BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

IN THE MATTER OF PUBLIC SERVICE COMPANY OF NEW MEXICO'S APPLICATION FOR APPROVAL OF AN AMENDED SPECIAL SERVICE CONTRACT WITH GREATER KUDU LLC, THREE PURCHASED POWER AGREEMENTS AND THREE ENERGY STORAGE AGREEMENTS PURSUANT TO 17.9.551 NMAC, AMENDED RATE NO. 36B, AMENDED RIDER NO. 47 AND AMENDED RIDER NO 49	)	**Case No. 25-00048-UT**
PUBLIC SERVICE COMPANY OF NEW MEXICO,	)	
Applicant.	)	

DIRECT TESTIMONY

OF

THOMAS P. DUANE

June 13, 2025

NMPRC CASE NO. 25-00____-UT
INDEX TO THE DIRECT TESTIMONY OF THOMAS P. DUANE

WITNESS FOR
PUBLIC SERVICE COMPANY OF NEW MEXICO

DIRECT TESTIMONY OF
THOMAS P. DUANE
NMPRC CASE NO. 25-00____-UT

I. INTRODUCTION AND PURPOSE

Q. Please state your name, position, and business address.

A. My name is Thomas P. Duane. I am the Director of Integrated Resource Planning at Public Service Company of New Mexico ("PNM"). My business address is 2401 Aztec Rd. NE, Albuquerque, NM 87107.

Q. Please summarize your educational background and professional qualifications.

A. My education and professional qualifications are provided in PNM Exhibit TPD-1. Prior to my current role, I served as Manager, Transmission Planning for PNM and was responsible for the evaluation of the existing transmission planning functions, analyzing transmission system deficiencies, and creating plans for the capital expansion of the transmission system.

Q. Have you previously testified in regulatory proceedings?

A. Yes. The cases in which I have testified are identified in PNM Exhibit TPD-1.

Q. Please describe the responsibilities of the Integrated Resource Planning department.

A. The Integrated Resource Planning department is responsible for developing PNM's resource plans and the regulatory filings to support those resource plans, including the triennial Integrated Resource Plan ("IRP") and associated updates. The Integrated Resource Planning department is also responsible for performing resource planning

analysis to support resource additions and acquisitions, all of which require New Mexico Public Regulation Commission ("NMPRC" or "Commission") approval such as those being requested in this docket.

Q. What is the purpose of your direct testimony?

A. My testimony will demonstrate that PNM will be able to continue the delivery of safe and reliable electric service and address resource planning-related matters associated with the Customer's expanded retail load. My testimony will also describe how the Purchase Power Agreements ("PPAs") and the Energy Storage Agreements ("ESAs") are consistent with PNM's IRP. Finally, I describe PNM's consistency with certain provisions of 17.9.551 NMAC. As PNM Witness Barnard explained in his testimony, those agreements are:

- Four Mile Mesa PPA (100 MW Solar) and ESA (100 MW 4-hour Battery Energy Storage System ("BESS"))
- Star Light PPA (100 MW Solar) and ESA (100 MW 4-hour BESS)
- Windy Lane PPA (90 MW Solar) and ESA (68 MW 4-hour BESS)

Q. Are the requested resources that will be added to PNM's overall resource portfolio to meet the retail service requirements of the Customer in accordance with the Third Amended and Restated Special Services Contract ("SSC") included in this Application?

A. Yes. These agreements will be used to meet the retail service requirements of Greater Kudu LLC ("Customer") and the growing load of the Customer's data center in Los Lunas, New Mexico ("Data Center") in accordance with the terms of the Third Amended and Restated Special Service Contract ("SSC") between PNM and the Customer. If approved by the Commission, these agreements will be added to PNM's designated network resource portfolio to supplement the capacity and energy approved in Case No. 16-00191-UT, Case No. 18-00009-UT, Case No. 18-00269-UT, Case No. 21-00031-UT, and Case No 23-00251-UT to support the Data Center's projected annual consumption of electricity. The solar generation and battery storage in this case is designed to cover the projected load growth of the Customer.

Q. Will the projected approximately 85 MW growth in the Customer load and PNM's addition of both the PPAs and ESAs requested in this Application to match that load increase impose additional costs on other PNM Retail customers?

A. No. The 290 MW of solar generation and 268 MW of battery storage that PNM is requesting in this case can be integrated into PNM's generation fleet without the need for additional resources to maintain adequate planning and operating reserves on its system. As I discuss later in this testimony, the respective BESS are included in this portfolio of resources to maintain system resource adequacy. The BESS plays a key role in optimizing use of solar energy and minimizing curtailments by shifting use of the energy later in the day when solar energy is no longer supporting system load. As PNM Witness Aguirre explains, the costs of the PPAs and ESAs will be recovered from

the Customer and will not result in additional costs for PNM's other retail customer classes.

Q. Are you sponsoring any exhibits in addition to your resume?

A. Yes, I am also sponsoring the following exhibit:

- PNM Exhibit TPD-2: Comparison of Customer's load projections with renewable energy supplies acquired for Customer.

PNM Exhibit TPD-2 contains three graphs. These graphs compare the expansion of the Data Center to the resources proposed in this case. These graphs show that the resources proposed in this case will not only meet the energy needs of the Data Center expansion, as required by the SSC, but will also meet its capacity needs.

II. SAFE AND RELIABLE SERVICE

Q. How does PNM's current projection of the Customer's approximately 85 MW load growth compare to energy that will be supplied by the renewable energy resources approved by the Commission in previous cases and requested by PNM in this Application?

A. The estimated annual energy needed to cover the load increase is approximately 785 GWh which is equal to the expected annual energy produced from the proposed solar resource additions. Figure 1 in PNM Exhibit TPD-2 provides a comparison of the projected load energy for the Customer's planned expansion along with the expected energy that will be produced from the resources requested in this case.

Figure 2 in PNM Exhibit TPD-2 shows the current projection of the Customer's total annual energy requirements after the expansion along with the total annual energy of existing resources plus the resources requested in this case. The annual projection for energy requirements is 2,800 GWh while the expected energy produced by existing resources and the resources additions in this Application is 3,100 GWh.

Q. Are the proposed resources sufficient to cover the projected Customer load increase of approximately 85 MW?

A. Yes. Figure 3 in PNM Exhibit TPD-2 shows the peak July demand forecasted for the Customer load versus the effective capacity provided by the Customer's solar, wind and battery resources including the resources requested in this case. The effective capacity is based on calculated 2028 system average Effective Load Carrying Capability ("ELCC") values of the resources during the hours that have the highest loss of load probability. These ELCC values are approximately 5% of nameplate capacity for solar resources and 78% of nameplate capacity for 4-hour BESS. The estimated peak load of the customer is 346 MW after the load expansion with Customer resources having an effective capacity of 363 MW.

Q. Will the projected growth of the Customer load and the addition of the proposed PPAs and ESAs affect PNM's ability to provide safe and reliable service for all customers?

A. No. The addition of the proposed PPAs and ESAs is consistent with assumptions used in PNM's most recent IRP, as supplemented in October 2024, and with the provision of safe and reliable service to all customers. The proposed resources will continue to allow PNM's generation portfolio to meet or exceed the reliability criteria of 0.1 LOLE. As with previous cases adding PNM retail resources or assessing the adequacy of selected Customer resources, PNM had PowerGem, LLC. (previously Astrape) define the minimum amount of battery needed to add the Customer's load expansion without degrading the LOLE. The amounts needed were reviewed up through 2032 with expectations that 200 MW of battery is required to prevent degradation in the LOLE. The result is somewhat dependent on assumed resource additions and retirements between 2028 and 2032. While the solar provides a small capacity benefit, the battery additions provide the majority of the reliability benefit and are sized to prevent a degradation in the reliability of the system by ensuring that capacity is available during the hours of greatest demand on PNM's resource portfolio which is occurring during post-solar hours in the evening and, to a lesser degree, pre-solar hours during non--summer months. As noted in Nicholas Phillips testimony in Case No. 23-00251-UT, the addition of solar resources for energy to serve firm load additions requires capacity additions to maintain reliability in non-solar hours. Consequently, adding a new load of meaningful size (whether a single load or in aggregate) to the system will require procurement of additional firm capacity if the energy is provided from solar resources. This capacity is provided by the co-located BESS additions included in this Application.

Q. Does the battery capacity requested in this Application provide other benefits in addition to preventing degradation in the LOLE reliability metric?

A. Yes. With the additional battery capacity, the projected additional curtailments were reduced to 16,000 MWh resulting in 98% of the total energy potential from the solar generation being utilized to serve load. Addition of solar generation without storage results in increased curtailment of renewable resources at the current and planned renewable penetration levels on PNM's system. Based on production cost model runs for 2028, the estimated annual total energy generated by the 290 MW of solar capacity is approximately 785,000 MWh. Approximately 42,000 MWh of additional system curtailments occur when modeling the increase in the Customer load and the solar generation but not including the 268 MW of 4-hour battery capacity.

Q. Is the addition of the proposed PPAs and ESAs at the lowest reasonable cost as required by 17.9.551.8(D)(6) NMAC?

A. Yes. The cost of the resources is reasonable. The Customer has selected the recommended resources through a competitive process and has indicated that the cost is acceptable to it. The PPA and ESA costs are covered by the Customer as required under the SSC and Rider 47 and will not be borne by any other PNM customers. PNM Witness Barnard addresses the cost of the resources in his direct testimony, and PNM Witness Aguirre explains how the cost will be recovered from the Customer.

III. CONSISTENCY WITH THE IRP

Q. Are the renewable resource additions proposed in this Application consistent with PNM's most recent Commission-accepted IRP as required by 17.9.551.8(D)(8) NMAC?

A. Yes, the proposed additions are consistent with PNM's 2023 IRP as supplemented in October of 2024 and accepted by the Commission in November 2024. The Customer load expansion was included in the load forecast increase addressed by the October supplemental. As a result, the resource additions in this case are within the range of need identified in the supplemental for the 2028 timeframe. The load increase from the 2023 IRP and included in the IRP supplemental covered both the Customer's expansion as well as the increase of other customers identified in PNM's latest load forecast.

Q. Would PNM require additional generation resources to meet the Customer load growth without the proposed PPAs and ESAs?

A. Yes, without the proposed PPAs and ESAs, PNM would need to procure the BESS or other capacity to ensure the Customer's load growth does not degrade the level of reliability to other retail customers. PNM would also need to identify sources for the additional energy needed to supply the load increase. The proposed PPAs and ESAs prevent the need for PNM to seek other means of sourcing the Customer's load growth.

IV. CONCLUSION

Q. Please summarize your conclusions.

A. PNM has reviewed the proposed resource additions in this case and finds that the resource additions will not impact PNM's ability to continue the delivery of safe and reliable electric service and do not result in a cost burden to other retail customers. As explained above, the recommended PPAs and ESAs in resource additions that are consistent with PNM's IRP. I recommend that the resource additions be approved as described in this case.

Q. Does this complete your direct testimony?

A. Yes.

GCG#533860

Resume of Thomas P. Duane

PNM Exhibit TPD-1

Is contained in the following 2 pages.

PNM EXHIBIT TPD-1

Name: Thomas P. Duane

Address: Public Service Company of New Mexico
414 Silver Ave SW
Albuquerque, New Mexico 87102

Position: Manager, Transmission Planning

Education: Bachelor of Science in Electrical Engineering,
University of Colorado, Boulder, Colorado 1980

Master of Science in Electrical Engineering,
Electric Utility Management Program,
New Mexico State University, Las Cruces, New Mexico 1998

Employment: Public Service Company of New Mexico, Albuquerque, New Mexico

- Director, Integrated Resource Planning 2024
- Transmission Planning Engineer, Manager Transmission Planning (12 Years) 1984-1996, 2006-2024
- Manager, Production Modeling 1996-2005
- Operations Engineer, Wholesale Power Marketing Analyst 1981-1984, 2005

Licensure: Licensed Professional Engineer in the State of New Mexico

Professional Affiliations: Member of Institute of Electrical and Electronic Engineers ("IEEE") Power Engineering Society and Computer Society

Experience:

- Power System Analysis, Planning and Operations – Steady State, Dynamic Stability, Transient, Short Circuit, Power Operations, Production Costs, Generation Dispatch, Resource Planning
- Committee Representation – over 25 years in inter-utility coordination groups, WECC and ERCOT reliability committees, RTO Tariff negotiations, stakeholder groups and industry organizations.

Previous Testimony:

New Mexico Public Regulation Commission (2024): Provided testimony on behalf of Public Service Company of New Mexico regarding the portfolio analysis and selection of resources associated with the 2028 resource application. Case No. 24-00271-UT.

New Mexico Public Regulation Commission (2023): Provided testimony on behalf of Public Service Company of New Mexico regarding transmission system impacts associated with the 2026 resource application. Case No. 23-00353-UT.

New Mexico Public Regulation Commission (2023): Provided testimony on behalf of Public Service Company of New Mexico regarding transmission system impacts associated with TAG solar facility interconnection. Case No Case No. 23-00251-UT.

New Mexico Public Regulation Commission (2021): Provided testimony on behalf of Public Service Company of New Mexico regarding transmission system impacts

associated with replacement resources for 114 MW of Palo Verde Nuclear generation. Case No Case No. 21-00215-UT.

New Mexico Public Regulation Commission (2020): Provided rebuttal testimony on behalf of Public Service Company of New Mexico regarding transmission system impacts associated with replacement resources for San Juan Generation Station Units 1 and 4. Case No 19-00195-UT.

County of Torrance, Seventh Judicial District Court (2020) – Application for Order of Immediate Possession, State of New Mexico, Case D-722-CV-2020-00083, Provided affidavit regarding the need for immediate possession of right-of-way to maintain an existing transmission line.

Federal Energy Regulatory Commission (2010): Provide affidavit on the PNM Balancing Authority Area System Import Limit (SIL) calculations used in the Triennial Market Power Update. Docket Nos. ER96-1551, ER01-615 and ER09-746.

Comparison of Customer's Load Projections with Renewable Energy Supplies Acquired for Customer

PNM Exhibit TPD-2

Is contained in the following 2 pages.

PNM EXHIBIT TPD-2

Figure 1 – Data Center Expansion Load & Expansion Resource Energy (GWh)

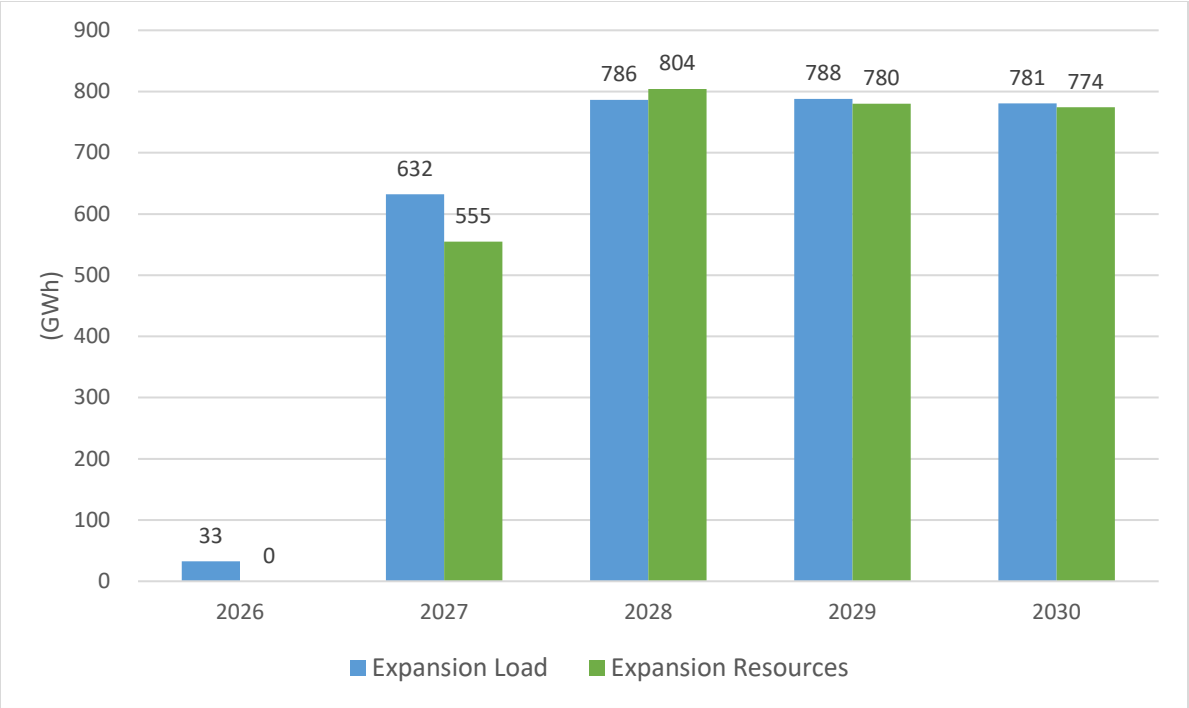


Figure 2 -Total Data Center Load and Resource Energy (GWh)

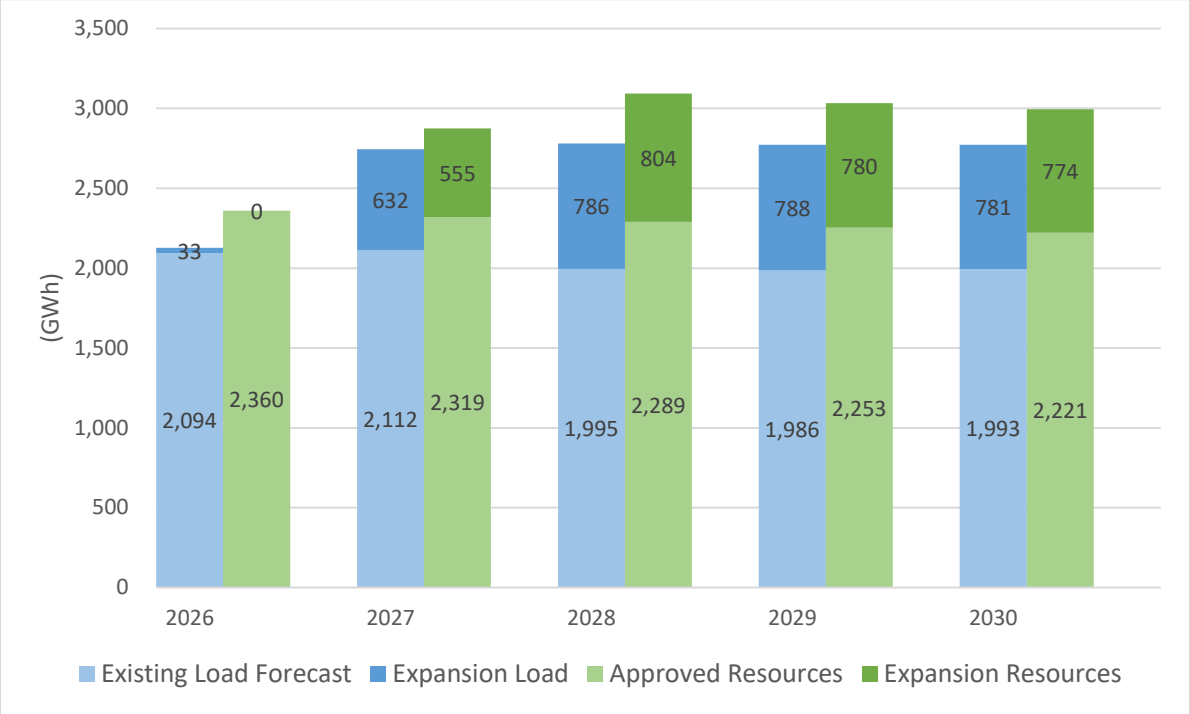
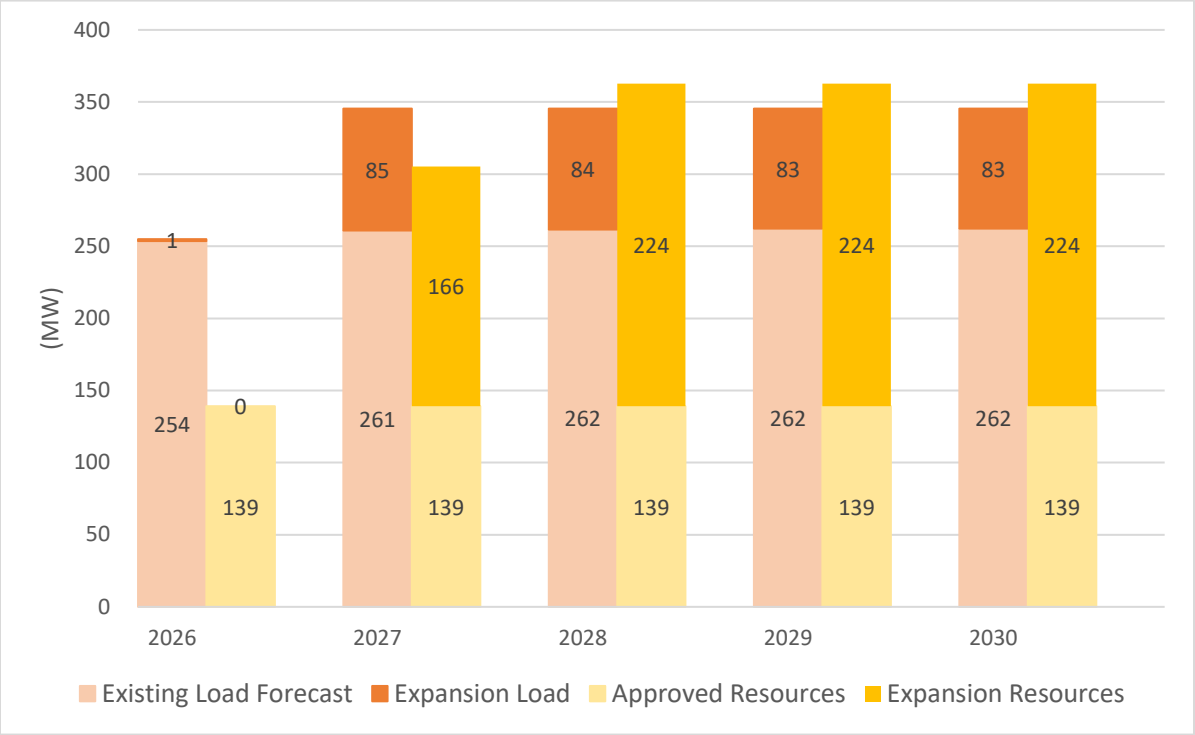


Figure 3 - Data Center Peak Load vs Effective* Resource Capacity (MW Firm)



*Resource capacity is based on an estimated system average solar ELCC of 5%, an estimated system average wind ELCC of 20% and an estimated system average battery ELCC of 78%

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PUBLIC SERVICE COMPANY OF NEW MEXICO	)	**Case No. 25-00048-UT**

AFFIDAVIT

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

THOMAS P. DUANE, Director of Integrated Resource Planning, Public Service Company of New Mexico, upon being duly sworn according to law, under oath, deposes and states: I have read the foregoing **Direct Testimony of Thomas P. Duane,** and it is true and accurate based on my own personal knowledge and belief.

DATED this 13th day of June, 2025.

/s/ Thomas P Duane Digitally signed by Thomas P Duane Date: 2025.06.13 09:52:35 -06'00'

THOMAS P. DUANE