

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) Case No. 24-00271-UT
RESOURCES IN 2028,)
)
PUBLIC SERVICE COMPANY OF NEW MEXICO,)
)
Applicant)
_____)**

**DIRECT TESTIMONY
OF
STEPHEN JENKINS**

November 22, 2024

NMPRC CASE NO. 24-00__-UT
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WITNESS FOR
PUBLIC SERVICE COMPANY OF NEW MEXICO

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AFFIDAVIT

I. INTRODUCTION AND PURPOSE

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

A. My name is Stephen Jenkins. I am the Manager of Transmission Planning Engineering at Public Service Company of New Mexico (“PNM”). My business address is Public Service Company of New Mexico, 2401 Aztec Rd. NE, Albuquerque, NM 87107.

Q. Please summarize your education and professional qualifications and describe your job duties.

A. My education and experience are more fully described in PNM Exhibit SJ-1.

Q. What is the purpose of your direct testimony?

A. The purpose of my testimony is to address transmission and interconnection processes associated with the Purchase Power Agreement and the Energy Storage Agreements; Rule 551 requirement related to transmission, including costs and capacity; to discuss the Large Generator Interconnection Agreement for each project, or status thereof; and discuss costs of transmission and interconnection of PNM-owned generation projects for which approval is being sought.

Q. Is there an additional purpose to your testimony?

A. Yes. My testimony also addresses PNM’s request for a certificate of public convenience and necessity (“CCN”) pursuant to NMSA 1978, Section 62-9-1 and 17.1.2.9 NMAC, which requires a utility seeking approval of a new energy storage systems to file a CCN. My testimony describes the transmission costs PNM will incur for new energy storage systems included in this filing that will be owned by PNM. Any such systems are also

subject to the FERC open access transmission interconnection process resulting in the same steps and information required for a PPA or ESA interconnection.

II. LARGE GENERATOR INTERCONNECTION PROCEDURES AND INTERCONNECTION AGREEMENT STATUS

Q. Are there any terms you will use in your testimony that you would like to define now?

A. Yes. It is necessary to identify PNM's **Open Access Transmission Tariff** ("OATT"), which defines the terms established by Federal Energy Regulatory Commission ("FERC") that govern the facilities necessary for interconnection and transmission service associated with generation facilities interconnected to PNM's transmission system. All FERC regulated utilities that own, control, or operate transmission are required to have an OATT. The OATT is approved by FERC and provides the rates and terms that determine how a utility runs its transmission business.

A **Purchase Power Agreement** ("PPA") is a contract between the generator owner and PNM to purchase power for a specified time and price over a defined term. The generator owner owns, operates, and maintains the facilities and the buyer agrees to purchase the output of the facility.

An **Energy Storage Agreement** is a contract where the generator owner finances, constructs, and owns the equipment and PNM pays for usage of the equipment in the form of an availability price per MW hour.

A **large generator** is defined by NERC to have a capacity of greater than 20 MW. This threshold determines if a generator is governed by the LGIP or SGIP as defined later in my testimony.

Q. Is PNM's OATT publicly accessible?

A. Yes. The complete OATT is available on PNM's Open Access Same-Time Information System website, at <http://www.oatioasis.com/pnm/index.html>. Attachment N to the OATT, **Large Generator Interconnection Procedures** ("LGIP") describes the procedures PNM must follow to interconnect Large Generating Facilities to its transmission system. Capitalized terms referenced in this testimony not defined herein are defined by the LGIP. The LGIP includes the standard Large Generator Interconnection Agreement ("LGIA"), which is the agreement that PNM enters into with Interconnection Customers. The LGIA provides the terms, conditions, and costs applicable to the interconnection.

Q. What is an LGIA?

A. An **LGIA** is the agreement between PNM and an Interconnection Customer for a generation or storage facility, to interconnect with PNM's transmission system which defines the terms, conditions, and costs applicable to the interconnection.

Q. What is the difference between network upgrades and interconnection facilities related to LGIAs?

A. Throughout my testimony, I refer to two types of transmission facilities: Network Upgrades and Interconnection Facilities. LGIAs include references to the Interconnection Customer's Interconnection Facilities ("ICIF"), the required Transmission Provider's Interconnection Facilities ("TPIF"), and Station Network Upgrades and Transmission System Network Upgrades.

Station Network Upgrades are facilities needed at the Point of Interconnection to physically connect the generation facility. Transmission System Network Upgrades are upgrades to

the transmission system to move power and energy beyond the Point of Interconnection to PNM load.

Interconnection Facilities include all facilities and equipment between the generating facility and the Point of Interconnection to the transmission system. Most of the Interconnection Facilities are the Interconnection Customer's facility needed to reach the Point of Interconnection with PNM's transmission system. These typically include generator step-up transformers, generation tie lines, and a generation facility breakers. These facilities represent the ICIF mentioned above and remain assets that are part of the Interconnection Customer facility. All ICIF and associated costs are the responsibility of the Interconnection Customer, and such costs are determined by the Interconnection Customer. A portion of the facilities just beyond the point of interconnection are TPIF and owned by PNM. TPIF represents sole use facilities, which means their cost is recovered directly from the Interconnection Customer. For this testimony, TPIF is referred to as Interconnection Facilities.

Network Upgrades are modifications or additions to the PNM transmission system that are integrated with and support PNM's overall transmission system for the general benefit of all users of the transmission system. Network Upgrades include any transmission system facilities at or beyond the Point of Interconnection where a generator connects its generation project to the PNM transmission system. Network Upgrade costs are shared by all transmission customers because they enable increased energy delivery to PNM's customers and generally the system as a whole. Thus, under FERC policy, generators initially pay the cost to construct required Network Upgrades to interconnect their generator but are eligible to have that cost reimbursed as a lump sum or receive

transmission service credits once the generation facility is in-service. The costs are ultimately recovered from all users of the transmission system.

Q. Has PNM executed a LGIA for the planned standalone 150 MW Sun Lasso Storage BESS?

A. No, the final execution process is underway and expected to be completed no later than December 27, 2024.

Q. Has PNM executed a LGIA for the planned standalone 150 MW Corazon BESS?

A. No, the final execution process is underway and expected to be completed no later than December 27, 2024.

Q. Has PNM executed a LGIA for the combined 100 MW Solar + 30 MW BESS Sunbelt Project?

A. Yes, the LGIA was executed in October of 2017.

III. RULE 551 REQUIREMENTS

Q. Please describe the network upgrade costs PNM will incur or pay to receive the purchased power pursuant to 17.9.551.8(D)(3) NMAC.

A. 17.9.551.8(D)(3) requires a description of transmission costs the electric utility will incur or pay to receive the purchased power. PNM will not incur or pay for network upgrade costs. The PPA in this filing continues purchase of power from an existing facility and, therefore, will not require PNM to incur or pay any costs for network upgrades.

Q. Do you address other Rule 551 requirements in your testimony?

- A. No, I do not address other Rule 551 requirements in my testimony. Please see PNM Exhibits 1 and 2, respectively, to the Application for a table showing where each provision of Rule 551 is addressed in PNM's testimonies.

**IV. DESCRIPTION AND COST OF THE INTERCONNECTION FACILITIES
AND NETWORK UPGRADES**

Q. Does interconnection of the standalone ESAs require construction of new transmission facilities?

- A. Yes. These are summarized in the diagrams in PNM Exhibit SJ-2. Corazon requires the additional of two 345 breakers and associated equipment at the existing Pajarito substation to accommodate the interconnection. The Pajarito substation was built to accommodate additional facility interconnections. Sun Lasso (formerly Central) requires the construction of a satellite station outside Central substation referred to in the system impact and facilities study as Sunset Gardens.

Q. What is the cost identified to interconnect the standalone ESA facilities?

- A. The ESA facilities are Central and Corazon BESS. At the time of the 2028 RFP analysis, the facility study was still underway, and the system impact study cost estimates were used. The total transmission system upgrade costs less the costs embedded in the proposal were \$21.38 million for Central ESA transmission system interconnection and \$1.1 million for Corazon ESA transmission system interconnection.

Q. Does PNM's construction of the transmission facilities you describe below depend on Commission approval of the ESAs?

A. No. For the two ESA Projects, Central and Corazon, PNM has an obligation to construct the transmission facilities under the LGIA given the obligations between PNM as a FERC-regulated Transmission Provider and Transmission Owner, and the Interconnection Customer, provided the Interconnection Customer has given Notice to Proceed and provided a proper form of financial security is delivered to PNM. This process is governed by FERC and independent of whether the NMPRC approves the PPA and ESA. However, it is unlikely that an Interconnection Customer would request that PNM proceed with construction of the Interconnection Facilities without an approved PPA or ESA.

Q. What is the cost identified to interconnect the Sunbelt Project?

A. The project will use the existing transmission substation interconnection position vacated by removal of the San Juan Unit 3 generator. The Definitive Interconnection Cluster 9 Facilities Study identified a total cost of \$0 for transmission upgrades to accommodate San Juan Solar 1 (Renamed to Sunbelt) using the existing San Juan Unit 3 bay position. This \$0 cost does not include TPIF estimations. For the purposes of the RFP analysis PNM assumed a cost of \$500,000 for the transmission upgrade costs (TPIF).

Q. Will PNM notify the Commission prior to proceeding with the transmission facilities for the Sunbelt Project?

A. Yes. Notice of the construction of the transmission facilities is required under 17.5.440.8 NMAC. PNM will submit the required filing in a timely manner.

V. OTHER MATTERS

Q. Are there other transmission considerations with the BESS facilities?

A. Yes. BESS charging from the grid will be possible at all locations but may be restricted during peak load hours when the highest transmission system loadings occur on portions of the system. Studies do not assess transmission enhancements for charging, and PNM assumes charging from the transmission grid will be on an as available basis. Since batteries will be primarily used to serve load during peak load hours, charging during these hours is not expected to be necessary.

Q. What are the estimated costs of ongoing operations and maintenance of the transmission facilities outlined herein?

A. Since the PPA and ESAs are utilizing existing facilities, there is no additional on-going transmission O&M anticipated from these additions. The operations and maintenance costs for the Sunbelt transmission facilities are estimated to be \$2,240 annually when applying a 0.1% rule-of-thumb multiplier to the capital cost of the interconnection facilities.

Q. Are the costs of the transmission facilities required to interconnect the large generating facilities that are the subject of the ESAs and Sunbelt Project reasonable?

A. Yes. The PPA and ESAs are only incurring a small cost to integrate the additional facilities into the overall system and the costs are expected to be the responsibility of the Interconnection Customer. These costs are established through an engineering review associated with a request from the Interconnection Customer to add additional resources or energy storage system at the existing sites. The costs were determined through the various Interconnection Studies in accordance with PNM's FERC-approved OATT.

Q. Does this conclude your Direct Testimony?

A. Yes

GCG#533192

Education and Professional Qualifications of Stephen Jenkins

PNM Exhibit SJ-1

Is contained in the following 1 page.

Stephen L Jenkins

1040 Carnival Ave NW

Los Lunas, NM 87031

(575) 621-0932

sjenkinsnm@gmail.com

Professional Experience

Public Service Company of New Mexico (2022-)

Transmission Planning Manager

- Lead transmission planning team of 7 and various consultants through 10- and 20-year transmission planning studies, generation interconnection process, FERC regulatory reforms of the open access transmission tariff (OATT), and liaison for technical interactions with developers.
- Manage subject matter experts on regulatory standards covering topics such as modeling, transmission planning coordination, interconnection process, system restoration, and facility ratings.
- Leverage power system modeling packages including GE PSLF, TARA and PSCAD to model, analyze, predict, and optimize the performance and behavior of transmission level grid design and planning. Lead development of new tools like the FERC 2023 heatmap, GSAT, THCT, and more.
- Researcher and active, regular presenter at NATF, NERC, IEEE, and EPRI industry meetings. Key areas of interest include renewable energy integration, datacenter load modeling, power system dynamics, power electronics, and inverter-based resource modeling.

Meta Platforms, Inc (2020-2022)

Electrical Subject Matter Expert – Senior

- Leader of electrical infrastructure systems and equipment spanning from 115 kV substation down to 120 V commercial office space.
- Responsible for electrical systems for substation, conventional hyper-scale data center in building 3, and integration of new technologies for cold storage data center in building 4.
- Account manager for 5-year ABB maintenance contract and \$10 million budget which covered all electrical systems except for UPS at the data center.
- Hands-on troubleshooting, repair, and maintenance of electrical equipment as well as management and oversight of 3rd party contractors and consultants acting in support of operations requirements.
- Coordination and scheduling of contractor and site crews through in-house developed project management and scheduling software.
- Author processes, procedures and reporting metrics including switching procedures, lock out tag out safety procedures, arc flash studies.
- On-site lead for root-cause analysis activities in system protection and utility transmission service. Performed root-cause analysis for voltage sag event that tripped over-current protection, commissioning failure on substation transformer caused by incorrect metering transformer tap ratio, and communications failure of fiber channels between substation switch gear and PNM.
- Provide training to Critical Facility Engineers on electrical equipment and procedures. Qualification training to allow these crews to work on electrical systems during shift work.

El Paso Electric Company (2015-2020)

System Operations Engineer – Staff

- Resolve system issues through both real time and planned power flow studies with GE PSLF, EMS Network Applications, and Dispatcher Training Simulator on GE-Alstom EMS.
- Perform daily evaluations of the power system to forecast and prevent issues in real time in support of NERC TOP-001. Served as Subject Matter Expert in 2018 audit for TOP-001.
- Build team processes from ground up to support of new TOP-001-4 compliance in 2017 starting alone in 2017 and ending off with a team of 4 in 2020.
- Develop and use tools to monitor dynamic system conditions in real time to prevent overloads on the loss of the most severe single contingency.
- Draft and review standard operating procedures to include industry best practices and address new concerns and standards in the industry.
- Ensure that the company meet requirements of industry standards (such as NERC BAL and TOP)

Education Background

Bachelor of Science in Electrical Engineering

May 13th, 2017

New Mexico State University in Las Cruces, NM

Certifications

Professional Engineer (New Mexico)

New Mexico Board of Licensure for Professional Engineers and Professional Surveyors.

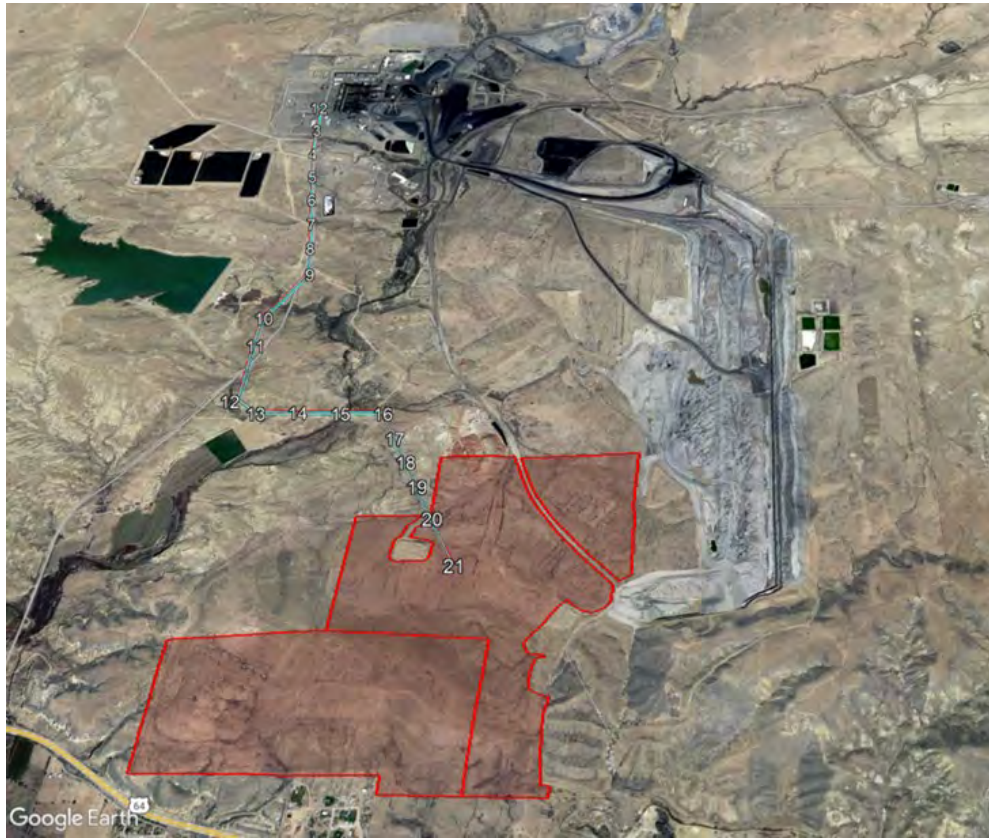
Earned: June 15th, 2022
License: #27906

Facility Locations

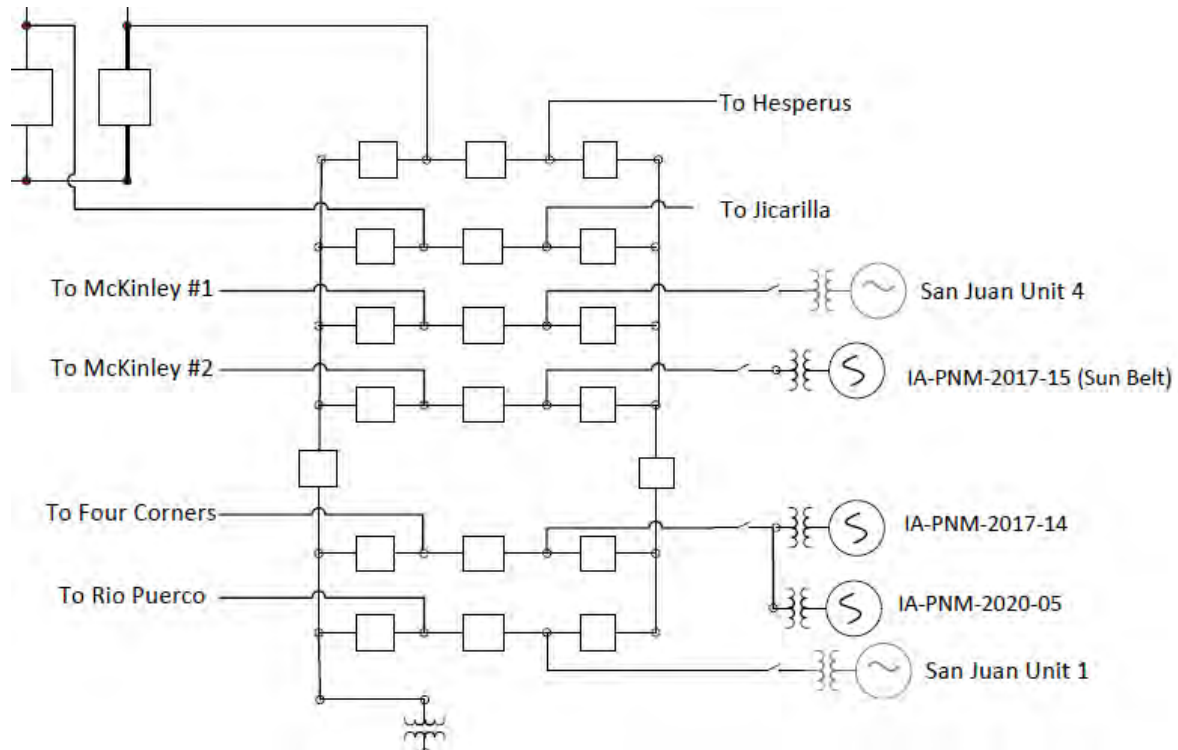
PNM Exhibit SJ-2

Is contained in the following 3 pages.

Location of Sunbelt solar+BESS project and gen-tie into San Juan 345 kV station.



Location of Sunbelt project in San Juan 345 kV preliminary 1-line diagram.



Location of Corazon BESS project and gen-tie into Pajarito 345 kV station.

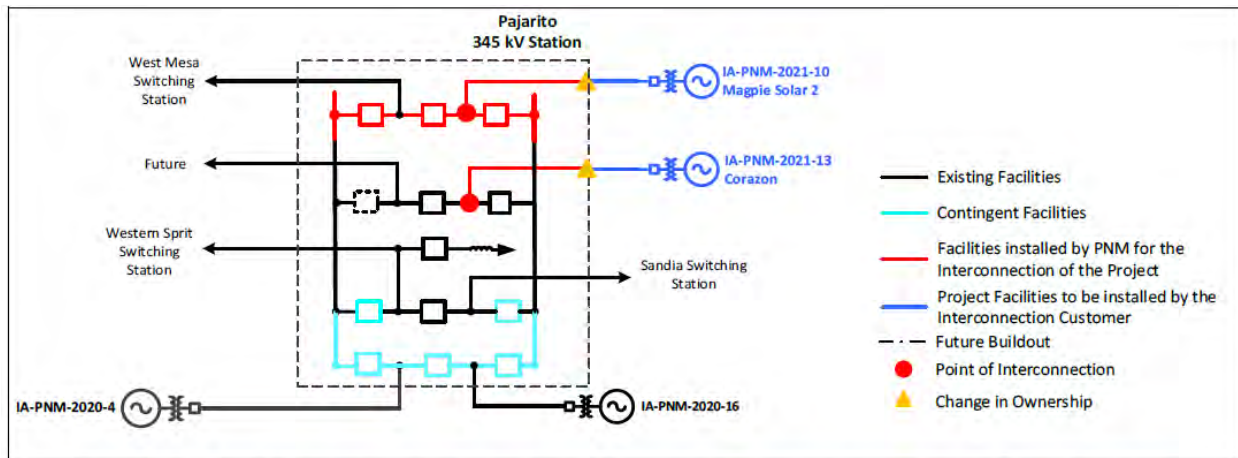
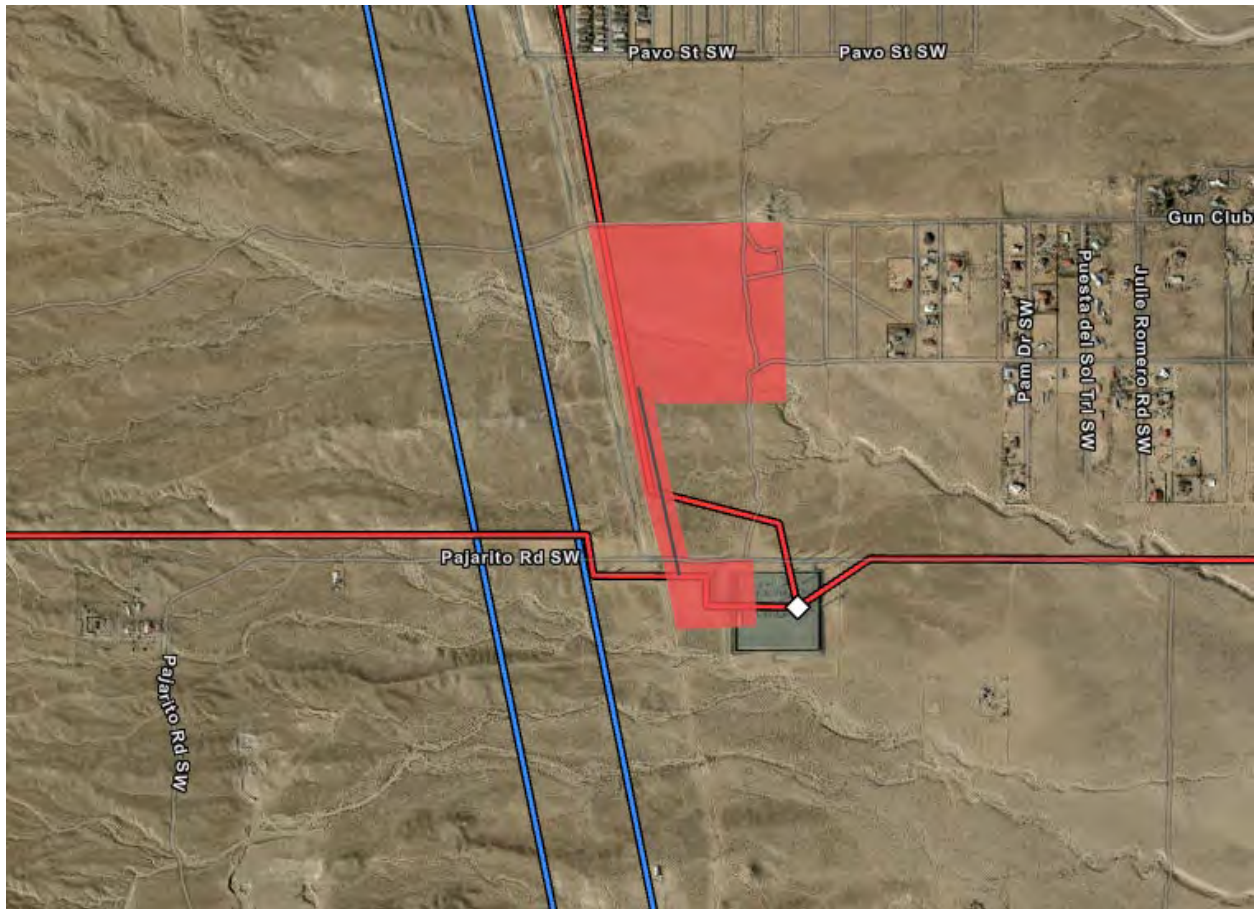


Figure 5. IA-PNM-2021-10 and IA-PNM-2021-13 Projects Interconnection at Pajarito 345 kV Station

Location of Sun Lasso (formerly Central) BESS project. New substation will be located on customer land and tie into Central substation located across the street.



The project is modeled with one equivalent generator representing a BESS facility. The equivalent BESS generator comprises 50 3.630 MVA inverters. The power flow model is depicted in Figure 1.

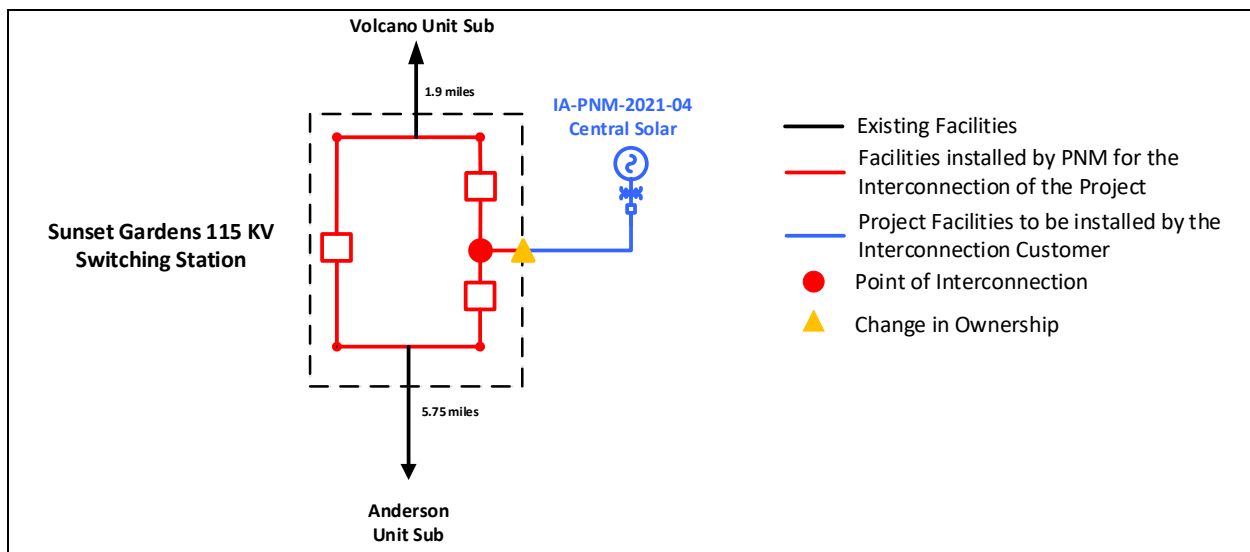


Figure 1. IA-PNM-2021-04 (ERIS) Project Interconnection at the Sunset Gardens 115 kV Switching Station

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AGREEMENTS, AND CERTIFICATE OF PUBLIC)
CONVENIENCE AND NECESSITY FOR SYSTEM)
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Applicant)
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AFFIDAVIT

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

STEPHEN JENKINS, Manager, Transmission Planning Engineering, 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 Stephen Jenkins** and it is true and accurate based on my own personal knowledge and belief.

Dated this 22nd day of November, 2024.

/s/ Stephen Jenkins
STEPHEN JENKINS