources and adding renewables to their portfolios.

Table 4 IOU Projected Compliance 2020-2025

Metric	Year	PNM	SPS	EPE
RECs Required (GWh)	2020	1,604	1,456	342
	2021	1,585	1,560	340
	2022	1,586	1,796	348
	2023	1,568	2,001	358
	2024	1,596	2,201	356
	2025	3,276	4,940	717
RECs Excess/(Deficiency) (GWh)	2020	(78)	5	(111)
	2021	74	477	(105)
	2022	0	1,130	(102)
	2023	327	989	(70)
	2024	1,687	1,576	34
	2025	2,754	(1,228)	10
Percent Requirement	2020	20		
	2021	20		
	2022	20		
	2023	20		
	2024	20		
	2025	40		
Percent Met	2020	18.64	20	13.50
	2021	20.44	20	13.80
	2022	20.00	20	14.20
	2023	24.18	20	16.11
	2024	41.14	34.00	21.90
	2025	73.63	40.00	40.60

Source: Utility RPS Reports 2023-2024

PNM and SPS have met and are projected to continue to meet the RPS. EPE has failed to meet the RPS from 2020 to 2023. For those years, EPE proposed to retroactively apply RECs from

future generation. To date, EPE has not generated enough excess RECs to apply to the 2020 through 2023 shortage.
EPE also estimated a shortage of RECs for the 2024 RPS if EPE does not receive approval of reallocation of certain resources to New Mexico customers that were initially allocated to EPE's Texas customers. One noticeable trend is that the need for RECs is increasing across-the-board for all companies, all doubling in 2025, though the utilities project they will meet these goals.

3.1 Meeting the 40 Percent Requirement

All investor-owned utilities have projected that they will meet the 2025 40 percent compliance requirements. They are projecting an excess of RECs after compliance is met. The utilities are accomplishing this with a mix of banked RECs and renewable generation, with the exception of EPE. Because the operation of the Carne solar and storage facility has been delayed, EPE will reassign renewable energy generated by two Texas-based facilities to New Mexico customers' use to meet the 2025 RPS.

3.2 Rural Electric Cooperative Compliance

The REA provides a separate schedule of compliance for New Mexico's rural electric distribution cooperatives (Electric Cooperatives). Prior to the amendments, co-ops were required to meet a 10 percent RPS by 2020. Co-ops now have the following targets and requirements for renewable energy and zero carbon resources as a percentage of their total retail sales in New Mexico:

> (a) 40 percent renewable energy by January 1, 2025;
> (b) 50 percent by January 1, 2030; and
> (c) achieving the zero-carbon resource standard by January 1, 2050, composed of at least 80 percent renewable energy.[36]

The REA also provides that the Commission may require co-ops to offer voluntary renewable energy programs to members.[37] The 2007 amendments to 62-16-8 also directed the commission to "establish and amend rules and regulations for implementation of the Renewable Portfolio Standard consistent with the Rural Electric Cooperative Act."[38]

The Rural Electric Cooperative Act (RECA) requires co-ops to file with the PRC by April 30 of each year a report on its purchases of renewable energy during the previous calendar year. The report includes the cost of renewable energy resources purchased and generated by the distribution cooperative to meet the RPS.[39] These 2019 revisions to RECA required the co-ops to

[36] NMSA §62-15-34(3)
[37] NMSA §62-16-8(A)(1)
[38] NMSA §62-16-8(B)
[39] NMSA §62-16-34(B)

document "steps taken to minimize costs" such as competitive procurements.[40] The RECA also required a comparison of prices in bids for recent purchases elsewhere in the Southwestern United States, and for co-ops to provide an "annual compliance plan for meeting the renewable portfolio standard for the following three years."[41]

In October 2019, the PRC opened a rulemaking 19-00296-UT to revise the existing Rule 17.9.572 to conform with the new requirements. The RPS rule covered both IOUs and co-ops.

On June 1, 2020, the PRC's Utilities Division staff filed a petition seeking to establish a separate rulemaking specific to the co-ops. The Commission approved that request on June 8, 2020, opening a new rulemaking in 20-00140-UT, establishing a collaborative working group process for the separate rulemaking between Utilities Division Staff and Rural Electric Cooperatives. When Rule 572 covering IOUs was enacted by the Commission on April 14, 2021, all references to RPS for co-ops were repealed, leaving a gap in how co-ops should document their continued RPS compliance until the promulgation of a new rule. This gap has led to inconsistency in RPS reporting by the co-ops: some continued filing under the less detailed pre-ETA requirements; some included the RPS report in an annual report or with multiple compliance filings; others dispensed with reporting altogether or created their own schedule for the filing of reports.

To cure this situation, the PRC has introduced draft Rule 571 with detailed requirements for reporting based largely on recommendations from the co-ops' working group. One example of change providing more guidance to the 2050 goal of 80 percent renewable energy:

> "No later than January 1, 2050, each distribution cooperative shall target to provide New Mexico retail customers with electricity generated from at least 80 percent renewable energy resources, provided that:
>
> (1) Achieving the 80 percent standard is technically feasible;
> (2) The distribution cooperative is able to provide reliable electric service while implementing the 80 percent standard;
> (3) Implementing the 80 percent standard shall not cause electric service to become unaffordable." [42]

Regarding reporting RPS compliance to the PRC, the proposed rule states: "Distribution cooperative that are members of a generation and transmission cooperative may file their annual reports as a group, provided that each distribution cooperative's filing requirements shall be identified separately."[43] Except for Kit Carson Electric Cooperative, all of New Mexico's distribution cooperatives are members of either Tri-State Generation & Transmission (Tri-State) or the Western Farmers Cooperative (Western Farmers). These so-called G&Ts provide most if not all the power requirements to their members. Tri-State provides 95 percent of the energy needed for about half its members and 100 percent for the rest. Western Farmers members are considered "full requirements" customers, taking 100 percent of their power from Western. Although these entities are subject to limited PRC regulation, they claim to be very proactive in adding renewables to the fuel mix. In response to Commission inquiries, Western Farmers has

[40] NMSA §62-15-34(B)
[41] Id.
[42] Draft Rule 17.3.571,10.E, in 20-00140-UT
[43] Draft 17.3.571.15. C.

reported that it currently has over 1,400 MW of renewable energy, about 26 percent of its 2023 portfolio. Tri-State reports that its 2023 Resource Plan includes adding 1,250 MW of geographically distributed renewables and battery storage between 2026 and 2031. Both Tri-State and Western Farmers will be largely responsible for providing sufficient renewable energy for their members to meet the increase to 40 percent RPS in 2025 under the change to Rule 571.

Table 5: Rural Co-ops 2023 RPS[44]

Tri-State G&T Members	**Total Retail Sales 2023 (MWh)**	**10percent RPS requirement**	**Member Generation***	**Tri-State Supplied MWh**
Central New Mexico	251,440	25,144	6,830	18,314
Columbus	100,946	10,095	5,144	4,951
Continental Divide	411,844	41,185	109	41,076
Jemez Mountains	369,110	36,912	1,611	35,301
Mora-San Miguel	83,951	8,396	3,185	5,211
Northern Rio-Arriba	27,266	2,727	0	2,727
Otero County	201,021	20,103	10,210	9,893
Sierra Electric	44,103	4,411	120	4,291
Socorro	181,104	18,111	702	17,409
Southwestern	294,402	29,441	0	29,411
Springer	223,845	22,385	2,455	19,930
Total Tri-State NM	**2,189,032**	**218,910**	**30,365**	**188,545**
Kit Carson[45]	**298,978**	**29,898**	**29,898**	**N/A**
Western Farmers Members				**G&T Supplied**
Central Valley	859,177	85,918	0	83,852[46]
Farmers Electric	386,564	38,656	0	38,656
Lea County	784,452	78,445	0	78,445
Roosevelt County	153,942	15,394	40,024[47]	395
Total Western Farmers	**2,184,135**	**218,413**	**40,024**	**201,348**

Source: Individual co-op Rule 572 reports for 2023 RPS compliance

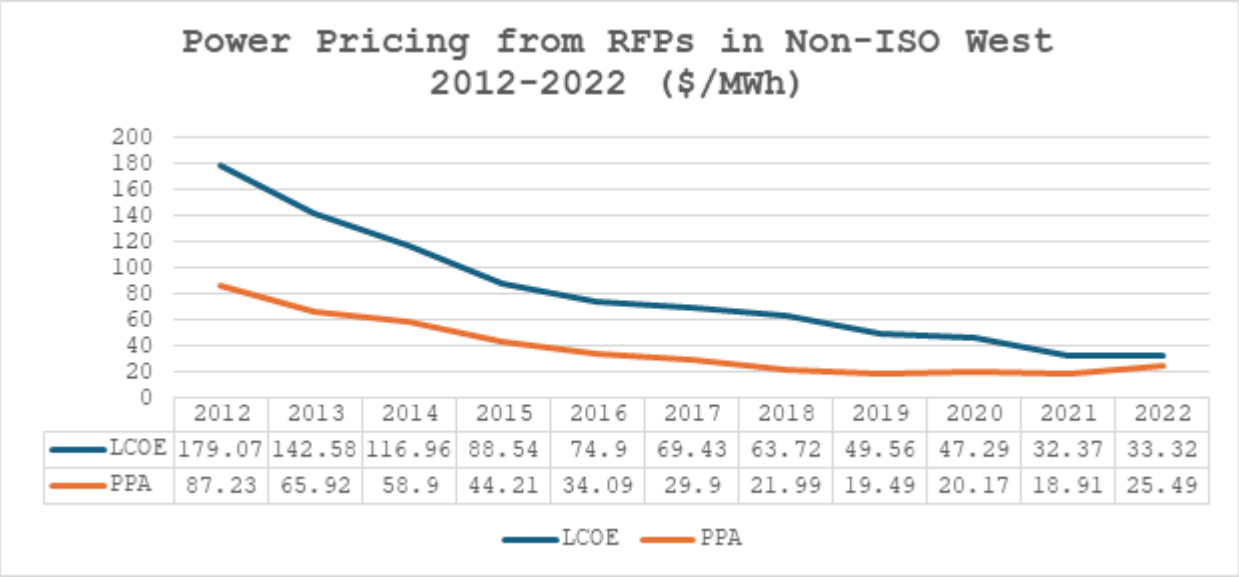
[44] In several cases, co-ops take advantage of legacy "multipliers" for economic development projects that allow each REC to count for more than 1 MWh. Thus, 1 MWh of generation may be counted as 3 RECs for compliance.
[45] One outlier is Kit Carson Electric Cooperative, which last reported RPS compliance for 2022 in July 2023. Kit Carson terminated its membership in Tri-State G&T to provide all of its own energy requirements and increase available renewable energy. Kit Carson takes advantage of legacy multipliers for economic development projects that allow a 3-for 1 MWh accounting for REC retirements. For example, the Amalia 1 solar array produced 3,667 MWh of energy, counted as 11,001 MWH of RECS for RPS. Similarly, the Blue Sky One project generated 3,546 MWh but is credited with 10,638 RECs for the year. Some smaller projects also take the 3/1 multiplier. In all, Kit Carson's direct generation for 2022 was 13,634 MWh with 29,898 MWh of RECs.
[46] Only Central Valley appears to have not met the 10% RPS requirement, reporting a shortfall of about 2,066 MWh. No explanation was provided for the discrepancy.
[47] Roosevelt County reported acquiring 25,025 more RECs than necessary for compliance, based on wholesale purchases from Western Farmers and purchases of locally generated RECs from its member customers. The extra RECs will be banked for future use.

Both Tri-State and Western Farmers will be largely responsible for providing sufficient renewable energy for their members to meet the increase to 40 percent RPS in 2025 under the change to Rule 571. Both entities have expressed confidence they will meet the new standards based on the amount of renewable energy already in their systems. In the absence of complete documentation of co-ops' RPS generation and purchases, the Commission relies on reports from the G&Ts to ensure compliance with the existing requirements. Enactment of the revised rule will provide more consistent reporting.

4. Renewable Energy Pricing

Over the past decade, the cost of renewable energy has substantially decreased, due to economies of scale that result from astounding market growth throughout the United States.

Figure 1: Request For Proposal Pricing in the West 2012-2022



	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
LCOE	179.07	142.58	116.96	88.54	74.9	69.43	63.72	49.56	47.29	32.37	33.32
PPA	87.23	65.92	58.9	44.21	34.09	29.9	21.99	19.49	20.17	18.91	25.49

Source: Lawrence Berkeley Lab[48]

However, the overall trend of decreasing power prices in utilities' requests for proposals may be abating. Post-pandemic supply chain issues and heavy demand for renewable energy from other utilities, regionally and globally, may result in a change in the cost curve. So far, the uptick in reported prices has been modest, and new contracts for renewable power in the West and Southwest remain a relatively small fraction of prices reported only a decade ago.

---

[48] Lawrence Berkeley National Laboratory, "CapEx, LCOE, and PPA Prices by Region," Accessed June 10, 2024, https://emp.lbl.gov/capex-lcoe-and-ppa-prices-region

Levelized Cost of Energy (LCOE) is a measure of the average cost per unit of electricity generated by an energy system, accounting for all the costs over its lifetime. This metric includes initial capital investments, operations and maintenance (O&M) costs, fuel costs (if applicable), and the cost of capital. The LCOE allows for the comparison of different energy generation methods on a consistent basis, reflecting the total cost per kilowatt-hour (kWh) or megawatt-hour (MWh) of electricity produced.

PPA: Power Purchase Agreement

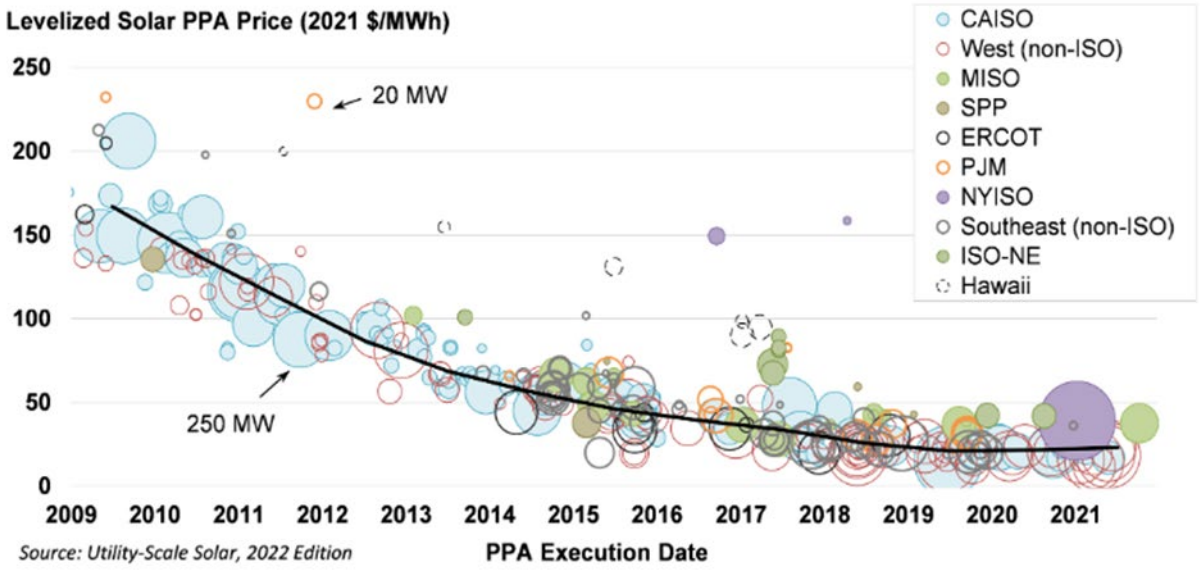
4.1 Recent PPA Prices

Table 6: Recent PPA Prices in New Mexico

Utility	Docket	Project	Capacity	PPA price /MWh
PNM	19-00159-UT	La Jolla Wind	140 MW	$17.49
PNM	19-00195-UT	Arroyo Solar	300 MW	$18.65
PNM	20-00182-UT	San Juan Solar	200 MW	$26.31
PNM	23-00353-UT	Quail Ranch	100 MW	$29.84
EPE	22-00093-UT	Carne Solar/Storage	130 MW/65 MW	$26.96
EPE	23-00086-UT	Buena Vista 1 Solar/Storage	100 MW/50 MW	$24.46
SPS	17-00044-UT	Sagamore Wind	522 MW	$18.07

Note: SPS's most recent resource additions that contribute to RPS are utility self-build, with costs put into its rate base. The price shown for Sagamore wind is a levelized cost of energy for the life of the project, not a PPA price.

Figure 3: Levelized Cost of Energy for Solar PV National 2009-2021[49]



4.2 RPS Procurement Costs and Bill Impacts

An important aspect of the RPS was initial concern about the ratepayer affordability of meeting the standard. The REA establishes a "reasonable cost threshold" (RCT) calculated at an average annual levelized cost of $60/MWh, adjusted for inflation after 2020 using the Consumer Price

[49] Lawrence Berkley National Laboratory, "Utility-Scale Solar, 2023 Edition," Accessed June 10, 2024, https://emp.lbl.gov/sites/default/files/emp-files/utility_scale_solar_2023_edition_slides.pdf

Index[50]. The RCT is currently estimated at $72.41/MWh. Over the past decade, the costs of renewables have substantially decreased, due to economies of scale and astounding market growth throughout the United States, and other countries. As a result, recent utility contracts for solar energy are less than half of the reasonable price threshold, and the ratepayer impact of procurement for meeting the RPS (not included in a utility's rate base) is between $5/MWh and $15/MWh, recouped via the RPS rider, depending on utility territory.

In an analysis of the 2023 PNM Renewable Energy Report, the PRC Utilities Division estimated considerable annual savings from RPS energy prices, compared with the 2024 RCT.
"In total, [PNM's] RPS procurements in 2024 will result in $61.6 million in savings versus the RCT. As is the case in prior years PNM's three major wind PPAs are significantly (~50 percent below) below the RCT and generate significant savings versus the RCT. However, utility-owned solar projects exceed the RCT, at times significantly."[51]

Such an analysis does not comprehensively capture the impacts of RPS on customer bills, which is better measured in terms of the marginal costs of procurements to meet the RPS each year. That amount is represented in the annually adjusted RPS Rate Riders (although for SPS it does not represent the total costs of renewable projects that have been put into its rate base).

Table 7: Current and Projected RPS Rate Riders

Utility	2024 RPS Procurement Costs	RPS Rider 2024	Monthly Impact to Average Customers[52]
PNM 2024	$62,949,219	$0.0080095/kWh Rate 36/AN 606	$7.64
PNM 2025 proposed in 24-00207	$58,749,240	$0.0071734/kWh Rate 36, AN 618	$6.84
SPS 2024	$6,418,756[53]	$0.000583/kWh AN 316	$0.55
EPE 2024	$14,282,715	$0.008372/kWh Rate 38/AN 291	$7.99
EPE 2025 proposed in 24-00176-UT	$28,201,140	$0.015742/kWh (proposed Rate 38)	$15.02

[50] NMSA §62-16-2(A)
[51] Testimony of Marc Tupler in 23-00196-UT, pg. 12-13.
[52] Based on annual average electricity consumption of 11448 KWh (Source: Energy Sage, updated 6/23/24). https://www.energysage.com/local-data/electricity-cost/NM/
[53] The majority of SPS costs for utility-owned renewable energy projects is collected via rate base.

5. How Utility Portfolios are Changing

New Mexico's utilities are facing a significantly higher need for electric energy and capacity in response to the retirement of traditional generation resources, the addition of renewables that may not be assigned a full capacity rating for reliability, load growth driven by changing consumer practices, and vehicle electrification. Utilities also must consider future load growth from the electrification of buildings and industrial processes. In its most recent Integrated Resource Plan, for example, SPS developed a scenario for more than doubling its system peak due to potential electrification of the oil and gas industry in its territory.

Aside from adding new renewables to meet future RPS milestones, including 50 percent by 2030, the utilities also foresee much higher summer peak demand attributable to increasing load, replacement of fossil-fueled generation, and the potential for electrification of transportation and buildings.

In July 2024, SPS intends to issue a request for proposals (RFP) for up to 3,888 MW to be online by 2030, and expressions of interest in longer-term acquisitions of as much as 12,500 MW to 23,600 MW by 2042.

PNM has demonstrated a need for about 2,000 MW in the 2024-30 period and between 5,400 MW and 8,700 MW through the end of its 20-year planning horizon in 2042. PNM plans to issue its RFP in late summer or early autumn 2024.

Both utilities will be seeking as much clean power as possible, as well as flexible or dispatchable resources, including battery storage. Although energy storage facilities do not directly contribute to the RPS, they can maximize the value of renewable power to the utility system by storing energy during times when there is more generation than needed to meet load and discharging that energy back into the system during periods when energy demand is high.

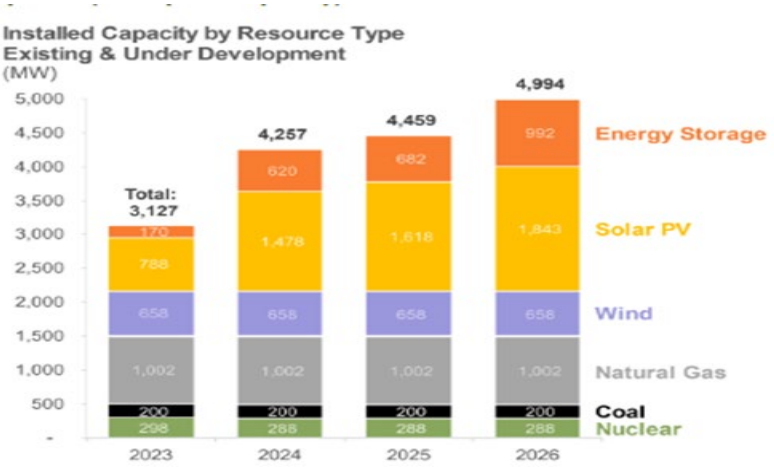
Energy storage also facilitates the integration of larger amounts of variable energy resources into the electric grid. Increasingly, bidders in utility RFPs are proposing storage paired with solar power and/or wind projects, or as stand-alone resources. This trend is expected to continue as battery manufacturers improve battery efficiency and reduce their costs, and as utilities continue to add variable energy resources to the grid.

Utilities expect to eliminate coal-generating resources from their resource portfolios entirely by 2032.

PNM

PNM's projected generation portfolio percentages show a significant increase in solar, while other resources remain relatively steady. PNM's IRP shows the same but also shows an increase of storage alongside solar. Figure 4 shows PNM's portfolio mix over the next few years.

Figure 4: PNM's Current Generation Portfolio, including existing resources and resources under development (nameplate capacity) 2023-2026



Note: PNM's existing portfolio also includes 11 MW of geothermal (included in totals)

While the figure above shows the installed nameplate capacity, PNM's progress to meet its carbon-free goals is largely dependent upon the energy mix, how much of customer's day-to-day needs are supplied by each of these resources throughout the year. Table 17 summarizes key statistics for the portfolio for the 2022 operating year, including annual net generation, greenhouse gas emissions, and water consumption from resources owned by and under contract to PNM.

Source: PNM 2023 IRP, Docket 23-00409-UT

SPS

SPS currently relies on wind energy for RPS compliance. However, it will be seeking solar plus storage resources as part of its upcoming request for proposals, expected in July 2024.[54]

Figure 5: SPS Most Cost-Effective Portfolios of Resources Multi-jurisdictional Base Case – Energy by Technology Type (2028-2043)

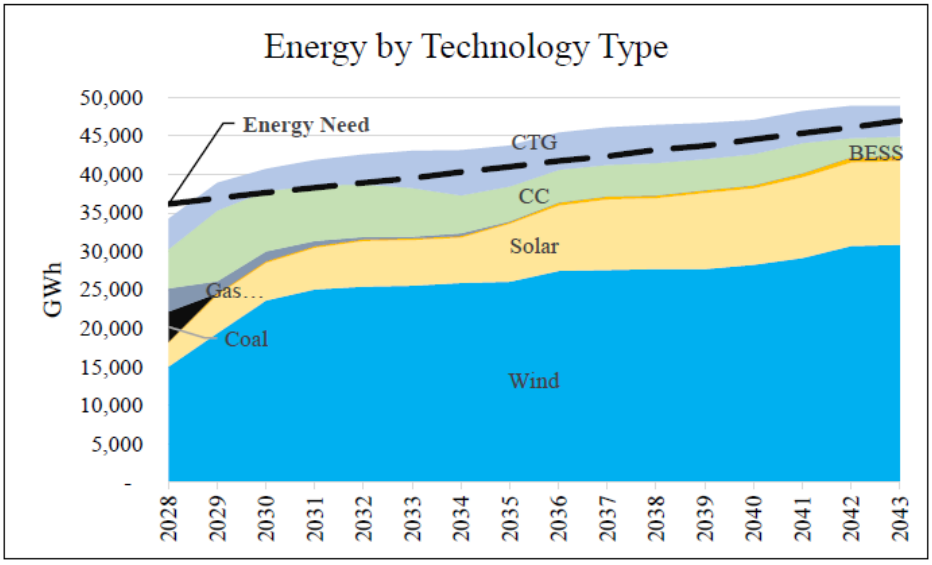
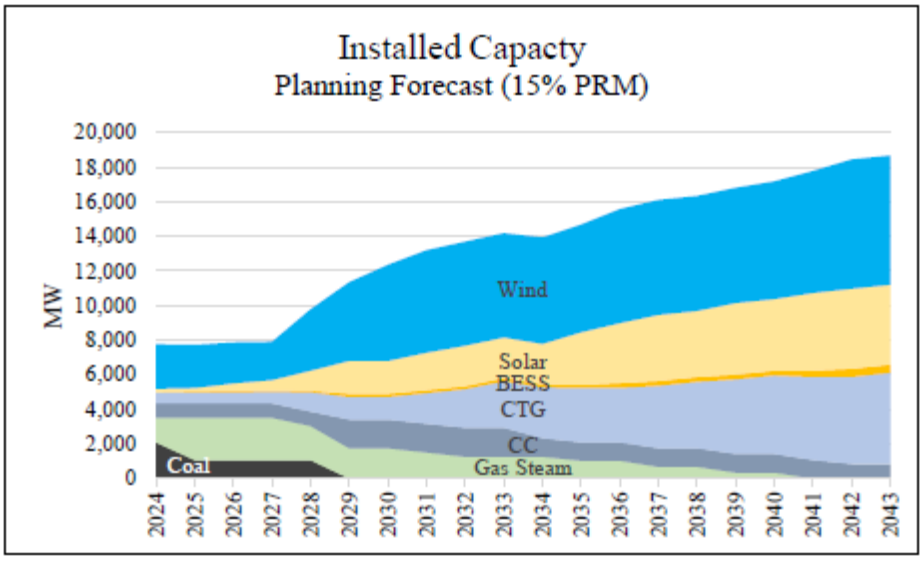


Figure 6: SPS Most Cost-Effective Portfolios of Resources Multi-jurisdictional Base Case – New Installed Capacity (2028-2043)



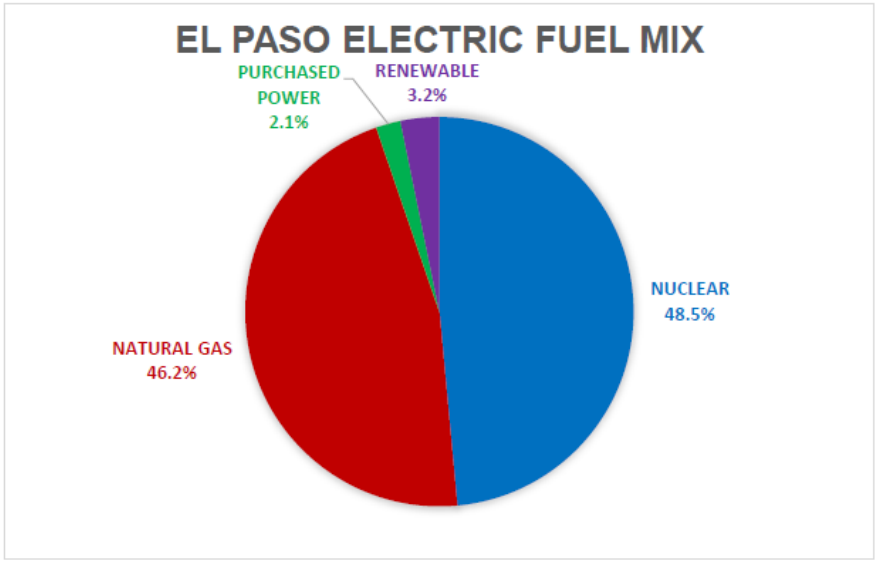
[55]

[54] Interview with SPS in furtherance of this report, May 20, 2024
[55] Source: SPS 2023 IRP

EPE

EPE is projected to add a significant amount of solar and battery to its portfolio, followed by a small amount of wind. EPE expressed in a meeting that it would like more wind, but transmission costs for wind would be higher in price.

Figure 7: EPE 2020 Energy Fuel Mix



[56]

Figure 8: EPE Least Cost System-Wide Portfolio projection through 2045[57]

[56] Source: EPE Annual Reports to Legislature
[57] El Paso Electric Company's amended 2021 Integrated Resource Plan, case 21-00242-UT

6. Review of the RPS Standard

6.1 Technologies

In New Mexico, utilities predominantly utilize mainstream renewable energy technologies like utility-scale wind and solar to meet energy delivery and RPS requirements. The majority of recent power purchase agreements and utility self-build projects involve these technologies, with solar increasingly being paired with Battery Energy Storage Systems ("BESS"). This pairing offers relatively low costs and enhanced flexibility to manage the variable output of generation, although it does not directly increase capacity for reliability purposes. The trend towards larger individual facilities and the scale of utility adoption worldwide has driven down the costs of these resources, indicating the maturing of these technologies in the market.

The following are very brief descriptions of the renewable energy technologies currently in operation in New Mexico:

Solar:
Single Axis Tracking

- Description: Solar panels mounted on a single-axis tracking system that follows the sun's movement.
- Importance: Increases solar energy capture by optimizing the angle of the panels throughout the day.
- Benefits: Enhanced energy yield, improved efficiency, maximized power generation.
- Barriers: Higher initial cost, increased maintenance due to moving parts, potential land use concerns.

Dual Axis Tracking

- Description: Solar panels mounted on a dual-axis tracking system that follows the sun's movement both vertically and horizontally.
- Importance: Maximizes solar energy capture throughout the day and year by maintaining the optimal angle relative to the sun.
- Benefits: Highest possible energy yield, increased efficiency, optimized power generation.
- Barriers: Significantly higher initial cost, complex maintenance due to additional moving parts, higher land use impact.

Fixed PV (Photovoltaic) Solar Systems

- Description: Solar panels mounted in a fixed position, typically at an optimal tilt angle for the geographical location, to maximize exposure to sunlight throughout the year.
- Importance: Provides a simple and cost-effective solution for solar energy generation with minimal maintenance requirements.
- Benefits: Lower initial cost compared to tracking systems, minimal maintenance, durable and reliable, suitable for various locations including rooftops and uneven terrains.

- Barriers: Lower energy yield compared to tracking systems due to the fixed position of panels, less efficient at capturing sunlight during early morning and late afternoon hours.

Wind

Large-Scale Wind Turbines

- Description: Wind turbines with large blades and high towers are typically used in wind farms to generate electricity on a utility scale.
- Importance: Significant contributors to renewable energy generation, reducing dependence on fossil fuels.
- Benefits: High energy output, economies of scale, low operational costs.
- Barriers: High initial capital investment, environmental and visual impact concerns, and variable wind speeds affecting consistency.

Geothermal

- Description: Geothermal energy utilizes the heat from the earth's core to generate electricity and provide heating solutions. It can be harnessed by tapping into underground reservoirs of hot water and steam.
- Importance: This energy source is crucial for promoting sustainable energy practices as it provides a stable, reliable, and continuous flow of electricity and heat, unlike other intermittent renewable sources like solar and wind.
- Benefits: This energy source is crucial for promoting sustainable energy practices as it provides a stable, reliable, and continuous flow of electricity and heat, unlike other intermittent renewable sources like solar and wind.
- Barriers: The initial costs of geothermal energy can be high due to the exploration and drilling required to access geothermal reservoirs. The availability of geothermal resources is also geographically limited, requiring specific conditions for economic viability. Moreover, there is a potential risk of induced seismic activity due to the alteration of subterranean pressures.

Resources Acquired to Meet the RPS

The preference for mainstream technologies stems from their proven reliability and efficiency, which are critical for utilities needing to guarantee constant energy output. These technologies also benefit from economies of scale, resulting in lower costs and making them attractive for meeting regulatory compliance while securing public and investor confidence. Moreover, the existing infrastructure and knowledge base simplifies integration into the power grid, mitigating technical and financial risks associated with new or untested technologies. However, as the demand for more sustainable and flexible energy solutions grows, there is increasing interest in integrating emerging technologies that offer longer storage solutions and reduced intermittency, suggesting a gradual shift in utility strategies to include more innovative technologies alongside traditional renewable sources.

The scaling up of renewables has put pressure on the manufacturing of components and supply-chain deliveries. This could delay new construction projects, but it also has the potential to spur innovation in the design and development of renewable technologies. Looking forward, there is potential for longer-duration storage, moving from the standard of a 2 to4 hour lithium-ion battery to a 6-hour or longer durations. Long-term prospects for hydrogen-based power plants are on the horizon as well. These include zero-carbon hydrogen projects.

Geothermal power also plays a limited role in New Mexico. This form of baseload energy production is reliable and produces low emissions but is geographically limited to areas with accessible geothermal resources and often comes with high initial drilling costs. PNM currently takes geothermal power (both energy and capacity) from the Lightning Dock Geothermal Project, but the expansion of the geothermal resource in New Mexico appears limited by high costs and potential impacts on sensitive lands.

Increasingly, solar projects paired with BESS are elements of least-cost new resource supply portfolios and this combination brings both relatively low costs and added flexibility to better manage the variable output of the generation. The increasing demand for renewables in the western United States is likely to lead to the installation of larger wind turbines and more extensive solar arrays that employ advanced tracking systems to maximize energy capture. Further incremental advances such as improved coatings for solar PV that increase capacity and enhancements to reduce friction and corrosion on wind turbine blades are also expected.

Below are recent vintage utility-scale renewable projects that IOUs have been built or contracted:

Table 8: Public Service Company of New Mexico (PNM) Projects

Projects	**Type**	**Estimated RECs 2024**	**Estimated RECs 2025**
PNM Solar 2011-19	Solar	367,494	365,102
Jicarilla 1	Solar	136,267	132,655
Arroyo	Solar	834.219	809,192
San Juan	Solar	401,366	564,047
Atrisco	Solar	45,014	892,331
NM Wind Energy Center	Wind	571,976	572,313
Red Mesa	Wind	208,000	208,000
La Jolla II	Wind	491,582	491,582
Distributed Generation various	Various/PV	52,831	52,567
Lightning Dock	Geothermal	41,374	41,374
Mesa del Sol	microgrid	0	200
Community Solar	Solar	0	203,373
Aztec/Algodones	Solar	84	83
Total Estimated		**3,150,207**	**4,332,819**

Source: PNM 2024 RE Plan Ex. NLP-2

Table 9: Southwestern Public Service Company (SPS) Projects

Project	Type	Estimated RECs 2024	Estimated RECs 2025
Hale	Wind	845,000	900,000
Sagamore	Wind	888,000	949,000
Caprock	Wind	293,000	0
San Juan	Wind	329,000	337,000
SunEdison 1-5	Solar	101,000	100,000
Palo Duro	Wind	449,000	476,000
Mammoth	Wind	338,000	353,000
Bonita I	Wind	136,000	154,000
Bonita II	Wind	259,000	290,000
Chaves	Solar	70,000	77,000
Roswell	Solar	68,000	75,000
NM Distributed Gen./Mesaland	various	2,000	2,000
Total RECs for RPS		**3,778,000**	**3,713,000**

Source: SPS 2023 RPS Plan Ex. CJW-2

Table 10: El Paso Electric (EPE) Projects

Project	Type	Estimated 2023 RECs	Estimated 2025 RECs
CRLEF/Four Peaks	Biogas	18,315	15,979
NRG/Roadrunner	Solar	49,077	48,587
SunEdison	Solar	52,296	51,775
Macho Springs	Solar	22,016	22,326
Macho Springs Reallocation proposed	Solar	N/A	34,690
Carne	Solar	0	132,781
Hatch	Solar	10,334	10,340
Holloman	Solar	6,527	6,461
Buena Vista 1	Solar	42,550	75,468
BV1 reallocation	Solar	N/A	272,476
Buena Vista 2	Solar	49,958	62,375
Distributed Gen.	Various/PV	37,703	16,538
Community Solar	Solar	0	6,461
Total RECs for RPS		**288,776**	**756,257***

Source: EPE RPS Plan 2024[58]

Table 11: Pending Resources Table

Utility	Project	Type	Capacity	Docket	Approval Date	Notes
PNM	San Juan 1	Solar	200 MW	20-00182-UT	12/2/20	In testing, expected operational 8/5/24
PNM	Atrisco	Solar	300 MW	21-00083	8/25/21	Exp. Operational 3rd Quarter 2024
PNM	Painted Desert Energy	Solar	400 MW	23-00380-UT	5/2/24	Exp. Operational 12/25 - 6/26
PNM	Quail Ranch	Solar	100 MW	23-00353-UT	5/30/24	Pending rehearing requests
SPS	Cunningham 1	Solar	72 MW	23-00252-UT	5/30/24	Exp. 2026
SPS	Cunningham 2	Solar	196 MW	23-00252-UT	5/30/24	Exp. 2027
EPE	Carne	Solar	130 MW	22-00093-UT	5/17/23	Exp. 08/25

[58] To determine RECs requirement for 2025, EPE includes an adjustment for expected curtailments and line losses totaling 21,721 MWh

6.2 Environmental Protection

The New Mexico Public Utilities Act (PUA) governs location approval for generating facilities capable of operating at 300 MW or more and transmission lines and associated substation facilities that operate at 230 kV and greater.[59] It also requires the Commission to approve an application for the transmission line location and associated facilities unless it finds that the location will unduly impair important environmental values.[60]

The Commission's environmental reviews must evaluate a range of specific resources and existing environmental conditions in the project area that includes: air quality, water quality, preservation of land uses, soil, flora and fauna, and preservation of water, mineral, socioeconomic, cultural, historic, religious, visual, geologic, and geographic resources.[61]

Because many, if not most of the renewable energy projects being built to meet RPS are less than 300 MW, a project proponent needs to ensure that any local permitting obligations are being met. In some cases, a project may include both a generation component and a battery storage unit that brings the combined capacity to over 300 MW.

A recent example of a complex project proposed by utility SPS illustrates environmental considerations. SPS proposed to abandon and close legacy Cunningham power generation facilities and replace them with three new solar facilities totaling 418 MW and a 36 MW battery storage system.[62] The utility provided in its application environmental reviews of both new generation/storage and the corresponding expansion of a transmission generator tie line that was available regardless of a Commission determination that the combined facilities exceed 300 MW.

Standard elements of the environmental review include:

- Emissions of air pollutants that occur during construction of the transmission line, substation, and BESS (temporary emissions) and, to a lesser extent, during operation of the project;
- Construction-related emissions considered include exhaust from construction vehicles, material movements, and equipment;
- Exhaust from construction worker commuting; and fugitive dust from general construction activity;
- Operational-related emissions considered include emissions from inspection and maintenance activities (which include exhaust from inspection vehicles and aerial inspections, fugitive dust from unpaved roads, and line maintenance equipment);
- Fugitive emissions due to leaked emissions from substation transformer equipment.[63]

[59] NMSA §62-9-3(B)
[60] NMSA §62-9-3(F)
[61] NMSA §62-9-3(F), (M); NMAC 17.9.592.10(G)
[62] SPS Application for Cunningham Tie-Line, PRC Docket 24-00114-UT
[63] Id.

Wildlife

Several species of wildlife are under state and/or federal protection as endangered or threatened species, which require a thorough review of projects to minimize adverse impacts. Among species that may be found in New Mexico, project developers need to account for bald eagles, golden eagles, burrowing owls, lesser prairie chickens, monarch butterflies, and the milkweed plants that they rely on for food.

In New Mexico in particular, cultural resources—especially those related to tribal or pueblo lands—must be closely monitored. In the Cunningham project, for example, the environmental expert for SPS determined that the location of a proposed project may not unduly impair or impact any Native American religious sites or traditional cultural properties, prevent access to sacred sites, prevent the possession of sacred objects, or interfere with or hinder the performance of traditional ceremonies or rituals. SPS proposed to work with the State Historic Preservation Office to determine the accuracy of a cultural impact report conducted by the utility and its staff.

Generation projects that exceed 300 MW must take these aspects into consideration as well, along with several other land use requirements detailed in Section 62-9-3(G). Projects below 300 MW may still need to meet local permitting conditions, but in many rural counties, environmental reviews are lacking in stringent standards relative to more regulated areas.[64]

The PRC promulgated Rule 17.9.592.9 to implement the provisions of Section 62-9-3, which requires an applicant to provide the following:

- identification of all applicable land use statutes and administrative regulations, and proof of compliance or a statement of non-compliance with each;[65]
- identification of all applicable air and water pollution control standards and regulations, and proof of compliance or a statement of non-compliance with each;[66]
- all written air and water quality authorizations necessary to begin construction, and necessary to begin operation, of the large capacity plant;[67]
- proof that the application has been served on all local authorities in each county and township where the large capacity plant will be located, the New Mexico Attorney General, the New Mexico Environment Department, and the New Mexico State Engineer.[68]

---

[64] *SunZia Southwest Transmission Project Environmental Impact Statement*. U.S. Department of the Interior, 2022. Available at: https://cdxapps.epa.gov/cdx-enepa-II/public/action/eis/details?eisId=364881. This EIS illustrates the variation in regulation schemes for areas studied in the SunZia Transmission Project for its Environmental Impact Statement in compliance with the National Environmental Policy Agency study, performed by the Bureau of Land Management in 2022. Counties studied include Socorro, Sierra, Luna, Grant, Hidalgo, and Torrance.

[65] NMSA §62-9-3(H)
[66] NMSA §62-9-3(E)
[67] NMSA §62-9-3(E)
[68] NMSA §62-9-3(F)

In general, New Mexico's major utilities have not reported significant issues addressing the various environmental projection requirements. However, each reported taking special consideration of potential impacts on Native lands and cultural resources by increasing outreach and consultation with members of any tribes or pueblos whose lands may run along the path of transmission lines or near generation locations.

Air Quality and Carbon Emissions

The switch to renewable energy from fossil-fuel generation brings significant reductions to both GHG and criteria pollutants emitted by coal and natural gas power plants. In addition, water use by generating facilities is greatly decreased.

In their annual Sustainability Reports the investor-owned utilities highlight some of these reductions already achieved and expected as a result of the clean energy transition.

PNM reports that between 2005 and 2022, PNM's system-wide emissions dropped by 31 percent. This reduction far exceeds the United States' voluntary commitment to the Paris Agreement of a 26 percent to 28 percent reduction in carbon emissions below 2005 levels by 2025. Additionally, PNM plans to exit coal generation no later than 2031; and the utility set a goal for our electricity generation to reach 100 percent emissions-free by 2040, five years ahead of the state's zero-carbon mandate.

A table of other major pollutants, including Nitrous Oxides (NOx), Sulphur Dioxide (SO2), Particulates (PM 10), and Mercury, indicates dramatic reductions in the past two decades.

Table 12: PNM Emissions Profile

Emissions from PNM Owned Facilities in Tons					
Year	NO_x	SO_x	PM_{10}	CO_2	Mercury (lbs.)
2022	3,868	716	205	5,227,034	5.21
2021	4,973	911	179	5,978,782	5.2
2020	4,956	1,079	191	5,932,220	4.42
2019	5,078	1,251	187	6,141,623	3.6
2018	5,458	1,090	149	6,074,753	5.07
2005	15,972	8,829	421	7,690,749	372.1

Source: PNM 2022 Sustainability Report

PNM Water Use

PNM also reports that over the past decade, water efficiency investments, along with our robust energy efficiency and renewable energy programs, reduced freshwater usage from 4.63 billion gallons in 2005 to 2.49 billion gallons in 2022. That's a reduction of 46 percent of total water diverted by our generation plants. With the closure of coals plants in the San Juan Basin, PNM

also says it is on track to reduce groundwater use by 80 percent by 2035 and 90 percent by 2040.[69]

SPS

SPS issued a Sustainability Report for 2022, highlighting a commitment to meet or exceed state environmental requirements and targets, largely related to transitioning to renewable energy and transportation fleet conversions.

SPS stated that these efforts have resulted in substantive reductions to GHG emissions and those of other major pollutants in 2022 when contrasted with 2005 levels:

- 54 percent reduction of CO_2, with the goal of 80 percent by 2030 via exit from coal generation
- SO_2 reduced by 83 percent
- NO_x reduced by 85 percent
- Particulates were reduced by 77 percent and
- Mercury decreased by 93 percent.

SPS's parent company Xcel reported a goal of reducing water use from its power generating system by 70 percent in 2030, compared to 2005 levels. Thermal power plants in Colorado, Texas, and New Mexico use closed-loop cooling, which minimizes freshwater withdrawals by recirculating water up to 25 times at some plants. Many are zero-discharge facilities, where no process water leaves the site. Advanced water treatment technologies separate waste for disposal while returning most processed water to the plant, reducing reliance on other supplies.[70]

EPE

EPE supplied emissions information in their 2023 Sustainability Report.

Table 13: EPE Emissions Profile

Emissions from EPE Owned Facilities in Tons					
Year	NO_x	SO_x	PM_{10}	CO_2	Mercury (lbs.)
2018	2,625	14	234	2,728,949	0
2021	2,280	12	148	2,565,875	0
2022	2,152	10	201	2,507,409	0
2023	2,576	12	N/A	2,868,028	0

Source EPE 2018-2023 Sustainability Reports

[69] PNM 2022 Sustainability Report, pg. 17.
[70] Xcel 2023 Sustainability Report Highlights

6.3 Existing Transmission and Planned Expansions

Increased transmission in New Mexico has the potential to both increase RPS compliance and improve economic development opportunities as electricity demand continues to rise.

The construction of new high-voltage transmission lines has long been recognized as a significant barrier to developing utility-scale energy projects, whether the power comes from traditional fossil-fueled generators or renewable energy facilities. Given New Mexico's rich abundance of potential wind and solar energy – for meeting domestic load and RPS requirements, or for export into regional markets – the state has made a priority of planning, financing, and constructing new transmission via the New Mexico Renewable Energy Transmission Authority (NM RETA).

NM RETA was established by the New Mexico State Legislature in 2007[71] to help diversify New Mexico's economy through the development of renewable energy resources. Beginning in 2010 with a $50 million investment in the High Lonesome Mesa transmission line to deliver 100 MW of wind energy, NM RETA has expanded its portfolio of development via partnerships and use of revenue bonds. Its second existing project, Western Spirit, became operational in 2021 and has a carrying capacity of 800 MW.

With over $3 billion invested to date in a half-dozen major transmission lines for export, NM RETA is now focusing planning on grid expansion and energy storage projects to help the state meet the renewable energy goals of the ETA.

In 2022, NM RETA sponsored an expansive transmission study that identified as much as $11 billion of private investment opportunities in potential "collector" projects that would enable the state to meet ETA goals for 2030 renewable energy and beyond.

Each of the three transmission collector plans developed in the report could support 11,500 MW of renewable capacity by 2030, according to NM RETA. Such plans are envisioned to support centralized renewables generation or to enhance distributed generation opportunities.[72]

The 2022 study and a subsequent update projected substantial economic benefits for the 900 to 1,300 miles of transmission lines needed to tap New Mexico's renewable energy, including:

- **Line construction:** $1-2 billion of capital spending to New Mexico and 3,600 jobs.
- **Wind and solar plant construction:** $8 billion in capital spending and 20,000 jobs.
- **Operation and maintenance of lines and plants**: 760 permanent jobs, creating $10-20 million a year in economic activity.
- **Overall economics**: $1 billion per year in economic activity, $15 million per year in state and local tax revenue.

[71] NMSA §62-16A-1 through §62-16A-16
[72] New Mexico Renewable Energy Transmission Authority 2022 Transmission Study.

Here is the current portfolio of development that NM RETA is bringing into reality:[73]

Currently Operational

High Lonesome Mesa

- **Project Scope:** Transmission upgrade and 100 MW wind farm; 32 miles, 115 kV
- **Capacity:** 100 MW (enough to power 30,000 homes)
- **Investment:** RETA issued $50 million in revenue bonds for transmission upgrades
- **Economic Benefit:** $14 million in property taxes to Torrance County & Estancia Schools over 30 years; $19 million in lease payments to local landowners
- **Operational Date:** 2010
- **Organization:** NM RETA
- **Interconnected to System:** PNM

Western Spirit

- **Project Scope:** Transmission Line: 155 miles, 345 kV
- **Capacity:** 800 MW (enough to power 590,000 homes)
- **Investment:** Co-developed by RETA and Pattern Energy; project cost: $150 million
- **Financial Benefit:** $28 million in property taxes to NM counties over the first 40 years
- **Operational Date:** 2021
- **Interconnected to System:** PNM

Planned Developments and Projects Underway

Mora Line Project

- **Project Scope:** Two Transmission Line Segments:
  - 48 miles, 345 kV transmission line
  - 66 miles, 115 kV transmission line
- **Capacity:** 182 MW (enough to power 50,000 homes)
- **Investment:** Co-developed by RETA and Lucky Corridor, LLC; project cost: $83 million
- **Financial Benefit:** Increased employment, income to landowners, and increased tax revenues for state and local governments
- **Anticipated Operational Date:** End of 2024
- **Interconnected to System:** SPS

SunZia Transmission Project

- **Project Scope:** Transmission Line: 550 miles (~350 miles in New Mexico), 525 kV HVDC
- **Capacity:** 3,000 MW (enough to power 1 million homes)

[73] NM RETA, "Transmission Lines Projects," accessed June 3, 2024, https://NM RETA.com/transmission-lines/#projects.

- **Investment:** Co-developed by SunZia and RETA; project cost in New Mexico: $1.8 billion; lease agreement executed on 3/15/2021
- **Financial Benefit:** Employment for 1,802 jobs in New Mexico, income for landowners, and increased tax revenues estimated at $7.1 million (2021 Moss-Adams economic impact report)
- **Anticipated Operational Date:** 2025
- **Interconnected to System:** PNM

Rio Sol Transmission Project

- **Project Scope:** Transmission Line: 550 miles (~350 miles in New Mexico), 500 kV alternating current line (Co-located with SunZia Transmission Line)
- **Capacity:** 1,500 MW (enough to power 500,000 homes)
- **Investment:** Co-developed by Rio Sol and RETA; project cost: $1.3 billion; lease agreement executed on 7/15/2022
- **Anticipated Date of Operation:** 2028
- **Interconnected to System:** Rio Grande Electric

North Path Transmission Project

- **Project Scope:** Transmission Line: 400 miles, proposed 525 kV HVDC
- **Capacity:** 4,000 MW (enough to power up to 2 million homes)
- **Investment:** Co-developed by RETA and Invenergy Transmission
- **Financial Benefit:** Increased employment, income to landowners, and increased tax revenues for state and local government; potential to unlock additional investment in New Mexico renewable generation
- **Anticipated Date of Operation:** 2028
- **Interconnected to System:** PNM

The federal government is also emphasizing development of transmission corridors across lands managed by the Bureau of Land Management (BLM).[74] In May 2024, the U.S. Department of Energy (DOE) released a preliminary list of 10 potential National Interest Electric Transmission Corridors (NIETCs) to accelerate the development of transmission projects in areas that present an urgent need, including two in Northern New Mexico that would open new pathways to the Colorado grid and the Eastern Interconnection.[75]

New Mexico's major utilities also operate transmission networks, mainly to meet their load but also to accommodate participation in evolving regional energy markets, like the CAISO's Energy Imbalance Market (EIM), the planned Energy Day Ahead Market (EDAM), or the Southwest Power Pool's planned Markets-Plus system.

[74] Bureau of Land Management, "Active Renewable Projects," accessed June 3, 2024, https://www.blm.gov/programs/energy-and-minerals/renewable-energy/active-renewable-projects.
[75] US DOE New release, https://www.energy.gov/articles/biden-harris-administration-announces-initial-list-high-priority-areas-accelerated, May 8, 2024.

As New Mexico's generation shifts to greater reliance on intermittent and dispersed resources, we will see significant changes in the utilization of the existing transmission system. While there is not currently a requirement for utility transmission planning, an increased focus as part of Integrated Resource Plans and potential grid modernization projects will be crucial, for siting and operations of renewable energy projects necessary to meet the RPS in the future.

6.4 Reliability

Large-scale deployment of inverter-based generation poses significant challenges to reliable operations, including variability of output, and voltage and/or thermal constraints on distribution circuits and high-voltage transmission systems.

The PRC is responding to this in several ways, including revising key rules and policies to accommodate the changing system. In the past three years, the PRC has updated its Rule 568 for the interconnection of distributed generation up to 10 MW, by streamlining and clarifying interconnection reviews, providing better guidance for the use of battery storage systems, more clearly defining when and how generators with storage are able to export energy into the grid, or controlling when they should not[76]. Also, the rule now mandates the use of industry standards that allow advanced inverters with capabilities to enhance system reliability.[77]

The PRC has substantially altered the policies around Integrated Resource Planning, to provide stakeholders and the Commission with greater visibility into the resource planning process and directly tying planning with the procurement of resources necessary to maintain reliable operations while undergoing the transition to a clean energy economy.[78]

The Commission has also taken full advantage of the valuable technical assistance programs offered by the U.S. Department of Energy and the network of national energy laboratories. Working with jurisdictional utilities and co-ops, the PRC has been able to advance the use of distribution hosting capacity analysis, enabled greater use of energy storage, and created tools to better track utility carbon emissions as coal- and gas-fired generators are retired and replaced with cleaner resources.

New Mexico's utility system has already benefitted from new federal policies and funding for upgrading an aging and constrained grid. Each passing week brings new tools and techniques for making the most of existing transmission, opportunities to create a wholly new energy industry based on two-way flows of power, as well as better visibility and control over the network.

[76] NMAC 17.9.568
[77] IEEE 1547-2016.
[78] NMSA §62-17-10; NMAC 17.7.3

Much work remains, but at least to-date, aside from extreme weather events, there have been no major reliability or safety issues experienced as a result of increased renewable energy deployment.

Ensuring system reliability is perhaps the largest single challenge that utilities face while achieving the 2040 and 2045 RPS standards. Compliance with the 80 percent RPS requirement by 2040, for example, will require a large build-out of renewable resources and both firm and dispatchable resources to maintain system reliability when intermittent renewable resources are not available. Such a large expansion of generating resources will also drive substantial growth and expansion of the existing transmission system.

In addition to the difficulties in serving load year-round, utilities will face challenges ensuring voltage stability, which may drive the need for additional capital investment in equipment such as synchronous condensers or other electrical systems to meet system reliability needs.

With deeper penetration of variable output energy sources, utilities must also balance their systems under constantly varying conditions. From a planning perspective, the assessment of effective capacity from individual power plants and maintaining comfortable reserve margins at all hours of the day, become increasingly important for the reliability of the system.

Traditionally, utilities have been able to rely on natural gas combustion turbines to respond quickly to changing loads and emergency situations. With the incremental RPS target of 40 percent by 2025, and the planned retirement of most conventional thermal units in 2026-2040, utilities will need to further analyze the need for grid-connected reactive support and explore possible solutions to ensure grid and system reliability.

To minimize RPS impact, siting new renewable energy resources closer to load pockets where voltage support is needed and provides greater geographical diversity for renewable generation sites would help mitigate resource intermittency and declining reactive power but would add to transmission/upgrade costs.

Also, diversifying resources can help mitigate renewable intermittency and minimize uneconomic curtailments of power. At high integration levels of renewables, additional longer-duration battery storage will be required to shift energy from low load hours to peak hours and to provide transmission ancillary service support. Hydrogen as a fuel source for power generation holds great promise.

Looking forward toward the 80 percent RPS by the 2040 milestone, significantly higher levels of renewable integration could lead to a further decline of reactive power and higher curtailment rates. The RPS however, makes an allowance for existing zero-emission resources, including the Palo Verde Nuclear Station, to continue to operate through the end of the contract period. The decline of reactive power in the system can be addressed with the installation of grid connected reactive support devices such as advanced inverters, synchronous condensers, storage, and other reactive support technologies to ensure grid stability and reliability.

6.5. Public Safety

New technologies bring new challenges, and particular attention must be paid to safety. To date, there have been no reported safety issues in conjunction with renewable energy development for RPS purposes.

New Mexico finds itself on the cutting edge of this new era. Certainly, regulators and utilities will maintain safety and reliability as cornerstones of the transition to a clean energy future.

7. Barriers to Achieving Benefits

7.1 Interconnection and RPS

Among the most significant barriers to New Mexico realizing the full benefits of its RPS program are the costs and delays experienced by renewable generation projects seeking interconnection to utility transmission and distribution systems.

According to the New Mexico Renewable Energy Transmission Agency (RETA), 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. While initial transmission projects were specifically to take advantage of export markets, RETA transmission projects will also support more renewable energy projects that will help meet the requirements of the Energy Transition Act.[79]

Costs and delays are recognized as national problems by the Federal Energy Regulatory Commission (FERC), which recently declared that "backlogs and delays, and the resulting timing and cost uncertainty, hinder the timely development of new generation, [and] stifle competition in the wholesale electric market…"[80]

FERC noted that over 10,000 open interconnection requests nationally in 2022 and the 2,000 GW of generating facilities they represent amount to "the largest interconnection queue size on record". FERC stated that there are now four times the amount of capacity in such queues as there was in 2010, and they represent a 40 percent increase in the last year alone.

The uncertainty and delays in interconnection queues have resulted in fewer than 25 percent of total interconnection capacity requests reaching commercial operations between 2000 and 2017.

Long queues mean that the typical duration of time from transmission interconnection request to commercial operation has increased from less than 2 years for an earlier vintage of projects built in 2000-2007, to over five years for projects built in 2023.[81]

[79] RETA Update to Science, Technology and Telecommunications Committee of State Legislature, September 14, 2021.
[80] FERC Order 2023 and Order on Motions for Rehearing Order 2023a March 2024.
[81] "Queued Up, 2024 Edition: Characteristics of Power Plants Seeking Interconnection in 2023" Lawrence Berkely Laboratory April 2024.

Delays and higher costs are also being experienced for smaller renewable projects that seek to connect at distribution. New Mexico's Community Solar program, approved by law in 2021 and effected by the PRC in 2022, will contribute nearly 200 MW worth of RECs production to help utilities meet the RPS, but delays in processing interconnection studies and time lags to obtain equipment needed to upgrade the network have added years to reaching commercialization and, in some cases, Community Solar developers are facing interconnection upgrade costs in the millions of dollars.

To date, no Community Solar project developers have provided notice that they may withdraw from participation in the program because of the high costs of interconnection. However, this is expected to occur. Withdrawn projects will be replaced by others on a waitlist.

In the section on technologies, the report provides information about new alternatives to building additional transmission using advanced Grid Enhancing Technologies (GETS) that are expected to both improve the reliability of the grid while adding transfer capability at a lower cost than new power lines.

Conclusion

New Mexico's RPS program in 2025 is expected to successfully reach one of its major milestones. The RPS is a major contributor to the clean energy transition by effectively replacing the old, polluting generation fleet with clean renewable power.

Over the past decade, the costs of renewable have substantially decreased, due to economies of scale and astounding market growth throughout the United States.

For the near term, utilities will be going to market for additional solar and wind resources and associated battery storage to provide operational flexibility, as well as meet future RPS requirements.

###

Appendix A

Table 1: Utility RPS Projected Compliance 2024 & 2025

Metric	Year	PNM	SPS	EPE
RECs Required (GWh)	2024	1,596	2,201	356
	2025	3,276	4,940	717
RECs Excess/(Deficiency) (GWh)	2024	1,687	1,576	34
	2025	2,754	-1,228	10
Percent Requirement	2024	20		
	2025	40		
Percent Met	2024	41.14	34	21.9
	2025	73.63	40	40.6

Table 2: RPS Targets for IOUs under ETA

Year	Percentage of Retail Sales from Renewable Energy
2020	20
2025	40
2030	50
2040	80
2045	100

Table 3: RPS Targets for Rural Electric Cooperatives

Year	Percentage of Retail Sales from Renewable Energy
2020	10
2025	20
2030	40
2040	50
2050	80

Table 4: IOU Projected Compliance 2020-2025

Metric	Year	PNM	SPS	EPE
RECs Required (GWh)	2020	1,604	1,456	342
	2021	1,585	1,560	340
	2022	1,586	1,796	348
	2023	1,568	2,001	358
	2024	1,596	2,201	356
	2025	3,276	4,940	717
RECs Excess/(Deficiency) (GWh)	2020	(78)	5	(111)
	2021	74	477	(105)
	2022	0	1,130	(102)
	2023	327	989	(70)
	2024	1,687	1,576	34
	2025	2,754	(1,228)	10
Percent Requirement	2020	20		
	2021	20		
	2022	20		
	2023	20		
	2024	20		
	2025	40		
Percent Met	2020	18.64	20	13.50
	2021	20.44	20	13.80
	2022	20.00	20	14.20
	2023	24.18	20	16.11
	2024	41.14	34.00	21.90
	2025	73.63	40	40.60

Table 5: Rural Co-ops 2023 RPS

Tri-State G&T Members	Total Retail Sales 2023 (MWh)	10percent RPS requirement	Member Generation*	Tri-State Supplied MWh
Central New Mexico	251,440	25,144	6,830	18,314
Columbus	100,946	10,095	5,144	4,951
Continental Divide	411,844	41,185	109	41,076
Jemez Mountains	369,110	36,912	1,611	35,301
Mora-San Miguel	83,951	8,396	3,185	5,211
Northern Rio-Arriba	27,266	2,727	0	2,727
Otero County	201,021	20,103	10,210	9,893
Sierra Electric	44,103	4,411	120	4,291
Socorro	181,104	18,111	702	17,409
Southwestern	294,402	29,441	0	29,411
Springer	223,845	22,385	2,455	19,930
Total Tri-State NM	**2,189,032**	**218,910**	**30,365**	**188,545**
Kit Carson	**298,978**	**29,898**	**29,898**	**N/A**
Western Farmers Members				**G&T Supplied**
Central Valley	859,177	85,918	0	83,852
Farmers Electric	386,564	38,656	0	38,656
Lea County	784,452	78,445	0	78,445
Roosevelt County	153,942	15,394	40,024	395
Total Western Farmers	**2,184,135**	**218,413**	**40,024**	**201,348**

Table 6: Recent PPA Prices in New Mexico

Utility	Docket	Project	Capacity	PPA price /MWh
PNM	19-00159-UT	La Jolla Wind	140 MW	$17.49
PNM	19-00195-UT	Arroyo Solar	300 MW	$18.65
PNM	20-00182-UT	San Juan Solar	200 MW	$26.31
EPE	22-00093-UT	Carne Solar/Storage	130 MW/65 MW	$26.96
EPE	23-00086-UT	Buena Vista 1 Solar/Storage	100 MW/50 MW	$24.46
SPS	17-00044-UT	Sagamore Wind	522 MW	$18.07

Table 7: Current and Projected RPS Rate Riders

Utility	2024 RPS Procurement Costs	RPS Rider 2024
Public Service New Mexico 2024	$62,949,219	$0.0080095/kWh Rate 36/AN 606
PNM 2025 proposed in 24-00207	$58,749,240	$0.0071734/kWh Rate 36, AN 618
Southwestern Public Service 2024	$6,418,756	$0.000583/kWh AN 316
El Paso Electric 2024	$14,282,715	$0.008372/kWh Rate 38/AN 291
EPE 2025 proposed in 24-00176-UT	$28,201,140	$0.015742/kWh (proposed Rate 38)

Table 8: Public Service Company of New Mexico (PNM) Projects

Projects	**Type**	**Estimated RECs 2024**	**Estimated RECs 2025**
PNM Solar 2011-19	Solar	367,494	365,102
Jicarilla 1	Solar	136,267	132,655
Arroyo	Solar	834.219	809,192
San Juan	Solar	401,366	564,047
Atrisco	Solar	45,014	892,331
NM Wind Energy Center	Wind	571,976	572,313
Red Mesa	Wind	208,000	208,000
La Jolla II	Wind	491,582	491,582
Distributed Generation various	Various/PV	52,831	52,567
Lightning Dock	Geothermal	41,374	41,374
Mesa del Sol	microgrid	0	200
Community Solar	Solar	0	203,373
Aztec/Algodones	Solar	84	83
Total Estimated		**3,150,207**	**4,332,819**

Source: PNM 2024 RE Plan Ex. NLP-2

Table 9: Southwestern Public Service Company (SPS) Projects

Project	Type	Estimated RECs 2024	Estimated RECs 2025
Hale	Wind	845,000	900,000
Sagamore	Wind	888,000	949,000
Caprock	Wind	293,000	0
San Juan	Wind	329,000	337,000
SunEdison 1-5	Solar	101,000	100,000
Palo Duro	Wind	449,000	476,000
Mammoth	Wind	338,000	353,000
Bonita I	Wind	136,000	154,000
Bonita II	Wind	259,000	290,000
Chaves	Solar	70,000	77,000
Roswell	Solar	68,000	75,000
NM Distributed Gen./Mesaland	various	2,000	2,000
Total RECs for RPS		**3,778,000**	**3,713,000**

Source: SPS 2023 RPS Plan Ex.. CJW-2

Table 10: El Paso Electric (EPE) Projects

Project	Type	Estimated 2023 RECs	Estimated 2025 RECs
CRLEF/Four Peaks	Biogas	18,315	15,979
NRG/Roadrunner	Solar	49,077	48,587
SunEdison	Solar	52,296	51,775
Macho Springs	Solar	22,016	22,326
Macho Springs Reallocation proposed	Solar	N/A	34,690
Carne	Solar	0	132,781
Hatch	Solar	10,334	10,340
Holloman	Solar	6,527	6,461
Buena Vista 1	Solar	42,550	75,468
BV1 reallocation	Solar	N/A	272,476
Buena Vista 2	Solar	49,958	62,375
Distributed Gen.	Various/PV	37,703	16,538

Community Solar	Solar	0	6,461
Total RECs for RPS		**288,776**	**756,257***

Source: EPE RPS Plan 2024

Table 11: Pending Resources Table

Utility	Project	Type	Capacity	Docket	Approval Date	Notes
PNM	San Juan 1	Solar	200 MW	20-00182-UT	12/2/20	In testing, expected operational 8/5/24
PNM	Atrisco	Solar	300 MW	21-00083	8/25/21	Exp. Operational 3rd Quarter 2024
PNM	Painted Desert Energy	Solar	400 MW	23-00380-UT	5/2/24	Exp. Operational 12/25 - 6/26
PNM	Quail Ranch	Solar	100 MW	23-00353-UT	5/30/24	Pending rehearing requests
SPS	Cunningham 1	Solar	72 MW	23-00252-UT	5/30/24	Exp. 2026
SPS	Cunningham 2	Solar	196 MW	23-00252-UT	5/30/24	Exp. 2027
EPE	Carne	Solar	130 MW	22-00093-UT	5/17/23	Exp. 08/25

Table 12: PNM Emissions Profile

Emissions from PNM Owned Facilities in Tons					
Year	NO_x	SO_x	PM_{10}	CO_2	Mercury (lbs.)
2022	3,868	716	205	5,227,034	5.21
2021	4,973	911	179	5,978,782	5.2
2020	4,956	1,079	191	5,932,220	4.42
2019	5,078	1,251	187	6,141,623	3.6
2018	5,458	1,090	149	6,074,753	5.07
2005	15,972	8,829	421	7,690,749	372.1

Source: PNM 2022 Sustainability Report

Table 13: EPE Emissions Profile

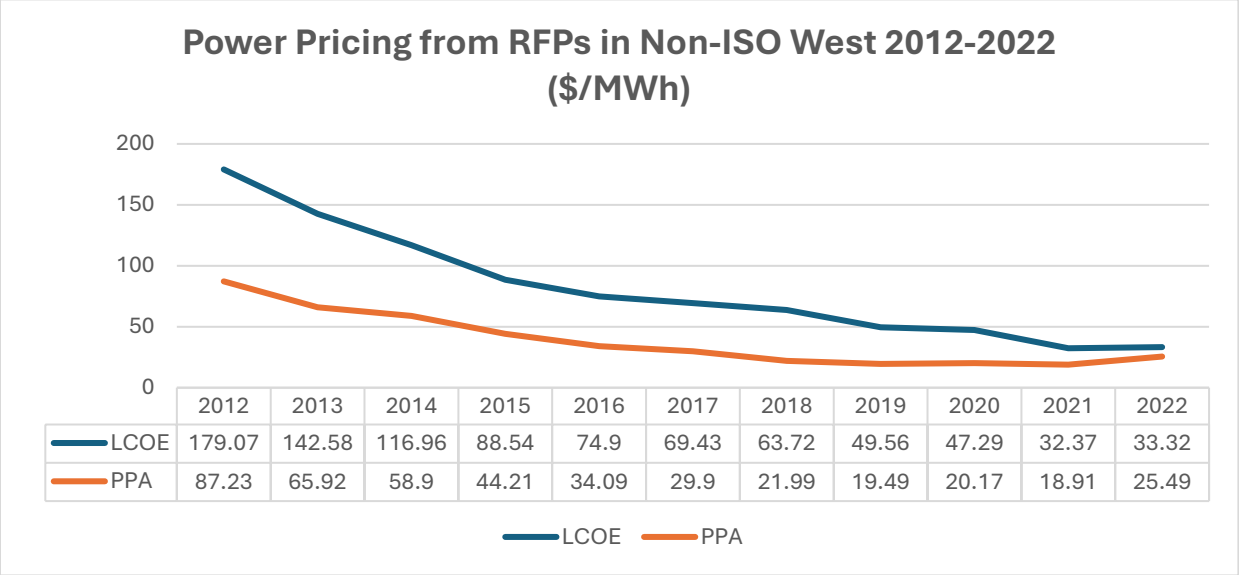
EPE Emissions Profile

Emissions from EPE Owned Facilities in Tons					
Year	NO_x	SO_x	PM_{10}	CO_2	Mercury (lbs.)
2018	2,625	14	234	2,728,949	0
2021	2,280	12	148	2,565,875	0
2022	2,152	10	201	2,507,409	0
2023	2,576	12	N/A	2,868,028	0

Source EPE 2018-2023 Sustainability Reports

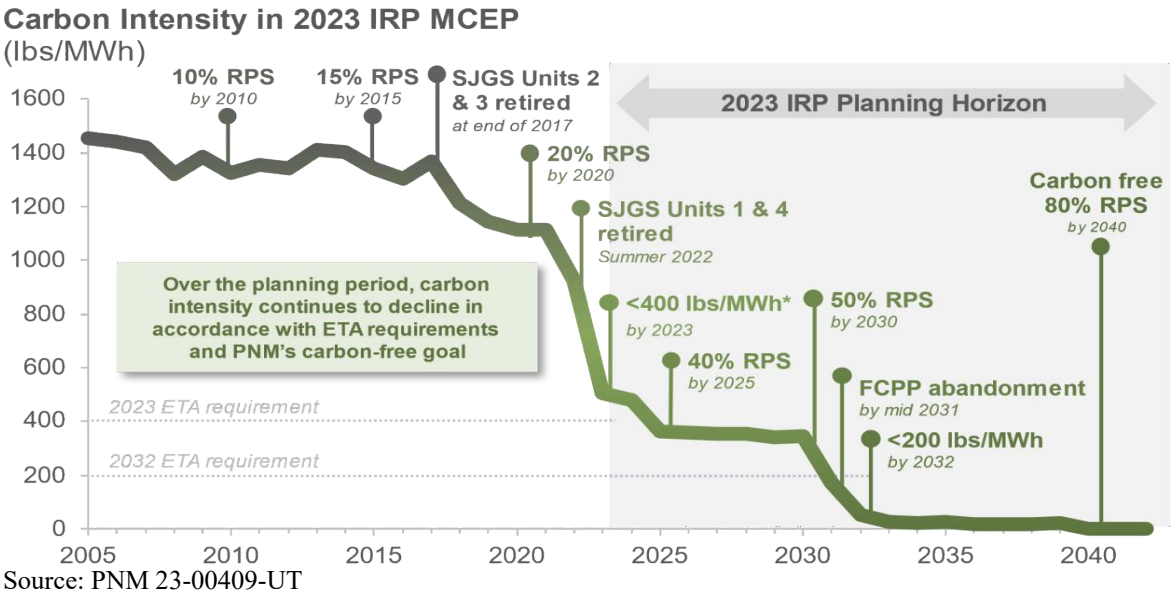
Figures

Figure 1: Request For Proposal Pricing in the West 2012-2022



Source: Lawrence Berkely Lab 2023

Figure 2: PNM Carbon Intensity as RPS Increases 2005-2040



Source: PNM 23-00409-UT

Figure 3: Levelized Cost of Energy for Solar PV National 2009-2021

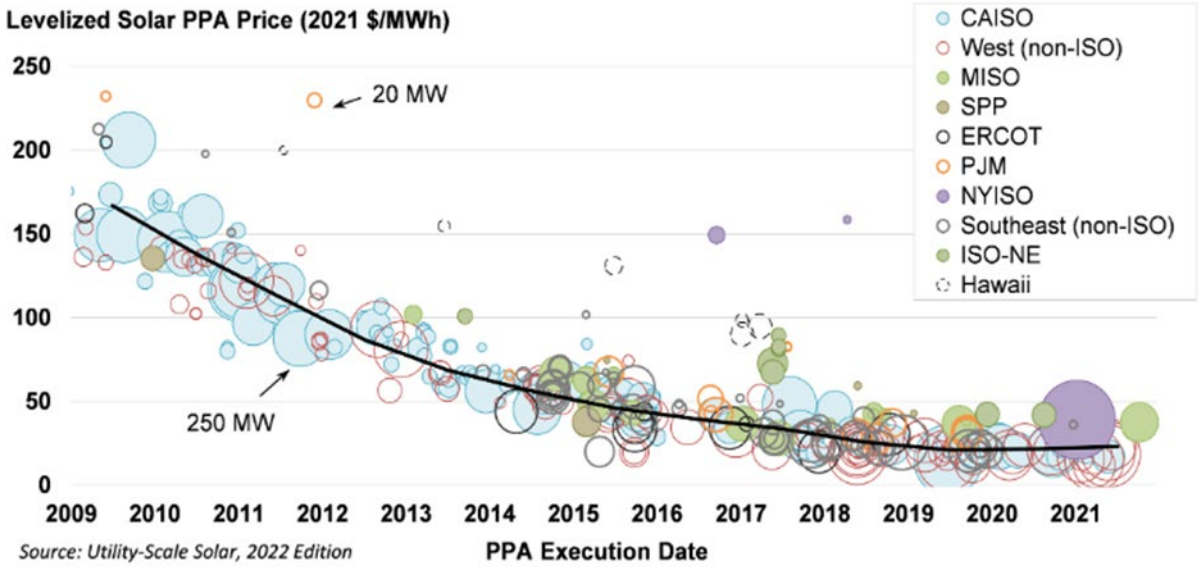
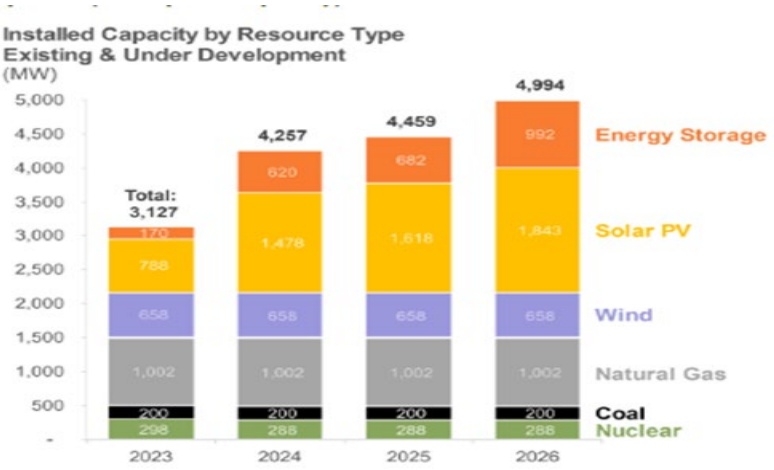


Figure 4: PNM's Current Generation Portfolio, including existing resources and resources under development (nameplate capacity) 2023-2026



Note: PNM's existing portfolio also includes 11 MW of geothermal (included in totals)

While the figure above shows the installed nameplate capacity, PNM's progress to meet its carbon-free goals is largely dependent upon the energy mix, how much of customer's day-to-day needs are supplied by each of these resources throughout the year. Table 17 summarizes key statistics for the portfolio for the 2022 operating year, including annual net generation, greenhouse gas emissions, and water consumption from resources owned by and under contract to PNM.

Figure 5: SPS Most Cost-Effective Portfolios of Resources MJB Case – Energy by Technology Type (2028-2043)

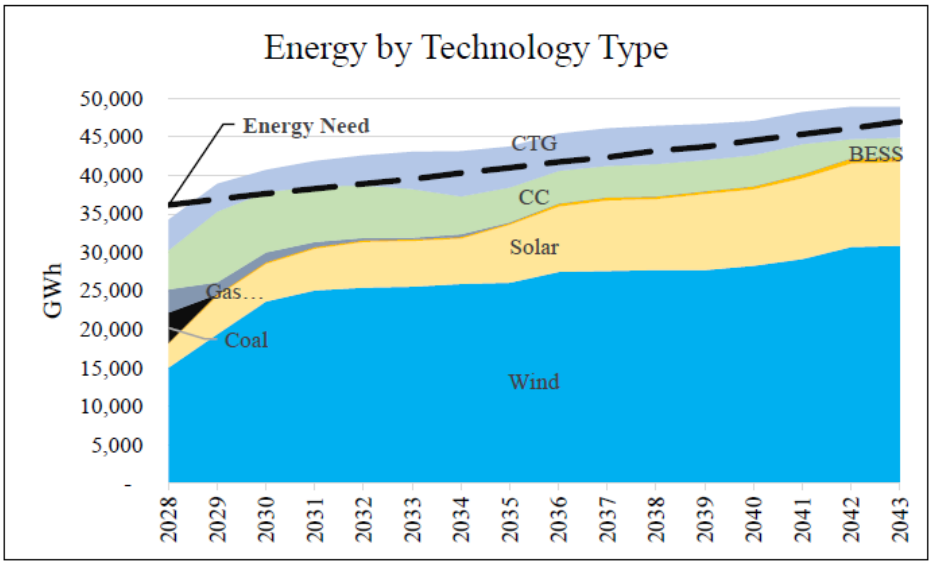
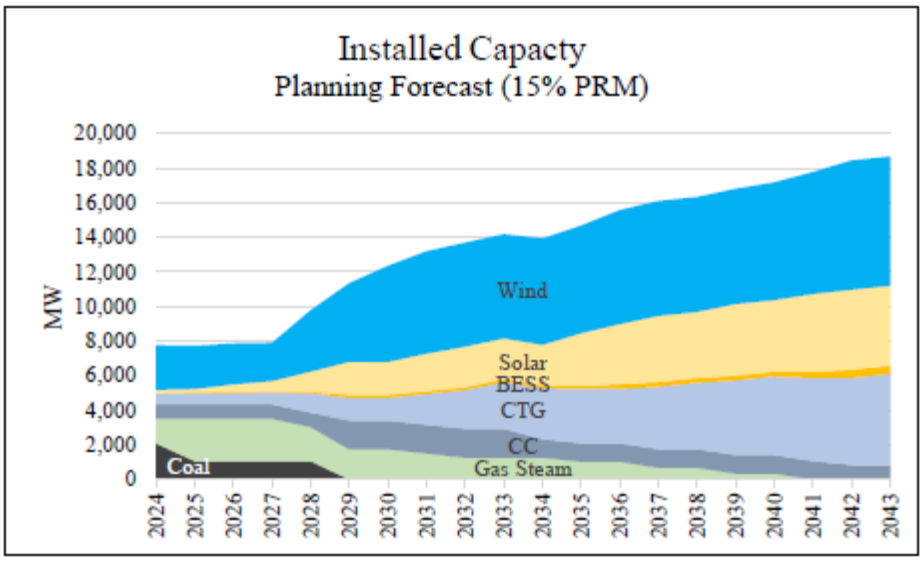
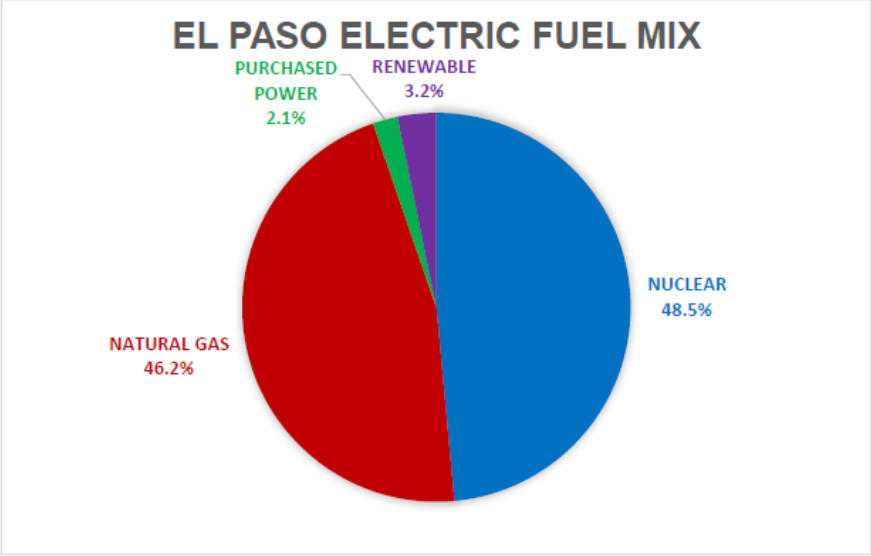


Figure 6: SPS Most Cost-Effective Portfolios of Resources MJB Case – New Installed Capacity (2028-2043)



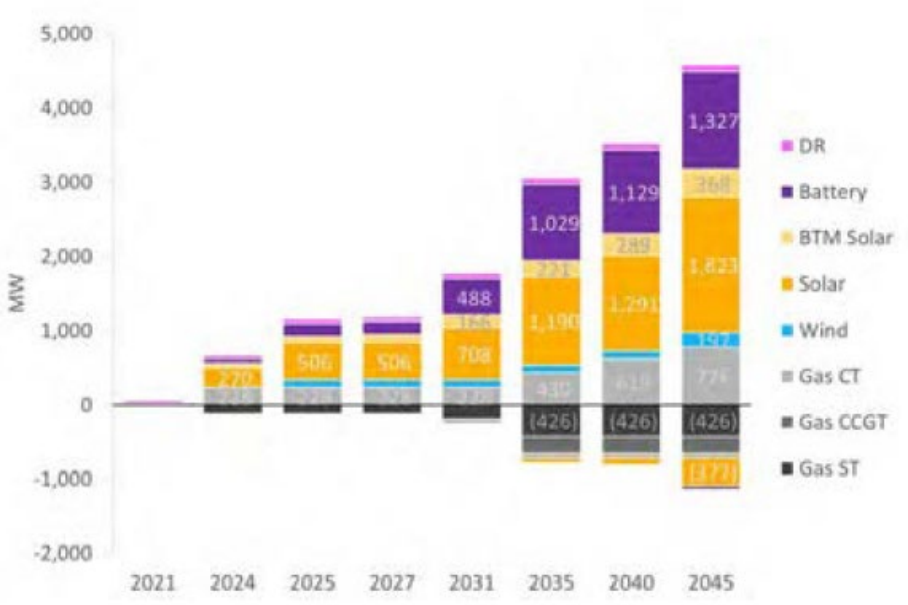
Source: SPS 2023 IRP, Case 23-00073-UT

Figure 7: EPE 2020 Energy Fuel Mix



Source: EPE Annual Reports to Legislature

Figure 8: EPE Least Cost System-Wide Portfolio projection through 2045



Source: El Paso Electric Company's amended 2021 Integrated Resource Plan, Case 21-00242-UT