

**BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION**

**IN THE MATTER OF PUBLIC SERVICE )  
COMPANY OF NEW MEXICO’S APPLICATION )  
FOR APPROVAL OF PURCHASED POWER )  
AGREEMENT, ENERGY STORAGE )  
AGREEMENTS, AND CERTIFICATE OF PUBLIC )  
CONVENIENCE AND NECESSITY FOR SYSTEM )  
RESOURCES IN 2028, )**

**Case No. 24-00271-UT**

**PUBLIC SERVICE COMPANY OF NEW MEXICO, )  
 )  
Applicant. )  
 )**

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**DIRECT TESTIMONY  
OF  
RICHARD NICHOLAS WINTERMANTEL**

**November 22, 2024**

**NMPRC CASE NO. 24-\_\_\_\_-UT**  
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**WITNESS FOR**  
**PUBLIC SERVICE COMPANY OF NEW MEXICO**

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PNM Exhibit NW – 1

Resume of Richard Nicholas Wintermantel

AFFIDAVIT

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NMPRC CASE NO. 24-\_\_\_\_-UT**

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**I. INTRODUCTION AND PURPOSE**

**Q. Please state your name, business address, and place of employment.**

**A.** My name is Richard Nicholas Wintermantel, and my business address is 3000 Riverchase Galleria Suite 575, Hoover, Alabama, 35224. I am employed by PowerGEM, LLC as Chief Services Officer.

**Q. Please summarize your educational background and professional qualifications.**

**A.** My educational background and relevant employment experience are summarized in Public Service Company of New Mexico (“PNM”) Exhibit RNW-1 attached to my testimony.

**Q. Have you previously testified in utility-related proceedings?**

**A.** Yes. I presented testimony before the New Mexico Public Regulation Commission (“NMPRC” or “Commission”) on behalf of PNM in PNM’s San Juan Replacement Resource Filing in Case No. 19-00195-UT; PNM’s Palo Verde Lease Replacement Filing in Case No. 21-00083-UT; and PNM’s 2026 Resource Filing in Case No. 23-00353-UT. I have also testified in Georgia, South Carolina, and North Carolina in utility-related proceedings. These proceedings are reflected in PNM Exhibit RNW-1.

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1 **Q. Please provide an overview of your expertise performing resource adequacy**  
2 **and planning studies.**

3 **A.** Since being employed by Astrapé<sup>1</sup> (now part of PowerGEM) in 2009, I have  
4 managed resource adequacy studies across the industry including target reserve  
5 margin studies; Effective Load Carrying Capability (“ELCC”) studies of wind,  
6 solar, storage, and demand response resources; resource selection decisions; and  
7 ancillary service studies for integrating renewables. I performed these studies using  
8 Astrapé’s proprietary Strategic Energy Risk Valuation Model (“SERVM”) used by  
9 utilities and system operators across the U.S. and internationally. Prior to working  
10 at Astrapé, I worked in various resource planning functions with the Southern  
11 Company, which included work for its operating companies as well as Southern  
12 Power.

13  
14 **Q. What is the purpose of your direct testimony?**

15 **A.** My testimony discusses PNM’s resource adequacy assessment for 2028, and I  
16 present the 2028 loss of load expectation (“LOLE”) for specific portfolios provided  
17 by PNM for 2028 Resources selection to ensure that resource adequacy metrics are  
18 met.

19  
20 **Q. Provide a brief overview of what your testimony concludes.**

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<sup>1</sup> Astrapé was acquired by PowerGEM, LLC in April of 2024.

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1   **A.**   My testimony concludes the new resource portfolio brought forward by PNM  
2           resolves the resource adequacy need in 2028 and provides a reliable system as  
3           measured by LOLE.

4                           **II.   SYSTEM RESOURCE ADEQUACY MODELING**

5   **Q.**   **Please describe your role in the PNM Integrated Resource Planning and 2028**  
6           **Resource Evaluation processes and how the SERVVM model was utilized.**

7   **A.**   My team was responsible for the resource adequacy analysis including Loss of  
8           Load Expectation (LOLE) analysis conducted in the 2028 Resource Evaluation and  
9           the 2023 Integrated Resource Plan (“IRP”), both of which were performed using  
10          the SERVVM model.

11

12   **Q.**   **Has this framework been utilized previously?**

13   **A.**   Yes. The same resource adequacy framework used for the Palo Verde Lease  
14          Replacement Filing and the 2026 Resource Filing was used for this 2028 resource  
15          analysis.

16

17   **Q.**   **Please define LOLE.**

18   **A.**   **LOLE** is a widely accepted metric for determining resource adequacy for electric  
19          systems to represent the expected number of days in a year that load will not be met  
20          given a specified resource portfolio.

21

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1 **Q. What is the LOLE standard used by PNM?**

2 **A.** The metric used by PNM in its 2023 IRP was 0.1 days per year. In other words,  
3 PNM plans to build enough capacity that it would only expect to experience firm  
4 load shed events due to capacity shortages one day every 10 years. A firm load  
5 shed event occurs any time the system must reduce load on the system by turning  
6 off power because it did not have enough generation to serve customers.

7  
8 **Q. Is PNM's standard consistent with other standards?**

9 **A.** Yes. This standard is used by many utilities and Independent System Operators  
10 (“ISOs”)/Regional Transmission Operators (“RTOs”), which is referred to as the  
11 one-day-in-10-year standard. For reference, RTOs such as PJM Interconnection<sup>2</sup>  
12 and Midwest Independent System Operator (MISO)<sup>3</sup> use the one-day-in-10-year  
13 standard. Utilities such as Duke Energy<sup>4</sup> and Arizona Public Service Company<sup>5</sup>  
14 also use the same standard to ensure resource adequacy on their respective systems.

15  
16 **Q. What specific analysis was performed by your team in the 2023 IRP?**

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<sup>2</sup> <https://www.pjm.com/-/media/documents/manuals/m20a.ashx> page 8

<sup>3</sup> <https://cdn.misoenergy.org/Resource%20Accreditation%20White%20Paper%20Version%202.1630728.pdf>  
page 2

<sup>4</sup> <https://www.duke-energy.com/-/media/pdfs/our-company/carolinas-resource-plan/chapter-1-changing-energy-landscape.pdf?rev=88d3584893bc4287be612875fae8bea8> page 7

<sup>5</sup> [https://www.aps.com/-/media/APS/APSCOM-PDFs/About/Our-Company/Doing-business-with-us/Resource-Planning-and-Management/APS\\_IRP\\_2023\\_PUBLIC.pdf?la=en&sc\\_lang=en&hash=DF34B49033ED43FF0217FC2F93A0BBE6](https://www.aps.com/-/media/APS/APSCOM-PDFs/About/Our-Company/Doing-business-with-us/Resource-Planning-and-Management/APS_IRP_2023_PUBLIC.pdf?la=en&sc_lang=en&hash=DF34B49033ED43FF0217FC2F93A0BBE6) page 14

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1    **A.**    For the 2023 IRP, my team calculated the planning reserve margin and marginal  
2           ELCCs<sup>6</sup> for new solar, wind, and storage projects using LOLE analysis in SERVUM.  
3           The planning reserve margin is determined by calculating the reserve margin  
4           required to meet the 0.1 days per year LOLE standard. ELCCs are determined by  
5           understanding how much additional load a new resource such as solar, wind, or  
6           storage can carry while still maintaining the 0.1 days per year LOLE standard. The  
7           ELCC results provide the reliability contribution of variable generation resources  
8           and energy limited resources as they are integrated into the system. As described  
9           by PNM witness Duane, the planning reserve margin and ELCCs were utilized in  
10          the EnCompass models for the 2028 portfolio analysis.

11          **III.    RELIABILITY ASSESSMENT OF PNM’S 2028 RESOURCES**

12    **Q.**    **Moving to the reliability assessment of PNM’s selected 2028 portfolio, please**  
13          **describe the resources your team modeled in SERVUM.**

14    **A.**    As PNM witness Duane discusses, PNM selected the following portfolio to fill the  
15          resource adequacy requirement in 2028:

16          **Preferred Portfolio**

- 17          •    167 MW natural gas-fired generation, replacing existing PPA  
18          •    300 MW of standalone battery (four-hour)  
19          •    Hybrid resource with 100 MW of solar/30 MW battery (four-hour)

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<sup>6</sup> The Resource Adequacy Study which includes ELCC calculations can be found in Appendix M of the 2023 IRP.

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2 **Q. Please describe the LOLE assessment process used in the 2028 resource**  
3 **selection.**

4 **A.** My team assessed the LOLE for the 2028 study year to ensure portfolios developed  
5 by PNM met reliability requirements. This was accomplished by taking the PNM  
6 portfolio from PNM’s EnCompass modeling, including any new resources selected  
7 in the portfolio analysis, and including them in SERVVM’s resource adequacy  
8 framework, and assessing the resultant 2028 LOLE. The current EnCompass  
9 modeling included the most up to date load forecast and resource mix for PNM.

10

11 **Q. From an external market perspective, what was assumed in the reliability**  
12 **analysis?**

13 **A.** The 2028 RFP portfolios were modeled with a 200-300 MW import constraint in  
14 all hours in which hourly load was greater than or equal to 85% of the annual gross  
15 peak load. In addition, the 2028 portfolios were modeled with a 100–150 MW  
16 import constraint during hours 16-18 from June through August when hourly load  
17 was greater than or equal to 85% of the annual gross peak load. Lastly a 50-MW  
18 import constraint was applied during hours 19-22 from June through August when  
19 the hourly load was greater than or equal to 80%<sup>2</sup> of the annual gross peak load.  
20 By modeling imports in this way, the model applies constraints on peak days when  
21 PNM and its neighbors would expect to experience high loads. The following table  
22 summarizes the import constraint.



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**Table NW-1 Import Constraint Summary**

|                       | June-August | All Other Months |
|-----------------------|-------------|------------------|
| Hours 1-15 and 22-24* | 200-300 MW  | 200-300 MW       |
| Hours 16-18*          | 100-150 MW  | 200-300 MW       |
| Hours 19-22**         | 50 MW       | 200-300 MW       |

\* applies only when load is  $\geq$  85% of annual gross load peak

\*\* applies only when load is  $\geq$  80% of annual gross load peak

2

3

These import constraints are the same assumptions used in the 2026 resource RFP analysis.

4

5

6 **Q.**

**Please provide the reliability results for the 2028 RFP Portfolio.**

7 **A.**

PNM's Preferred Portfolio yielded a 0.064 day per year LOLE. Due to resource sizing issues, it is not expected that any specific portfolio will precisely achieve a desired 0.1 day per year LOLE metric.

8

9

10 **Q.**

**What would the LOLE results show if these resources were not added to the system in 2028?**

11

12 **A.**

The LOLE would be 2.01 days per year if no resources were added to the system.

13

14

**IV. CONCLUSIONS**

15 **Q.**

**Please summarize the conclusions and recommendations in your testimony.**

16 **A.**

I conclude that the Preferred Portfolio submitted by PNM reasonably meets the reliability target of 0.1 LOLE.

17

18

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1 Q. Does this conclude your testimony?

2 A. Yes.

*GCG#533193*

Resume of Richard Nicholas Wintermantel

# PNM Exhibit RNW-1

Is contained in the following 4 pages.

**Richard Nicholas (“Nick”) Wintermantel | Chief Services Officer, PowerGEM, LLC**

3000 Riverchase Galleria Suite 575  
Hoover, AL 35224  
(205) 988-4404  
nwintermantel@astrape.com

Mr. Wintermantel has over 20 years of experience in utility planning and electric market modeling. Areas of utility planning experience includes utility integrated resource planning (IRP) for vertically-integrated utilities, market price forecasting, resource adequacy modeling, RFP evaluations, environmental compliance analysis, asset management, financial risk analysis, and contract structuring. Mr. Wintermantel also has expertise in production cost simulations and evaluation methodologies used for IRPs and reliability planning. As a consultant with Astrapé Consulting, now part of PowerGEM, Mr. Wintermantel has managed reliability and planning studies for large power systems across the U.S. and internationally. Prior to joining Astrapé Consulting, Mr. Wintermantel was employed by the Southern Company where he served in various resource planning, asset management, and generation development roles.

 **Experience**

**Chief Services Officer at PowerGEM (May 2024 to current)**

Lead a consulting team who performs resource adequacy analysis, ELCC analysis, renewable integration, expansion planning, and load flow analysis

**Principal Consultant at Astrapé Consulting (2009 – April 2024)**

Managed detailed system resource adequacy studies for large scale utilities  
Managed ancillary service and renewable integration studies  
Managed ELCC studies  
Managed resource selection studies  
Performed financial and risk analysis for utilities, developers, and manufacturers  
Demand side resource evaluation  
Storage evaluation  
Served on IE Teams to evaluate assumptions, models, and methodologies for competitive procurement solicitations  
Project Management on large scale consulting engagements  
Production cost model development  
Model quality assurance  
Sales and customer service

**Sr. Engineer for Southern Company Services (2007-2009)**

Integrated Resource Planning and environmental compliance  
Developed future retail projects for operating companies while at the Southern Company  
Asset management for Southern Company Services

**Sr. Engineer for Southern Power Company (Subsidiary of Southern Company) (2003-2007)**

Structured wholesale power contracts for Combined Cycle, Coal, Simple Cycle, and IGCC Projects  
Model development to forecast market prices across the eastern interconnect  
Evaluate financials of new generation projects  
Bid development for Resource Solicitations

**Cooperative Student Engineer for Southern Nuclear (2000-2003)**

Probabilistic risk assessment of the Southern Company Nuclear Fleet

### ▶ Industry Specialization

|                                   |                           |                              |
|-----------------------------------|---------------------------|------------------------------|
| Resource Adequacy Planning        | Resource Planning         | Integrated Resource Planning |
| Competitive Procurement           | Asset Evaluation          | Financial Analysis           |
| Environmental Compliance Analysis | Generation Development    | Capacity Value Analysis      |
| Renewable Integration             | Ancillary Service Studies |                              |

### ▶ Education

MBA, University of Alabama at Birmingham – Summa Cum Laude  
B.S. Degree Mechanical Engineering - University of Alabama - Summa Cum Laude

## Relevant Experience

### ▶ Resource Adequacy Planning and Production Cost Modeling

**Tennessee Valley Authority:** Performed Various Reliability Planning Studies including Optimal Reserve Margin Analysis, Capacity Benefit Margin Analysis, and Demand Side Resource Evaluations using the Strategic Energy and Risk Valuation Model (SERVM) which is Astrapé Consulting’s proprietary reliability planning software. Recommended a new planning target reserve margin for the TVA system and assisted in structuring new demand side option programs in 2010. Performed Production Cost and Resource Adequacy Studies in 2009, 2011, 2013, 2015 and 2017. Performed renewable integration and ancillary service work from 2015-2017.

**Southern Company Services:** Assisted in resource adequacy and capacity value studies as well as model development from 2009 – 2018.

**Louisville Gas & Electric and Kentucky Utilities:** Performed reliability studies including reserve margin analysis for its Integrated Resource Planning process.

**Duke Energy:** Performed resource adequacy studies for Duke Energy Carolinas, LLC and Duke Energy Progress, LLC in 2012 and 2016. Performed capacity value and ancillary service studies in 2018. Performed ELCC analysis in 2022, and Resource Adequacy and ELCC Analysis in 2023.

**California Energy Systems for the 21<sup>st</sup> Century Project:** Performed 2016 Flexibility Metrics and Standards Project. Developed new flexibility metrics such as  $EUE_{flex}$  and  $LOLE_{flex}$  which represent LOLE occurring due to system flexibility constraints and not capacity constraints.

**Terna:** Performed Resource Adequacy Study used to set demand curves in Italian Capacity Market Design.

**Pacific Gas and Electric (PG&E):** Performed flexibility requirement and ancillary service study from 2015–2017. Performed CES Study for Renewable Integration and Flexibility from 2015 – 2016.

**PNM (Public Service Company of New Mexico):** Managed resource adequacy studies and renewable integration studies and ancillary service studies from 2013 – 2024. Performed resource selection studies in

2017 and 2018. Additional IRP work from 2020 – 2024.

**GASOC:** Managed resource adequacy studies from 2015 – 2018.

**MISO:** Managed resource adequacy study in 2015 and performed ongoing seasonal resource adequacy analysis in 2020 and 2021. Provided ongoing support in regard to accreditation and LOLE studies in 2022 and 2023.

**SPP:** Managed resource adequacy study in 2017. Ongoing planned maintenance Study in 2020-2021.

**SPP:** Managed resource adequacy study in 2017. Ongoing planned maintenance Study in 2020-2021.

**Santee Cooper:** Managed resource adequacy, ELCC, and solar integration studies in 2022-2024.

**Dominion Energy South Carolina:** Managed resource adequacy and ELCC studies in 2022-2023.

**NWPP:** Managed resource adequacy study for the northwest power pool in 2022.

**Malaysia (TNB, Sabah, Sarawak):** Performed and managed resource adequacy studies from 2015-2018 for three different Malaysian entities.

**ERCOT:** Performed economic optimal reserve margin studies in cooperation with the Brattle Group in 2014 and 2018. The report examined total system costs, generator energy margins, reliability metrics, and economics under various market structures (energy only vs. capacity markets). Completed a Reserve Margin Study requested by the PUCT, examining an array of physical reliability metrics in 2014 (See Publications: Expected Unserved Energy and Reserve Margin Implications of Various Reliability Standards). Probabilistic Risk Assessment for the North American Electric Reliability Corporation (NERC) in 2014, 2016, and 2018.

**FERC:** Performed economics of resource adequacy work in 2012-2013 in cooperation with the Brattle Group. Work included analyzing resource adequacy from regulated utility and structured market perspective.

**EPRI:** Performed research projects studying reliability impact and flexibility requirements needed with increased penetration of intermittent resources in 2013. Created Risk-Based Planning system reliability metrics framework in 2014 that is still in use today.

**Independent Evaluator Work for RFPs:** Served on independent evaluator teams for capacity RFPs in Georgia, Arizona, Oregon, and Colorado (2010-2023).

**Evergy:** Managed resource adequacy study in 2022.

**Ameren:** Managed resource adequacy, ELCC, and flexibility analysis for ongoing planning and IRP support (2019-2023).

**Expert Witness Testimony**

North Carolina Public Service Commission (2024): Testified on behalf of Duke Energy in regard to a Resource Adequacy and ELCC Study. Docket No. DOCKET NO. E-100, SUB 190.

Public Service Commission of South Carolina (2024): Testified on behalf of Duke Energy in regard to a Resource Adequacy and ELCC Study. Docket No. 2023-8-E and 2023-10-E.

New Mexico Public Regulation Commission (2023/2024): Testified on behalf of Public Service Company of New Mexico in regard to the evaluation and recommendation of new generation resources. Case No. 21-00353-UT.

Santee Cooper (2023): Testified on behalf of Santee Cooper (2023) in South Carolina in regard to a resource adequacy and ELCC Study. DOCKET NO.2023-154-E.

Dominion Energy South Carolina (2023): Testified on behalf of Dominion Energy South Carolina (2023) in South Carolina in regard to a resource adequacy and ELCC Study. DOCKET NO.2023-9-E.

New Mexico Public Regulation Commission (2021): Testified on behalf of Public Service Company of New Mexico in regard to the evaluation and recommendation of new generation resources. Case No. 21-00083-UT.

Public Service Commission of South Carolina (2021): Testified on behalf of Duke Energy in regard to the Resource Adequacy Study and Storage ELCC conducted by Astrapé Consulting. DOCKET NO.2019-224-E, NO.2019-225-E.

New Mexico Public Regulation Commission (2019 and 2020): Testified on behalf of Public Service Company of New Mexico in regard to the evaluation and recommendation of replacement resources for San Juan Generation Station Units 1 and 4. Case No 19-00195-UT.

Public Service Commission of South Carolina (2019): Testified on behalf of Duke Energy in regard to the Solar Integration Study Astrapé Consulting conducted for the Companies' Avoided Cost Filing. Docket No. 2019-185-E. Docket No. 2019-186-E.

North Carolina Public Service Commission (2019): Testified on behalf of Duke Energy in regard to the Solar Integration Study Astrapé Consulting conducted for the Companies' Avoided Cost Filing. Docket No. 1995-1192-E.

Georgia Public Service Commission (2014): Testified on behalf of the Commission Staff as an Independent Evaluator for the Advanced Solar Initiative RFP. Docket 38877.

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**COMPANY OF NEW MEXICO’S )**  
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**MEXICO, )**  
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**Applicant )**  
\_\_\_\_\_ )

**AFFIDAVIT**

STATE OF NEW MEXICO )  
) ss  
COUNTY OF BERNALILLO )

**RICHARD NICHOLAS WINTERMANTEL, Chief Services Officer,**  
**PowerGEM, LLC,** upon being duly sworn according to law, under oath, deposes and  
states: I have read the foregoing **Direct Testimony of Richard Nicholas Wintermantel,**  
and it is true and accurate based on my own personal knowledge and belief.

Dated this 22<sup>nd</sup> day of November, 2024.

/s/ Richard Nicholas Wintermantel  
**RICHARD NICHOLAS WINTERMANTEL**