BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

IN THE MATTER OF PUBLIC SERVICE COMPANY OF NEW MEXICO'S APPLICATION FOR APPROVAL OF PURCHASED POWER AGREEMENTS, ENERGY STORAGE AGREEMENTS, AND CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY FOR 2029-2032 SYSTEM RESOURCES AND THE ABANDONMENT OF THE FOUR CORNERS POWER PLANT	)	**Docket No. 26-0000___**
PUBLIC SERVICE COMPANY OF NEW MEXICO,	)	
Applicant.	)	

DIRECT TESTIMONY

OF

OMNI B. WARNER

May 29, 2026

NMPRC DOCKET NO. 26-0000___
INDEX TO THE DIRECT TESTIMONY OF OMNI B. WARNER

WITNESS FOR
PUBLIC SERVICE COMPANY OF NEW MEXICO

SPONSORED EXHIBITS

PNM Exhibit OBW-1	Education and Professional Qualifications of Omni B. Warner
PNM Exhibit OBW-2	Four Corners Power Plant Decommissioning Costs
PNM Exhibit OBW-3	Four Corners Power Plant Costs for Ponds & CCR
PNM Exhibit OBW-4	Black & Veatch Condition Life Assessment for Reeves Generating Station

DIRECT TESTIMONY
OF OMNI B. WARNER
NMPRC DOCKET NO. 26-0000___

I. INTRODUCTION AND PURPOSE

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

A. My name is Omni B. Warner. I am the Senior Vice President of Operations for 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. I have over fifteen years of experience with PNM, serving as a Power Production Engineer, Maintenance Manager, Director of San Juan Generation Station, Managing Director of Generation, Vice President of Operations & Engineering, and Sr. Vice President of Operations for PNM. My experience spans renewable energy, energy storage, coal, and natural gas technologies. I am PNM's representative on the Four Corners Power Plant Coordinating Committee. I graduated with a Bachelor of Science in Electrical Engineering degree and Master of Science in Electrical Engineering from New Mexico State University. My education and professional qualifications are provided in PNM Exhibit OBW-1.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to support PNM's proposed abandonment of its interest in the Four Corners Power Plant ("FCPP" or "Four Corners") effective in 2031, as well as the continued operation of the Reeves Generating Station ("RGS"

or "Reeves") beyond 2030. I provide background information for the ownership and governance structures of FCPP and address PNM's obligations after the FCPP agreements expire. I provide background for RGS and estimated costs to continue to operate RGS through 2044.

Q. Are you sponsoring any exhibits as part of your testimony?

A. Yes. PNM Exhibit OBW-1 is my educational and professional qualifications. PNM Exhibit OBW-2 and PNM Exhibit OBW-3 are associated with the estimated costs to decommission the FCPP and common areas such as ponds and coal combustion residuals ("CCR"). PNM Exhibit OBW-4 is the Condition Life Assessment for PNM Reeves Generating Station dated May 9, 2025, prepared by Black & Veatch ("Reeves Assessment").

II. BACKGROUND OF THE FOUR CORNERS POWER PLANT AND OWNERSHIP AND GOVERNANCE

Q. Please provide a brief description of the FCPP.

A. FCPP has served customers' needs since PNM acquired a thirteen percent share in Unit 4 and Unit 5, representing 200 MW, in 1969 and 1970, respectively. Four Corners is located near Fruitland, New Mexico within the Navajo Nation. The plant formerly consisted of five coal-fired generation units. Units 1, 2 and 3, in which PNM had no interest, were previously retired for purposes of compliance with the EPA's Regional Haze Rule emission limits. FCPP is supplied coal exclusively from

the adjacent Navajo Mine which is owned by the Navajo Transitional Energy Corporation ("NTEC"). This coal supply agreement expires in 2031.

Q. Please describe the Four Corners plant ownership.

A. The current plant ownership percentages are as follows:

- Arizona Public Service Company ("APS") (63%)
- PNM (13%)
- Salt River Project Agricultural Improvement and Power District (10%)
- NTEC (7%)
- Tucson Electric Power (7%)

Q. Please describe the governance of the plant.

A. APS serves as the operator for Four Corners. Four Corners is governed pursuant to the following main agreements:

1. Co-Tenancy Agreement
2. Operating Agreement
3. Coal Supply Agreement
4. Indenture of Lease

I provide a brief description of each agreement as follows:

1. The Co-Tenancy Agreement

The Co-Tenancy Agreement establishes terms and conditions relating to the ownership and operation of FCPP. Under this agreement, participants accept title to Four Corners, are granted leased lands as tenants-in-common through the duration of the term of the agreement and waive their right to partition their respective interests from the whole. The agreement establishes the participants' ownership percentages of facilities and capacity rights. It establishes and defines the Coordination Committee as a means of communication and cooperation among the participants in connection with the plant. The Co-Tenancy Agreement governs the participants' right to transfer or assign their respective rights, titles and interests in the plant and includes the right of first refusal for a proposed assignment or transfer of any portion of the plant. Express prior written consent of all participants must be given for any assignment or transfer of ownership interests in the plant. The current Co-Tenancy Agreement is effective through July 7, 2041.

2. The Operating Agreement

The FCPP Operating Agreement establishes the framework governing the operation, maintenance, cost allocation, and governance of the plant, designating APS as the operating agent and defining its authority and responsibilities. The agreement establishes governing committees and specifies their authority and voting requirements for oversight of operations, budgeting, capital expenditures, and emergency actions. It defines participant obligations for the payment and allocation of operating and maintenance costs, fuel costs, materials and supplies, insurance, and administrative expenses. The agreement also addresses scheduling

rights, minimum load requirements, start-up, and auxiliary power needs. The current Operating Agreement is effective until the expiration of the Co-Tenancy Agreement.

3. The FCPP Coal Supply Agreement

The FCPP Coal Supply Agreement ("Coal Agreement"), to which all participants are a party, provides for NTEC to be the exclusive coal supplier and establishes the minimum coal take requirements, coal pricing, coal quality requirements, points of delivery, as well as coal mine reclamation obligations. The Coal Agreement is effective until July 6, 2031.

4. The Indenture of Lease Agreement

The Indenture of Lease and Supplemental and Additional Lease Agreements (Lease Agreements") grant certain rights-of-way and easements on property within the Navajo Nation to allow for construction and operation of Four Corners and the associated transmission system. It also addresses requirements of decommissioning after the Lease Agreements expire. The current leases expire on July 6, 2041, by which time all associated power plant equipment will need to be removed from the site.

III. PNM'S REQUEST TO ABANDON FOUR CORNERS POWER PLANT

Q. Why is PNM seeking to abandon its interest in FCPP?

A. PNM is subject to the emissions limitations under the New Mexico Energy Transition Act ("ETA"). Abandonment of FCPP, coupled with the implementation of the proposed resource portfolio, will help ensure compliance with the ETA limitations while meeting customer demand and energy needs with the lowest reasonable cost portfolio. This is more fully explained by PNM witness Duane.

Q. Are there portions of the facilities at Four Corners that PNM is retaining and not subject to the present abandonment?

A. Yes. PNM is retaining its interest in the Four Corners 230 kV, 345 kV, and 500 kV switchyards ("Retained Facilities"), and it is not requesting abandonment approval for these facilities. The Retained Facilities are needed to provide transmission reliability for PNM customers.

Q. When does PNM propose that its abandonment of Four Corners become effective?

A. PNM proposes that the abandonment of FCPP, excluding the Retained Facilities, be effective on or before November 1, 2031. The Coal Agreement expires on July 6, 2031, which terminates PNM's obligations under the Coal Agreement and provides a reasonable time for PNM's abandonment in the plant. While the Coal Agreement expires on July 6, 2031, PNM anticipates that the FCPP participants will agree to a limited extension of the agreement through the remaining peak demand months in 2031. Therefore, PNM requests November 1, 2031, as the actual abandonment date. The abandonment of FCPP in 2031 precedes the lower electric

utility carbon emissions limitations of 200 lbs. CO_2/MWh that go into effect beginning in 2032.

Q. Are there plans to continue to operate Four Corners beyond 2031?

A. There is no agreement among PNM and the other participants for continued coal supply beyond the expiration of the Coal Agreement, nor is there any agreement for continued operations of the power plant beyond the expiration of the Coal Agreement. In any case, if the requested abandonment is approved, PNM will not be part of any Four Corners Power Plant operations beyond November 1, 2031. PNM will continue to operate the Reserved Facilities.

Q. Does PNM's responsibility for mine reclamation costs under the Coal Agreement change if other parties continue to operate beyond 2031?

A. No. PNM's responsibility for mine reclamation is limited to funding its proportionate share of final reclamation costs through an escrow account. The escrow will be fully funded prior to the termination date of the Coal Agreement. PNM has no obligation to perform reclamation work and no liability for mine reclamation beyond escrow funding. PNM has contributed $18.4 million into the escrow and is estimating $10.8 million still to be contributed before mid-2031.

Q. Will PNM seek recovery for these mine reclamation costs?

A. No. PNM's recovery of surface mine reclamation costs has been capped, and the cap has previously been met.

Q. How will PNM continue to meet customer needs if Four Corners is abandoned in 2031?

A. PNM is seeking approval of a portfolio of specific and identified generation resources to safely and reliably serve customers in this case; if approved, Four Corners will no longer be needed to serve customers after 2031. PNM's resource portfolio analysis is discussed by PNM witness Duane. Notwithstanding the abandonment of Four Corners, the Reserved Facilities will continue to serve customers.

Q. Will the abandonment of Four Corners result in a reduction in air emissions in PNM's generation portfolio?

A. Yes. The total carbon emissions of the preferred portfolio comply with the limitation of 200 lbs. CO_2/MWh that begins in 2032. Abandonment of FCPP will reduce PNM's carbon footprint, in compliance with the ETA. PNM Exhibit TPD-4 attached to the direct testimony of PNM witness Duane illustrates the PNM total portfolio carbon emission summary for 2026 – 2045. The abandonment and removal of FCPP from PNM's portfolio will also reduce the emissions of nitrogen oxides, sulfur dioxide, and particulate matter from PNM's generation fleet.

Q. What contractual obligations with the other participants will PNM have with respect to the operation of Four Corners between now and 2031 if the abandonment is approved?

A. PNM's obligations and rights under the FCPP agreements described above will remain in effect. These include, among other things, PNM's obligations to purchase coal for FCPP and to pay its share of costs related to FCPP operating expenses and necessary capital investments. These investments will help ensure safe and reliable operation of FCPP through 2031, during which period customers will continue to benefit from the energy and capacity associated with PNM's 13% share (200 MW) of FCPP.

Q. How are the capital budgets for Four Corners developed?

A. APS, as the plant operator, determines project prioritization and cost estimates for necessary capital investments. APS presents the capital plans to the plant owners for review and approval. The owners of Four Corners review APS's plans and provide input on the proposed budgets. The final annual capital budgets are then put to a vote of the plant owners. Each owner is responsible for its proportionate contractual share of the actual capital expenditures.

Q. How much does PNM estimate it will need to make in capital investments for Four Corners between 2026 and 2031?

A. Based on information and estimates provided by APS, PNM anticipates that its share of capital costs for continued plant operations through 2031 will total approximately $28.8 million. PNM Table OBW-1 below shows the estimated annual unloaded capital expenses.

PNM Table OBW-1 – FCPP Capital Investments 2031

Year	Capital Investment ($000)	PNM's 13% Share ($000)
2026	$49,852	$6,481
2027	$54,878	$7,134
2028	$63,120	$8,206
2029	$32,758	$4,259
2030	$20,917	$2,719
2031	$209	$27
	$221,734	$28,826

Q. Are these estimated capital investments necessary and reasonable to maintain the continued safe and reliable operations of Four Corners through the projected abandonment date?

A. Yes. They are reasonable and necessary to operate the plant in a safe, reliable manner and remain in regulatory compliance. It is also critical to make investments in the plant and facilities to ensure the safety of Four Corners employees throughout the operation of the plant. Adhering to regulatory compliance and safety requirements necessitates ongoing capital investments in plant equipment and facilities.

Q. Is PNM seeking any ratemaking treatment or pre-approval of estimated expenses in this case related to the continued operation or abandonment of Four Corners?

A. No. Any ratemaking treatment associated with FCPP will be addressed in a future appropriate proceeding.

Q. Could PNM force Four Corners to permanently shut down at the end of the Coal Agreement in 2031?

A. No. PNM does not have the ability to unilaterally close Four Corners. The other FCPP agreements continue beyond 2031. If Four Corners operates beyond 2031, PNM would likely seek to sell or transfer its interests.

Q. Could PNM require the closure of just its thirteen percent of Four Corners?

A. No. FCPP ownership is a tenancy in common and PNM's share, while a minority interest, is an integral part of the plant. There is no feasible way to shut down just 13% of the plant.

Q. What is the projected capital investment cost if PNM were to remain in Four Corners beyond 2031 rather than exiting from the plant?

A. Based on information and estimates provided by APS, PNM anticipates that PNM's share of capital costs for continued plant operations through 2038 will total approximately $153.2 million. PNM Table OBW-2 below shows the estimated annual unloaded capital expenses.

PNM Table OBW-2 – FCPP Capital Investments 2038

Year	Capital Investment ($000)	PNM's 13% Share ($000)
2026	$72,639	$9,443
2027	$75,226	$9,779
2028	$83,959	$10,915
2029	$70,424	$9,155
2030	$72,775	$9,461
2031	$162,515	$21,127
2032	$212,387	$27,610
2033	$80,307	$10,440
2034	$98,643	$12,824
2035	$88,909	$11,558
2036	$79,321	$10,312
2037	$81,472	$10,591
	$1,178,577	$153,215

Q. Has PNM analyzed the estimated costs for customers if PNM did not abandon its interest in FCPP?

A. Yes. PNM has modeled the capital investment for Four Corners for a continued operation through 2038, see PNM witness Duane for the analysis.

Q. What is the basis for the year 2038?

A. Four Corners is located on Navajo Nation land pursuant to the Lease Agreements. As a condition of locating, constructing and operating the plant on Navajo Nation land, the Lease Agreements require that upon termination, all facilities, equipment, buildings, etc. must be dismantled and removed from the site unless otherwise specified in any of the agreements which expire in 2041. Ceasing plant operations

at the end of 2038 allows time to accomplish the requirements of the Lease Agreements.

Q. Will customers benefit from PNM's proposed abandonment of its interest in Four Corners?

A. Yes. Customers benefit from PNM compliance with the ETA's emissions limitations and from being served by other available resources included in the proposed portfolio. While PNM must exit the plant in order to comply with the ETA's emissions requirements, the modeling assumptions detailed by PNM witness Duane also demonstrate the likelihood that there are economic benefits to customers that can be obtained through alternative resources.

IV. PNM OBLIGATIONS AFTER FOUR CORNERS POWER PLANT ABANDONMENT

Q. Please explain the basis for PNM's existing obligations with respect to Four Corners.

A. PNM's existing obligations are primarily the result of the Four Corners ownership agreements and the Coal Agreement discussed above. These contractual obligations include contributions to necessary capital investments and O&M costs to keep Four Corners operating in a safe and reliable manner and in compliance with applicable laws as discussed previously. PNM also has obligations with respect to plant decommissioning when Four Corners ultimately retires. PNM has obligations with

respect to fuel purchases from NTEC under the Coal Agreement, which will cease when the agreement expires in 2031.

Q. What are the existing requirements for plant decommissioning at Four Corners?

A. As noted above, under the Lease Agreements, all facilities, equipment, buildings, etc. must be dismantled and removed from the site unless otherwise specified in any of the agreements. Therefore, the estimated decommissioning costs assume a full plant dismantling and disposal, except for a limited number of office and storage buildings identified in the Lease Agreements.

Q. How is the decommissioning of Four Corners governed among the plant owners?

A. Under the terms of the Four Corners Operating Agreement, the E&O Committee must develop a plan for review and approval by the plant Coordination Committee that meets all applicable decommissioning requirements, including the requirements under the Lease Agreements. All decommissioning activities must be completed prior to the expiration of the other agreements in 2041.

Q. When was the latest decommissioning study for Four Corners completed and what is the estimated decommissioning cost?

A. APS updated a decommissioning cost study in December 2024. Aptim Environmental Services LLC was contracted to estimate costs to decommission

Units 4 and 5 assuming shutdown July 6, 2031, which is included as PNM Exhibit OBW-2. A separate company, AECOM, provided long range forecasts for decommissioning the FCPP ponds, ash disposal areas, San Juan River intake, dam, etc. and the forecast is attached as PNM Exhibit OBW-3. The latest estimate for decommissioning is approximately $300 million. PNM's share of this estimated amount is approximately $39 million.

Q. Are these estimated plant decommissioning costs necessary and reasonable?

A. Yes. PNM has always been obligated to pay its share of plant decommissioning costs as a necessary cost of serving its customers. The decommissioning cost estimate is based on a sound engineering study which analyzes the technical and financial requirements of various components of plant decommissioning and removal and represents the reasonable cost of plant decommissioning for the owners. As noted above, the Four Corners owners have a contractual obligation to fully complete all decommissioning obligations prior to expiration of the land lease and therefore the timing of decommissioning activities is already established.

Q. Is PNM seeking any recovery for any Four Corners plant decommissioning costs in this case?

A. No. Any proposed recovery for decommissioning costs not previously collected from customers would be handled in a future appropriate proceeding before the Commission.

Q. Does PNM have any responsibility for mine reclamation associated with Four Corners and the Four Corners Coal Mine?

A. Yes. As discussed earlier, the plant participants have certain mine reclamation obligations under the Coal Agreement and PNM remains responsible for its share of costs associated with mine reclamation at the Navajo Mine. PNM's responsibility for mine reclamation is limited to funding its proportionate share of final reclamation costs through an escrow account. The escrow is anticipated to be fully funded prior to the termination date of the Coal Agreement. PNM has no obligation to perform reclamation work and no liability beyond escrow funding.

V. EXTENSION OF REEVES GENERATING STATION

Q. Please provide an overview of Reeves.

A. Reeves, which is located in northern Albuquerque, is a 146 MW natural gas-fired generating plant that is wholly owned and operated by PNM. Reeves consists of three gas-fired conventional boiler and steam turbine units. Unit 1, commissioned in 1958, produces 42 MW, Unit 2, commissioned in 1962, produces 41 MW, and Unit 3, commissioned in 1962, produces 63 MW. Reeves operates on natural gas supplied through New Mexico Gas Company. Energy generated at Reeves can be delivered to customers in northern and southern New Mexico via owned or contracted transmission rights.

Q. What role does Reeves currently play within PNM's generation portfolio?

A. Reeves helps meet PNM's dispatchable generation requirements and it plays an important role in ensuring that PNM's transmission system can meet NERC-required performance criteria in certain contingency conditions. Reeves also provides critical local support for the Albuquerque load pocket, including voltage support and relief of transmission constraints under peak and certain outage conditions as discussed by PNM witness Hakimian.

Q. What is the current operational life expectancy for Reeves?

A. Reeves current operational life expectancy is through 2030, which aligns with its approved depreciation schedule for ratemaking purposes.

Q. Why is PNM seeking to extend the operational life of Reeves?

A. Through its integrated resource planning process, PNM determined that the extension of the operational life of Reeves as part of the proposed resource portfolio in this case is necessary to safely and reliably serve PNM's customers on a cost-effective basis. This is discussed in detail by PNM witness Duane.

Q. What is the engineering and operational consideration for PNM's proposed service life extension of Reeves through 2044?

A. Reeves is an existing facility that can continue to provide operational support to PNM's system during the transition period to zero carbon emissions if appropriate maintenance, inspections, replacements and capital investments are completed as needed. My testimony describes various equipment inspections, repairs and

potential replacements that may be needed to support continued operation through 2044 that are feasible and reasonable from an engineering standpoint. My testimony does not address ratemaking.

Q. Is PNM proposing any enhancements to Reeves to increase its output or performance?

A. No. The investment I address is normal maintenance and repair and replacement as part of the ordinary course of *status quo* continued operations at Reeves.

Q. Is it technologically feasible to extend the operational life of Reeves to the end of 2044?

A. Yes. In 2017, PNM hired the engineering firm Black & Veatch to perform a plant life assessment on major equipment, provide estimates for capital investments and an equipment probability of failure to 2031. PNM had this assessment updated in May 2025 in the Reeves Assessment to determine the technical and economic feasibility of extending the life of Reeves to the end of 2044. Black & Veatch concluded that Reeves is well-maintained and Black & Veatch reports no insurmountable issues with operating Reeves through 2044, provided the necessary capital investments are made and proper operations and maintenance are performed.[1] For clarification on the assumed equipment use, Black & Veatch used a 10% capacity factor for the updated life assessment. This is a reasonable

[1] Black & Veatch Reeves Assessment at 1-1 to 1-2.

assumption because Reeves had an approximate capacity factor of 12% from 2015 through 2025.

Q. Why did PNM choose Black & Veatch as the engineering firm to undertake these studies?

A. Black & Veatch is a multifaceted, international engineering firm that serves the utility and other infrastructure industries. PNM has engaged Black & Veatch on numerous projects over the years and is very familiar with the quality of their work. Correspondingly, Black & Veatch is very familiar with PNM and its generation plants. Black & Veatch has particularized expertise in lifecycle services to develop solutions designed to maximize asset performance and sustainability. Black & Veatch is well-qualified to evaluate the proposed life extension of Reeves.

Q. How will Reeves be utilized to serve customers once the portfolio of resources proposed in this case are operational?

A. Reeves will be used primarily to serve peak load periods and to provide voltage and transmission contingency support that maintains system reliability.

Q. What is the nature of the capital investments that Black & Veatch anticipates may be necessary to extend the operational life of Reeves to the end of 2044?

A. Appendix B to the Black & Veatch Reeves Assessment provides an itemized assessment of the Reeves capital expenditures for operations through 2044. It is important to note that the tasks and equipment outlined in the Reeves Assessment

are estimates. PNM will regularly assess the condition of the equipment and perform the necessary maintenance or replacements to ensure continued safe and reliable operation of Reeves.

Q. What are the estimated capital expenditure amounts associated with extending the operational life of Reeves through 2044?

A. Black & Veatch estimates that the capital expenditure amounts of continuing to operate Reeves through the current depreciation life of 2030 is approximately $22 million. The estimated capital expenditure amounts to extend the Reeves operating life to the end of 2044 are approximately $133.8 million, for an incremental increase of $111.8 million. Again, these costs are high level estimates. Black & Veatch used the standard American Association of Cost Engineers Class 5 cost estimates for their analysis, which could be -50% on the low end to +100% on the high end. If a given task or equipment replacement is determined not to be necessary, PNM will not implement the task or replacement.

Q. Do the estimated capital investments include any additional emissions controls for Reeves?

A. No. To be thorough, PNM asked Black & Veatch to provide an estimate of capital expenditures and O&M costs associated with installation and operation of selective catalytic reduction ("SCR") and selective non-catalytic reduction ("SNCR") emissions controls at Reeves. However, as noted previously, PNM is not going to modify Reeves or change its current operations such that the capacity output or

emissions from Reeves will change. Based on this, PNM does not believe that SCR, SNCR, or other additional emissions controls, are likely to be required for Reeves through 2044.

Q. What are the total anticipated O&M costs for Reeves going forward?

A. The estimated O&M costs for Reeves through 2030 are approximately $34.7 million, and $182.8 million through the end of 2044, for an incremental increase over retirement in 2030 of $148.1 million**.**

Q. In your opinion, are the Black & Veatch estimated capital expenditures and O&M costs for the extension of Reeves reasonable and necessary for the continued safe and reliable operation of Reeves through 2044?

A. Yes, the costs are reasonable and necessary. With the number of variables and assumptions associated with these assessments, high level costs and exact equipment conditions are difficult to estimate. The recommended tasks and associated investment costs are necessary and reasonable based on current and anticipated future operations at Reeves through 2044.

Q. What are the anticipated environmental permit renewals that will be required for Reeves through 2044?

A. Table PNM OBW-3 provides a listing of the applicable environmental permits for Reeves and their renewal time periods.

PNM Table OBW-3- Reeves Environmental Permits

Environmental Permits	Issue Date	Term	Expiration Date
Certificate of Registration (Auxiliary boiler only)	3/11/2011		N/A
Air Quality Authority to Construct (Emergency Generator only)	7/12/2011		N/A
Acid Rain Permit	8/20/2024	5 Years	8/20/2029
Operating Permit	8/20/2024	5 Years	8/20/2029
Industrial Pretreatment Wastewater Discharge Permit	6/24/2024	5 Years	6/24/2029
Discharge Permit DP-68	11/3/2021	5 Years	11/2/2026

Q. Is PNM seeking any ratemaking treatment or an extension of the Reeves depreciation life in this case with respect to the extension of the operational life of Reeves?

A. No. Any ratemaking treatment or modification to the Reeves depreciable life will be addressed in a future general rate case or other appropriate proceeding.

VI. CONCLUSION

Q. Provide a summary of your recommendations.

A. I support the recommended generation resource portfolio to meet future system loads. Along with the new proposed generation resources, I recommend approval of the abandonment of PNM's interest in Four Corners at the end of the Coal Agreement in 2031 to help reduce PNM's emissions that will be required in 2032. As noted above, PNM is not seeking abandonment of the Four Corners Reserved Facilities. I also support the recommendation to continue operating Reeves at low-

capacity factors to support peak load demands and support transmission requirements, as needed.

Q. Does this conclude your testimony?

A. Yes, it does.

GCG#535321

Education and Professional Qualifications of Omni B. Warner

PNM Exhibit OBW-1

Is contained in the following 1 page.

OMNI B. WARNER

EDUCATIONAL AND PROFESSIONAL SUMMARY

Name: Omni B. Warner

Address: PNM
MS Z120
2401 Aztec Road NE
Albuquerque, NM 87101

Position: Senior Vice President, PNM Operations

Education: Bachelor of Science in Electrical Engineering, New Mexico State University, 2001
Master of Science in Electrical Engineering, New Mexico State University, 2009
Energy Executive Course, The University of Idaho, 2019
Professional Engineering in the State of New Mexico, license #18406, 2008

Employment: Employed by PNM since 2011.
Positions held with the Company include:
Senior Vice President, PNM Operations
Vice President, PNM Operations & Engineering
Director, Distribution Engineering
Managing Director, PNM Generation
Director, SJGS Plant Manager
Manager, SJGS Maintenance
Team Manager, SJGS Engineering
Sr. Engineer, Power Production

Testifying Experience: NMPRC Case No. 22-00058-UT – PNM Grid Modernization
NMPRC Case No. 23-00162-UT – PNM 12 MW BESS Project
NMPRC Case No. 24-00089-UT – PNM 2025 Rate Case

Four Corners Power Plant Decommissioning Costs

PNM Exhibit OBW-2

Is contained in the following 21 pages.

Arizona Public Service

2024 Decommissioning Cost Estimate Update2031

Shutdown Scenario

Four Corners Power Plant – Units 4 & 5

Revision 5
Issued: 12 December 2024

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Table of Contents

List of Tables

List of Attachments

1.0 Executive Summary

Aptim Environmental Services, LLC (Aptim) is pleased to provide to Arizona Public Service (APS) the Revision 5 cost estimate update related to the Four Corners Power Plant Harvest Study. Prior to this update, past estimates involved updating the Four Corners Harvest Study assessment performed by then Shaw Environmental & Infrastructure and the update to that assessment in 2013 and 2015 conducted by CB&I Environmental & Infrastructure. These are legacy companies to Aptim Environmental Services. The review of previous data also included the removal of common buildings from the overall cost estimate in anticipation they would be left on site after the decommissioning and remediation is complete. This analysis and ensuing revisions that have been produced through this Revision 5 for 2024 involved updating and validating original data collected in the 2009, 2012 and 2013 site surveys and reports including evaluating costs and revenue given the yearly current market value of scrap material at the time of each revision publication.

Prior estimates also originally included the revision of the new schedule of decommissioning events. This revised report for 2024 is based on the update of labor, material, and equipment rates from information available as of November 2024 for the cost estimate. The previous revision's cost estimate entries were revised by escalating rates at a 2.5% rate to represent the costs based on a projected shutdown date of 31 July 2031. For the 2024 update, an escalation factor of 4% was applied to this year's costs and going forward, in accordance with recommendations from Aptim's cost estimating group, was applied to account for rising costs due to the current global rate of inflation. Future reports will more than likely change the escalation factor both on labor, equipment, and materials (particularly fuel costs) given market conditions at the time of preparation of newly revised reports going forward.

The previous estimated salvage value of recyclable scrap was also updated in this revision based on November 2024 metals market commodity rates. For 2024 these values were also verified by scrap dealers and demolition companies that have worked with Aptim over the past 10 years. Currently, the metals market remains highly volatile and scrap values for common recyclable ferrous and non-ferrous metals has been shown to be variable over short durations due to domestic and global economic conditions. For example, this year's scrap steel rate has been greatly reduced while the value for bright copper has almost doubled in value compared to the value reflected in the 2023 report. As always, Aptim recommends that caution be exercised in applying the scrap credit values quoted due to there variability.

Five previous decommissioning studies have been performed for the entire Four Corners site. In December 2009 Shaw completed an assessment titled "Facility Wide Indicative Demolition Cost Estimate – Four Corners Power Plant". The 2009 assessment characterized project costs and potential revenue sources associated with decommissioning and dismantlement of the Four Corners Generating Station, Units 1 – In June of 2012, Shaw performed a site walk down assessment of Units 1, 2 & 3 to quantify changes to the plant since 2009, and to collect actual sample data of environmental elements of concern. In August 2013 the study was updated with respect to Units 4 & 5 according to work performed at the plant since 2009, and to account for demolition and salvage cost changes. The cost of closing the ash ponds at Four Corners had been previously updated to reflect current cost estimates provided by APS. In 2015 the report was supplemented with an update to provide additional information on the cost of closing additional ponds associated with the wastewater system and the ash system with an expected shutdown in 2038. However, this update no longer addresses any cost impacts related to CCR closure costs of the plant except for the dismantlement of the newly installed above grade sluice system. The costs shown in 2024 Revision 5 addresses decommissioning and demolition costs of Units 4 and 5 along with any below grade asset removal/abandonment associated with the former Units 1, 2 and 3 plant and the removal of the San Juan River pipeline.

This updated analysis given the shutdown schedule of 6 July 2031, will provide APS with a decommissioning/demolition cost and revenue assessment, and schedule for planning activities. This deliverable will assist APS in determining the optimum path for completing the remaining station decommissioning, dismantlement, and demolition, considering the project's short and long-term economics.

Originally, in order to provide recommendations regarding the update to the 2015 report based on a 2038 shut down scenario, Aptim performed data analysis on the following items:

- Remaining Units 1, 2 & 3 demolition activities
- Updated Units 4 & 5 environmental costs
- Updated existing Units 4 & 5 demolition estimate.
- Excludes new systems which have been installed since the start of 2024.
- Updated the material salvage estimate.
- Updated the existing Four Corners decommissioning and demolition schedule.
- Desired Final Disposition of the Site.

The dismantlement of the Bottom Ash Sluice Water Recycle Concrete Settling Tank System installed in 2023 has been captured in the decommissioning and demolition costs for this year and will be carried through successive updates. The Remedial Work Plan, removal of the Gridded Disposal Area, Morgan Lake and Dam removal and restoration and site-wide monitoring well abandonments were once again not included in these costs and all Coal Combustible Residual (CCR) Projects were not included in this report.

Table 1 shows the 2024 Revised Four Corners Shutdown 2031 Overall Units 4 & 5 Project Credits and Costs. The bulk of the revisions to these costs reflect pricing increases of labor, equipment, and materials. These increases were consistently applied across the board in most cases. For example, 2024 costs of some of the smaller equipment remained the same while larger equipment showed change in costs consistent with the rate of inflation. The bulk of the increases observed in 2024 were mostly in labor and materials which were presumably driven by post pandemic economic factors and supply chain shortages for materials. In the cases of equipment and material variability, a straight escalation of 4.0% was applied to Revision 4 pricing.

According to the existing lease agreement with the Navajo Nation, once the overall decommissioning project is complete and the property control is returned to the Nation, there are four (4) buildings which are required to remain. They are the admin building, the warehouse, the maintenance shop and the common building. For the assumptions of this study, it was decided to have the following buildings remain: the new admin building (# 02), the Units 4 & 5 maintenance shop (# 59), the training building (# 30) and the warehouse (# 03). Building numbers were based on drawing F123-C-06-PBS-2318 sheet 1.

Table 1 – Four Corners Shutdown 2031 Overall Project Credits and Costs (Revised, 2024)

Overall Units 4 & 5 Project Credits and Costs	
Description	**Total ($)**
Material Salvage Credit	
Units 4 & 5 (remaining common) Estimated Salvage Value	($32,343,775)
Transportation Costs	$7,623,517
Total Estimated Salvage Value (includes transportation costs)	($24,720,258)
Environmental	
Complete ACM Abatement of Units 4 & 5 and Buildings	$5,597,404

ROM Cost Estimate for Clean, Flush, Removal, Transport and disposal of Universal/Hazardous Wastes for Units 4 & 5	$1,211,414
Environmental Costs Subtotal	**$6,808,818**
Decommissioning/Demolition	
Below Ground Estimated Cost for Decommissioning and Demolition of Four Corners Units 1, 2 and 3 Remaining Assets	$6,453,762
Above Ground Estimated Cost for Decommissioning and Demolition of Four Corners Units 4 & 5 and Common Buildings	$41,567,818
Below Ground Estimated Cost for Decommissioning and Demolition of Four Corners Units 4 & 5 and Common Buildings	$11,601,683
Cleaning of Units 4 and 5 and Associated Structures and Conveyors	$825,386
Demolition of Units 4 & 5 SCRs	$1,871,945
Demolition of the Air Compressor Building and Slab	$260,952
Demolition of the Urea Plant	$235,852
Demolition of the San Juan River Pump House and Removal of Intake Pipe from River to Plant	$1,938,480
Removal of Ash-Concrete Haul Road to Ash Landfill	$1,365,131
Remove Units 4 & 5 Bottom Ash Structure	$576,471
Remove New Recycle Sluice Tanks, Backfill and Restore to Existing Grade	$1,457,845
Decommissioning/Demolition Cost Subtotal	**$68,155,325**
Total Environmental & Decommissioning Costs	**$74,964,143**
Salvage Credit	**(24,720,258)**
Subtotal with Salvage Credit	**$50,243,885**
Navajo Sales Tax (6.51%) (Applied to Total Environmental & Decommissioning cost before Salvage credit)	**$4,880,166**
New Mexico Sales Tax (5.125%) (Applied to Total Environmental & Decommissioning cost before Salvage credit)	**$3,841,912**
Contingency (15%) (Applied to Total Environmental & Decommissioning cost before Salvage credit)	**$11,244,622**
Overall Project Cost in 2024 (Excludes CCR Work; Includes Salvage Credit and Contingency)	**$70,210,585**

At the request of one of the owner participants, Aptim has added a specific line item in the overall cost summary table above specifically for contingency. A requested contingency of 15% was again applied to the subtotals after sales tax to represent the total amount of unidentified risks to be included in the current project costs. Contingency is used to cover unforeseen project risks and their associated taxes) including any increases in the Navajo or New Mexico Sales tax. The 2024 Navajo Sales tax increased 0.51% over last year and is reflected in the above costs.

To ensure consistency and a full representation of the costs, Aptim has also included a line item for the two (2) types of sales tax which will be charged for work conducted at the Four Corners plant site. As part of the 2015 report, Navajo Sales Tax was calculated at 4%. Since then, Navajo Sales Tax has increased to 6.51%. Additionally, New Mexico Sales Tax is also applicable to the overall cost of the project which currently is 5.125%. Both types of sales tax were applied to the Total Environmental and Decommissioning Costs prior to any salvage credit.

Table 2 below represents the below grade decommissioning and demolition costs that remain from the Demolition of Units 1, 2 and 3 with applicable taxes and contingency. Section 2.0 below further describes below grade work associated with these costs.

Table 2 – Four Corners Shutdown 2031 Units 1, 2 & 3 Costs (Revised 2024)

Units 1, 2 & 3 Project Costs	
Description	**Total ($)**
Decommissioning/Demolition	
Below Ground Estimated Cost for Decommissioning andDemolition of Four Corners Units 1, 2 & 3	**$6,453,762**
Units 1, 2 & 3 Decommissioning Cost Subtotal	**$6,453,762**
Navajo Sales Tax (6.51%)	$420,140
New Mexico Sales Tax (5.125%)	$330,755
Contingency (15%)	$968,064
Units 1, 2 & 3 Overall Cost	**$8,172,721**

2.0 Four Corners Units 1, 2 & 3 Remaining Costs

The decommissioning and demolition of Units 1, 2 & 3 were substantially completed at the end of 2016. During the demolition of Units 1, 2 & 3, no below grade activity occurred due to the necessity in maintaining critical systems such as service water, fire water, storm water and sewer system and not impact normal operations of Units 4 & 5. With that the foundations, structures, and all below grade work for all structures throughout the Units 1, 2 & 3 area remain to be completed and will be a required item for the overall reclamation of the site. During the decommissioning of Units 1, 2 & 3 the decision was made to flow fill the inlet lines for the circulating water lines to minimize the risk of the abandoned lines collapsing before the overall site reclamation would occur. These structures are identified as items which will be completely removed as the site below grade activities are occurring and have been included in the Units 1, 2 & 3 cost estimate. The discharge circulating waterlines will be abandoned in place as they are deeper than the 6 feet below grade threshold for structures to be removed. Table 3 shows Units 1, 2 and 3 below ground decommissioning and demolition costs without applicable taxes. This table in 2023 included the closure of the Ash Ponds and other CCR related projects and they have been removed from this update entirely.

Table 3 – Units 1, 2 & 3 Remaining Costs

Overall Project Credits and Costs	
Description	**Total ($)**
Decommissioning/Demolition	
Below Ground Estimated Cost for Decommissioning andDemolition of Four Corners Units 1, 2 & 3	$6,453,762
Units 1, 2 & 3 Decommissioning Cost Subtotal	**$6,453,762**

3.0 Four Corners Units 4 & 5 Environmental Costs

Aptim maintained the overall costs for managing the currently identified environmental site risks. This included the review of the identified wastes based on previous assessments of major storage vessels on site and the inclusion of new materials which have been added to support new systems. Table 4 presents a summary of the environmental costs associated with the decommissioning of Units 4 and 5.

3.1 Waste Management

During the review and analysis of the initial estimate, the survey data included inspection of potential universal waste material sources, such as lead acid batteries, mercury switches, liquid transformers, lube-oil and sodium/mercury and fluorescent bulbs. The field investigation was divided into several areas: "Unit 4 Superstructure", "Unit 5 Superstructure", "Turbine Building No. 88", and individual Support Buildings 13, 14, 15, 16, 19, 20, 21, 29, 30, 32, 42, 43, 46 & 68.

Additionally, during the review of the previous estimate and building on the experience gained during the demolition of Units 1, 2 & 3, it was determined to include initial shutdown cleaning as a portion of the estimate. These are tasks which will occur immediately after the unit is taken offline and before the facility is made completely cold and dark. The post shutdown tasks to include:

a) Remove and correctly dispose of all remaining universal wastes on site.

b) Remove and correctly containerize and dispose of all remaining hazardous materials such as mercury, lead, PCBs, and other wastes on site.

c) Vacuum and washing of all duct work, air heaters, wind boxes, baghouse compartments, ash silos to ensure the proper removal of all CCR waste and the coal conveyance system to remove the bulk of the coal fines.

d) High pressure power wash of tanks, vessels, bottom ash hoppers and sumps to ensure the impacted interior surfaces throughout the site to eliminate any oils, and chemical contamination.

e) Excavate, characterize, dispose of the contents of all collection sumps, pits and ponds which collect sedimentation and other materials during normal operations and move the contents to either the onsite landfill or to an offsite landfill.

Table 4 – Universal Waste Removal and Disposal Costs

Overall Project Credits and Costs	
Description	**Total ($)**
Environmental	
ROM Cost Estimate for Clean, Flush, Removal, Transport and Disposal of Universal/Hazardous Wastes	1,211,414
Environmental Subtotal	**1,211,414**

These costs were increased 4% over last year since the scope remains virtually the same.

3.2 Asbestos Containing Materials

During the review and analysis of the initial estimate revision, the team looked through previous survey data which included the sampling and testing of potential sources of asbestos containing materials (ACM). While there have been several projects which have occurred throughout the plant, there was insufficient information to identify locations in which asbestos may have been abated. To that end, Aptim has carried forward all quantities previously identified in the last report.

The overall cost for removal has been updated to represent current rates for abatement using a 4% escalation on the total price since no additional assets with ACM have been installed at Four Corners since the last report. Aptim used the cost of disposal of ACM during the decommissioning of Units 1, 2 & 3 as a reference point in estimating an overall disposal costs of ACM for Units 4 & 5 and the associated common buildings.

Table 5 is a summary of costs for the abatement of Four Corners Units 4 and 5

Table 5 – ACM Removal and Disposal Costs

ACM Project Costs	
Description	**Total ($)**
Environmental – ACM	
Complete ACM Abatement of Units 4 & 5	$5,266,416
Transportation and Disposal	$330,988
Environmental – ACM Subtotal	**$5,597,404**

4.0 Four Corners Units 4 & 5 Demolition Costs

Aptim looked at the overall costs for demolition of Four Corners Units 4 & 5 with a projected shutdown date of 6 July 2031 (Actual Start date is 7 July 2031).

4.1 Units 4 & 5 Above Grade Demolition Costs

These costs have remained unchanged from 2023 since no new scope or additional assets have been added. This analysis was to focus on using only a demolition contractor to perform all the work in decommissioning and demolition. This includes the demolition of the entire facility including the turbine building and associated pedestals, boilers to existing grade, all concrete foundations, scrubbers, lime units, all conveyors, asphalt pavements, and foundational concrete.

It is for this reason and based upon our experience, that we organized the demolition sequence and ROM engineer's demolition estimate in defined zones that are prioritized in a manner that will best accommodate the deconstruction sequence of the plant both safely and efficiently. The general direction of removal will be from the extreme western end of the plant moving east toward the administration building. The stacks will be dropped once the turbines, boilers, scrubbers, and common structures are removed. At this time, we are anticipating that the larger stacks will be dropped in a due west direction of the plant.

4.2 Units 4 & 5 Below Grade Demolition Costs

Aptim looked at the overall costs for below grade demolition. This included removal of all concrete structures down to six (6) feet below grade and this material will be processed on site and reused as structural backfill to offset the cost of import. This depth allows for the removal of most foundations, duct banks and other major below grade structures. The backfill is primarily to be used to backfill former foundation footprints or other areas required to bring former foundation excavations to finished grade including the hot well pits, reclaim pits, sumps, underflow structures and impoundments. The estimate included flow filling of the Units 4 and 5 circulating water lines instead of removing them as they are currently estimated to be below the 6-foot threshold.

4.3 Four Corners Common Structures Demolition Costs

The decommissioning and demolition of Units 1, 2 and 3 were substantially completed at the end of 2016. Several structures which were originally included inthe original Units 1, 2 & 3 estimate were identified to remain in support of Units 4 & 5.

These structures include:

1. Units 1, 2 & 3 Maintenance Building
2. Units 1, 2 & 3 Electrical Shop
3. Units 1, 2 & 3 Insulation Shop
4. Units 1, 2 & 3 Intercept Sump
5. Training Building

The cost of demolition of these structures have been shifted from the cost of demolition of Units 1, 2 & 3 and have been included in the overall shutdown and demolition of Units 4 and 5. Their costs were included in the common structures portion of the estimate.

5.0 Four Corners Units 4 & 5 New Equipment

Since the last report issued in 2015 there have been several large construction projects which have occurred to support ongoing operations of Units 4 & 5. These projects include but are not limited to the following system:

1. Units 4 & 5 SCRs,
2. Urea Plant,
3. DSI system (hydrated lime silo and injection)
4. Air Compressor Building,
5. Units 4 & 5 New Air Heaters
6. Bottom Ash Water Reclamation System
7. New Main Air Compressor System
8. New Main Tool Room
9. Lubrication Building
10. Ash Haul Road
11. Above grade Sluice Tank System

Aptim has incorporated these systems into the overall estimate to determine how they would impact the overall schedule, additional material salvage as well as the additional disposal of universal waste associated with these systems.

6.0 Four Corners Material Salvage

For the 2031 shutdown scenarios, Aptim utilized previous quantities of salvageable materials and updated salvage value rates to update the possible revenue that could be recovered as part of decommissioning. This analysis included the projected costs of transportation of materials to the nearest cost-effective recyclers for processing. The optimum use of rail and trucking were analyzed to identify the best transportation costs. The updated total salvage quantities are detailed in Table 6.

Table 6 – Units 4 & 5 Salvage Value

Four Corners Units 4 & 5	Steel (gross ton)	Copper (tons @ $4.03/lb)	Stainless Steel (tons @ 0.80/lb)
Current Average Salvage Value	$190	$9,035	$1,600
Current Material Quantities	80,850	1,065	4,600
Total Four Corners Units 4 & 5 Salvage Value Subtotal	$ 15,361,500	$ 9,622,275	$ 7,360,000
Subtotal Four Corners Units 4 & 5	**$ 32,343,775**		
Estimated Shipping Costs	**($ 7,623,517)**		
Total Units 4 & 5 Salvage Value	**$ 24,720,258**		

The largest change from 2023 is the value of structural steel scrap. Steel has experienced a 44% changed from the high of last year's report. However, the value of bright copper has gone up 10% over last year's spot price while 316 Stainless has decreased slightly. The variability of the market and timing of when recycling will take place has direct effect of the commodity price. Some forecasts show that the ten-year average growth of the metals market is anticipated from 2024 through 2034 to be about 1.5% per year. The market remains variable and volatile and further confirms that commodity metals market scrap future pricing remains unpredictable and therefore is not factored into escalation economics. A valuation of the scrap market should be conducted once decommissioning begins.

7.0 Overall Estimate Assumptions

1. All foundations will be removed to no less than 6 feet below final grade. Currently there is not a defined final grading plan.
2. The Units 4 & 5 Base of Estimate from 2023 carries revised 2024 rates for labor, equipment, and other direct costs in this year's report.
3. The SCRs were newly installed following the demolition of Units 1, 2 and 3. The SCR demolition costs are therefore included in the 2020 estimate.
4. Demolition of the SCRs includes an implosion budget followed by concrete removal and metals processing.
5. Time in the SCR demolition is included for burners to weaken the structure prior to implosion.
6. The estimate includes the removal of the Units 1, 2 and 3 circulating water lines. The intake lines are comprised of two buried 84" and 90" diameter lines each adjacent to one another from the intake structure at the lake to where they manifold near the former location of the Units 1, 2 and 3 plant structure location.
7. Total Length of the circulating water lines is 2,200 lf.
8. The circulating water line intakes are completely flow-filled. It is assumed that all subsurface piping must be removed, and the former trench backfilled with clean certified fill material.
9. The tops of the circulating water lines are assumed to be 4-foot bgs with inverts down to 10-foot total depth bgs. Excavation is to be stepped down for safety to expose both pipes prior to extraction from the ground.
10. Approximately 12,222 cy of completely flow-filled circulating water line pipe requires removal from the ground. Removed spoils handling is 21,000 cy of total backfill required including compaction.
11. Units 1, 2 and 3 discharge lines are approximately 1,628 linear feet: Units 1, 2 and 3 discharge lines are not flow filled. Assume 8,800 cy of imported fill to backfill intake and discharge trenches plus compaction are included in the estimate.
12. The main air compressor building, and slab require simple demolition of an engineered building.
13. The Urea Plant consists of a control/storage building, tank, and pipe. Total square footage is approximately 8,428 SF. Demolition is assumed to be 900 SF/day including metal and concrete processing.
14. The San Juan River pump house is 6,000 SF with little room to work due to steep elevation changes around the plant and intake structure located on the river.
15. The pipeline volume from the San Juan River is approximately 26,000 cy of material that requires fill material to regrade the trench. The trench is assumed to be 8-foot deep and 3 feet below grade to its top. The estimate assumes the first 600 lf of pipe will be left in place and plugged with cement retainers in the segment closest to the pump house location to ensure slope stability that may be caused by its removal.
16. A $6,000 allowance for the cement retainers was included in the estimate to isolate this segment of piping at the San Juan River.
17. It is assumed that 54,000 cy of clean certified import is required to backfill the trench once all the pipe is removed from the subsurface. Backfill price is assumed to be $18/cy delivered and is included in the estimate.
18. Costs for cleaning of Units 4 and 5 are generally offset by plant personnel prior to decommissioning and demolition. However, a budget to clean the baghouses, SCRs, scrubber system, coal silos, conveyor system wash down, interior vacuuming, exterior wash, ductwork cleaning, boiler tube cleaning and boiler back-pass cleaning have been included in the costs. The

budget is based upon an assessment of cleaning done at other plants with attention to the amount of dust/ash/fines accumulations currently observed.

19. Costs for the demolition of the Sluice system installed in 2023 will be carried as part of the demolition costs with cost updates in report revisions going forward.

8.0 Four Corners Overall Decommissioning and Demolition Schedule

The overall Four Corners Decommissioning and Demolition Schedule reflects the original proposed start dates of 01 October 2030 and start the post shutdown activities on 01 November 2031. The new start date of July 6, 2031, represents an acceleration of the schedule by about four months which would normally result in a cost savings due to schedule alone. The sequence and duration of all preparations for decommissioning and demolition activities however will not change. The schedule for this year's report has therefore not been revised. The schedule represents the planning, execution and closeout of all work that would be included in the decommissioning, demolition, and remediation of the site to include:

- Hazardous Waste Removal
- Asbestos Abatement
- Structural Demolition
- Ash Pond Closures
- Site Remediation

The schedule has been created with four key phase activities. Phase II represent the planning, development of the overall scope of work and specifications. Phase III represents the actual shutdown of the various units and the initiation of decommissioning. Phase IV represents the initiation of asbestos abatement and the completion of the demolition of structures on site. Phase V represents the overall site remediation and restoration. Below in Table 7 are Level-1 schedule completion roll up summary dates. It does not include any CCR related closure work. It was assumed that this work would be independent of the closure of Units 4 and 5 and related common buildings. The sluice tank closure was to be performed in parallel with other demolition tasks so as not to artificially extend the schedule. Its isolation from the main body of demolition work related to Units 4 and 5 removal and removal of subsurface assets from Decommissioned Units 1, 2 and 3 would not impede the logistics related to the dismantlement of the sluice tanks. The Units 4 & 5 shutdown start date of July 6, 2031, is accelerated by 118 calendar days.

Table 7 – Overall, Four Corners Site Schedule Summary

Activity	Approximate Date	Adjusted By New Start Date of 7/7/2031
Phase II: Pre shutdown Planning	10/01/2030	06/05/2030
Phase III: Post Shutdown	10/31/2031	07/07/2031
Units 4 & 5 Shutdown	10/31/2031	07/07/2031
Initiate Decommissioning	11/01/2031	07/07/2031
Phase IV: Asbestos Abatement Begins	04/30/2032	01/04/2033
Units 4 & 5 Asbestos Abatement Complete	04/30/2032	01/04/2032
Units 4 & 5 Exterior & Structural Demolition Complete	04/30/2033	01/04/2033
Phase V: Site Restoration Complete	11/01/2033	07/04/2033
Total Duration:	1,280 days	1,280 days
Project Closeout	01/31/2034	12/06/2033

9.0 Cost Escalation for 2031 Four Corners Shutdown

The overall Four Corners Units 4 & 5 Project costs have been escalated at a 4.0% annual rate to represent the project cost in 2031 dollars. The Material Salvage Credit has been removed from Table 8 due to volatility of the price of salvage material and should not be associated with an escalation factor applied to the project. Sales tax was itemized and applied after the escalation of the estimated costs with the assumption that there would be no change in the sales tax percentage.

Table 8 – Four Corners Shutdown 2031 Escalated Overall Project Credits and Costs

Overall Units 4 & 5 Project Credits and Costs	
Description	**Total ($)**
Material Salvage Credit	
Units 4 & 5 (remaining common) Estimated Salvage Value	Not Calculated
Transportation Costs	Not Calculated
Total Estimated Salvage Value (includes transportation costs)	Not Calculated
Environmental	
Complete ACM Abatement of Units 4 & 5 and Common Buildings	$7,365,802
Environmental Costs Subtotal	**$8,959,940**
Decommissioning/Demolition	
Below Ground Estimated Cost for Decommissioning and Demolition of Four Corners Units 1, 2, and 3 Remaining Assets	$8,492,711
Above Ground Estimated Cost for Decommissioning and Demolition of Four Corners Units 4 & 5 and Common Buildings	$54,700,413
Below Ground Estimated Cost for Decommissioning and Demolition of Four Corners Units 4 & 5 and Common Buildings	$15,267,023
Cleaning of Units 4 and 5 and Associated Structures and Conveyors	$1,086,152
Demolition of Units 4 & 5 SCRs	$2,463,352
Demolition of the Air Compressor Building and Slab	$343,395
Demolition of the Urea Plant	$310,365
Demolition of the San Juan River Pump House and Removal of Intake Pipe from River to Plant	$2,550,907
Removal of Ash-Concrete Haul Road to Ash Landfill	$1,796,419
Remove Units 4 & 5 Bottom Ash Structure	$758,597
Remove New Recycle Sluice Tanks, Backfill and Restore to Existing Grade	$1,918,425
Decommissioning/Demolition Cost Subtotal	**$89,687,759**
Total Environmental & Decommissioning Costs	**$98,647,699**

Navajo Sales Tax (6.51%) Navajo Sales Tax (6.51%)	**$**5,838,673
New Mexico Sales Tax (5.125%)	**$**4,596,498
Contingency (15%)	**$**13,453,164
Overall Project Cost in 2031 (Excludes CCR Work)	**$122,536,034**

Table 9 – Projected Cashflow in 2031 Dollars

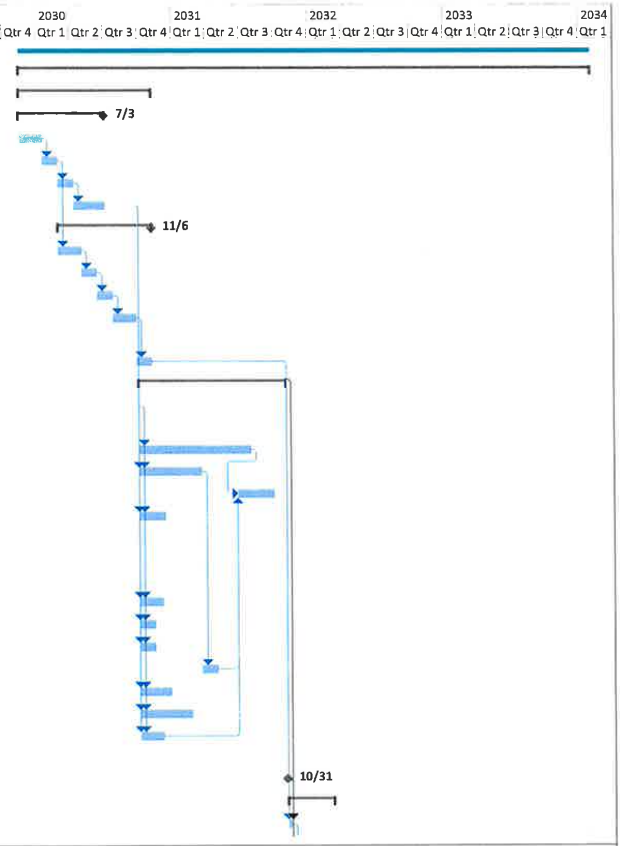
2030	2031	2032	2033
$ 259,622	$4,901,340	$ 36,579,142	$ 80,795,930

Table 10 – Four Corners Shutdown 2031 Escalated Units 1, 2 & 3 Costs

Units 1, 2 & 3 Project Costs	
Description	**Total ($)**
Decommissioning/Demolition	
Below Ground Estimated Cost for Decommissioning andDemolition of Four Corners Units 1, 2 & 3	$8,492,711
Units 1, 2 & 3 Decommissioning Cost Subtotal	**$8,492,711**
Navajo Sales Tax (6.51%)	$552,875
New Mexico Sales Tax (5.125%)	$435,251
Contingency (15%)	$1,273,907
Overall Units 1, 2 & 3 Decommissioning Cost	**$10,754,745**

Attachment 1 – Original Overall Schedule

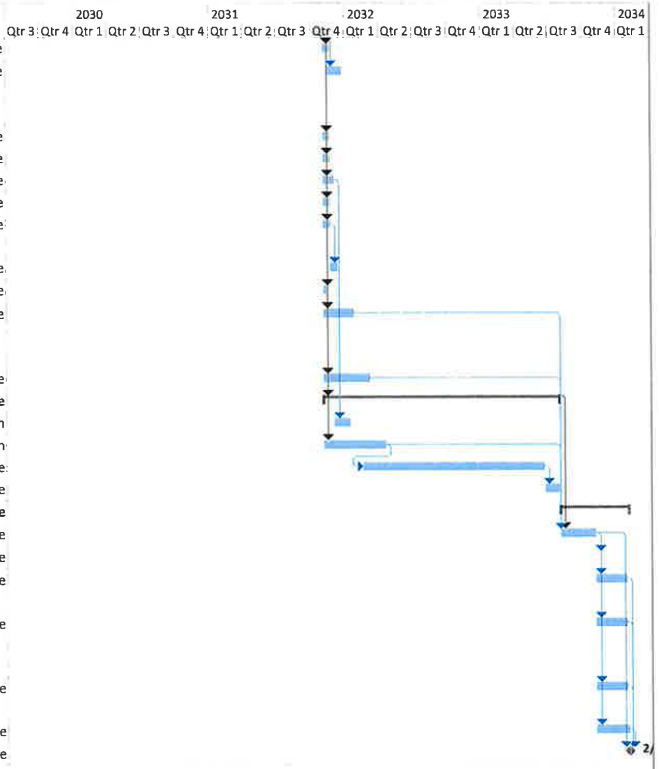
ID	Task Name	Duration	Start	Finish	Notes	Constraint Type
1	**APS FC U45 DECOM Milestones**	**1057 days?**	**Fri 10/10/14**	**Mon 10/2...**		**As Soon As Possible**
2	**Phase I, II, III, IV, V**	**1100 days?**	**Thu 11/15/29**	**Wed 2/1/34**		**As Soon As Possible**
3	**Phase I Planning**	**255 days**	**Thu 11/15/29**	**Wed 11/6...**		**As Soon As Possible**
4	**Phase IA Site Planning**	**165 days**	**Thu 11/15/29**	**Wed 7/3/30**		**As Soon As Possible**
5	Phase iA Site Planning	45 days	Thu 11/15/29	Wed 1/16/...		Start No Earlier Than
6	+/-50% Cost Estimate Complete	30 days	Thu 1/17/30	Wed 2/27/...		As Soon As Possible
7	Strategic Dates Identified	30 days	Thu 2/28/30	Wed 4/10/...		As Soon As Possible
8	**Phase IB Funding Approval**	60 days	Thu 4/11/30	Wed 7/3/30		As Soon As Possible
9	**Phase IB Business Planning**	**180 days**	**Thu 2/28/30**	**Wed 11/6...**		**As Soon As Possible**
10	Phase IB Business Planning	45 days	Thu 2/28/30	Wed 5/1/30		As Soon As Possible
11	Meets Business Unit Objectives	30 days	Thu 5/2/30	Wed 6/12/...		As Soon As Possible
12	Evaluation Cost Estimate (+/-25%	30 days	Thu 6/13/30	Wed 7/24/...		As Soon As Possible
13	Review of Scope, Possible Alternatives	45 days	Thu 7/25/30	Wed 9/25/30		As Soon As Possible
14	Establish Reserves	30 days	Thu 9/26/30	Wed 11/6/...		As Soon As Possible
15	**Phase II Preshutdown Planning**	**284 days?**	**Tue 10/1/30**	**Fri 10/31/31**		**As Soon As Possible**
16	Preshutdown Planning Kickoff Meeting	1 day?	Tue 10/1/30	Tue 10/1/30		Start No Earlier Than
17	Preshutdown Planning Work Packag	215 days	Wed 10/2/30	Tue 7/29/31		Start No Earlier Than
18	Continuing Operations	120 days	Wed 10/2/30	Tue 3/18/31		As Soon As Possible
19	Unit Shutdown and Cleanout Plan	70 days	Tue 6/24/31	Mon 9/29/...		As Soon As Possible
20	Inventory Reduction Plan (Applies to raw materials, Intermediates, products, fuels, and consumables or stores items).	50 days	Wed 10/2/30	Tue 12/10/30		As Soon As Possible
21	Operations Staffing Reduction Plan	45 days	Wed 10/2/30	Tue 12/3/30		As Soon As Possible
22	Site Records Management Plan	30 days	Wed 10/2/30	Tue 11/12/...		As Soon As Possible
23	Security Transition Plan	30 days	Wed 10/2/30	Tue 11/12/...		As Soon As Possible
24	Set up Command Center	30 days	Wed 3/19/31	Tue 4/29/31		As Soon As Possible
25	Other Planning Considerations	60 days	Wed 10/2/30	Tue 12/24/...		As Soon As Possible
26	Demolition Plan	100 days	Wed 10/2/30	Tue 2/18/31		As Soon As Possible
27	Site Environmental/HSE Management Plan	45 days	Wed 10/2/30	Tue 12/3/30		As Soon As Possible
28	**U45 Shut Down**	1 day	Fri 10/31/31	Fri 10/31/31		Start No Earlier Than
29	**Phase III Post Shutdown**	**90 days**	**Mon 11/3/31**	**Fri 3/5/32**		**As Soon As Possible**
30	Meets APS Objectives	7 days	Mon 11/3/31	Tue 11/11/...		As Soon As Possible



Project: Four Corners Units 4 & 5 Shutdown on 30 September 2031
Schedule as of: Wed 12/30/20

Task	Project Summary	Inactive Milestone	Manual Summary Rollup	Deadline	
Split	External Tasks	Inactive Summary	Manual Summary	Progress	
Milestone	External Milestone	Manual Task	Start-only	Manual Progress	
Summary	Inactive Task	Duration-only	Finish-only		

ID	Task Name	Duration	Start	Finish	Notes	Constraint Type
31	Site Management Plan complete	14 days	Mon 11/3/31	Thu 11/20/...		As Soon As Possible
32	Decontamination./Demolition Plan Properly Communicated and Team Responsibilities Defined	30 days	Wed 11/12/31	Tue 12/23/31		As Soon As Possible
33	Site Characteristics Inventory Comp	14 days	Mon 11/3/31	Thu 11/20/...		As Soon As Possible
34	Regulatory Evaluation Complete	14 days	Mon 11/3/31	Thu 11/20/...		As Soon As Possible
35	Hazardous Inventories Complete	21 days	Mon 11/3/31	Mon 12/1/...		As Soon As Possible
36	HASP and E&SP Finalized	14 days	Mon 11/3/31	Thu 11/20/...		As Soon As Possible
37	Detailed Decontamination and Demolition Schedule Prepared	14 days	Mon 11/3/31	Thu 11/20/31		As Soon As Possible
38	Site Documentation has been updat	14 days	Fri 11/21/31	Wed 12/10...		As Soon As Possible
39	Hazard Communication Plan	7 days	Mon 11/3/31	Tue 11/11/...		As Soon As Possible
40	All chemicals off-site (raw material, inventories, intermediates, lab chemicals)	60 days	Mon 11/3/31	Fri 1/23/32		As Soon As Possible
41	Hazardous Materials off-site	90 days	Mon 11/3/31	Fri 3/5/32		As Soon As Possible
42	**Phase IV Remediation/Demolition**	**455 days**	**Mon 11/3/31**	**Fri 7/29/33**		**As Soon As Possible**
43	Phase IV Checklist complete	30 days	Tue 12/2/31	Mon 1/12/...		Start No Earlier Than
44	Asbestos Abatement	120 days	Mon 11/3/31	Fri 4/16/32		Start No Earlier Than
45	Demolition Phase	350 days	Mon 2/16/32	Fri 6/17/33		As Soon As Possible
46	Contractor Closure reports received	30 days	Mon 6/20/33	Fri 7/29/33		As Soon As Possible
47	**Phase V Project Closeout and Transiti**	**133 days**	**Mon 8/1/33**	**Wed 2/1/34**		**As Soon As Possible**
48	Regulatory Closure Approvals Secur	68 days	Mon 8/1/33	Wed 11/2/...		As Soon As Possible
49	Site Restoration Complete	1 day	Thu 11/3/33	Thu 11/3/33		As Soon As Possible
50	Final Critique Developed into "Keys to Success and "Lessons Learned"	60 days	Thu 11/3/33	Wed 1/25/34		As Soon As Possible
51	"Keys to Success and "Lessons Learned" Fed Back to Project Cycle / Organization / Customers	60 days	Thu 11/3/33	Wed 1/25/34		As Soon As Possible
52	Environmental Reserve has been transferred to Corporate HSE&R	60 days	Thu 11/3/33	Wed 1/25/34		As Soon As Possible
53	Demolition Reserve has been closec	64 days	Thu 11/3/33	Tue 1/31/34		As Soon As Possible
54	Project Complete	1 day	Wed 2/1/34	Wed 2/1/34		As Soon As Possible



Project: Four Corners Units 4 & 5 Shutdown on 30 September 2031
Schedule as of: Wed 12/30/20

Task	Project Summary	Inactive Milestone	Manual Summary Rollup	Deadline	
Split	External Tasks	Inactive Summary	Manual Summary	Progress	
Milestone	External Milestone	Manual Task	Start-only	Manual Progress	
Summary	Inactive Task	Duration-only	Finish-only		

Four Corners Power Plant Costs for Ponds & CCR

PNM Exhibit OBW-3

Is contained in the following 49 pages.

Four Corners Power Plant

2025 Long Range Forecast for Ponds and CCR Related Projects

July 31, 2025

Submitted to:
Arizona Public Service
400 North 5th Street
Phoenix, AZ 85004

Submitted by:
AECOM
7720 N. 16th Street, Suite 100
Phoenix, AZ 85020

Table of Contents

1 Introduction

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1.1 Long Range Forecast Introduction

AECOM prepared this Long Range Forecast (LRF) to summarize anticipated capital expenditures for coal combustion residual (CCR), haul road, dam-related, pond/sump closures, and disposal site closure projects at the Four Corners Power Plant active in or after 2025. The general scope and basis for cost of each project is provided in Section 2. The cost estimates for these projects are based on general understanding of the probable scope and a unit area cost basis, which is explained in Section 3.

Changes implemented in this LRF relative to the 2024-2034 Long Range Forecast for Ponds and CCR Related Projects booklet dated June 14, 2024, are:

Projects Revised

Outside Services Cost Revisions

All of the projects have been escalated to present dollars (June 2025) with the exception of the FCC07353 F45 River Intake 316B Upgrade, FCC016509 FC Morgan Dam Piezometer Installation, and the two active CCR impoundment closures: FCC06338 F123/FCC06339 F45 DECOM: Lined Impoundment Closure and FCC07660 F123/FCC07657 F45 DECOM: Lined Decant Water Pond Closure. The FCC07353 F45 River Intake 316B Upgrade continues to be deferred awaiting the determination of regulatory need. The construction cost is based on an estimated allowance of $2M without conceptual engineering/planning to develop the scope and associated costs. The cost for FCC016509 FC Morgan Dam Piezometer Installation is based on typical contractor quotes for previous well and piezometer installations at FCPP, which vary with the project scope. The costs for the two active CCR impoundment closure projects, FCC06338/06339 Lined Ash Impoundment (LAI) Closure and FCC07660/07657 Lined Decant Water Pond (LDWP) Closure, were developed for this LRF submittal based on current cost information using engineer estimates, contractor-provided quotes, and current authorized dollars for engineering design.

The remaining projects documented within this LRF booklet were developed through the following process:

- Construction costs for the LRF projects are based on both engineering cost data, contractor quotes, and actual construction bid cost information from other projects with similar scopes.
- The outside services costs for the LRF projects are escalated using the RSMeans Historical Cost Indexes from the year when the bid cost was developed to the second quarter of the current year (2025).
- If the construction costs for the LRF projects were based on actual construction bid information or contractor-developed budgetary estimates collected during 2024, additional escalations were not incorporated.
- Cost basis is detailed in Section 3 of this document.

The following projects were revised in this LRF update, resulting in revisions to the cash flow years:

- FCC06753 F45 Ash Disposal Site 5 Construction
- FCC07353 F45 River Intake 316b Upgrade
- FCC021044 F123 Evaporation Pond Construction (91% Share)
- FCC06338 F123 DECOM: Lined Ash Impoundment Closure
- FCC06339 F45 DECOM: Lined Ash Impoundment Closure
- FCC07657 F123 DECOM: Lined Decant Water Pond Closure
- FCC07660 F45 DECOM: Lined Decant Water Pond Closure

Projects Proposed (Added)

The following project schedules were added in this LRF update:

- FCC021261 F45 Evaporation Pond Construction (9% Share)

Projects Removed or Canceled

The following projects should be reviewed with decommissioning planners to evaluate if these projects duplicate scope already incorporated into the larger plant demolition project:

- FCC08381 F45 DECOM: Plant Demolition Cell Construction (landfill for demolition debris in lieu of hauling to offsite landfill for disposal). Closure project (FCC08380) for this demolition cell (landfill) would also be canceled if the Demolition Cell project is no longer required.
- FCC08387 F45 DECOM: Gridded Disposal (Solid Waste) Closure and FCC08385 F45 DECOM: Gridded Disposal (Asbestos) Closure: These projects were combined into a single project (FCC021978).

The following project should be reviewed with Plant Environmental to decide if it is still a necessary project:

- FCC07353 F45 River Intake 316B Update

Section Added

Section 4 was added to summarize projects that are projected to continue through 2031 or begin in 2031. The costs listed for projects included in Section 4 are all unloaded.

1.2 Exclusion of CCRMU Projects

This LRF booklet consists of closure projects for two potential CCR Management Units (CCRMUs):

- FCC021978 DECOM: Gridded Disposal Area Closure
- FCC08391 F45 DECOM: Ash Haul Ramps E of LAI Pond 6 Closure

The number, extents, and need for closure of the remaining CCRMUs or legacy impoundments were not known at the time this LRF booklet was submitted. Therefore, this LRF booklet version does not include capital or O&M projects (and costs) related to any other CCRMUs or legacy impoundments beyond the two projects listed above, which have been present in the FCPP LRF for multiple years. Further information regarding the CCRMUs and legacy surface impoundments, including identification of units, will be gathered and presented within future reporting (e.g., Facility Evaluation Reports) in accordance with the amended CCR Rule (Legacy Rule Amendment). It is anticipated that there may be both additional capital costs and O&M costs for closure of CCRMUs in the future.

1.3 Project Summary Table

The Project Summary Table presents the major milestones, the total project cost estimated for this year's LRF, and the total project cost from the 2024 LRF.

Project Title	Project Kickoff (SG 1)	Detailed Design Start (SG 2 to 3)	Project Construction Start (SG 3 to 4)	In-Service Date	Contingency Cost	Approximate Percentage of Contingency	Projected Cost (Loaded)	2024 LRF Estimated Cost	Comments
Proposed Non-DECOM LRF Projects									
2.1 FCC06753 F45 Ash Disposal Site 5 Construction	02/2027	01/2028	03/2029	11/2030	$3,238,728	9.15%	$35,383,526	$17,064,219	• Escalation from 2024 • Increased cost due to increased area included as part of this project.
2.2 FCC07353 F45 River Intake 316B Upgrade	02/2035	01/2036	08/2037	10/2037	$272,935	8.77%	$3,112,217	$3,112,218	• Deferred Start to 2036, should this be cancelled?
2.3 FCC016509 FC Morgan Dam Piezometer Install	02/2026	01/2027	06/2027	10/2027	$37,667	7.99%	$471,150	$445,932	• Increased Cost due to Escalation
2.4 FCC021044 F123 Evaporation Pond Construction (91% Share)	08/2024	06/2025	03/2026	11/2027	$1,632,864	8.51%	$19,195,846	$16,859,219	• Escalation from 2024 • New 91% Share Project
2.5 FCC021261 F45 Evaporation Pond Construction (9% Share)	08/2024	06/2025	03/2026	11/2027	$185,414	9.35%	$1,982,778	New LRF Project	• New 9% Share Project
2.6 FCC020731 FC Groundwater Monitoring and Mitigation	03/2025	03/2025	03/2025	12/2029	$134,713	3.75%	$3,592,016	$2,720,799	• Escalation from 2024
2.7 FCCxxxxxx FC Operation & Maintenance of Closed CCR Units	01/2029	02/2030	03/2030	12/2060	$0	0.00%	$19,992,904	$16,408,804	• Escalation from 2024
Proposed Non-DECOM LRF PROJECTS SUBTOTAL					**$5,502,321**	**6.57%**	**$83,730,437**	**$56,611,191**	
Proposed DECOM LRF Projects									
2.8 FCC07661 F45 DECOM: Dry Fly Ash Disposal Area (DFADA) 1-4 Closure	01/2029	01/2030	04/2031	08/2032	$2,617,728	9.16%	$28,586,381	$25,746,832	• Escalation from 2024 • Increased cost due to increased area included as part of this project.
2.9 FCC022175 F45 DECOM: Dry Fly Ash Disposal Area 5 Closure	02/2033	01/2034	04/2035	11/2035	$938,544	9.15%	$10,252,355	New LRF Project	• Added project to split closure from DFADA 1-4 (FCC 07661). See Section 4.
2.10 FCC08382 F45 DECOM: FGD Return Water Pond Closure	02/2031	02/2032	03/2033	11/2033	$599,650	9.07%	$6,611,260	$6,360,996	• Escalation from 2024
2.11 FCC08381 F45 DECOM: Plant Demolition Disposal Cell Construction	02/2029	02/2030	03/2031	10/2031	$635,095	9.08%	$6,996,705	$6,902,322	• Escalation from 2024

Project Title	Project Kickoff (SG 1)	Detailed Design Start (SG 2 to 3)	Project Construction Start (SG 3 to 4)	In-Service Date	Contingency Cost	Approximate Percentage of Contingency	Projected Cost (Loaded)	2024 LRF Estimated Cost	Comments
2.12 FCC08380 F45 DECOM: Plant Disposal Cell Closure	02/2031	02/2032	05/2033	11/2033	$240,262	8.86%	$2,712,790	$2,605,472	• Escalation from 2024
2.13 FCC021978 F45 DECOM: Gridded Disposal Area Closure	10/2025	11/2025	03/2026	04/2030	$1,255,089	9.23%	$13,592,153	$4,355,797	• Combined FCC08387 and FCC08385 into one project (2024 total reflects both projects) • Escalation from 2024 • Increased cost due to increased area included as part of this project.
2.14 FCC08383 F45 DECOM: Lower Retention Pond Closure	02/2030	01/2031	03/2032	11/2032	$61,869	7.77%	$796,145	$800,159	• Escalation from 2024
2.15 FCC08389 F45 DECOM: Upper Retention Sump Closure	02/2030	01/2031	03/2032	11/2032	$173,615	8.64%	$2,009,699	$1,940,747	• Escalation from 2024
2.16 FCC08391 F45 DECOM: Ash Haul Ramps E of LAI Pond 6 Closure	02/2030	01/2031	03/2032	11/2032	$170,694	8.72%	$1,957,330	$1,858,875	• Escalation from 2024
2.17 FCC08396 FC DECOM: Seepage Intercept System Closure	02/2041	01/2042	01/2043	12/2043	$192,354	8.70%	$2,210,946	$2,199,525	• Moved Design Start to 2042.
2.18 FCC021045 F45 DECOM: Evaporation Pond Closure	01/2034	01/2042	03/2043	11/2043	$1,056,455	8.48%	$12,457,952	$11,703,434	• Escalation from 2024
PROPOSED DECOM LRF PROJECTS SUBTOTAL					**$7,941,355**	**9.01%**	**$88,183,717**	**$64,474,159**	

Project Title	Project Kickoff (SG 1)	Detailed Design Start (SG 2 to 3)	Project Construction Start (SG 3 to 4)	In-Service Date	Contingency Cost	Approximate Percentage of Contingency	Projected Cost (Loaded)	2024 LRF Estimated Cost	Comments
Active DECOM Projects									
2.19 FCC06338 F123 DECOM: Lined Ash Impoundment Closure	03/2017	04/2020	03/2026	04/2030	$5,347,931	7.13%	$75,012,612	$72,085,361	• 75 Percent Share Project
2.20 FCC06339 F45 DECOM: Lined Ash Impoundment Closure	03/2017	04/2020	03/2026	04/2030	$833,715	3.34%	$24,991,071	$26,084,936	• 25 Percent Share Project
2.21 FCC07657 F123 DECOM: Lined Decant Water Pond Closure	03/2017	04/2020	03/2026	04/2030	$2,770,417	8.28%	$33,444,996	$10,954,485	• 75 Percent Share Project
2.22 FCC07660 F45 DECOM: Lined Decant Water Pond Closure	03/2017	04/2020	03/2026	04/2030	$1,208,814	11.41%	$10,598,034	$10,618,583	• 25 Percent Share Project
		ACTIVE DECOM PROJECTS SUBTOTAL			**$10,160,877**	**7.05%**	**$144,046,713**	**$119,743,365**	
			Total (DECOM PROJECTS)		**$18,102,232**	**7.79%**	**$232,230,430**	**$184,217,524**	
			Total (ALL PROJECTS)		**$23,604,553**	**7.47%**	**$315,960,867**	**$240,828,715**	

NOTES:

1. The WA number is listed to the left of the project description for each project currently active in EPMS.
2. The F# refers to the power generating units for which the project is associated (F45 = Units 4&5).

2 Project One-Page Summaries

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2.1 FCC06753 F45 Ash Disposal Site 5 Construction

DESCRIPTION	Construction of a 52-acre Lined Dry Ash Disposal Facility to store coal combustion residuals.
PURPOSE/ NECESSITY	The storage area (DFADA Site 4) is expected to reach capacity by mid- to late 2030. Continued operation of Units 4 and 5 requires an expansion of the existing CCR Landfill.
CONSEQUENCE OF DELAY	Coal Combustion Residuals may not be created without a destination for storage. Non-compliance with EPA CCR regulations.
ALTERNATIVES	Raise the storage height of the current Dry Ash Disposal Facility (Sites 1 through 4). Transport to an off-site 40 CFR 257 Subtitle D approved facility.
CONSIDERATIONS	The design and construction of the CCR Landfill project requires compliance with EPA CCR regulations 40 CFR 257.

PROJECT CONCEPTUAL DESIGN BASIS

Project consisting of a new 120-foot tall, 52-acre CCR landfill (new stand-alone landfill) constructed with a composite liner, a leachate collection system, and 4H:1V slopes on all sides, which provides approximately 5 years of storage. The evaluation of the remaining capacity within the DFADA Sites 1 through 4 and projected fill rate of the DFADA indicates the current DFADA configuration would be at planned capacity of 16.38M cubic yards (CY) by mid- to late 2030. The conceptual size of the DFADA Site 5 is approximately 52 acres based on analyses balancing construction cost with anticipated lifespan and typical closure slope configuration for a standalone landfill cell. This planned volume for DFADA Site 5 allows approximately 5 years of storage for a fill rate equal to 1,883 CY/day, approximately 3.8M total CY, and a target height of 120 feet.

PROJECT COST BASIS

The F45 Ash Disposal Site 5 construction contractor cost (unloaded) is approximately $24,585,600, which is based on 52 acres at $472,800 per acre for construction of a new cell separate from cells 1-4. Estimated unit area costs were developed from construction bid information for the DFADA Site 4 construction project (2019) and escalated using RS Means indices to 2025 (present) dollars. All costs are in present value dollars, and no escalation percentage is included. The details for the basis for the unit area (acres) cost of $472,800/acre (unloaded) are provided on Section 3.1.

PROJECT COST SUMMARY

Category	Total	Forecast			
		2028	2029	2030	2031
Labor Tab					
APS Generation Labor	$77,000	$24,000	$24,000	$24,000	$5,000
Construction Labor (Plant Labor)	$41,000	$12,000	$12,000	$12,000	$5,000
Outside Services Tab					
Engineering Services					
SG1 - JV	$25,000	$25,000	$0	$0	$0
Stage Gate 2 - Engineering	$1,893,920	$1,793,920	$50,000	$50,000	$0
Stage Gate 3 - Construction CM/QA	$1,893,920	$0	$896,960	$946,960	$50,000
Stage Gate 2 - Geotechnical Exploration	$25,000	$25,000	$0	$0	$0
Construction Services					
Outside Services (Contractor)	$24,585,600	$0	$12,292,800	$12,292,800	$0
Material Tab					
Material	$100,000	$0	$50,000	$50,000	$0
Other Tab					
Rental	$10,000	$0	$5,000	$5,000	$0
APS Travel	$24,000	$8,000	$8,000	$8,000	$0
Subtotal	**$28,675,440**				
Tax	$2,980,765				
Escalation/Contingency	$3,238,728				
Direct Loads	$404,666				
***Total Project, Direct**	**$35,299,599**				
Overhead Loads	$83,927				
Total Project, Gross	**$35,383,526**				

ASSUMPTIONS

- A composite liner meeting the requirements in 40 CFR 257.70 is required.
- Excavated material will be stockpiled for use in future DFADA site closures.

PROJECT MILESTONES

PLANNED KICKOFF: FEB 2027	**DESIGN START: JAN 2028**	**CONST. START: MAR 2029**	**ESTIMATED IN-SERVICE: NOV 2030**

2.2 FCC07353 F45 River Intake 316B Upgrade

DESCRIPTION	Update the river water intake structure to be compliant with environmental regulatory requirements. Update the intake design flow rate, velocity profiles as needed to comply with new rules.
PURPOSE/ NECESSITY	Regulation compliance is mandatory. Required by either Threatened and Endangered Species or 316(b).
CONSEQUENCE OF DELAY	Noncompliance with federal regulations, penalties, and/or forced outage.
ALTERNATIVES	Shutting down the pumps during specific months as required by US Fish and Wildlife. The allowable outage duration until the circulating water pumps begin cavitation is approximately 30 to 60 days. This is based on total plant water consumption.
CONSIDERATIONS	The project should include a fish impact study and/or a flow model review, in addition to the design and installation. There should be coordination with local, state, and federal agencies to develop a plan and study. The two studies will determine the final configuration of the design. The flow study would determine the intake and pump velocity and flows and could result in reducing each pump's flow rate or adding a new intake bay and pump set. The current demand max is 49 MGD. The San Juan River is an endangered species project river. The Plant has done a fish study with grad students in the past. At worst case, the studies could determine that a new intake bay is required to meet flow if flow is reduced in each bay. This would raise construction and material costs.

PROJECT CONCEPTUAL DESIGN BASIS

Updating the river water intake structure to be compliant with either 316b requirements or threatened and endangered species requirements (US Fish and Wildlife). Updating the intake design flow rate and velocity profiles as needed to comply with new rules/requirements. The scope has not yet been determined at this time. The scope will likely include alternative evaluations for intake screen modifications or intake structure modifications to reduce water velocity.

PROJECT COST BASIS

Costs are primarily based on an allowance of $2,000,000 with $500,000 for intake modification materials and allowances for additional study and SG1 work for scope development of intake modifications. All costs are in present value dollars, and no escalation percentage is included.

PROJECT COST SUMMARY

Category	Total	Forecast	
		2036	2037
Labor Tab			
APS Generation Labor	$48,000	$24,000	$24,000
Construction Labor (Plant Labor)	$12,000	$0	$12,000
Outside Services Tab			
Engineering Services			
SG1 - JV	$50,000	$50,000	$0
Stage Gate 2 - Engineering	$149,621	$149,621	$0
Stage Gate 3 - Construction CM/QA	$200,000	$0	$200,000
Stage Gate 2 - Geotechnical Exploration	$0	$0	$0
Construction Services			
Outside Services (Contractor)	$2,000,000	$0	$2,000,000
Material Tab			
Material	$0	$0	$0
Other Tab			
Rental	$5,000	$0	$5,000
APS Travel	$16,000	$8,000	$8,000
Subtotal	**$2,480,618**		
Tax	$248,350		
Escalation/Contingency	$272,935		
Direct Loads	$74,017		
***Total Project, Direct**	**$3,075,923**		
Overhead Loads	$36,294		
Total Project, Gross	**$3,112,217**		

PROJECT MILESTONES

PLANNED KICKOFF: FEB 2035	**DESIGN START: JAN 2036**	**CONST. START: AUG 2037**	**ESTIMATED IN-SERVICE: OCT 2037**

2.3 FCC016509 Morgan Dam Piezometer Installation

DESCRIPTION	Install new piezometers within the Morgan Dam.
PURPOSE/ NECESSITY	The purpose of this project is to install new piezometric monitoring locations at Morgan Dam as agreed with the New Mexico Office of State Engineer – Dam Safety Bureau.
CONSEQUENCE OF DELAY	Project is required for ongoing dam safety evaluations for the dam as required by the New Mexico Office of State Engineer Dam Safety.
ALTERNATIVES	There are no alternatives to this project.
CONSIDERATIONS	Installation of new piezometers are required as part of the plan for monitoring the Morgan Dam.

PROJECT CONCEPTUAL DESIGN BASIS

The project consists of installing 6 new open standpipe piezometers to monitor phreatic levels within Morgan Dam.

PROJECT COST BASIS

A total construction cost of $150,000 was selected based on a unit cost of $25,000 per piezometer, which was assigned primarily based on historic estimates to install open standpipe piezometers at FCPP. All costs are in present value dollars, and an escalation percentage is not included. The details of the cost basis are provided in Section 3.3.

PROJECT COST SUMMARY

Category	Total	Forecast 2027
Labor Tab		
APS Generation Labor	$24,000	$24,000
Construction Labor (Plant Labor)	$12,000	$12,000
Outside Services Tab		
Engineering Services		
SG1 - JV	$25,000	$25,000
Stage Gate 2 - Engineering	$28,171	$28,171
Stage Gate 3 - Construction CM/QA	$61,250	$61,250
Stage Gate 2 - Geotechnical Exploration	$25,000	$25,000
Construction Services		
Outside Services (Contractor)	$150,000	$150,000
Material Tab		
Material	$0	$0
Other Tab		
Rental	$5,000	$5,000
APS Travel	$8,000	$8,000
Subtotal	**$338,421**	
Tax	$29,060	
Escalation/Contingency	$37,667	
Direct Loads	$29,156	
***Total Project, Direct**	**$434,304**	
Overhead Loads	$36,846	
Total Project, Gross	**$471,150**	

PROJECT MILESTONES

PLANNED KICKOFF: FEB 2026	**DESIGN START: JAN 2027**	**CONST. START: JUN 2027**	**ESTIMATED IN-SERVICE: OCT 2027**

2.4 FCC021044 F123 Evaporation Pond Construction (91% Share)

DESCRIPTION	Construct a new lined evaporation pond for collection of seepage water after plant shut down. The pond will also contain the closure dewatering flows from the LAI and LDWP closure. This project (FCC021044) is the main project with 91% APS share project. Project FCC021261 is the 9% participant owner share project.
PURPOSE/ NECESSITY	New lined evaporation pond allows for continued storage and disposal of seepage water collected from dewatering flows from LAI/LDWP closure, CCR landfill water, and flows from seepage collection systems after plant shut down.
CONSEQUENCE OF DELAY	LDWP flows and LAI and LDWP dewatering flows will need a lined pond for disposal of water. Current seepage water is collected and returned to the plant for consumption, which will no longer be an available option after plant shut down.
ALTERNATIVES	Water treatment and discharge through NPDES outfall, which will require discharge permit modifications.
CONSIDERATIONS	Evaporation pond will need to take the place of the LDWP after closure construction of LDWP starts. Pond is also needed for disposal of seepage water after plant shut down. Pond will require at least a composite liner consisting of geomembrane over geosynthetic clay liner. It is currently planned with a double liner and leakage collection and recovery system. This is the main project number that consists of the total project cost, risks, and reviews. This project (FCC021044) consists of the 91% APS share. Project FCC021261 is the 9% participant owner share project.

PROJECT CONCEPTUAL DESIGN BASIS

The project consists of constructing a 36-acre lined evaporation pond for storage and evaporation of an average of 65 gallons per minute. Evaporation pond will be non-jurisdictional and constructed to have a double liner with an LCRS over a GCL.

PROJECT COST BASIS

The following project cost summary information for the Evaporation Pond Construction Project is reflective of the cost and cash flow information shown within EPMS as of June 20, 2025. An engineer's cost estimate, with associated quantities, is provided in Section 3.7.

PROJECT COST SUMMARY

Category	Total	Forecast		
		After 6/2025	2026	2027
Labor Tab				
APS Generation Labor	$24,000	$0	$24,000	$0
Construction Labor (Plant Labor)	$12,000	$0	$12,000	$0
Outside Services Tab				
Engineering Services				
SG1 - JV	$25,000	$25,000	$0	$0
SG 2 Engineering / SG 3 – Construction CM/QA	$1,364,500	$344,000	$696,500	$324,000
Construction Services				
Outside Services (Contractor)	$13,289,759	$0	$4,561,925	$8,727,834
Material Tab				
Material	$22,750	$0	$22,750	$0
Other Tab				
Outside Services (Other)	$1,004,000	$116,000	$354,000	$534,000
Rental	$1,820	$0	$1,820	$0
APS Travel	$9,100	$0	$9,100	$0
Subtotal	**$15,752,929**			
Tax	$1,674,860			
Escalation/Contingency	$1,632,864			
Direct Loads	$98,347			
***Total Project, Direct**	**$19,159,000**			
Overhead Loads	$36,846			
Total Project, Gross	**$19,195,846**			

PROJECT MILESTONES

PLANNED KICKOFF: AUG 2024	**DESIGN START: JUN 2025**	**CONST. START: MARCH 2026**	**ESTIMATED IN-SERVICE: NOV 2027**

2.5 FCC021261 F45 Evaporation Pond Construction (9% Share)

DESCRIPTION	Construct a new lined evaporation pond for collection of seepage water after plant shut down. The pond will also contain the closure dewatering flows from the LAI and LDWP closure. This project is the 9% participant owner share project. Refer to the main project for the total project cost (FCC021044).
PURPOSE/ NECESSITY	New lined evaporation pond allows for continued storage and disposal of seepage water collected from dewatering flows from LAI/LDWP closure, CCR landfill water, and flows from seepage collection systems after plant shut down.
CONSEQUENCE OF DELAY	LDWP flows and LAI and LDWP dewatering flows will need a lined pond for disposal of water. Current seepage water is collected and returned to the plant for consumption, which will no longer be an available option after plant shut down.
ALTERNATIVES	Water treatment and discharge through NPDES outfall, which will require discharge permit modifications.
CONSIDERATIONS	Evaporation pond will need to take the place of the LDWP after closure construction of LDWP starts. Pond is also needed for disposal of seepage water after plant shut down. Pond will require at least a composite liner consisting of geomembrane over geosynthetic clay liner. It is currently planned with a double liner and leakage collection and recovery system. The main project number that consists of the total project cost, risks, and reviews is FCC021044. This project is the 9% participant owner share project.

PROJECT CONCEPTUAL DESIGN BASIS

The project consists of constructing a 36-acre lined evaporation pond for storage and evaporation of an average of 65 gallons per minute. Evaporation pond will be non-jurisdictional and constructed to have a double liner with an LCRS over a GCL.

PROJECT COST BASIS

The following project cost summary information for the Evaporation Pond Construction Project is reflective of the cost and cash flow information shown within EPMS as of June 20, 2025. An engineer's cost estimate, with associated quantities, is provided in Section 3.7.

PROJECT COST SUMMARY

Category	Total	Forecast			
		Through 6/2025	After 6/2025	2026	2027
Labor Tab					
APS Generation Labor	$0	$0	$0	$0	$0
Construction Labor (Plant Labor)	$57	$57	$0	$0	$0
Outside Services Tab					
Engineering Services					
SG1 - JV	$0	$0	$0	$0	$0
SG 2 Engineering / SG 3 – Construction CM/QA	$142,500	$0	$41,000	$65,500	$36,000
Construction Services					
Outside Services (Contractor)	$1,407,476	$0	$0	$504,476	$903,000
Other Tab					
Outside Services (Other)	$108,000	$0	$9,000	$39,000	$60,000
Rental	$360	$0	$180	$180	$0
APS Travel	$2,340	$0	$1,170	$1,170	$0
Subtotal	**$1,660,733**				
Tax	$116,058				
Escalation/Contingency	$185,414				
Direct Loads	$20,504				
***Total Project, Direct**	**$1,982,709**				
Overhead Loads	$69				
Total Project, Gross	**$1,982,778**				

PROJECT MILESTONES

PLANNED KICKOFF: AUG 2024	**DESIGN START: JUN 2025**	**CONST. START: MARCH 2026**	**ESTIMATED IN-SERVICE: NOV 2027**

2.6 FCC020731 FC Groundwater Monitoring and Mitigation

DESCRIPTION	The project scope will consist of investigating and assessing Corrective Measures (40 CFR 257.95 and 257.96) followed by selection, design, and implementation of Corrective Action for the Dry Fly Ash Disposal Area (DFADA), the northern intercept trench, and the Upper Retention Sump. Corrective action is currently expected to consist of aquifer testing, installation of extraction wells, and installation of discharge piping to various discharge collection locations.
PURPOSE/ NECESSITY	The purpose of this project is to comply with Federal CCR Disposal regulations (40 CFR Part 257). Additional extraction wells will be put in place to expand on current monitoring plan. Additional rounds of sampling and testing, followed by statistical evaluation of all the collected data is required to determine if groundwater mitigation is necessary.
CONSEQUENCE OF DELAY	Non-compliance with Federal CCR Disposal regulations (40 CFR Part 257).
ALTERNATIVES	Additional monitoring wells may be required depending on acceptance of groundwater monitoring plan.
CONSIDERATIONS	As the appropriate groundwater mitigation measures are determined, this project may be split into multiple projects. Costs will be revised as appropriate groundwater mitigation measures are identified.

PROJECT PRELIMINARY DESIGN BASIS

This project is currently included in the LRF for groundwater monitoring and mitigation associated with CCR units at the Four Corners Power Plant. Scope and costs have been developed by others.

PROJECT COST BASIS

Scope and costs have been developed by others. The following project cost summary information is reflective of the cost and cash flow information shown within EPMS as of June 20, 2025.

PROJECT COST SUMMARY

Category	Total	Forecast					
		Through 6/2025	After 6/2025	2026	2027	2028	2029
Labor Tab							
APS Generation Labor	$72,000	$0	$0	$24,000	$24,000	$24,000	$0
Construction Labor (Plant Labor)	$46,725	$10,725	$0	$12,000	$12,000	$12,000	$0
Outside Services Tab							
Engineering Services							
SG1 - JV	$0	$0	$0	$0	$0	$0	$0
Stage Gate 2 - Engineering	$2,571,218	$224,900	$1,593,738	$117,660	$226,440	$333,000	$75,480
Construction Services							
Outside Services (Contractor)	$614,790	$0	$190,000	$424,790	$0	$0	$0
Material Tab							
Material	$0	$0	$0	$0	$0	$0	$0
Other Tab							
Rental	$8,560	$0	$0	$2,140	$2,140	$2,140	$2,140
APS Travel	$23,021	$3,021	$0	$5,000	$5,000	$5,000	$5,000
Outside Services (Other)	$36,063	$16,083	$19,980	$0	$0	$0	$0
Subtotal	**$3,372,377**						
Tax (included in the subtotal)	$268,648						
Escalation/Contingency	$134,713						
Direct Loads	$37,974						
***Total Project, Direct**	**$3,545,064**						
Overhead Loads	$46,952						
Total Project, Gross	**$3,592,016**						

PROJECT MILESTONES

PLANNED KICKOFF: **MAR 2025**	DESIGN START: **MAR 2025**	CONST. START: **MAR 2025**	ESTIMATED IN-SERVICE: **DEC 2029**

2.7 FCCxxxxxx FC Operation & Maintenance of Closed CCR Units

DESCRIPTION	Placeholder – Operation and Maintenance costs for closed CCR units (Post-closure care). ** Currently not input in EPMS.***
PURPOSE/ NECESSITY	Post-closure care is required for closed CCR units for a minimum of 30 years.
CONSEQUENCE OF DELAY	Post-closure care will not take place during the delay.
ALTERNATIVES	No alternatives.
CONSIDERATIONS	Duration of O&M is 30 years after closure is complete for each individual CCR unit that has been closed-in-place.

PROJECT PRELIMINARY DESIGN BASIS

This project is currently included in the LRF for operation and maintenance of closed CCR units at the Four Corners Power Plant. Scope and costs to be developed further.

PROJECT COST BASIS

Scope and costs to be developed further. The following project cost summary is considered as placeholder and reflective of a rough cost estimate for anticipated groundwater system and ash disposal area maintenance. The cost summary has not been input into EPMS. The costs for each year were escalated at a rate of 3%/year starting in 2030 and aggregated by decade.

PROJECT COST SUMMARY

Category	Total	Forecast			
		2030-2039	2040-2049	2050-2059	2060
Labor Tab					
APS Generation Labor ($10,000/year in 2030)	$500,027	$114,639	$154,065	$207,050	$24,273
Construction Labor (Plant Labor) ($12,000/year in 2030)	$600,032	$137,567	$184,878	$248,460	$29,127
Outside Services Tab					
Engineering Services					
SG1 - JV	$25,000	$25,000	$0	$0	$0
Stage Gate 2 – Engineering ($10,000/year in 2030)	$500,027	$114,639	$154,065	$207,050	$24,273
Stage Gate 3 - Construction CM/QA ($150,000/year in 2030)	$7,500,402	$1,719,582	$2,310,974	$3,105,756	$364,089
Other Outside Services	$0	$0	$0	$0	$0
Construction Services					
Outside Services (Contractor) ($200,000/year in 2030)	$10,000,536	$2,292,776	$3,081,299	$4,141,008	$485,452
Material Tab					
Material ($3,337/year in 2030)	$166,844	$38,252	$51,407	$69,087	$8,099
Other Tab					
Rental ($2,000/year in 2030)	$100,005	$22,928	$30,813	$41,410	$4,855
APS Travel ($12,000/year in 2030)	$600,032	$137,567	$184,878	$248,460	$29,127
Subtotal	**$19,992,904**				
Tax					
Escalation/Contingency					
Direct Loads					
***Total Project, Direct**	**$19,992,904**				
Overhead Loads					
Total Project, Gross	**$19,992,904**				

PROJECT MILESTONES

PLANNED KICKOFF: **JAN 2029**	DESIGN START: **FEB 2030**	CONST. START: **MAR 2030**	ESTIMATED IN-SERVICE: **DEC 2060**

2.8 FCC07661 DECOM: Dry Fly Ash Disposal Area (DFADA) 1-4 Closure

DESCRIPTION	Sites 1 through 4 of the DFADA CCR landfill will cease receipt or excavation of CCR and will require closure, which will consist of final grading of the landfill and construction of a final cover.
PURPOSE/ NECESSITY	Closure of sites 1 through 4 of DFADA CCR landfill. (Closure of DFADA Site 5 is separate project).
CONSEQUENCE OF DELAY	Increased risk of particulate emissions. Lose benefit of coinciding construction excavation projects with closure project to efficiently utilize excavated borrow as cover material.
ALTERNATIVES	DFADA is required to close in accordance with federal regulation 40 CFR Subsection 257, with no other alternatives.
CONSIDERATIONS	Closure of Site 5 of DFADA is under separate newly proposed project. Closure of the LAI CCR impoundment under separate project FCC06338. Active disposal areas are considered a point source for particulate emissions.

PROJECT CONCEPTUAL DESIGN BASIS

DFADA Closure project will close approximately 142 acres of the DFADA Sites 1 through 4. The Project includes constructing a 3.5-foot-thick evapotranspiration cover to achieve closure of DFADA Sites 1 through 4. Assuming the soil cover material will be constructed from the remaining borrow excavated from the construction of the LAI and LDWP (FCC06338/06339 and FCC07660/07657). DFADA 1 through 4 Closure is estimated to have a total bottom surface area of 142 acres.

PROJECT COST BASIS

The F45 Dry Fly Ash Disposal Area Closure construction contractor cost (unloaded) is approximately $19,425,600, which is based on 142 acres for $136,800 per acre for CCR Landfill Closure unit Cost. The details of the estimated per acre construction cost for closure of CCR landfills are provided in Section 3.2.

PROJECT COST SUMMARY

Category	Total	Forecast		
		2030	2031	2032
Labor Tab				
APS Generation Labor	$72,000	$24,000	$24,000	$24,000
Construction Labor (Plant Labor)	$24,000	$0	$12,000	$12,000
Outside Services Tab				
Engineering Services				
SG1 - JV	$50,000	$50,000	$0	$0
Stage Gate 2 - Engineering	$1,931,910	$1,831,910	$50,000	$50,000
Stage Gate 3 - Construction CM/QA	$1,506,920	$0	$753,460	$753,460
Stage Gate 2 - Geotechnical Exploration	$80,000	$80,000	$0	$0
Construction Services				
Outside Services (Contractor)	$19,425,600	$0	$9,712,800	$9,712,800
Material Tab				
Material	$25,000	$0	$25,000	$0
Other Tab				
Rental	$10,000	$0	$5,000	$5,000
APS Travel	$24,000	$8,000	$8,000	$8,000
Subtotal	**$23,149,430**			
Tax	$2,389,384			
Escalation/Contingency	$2,617,728			
Direct Loads	$335,692			
***Total Project, Direct**	**$28,492,234**			
Overhead Loads	$94,147			
Total Project, Gross	**$28,586,381**			

ASSUMPTIONS

- An evapotranspiration soil cover will be constructed and will be demonstrated to be compliant with 40 CFR 257.102.

PROJECT MILESTONES

PLANNED KICKOFF: JAN 2029	**DESIGN START: JAN 2030**	**CONST. START: APR 2031**	**ESTIMATED IN-SERVICE: AUG 2032**

2.9 FCC022175 F45 DECOM: Dry Fly Ash Disposal Area 5 Closure

DESCRIPTION	DFADA CCR landfill will cease receipt or excavation of CCR and will require closure, which will consist of final grading of landfill and construction of final cover.
PURPOSE/ NECESSITY	Closure of the DFADA CCR landfill.
CONSEQUENCE OF DELAY	Increased risk of particulate emissions. Lose benefit of coinciding construction excavation projects with closure project to efficiently utilize excavated borrow as cover material.
ALTERNATIVES	DFADA is required to close in accordance with federal regulation 40 CFR Subsection 257, with no other alternatives.
CONSIDERATIONS	Closure of the DFADA 1-4 is under a separate project (FCC07661). Active disposal areas are considered a point source for particulate emissions.

PROJECT CONCEPTUAL DESIGN BASIS

DFADA Closure project will close approximately 52 acres of DFADA Site 5. The Project includes constructing a 3.5-foot-thick evapotranspiration cover to achieve closure of DFADA Site 5. Assuming the soil cover material will be constructed using on-site borrow. DFADA 5 Closure is estimated to have a total bottom surface area of 52 acres.

PROJECT COST BASIS

The F45 Dry Fly Ash Disposal Area Closure construction contractor cost (unloaded) is approximately $7,113,600, which is based on 52 acres for $136,800 per acre for CCR Landfill Closure unit Cost. The details of the estimated per acre construction cost for closure of CCR landfills are provided in Section 3.2.

PROJECT COST SUMMARY

Category	Total	Forecast	
		2034	2035
Labor Tab			
APS Generation Labor	$48,000	$24,000	$24,000
Construction Labor (Plant Labor)	$12,000	$0	$12,000
Outside Services Tab			
Engineering Services			
SG1 - JV	$25,000	$25,000	$0
Stage Gate 2 - Engineering	$405,680	$355,680	$50,000
Stage Gate 3 - Construction CM/QA	$583,520	$0	$583,520
Stage Gate 2 - Geotechnical Exploration	$40,000	$40,000	$0
Construction Services			
Outside Services (Contractor)	$7,113,600	$0	$7,113,600
Material Tab			
Material	$25,000	$0	$25,000
Other Tab			
Rental	$5,000	$0	$5,000
APS Travel	$16,000	$8,000	$8,000
Subtotal	**$8,273,800**		
Tax	$882,731		
Escalation/Contingency	$938,544		
Direct Loads	$120,434		
***Total Project, Direct**	**$10,215,509**		
Overhead Loads	$36,846		
Total Project, Gross	**$10,252,355**		

ASSUMPTIONS

- An evapotranspiration soil cover will be constructed and will be demonstrated to be compliant with 40 CFR 257.102.

PROJECT MILESTONES

PLANNED KICKOFF: FEB 2033	**DESIGN START: JAN 2034**	**CONST. START: APRIL 2035**	**ESTIMATED IN-SERVICE: NOV 2035**

2.10 FCC08382 F45 DECOM: FGD Return Water Pond Closure

DESCRIPTION	The project consists of excavating the CCR, other sediments, and liner, and transporting them either to the DFADA or to a new on-site landfill (FCC08381 Plant Demolition Disposal Cell) for disposal.
PURPOSE/ NECESSITY	Closure of the CCR impoundment unit following plant shutdown.
CONSEQUENCE OF DELAY	Noncompliance with federal regulations.
ALTERNATIVES	This CCR unit requires closure after cease of use (discharge to unit) as regulated under Subsection 257 of 40 CFR. An alternative to closure by removal is closure in place, which consists of pulling the edges of liner and wrapping over CCR/sediments contained within the liner followed by placing a final cover system. A closure in place method requires by federal rule a 30-year monitoring period following completion of closure.
CONSIDERATIONS	Overall decommissioning schedule for wash down of plant areas. This CCR unit may still receive waste after unit shutdown at decommissioning, which will impact the start and completion of closure construction. The scope of this project follows the closure by removal requirements of the federal CCR disposal rule under subsection 257 of 40 CFR, which allows 5 years for closure completion.

PROJECT CONCEPTUAL DESIGN BASIS

Project consists of the closure by removal of a 5.1-acre lined CCR impoundment.

PROJECT COST BASIS

The $4,360,343 RWP Closure construction costs are based on 5.1 acres at $854,969 per acre unit area costs for closure by removal of sumps and small ponds and adjusted for Farmington, New Mexico. Assumes that the RWP materials will be disposed of in the planned onsite Plant Demolition Cell (FCC08381). The details for the basis for the unit area (acres) cost are provided on Section 3.4.

PROJECT COST SUMMARY

Category	Total	Forecast	
		2032	2033
Labor Tab			
APS Generation Labor	$48,000	$24,000	$24,000
Construction Labor (Plant Labor)	$12,000	$0	$12,000
Outside Services Tab			
Engineering Services			
SG1 - JV	$25,000	$25,000	$0
Stage Gate 2 - Engineering	$377,026	$327,026	$50,000
Stage Gate 3 - Construction CM/QA	$377,026	$0	$377,026
Stage Gate 2 - Geotechnical Exploration	$25,000	$25,000	$0
Construction Services			
Outside Services (Contractor)	$4,360,343	$0	$4,360,343
Material Tab			
Material	$50,000	$0	$50,000
Other Tab			
Rental	$5,000	$0	$5,000
APS Travel	$16,000	$8,000	$8,000
Subtotal	**$5,295,395**		
Tax	$554,853		
Escalation/Contingency	$599,650		
Direct Loads	$105,647		
***Total Project, Direct**	**$6,555,545**		
Overhead Loads	$55,715		
Total Project, Gross	**$6,611,260**		

PROJECT MILESTONES

PLANNED KICKOFF: FEB 2031	DESIGN START: FEB 2032	CONST. START: MARCH 2033	ESTIMATED IN-SERVICE: NOV 2033

2.11 FCC08381 F45 DECOM: Plant Demolition Disposal Cell Construction

DESCRIPTION	Construction of a 10-acre lined landfill for disposal of designated plant demolition material.
PURPOSE/ NECESSITY	On site landfill for disposal of some plant demolition material.
CONSEQUENCE OF DELAY	TBD.
ALTERNATIVES	Haul material to off-site landfill.
CONSIDERATIONS	Review necessity of landfill and coordinate with decommissioning planners. If landfill is not necessary, then this project can be canceled. This landfill will allow for disposal of approximately 350,000 to 400,000 cy of material. Construction in area near gridded disposal or DFADA.

PROJECT CONCEPTUAL DESIGN BASIS

Project consisting of a 10-acre solid waste landfill, constructed with composite liner with a leachate collection system, which provides 350,000 cubic yards of storage for disposal of demolition debris.

PROJECT COST BASIS

The disposal cell (landfill) construction contractor cost (unloaded) is approximately $4,728,000, which is based on 10 acres at $472,800 per acre for construction of a new CCR landfill. Estimated unit area costs were developed from construction bid information for the DFADA Site 4 construction project (2019) and escalated using RS Means indices to 2025 (present) dollars. The details for the basis for the unit area (acres) cost of $472,800/acre (unloaded) are provided on Section 3.1.

PROJECT COST SUMMARY

Category	Total	Forecast	
		2030	2031
Labor Tab			
APS Generation Labor	$48,000	$24,000	$24,000
Construction Labor (Plant Labor)	$12,000	$0	$12,000
Outside Services Tab			
Engineering Services			
SG1 - JV	$25,000	$25,000	$0
Stage Gate 2 - Engineering	$290,199	$240,199	$50,000
Stage Gate 3 - Construction CM/QA	$404,600	$0	$404,600
Stage Gate 2 - Geotechnical Exploration	$25,000	$25,000	$0
Construction Services			
Outside Services (Contractor)	$4,728,000	$0	$4,728,000
Material Tab			
Material	$50,000	$0	$50,000
Other Tab			
Rental	$5,000	$0	$5,000
APS Travel	$16,000	$8,000	$8,000
Subtotal	**$5,603,799**		
Tax	$592,250		
Escalation/Contingency	$635,095		
Direct Loads	$109,846		
***Total Project, Direct**	**$6,940,990**		
Overhead Loads	$55,715		
Total Project, Gross	**$6,996,705**		

PROJECT MILESTONES

PLANNED KICKOFF: FEB 2029	**DESIGN START: FEB 2030**	**CONST. START: MAR 2031**	**ESTIMATED IN-SERVICE: OCT 2031**

2.12 FCC08380 F45 DECOM: Plant Disposal Cell Closure

DESCRIPTION	Closure in place of the 10-acre lined landfill for disposal of designated plant demolition material. Closure by grading and construction of a final cover system.
PURPOSE/ NECESSITY	Closure of the landfill for disposal of plant demolition material.
CONSEQUENCE OF DELAY	TBD.
ALTERNATIVES	Landfill is not constructed because the material was selected to be hauled to off-site landfill, and therefore a closure project is not required.
CONSIDERATIONS	Review necessity of landfill and coordinate project with decommissioning planners. If landfill is not necessary, then this project can be canceled.

PROJECT CONCEPTUAL DESIGN BASIS

Project consisting of the closure in place of a 10-acre solid waste landfill, which consists of grading the landfill to drain and placement of a soil evapotranspiration cover system over a total area of 12 acres.

PROJECT COST BASIS

The F45 Plant Disposal Cell closure construction contractor cost (unloaded) is approximately $1,641,600, which is based on 12 acres for $136,800 per acre for CCR Landfill unit Cost. The details of the estimated per acre construction cost for closure of CCR landfills are provided on Section 3.2.

PROJECT COST SUMMARY

Category	Total	Forecast	
		2032	2033
Labor Tab			
APS Generation Labor	$48,000	$24,000	$24,000
Construction Labor (Plant Labor)	$12,000	$0	$12,000
Outside Services Tab			
Engineering Services			
SG1 - JV	$25,000	$25,000	$0
Stage Gate 2 - Engineering	$132,080	$107,150	$24,930
Stage Gate 3 - Construction CM/QA	$173,120	$0	$173,120
Stage Gate 2 - Geotechnical Exploration	$25,000	$25,000	$0
Construction Services			
Outside Services (Contractor)	$1,641,600	$0	$1,641,600
Material Tab			
Material	$50,000	$0	$50,000
Other Tab			
Rental	$5,000	$0	$5,000
APS Travel	$16,000	$8,000	$8,000
Subtotal	**$2,127,800**		
Tax	$216,215		
Escalation/Contingency	$240,262		
Direct Loads	$67,103		
***Total Project, Direct**	**$2,651,380**		
Overhead Loads	$61,410		
Total Project, Gross	**$2,712,790**		

PROJECT MILESTONES

PLANNED KICKOFF: FEB 2031	**DESIGN START: FEB 2032**	**CONST. START: MAY 2033**	**ESTIMATED IN-SERVICE: NOV 2033**

2.13 FCC021978 F45 DECOM: Gridded Disposal Area Closure

DESCRIPTION	Closure of the 31-acre landfill site. Closure by grading to drain and construction of soil cover.
PURPOSE/ NECESSITY	Closure of the Gridded Disposal Area.
CONSEQUENCE OF DELAY	TBD.
ALTERNATIVES	Closure by removal and haul for disposal in an off-site permitted landfill.
CONSIDERATIONS	TBD.

PROJECT CONCEPTUAL DESIGN BASIS

Project consisting of the closure in place of a 31-acre solid waste landfill, which consists of grading the landfill to drain and placement of a soil evapotranspiration cover system. Of the 31-acre total, approximately 21 acres contains solid waste and approximately 10 acres contains asbestos. The increase in total area since 2024 (17 acres of solid waste closure and 10 acres of asbestos closure in 2024) reflects the closure boundary estimated during the LAI/LDWP Closure design. This project is the combination of FCC08387 F45 DECOM Gridded Disposal (Solid Waste) Closure and FCC08385 F45 DECOM Gridded Disposal (asbestos) Closure.

PROJECT COST BASIS

The F45 Gridded Disposal closure construction contractor cost (unloaded) is approximately $8,867,771, which is based on 31 acres for $286,057.12 per acre. The details of the estimated per acre construction cost for the Gridded Disposal Area Closure are provided on Section 3.11.

PROJECT COST SUMMARY

Category	Total	Forecast				
		2026	2027	2028	2029	2030
Labor Tab						
APS Generation Labor	$120,000	$24,000	$24,000	$24,000	$24,000	$24,000
Construction Labor (Plant Labor)	$60,000	$12,000	$12,000	$12,000	$12,000	$12,000
Outside Services Tab						
Engineering Services						
SG1 - JV	$50,000	$25,000	$25,000	$0	$0	$0
Stage Gate 2 - Engineering	$886,801	$129,653	$189,287	$189,287	$189,287	$189,287
Stage Gate 3 - Construction CM/QA	$0	$0	$0	$0	$0	$0
Stage Gate 2 - Geotechnical Exploration	$50,000	$25,000	$25,000	$0	$0	$0
Construction Services						
Outside Services (Contractor)	$9,843,372	$0	$2,460,843	$2,460,843	$2,460,843	$2,460,843
Material Tab						
Material	$50,000	$0	$12,500	$12,500	$12,500	$12,500
Other Tab						
Rental	$10,000	$0	$2,500	$2,500	$2,500	$2,500
APS Travel	$16,000	$0	$4,000	$4,000	$4,000	$4,000
Subtotal	**$11,086,173**					
Tax	$1,156,048					
Escalation/Contingency	$1,255,089					
Direct Loads	$57,997					
***Total Project, Direct**	**$13,555,307**					
Overhead Loads	$36,846					
Total Project, Gross	**$13,592,153**					

PROJECT MILESTONES

PLANNED KICKOFF: OCT 2025	**DESIGN START: NOV 2025**	**CONST. START: MAR 2026**	**ESTIMATED IN-SERVICE: APR 2030**

2.14 FCC08383 F45 DECOM: Lower Retention Pond Closure

DESCRIPTION	Closure by removal of a sediment sump consisting of removal of sediment, demolition of concrete to 2 feet below ground surface and backfill with soil.
PURPOSE/ NECESSITY	Closure of the Lower Retention Sump.
CONSEQUENCE OF DELAY	Leaving an open concrete sump tank within the plant area after decommissioning.
ALTERNATIVES	Complete demolition and removal of the concrete sump.
CONSIDERATIONS	Coordinate with decommissioning planners to evaluate if overlapped with general plant demolition scope, and if demolition of sump is included in general plant demolition this project could be cancelled.

PROJECT CONCEPTUAL DESIGN BASIS

The project consisting of the demolition of concrete sump and removal of sediments from 0.25-acre sump. Sediments and concrete debris would be disposed in either the DFADA or the new demolition debris disposal cell (FCC08381).

PROJECT COST BASIS

A total construction cost of $213,742 for the Lower Retention Pond (Sump) removal was based on a unit cost of $854,969 per acre for closure by removal of small sumps and ponds, which was developed from contractor bid information for the Cholla Sedimentation Pond closure project and adjusted for Farmington, New Mexico. The details of the estimated per acre construction cost for closure of small sumps and ponds are provided on Section 3.4.

PROJECT COST SUMMARY

Category	Total	Forecast	
		2031	2032
Labor Tab			
APS Generation Labor	$48,000	$24,000	$24,000
Construction Labor (Plant Labor)	$24,000	$12,000	$12,000
Outside Services Tab			
Engineering Services			
SG1 - JV	$25,000	$25,000	$0
Stage Gate 2 - Engineering	$79,554	$74,521	$5,033
Stage Gate 3 - Construction CM/QA	$121,375	$0	$121,375
Stage Gate 2 - Geotechnical Exploration	$0	$0	$0
Construction Services			
Outside Services (Contractor)	$213,742	$0	$213,742
Material Tab			
Material	$25,000	$0	$25,000
Other Tab			
Rental	$5,000	$0	$5,000
APS Travel	$16,000	$8,000	$8,000
Subtotal	**$557,671**		
Tax	$46,282		
Escalation/Contingency	$61,869		
Direct Loads	$56,631		
***Total Project, Direct**	**$722,453**		
Overhead Loads	$73,692		
Total Project, Gross	**$796,145**		

PROJECT MILESTONES

PLANNED KICKOFF: FEB 2030	DESIGN START: JAN 2031	CONST. START: MARCH 2032	ESTIMATED IN-SERVICE: NOV 2032

2.15 FCC08389 F45 DECOM: Upper Retention Sump Closure

DESCRIPTION	Closure by removal of a sediment sump consisting of removal of sediment, demolition of concrete to 2 feet below ground surface, and backfill with soil.
PURPOSE/ NECESSITY	Closure of the Upper Retention Sump.
CONSEQUENCE OF DELAY	Leaving an open concrete sump tank within the plant area after decommissioning.
ALTERNATIVES	Complete demolition and removal of the concrete sump.
CONSIDERATIONS	Coordinate with decommissioning planners to evaluate if overlapped with general plant demolition scope, and if demolition of sump is included in general plant demolition, this project could be canceled.

PROJECT CONCEPTUAL DESIGN BASIS

The project consisting of the demolition of concrete sump and removal of sediments from 1.26-acre sump. Sediments and concrete debris would be disposed in either the DFADA or the new demolition debris disposal cell (FCC08381).

PROJECT COST BASIS

A total construction cost of $1,077,261 for the Upper Retention Sump removal is based on a unit cost of $854,969 per acre for closure by removal of small sumps and ponds, which was developed form contractor bid information for the Cholla Sedimentation Pond closure project and adjusted for Farmington, New Mexico. The details of the estimated per acre construction cost for closure of small sumps and ponds are provided on Section 3.4.

PROJECT COST SUMMARY

Category	Total	Forecast	
		2031	2032
Labor Tab			
APS Generation Labor	$48,000	$24,000	$24,000
Construction Labor (Plant Labor)	$24,000	$12,000	$12,000
Outside Services Tab			
Engineering Services			
SG1 - JV	$25,000	$25,000	$0
Stage Gate 2 - Engineering	$107,726	$95,701	$12,025
Stage Gate 3 - Construction CM/QA	$207,727	$0	$207,727
Stage Gate 2 - Geotechnical Exploration	$0	$0	$0
Construction Services			
Outside Services (Contractor)	$1,077,261	$0	$1,077,261
Material Tab			
Material	$25,000	$0	$25,000
Other Tab			
Rental	$10,000	$5,000	$5,000
APS Travel	$16,000	$8,000	$8,000
Subtotal	**$1,540,714**		
Tax	$153,090		
Escalation/Contingency	$173,615		
Direct Loads	$68,588		
***Total Project, Direct**	**$1,936,007**		
Overhead Loads	$73,692		
Total Project, Gross	**$2,009,699**		

PROJECT MILESTONES

PLANNED KICKOFF: FEB 2030	**DESIGN START: JAN 2031**	**CONST. START: MARCH 2032**	**ESTIMATED IN-SERVICE: NOV 2032**

2.16 FCC08391 F45 DECOM: Ash Haul Ramps E of LAI Pond 6 Closure

DESCRIPTION	Excavate, haul, and dispose of CCR from old 123 hydrobins and Ash Haul Ramps east of LAI and Pond 6.
PURPOSE/ NECESSITY	General CCR removal from areas of haul and handling at decommissioning.
CONSEQUENCE OF DELAY	TBD.
ALTERNATIVES	TBD.
CONSIDERATIONS	Haul and dispose of CCR within the DFADA landfill. Other considerations TBD.

PROJECT CONCEPTUAL DESIGN BASIS

The project consists of general costs for excavation, hauling, and disposal of the CCR within the areas of the haul road east of the LAI and Pond 6. The excavated CCR will be disposed of within the DFADA.

PROJECT COST BASIS

A total construction cost of $1,111,656 for the CCR removal and disposal project was based on a unit cost of $14.36 per cubic yard for 77,440 cubic yards for closure by removal of ash deposits, which was developed from contractor bid information for the Cholla Ash Pond 1 removal project and adjusted for Farmington, New Mexico. The details of the estimated per acre construction cost for general ash removal are provided on Section 3.5.

PROJECT COST SUMMARY

Category	Total	Forecast	
		2031	2032
Labor Tab			
APS Generation Labor	$48,000	$24,000	$24,000
Construction Labor (Plant Labor)	$12,000	$0	$12,000
Outside Services Tab			
Engineering Services			
SG1 - JV	$25,000	$25,000	$0
Stage Gate 2 - Engineering	$113,763	$85,989	$27,774
Stage Gate 3 - Construction CM/QA	$133,375	$0	$133,375
Stage Gate 2 - Geotechnical Exploration	$25,000	$25,000	$0
Construction Services			
Outside Services (Contractor)	$1,111,656	$0	$1,111,656
Material Tab			
Material	$25,000	$0	$25,000
Other Tab			
Rental	$5,000	$0	$5,000
APS Travel	$16,000	$8,000	$8,000
Subtotal	**$1,514,794**		
Tax	$150,516		
Escalation/Contingency	$170,694		
Direct Loads	$59,916		
***Total Project, Direct**	**$1,895,920**		
Overhead Loads	$61,410		
Total Project, Gross	**$1,957,330**		

PROJECT MILESTONES

PLANNED KICKOFF: FEB 2030	**DESIGN START: JAN 2031**	**CONST. START: MAR 2032**	**ESTIMATED IN-SERVICE: NOV 2032**

2.17 FCC08396 FC DECOM: Seepage Intercept System Closure

DESCRIPTION	Abandonment or closure of seepage intercept system 30 years after decommissioning of Units 4 and 5.
PURPOSE/ NECESSITY	Abandonment or closure of seepage intercept system.
CONSEQUENCE OF DELAY	TBD.
ALTERNATIVES	TBD.
CONSIDERATIONS	Consideration of geomembrane liner on downstream side of intercept trench during abandonment as a potential impedance to shallow groundwater flows. Consider the depths of sump systems and possibility of full removal of system.

PROJECT CONCEPTUAL DESIGN BASIS

The project consists of grout abandonment of 65,000 linear feet of 6-inch collection pipe, 65,000 linear feet of 10-inch discharge pipe, and eleven 48-inch diameter sump risers (at an average of 45 feet tall).

PROJECT COST BASIS

A total construction cost of $1,300,000 was selected based on a unit cost of $20 per linear foot of the trench, which was based on a rough estimate for grout abandonment of the pipes and sumps at the Seepage Intercept Trench (SIT) and the North Intercept Trench (NIT) as detailed in Section 3.6 of Cost Basis Section.

PROJECT COST SUMMARY

Category	Total	Forecast	
		2042	2043
Labor Tab			
APS Generation Labor	$48,000	$24,000	$24,000
Construction Labor (Plant Labor)	$24,000	$12,000	$12,000
Outside Services Tab			
Engineering Services			
SG1 - JV	$25,000	$25,000	$0
Stage Gate 2 - Engineering	$115,000	$90,000	$25,000
Stage Gate 3 - Construction CM/QA	$147,500	$0	$147,500
Stage Gate 2 - Geotechnical Exploration	$0	$0	$0
Construction Services			
Outside Services (Contractor)	$1,300,000	$0	$1,300,000
Material Tab			
Material	$25,000	$0	$25,000
Other Tab			
Rental	$5,000	$0	$5,000
APS Travel	$16,000	$8,000	$8,000
Subtotal	**$1,705,500**		
Tax	$171,125		
Escalation/Contingency	$192,354		
Direct Loads	$68,275		
***Total Project, Direct**	**$2,137,254**		
Overhead Loads	$73,692		
Total Project, Gross	**$2,210,946**		

ASSUMPTIONS

- Closure of system would take place 30 years after closure of the DFADA, but kept project early in LRF (12 years from Decom).

PROJECT MILESTONES

PLANNED KICKOFF: JAN 2041	DESIGN START: JAN 2042	CONST. START: JAN 2043	ESTIMATED IN-SERVICE: DEC 2043

2.18 FCC021045 F45 DECOM: Evaporation Pond Closure

DESCRIPTION	Closure by removal of the lined evaporation pond.
PURPOSE/ NECESSITY	The closure by removal of the lined evaporation pond after cease of discharge to the pond.
CONSEQUENCE OF DELAY	Closure of the evaporation pond will be required after cease discharge to the pond in accordance with the federal CCR disposal regulations.
ALTERNATIVES	Closure in place of the pond could be completed by folding the liner system over the sediments and placing a final cover.
CONSIDERATIONS	Borrow will be required for the closure of the pond.

PROJECT CONCEPTUAL DESIGN BASIS

The project consists of removal of liner and overlying sediments and backfilling the 36-acre evaporation pond with soil. Assume 1 foot of sediment is removed from the lined area.

PROJECT COST BASIS

A total construction cost of $8,557,200 was selected based on a unit cost of $250,800 per acre, which was assigned primarily based on the 2023 cost estimate information collected from contractors and the engineer cost estimate information for the LAI and LDWP closure cost estimate escalated to 2025. Details of the cost basis are provided in Section 3.8 of Cost Basis Section.

PROJECT COST SUMMARY

Category	Total	Forecast	
		2042	2043
Labor Tab			
APS Generation Labor	$48,000	$24,000	$24,000
Construction Labor (Plant Labor)	$24,000	$12,000	$12,000
Outside Services Tab			
Engineering Services			
SG1 - JV	$25,000	$25,000	$0
Stage Gate 2 - Engineering	$501,440	$451,440	$50,000
Stage Gate 3 - Construction CM/QA	$727,160	$0	$727,160
Construction Services			
Outside Services (Contractor)	$9,028,800	$0	$9,028,800
Material Tab			
Material	$25,000	$0	$25,000
Other Tab			
Rental	$10,000	$5,000	$5,000
APS Travel	$21,000	$13,000	$8,000
Subtotal	**$10,410,400**		
Tax	$751,304		
Escalation/Contingency	$1,056,455		
Direct Loads	$169,057		
***Total Project, Direct**	**$12,387,216**		
Overhead Loads	$70,736		
Total Project, Gross	**$12,457,952**		

PROJECT MILESTONES

PLANNED KICKOFF: JAN 2034	**DESIGN START: JAN 2042**	**CONST. START: MARCH 2043**	**ESTIMATED IN-SERVICE: NOV 2043**

2.19 FCC06338 F123 DECOM: Lined Ash Impoundment Closure

DESCRIPTION	The Lined Ash Impoundment (LAI) will be closed using the strategy called "Closure-in-Place" in accordance with federal CCR Disposal regulations (40 CFR Part 257). The project will consist of re-grading the slopes of the LAI and placing a soil evapotranspiration cover. A soil-cement spillway will be constructed to convey stormwater run-off from the LAI. Units 4, and 5 will share 25 percent of the cost.
PURPOSE/ NECESSITY	The purpose of this project is to comply with federal CCR Disposal regulations (40 CFR 257.102).
CONSEQUENCE OF DELAY	Non-compliance with federal CCR Disposal regulations (40 CFR 257.102).
ALTERNATIVES	Dewater, excavate, and relocate impounded ash to a new federal CCR Disposal regulations (40 CFR 257) compliant disposal facility.
CONSIDERATIONS	The LAI is a New Mexico Office of State Engineering (NMOSE) jurisdictional tailing dam, requiring a dam safety approved closure plan. The project schedule allows for up to 5 years of construction of likely soft saturated ground conditions and the potential for air drying time. FCC06338 is the 75% share; FCC06339 is the 25% share. The LDWP Closure Project (FCC07657) will be constructed concurrently with this project.

PROJECT PRELIMINARY DESIGN BASIS

Closure in place of the approximate 160 acre ash pond. Project construction activities will primarily consist of removing the free water; dewatering or stabilizing the impounded CCR (FGD sludge and ash); grading and capping the impounded CCR and containment embankments with a soil cover, and installing permanent surface water run-on diversions.

PROJECT COST BASIS

The following project cost summary information for the LAI Closure Project reflects the cost and cash flow information shown in EPMS as of June 3, 2025. The construction costs used in cash flow in EPMS are based on two contractor's cost estimates (2024), which were based on preliminary closure design quantities (current as of April 2024). An engineer's cost estimate, with associated quantities, is provided in Section 3.9.

PROJECT COST SUMMARY

Category	Total	Forecast						
		Through 6/2025	After 6/2025	2026	2027	2028	2029	2030
Labor Tab								
APS Generation Labor	$191,251	$92,251	$9,000	$18,000	$18,000	$18,000	$18,000	$18,000
Construction Labor (Plant Labor)	$56,020	$6,520	$4,500	$9,000	$9,000	$9,000	$9,000	$9,000
Outside Services Tab								
Engineering Services								
SG1 - JV	$0	$0	$0	$0	$0	$0	$0	$0
Stage Gate 2 - Engineering	$7,536,306	$4,410,807	$96,862	$506,378	$719,843	$734,288	$654,840	$413,288
Construction Services								
Outside Services (Contractor)	$65,354,753	$9,016,698	$3,701,300	$12,246,250	$11,943,750	$11,956,125	$11,922,500	$4,568,130
Material Tab								
Material	$3,476	$3,476	$0	$0	$0	$0	$0	$0
Engineering Materials	$58,160	$58,160	$0	$0	$0	$0	$0	$0
Other Tab								
Rental	$52,059	$45,639	$0	$0	$1,605	$1,605	$1,605	$1,605
APS Travel	$69,430	$19,930	$4,500	$9,000	$9,000	$9,000	$9,000	$9,000
Other Outside Services (cumulative 25% cost share)	($4,219,530)	($2,918,490)	$39,960	($300,000)	($250,000)	($300,000)	($300,000)	($191,000)
Vehicle	$165	$165	$0	$0	$0	$0	$0	$0
Subtotal	**$69,102,090**							
Tax (included in the subtotal)	$3,963,184							
Escalation/Contingency	$5,347,931							
Direct Loads	$220,866							
***Total Project, Direct**	**$74,670,887**							
Overhead Loads	$341,725							
Total Project, Gross	**$75,012,612**							

PROJECT MILESTONES

PLANNED KICKOFF: MAR 2017	DESIGN START: APR 2020	CONST. START: MARCH 2026	ESTIMATED IN-SERVICE: APRIL 2030

2.20 FCC06339 F45 DECOM: Lined Ash Impoundment Closure

DESCRIPTION	The Lined Ash Impoundment (LAI) will be closed using the strategy called "Closure-in-Place" in accordance with federal CCR Disposal regulations (40 CFR Part 257). The project will consist of re-grading the slopes of the LAI and placing a soil evapotranspiration cover. A soil-cement spillway will be constructed to convey stormwater run-off from the LAI. Units 1, 2, and 3 will share 75 percent of the cost.
PURPOSE/ NECESSITY	The purpose of this project is to comply with federal CCR Disposal regulations (40 CFR 257.102).
CONSEQUENCE OF DELAY	Non-compliance with federal CCR Disposal regulations (40 CFR 257.102).
ALTERNATIVES	Dewater, excavate, and relocate impounded ash to a new federal CCR Disposal regulations (40 CFR 257) compliant disposal facility.
CONSIDERATIONS	The LAI is a New Mexico Office of State Engineering (NMOSE) jurisdictional tailing dam, requiring a dam safety approved closure plan. The project schedule allows for up to 5 years of construction of likely soft saturated ground conditions and the potential for air drying time. FCC06338 is the 75% share; FCC06339 is the 25% share. The LDWP Closure Project (FCC07657) will be constructed concurrently with this project.

PROJECT PRELIMINARY DESIGN BASIS

Closure in place of the approximate 160 acre ash pond. Project construction activities will primarily consist of removing the free water; dewatering or stabilizing the impounded CCR (FGD sludge and ash); grading and capping the impounded CCR and containment embankments with a soil cover, and installing permanent surface water run-on diversions.

PROJECT COST BASIS

The following project cost summary information for the LAI Closure Project is reflective of the cost and cash flow information shown within EPMS as of June 3, 2025. The construction costs used in cash flow within EPMS is based on two contractor's cost estimates (2024), which were based on preliminary closure design quantities (current as of April 2024). An engineer's cost estimate, with associated quantities, is provided in Section 3.9.

PROJECT COST SUMMARY

Category	Total	Forecast						
		Through 6/2025	After 6/2025	2026	2027	2028	2029	2030
Labor Tab								
APS Generation Labor	$36,370	$3,370	$3,000	$6,000	$6,000	$6,000	$6,000	$6,000
Construction Labor (Plant Labor)	$44,513	$28,013	$1,500	$3,000	$3,000	$3,000	$3,000	$3,000
Outside Services Tab								
Engineering Services								
SG1 - JV	$0	$0	$0	$0	$0	$0	$0	$0
Stage Gate 2 - Engineering	$4,965,264	$3,096,063	$76,505	$168,793	$237,585	$244,763	$218,280	$923,275
Construction Services								
Outside Services (Contractor)	$18,785,063	$136,500	$1,304,250	$3,690,563	$4,121,250	$4,121,250	$4,162,500	$1,248,750
Material Tab								
Material	$20,545	$20,545	$0	$0	$0	$0	$0	$0
Engineering Materials	$0	$0	$0	$0	$0	$0	$0	$0
Other Tab								
Rental	$17,353	$15,213	$0	$0	$535	$535	$535	$535
APS Travel	$23,144	$6,644	$1,500	$3,000	$3,000	$3,000	$3,000	$3,000
Other Outside Services	$75,320	$75,320	$0	$0	$0	$0	$0	$0
Vehicle	$55	$55	$0	$0	$0	$0	$0	$0
Subtotal	**$23,967,627**							
Tax (included in the subtotal)	$1,883,462							
Escalation/Contingency	$833,715							
Direct Loads	$73,543							
***Total Project, Direct**	**$24,874,885**							
Overhead Loads	$116,186							
Total Project, Gross	**$24,991,071**							

PROJECT MILESTONES

PLANNED KICKOFF: MAR 2017	DESIGN START: APR 2020	CONST. START: MARCH 2026	ESTIMATED IN-SERVICE: APRIL 2030

2.21 FCC07657 F123 DECOM: Lined Decant Water Pond Closure

DESCRIPTION	The Lined Decant Water Pond (LDWP) will be closed using the strategy called "Closure-in-Place" in accordance with federal CCR Disposal regulations (40 CFR Part 257). The project will consist of re-grading the slopes of the LDWP and placing a soil evapotranspiration cover. A soil-cement spillway will be constructed to convey stormwater run-off from the LDWP. Units 4&5 will share 25 percent of the cost.
PURPOSE/ NECESSITY	The purpose of this project is to comply with federal CCR Disposal regulations (40 CFR 257.102).
CONSEQUENCE OF DELAY	Non-compliance with federal CCR Disposal regulations (40 CFR 257.102).
ALTERNATIVES	Dewater, excavate, and relocate impounded ash to a new federal CCR Disposal regulations (40 CFR 257) compliant disposal facility.
CONSIDERATIONS	The LDWP is a New Mexico Office of State Engineering (NMOSE) jurisdictional tailing dam, requiring a dam safety approved closure plan. The project schedule allows for up to 5 years of construction of likely soft saturated ground conditions and the potential for air drying time. The LAI Closure Project (FCC06338) will be constructed concurrently with this project. This project is contingent upon completion of a Return Water Pond (FCC06814).

PROJECT PRELIMINARY DESIGN BASIS

Closure in place of the approximate 90 acre ash pond. Project construction activities will primarily consist of removing the free water; dewatering or stabilizing the impounded CCR (FGD sludge and ash); grading and capping the impounded CCR and containment embankments with a soil cover, and installing permanent surface water run-on diversions.

PROJECT COST BASIS

The following project cost summary information for the LAI Closure Project is reflective of the cost and cash flow information shown within EPMS as of June 3, 2025. The construction costs used in cash flow within EPMS are based on two contractor's cost estimates (2024), which were based on preliminary closure design quantities (current as of April 2024). An engineer's cost estimate, with associated quantities, is provided in Section 3.10.

PROJECT COST SUMMARY

Category	Total	Forecast						
		Through 6/2025	After 6/2025	2026	2027	2028	2029	2030
Labor Tab								
APS Generation Labor	$121,688	$22,688	$9,000	$18,000	$18,000	$18,000	$18,000	$18,000
Construction Labor (Plant Labor)	$52,021	$2,521	$4,500	$9,000	$9,000	$9,000	$9,000	$9,000
Outside Services Tab								
Engineering Services								
SG1 - JV	$0	$0	$0	$0	$0	$0	$0	$0
Stage Gate 2 - Engineering	$2,019,702	$1,264,162	$275,138	$92,972	$92,196	$92,530	$101,352	$101,352
Stage Gate 3 - Construction CM/QA	$0	$0	$0	$0	$0	$0	$0	$0
Construction Services								
Outside Services (Contractor)	$28,016,231	$5,347	$1,679,758	$4,561,563	$7,362,075	$5,540,288	$5,147,100	$3,720,100
Material Tab								
Material (accounting transfer)	($245,299)	($245,299)	$0	$0	$0	$0	$0	$0
Other Tab								
Rental	$11,311	$3,286	$0	$1,605	$1,605	$1,605	$1,605	$1,605
APS Travel	$52,055	$3,305	$4,500	$8,250	$9,000	$9,000	$9,000	$9,000
Other Outside Services	$57,899	$17,939	$39,960	$0	$0	$0	$0	$0
Subtotal	**$30,085,608**							
Tax (included in the subtotal)	$2,875,145							
Escalation/Contingency	$2,770,417							
Direct Loads	$405,969							
***Total Project, Direct**	**$33,261,994**							
Overhead Loads	$183,002							
Total Project, Gross	**$33,444,996**							

PROJECT MILESTONES

PLANNED KICKOFF: MAR 2017	DESIGN START: APR 2020	CONST. START: MARCH 2026	ESTIMATED IN-SERVICE: APRIL 2030

2.22 FCC07660 F45 DECOM: Lined Decant Water Pond Closure

DESCRIPTION	The Lined Decant Water Pond (LDWP) will be closed using the strategy called "Closure-in-Place" in accordance with federal CCR Disposal regulations (40 CFR Part 257). The project will consist of re-grading the slopes of the LDWP and placing a soil evapotranspiration cover. A soil-cement spillway will be constructed to convey stormwater run-off from the LDWP. Units 1, 2, and 3 will share 75 percent of the cost.
PURPOSE/ NECESSITY	The purpose of this project is to comply with federal CCR Disposal regulations (40 CFR 257.102).
CONSEQUENCE OF DELAY	Non-compliance with federal CCR Disposal regulations (40 CFR 257.102).
ALTERNATIVES	Dewater, excavate, and relocate impounded ash to a new federal CCR Disposal regulations (40 CFR 257) compliant disposal facility.
CONSIDERATIONS	The LDWP is a New Mexico Office of State Engineering (NMOSE) jurisdictional tailing dam, requiring a dam safety approved closure plan. The project schedule allows for up to 5 years of construction of likely soft saturated ground conditions and the potential for air drying time. The LAI Closure Project (FCC06338) will be constructed concurrently with this project. This project is contingent upon completion of a Return Water Pond (FCC06814).

PROJECT PRELIMINARY DESIGN BASIS

Closure in place of the approximate 90 acre ash pond. Project construction activities will primarily consist of removing the free water; dewatering or stabilizing the impounded CCR (FGD sludge and ash); grading and capping the impounded CCR and containment embankments with a soil cover, and installing permanent surface water run-on diversions.

PROJECT COST BASIS

The following project cost summary information for the LAI Closure Project is reflective of the cost and cash flow information shown within EPMS as of June 3, 2025. The construction costs used in cash flow within EPMS are based on two contractor's cost estimates (2024), which were based on preliminary closure design quantities (current as of April 2024). An engineer's cost estimate, with associated quantities, is provided in Section 3.10.

PROJECT COST SUMMARY

Category	Total	Forecast						
		Through 6/2025	After 6/2025	2026	2027	2028	2029	2030
Labor Tab								
APS Generation Labor	$37,666	$4,666	$3,000	$6,000	$6,000	$6,000	$6,000	$6,000
Construction Labor (Plant Labor)	$20,038	$3,538	$1,500	$3,000	$3,000	$3,000	$3,000	$3,000
Outside Services Tab								
Engineering Services								
SG1 - JV	$0	$0	$0	$0	$0	$0	$0	$0
Stage Gate 2 - Engineering	$228,767	$42,605	$33,366	$29,532	$29,532	$29,532	$32,100	$32,100
Stage Gate 3 - Construction CM/QA	$0	$0	$0	$0	$0	$0	$0	$0
Construction Services								
Outside Services (Contractor)	$8,623,009	$0	$659,313	$1,505,438	$2,528,025	$1,846,763	$1,720,500	$362,970
Material Tab								
Material	$245,588	$245,588	$0	$0	$0	$0	$0	$0
Other Tab								
Rental	$3,770	$1,095	$0	$535	$535	$535	$535	$535
APS Travel	$17,601	$1,101	$1,500	$3,000	$3,000	$3,000	$3,000	$3,000
Other Outside Services	$11,982	$11,982	$0	$0	$0	$0	$0	$0
Subtotal	**$9,188,421**							
Tax (included in the subtotal)	$854,169							
Escalation/Contingency	$1,208,814							
Direct Loads	$140,758							
***Total Project, Direct**	**$10,537,993**							
Overhead Loads	$60,041							
Total Project, Gross	**$10,598,034**							

PROJECT MILESTONES

PLANNED KICKOFF: MAR 2017	**DESIGN START: APR 2020**	**CONST. START: MARCH 2026**	**ESTIMATED IN-SERVICE: APRIL 2030**

3 Basis of Costs

The anticipated costs for each LRF project were estimated based on the following criteria:

- The “unloaded” construction costs were developed for each project in the LRF booklet. The unit costs are tabulated based on both engineering cost data and actual unit costs from bids on similar APS projects to estimate an average unloaded construction cost per acre for the development of LRF project costs.
- Loaded costs were based on outputs from APS Enterprise Project Management System (EPMS).
- The costs for construction of piezometers, for FCC16509 Morgan Dam Piezometer Install Project, are based on actual cost data from pervious well installation projects at the Plant site. Piezometer installation costs are based on an estimated unit cost of $25,000 per piezometer. See Section 3.3 for an additional breakdown of unit cost basis.
- All costs shown are in 2025 dollars and have been escalated according to the process described in Section 1.1 and reintroduced below.
    - Construction costs for the LRF projects are based on both engineering cost data, contractor quotes, and actual construction bid cost information from other projects with similar scopes.
    - The outside services costs for the LRF projects are escalated using the RSMeans Historical Cost Indexes from the year when the bid cost was developed to the second quarter of the current year (2025).
    - If the construction costs for the LRF projects were based on actual construction bid information or contractor-developed budgetary estimates collected during 2024, additional escalations were not incorporated.
- Additional assumptions are provided for each project as needed.

Detailed quantities and rough cost estimates of the unloaded total outside services cost (contractor, engineering, and PM/CM) for the Lined Ash Impoundment Closure, Lined Decant Water Pond Closure, and Gridded Disposal Area Closure are provided in Subsections 3.9, 3.10, and 3.11, respectively. The total costs are:

- FCC06338 F123/FCC06339 F45 Lined Ash Impoundment Closure – Unloaded Cost: **$78,495,702**
- FCC07657 F123/FCC07660 F45 Lined Decant Water Pond Closure – Unloaded Cost: **$23,238,161**
- Gridded Disposal Area Closure – Unloaded Cost: **$8,867,771**

3.1 CCR Landfill Construction Projects – Basis of Cost

DESCRIPTION	**Provides conceptual cost basis, for the Long Range Forecast, of new and lateral expansion landfill projects (including CCR landfills designed in accordance with 40 CFR Part 257).**
BASIS	The unit (per acre) cost is based on the highest bid received to construct DFADA Site 4 at the Four Corners Power Plant in 2019. Estimate incorporates geocomposite drainage net in lieu of the bottom ash drainage layer for a leachate collection and recovery system. The cost per acre is escalated from the 2019 bid unit costs to 2025 dollars using RSMeans. The cost per acre is $472,800.

COST BASIS TABLE

Line Item #	Description	Unit	Quantity	Bid Line Cost		Estimated Cost	Comments
1	Survey	LS	1	$75,000		$75,000	
2	As Built Redline Drawings	LS	1	$12,500		$12,500	
3	Construction QC, and CMT	LS	1	$150,000		$150,000	
4	Temporary Facilities and Controls	LS	1	$75,000		$75,000	
5	Construction SWPPP	LS	1	$25,000		$25,000	
6	Dust Control	LS	1	$25,000		$25,000	
7	Mobilization/Demobilization	LS	1	$301,612		$301,612	
8	General Demolition	LS	1	$55,000		$55,000	
9	Concrete	LS	1	$29,705		$29,705	
10	Geotextile	LS	1	$90,483		$90,483	
11	Geomembrane	LS	1	$1,404,783		$1,404,783	
12	Geosynthetic Clay Liner (Polymer Added)	SF	1,742,400	$2.25		$3,920,400	
13	Excavation for SF	LS	1	$2,424,496	Used highest construction bid for DFADA Site 4 Construction (2019 bid)	$2,424,496	
14	Excavation to Stockpile	LS	1	Not Included		$0	Line 14 and 15 incl. in Line 13 Cost
15	Structural Fill Add	LS	1	Not Included		$0	
16	Free Draining Gravel	LS	1	$295,920		$295,920	
17	CLSM	LS	1	$10,800		$10,800	
18	Geonet to replace Bottom Ash	SF	1,742,400	$1.00		$1,742,400	
19	Anchor Trench	LS	1	$1,742,400		$1,742,400	
20	Subgrade Preparation	LS	1	$35,763		$35,763	
21	Finished Grading	LS	1	$528,468		$528,468	
22	Riprap	LS	1	$44,907		$44,907	
23	Sandstone	LS	1	$133,050		$133,050	
24	Cement Treated Base	LS	1	$22,800		$22,800	
25	HDPE Piping, 3-inch	LS	1	$600,640		$600,640	
26	HDPE Piping, 6-inch	LS	1	$190,895		$190,895	
27	HDPE Piping, 12-inch	LS	1	$231,688		$231,688	
Base Construction Cost							RSMeans Index
Contractor Unit Cost Subtotal (2019)						**$14,168,710**	232.2
Escalated Unloaded Construction Subtotal (for 2025)						**$18,226,501**	298.7
17	**Contractor General Conditions**						
18	General Conditions	%	3.00%			$546,795	
19	Temporary Facilities	%	0.00%			$0	
20	Insurance	%	0.75%			$136,699	
21	Survey As-Builts	%	0.00%			$0	
22	CQC Testing	%	0.00%			$0	
23					Unloaded Construction Subtotal	**$18,909,995**	
24	Site Area (acre):	40			Unloaded $/acre:	$472,750	
25	**Unloaded Construction - Selected Unit Cost ($/acre):**					**$472,800**	

3.2 CCR Landfill Closure Projects – Basis of Cost

DESCRIPTION	**Provides conceptual cost basis, for the Long Range Forecast, of landfill closure projects (including CCR landfills) using a soil evapotranspirative cap using local borrow. Closure design is in accordance with the EPA CCR Disposal Rule (40 CFR Part 257).**
BASIS	The unit costs are based on the highest bid received to construct DFADA Site A Closure at the Four Corners Power Plant in 2019. The cost per acre is escalated from the 2019 bid unit costs to 2025 dollars using RSMeans. The cost per acre is $136,800.

COST BASIS TABLE

Line Item #	Description	Unit	Quantity	Bid Line Cost		Estimated Cost	Comments
1	Survey	LS	1	$20,000.00	Used highest construction bid for DFADA Section A Closure (2019 bid)	$20,000	
2	As Built Redline Drawings	LS	1	$12,500.00		$12,500	
3	Construction QC and CMT	LS	1	$35,000.00		$35,000	
4	Temporary Facilities and Controls	LS	1	$5,000.00		$5,000	
5	Construction SWPPP	LS	1	$7,500.00		$7,500	
6	Dust Control	LS	1	$4,000.00		$4,000	
7	Mobilization/Demobilization	LS	1	$35,848.00		$35,848	
8	Geotextile	LS	1	$934.00		$934	
9	Excavation (Cap Materials)	LS	1	$312,604.00		$312,604	
10	Soil Cap Infiltration Layer	LS	1	$782,400.00		$782,400	
11	Soil Cap Erosion Layer	LS	1	$181,314.00		$181,314	
12	Riprap	LS	1	$8,875.00		$8,875	
13	Revegetation	LS	1	$28,000.00		$28,000	
							RSMeans Index
Contractor Unit Cost Subtotal (2019)						**$1,433,975**	232.2
Escalated Unloaded Construction Subtotal (for 2025)						**$1,844,653**	298.7
14	**Contractor General Conditions**						
15	General Conditions	%	3.00%			$55,340	
16	Temporary Facilities	%	0.00%				
17	Insurance	%	0.75%			$13,835	
18	Survey As-Builts	%	0.00%				
19	CQC Testing	%	0.00%				
20				Unloaded Construction Subtotal		**$1,913,827**	
21	Site Area (acre):	14		Unloaded $/acre:		$136,702	
22	**Unloaded Construction - Selected Unit Cost ($/acre):**					**$136,800**	

3.3 Piezometer Installation Projects – Basis of Cost

DESCRIPTION	Provides conceptual cost basis, for the Long Range Forecast, of vertical standpipe piezometer installation projects.
BASIS	The cost is based on historic, un-escalated costs to install wells at FCPP. Due to the wide variability in drilling scope and limited dataset, the costs are not escalated to 2025 dollars. The approximate cost per piezometer is $25,000.

COST BASIS TABLE

Project	Quote Date	Total Drilling and Installation Cost	Number of Piezometers/Wells	Cost Per Well
Ash Pond 6 Closure Construction	3/21/2014	$35,000.00	2	$17,500.00
CCR Monitoring Wells	8/19/2015	$123,916.89	11	$11,265.17
LAI Drainable Pore Water Pilot Test	1/3/2024	$52,030.58	2	$26,015.29
LAI Drainable Pore Water Pilot Test Phase 3	8/12/2024	$4,334,370.00	105	$41,279.71
LAI Drainable Pore Water Pilot Test	4/7/2025	$229,672.04	10	$22,967.20

Unloaded Average	**$23,805.48**
Rounded ($/well)	**$25,000.00**

3.4 Closure by Removal of Sumps and Small Ponds – Basis of Cost

DESCRIPTION	**Provides conceptual cost basis, for the Long Range Forecast, of closure by removal projects of small sumps and small ponds (5 acres or less).**
BASIS	The unit (per acre) cost and quantities are based on the mean of four bids received to for the closure by removal of the CHC08538 Sedi Pond Closure (1.07 acres). The cost per acre is escalated from the 2021 bid unit costs to 2025 dollars using RSMeans. The cost per acre is $854,969.19.

COST BASIS TABLE

Contractor	Civil Total	Demolition Total	General Conditions Total	Construction Total Price	Cost per Acre	Comments
Contractor A	$257,301.00	$103,524.00	$120,322.00	$481,147.00	$450,435.49	Cost for removal of a 1.07 acre pond
Contractor B	$376,047.15	$42,892.50	$230,311.17	$649,250.82	$607,809.27	
Contractor C	$693,822.86	$520,536.73	$261,955.00	$1,476,315.00	$1,382,082.13	
Contractor D				$538,909.00	$504,510.55	
Base Construction Cost						RSMeans Index
Mean of Bids (2021 Dollars)					$736,209.36	266.6
Escalated Unloaded Construction Cost per Acre (2025 Dollars)					**$854,969.19**	298.7

Relevant Project	Facility Size (Acres)
FCC08382 F45 DECOM: FGD Return Water Pond Closure	5.1
FCC08383 F45 DECOM: Lower Retention Pond Closure	0.25
FCC08389 Upper Retention Sump Closure	1.26

3.5 General Ash Removal Projects - Basis of Cost

DESCRIPTION	**Provides conceptual cost basis, for the Long Range Forecast, of CCR removal, haul, and disposal/stockpiling projects (general CCR removals).**
BASIS	The unit (per cubic yard) cost and quantities are based on the average cost per cubic yard of eight bids received to relocate Ash Pond 1 at Cholla in 2021, escalated to 2025, and adjusted for the cost difference between Flagstaff, Arizona and Farmington, New Mexico. Due to uncertainty regarding the actual volume to be relocated, each contractor was asked to provide tiered costs for "Excavation, Haul, and Dump" – the base unit price for the bid volume of 400,000 CY and the unit price (if different) for a haul volume that exceeds 400,000 CY. APS calculated the total haul volume (using LiDAR data) to be 766,988.8 CY. The cost basis is estimated using the weighted cost per CY for each contractor. The cost per cubic yard is $14.36.

COST BASIS TABLE

Contractor	Construction Total Price	Cost per CY	Comments
Contractor A	$6,207,657.60	$8.09	
Contractor B	$5,775,425.66	$7.53	
Contractor C	$7,940,023.30	$10.35	
Contractor D	$10,737,843.20	$14.00	
Contractor E	$11,006,289.28	$14.35	
Contractor F	$11,351,434.24	$14.80	
Contractor G	$11,044,519.68	$14.40	
Contractor H	$12,578,616.32	$16.40	
Base Construction Cost			RSMeans Index
	Contractor Subtotal (Mean of Bids in 2021 Dollars)	$12.49	266.6
	Escalated Unloaded Construction Subtotal (for 2025)	$13.85	295.6
	Escalated Unloaded Construction Subtotal (for Flagstaff to Farmington)	$14.36	Farmington = 103.65%*Flagstaff
	Unloaded Construction - Selected Unit Cost ($/CY):	**$14.36**	

3.6 Seepage Intercept Closure – Basis of Cost

DESCRIPTION	Provides conceptual cost basis, for the Long Range Forecast, of the closure of the Seepage Intercept System.
BASIS	The unit (per linear foot of trench) cost and quantities are based on contractor bids for similarly scoped work. The cost per linear foot is $20.00.

COST BASIS TABLE

Line Item #	Description	Unit	Quantity	Unit Price	Estimated Cost	Comments
1	Mobilization/Demobilization	LS	1	$70,000.00	$70,000	
2	Dust Control	LS	1	$70,000.00	$70,000	
3	Tremie grout of 6 inch perforated collection pipe	CY	473	$200.00	$94,539	
4	Tremie grout of 10 inch discharge pipe	CY	1,313	$200.00	$262,649	
5	Tremie grout of Eleven 48-inch manhole risers	CY	243	$200.00	$48,590	
6	Pump Crew	Days	24	$5,000.00	$120,000	
7	AB	CY	89	$150.00	$13,404	
8	Revegetation	AC	15	$8,000.00	$117,539	
						RSMeans Index
Contractor Unit Cost Subtotal (2019)					**$796,721**	232.2
Escalated Unloaded Construction Subtotal (for 2025)					**$1,024,895**	298.7
8	**Contractor General Conditions**					
9	General Conditions	%	3.00%		$30,747	
10	Temporary Facilities	%	0.00%		$0	
11	Insurance	%	0.75%		$7,687	
12	Survey As-Builts	%	0.00%		$0	
13	CQC Testing	%	0.00%		$0	
14	Unloaded Construction Subtotal				**$1,063,329**	
15	Seepage Trench Length (Linear Feet):	64,000	Unloaded $/linear foot:		$17	
16	Unloaded Construction - Selected Unit Cost 60% of Range ($/linear foot of trench):				$20	
17	**Unloaded Construction Cost($):**				**$1,063,400**	
16	**Unloaded Construction - ($/Linear Foot):**				**$20**	

3.7 Lined Evaporation Pond Construction – Basis of Cost

DESCRIPTION	Provides conceptual cost basis, for the Long Range Forecast, of the construction of a new lined evaporation pond.
BASIS	The unit (per acre) cost and quantities in this CBI are based on AECOM's experience with bid costs for similar pond designs in Maricopa County and the Cholla Plant. The cost per acre is $404,197.

COST BASIS TABLE

Item No.	Description	Units	Quantity	Unit Price	Estimated Cost
1	Clear and Grub	AC	51	$1,500	$76,993
2	Mass Excavation	CY	316,633	$5.00	$1,583,163
3	Foundation Preparation (embankment foundations)	SY	27,394	$2.00	$54,787
4	Embankment Fill (additional to the mass excavation cost)	CY	47,575	$4.00	$190,302
5	Scarify and Compact Subgrade	SY	169,621	$2.00	$339,243
6	Fine Grading LCRS	SY	169,621	$2.00	$339,243
7	Sideslope Riser Piping	EA	5	$62,600.00	$313,000
8	LCRS Collection Pipes with Free Draining Gravel	LF	5,000	$130.00	$650,000
9	Inflow Piping/Valving	LF	168	$110.00	$18,480
10	Bedding Sand (inflow and conduits)	LS	1	$130,000.00	$130,000
11	60-mil HDPE Liner (Primary and Secondary)	SF	3,162,820	$0.75	$2,372,115
12	GCL	SF	1,581,410	$2.11	$3,337,093
13	Geonet	SF	1,581,410	$0.40	$632,564
14	Geotextile	SF	200,000	$0.25	$50,000
15	Rock Mulch	CY	3,171	$200.00	$634,145
16	Liner Ballasting	LS	1	$60,000	$60,000
17	Anchor Trench	LF	9,136	$20.00	$182,726
18	Perimeter Fencing	LF	6,236	$10.00	$62,359
19	Concrete Equipment Pads	CY	3	$10,000.00	$30,000
20	Electrical Power Distribution Extension	LS	1	$150,000.00	$150,000
21	Electric/Controls/Pumps	LS	3	$400,000.00	$1,200,000
22	Road Base	CY	1,141	$115.00	$131,262
23	Staff Gauge	EA	3	$40,000.00	$120,000
24	Egress Ladders	EA	3	$100,000.00	$300,000
25	Steel Bollards	EA	10	$1,500.00	$15,000
26	Road Delineators	LS	1	$20,000.00	$20,000
27	Water Rescue Stations	EA	21	1,100	$22,600
				Unloaded Construction Subtotal	**$13,015,074**
28	**Contractor General Conditions**				
29	General Conditions and Temporary Facilities		%	3 %	$390,500
30	Construction mobilization/demobilization costs		%	3 %	$390,500
31	Dust Control		LS	$200,000	$200,000
32	SWPPP		LS	$50,000	$50,000
33	Construction QC		LS	$380,000	$380,000
34	As-Builts		LS	$25,000	$25,000
35	Construction Survey		LS	$100,000	$100,000
36	Permit Fees		%	0%	$0
				Unloaded Total Construction Cost	**$15,551,074**

Item No.	Description	Units	Quantity	Unit Price	Estimated Cost
37	**Other Outside Services**				
38	Construction Management			3%	$390,500
39	Engineer Oversight/Engineer of Record			2%	$260,400
40	CQA			3%	$390,500
41	Engineering Design			4%	$520,700
42	Geotechnical Investigation/Design			1%	$130,200
43	Groundwater Consultant (wells)			1%	$130,200
				Outside Services Total Cost (Unloaded)	**$16,373,574**
	Evaporation Pond size (acres)			36	
				Evaporation Pond Cost ($/acre)	**$404,197**

Notes:

1) Costs developed assuming no groundwater will be encountered.

2) Costs developed assuming that the on-site excavated soils will be suitable for embankment fill.

3) Costs are inclusive of insurance, bonds, and QC.

3.8 Lined Evaporation Pond Closure – Basis of Cost

DESCRIPTION	**Provides conceptual cost basis, for the Long Range Forecast, of the closure of a lined evaporation pond.**
BASIS	The unit (per acre) cost and quantities are based on 2023 contractor bid information, the 2024 Charah estimate, and Engineer Cost Estimates for the closure of the Lined Ash Impoundment and Lined Decant Water Pond, escalated to 2025. The cost per acre is $250,800.

COST BASIS TABLE

Line Item #	Description	Unit	Quantity	Unit Price		Estimated Cost	
1	Mobilization/Demobilization	%	3%		Based on Engineer's Cost Estimates	$723,033.84	
2	Excavation, Hauling, and Disposal of Sludge/Sediment	CY	387,200	$22.49		$8,708,128	
3	Remove Composite Liner System	SF	8,000,000	$0.10		$800,000	
4	Cut Down Sumps (to 3 feet below grade), Soil Backfill	EA	4	$12,000.00		$48,000	
5	Haul and Dispose of Composite Liner System	TON	4,300	$100.00		$430,000	
6	Confirmation Sampling	LS	1	$60,000.00		$60,000	
7	Fill Pond Area with Embankment Material and Compact	CY	2,710,400	$5.00		$13,552,000	
8	Revegetation	AC	220	$2,000.00		$440,000	
9	Grout LCRS Pipes	LS	1	$45,000.00		$45,000	
10	Dispose of Concrete Structures	TON	150	$120.00		$18,000	
11	Remove 1 foot of sediment above the liner	CY	193,600	$6.91	4/23/24 Charah estimate for "Ash Removals"	$1,337,776	
							RSMeans Index
12	**Contractor Unit Cost Subtotal (2023)**					**$26,161,938**	295.4
13	**Escalated Unloaded Construction Subtotal (for 2025)**					**$26,454,201**	298.7
14	**Contractor General Conditions**						
15	General Conditions	%	3.00%			$793,626	
16	Temporary Facilities	%	5.00%			$1,322,710	
17	Insurance	%	0.75%			$198,407	
18	Survey As-Builts	%	2.00%			$529,084	
19	CQC Testing	%	3.00%			$793,626	
20	Unloaded Construction Subtotal					**$30,091,653**	
21	Site Area (acre):	120	Unloaded $/acre:			$250,764	
22	**Unloaded Construction Cost ($/acre)**					**$250,800**	

Active Projects Cost Estimates: LAI, LDWP, and the Gridded Disposal Area

(Intentionally Blank)

3.9 FCC06338 F123/FCC06339 F45 DECOM: Lined Ash Impoundment Closure – Unloaded Construction Cost

DESCRIPTION	Engineer's Estimate of Rough Order Magnitude Construction Cost for the preliminary closure design of the FCC06338 F123/FCC06339 F45 DECOM: Lined Impoundment Closure
BASIS	The following quantities and costs were taken from a budgetary cost estimate provided by Charah, LLC in April 2024. The budgetary cost estimate was based on a preliminary design. The line items for 500 dewatering wells and CQC testing are the engineer's estimate and were not a part of the original Charah, LLC estimate. The estimated total unloaded construction cost to close is $67,326,828. The total estimated loaded project cost is $78,495,702. ***NOTE: Cost estimate is unloaded and does not include contingency or taxes.***

COST BASIS TABLE

Item No.	Description	Units	Quantity	Unit Price	Estimated Cost
1	**Project Setup**				
1.1	Clear and Grub	AC	75.00	$6,140.00	$460,500.00
2	**ET Cover**				
2.1	Bottom Ash Layer	CY	600,000.00	$8.62	$5,172,000.00
2.2	ET Cover Infiltration Layer	CY	755,000.00	$8.74	$6,598,700.00
2.3	ET Cover Erosion Layer	CY	175,000.00	$8.25	$1,443,750.00
2.4	Hydroseed and drill seed revegetation	AC	150.00	$21,100.00	$3,165,000.00
3	**Material Excavation, Transport & Placement**				
3.1	Mass Excavation Soil and Weathered Shale (used as General Fill Soil)	CY	420,000.00	$4.84	$2,032,800.00
3.2	Mass Excavation Competent Shale Materials (to Stockpile)	CY	150,000.00	$12.23	$1,834,500.00
3.3	Excavate and Stockpile CCR	CY	350,000.00	$6.91	$2,418,500.00
3.4	Soil General Fill (short haul, add to exc)	CY	420,000.00	$7.05	$2,961,000.00
3.5	Borrow Excavation and Soil General Fill (long haul)	CY	350,000.00	$7.93	$2,775,500.00
4	**Grading**				
4.1	Rough grading	SY	225,000.00	$0.82	$184,500.00
4.2	Finish grading	SY	310,000.00	$0.41	$127,100.00
4.3	Cross Rilling of Side Slopes	SY	80,000.00	$0.47	$37,600.00
5	**Construct Drainage Channels**				
5.1	Provide and place riprap (D_{50} = 6 inches) on the Top Channel	CY	2,000.00	$143.00	$286,000.00
5.2	Provide and place riprap (D_{50} = 6 inches) on the Let Down Channel	CY	2,000.00	$143.00	$286,000.00
5.3	Provide and place riprap (D_{50} = 6 inches) on the Discharge Apron	CY	250.00	$143.00	$35,750.00
5.4	ACB basin inlets	SF	5,600.00	$65.00	$364,000.00
5.5	Channel Excavation	CY	10,000.00	$9.43	$94,300.00
5.6	Top Channel Geotextile	SF	54,000.00	$0.87	$46,980.00
5.7	Let Down Channel Geotextile	SF	35,000.00	$0.95	$33,250.00
5.8	Channels Fill	CY	40,000.00	$5.61	$224,400.00
5.9	Culvert (north basin to central basin)	LF	1,000.00	$387.00	$387,000.00
5.10	Culvert (central basin under haul road to DFADA 3 channel)	LF	300.00	$4,060.00	$1,218,000.00
6	**Miscellaneous**				
6.1	Dewatering Subcontractor Installation of 500 wells	Well	500	$50,000.00	$25,000,000.00
6.2	Perimeter Berm	CY	5,000.00	$13.03	$65,150.00
6.3	Side Outfall into East Drainage - CTB	CY	2,000.00	$349.00	$698,000.00
6.4	LAI Main Outfall - CTB	CY	4,000.00	$350.00	$1,400,000.00
6.6	Geotextile	SF	12,000.00	$0.90	$10,800.00

Item No.	Description	Units	Quantity	Unit Price	Estimated Cost
6.7	Geocomposite Drain Materials	SF	45,000.00	$2.16	$97,200.00
				Unloaded Construction Subtotal	**$59,458,280**
7	**Contractor General Conditions**				
7.1	Mobilization/Demobilization		0.33 %		$193,500.00
7.2	Temporary Facilities and Controls		1.00 %		$594,800.00
7.3	Stormwater Management		3.20 %		$1,902,100.00
7.4	Dust Control		4.28 %		$2,542,700.00
7.5	Survey As-Builts		1.43 %		$851,700.00
7.6	CQC Testing		3.00 %		$1,783,748.40
				Unloaded Total Construction Cost	**$67,326,828**
8	**Outside Services (Engineering, Construction Management, and Construction Quality Assurance Costs)**				
	Description		Percentage of Construction Cost) OR Actual Cost		
8.1	Stage Gate 1 Preliminary Engineering (CBI JV)		$94,848		$94,848.00
8.2	Stage Gate 2 Geotechnical/Roads/Dewatering		3.5%		$2,356,438.99
8.3	Stage Gate 2 Final Engineering Design (includes survey)		4.0%		$2,693,073.14
8.4	Stage Gate 2 PM/CM		1.0%		$673,268.28
8.5	Stage Gate 3 Engineer of Record and CM/PM		7.5%		$4,459,371.00
8.6	CQA Testing		1.5%		$891,874.20
				Unloaded Total Outside Services Cost	**$78,495,702**

3.10 FCC07657 F123/FCC07660 F45 DECOM: Lined Decant Water Pond Closure – Unloaded Construction Cost

DESCRIPTION	Engineer's Estimate of Rough Order Magnitude Construction Cost for the preliminary closure design of the FCC07660 F123/FCC07657 F45 DECOM: Lined Decant Water Pond Closure
BASIS	The following quantities and costs were taken from a budgetary cost estimate provided by Charah, LLC in April 2024. The budgetary cost estimate was based on a preliminary design. The line items for 500 dewatering wells and CQC testing are the engineer's estimate and were not a part of the original Charah, LLC estimate. The estimated total unloaded construction cost to close is $20,648,496. The total estimated loaded project cost is $23,238,161. ***NOTE: Cost estimate does not include costs for dewatering. Cost estimate is unloaded and does not include contingency or taxes.***

COST BASIS TABLE

Item No.	Description	Units	Quantity	Unit Price	Estimated Cost
1	**Project Setup**				
1.1	Clear and Grub	AC	15.00	$6,340.00	$95,100.00
2	**ET Cover**				
2.1	ET Cover Infiltration Layer	CY	450,000.00	$10.80	$4,860,000.00
2.2	ET Cover Erosion Layer	CY	90,000.00	$9.75	$877,500.00
2.3	Hydroseed and drill seed revegetation	AC	100.00	$21,800.00	$2,180,000.00
3	**Material Excavation, Transport & Placement**				
3.1	Excavate and Stockpile CCR	CY	100,000.00	$9.44	$944,000.00
3.2	West Slope Excavation (used as slope fill)	CY	200,000.00	$2.35	$470,000.00
3.3	West Slope Fill from Borrow	CY	200,000.00	$7.65	$1,530,000.00
3.4	Soil General Fill from Borrow Area	CY	40,000.00	$8.57	$342,800.00
3.5	Channel Excavation Soil and Weathered Shale (used as General Soil Fill)	CY	12,000.00	$16.86	$202,320.00
4	**Grading**				
4.1	Rough grading	SY	280,000.00	$1.05	$294,000.00
4.2	Finish grading	SY	100,000.00	$0.52	$52,000.00
4.3	Cross Rilling of Side Slopes	SY	140,000.00	$0.47	$65,800.00
5	**Construct Drainage Channels**				
5.1	Top Riprap (D_{50} = 6 inches)	CY	4,200.00	$143.00	$600,600.00
5.2	Riprap Discharge Apron (D_{50} = 6 inches)	CY	125.00	$151.00	$18,875.00
5.3	ACB basin inlets	SF	2,800.00	$70.00	$196,000.00
5.4	Top Channel Excavation	CY	6,000.00	$11.45	$68,700.00
5.5	Top Channel Geotextile	SF	115,000.00	$0.95	$105,800.00
6	**Miscellaneous**				
6.1	Perimeter Berm	CY	8,100.00	$13.03	$105,543.00
6.2	LDWP Main Outfall - CTB	CY	3,000.00	$350.00	$1,050,000.00
6.3	Discharge Apron Geotextile	SF	6,000.00	$0.90	$5,400.00
6.4	Geocomposite Drain Materials	SF	25,000.00	$2.62	$65,500.00
6.5	Toe drain pipe extension	LF	1,400.00	$130.00	$182,000.00
				Unloaded Construction Subtotal	**$14,311,938**
7	**Contractor General Conditions**				
7.1	Mobilization/Demobilization		1.35 %		$193,500.00
7.2	Temporary Facilities and Controls		4.16 %		$594,800.00
7.3	Stormwater Management		13.29 %		$1,902,100.00
7.4	Dust Control		16.53 %		$2,365,100.00
7.5	Survey As-Builts		5.95 %		$851,700.00
7.6	CQC Testing		3.00 %		$429,358,14
				Unloaded Total Construction Cost	**$20,648,496**

Item No.	Description	Units	Quantity	Unit Price	Estimated Cost
8	**Outside Services (Engineering, Construction Management, and Construction Quality Assurance Costs)**				
	Description		Percentage of Construction Cost) OR Actual Cost		
8.1	Stage Gate 1 Preliminary Engineering (CBI JV)		$8,603		$8,603.00
8.2	Stage Gate 2 Geotechnical/Roads/Dewatering		1.0%		$206,484.96
8.3	Stage Gate 2 Final Engineering Design (includes survey)		4.0%		$825,939.85
8.4	Stage Gate 2 PM/CM		1.0%		$206,484.96
8.5	Stage Gate 3 Engineer of Record and CM/PM		5.0%		$1,032,424.81
8.6	CQA Testing		1.5%		$309,727.44
				Loaded Total Outside Services Cost	**$23,238,161**

3.11 FCC021978: Gridded Disposal Area Closure – Basis of Cost

DESCRIPTION	Engineer's Estimate of Rough Order Magnitude Construction Cost for the preliminary closure design of the FCC021978: Gridded Disposal Area Closure
BASIS	The following quantities and costs were taken from two sources – 1) a budgetary cost estimate provided by Charah, LLC in April 2024, and 2) costs derived from the DFADA 4 closure bids for line items not included in the April 2024 Charah, LLC estimate. The budgetary cost estimate was based on a preliminary design. The line items for 500 dewatering wells and CQC testing are the engineer's estimate and were not a part of the original Charah, LLC estimate. The estimated costs in this estimate do not include any synergies potentially realized by completing this project concurrently with FCC06338/FCC06339 and FCC07660/FCC07657. The total estimated loaded project cost is $12,273,340. ***NOTE: Cost estimate does not include costs for dewatering. Cost estimate is unloaded and does not include contingency or taxes.***

COST BASIS TABLE

Item No.	Description	Unit	Quantity	Unit Price	Estimated Cost
1	Survey	LS	1	$153,306	$153,306
2	As Built Redline Drawings	LS	1	$16,079.89	$16,080
3	Construction QC and CMT	LS	1	$196,318.84	$196,319
4	Temporary Facilities and Controls	LS	1	$107,064.00	$107,064
5	Construction SWPPP	LS	1	$342,378.00	$342,378
6	Dust Control	LS	1	$457,686.00	$457,686
7	Mobilization/Demobilization	LS	1	$193,500.00	$193,500
8	Place ET Cover Erosion Layer	CY	29,174	$8.25	$240,689
9	Place ET Cover Infiltration Layer	CY	174,000	$8.74	$1,520,760
10	Place Structural Fill	CY	225,000	$8.74	$1,966,500
11	Excavation (Cap Materials to Stockpile)	CY	428,174	$4.84	$2,072,364
12	Excavation (East Channel)	CY	57,305	$12.23	$700,839
13	Fence	LF	6,000	$10.00	$60,000
14	Revegetation	AC	31	$21,100.00	$654,100
15				**Unloaded Total Construction Cost**	**$8,867,771**

4 Post-2031 Projects

The following projects are projected to continue through 2031 or begin in 2031. The total costs are:

- FCC07353 F45 River Intake 316B Upgrade – Unloaded Construction Cost: **$2,000,000**
- FCCxxxxxx FC Operation & Maintenance of Closed CCR Units – Unloaded Construction Cost: **$10,000,536**
- FCC022175 F45 DECOM: Dry Fly Ash Disposal Area 5 Closure – Unloaded Construction Cost: **$7,113,600**
- FCC08382 F45 DECOM: FGD Return Water Pond Closure – Unloaded Construction Cost: **$4,360,343**
- FCC08381 F45 DECOM: Plant Demolition Disposal Cell Construction – Unloaded Construction Cost: **$4,728,000**
- FCC08380 F45 DECOM: Plant Disposal Cell Closure – Unloaded Construction Cost: **$1,641,600**
- FCC08383 F45 DECOM: Lower Retention Pond Closure – Unloaded Construction Cost: **$213,742**
- FCC08389 F45 DECOM: Upper Retention Sump Closure – Unloaded Construction Cost: **$1,077,261**
- FCC08391 F45 DECOM: Ash Haul Ramps E of LAI Pond 6 Closure – Unloaded Construction Cost: **$1,111,656**
- FCC08396 FC DECOM: Seepage Intercept System Closure – Unloaded Construction Cost: **$1,300,000**
- FCC021045 F45 DECOM: Evaporation Pond Closure – Unloaded Construction Cost: **$9,028,800**

Total: **$42,575,538**

4.2 Post-2031 Project Summary Table

Project Title	Projected Cost (Total, Gross)	Projected Cost (Unloaded Construction)	Comments
Proposed Non-DECOM LRF Projects			
2.2 FCC07353 F45 River Intake 316B Upgrade	$3,112,217	$2,000,000	• Deferred Start to 2036, should this be canceled?
2.7 FCCxxxxxx FC Operation & Maintenance of Closed CCR Units	$19,992,904	$10,000,536	• Escalation from 2024
Non-DECOM LRF PROJECTS SUBTOTAL	**$23,105,121**	**$12,000,536**	
Proposed DECOM LRF Projects			
2.9 FCC022175 F45 DECOM: Dry Fly Ash Disposal Area 5 Closure	$10,252,355	$7,113,600	• Added project to split closure from DFADA 1-4 (FCC 07661).
2.10 FCC08382 F45 DECOM: FGD Return Water Pond Closure	$6,611,260	$4,360,343	• Escalation from 2024
2.11 FCC08381 F45 DECOM: Plant Demolition Disposal Cell Construction	$6,996,705	$4,728,000	• Escalation from 2024
2.12 FCC08380 F45 DECOM: Plant Disposal Cell Closure	$2,712,790	$1,641,600	• Escalation from 2024
2.14 FCC08383 F45 DECOM: Lower Retention Pond Closure	$796,145	$213,742	• Escalation from 2024
2.15 FCC08389 F45 DECOM: Upper Retention Sump Closure	$2,009,699	$1,077,261	• Escalation from 2024
2.16 FCC08391 F45 DECOM: Ash Haul Ramps E of LAI Pond 6 Closure	$1,957,330	$1,111,656	• Escalation from 2024
2.17 FCC08396 FC DECOM: Seepage Intercept System Closure	$2,210,946	$1,300,000	• Moved Design Start to 2042.
2.18 FCC021045 F45 DECOM: Evaporation Pond Closure	$12,457,952	$9,028,800	• Escalation from 2024
Proposed DECOM LRF PROJECTS SUBTOTAL	**$46,005,183**	**$30,575,002**	
Total	**$69,110,304**	**$42,575,538**	

Black & Veatch Condition Life Assessment for Reeves Generating Station

PNM Exhibit OBW-4

Is contained in the following 44 pages.

FINAL

CONDITION LIFE ASSESSMENT

PNM Reeves Generating Station

BLACK & VEATCH PROJECT NO. 419679
BLACK & VEATCH FILE NO. 40.0000

PREPARED FOR

Public Service Company of New Mexico

9 MAY 2025

BLACK & VEATCH

Table of Contents

LIST OF TABLES

LIST OF FIGURES

1.0 Executive Summary

Black & Veatch performed a "refresh" of the Life Assessment Study previously done for the Public Service Company of New Mexico (PNM) dated May 2017 for the three steam units at the PNM Reeves Generating Station located in Albuquerque, New Mexico. The refresh includes an update of the 2017 report results using available updated data and information provided by the PNM. The report updates the 2017 assessment to 2024 conditions, which includes updating capital cost estimate forecasts for the 20-year period ending in 2044. Two scenarios for this refresh were considered, Scenario 1 which assumes plant retirement in 2030 and Scenario 2 which assumes plant retirement at the end of 2044. Both scenarios assume a 10 percent yearly net capacity factor (CF).

A site visit was performed in June 2024, during which time the Black & Veatch Operations and Maintenance (O&M) Consultant met with plant personnel, reviewed on-site documentation, and performed a site walkdown.

As part of the assessment, third party reports for steam turbine, generator, boiler, cooling tower, and high energy pipe supports were reviewed for relevance and recent action. Recommended upgrades and improvements for each area of the plant based on current data and these reports were provided for each area assessed. The updated capital cost estimate was created on the basis of ensuring the plant equipment's remaining life will reach through at least 2044.

It should be noted that PNM did not commission Black & Veatch to refresh the 2017 Probability of Failure Analysis for major plant equipment as part of this study.

Capital costs for the Reeves Generating Station are compiled in Appendices A and B, "PNM Reeves CAPEX Forecast 2030" and "PNM Reeves CAPEX Forecast 2044." Appendices A and B include both the Black & Veatch recommended capital expenses and PNM's internal capital budget plan for both capital and O&M expenses. Separate estimates for construction and operation of either selective catalytic reduction (SCR) or selective noncatalytic reduction (SNCR) are also provided but are not included in the Appendix A or B totals. Further study is required to determine which (if any) of these options is needed, however Table 1 below summarizes Scenario 1 and 2 total Capital and O&M costs and includes a separate line item for SCR costs in Scenario 2 for comparative purposes.

Table 1 Total CAPEX and O&M Summary for Scenario 1 and 2

	Scenario 1 - Thru 2030	Scenario 2 - Thru 2044
Total CAPEX	$ 22,007,395	$ 133,789,888
Total O&M	$ 34,650,000	$ 182,783,120
SCR Total CAPEX and O&M	--	$ 98,933,900
Total CAPEX and O&M	$ 56,657,395	$415,506,908

In addition to the above capex forecasts, the capital cost estimate from 2017 was reviewed and any projects not completed were identified for future focus. An updated cost estimate for these projects is provided in Appendix C.

In general, Black & Veatch finds the Reeves Generating Station is well maintained and clean. Employees appear to take pride in their work and clutter is kept to a minimum around operating equipment. Like many plants this age, many of the long-time employees have moved so knowledge transfer and data

continuity are a challenge. Overall, Black & Veatch sees no insurmountable issues operating the units through 2044 if given the required continued capital improvements and proper O&M to the station.

2.0 Background

2.1 General

PNM contracted Black & Veatch to perform a refresh of the 2017 Life Assessment Study of the Reeves Generating Station in Albuquerque, New Mexico, and to evaluate the existing condition and remaining life of critical power plant equipment. The 2017 study identified capital upgrades required to ensure reliable operation of the plant through 2030. The 2024 refresh focuses on the 20-year time period ending in 2044.

The PNM Reeves Generating Station has been in operation since 1958. Unit 3, commissioned in 1962, is the youngest of the three units and is now 62 years old. In general, power plants of this vintage were designed for a 40-year service life with the recent trend of life extension taking this to 60 years and beyond. A general comment for units of this age is that the plant reliability is almost wholly dependent on the capital investment in the units to replace components that are worn out and not deemed repairable. While it may be possible to run certain parts of the boiler, turbine generator, or balance-of-plant past the design age, some components will last while others will need major refurbishment or replacement, not just standard maintenance repair.

Based on the lack of detailed metallurgical analysis of boiler components such as headers and high energy piping (HEP), it is difficult to determine the exact remaining life of any of the units. The remaining service lives of the units are approximated based on visual inspection, available maintenance records, and typical service lives across the industry for major components in plant equipment. While Black & Veatch uses its best judgment for this analysis, the equipment is not guaranteed to continue to operate reliably, although capital investment will improve the odds significantly of maintaining high equivalent availability and low equivalent forced outage rates.

Included in the appendices is an updated copy of the Updated 2017 Capital Plan that details which projects have been completed and which projects are yet to be scheduled.

2.2 Plant Description

The PNM Reeves Generating Station is a natural gas fired conventional generation plant with Units 1, 2, and 3 that were commissioned in 1958, 1959, and 1962, respectively (Figure 1). Units 1 and 2 are 44 megawatt (MW) Westinghouse tandem steam turbine generator units with high-pressure (HP) and low-pressure (LP) rotors. Unit 3 is a 66 MW Allis-Chalmers tandem steam turbine also with an HP and LP rotor.

Figure 1 Reeves Generating Station Units 1 and 2

Unit 1 and 2 boilers are El Paso type radiant boilers supplied by Babcock & Wilcox (B&W) with a design rating of 467,500 pounds per hour (lbs/h) steam flow at 1,460 pounds per square inch gauge (psig) and 960º F, each fired by six front wall burners. Unit 3 is also an El Paso type radiant boiler producing 700,000 lbs/h at 1,500 psig and 960° F, fired with nine rear wall burners.

Plant staffing includes a plant director, an operations manager, a maintenance supervisor, four operations crews of three each, two maintenance working foremen, four instrument and electrical technicians, and a mechanical journeyman. The plant also supports the Rio Bravo facility with a separate instrument and electrical working foreman.

Reeves operated from 1959 until 1984 as a base loaded power plant with CFs in excess of 90 percent.

From 1984 to 1996, Reeves operated at about a 2 percent CF with decommissioning of the units being considered in the late 1990s. From 1996 to 2015, because of its location and ability to provide volt-amps reactive (VAR) support for the grid, Reeves operated at a CF of between 5 and 6 percent. During this time, some capital improvements were made to sustain the VAR support capability.

In 2017, Black & Veatch performed a plant assessment and provided a 20-year capital improvement plan in support of continued plant operation. From 2017 through 2024, Reeves has seen an increase in CF, which resulted from the increased cycling of the units. In 2023, the Plant's CF was reported at 31 percent.

2.3 Assessment Overview

The current assessment was performed as a refresh of the 2017 study using updated records (maintenance and operations), on-site observations, and plant personnel interviews to update the remaining life estimates reported in the 2017 study.

Assessment of the equipment and associated forecasted capital costs to support continued operation of the units for an additional 20 years (2044) of operation is presented as "PNM Reeves CAPEX Forecast 2024 to 2044" in Appendix B.

Equipment evaluated specifically during this assessment includes the following:

Table 2 Systems Assessment List

Turbine Generators	Boilers
Air Heaters	Stacks
Drums	Forced Draft Fans
Step-Up Transformers	Deaerators
Circulating Water Systems	Air Compressors
Circulating Water Pumps	Cooling Towers
Condensers	Condensate Pumps
Boiler Feed Pumps	Feedwater Heaters
High Energy Piping	Distributed Control Systems
Batteries	Protective Relays
Water Treatment System	Electrical

A site visit was performed 11 to 12 June 2024. During which, Joseph Pineda (O&M Specialist of the Black & Veatch engineering team) met with PNM Reeves Generating station personnel, which included the following:

- David Hughes, primary site contact for this study.
- Malcom Long, maintenance supervisor.
- Ray Abbott, operations supervisor.
- Heath Lee, plant manager.
- Saul Macias, plant engineer.
- Bill Paiz, retired PNM plant engineer.

At the time of the visit, Unit 3 was out for boiler tube repairs while Units 1 and 2 were online.

2.4 General Observations

The site visit was conducted over a 2 day timeframe. The plant is well maintained and clean, and it is evident employees take pride in their work. Clutter is kept to a minimum around operating equipment and equipment is painted for preservation.

Previous recommendations for upgrades were proposed as part of the 2017 Black & Veatch report. A number of these have been completed with more scheduled to be implemented on Unit 3 during the 2025 outage. Black & Veatch confirms these recommendations still stand and are not repeated herein as part of the additional capital expenditure (CAPEX) log in Appendix B.

Some piping insulation on the boiler is evidently in need of replacement. Some of the original asbestos insulation remains; however, the pipe is clearly identified, and abatement is a standard part of any project associated with repair or capital upgrades.

Much of the piping is original as can be evidenced by the volume of brass piping and fittings found throughout the plant. Replacement piping is often copper or brass.

The April 24 Aegis Insurance Report gave the plant an overall “Fair” rating on major equipment, and mostly “Good” for site O&M.

2.5 Capital Expenditure Forecast

As part of PNM’s continued evolution to understand the impact of unit operating strategies, permit impact, and CAPEX forecasts Black & Veatch was requested to perform two CAPEX plan scenarios or evaluations:

- Scenario 1 - Assumes the units will run through the current retirement date of 2030.
- Scenario 2 - Assumes a retirement date of 2044.

Both scenarios use a 10 percent CF for the plant provided by PNM. PNM’s Planning Group provided estimated unit loads for the two scenarios. Black & Veatch estimated hours of operation per year and appropriately scheduled maintenance tasks. Each unit was modeled to run approximately 155 hours per month (21 percent service factor).

In Scenario 1, major outages past 2025 were removed and replaced with a minor outage on Units 1 and 2 for typical insurance requirements such as turbine valve inspections, boiler inspections, etc. CAPEX project that was not required for life extension past 2030 were removed and replaced with inspection

placeholders to be executed during the anticipated outage windows. Recommendations and estimated cost for inspection and testing placed in the spreadsheet in lieu of capital projects and are annotated with "inspection and repair" for clarity.

Scenario 2 assumed a 10-year interval for major outages with a minor inspection at 50-year interval points. CAPEX items from the previous worksheets were adjusted to accommodate these intervals and minimize the need for additional time off-line between outages. With a CF of 10 percent, each unit will run less than 40,000 hours through 2044. A general rule of thumb for outage planning purposes puts major inspections on the turbines at a 5 year interval for a base loaded unit or 40,000 run hours for an intermediate loaded unit. With a 10 percent CF, the units would not reach this threshold; however, prudent maintenance practice would schedule an inspection on a time interval of 10 to 12 years if no other criteria are identified.

Black & Veatch included estimated operational expenditure (OPEX) items to be performed in support of maintenance. PNM provided Black & Veatch an O&M forecast for fixed and variable costs for both scenarios, through 2030 and 2044. Details of each scenario's forecasted expenses are in Appendices A and B and are summarized below.

Overall summary points include the following:

- All work through 2030 not specifically needed for life extension past 2030 was removed from the CAPEX forecasts.
- For the 2044 scenario, each unit is scheduled for one major and two minor outages after 2025.
- Some projects have been moved up or back a few years to coincide with an outage of appropriate duration.
- Items that are inspections and repairs in lieu of capital replacement have been identified.
- HEP repairs on the order of 1M for each unit are included at the beginning of the 2030 time frame. This is a hedge against HEP issues as the piping will by then be 70 years old.

Table 3 Appendix A Scenario 1 – Cumulative CAPEX - Operation Through 2030, 10 Percent Capacity Factor

Black & Veatch Assessment CAPEX through 2030 -->	$5,005,000
PNM Current Budget year CAPEX -->	$17,002,395
Total CAPEX through 2030 -->	**$22,007,395**
Total O&M through 2030 -->	**$34,650,000**

Table 4 Appendix B Scenario 2 – Cumulative CAPEX - Operation Through 2044, 10 Percent Capacity Factor

Black & Veatch Assessment CAPEX through 2044 -->	$60,663,000
PNM Current Budget year CAPEX -->	$73,126,888
Total CAPEX through 2044 -->	**$133,789,888**
Total O&M through 2044 -->	**$182,783,120**

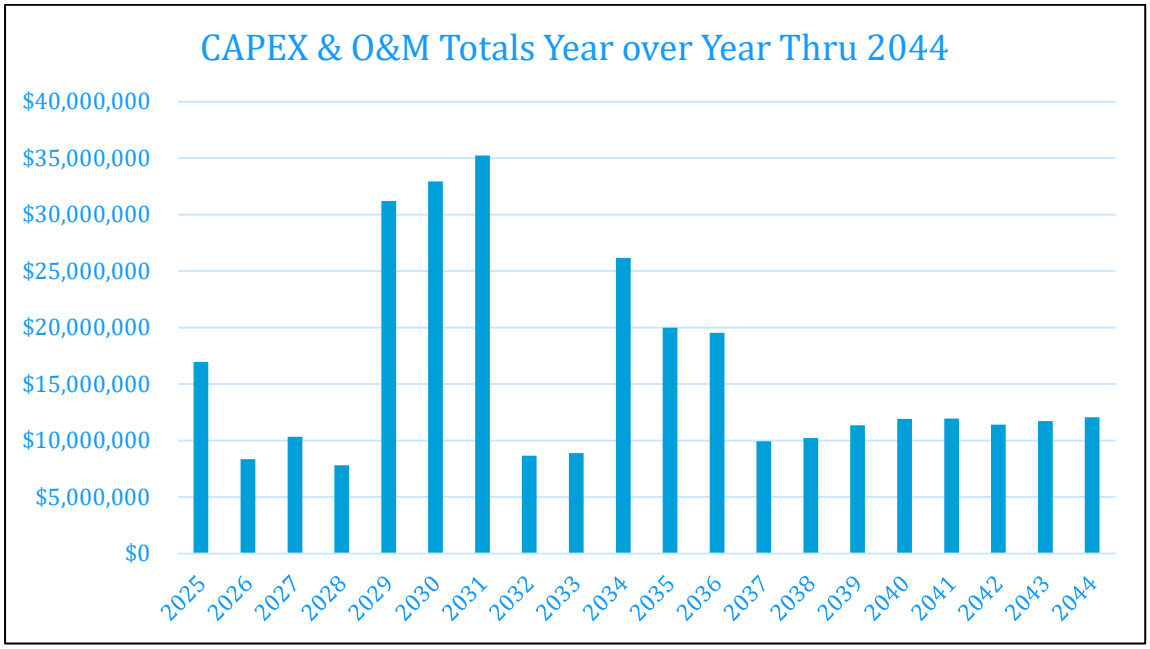

Figure 2 Combined CAPEX/O&M Forecast

2.6 Selective Catalytic Reduction and Selective Non-Catalytic Reduction Review

Black & Veatch was asked to provide a high level order of magnitude cost of installation of SCR and selective SNCR for each unit. In addition, Black & Veatch looked at the viability and estimated cost of using SNCR for NOx control on the three Reeves units. With the limited time and design data, Black & Veatch senses the use of SNCR is feasible to meet current NOx emissions air permit requirements; however, additional engineering and discussion with equipment suppliers will be required to confirm SNCR is an option. The estimated total installation cost for SNCR for all units is $3 to 4M per unit. Estimated total for SCR installation costs was estimated at ~$75M. Combined yearly operating costs for SNCR is estimated at ~$3.4M and for SCR is ~$1.25M. These are order of magnitude cost estimates based on past projects and industry data. The costs should be used for indicative purposes only, and more detailed work is recommended for permitting and budgeting purposes. The following assumptions were made in developing the cost estimates:

- The boilers appear to have a reasonable configuration for installing SNCR, but modeling/mapping should be done to confirm that the temperatures, CO concentrations, and residence time in the boiler are available for adequate SNCR performance.
- Adequate flue gas properties (e.g., temperature, absence of poisons, etc.) for SCR operations are present.

- Urea was used for the SNCR and 19% ammonia solution for the SCR.
- No major construction obstacles (high retrofit/construction costs) were assumed.
- 15% NO2 in the total NOx was assumed.
- The SCR was sized for a final NOx emissions 0.04 lb/MMBtu, which requires 83% reduction. Higher removal efficiencies can be obtained at higher costs.
- The SNCR was sized for a final NOx emissions of 0.1 lb/MMBtu, which requires about 23% reduction. Higher removal efficiencies can be obtained at higher costs, but 0.1 lb/MMBtu is generally a limit for SNCRs.

The cost for retrofit of an SCR or an SNCR presented in the table below along with annual O&M cost on an aggregate basis for the plant. It should be noted these costs are not included in the overall estimates provided in Appendices A and B since PNM would need to first perform additional study to determine which of the two technologies would be required and then add the appropriate CAPEX and OPEX costs to the totals in Appendix B.

Table 5 SCR/SNCR Estimated Costs

SCR Combined Capital Cost Estimate	$75,500,000
SNCR Combined Capital Estimate	$9,900,000
SCR Combined Yearly O&M Cost Estimate	$1,250,000
SNCR Combined Yearly O&M Cost Estimate	$3,470,000

3.0 Assessment

3.1 Turbine Generators

3.1.1 Unit 1

Unit 1 steam turbine is a Westinghouse tandem compound 44 MW unit (SN 13-A-2112-1) commissioned in 1958. The steam turbine is a six bearing machine with an HP rotor, a dual flow LP rotor, and a hydrogen cooled generator. The unit underwent a major outage in the Spring of 2021, during which all rotors were removed, tested, major repairs performed, and the unit reassembled and returned to service. Majors are performed on this unit every 10 years. The turbine valves do not receive a minor but are inspected at the same time as the rotors.

During the 2021 outage, repairs were made to LP erosion shields, all seals were replaced on rotors and blade rings for both the HP and LP: water box seals, oil deflector seals. and hydrogen seals were replaced; through bore alignment was performed; new steams seals for glands and dummy rings were installed; and new nozzle and Curtis wheel blading. Typical repairs were performed on blade rings. Overall, the unit was found to be in good shape.

Recommendations for the next major was for extensive repairs to throttle valves, grinding and polishing of HP joint, and replacement of L-0 and L-1 blading (estimated at $250K, $500K, $500K, plus additional capital discovery of $2M).

The HP, LP, and generator rotors were boresonic inspected by Reinhart & Associates of Austin Texas. Testing included visual (VT), wet magnetic, ultrasonic (UT), and eddy current (ET). No recordable indications were found on any of the three rotors. The LP rotor bore was found to have one shallow dimple near the generator end; however, this was determined to be inconsequential. All three rotors were released for continued operation.

Generator testing was performed by AGT Services of Amsterdam, New York. Some greasing and oil contamination was found in the stator, and a partial re-wedge was performed; however, the core and wedge system were found to be in excellent condition. Electromagnetic core imperfection detection testing revealed one anomaly that was marked for further observation. Despite this, given the age of the units, it is recommended the stators and field on Unit 1 be scheduled for a rewind.

Generator coolers have been retubed in kind. Generator brushes are standard, and radial leads on the unit have been replaced.

All three turbine units have had thermal blankets installed prior to the outage to assist in reducing startup times and to minimize thermal stress from cycling. It was reported this system is operating well and expected to extend the life of the turbine. No shell cracking was reported on Unit 1 during the outage.

Among the major capital improvements performed during the 2017 to 2023 timeframe were a major overhaul of the turbine generator and upgrade of the generator excitation system. A capital project for implementation of a turbine water induction prevention system was not completed.

Previous capital improvements include upgrade of the overspeed trip protection system to one made by Woodward, replacement of the governor valve actuator with a digitally controlled upgraded hydraulic system, and upgrade of the hydraulic skids to Woodward. Part of this retrofit also included upgrade of steam chest hydraulic components.

The seal oil skid is original to the unit. The PNM has reportedly had challenges finding replacement parts for the vacuum pump which, although the unit is designed to use the main lube oil system as a backup for seal oil supply, could lead to reliability issues if the seal oil pump were to fail in service.

Recommendation:

- Perform turbine valve inspections on 5-year rotation and continued major inspections on 10-year intervals.
- Rewind generator stator and field for increased reliability.

3.1.2 Unit 2

Unit 2 is a Westinghouse tandem compound 44 MW unit (SN 13-A-1672-1) commissioned in 1960 (Figure 3). Unit 2 is similar to Unit 1 in layout and construction. Unit 2 underwent a major outage in the spring of 2020, during which all three rotors (HP, LP, and generator field) were removed for inspection. Substantial damage was found to in the nozzle block and Curtis wheel requiring weld repairs to the nozzle and replacement of the blading. Steam seals and bearings were found in poor condition and required significant repair or replacement.

Figure 3 Unit 2 Westinghouse Steam Turbine Generator

Unit 2 turbines received full nondestructive evaluations during the major, including the dovetails from which substantial repairs were made. The L-0 erosion shields were found with typical water damage. Blade rings underwent standard weld repair and seal replacements.

The HP, LP, and generator rotors were boresonic inspected by Reinhart & Associates of Austin, Texas. Testing included VT, ET, and UT. No recordable indications were found on any of the three rotors using VT or ET. All three rotors had indications found using UT; however, these were determined to be small volumetric reflectors – no crack-like indications were seen on the bore surface of any of the three rotors.

No generator test results were provided.

Generator coolers have been retubed in kind. The generator brushes have been upgraded to Cutsforth brushes because of a brush rigging failure. The radial leads on the unit have been replaced.

As with Unit 1, the seal oil skid is original to the unit. Challenges exist finding replacement parts for the vacuum pump, which could lead to reliability issues if the pump were to fail in service.

The unit is equipped with thermal blankets to assist in reducing startup times and to minimize thermal stress from cycling. The plant reports a smooth rollup on the turbine caused, in part, by this system. No shell cracking was reported during the outage.

Similar to Unit 1, major capital improvements performed during the 2017 to 2023 timeframe included a major overhaul of the turbine generator and an upgrade of the generator excitation system.

Recommendation:

- Perform turbine valve inspections on 5-year rotation and continued major inspections on 10-year intervals.
- Rewind generator stator and field for increased reliability.

3.1.3 Unit 3

Unit 3 is an Allis-Chalmers tandem compound steam turbine unit rated at 66 MW (S/N 10751), commissioned in 1962. The unit is a condensing unit operating with initial steam conditions of 1,250 psig and 950° F and a design exhaust pressure of 1.5-inch Hg absolute (Figure 4).

Figure 4 Unit 3 Allis-Chalmers Steam Turbine Generator

The last major inspection was performed on Unit 3 in 2015. Recommendations at the time for work to be performed include a major turbine overhaul, removal and inspection of HP, LP, and generator rotors, including boresonic inspections, comprehensive electrical testing of stator and generator, and upgrade of the generator excitation system. Major turbine work will include bearing inspections and reconditioning, inspection and replacement of radial and shaft steam seals as dictated by steam path audit, probable casing repair in the HP and LP casings, removal and replacement of L-0 and L-1 blades, and comprehensive valve, linkage, and seat inspections and reconditioning.

The original rotating exciter has been removed and replaced with a carbon brush collector and static excitation system. The exciter dog house has been left in place. Generator coolers have been retubed in kind. The radial leads on the unit have been replaced. A 2005 major inspection included a retaining rings off inspection of the field and insulation replacement. Based on previous reporting from 2005, it was

determined that the rotor and stator have both been previously rewound. The last minor was performed in 2023. No report was provided to review.

The main control valve actuator has been upgraded to a new Woodwards hydraulic system. Thermal blankets have been installed to reduce thermal fatigue issues caused by cycling. A Woodward overspeed protection system was installed as an upgrade to the original alternating current (ac) system.

The 2017 Plant Assessment by Mechanical & Hydraulic Solutions specifically calls out major repairs or replacement of LP turbine blading and LP casing repairs caused by water erosion to be performed at the next major inspection.

The lube oil tank is original but has been well maintained. The main oil steam turbine drive has been replaced with an electric motor for improved reliability. Conversation with plant personnel indicate water entrainment into the oil system because of failed labyrinth seals is a significant issue. The plant has installed a Separation Equipment Company side stream filter system for oil filtration, as well as a Hy-Pro Dehydrator, which has reportedly helped substantially to remove water from the oil.

Recommendation:

- Perform turbine valve inspections on 5-year rotation and continued major inspections on 10-year intervals.
- Conduct generator testing at the next major should be used to determine whether a rewind of the field and stator are needed for reliability through 2044.

3.1.4 General Observations

The turbine areas (turbine deck, auxiliaries) are clean and well maintained without much by way of clutter. Some peeling and deteriorated coatings were noted on both turbine casings and structural components, with some small areas of corrosion that need repair but, in general, the condition of the structure is good. The turbine hall roof removeable sections need to be reconditioned (Figure 5).

Figure 5 Turbine Hall Ceiling

Unit 1 and Unit 2 generators have original winding insulation and field insulation; reportedly Unit 3 has been rewound in the past. Typical lifetimes for generator insulation materials are on the order of 25 to 40 years and while the units have been tested and appear to be in good condition, high cycling of the unit along with thermal cycling can accelerate insulation degradation. A rewind of both stators and fields should be budgeted for during the next majors to ensure reliability through 2044. Given the low expected CF, an economic analysis of lost generation versus cost of rewind should be performed for a more informed decision.

A review of Generating Availability Data Systems (GADS) events across all three units from the time period of 1 January 2017 through 1 June 2024 shows that apart from reserve shutdowns, the primary reasons for units derates or off-line events are for boiler related issues (Figure 6). Turbine related failures or unplanned derates accounted for approximately 2,200 hours of the total possible 210K hours of generation across all three units for this timeframe or about 1 percent EFOR.

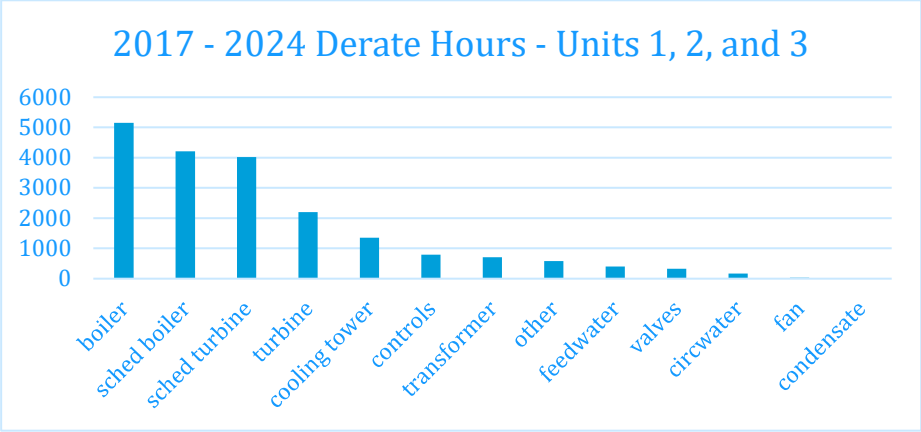

Figure 6 GADS Deration Units 1, 2, 3

3.2 Boilers

Units 1, 2, and 3 are all B&W radiant-type boilers (S/N RB-323, RB-340, and RB-373, respectively), designed and installed during the late 1950s and early 1960s. The soot blowers on all three units have been removed.

Major components in the boilers consist of the air preheaters, economizer, primary and secondary superheaters, burners and windbox, furnace, drums, and various headers.

A 2017 report by B&W indicated that based on a visual inspection, the boilers were well maintained and components such as drums and structural steel are in good enough condition to allow for years of continued operation.

The following are some of the primary concerns:

- Tube leaks at buckstays and other attachment points requiring significant furnace section replacements.
- Pitting in furnace and superheater tubes caused by out-of-service corrosion, under deposit corrosion, and water treatment quality.
- Extended operation at lower loads.

At the time of B&W's report, they stated the boilers would not be capable of extended operation for another 15 to 20 years (through 2037) without a detailed top-to-bottom condition assessment and the replacement of deficient components. Reliable operation of the boilers was not possible without significant replacement of components in each units' boiler. It was pointed out that the plant could continue operation for years if the system would tolerate a run to failure philosophy with tube failures repaired as they occur.

Recommendation

- Perform a top to bottom condition assessment of the boiler pressure parts to include metallurgical analysis of all major components (drums, headers, tubes).
- Implement a Boiler Management Program aimed at systematically categorizing boiler component longevity and condition.

3.2.1 Pressure Parts

The boilers are inspected annually during a 2-week spring or fall outage by plant personnel and repairs performed based on past inspection results or work orders that are open at the time of inspection.

Some information was provided for this study; however, it was limited to recent boiler tube failures. Some component history was obtained by reviewing boiler cross sectional maps and recording notes written on the maps. Table 6 summarizes the unit component history based on the 2024 conversations with plant personnel and available records.

Table 6 Boiler Pressure Section Summary

Unit	Section	Comments
Unit 1	Lower Economizer	2015 replaced tubes.
	Upper Economizer	2015 replaced tubes.
	Primary SH	No issues with tubing – Original headers (all three units).
	Secondary SH	2017 replaced tubes
	Furnace	Top of Buckstays on rear wall – multiple leaks. 2020 replaced bottom 1/3 waterwall tubes.
	Penthouse	Fair condition.
Unit 2	Lower Economizer	Original – fair condition – Upper header scheduled for WMFT at tube attachments.
	Upper Economizer	2018 replaced tubes.
	Primary SH	Original – fair condition.
	Secondary SH	2018 replaced tubes.
	Furnace	Fair to marginal condition. 2023 lower waterwall replacement.
	Penthouse	No issues reported.

Unit	Section	Comments
Unit 3	Lower Economizer	2015 lower tube row replaced – Stress corrosion issued noted - Lower economizer needs to be addressed.
	Upper Economizer	2008 replaced tubes. 2015 replaced tubes caused by short-term overheating on leading edge of upper economizer because of missing refractory and secondary combustion issues above upper economizer. No leaks since 2015 – Stress corrosion noted - plan is to replace including waterwalls.
	Primary SH	Inlet header – No previous repairs – Fair/marginal condition. No deformation noted in bundles.
	Secondary SH	2017 replaced SSH tubes. Fair condition – No recent failures however approaching end of life. No metallurgical sampling has been done – plant plans to replace at next major.
	Furnace	Multiple leaks since 2018. Multiple wall section repairs. Burner front – Multiple tube repairs due to recent failures. Some repairs completed in 2024. Plan to replace bottom slopes and remaining upper 1/3 of waterwalls.
	Penthouse	Roof in upper economizer is marginal condition.
	Front and Rear Wall Headers (bottom)	Fair condition – no plans to replace.
	Furnace Side Wall Headers	Fair marginal – multiple repairs.

The units have had periods of unavailability because of boiler issues; a review of GADS events from 2017 through 2024 shows the highest hours of unavailability across all three units coming from waterwall (furnace wall) issues (3,971 hours) followed by economizer (193 hours) then casing repair issues (151 hours).

A number of tube leak reports were submitted for Units 2 and 3, which detailed the location and repairs made. These are internal reports that state stress corrosion and corrosion fatigue in waterwall and economizer tubes are the root cause for most of the failures recorded. Third-party metallurgical analysis was not reported for any of these failures. Photos in the reports showed internal pitting of tubes in Unit 3 and some failures also specify attachment tear as part of failure mechanism.

There is no evidence of a chemical cleaning program; no information was provided on past boiler tube chemical cleanings other than a 2020 chemical clean proposal for Unit 1 boiler and economizer. There is no record this chemical cleaning occurred.

The plant stated the economizers are considered in good to fair condition although there is no inspection and testing reports to quantify this statement. Table 6 shows each section and tubes that are original or replaced, original tubes in these systems make it questionable as to whether these sections of the boiler will last another 20 years without detailed inspection, testing, and major capital replacement.

Primary and secondary superheaters have all original headers. There have been no major issues reported; however, these headers should be inspected internally and externally to determine their condition and whether replacement will be required within the next 20 years (2044).

Unit 3 furnace waterwalls have been repaired extensively. Areas around the burners have been repaired with sections of tubes between burners replaced. Recent issues noted are surface dimpling in some areas of the furnace waterwall tubes. These tube areas are scheduled to be repaired during the next boiler outage.

The windbox and burners are inspected annually during outages and repairs are performed as needed. Instrumentation has been upgraded over the years on all three units and at least one of the burners on Unit 2 is new. During the walkdown, Unit 3 was out of service to repair a tube leak in the furnace.

Recommendations

- Perform a top to bottom condition assessment of boiler pressure parts.
- Create a detailed boiler map for each boiler to document tube repairs, replacement, and tube wall thickness testing.
- Prioritize and budget a boiler tube replacement plan based on the top to bottom assessment.

3.2.2 Air Preheaters

Units 1, 2, and 3 are all equipped with Ljungström vertical air preheaters driven by a motor-operated Philadelphia reduction gear. All three units have had the gear drive replaced – there are no major issues reported on any of the units and they are all maintained consistently.

Air heater baskets on Unit 1 have been replaced with seal replacement scheduled for 2025 during the upcoming major. A capital project is scheduled for the plant to replace the baskets and seals on Units 2 and 3.

The bearings and drive on the units are accessible for maintenance. The plant should ensure a spare drive motor, gearbox, and bearings are available as these components may become difficult to locate because of the age of the machine.

Recommendations

- Replace seals and baskets on Units 2 and 3.

3.2.3 Forced Draft Fans

Each unit has a single two-speed center hung forced draft fan driven by two separate motors, one for low speed operation and one for high speed operation. Speed required is dictated by load; however, fan dampeners have been retrofitted with new controls. Unit 3 is a Buffalo Forge heavy-duty fan.

The motors are Allis-Chalmers (Units 1 and 2) and Louis Allis (Unit 3) induction motors with inboard and outboard oil sump sleeve bearings. The plant has experienced issues with replacement bearings and is considering going to a forced oil system with modified bearings for better maintainability and availability of parts.

The motors themselves look to be exceptionally robust and have not presented significant issues in the recent past. The foundations were identified during the 2017 assessment in need of major repair because of cracking. A capital project was put in place to repair all three units foundations with Units 1 and 2 having been completed to date. Unit 3 has not yet been performed but is scheduled for 2025 (Figure 7). The Unit 2 coating is beginning to fail in some locations. Unit 1 is holding up well.

Figure 7 Unit 3 Forced Draft Fan Foundation

Recommendations

- Repair fan base Unit 3.
- Procure spare fan bearings or reverse engineer the ones on site and obtain duplicates.
- Inspect fans internally for wear – blast and nondestructive examination.

3.2.4 Drums

The boiler drums are opened annually and inspected for damage. All three units have the drum belly plates removed and visual checks made for cracks in the drum. No major issues have been reported since the 2017 assessment, which concluded the drums were in acceptable shape for continued operation assuming regular maintenance and inspections are performed. During the 2017 visual inspection, all three units were found with visible pitting and a heavy layer of magnetite. This was not considered an issue and should be monitored during shutdowns.

3.2.5 Deaerators

The deaerators on all three units are inspected yearly. Reeves station personnel performed weld and quality inspection checks every year with no significant problems noted. The deaerator trays are stainless steel. During major inspections, these are removed and all weld connections inspected and to date the plant has not found any significant issues. The deaerators use nozzles tubes (holes drilled in the pipe) rather than nozzles. These have been reportedly changed out on Units 1 and 2.

The deaerators are expected to be viable for continued operation for the foreseeable future assuming yearly inspections are maintained and repairs performed as needed.

3.3 Main Transformers

The Unit 1 and 2 generator step-up units (GSUs) are Westinghouse transformers rated at 41.25 megavolt-amperes (MVA). The original Allis-Chalmers Unit 3 GSU was replaced in 2020 with a Fortune Electric 51/63.9/85 MVA unit. The GSU and auxiliary transformers are inspected and tested annually. Double testing and dissolved gas analysis (DGA) is performed on the GSU and auxiliary transformers.

A report by Eaton Services in 2017 examined the GSU, auxiliary transformers, and bus duct for all three units. The recommendation at the time included replacing oil in all transformers, replacement of bushings and gaskets, installation of new gauges, protective devices and wiring, and installation of new hand operated disconnects.

As part of the capital upgrades since 2017, all three GSUs have had new bushings and gaskets installed. None of the hand operated disconnect (HOD) switches have been replaced although they are all in good condition as reported by the plant. Unit 3 HOD does not have an interrupt rating and therefore should not be used as a load break. All three replacement switches should be the same style to prevent operational issues.

There are no spare GSUs for any of the units. A retired GSU at La Luz was identified as a possible replacement for Unit 3 in an emergency; however, it is not currently in long-term storage.

Units 1 and 2 GSU oil testing by SDMyers shows low moisture in both units but Furan testing shows elevated levels indicating insulation integrity issues in both.

Units 1 and Unit 2 auxiliary transformers are the same size units. Unit 1 auxiliary is the original; however, testing indicates it is in acceptable condition. The Unit 2 auxiliary transformer is deteriorating and is showing signs of gassing as evidenced by DGA testing. An attempt was made to perform electrical testing of the unit in 2024 for a better determination of unit condition; however, testing was delayed because of system generation constraints. Unit 3 auxiliary transformer is larger than Units 1 and 2 and testing indicates it is in acceptable condition.

The Unit 3 auxiliary transformer is original but is reported to be in good condition. No test reports were supplied to corroborate this; however, the previous report from Eaton recommended replacement of high and low side cabling and installation of a neutral ground resistance monitor but no other major work.

Recommendation:

- Electrically test all GSU and auxiliary transformers.
- Replace oil (2017).
- Replace HOD switches (2017).
- Replace Unit 2 auxiliary, obtain spare Unit 3 auxiliary with consideration of use on Units 1 or 2 if they fail.
- Replace Unit 3 auxiliary cabling.

3.4 Air Compressors

The original plant air compressors have been replaced with two 100 percent Sullair 3700 rotary screw air compressors for instrument air installed in 2012 and a Sullair 3000 service air compressor installed between 2017 and 2024. The original compressors have been removed from service. The plant is also equipped with two Atlas Copco twin tower air dryers manufactured in 2011. The systems are clean and appears well maintained.

A typical screw-type air compressor will have a normal service life of 20 to 30 years if well maintained. It is anticipated that with proper maintenance, the system installed should last until to the 2044 timeframe with no requirement for capital upgrades. A line item in the CAPEX forecast has been included to cover the cost of air compressor exchanges or rebuilds at the 20 year mark.

Recommendation:

- Rebuild air compressors at 20-year intervals.

3.5 Circulating Water System

The Units 1 and 2 circulating water pumps are single-stage, horizontally mounted, dual suction pumps rated at 18,000 gallons per minute (gpm) at 65 foot head. The Unit 3 circulating water are also single-stage, dual suction, horizontally mounted pumps rated at 27,500 gpm at 65 foot head. The original design for the plant called for these to be 2x100 percent service for each unit; however, Units 2 and 3 have seen increased flow requirement because of the cooling tower operation requiring both pumps to be run for full load on each unit. Unit 1 remains able to reach full load with one circulating water pump.

Unit 1 pumps were rebuilt during the 2020 major. The motors were sent out for inspection and clean, dip, and bake. The motor and pump are in good working order in accordance with discussions with the plant. During past inspections, pump discharge valves and expansion joints were replaced. The Unit 2 circulating water pumps and motors were also inspected and reconditioned during the last major outage and are considered to be in good working order as well. The Unit 3 pumps and motors are scheduled for major work during the upcoming 2025 outage. It is anticipated all three units will maintain reliable operation through 2044 contingent on periodic overhauls at major inspections. A line item is included in the CAPEX log for equipment overhauls during future major inspections.

The cooling tower pipe is below grade and has experienced several leaks. The pipe is steel and is original to the plant. The pipe has been inspected by plant personnel after some leaks have been found but the consensus across the plant on the condition is varied.

The 2017 life assessment reported the leaks in the Unit 2 circulating water piping had been repaired by sandblasting and epoxy coating. The recommendation from Black & Veatch at the time was to replace all the below grade pipe with high-density polyethylene (HDPE) plastic pipe to extend the life beyond 2031. An alternative approach was to internally line the pipe with carbon fiber/fiberglass wrap at a cost of about double the cost of new pipe but not as intrusive. A detailed survey will provide an understanding of the extent of any wall thickness loss and areas of concern.

Recommendations

- Survey pipe for wall thickness loss and thinning.
- Consider coating externally for areas of concern.

3.6 Cooling Tower

The Unit 1, 2, and 3 cooling towers were replaced in 1998 to 1999 with Marley 5, 6, and 7 cell towers, respectively. A comprehensive inspection report by Master Tech Services in 2016 identified areas of concerns for all three towers and laid out a capital replacement roadmap for improvements. Overall the towers were listed in good condition. Chief among the work recommended was replacement of the fan deck, drift eliminators, stairways and ladders, repairs to some of the structural members, and scheduled replacement of fan drive components (Figure 8).

Figure 8 Unit 1 Cooling Tower Basin Deck

Starting in 2017, capital projects were put in place to perform the included recommended repairs. The stairs on all three cooling towers have been replaced. Reduction gear, fan, and hot water basin replacement, structural repairs, decking replacement, and drift eliminator repairs were performed on all three units. The distribution pipe valve and gearboxes have not yet been replaced on Units 2 and 3 and there remain some items on Unit 3 to repair, including cooling tower fill replacement.

Cooling tower piping replacement with HDPE pipe has not been accomplished. A budgetary line item for inspection is included in Appendix B, PNM Reeves CAPEX Forecast 2024 to 2044.

The cooling towers were reported by the plant to be operating in good condition.

Recommendation

- Replace basin decking where failed.
- Recondition gearboxes and motors on 10-year interval.
- Plan for major overhaul at 30-year mark for each tower to include structural and mechanical refurbishment.

3.7 Condensate System

3.7.1 Condenser

The Reeves Generating Station Units 1, 2, and 3 have Westinghouse two-pass surface condensers as original equipment. Unit 1 and 2 condensers are equipped with the original tubes and tube sheets. Unit 3 has had a partial retube performed by plant personnel. The tube sheets on Unit 3 are original.

The 2017 Black & Veatch Assessment Report detailed the condition and history of the condenser systems, highlighting that some of the tubes have been replaced because of steam impingement; however, overall the condensers are in acceptable condition. ET reports were not available for review; however, the plant does dye check the tubes with a static head in the condenser once a year on all three units. This work is typically done during minor inspections and is used to determine which, if any, tubes need to be plugged.

Previous recommendations regarding the condenser were to ET the tubes on a periodic basis. This recommendation still stands.

Water boxes on Units 1 and 2 were reported to be in need of coating. Unit 1 has not been recoated since the 2017 report. Unit 2 has had a partial re-coat. Unit 3 was reported to be in good condition and therefore does not require more than regular O&M for longevity.

The condenser discharge and inlet expansion joints have been replaced on all three units. The condenser dogbones on all three units are original but are reported by the plant to be in good condition.

Air ejectors are original equipment. The air lines on all three air ejectors have been replaced with stainless steel; however, after 60 years of operation, the ejectors could be replaced with electric-driven vacuum pumps for high reliability and less steam consumption. Alternately, a hybrid system using air ejectors and a vac pump as a topping pump can be employed if higher capacity or greater reliability is needed. A capital budget line item was previously included for pump replacements and is not repeated as part of this report.

Recommendations

- Recoat water boxes on Units 1 and 2.
- ET test all three units' condenser tubes.

3.7.2 Condensate Pumps

Each unit is equipped with two 100 percent condensate pumps. The pumps are Westinghouse three-stage vertical pumps operating at 1,750 rpm.

The Unit 1 pumps and motors were reconditioned in 2020. Unit 2 had one failed pump overhauled in 2021; however, the other pump has not been reconditioned. Both Unit 2 motors were sent out for a standard clean dip and bake during 2021. The Unit 3 pumps and motors are scheduled for an overhaul in 2025 during the major outage. The pumps will be disassembled and reconditioned, and the motors sent out for an inspection along with a standard clean, dip, and bake.

The condensate pump piping is all aboveground and in well maintained condition. Expansion joints are replaced as needed to maintain system integrity.

In general, plant management expressed no long-term issues with the condensate system.

Recommendations

- Overhaul pumps and motors at major outages.
- Maintain a spare pump and motor.

3.8 Boiler Feedwater System

3.8.1 Boiler Feed Pumps

Each unit is supplied with two 100 percent variable speed boiler feed pumps. Units 1 and 2 are equipped with Westinghouse Electric induction motors rated at 1,000 horsepower (hp) at 3,600 rpm, American Blower (Division of American Standard) Gyrol variable speed fluid drives, and Pacific Pump nine stage boiler feed pumps rated at 990 gpm at 3,520 foot head. The pumps have been upgraded with Masoneilan recirculation valves for minimum flow recirculation. Unit 3 is equipped with two 100 percent direct drive boiler feed pumps manufactured by Allis-Chalmers rated at 1,600 gpm at 3,780 foot head (Figure 9). The pumps have also been upgraded with Masoneilan recirculation valves for minimum flow recirculation.

Figure 9 Unit 3 Allis-Chalmers Feed Pump

The pumps are reportedly reliable and failures have generally been attributed to operator error rather than equipment malfunction. The pumps are monitored with vibration and oil analysis in addition to online monitoring of parameters by operations. Pumps are removed from service when vibration levels are excessive if performance testing indicates a problem. Since the 2017 report, Unit 1 pumps have not been rebuilt, one of the Unit 2 pumps has been reconditioned, and one of the Unit 3 pumps has been reconditioned several times.

Feed pump motors are sent out for an inspection and a clean, dip, and bake during major outages (every 10 years) with only one motor on Unit 2 having been rewound. During 2017, the Unit 3 motors were recommended to have a soft start installed to reduce starting load and extend the life of the motor. This was implemented in 2020.

Feedwater piping and headers are susceptible to flow accelerated corrosion (FAC); however, it is unknown whether any FAC studies have been performed to date. As part of a comprehensive FAC and feedwater piping study, these areas should be thickness tested periodically to ensure they have not been affected by FAC. A previous recommendation for performing an FAC study on feedwater piping based on a 2015 Thielsch Engineering study is still in force.

Recommendations

- Overhaul pumps and motors on 15-year intervals or if performance and vibration indicate issues.
- Procure spare pump elements for Units 1 and 2, and spare parts for Unit 3.
- Perform FAC study all three units.

3.8.2 Feedwater Heaters

The Unit 1, 2, and 3 HP feedwater heaters were all replaced between 2005 and 2011 with new stainless steel tube Yuba heaters. The LP Feedwater Heater. 5 was also replaced on all three units; however, the No. 4 heaters are original. The No. 4 heaters are all inspected during major outages.

The plant reported the biggest issues with the heaters are head leaks, which are addressed as they come up or during minor/major outages.

Recommendations

- ET all Unit 4 heaters.
- Continue 10 year inspections on other feedwater heaters.

3.9 High Energy Piping

In the past, Reeves has contracted with Thielsch Engineering to perform inspections of piping and hanger systems. These occurred on average every 5 years and included VT, UT, magnetic particle (WFMT), replications, and hardness testing for evaluating piping condition, and visual inspection for hangers.

Main steam, LP, and feedwater piping repairs have been made to Units 1 and 2. Pipe support repairs were made during 2018 to the Unit 3 boiler and auxiliary steam piping with further repairs for Unit 3's main steam, LP, and feedwater lines planned during the 2025 outage.

Units 1 and 2 had a comprehensive main steam pipe hanger evaluation performed in 2017 from which repairs were made in 2018 on both units. It is unclear whether a comprehensive piping evaluation has been performed within the last 5 years. The hangers are visually inspected every year.

The steam relief valves (SRV) are rebuilt during major outages with Unit 1 having been done in 2020 and Unit 2 in 2021. Unit 3 SRVs are scheduled for overhaul during the 2025 major outage.

All HEP and hangers should be evaluated every 5 years. According to conversation with plant management, the last inspections performed were done in 2017. All the piping is past due for a comprehensive evaluation.

Recommendation

- Perform HEP pipe hanger evaluation to include main steam, LP, and boiler feedwater piping.

3.10 Distributed Control System

The plant distributed control system (DCS) was replaced with a Foxboro system in 2015. Both hardware and software were upgraded, and a simulator for operations training was implemented as well. The DCS received upgrades to the controllers, servers, network switches, and Foxboro Controls Units 1 and 2 in 2020 and for Unit 3 in 2023. The plant reported no issues with the DCS other than ordinary maintenance.

The DCS is supported by an evergreen style agreement in which Foxboro supplies upgraded hardware and software. Typical DCS upgrades occur on a 5 to 10 year interval based on IT advancements and cybersecurity requirements as well as lifecycle obsolescence with complete changeouts not unexpected in the 20-year timeframe. Reeves can expect to perform hardware platform upgrades sometime in the 2030 to 2035 timeframe. A capital budget item is included in the Reeves 20-year plan for ongoing capital work.

Recommendation

- Upgrade DCS for reliability and to eliminate obsolescence.

3.11 Stacks

The boiler stacks on all three units are original and no major repairs are known to have been made. The transition section between the air heater and stack shows substantial staining from localized corrosion; however, the plant reports the stacks are inspected each year during minor or major outages. The 2017 assessment identified corrosion at the base of the Unit 1 stack, which was still present during the 2024 inspection (Figure 10). Stack repairs were planned for capital projects for the 2017 to 2025 timeframe; however, these have not yet been completed.

Figure 10 Unit 1 Stack Base

Black & Veatch recommends performing UT inspection of the Unit 1 stack during the stack inspections to determine wall thinning issues. It is also recommended to perform spot UT inspection on the Unit 2 and 3 stacks to help confirm the quality of the visual inspections.

Recommendation

- UT for wall thinning.

3.12 Batteries

The direct current (dc) battery system is periodically upgraded as part of long-term maintenance. In 2020, the dc backup batteries for the UPS were replaced and the dc inverters were rebuilt as well. The UPS was replaced in 2010 and is scheduled for replacement again in 2035. A battery monitoring system for North American Electric Reliability Corporation compliance has been installed and was scheduled for replacement in 2024 as part of battery system upgrades.

Batteries are tested annually via contract. A battery load test report from Power Product Services for the Unit 2A and 2B battery strings was supplied and shows the battery string maintains 109V after 4 hours. These batteries were last replaced in 2019 and Reeves Generating Station has scheduled replacement of these two strings every 10 years, with the next replacement slated for 2029. The charger and dc inverter are also scheduled to be replaced at the same time.

The Reeves 20 year capital plan has long-term cost included for battery system upgrades.

Recommendation

- Replace battery and chargers on 15 to 20 year intervals.

3.13 Protective Relays

In 2011, the Reeves Station performed upgrades to the majority of protective relays from mechanical to digital relays. Units 1, 2, and 3 currently have GE Multilin G60s for generator protection and GE Multilin T35's for transformer protection. At least one of the 51N ground protection relays was still mounted on the panel in the control room and appears to be in service. If this relay is active, Black & Veatch recommends updating it and any other analog relays to digital relay protection.

The Reeves 20 year capital plan has existing line items for generator protective relay replacement in 2035 for all units.

Recommendation

- Upgrade protection relays at 20 year mark.

3.14 Water Treatment

The site water treatment system was replaced since the 2017 assessment and consists of a containerized reverse osmosis (RO) and polisher system. A trailer-mounted system was also on-site at the time of the site visit. It is unknown whether this was the temporary system while the new treatment system is commissioned.

The RO is a Puretec Industrial Water system consisting of six RO element housings and two polisher tanks. The site requirement for demineralized water is less than 60 gpm between the three units so the system is relatively small. The plant reported no issues with the demineralized water system.

3.15 Electrical

The plant electrical system consists of 480V and 4160V (5 kV) switchgear and breakers, located on the ground floor of each unit along with the 480 step-down transformer.

The 5 kV switchgear was upgraded in 2020 on all three units to Cutler Hammer VacClad metal-clad switchgear, along with GE Multilin transformer protection and motor management relays (Figure 11). A Beckwith M5891 motor bus transfer system equipped with a Beckwith M4272 motor bus transfer relay is installed for auto transfer between buses in the event of a system upset of failure. A visual inspection of the gear shows it to be in good condition. Plant management reported no maintenance or operations issues of note indicating the equipment is operating as expected. Capital budget line items are included in the Reeves 20 year budget for all three units for further upgrades of the 5 kV breakers in the 2030 timeframe.

Figure 11 5 kV Switchgear

The 480 switchgear and cable are original GE equipment; however, many of the motor control centers (MCCs) have been upgraded with Eaton Motor Insight protection devices that monitor motor and line loads for equipment protection. Discussions with the plant did not point to any overarching issues with the 480 system; however, given its age and potential remaining service life, an upgrade of the MCCs and cables is recommended. Budget line items in the Reeves 20 year budget are included in 2030 for replacement of MCC breakers and motor starters.

Plant wiring in cable trays is both original and new depending on the system in questions.

All critical 480 and 5 kV motors are sent out every major outage for inspection, repair, and clean, dip, and bake. The 480 and 5 kV motors are also meggered yearly and trended. It was noted the original 5 kV cable runs underground in conduit and in tunnels. No mention of whether these are prone to flooding or water intrusion was made during the site visit; however, given the age of the equipment, testing and replacement of cable for critical equipment is recommended. A line item is included in Appendix B, PNM Reeves CAPEX Forecast 2024 to 2044.

Recommendation

- Replace battery and chargers.

4.0 Conclusions

Black & Veatch finds the PNM Reeves Plant in reasonably good condition for a plant of its age but with a few major issues that will need to be addressed for reliability over the next 20 years. The PNM Reeves Generating Station is proactively addressing boiler related issues typical of a plant of this age and operating history. Appendices A and B summarize Black & Veatch's findings for future CAPEX recommendations that will be considered to maintain sustainable and reliable power generation to meet future reliability requirements.

Appendix A. PNM Reeves CAPEX Forecast 2025 to 2030

APPENDIX A SCENARIO 1 - 10% Capacity Factor
Reeves Estimated CAPEX and OPEX 2025 - 2030
Update: 4/28/2025

BV Assessment CAPEX thru 2030 -->	**$ 5,005,000**
PNM Current Budget year CAPEX -->	**$ 17,002,395**
Total CAPEX thru 2030 -->	**$ 22,007,395**
Total O&M thru 2030 -->	**$ 34,650,000**

Service Factor	21%											
Hours On line Per Unit		1840		3679		5519		7358		9198		11038
Unit 1 Age		67		68		69		70		71		72
Index Year		1		2		3		4		5		6
Year		2025		2026		2027		2028		2029		2030
BV Assessment Total per year -->		$ 1,985,000		$ -		$ 1,510,000		$ 1,510,000		$ -		$ -
Reeves 5 Year Budget Total per year -->		$9,183,442		$731,714		$3,525,314		$1,892,620		$1,219,305		$450,000
Combined Total -->		$ 11,168,442		$ 731,714		$ 5,035,314		$ 3,402,620		$ 1,219,305		$ 450,000

Item	Unit	Included in Reeves CAPEX	Plant Equipment	2025 Recommendations	Assessment Line Totals		U3 Turbine Major		U2 Turbine Minor	U1 Turbine Minor		
1	1	no	Generator	Inspection	$750,000		$ 250,000		$ 250,000	$ 250,000		
2	3	yes	Turbine	Turbine Minors on 5 year rotation to include turbine valves	$2,450,000		$ 850,000		$ 800,000	$ 800,000		
3	All	no	Boilers General	Perform Top to bottom condition assessment of boiler pressure parts including metallurgical analysis.	$250,000		$ 250,000					
4	All	yes	Furnace	Inspect for condition assessment	$150,000		$ 50,000		$ 50,000	$ 50,000		
5	All	yes	Economizer	Inspect for condition assessment	$120,000		$ 40,000		$ 40,000	$ 40,000		
6	All	yes	PSH & SSH	Inspect for condition assessment	$90,000		$ 30,000		$ 30,000	$ 30,000		
7	1	yes	AirHeater	Inspect for condition assessment	$25,000					$ 25,000		
8	2	yes	AirHeater	Inspect for condition assessment	$25,000				$ 25,000			
9	3	yes	AirHeater	Inspect for condition assessment	$25,000		$ 25,000					
10	1	no	Fans	Foundation repair, blast and NDE fan wheel	$100,000		$ 100,000					
11	2	no	Fans	Blast and NDE Fan wheel	$25,000					$ 25,000		
12	3	no	Fans	Blast and NDE Fan wheel	$25,000				$ 25,000			
13	All	no	Drum	5 year Inspection / repair	$50,000		$ 50,000					
14	All	no	Deaerator	Continued Yearly Inspections, 5 year NDE	$50,000		$ 50,000					
15	1	yes	GSU	Replace hand operated (HOD) switch, replace oil, spare GSU for U1	$0							
16	2	yes	GSU	Replace HOD switch, replace oil	$0							
17	3	yes	GSU	Replace HOD switch,	$0							
18	1	yes	AUX	Replace cabling, electrically test	$0							
19	2	yes	AUX	Replace cabling, electrically test, replace AUX	$0							
20	3	yes	AUX	Spare AUX to be used in any of the three units.	$0							
21	All	yes	Air Compressors	Rebuild air compressors at 20 year mark	$0							
22	1	no	Circ Water Pumps	Motor Clean Dip Bake	$50,000					$ 50,000		
23	2	no	Circ Water Pumps	Motor Clean Dip Bake	$50,000				$ 50,000			
24	3	no	Circ Water Pumps	Motor Clean Dip Bake	$50,000		$ 50,000					
25	1	yes	Circ Water Pipe	Survey for Damage / age assessment	$0							
26	2	yes	Circ Water Pipe	Survey for Damage / age assessment	$0							
27	3	yes	Circ Water Pipe	Survey for Damage / age assessment	$0							
28	All	yes	Cooling Tower	Recondition Gearboxes/ Motors / Fans / Decking	$0							
29	All	yes	Cooling Tower	Overhaul structure at 30 year mark	$0							
30	1	no	Condenser	Inspect Water Box, Eddy Current Tubes	$25,000					$ 25,000		
31	2	no	Condenser	Inspect Water Box, Eddy Current Tubes	$25,000				$ 25,000			
32	3	no	Condenser	Eddy Current Tubes	$25,000		$ 25,000					
33	1	no	Condensate Pumps	Motor Clean Dip Bake	$50,000					$ 50,000		
34	2	no	Condensate Pumps	Motor Clean Dip Bake	$50,000				$ 50,000			
35	3	no	Condensate Pumps	Motor Clean Dip Bake	$50,000		$ 50,000					
36	1	yes	Boiler Feed Pumps	Overhaul pumps and motors	$0							
37	2	yes	Boiler Feed Pumps	Overhaul pumps and motors	$0							
38	3	yes	Boiler Feed Pumps	Overhaul pumps and motors	$0							
39	1	no	Feedwater Heaters	Eddy Current #4 heater, plus others	$40,000					$ 40,000		
40	2	no	Feedwater Heaters	Eddy Current #4 heater, plus others	$40,000				$ 40,000			
41	3	no	Feedwater Heaters	Eddy Current #4 heater, plus others	$40,000		$ 40,000					
42	All	no	High Energy Piping	HEP evaluation (hangers, NDE)	$225,000		$ 75,000		$ 75,000	$ 75,000		
43	All	yes	DCS Controls	Plan for hardware upgrade	$0							
44	All	no	Stacks	Visual inspection, (Spot check w/ UT)	$75,000		$ 25,000		$ 25,000	$ 25,000		
45	All	yes	Batteries	Replace batteries and chargers 15-20 year interval	$0							
46	All	yes	Protective Relays	Upgrade remaining analog relays	$0							
47	All	no	Electrical	Test equipment cable	$75,000		$ 25,000		$ 25,000	$ 25,000		
48	All	yes	Electrical	Replace MCC breakers and Motor Starters	$0							

APPENDIX A SCENARIO 1 - 10% Capacity Factor
Reeves Estimated CAPEX and OPEX 2025 - 2030
Update: 4/28/2025

BV Assessment CAPEX thru 2030 -->	**$ 5,005,000**
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Service Factor	21%										
Hours On line Per Unit		1840	3679	5519	7358	9198	11038				
Unit 1 Age		67	68	69	70	71	72				
Index Year		1	2	3	4	5	6				
Year		2025	2026	2027	2028	2029	2030				
BV Assessment Total per year -->		$ 1,985,000	$ -	$ 1,510,000	$ 1,510,000	$ -	$ -				
Reeves 5 Year Budget Total per year -->		$9,183,442	$731,714	$3,525,314	$1,892,620	$1,219,305	$450,000				
Combined Total -->		$ 11,168,442	$ 731,714	$ 5,035,314	$ 3,402,620	$ 1,219,305	$ 450,000				

Item			Reeves 20 Year Budget 2024-2030 Component	Project Name	Reeves 5 Year Totals	O&M Scope		U3 Turbine Major 2025	2026	U2 Turbine Minor 2027	U1 Turbine Minor 2028	2029	2030
1	All		common	Reeves Plant Common Small Capital Projects	$250,000			$250,000	$250,000	$250,000	$250,000	$250,000	$250,000
2	3		Boiler	Reeves 2025 U3 Boiler Water wall & Roof Arch Tubes	$5,808,570			$5,808,570					
3	1		Boiler	Reeves 2030 U1 Upper Boiler Water wall & Roof Arch Tubes	$300,000	Annual Inspection and repairs		$50,000	$50,000	$50,000	$50,000	$50,000	$50,000
4	1		Boiler	Reeves 2030 U1 Boiler Upper and Lower Economizer	$300,000	Annual Inspection and repairs		$50,000	$50,000	$50,000	$50,000	$50,000	$50,000
5	3		Turbine	Reeves 2025 U3 Turbine Generator Major	$2,183,649			$2,183,649					
6	3		Turbine	Reeves 2025 U3 Generator Brushes and Rigging	$80,000			$80,000					
7	1		Turbine	Reeves 2030 U1 Generator Exciter	$80,000	Inspect and repair during minors				$80,000			
8	2		Turbine	Reeves 2035 U2 Generator Exciter	$80,000	Inspect and repair during minors				$80,000			
9	3		Turbine	Reeves 2025 U3 Generator Exciter	$300,437			$300,437					
10	2		Cond Feedwater	Reeves 2030 U2 Circulating Water Piping	$250,000	Annual Allocation for repairs			$50,000	$50,000	$50,000	$50,000	$50,000
11	3		Cond Feedwater	Reeves 2027 U3 Circulating Water Piping	$250,000				$50,000	$50,000	$50,000	$50,000	$50,000
12	3		Cond Feedwater	Reeves 2025 U3 -B Boiler Feed Pump	$238,540			$238,540					
13	2		Cond Feedwater	Reeves 2029 U2 -A Boiler Feed Pump	$269,226	moved to minor				$269,226			
14	2		Cond Feedwater	Reeves 2029 U2 -B Boiler Feed Pump	$269,226	moved to minor				$269,226			
15	1		Cond Feedwater	Reeves 2030 U1 -A Boiler Feed Pump	$274,610	moved to minor					$274,610		
16	1		Cond Feedwater	Reeves 2030 U1 - B Boiler Feed Pump	$274,610	moved to minor					$274,610		
17	2		Electrical	Reeves 2029 U2 Disconnect Switch (AUX) Replace	$106,714	moved to 2026			$106,714				
18	3		Electrical	Reeves 2029 U3 MCC Breakers and Starters Replace	$100,000	Inspect and repair as needed			$50,000	$50,000			
19			Electrical	Reeves 2029 DC Battery Replacement - 2 A	$88,146	moved to minor					$88,146		
20			Electrical	Reeves 2029 DC Battery Replacement - 2 B	$88,146	moved to minor					$88,146		
21			Electrical	Reeves 2029 DC Battery Charger	$77,108	moved to minor					$77,108		
22			Electrical	Reeves 2029 (4) DC Inverter replacement for UPS system	$240,000	moved to minor					$240,000		
23	1		Electrical	Reeves 2030 U1 Step Up Transformer Replace	$150,000	Test and Repair				$150,000			
24	2		Electrical	Reeves 2029 U2 Step Up Transformer Replace	$150,000	Test and Repair					$150,000		
25	2		Electrical	Reeves 2025 U2 GSU Relay Upgrade (Multi-year 2024/2025)	$102,246			$102,246					
26	2		Electrical	Reeves 2027 U2 Auxiliary Transformer Replace	$1,500,000					$1,500,000			
27	1		Electrical	Reeves 2030 U1 Auxiliary Transformer Replace	$150,000	Test and Repair				$150,000			
28			Electrical	Reeves 2030 Upgrade DCS System	$150,000	Updates and spares			$50,000	$50,000		$50,000	
29	1		Mechanical	Reeves 2030 U1 Burner Actuator Replacement	$400,000	all three units				$200,000	$200,000		
30	All		Mechanical	Reeves 2029 U1-2-3 Fire Protection System Upgrade	$719,305							$719,305	
31	All		Mechanical	Reeves 2030 Air Dryer Replace	$50,000	Inspect and repair				$50,000			
32	2		Mechanical	Reeves 2027 U2-A Well Pump and Motor	$146,862					$146,862			
33	2		Mechanical	Reeves 2029 U2 Cooling tower Upgrade	$30,000					$30,000			
34	2		Mechanical	Reeves 2030 U2 Replace (5) Cooling Fans Gearboxes	$50,000	replace as needed				$25,000	$25,000		
35	1		Mechanical	Reeves 2030 U1 Replace (6) Cooling Fans Gearboxes	$50,000	replace as needed				$25,000	$25,000		
36	All		Mechanical	Reeves 2025 U1 & 2 Cooling tower Acid Tank Replace :	$120,000			$120,000					
37				Reeves 2030 Administration Roof Replacement	$25,000	Inspect and repair			$25,000				
38				Reeves 2030 Maintenance Shop Roof Replacement	$50,000				$50,000				

Reeves O&M @ 10% Capacity Factor	U3 Turbine Major 2025	2026	U2 Turbine Minor 2027	U1 Turbine Minor 2028	2029	2030
Fixed O&M	$5,000,000	$5,150,000	$5,300,000	$5,450,000	$5,600,000	$5,750,000
Variable O&M	$400,000	$400,000	$400,000	$400,000	$400,000	$400,000
Total O&M	$5,400,000	$5,550,000	$5,700,000	$5,850,000	$6,000,000	$6,150,000

Total Capital by year	**$ 22,007,395**		$11,168,442	$731,714	$5,035,314	$3,402,620	$1,219,305	$450,000			
Total O&M by Year	**$ 34,650,000**		$ 5,400,000	$ 5,550,000	$ 5,700,000	$ 5,850,000	$ 6,000,000	$ 6,150,000			
TOTAL REEVES CAPEX AND OPEX by year	**$ 56,657,395**		$ 16,568,442	$ 6,281,714	$ 10,735,314	$ 9,252,620	$ 7,219,305	$ 6,600,000			

Appendix B. PNM Reeves CAPEX Forecast 2025 to 2044

APPENDIX B SCENARIO 2 - 10% Cap Factor
Reeves Estimated CAPEX and OPEX 2025 - 2044
Update: 4/28/2025

BV Assessment CAPEX thru 2044 -->	$	60,663,000
PNM Current Budget year CAPEX -->	$	73,126,888
Total CAPEX thru 2044 -->	$	133,789,888
Total O&M thru 2044 -->	$	182,783,120

Service Factor	21%											
Hours On line Per Unit		1840	3679	5519	7358	9198	11038	12877	14717	16556	18396	20236
Unit 1 Age		67	68	69	70	71	72	73	74	75	76	77
Index Year		2	3	4	5	6	7	8	9	10	11	12
Year		2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
BV Assessment Total per year -->		$ 973,000	$ 983,000	$ 688,000	$ 40,000	$ 13,850,000	$ 14,145,000	$ 20,900,000	$ -	$ -	$ 1,648,000	$ 1,943,000
Reeves 20 Year Budget Total per year -->		$9,083,442	$250,000	$2,339,277	$250,000	$9,644,706	$10,853,893	$6,164,201	$250,000	$250,000	$15,640,122	$8,909,761
Combined Total -->		$ 10,056,442	$ 1,233,000	$ 3,027,277	$ 290,000	$ 23,494,706	$ 24,998,893	$ 27,064,201	$ 250,000	$ 250,000	$ 17,288,122	$ 10,852,761

Item	Unit	Included in Reeves 20 yr plan?	Plant Equipment	2024 Recommendations	Assessment Line Totals	Outage-->>	U3 Turbine Major				U2 Minor (21 days)	U1 Minor (21 days)	U3 Minor (21 days)			U2 Turbine Major	U1 Turbine Major
1	1	yes	Turbine	Turbine Major - rotors, valves, major casing work, generators Perform Turbine majors on 10 year rotation	$1,500,000												$ 1,500,000
2	1	no	Generator	Inspect stator / field for needed repairs (rewedge, rotor rewind).	$1,750,000							$ 1,750,000					
3	2	yes	Turbine	Turbine Major - rotors, valves, major casing work, generators Perform Turbine majors on 10 year rotation	$1,500,000											$ 1,500,000	
4	2	no	Generator	Inspect stator / field for needed repairs (rewedge, rotor rewind).	$1,750,000						$ 1,750,000						
5	3	yes	Turbine	Turbine Major - rotors, valves, major casing work, generators Perform Turbine majors on 10 year rotation	$1,500,000												
6	3	no	Generator	Inspect stator / field for needed repairs (rewedge, rotor rewind).	$1,750,000								$ 1,750,000				
7	all	yes	Turbine	Perform Turbine Minors on 5 year rotation to include turbine valves	$5,500,000						$ 750,000	$ 750,000	$ 750,000				
8	All	no	Boilers General	Perform Top to bottom condition assessment of boiler pressure parts including metallurgical analysis.	$750,000		$ 250,000	$ 250,000	$ 250,000								
9	All	yes	Furnace	Repair or replace per condition assessment	$12,000,000								$ 12,000,000				
10	All	yes	Economizer	Repair or replace per condition assessment	$13,300,000						$ 5,000,000	$ 5,000,000	$ 3,300,000				
11	All	yes	PSH & SSH	Repair or replace per condition assessment	$12,000,000						$ 5,000,000	$ 5,000,000	$ 2,000,000				
12	1	yes	AirHeater	Replace seals	$1,800,000						$ 600,000	$ 600,000	$ 600,000				
13	2	yes	AirHeater	Replace seals and baskets	$0												
14	3	yes	AirHeater	Replace seals and baskets	$0												
15	1	no	Fans	Foundation repair, blast and NDE fan wheel	$100,000		$ 100,000										
16	2	no	Fans	Blast and NDE Fan wheel	$25,000						$ 25,000						
17	3	no	Fans	Blast and NDE Fan wheel	$25,000							$ 25,000					
18	All	no	Drum	5 year Inspection / repair	$450,000						$ 50,000	$ 50,000	$ 50,000			$ 50,000	$ 50,000
19	All	no	Deaerator	Continued Yearly Inspections, 5 year NDE	$500,000		$ 50,000				$ 50,000	$ 50,000	$ 50,000			$ 50,000	$ 50,000
20	1	yes	GSU	Replace hand operated (HOD) switch, replace oil, spare GSU for U1	$0												
21	2	yes	GSU	Replace HOD switch, replace oil	$0												
22	3	yes	GSU	Replace HOD switch,	$0												
23	1	yes	AUX	Replace cabling, electrically test	$0												
24	2	yes	AUX	Replace cabling, electrically test, replace AUX	$0												
25	3	yes	AUX	Spare AUX to be used in any of the three units.	$0												
26	All	yes	Air Compressors	Rebuild air compressors at 20 year mark	$0												
27	1	no	Circ Water Pumps	Overhaul pumps and motors	$250,000							$ 250,000					
28	2	no	Circ Water Pumps	Overhaul pumps and motors	$250,000						$ 250,000						
29	3	no	Circ Water Pumps	Overhaul pumps and motors	$250,000								$ 250,000				
30	1	yes	Circ Water Pipe	Survey for Damage / age assessment	$0												
31	2	yes	Circ Water Pipe	Survey for Damage / age assessment	$0												
32	3	yes	Circ Water Pipe	Survey for Damage / age assessment	$0												
33	All	yes	Cooling Tower	Recondition Gearboxes/ Motors / Fans / Decking	$0												
34	All	yes	Cooling Tower	Overhaul structure at 30 year mark	$0												
35	1	no	Condenser	Recoat Water Box, Eddy Current Tubes	$75,000							$ 75,000					
36	2	no	Condenser	Recoat Water Box, Eddy Current Tubes	$75,000						$ 75,000						
37	3	no	Condenser	Eddy Current Tubes	$25,000		$ 25,000										
38	1	no	Condensate Pumps	Overhaul pumps and motors	$150,000							$ 150,000					
39	2	no	Condensate Pumps	Overhaul pumps and motors	$150,000						$ 150,000						
40	3	no	Condensate Pumps	Overhaul pumps and motors	$150,000								$ 150,000				
41	1	yes	Boiler Feed Pumps	Overhaul pumps and motors	$0												
42	2	yes	Boiler Feed Pumps	Overhaul pumps and motors	$0												
43	3	yes	Boiler Feed Pumps	Overhaul pumps and motors	$0												
44	All	no	Feedwater	Flow Accelerated Corrosion (FAC) Study all three units	$450,000		$ 150,000				$ 150,000	$ 150,000					
45	1	no	Feedwater Heaters	Eddy Current #4 heater, plus others	$40,000			$ 40,000									
46	2	no	Feedwater Heaters	Eddy Current #4 heater, plus others	$40,000				$ 40,000								
47	3	no	Feedwater Heaters	Eddy Current #4 heater, plus others	$40,000					$ 40,000							
48	All	no	High Energy Piping	Comprehensive evaluation (hangers, NDE, Stress analysis)	$1,180,000			$ 295,000				$ 295,000					$ 295,000
49	All	yes	DCS Controls	Plan for hardware upgrade	$0												
50	All	no	Stacks	UT Wall thickness checks	$288,000		$ 48,000	$ 48,000	$ 48,000							$ 48,000	$ 48,000
51	All	yes	Batteries	Replace batteries and chargers 15-20 year interval	$0												
52	All	yes	Protective Relays	Upgrade remaining analog relays	$0												
53	All	no	Water Treatment	No recommendation	$0												
54	All	no	Electrical	Test power cables on low and medium voltage systems	$1,050,000		$ 350,000	$ 350,000	$ 350,000								
55	All	yes	Electrical	Replace MCC breakers and Motor Starters	$0												

APPENDIX B SCENARIO 2 - 10% Cap Factor
Reeves Estimated CAPEX and OPEX 2025 - 2044
Update: 4/28/2025

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Total O&M thru 2044 -->	**$**	**182,783,120**

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Year	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
BV Assessment Total per year -->	$ 973,000	$ 983,000	$ 688,000	$ 40,000	$ 13,850,000	$ 14,145,000	$ 20,900,000	$ -	$ -	$ 1,648,000	$ 1,943,000
Reeves 20 Year Budget Total per year -->	$9,083,442	$250,000	$2,339,277	$250,000	$9,644,706	$10,853,893	$6,164,201	$250,000	$250,000	$15,640,122	$8,909,761
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		Reeves 20 Year Budget 2024-2044		**Reeves 20 Year Budget Line Totals**	**U3 Turbine Major**				**U2 Minor (21 days)**	**U1 Minor (21 days)**	**U3 Minor (21 days)**			**U2 Turbine Major**	**U1 Turbine Major**
Item		Component	Project Name		2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
1	All	common	Reeves Plant Common Small Capital Projects	$5,000,000	$ 250,000	$ 250,000	$ 250,000	$ 250,000	$ 250,000	$ 250,000	$ 250,000	$ 250,000	$ 250,000	$ 250,000	$ 250,000
2	3	Boiler	Reeves 2025 U3 Boiler Water wall & Roof Arch Tubes	$5,808,570	$ 5,808,570										
3	2	Boiler	Reeves 2034 U2 Upper Boiler Water wall & Roof Arch Tubes	$3,168,000										$ 3,168,000	
4	1	Boiler	Reeves 2030 U1 Upper Boiler Water wall & Roof Arch Tubes	$2,904,000						$ 2,904,000					
5	3	Boiler	Reeves 2036 U3 Primary and Finishing Superheat	$2,097,398											
6	2	Boiler	Reeves 2034 U2 Primary and Finishing Superheat	$1,936,059										$ 1,936,059	
7	1	Boiler	Reeves 2035 U1 Primary and Finishing Superheat	$2,016,729											$ 2,016,729
8	1	Boiler	Reeves 2034 U1 Attemperator Spray Nozzle Replace	$66,613										$ 66,613	
9	2	Boiler	Reeves 2034 U2 Attemperator Spray Nozzle Replace	$66,613										$ 66,613	
10	3	Boiler	Reeves 2034 U3 Attemperator Spray Nozzle Replace	$66,613										$ 66,613	
11	3	Boiler	Reeves 2031 U3 Boiler Upper and Lower Economizer	$1,448,800							$ 1,448,800				
12	2	Boiler	Reeves 2034 U2 Boiler Upper and Lower Economizer	$1,564,704										$ 1,564,704	
13	1	Boiler	Reeves 2030 U1 Boiler Upper and Lower Economizer	$1,390,848						$ 1,390,848					
14	2	Boiler	Reeves 2029 U2 Air Preheater Cold Basket Replace	$1,094,458					$ 1,094,458						
15	1	Boiler	Reeves 2029 U1 Air Preheater Cold Basket Replace	$1,094,458					$ 1,094,458						
16	3	Turbine	Reeves 2025 U3 Turbine Generator Major	$2,183,649	$ 2,183,649										
17	3	Turbine	Reeves 2031 U3 Turbine Generator Major	$0											
18	3	Turbine	Reeves 2036 U3 Turbine Generator Major	$4,300,000											
19	3	Turbine	Reeves 2041 U3 Turbine Generator Major	$0											
20	2	Turbine	Reeves 2029 U2 Turbine Generator Major	$0											
21	2	Turbine	Reeves 2034 U2 Turbine Generator Major	$4,300,000										$ 4,300,000	
22	2	Turbine	Reeves 2039 U2 Turbine Generator Major	$0											
23	1	Turbine	Reeves 2030 U1 Turbine Generator Major	$0											
24	1	Turbine	Reeves 2035 U1 Turbine Generator Major	$4,300,000											$ 4,300,000
25	1	Turbine	Reeves 2040 U1 Turbine Generator Major	$0											
26	3	Turbine	Reeves 2025 U3 Generator Brushes and Rigging	$80,000	$ 80,000										
27	1	Turbine	Reeves 2024 U1 Generator Brushes and Rigging	$0											
28	1	Turbine	Reeves 2030 U1 Generator Exciter	$330,000						$ 330,000					
29	2	Turbine	Reeves 2035 U2 Generator Exciter	$360,000										$ 360,000	
30	3	Turbine	Reeves 2025 U3 Generator Exciter	$300,437	$ 300,437										
31	1	Turbine	Reeves 2024 U1 DC Lube Oil System Contacts	$0											
32	1	Cond Feedwater	Reeves 2035 U1 Circulating Water Piping	$701,691											$ 701,691
33	2	Cond Feedwater	Reeves 2030 U2 Circulating Water Piping	$635,543					$ 635,543						
34	3	Cond Feedwater	Reeves 2027 U3 Circulating Water Piping	$597,958			$ 597,958								
35	3	Cond Feedwater	Reeves 2025 U3 -B Boiler Feed Pump	$238,540	$ 238,540										
36	3	Cond Feedwater	Reeves 2034 U3 -A Boiler Feed Pump	$297,247							$ 297,247				
37	2	Cond Feedwater	Reeves 2029 U2 -A Boiler Feed Pump	$269,226					$ 269,226						
38	2	Cond Feedwater	Reeves 2029 U2 -B Boiler Feed Pump	$269,226					$ 269,226						
39	1	Cond Feedwater	Reeves 2030 U1 -A Boiler Feed Pump	$274,610						$ 274,610					
40	1	Cond Feedwater	Reeves 2030 U1 - B Boiler Feed Pump	$274,610						$ 274,610					
41	2	Electrical	Reeves 2029 U2 Disconnect Switch (AUX) Replace	$106,714					$ 106,714						
42	3	Electrical	Reeves 2029 U3 MCC Breakers and Starters Replace	$514,506					$ 514,506						
43		Electrical	Reeves 2024 Battery Monitoring System	$0											
44		Electrical	Reeves 2029 DC Battery Replacement - 2 A	$88,146					$ 88,146						
45		Electrical	Reeves 2029 DC Battery Replacement - 2 B	$88,146					$ 88,146						
46		Electrical	Reeves 2029 DC Battery Charger	$77,108					$ 77,108						
47		Electrical	Reeves 2029 (4) DC Inverter replacement for UPS system	$241,241					$ 241,241						
48		Electrical	Reeves 2035 UPS Replacement	$267,253											$ 267,253
49	1	Electrical	Reeves 2035 U1 Generator Protective Relay Replace	$294,088											$ 294,088
50	2	Electrical	Reeves 2035 U2 Generator Protective Relay Replace	$294,088										$ 294,088	
51	3	Electrical	Reeves 2035 U3 Generator Protective Relay Replace	$294,088											
52	3	Electrical	Reeves 2034 U3 Step Up Transformer Replace	$2,857,432										$ 2,857,432	
53	1	Electrical	Reeves 2030 U1 Step Up Transformer Replace	$2,639,825						$ 2,639,825					
54	2	Electrical	Reeves 2029 U2 Step Up Transformer Replace	$2,588,064					$ 2,588,064						
55	2	Electrical	Reeves 2025 U2 GSU Relay Upgrade (Multi-year 2024/2025)	$102,246	$ 102,246										
56	2	Electrical	Reeves 2027 U2 Auxiliary Transformer Replace	$1,344,457			$ 1,344,457								
57	1	Electrical	Reeves 2030 U1 Auxiliary Transformer Replace	$1,000,000						$ 1,000,000					
58	3	Electrical	Reeves 2033 U3 Auxiliary Transformer Replace	$1,514,077							$ 1,514,077				
59	3	Electrical	Reeves 2033 U3 Startup Transformer Replace	$1,514,077							$ 1,514,077				
60		Electrical	Reeves 2030 Upgrade DCS System	$500,000						$ 500,000					
61	2	Electrical	Reeves 2029 U2 Transformer Monitor System	$176,628					$ 176,628						
62	1	Electrical	Reeves 2030 U1 Transformer Monitor System	$150,000						$ 150,000					
63	1	Electrical	Reeves 2030 U1 Generation Excitation AVR Replacement	$550,000											$ 550,000
64	2	Electrical	Reeves 2035 U2 Generation Excitation AVR Replacement	$550,000										$ 550,000	
65	3	Electrical	Reeves 2035 U3 Generation Excitation AVR Replacement	$550,000											
66	All	Mechanical	Reeves 2030 Replace Cathodic Protection Anodes	$90,000						$ 90,000					

APPENDIX B SCENARIO 2 - 10% Cap Factor
Reeves Estimated CAPEX and OPEX 2025 - 2044
Update: 4/28/2025

						Service Factor	21%											
						Hours On line Per Unit		1840	3679	5519	7358	9198	11038	12877	14717	16556	18396	20236
						Unit 1 Age		67	68	69	70	71	72	73	74	75	76	77
				BV Assessment CAPEX thru 2044 -->	**$ 60,663,000**	**Index Year**		2	3	4	5	6	7	8	9	10	11	12
				PNM Current Budget year CAPEX -->	**$ 73,126,888**	**Year**		2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
				Total CAPEX thru 2044 -->	**$ 133,789,888**	**BV Assessment Total per year -->**		$ 973,000	$ 983,000	$ 688,000	$ 40,000	$ 13,850,000	$ 14,145,000	$ 20,900,000	$ -	$ -	$ 1,648,000	$ 1,943,000
				Total O&M thru 2044 -->	**$ 182,783,120**	**Reeves 20 Year Budget Total per year -->**		$9,083,442	$250,000	$2,339,277	$250,000	$9,644,706	$10,853,893	$6,164,201	$250,000	$250,000	$15,640,122	$8,909,761
						Combined Total -->		$ 10,056,442	$ 1,233,000	$ 3,027,277	$ 290,000	$ 23,494,706	$ 24,998,893	$ 27,064,201	$ 250,000	$ 250,000	$ 17,288,122	$ 10,852,761
67	1		Mechanical	Reeves 2030 U1 Burner Actuator Replacement	$200,000							$ 200,000						
68	All		Mechanical	Reeves 2029 U1-2-3 Fire Protection System Upgrade	$719,305							$ 719,305						
69	All		Mechanical	Reeves 2035 Plant Air Compressors	$110,000													$ 110,000
70	All		Mechanical	Reeves 2030 Air Dryer Replace	$275,000							$ 275,000						
71	2		Mechanical	Reeves 2027 U2-A Well Pump and Motor	$146,862					$ 146,862								
72	2		Mechanical	Reeves 2035 U2 -B Well Pump and Motor	$160,000												$ 160,000	
73	All		Mechanical	Reeves 2035 U1-2-3 Chemical Skid Replacement	$420,000													$ 420,000
74	2		Mechanical	Reeves 2029 U2 Cooling tower Upgrade	$749,937							$ 749,937						
75	3		Mechanical	Reeves 2033 U3 Cooling tower Upgrade	$850,000									$ 850,000				
76	2		Mechanical	Reeves 2030 U2 Replace (5) Cooling Fans Gearboxes	$207,000							$ 207,000						
77	1		Mechanical	Reeves 2030 U1 Replace (6) Cooling Fans Gearboxes	$250,000								$ 250,000					
78	3		Mechanical	Reeves 2033 U3 Replace (7) Cooling Fans Gearboxes	$290,000									$ 290,000		-		
79	All		Mechanical	**Reeves 2025 U1 & 2 Cooling tower Acid Tank Replace :**	$120,000			$ 120,000										
80	All		Mechanical	Reeves 2030 Administration Roof Replacement	$300,000								$ 300,000					
81	All		Mechanical	Reeves 2030 Maintenance Shop Roof Replacement	$500,000								$ 500,000					

Reeves O&M @ 10% Capacity Factor							**U3 Turbine Major**									**U2 Turbine Major**	**U1 Turbine Major**
							2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
				Fixed O&M			$6,500,000	$6,700,000	$6,901,000	$7,108,030	$7,321,279	$7,540,917	$7,767,144	$8,000,158	$8,240,162	$8,487,366	$8,741,987
				Variable			$400,000	$400,000	$400,000	$400,000	$400,000	$400,000	$400,000	$400,000	$400,000	$400,000	$400,000
				Total OM			$6,900,000	$7,100,000	$7,301,000	$7,508,030	$7,721,279	$7,940,917	$8,167,144	$8,400,158	$8,640,162	$8,887,366	$9,141,987
									-								
				Totals for Capital by Year:	**$ 133,789,888**		$ 10,056,442	$ 1,233,000	$ 3,027,277	$ 290,000	$ 23,494,706	$ 24,998,893	$ 27,064,201	$ 250,000	$ 250,000	$ 17,288,122	$ 10,852,761
				Total O&M By Year	**$ 182,783,120**		$6,900,000	$7,100,000	$7,301,000	$7,508,030	$7,721,279	$7,940,917	$8,167,144	$8,400,158	$8,640,162	$8,887,366	$9,141,987
				Total Capital & O&M	**$ 316,573,008**		$16,956,442	$8,333,000	$10,328,277	$7,798,030	$31,215,985	$32,939,810	$35,231,345	$8,650,158	$8,890,162	$26,175,488	$19,994,748

Environmental Controls (Not included in overall CAPEX)																		
	1	no	Environmental Controls	SNCR (parts and construction)	$3,000,000								$ 3,000,000					
	2	no	Environmental Controls	SNCR (parts and construction)	$3,000,000							$ 3,000,000						
	3	no	Environmental Controls	SNCR (parts and construction)	$4,000,000									$ 4,000,000				
	1	no	Environmental Controls	SCR (parts and construction)	$25,000,000								$ 25,000,000					
	2	no	Environmental Controls	SCR (parts and construction)	$25,000,000							$ 25,000,000						
	3	no	Environmental Controls	SCR (parts and construction)	$25,000,000									$ 25,000,000				
	all	no	Environmental Controls	SNCR Annual O&M	$66,085,900							$ 1,041,000	$ 2,144,500	$ 3,681,300	$ 3,791,700	$ 3,905,500	$ 4,022,700	$ 4,143,400
	all	no	Environmental Controls	SCR Annual O&M	$23,933,900							$ 416,700	$ 858,300	$ 1,326,100	$ 1,365,900	$ 1,406,900	$ 1,449,100	$ 1,492,600

APPENDIX B SCENARIO 2 - 10% Cap Factor
Reeves Estimated CAPEX and OPEX 2025 - 2044
Update: 4/28/2025

BV Assessment CAPEX thru 2044 -->	**$ 60,663,000**
PNM Current Budget year CAPEX -->	**$ 73,126,888**
Total CAPEX thru 2044 -->	**$ 133,789,888**
Total O&M thru 2044 -->	**$ 182,783,120**

					Service Factor									
					Hours On line Per Unit	22075	23915	25754	27594	29434	31273	33113	34952	36792
					Unit 1 Age	78	79	80	81	82	83	84	85	86
					Index Year	13	14	15	16	17	18	19	20	21
					Year	2036	2037	2038	2039	2040	2041	2042	2043	2044
					BV Assessment Total per year -->	$ 2,648,000	$ -	$ -	$ 850,000	$ 1,145,000	$ 850,000	$ -	$ -	$ -
					Reeves 20 Year Budget Total per year -->	$7,491,486	$250,000	$250,000	$250,000	$250,000	$250,000	$250,000	$250,000	$250,000
					Combined Total -->	$ 10,139,486	$ 250,000	$ 250,000	$ 1,100,000	$ 1,395,000	$ 1,100,000	$ 250,000	$ 250,000	$ 250,000

Item	Unit	Included in Reeves 20 yr plan?	Plant Equipment	2024 Recommendations	Assessment Line Totals	Outage-->>	U3 Turbine Major			U2 Minor (14 days)	U1 Minor (14 days)	U3 Minor (14 days)			
1	1	yes	Turbine	Turbine Major - rotors, valves, major casing work, generators Perform Turbine majors on 10 year rotation	$1,500,000										
2	1	no	Generator	Inspect stator / field for needed repairs (rewedge, rotor rewind).	$1,750,000										
3	2	yes	Turbine	Turbine Major - rotors, valves, major casing work, generators Perform Turbine majors on 10 year rotation	$1,500,000										
4	2	no	Generator	Inspect stator / field for needed repairs (rewedge, rotor rewind).	$1,750,000										
5	3	yes	Turbine	Turbine Major - rotors, valves, major casing work, generators Perform Turbine majors on 10 year rotation	$1,500,000		$ 1,500,000								
6	3	no	Generator	Inspect stator / field for needed repairs (rewedge, rotor rewind).	$1,750,000										
7	all	yes	Turbine	Perform Turbine Minors on 5 year rotation to include turbine valves	$5,500,000		$ 1,000,000			$ 750,000	$ 750,000	$ 750,000			
8	All	no	Boilers General	Perform Top to bottom condition assessment of boiler pressure parts including metallurgical analysis.	$750,000										
9	All	yes	Furnace	Repair or replace per condition assessment	$12,000,000										
10	All	yes	Economizer	Repair or replace per condition assessment	$13,300,000										
11	All	yes	PSH & SSH	Repair or replace per condition assessment	$12,000,000										
12	1	yes	AirHeater	Replace seals	$1,800,000										
13	2	yes	AirHeater	Replace seals and baskets	$0										
14	3	yes	AirHeater	Replace seals and baskets	$0										
15	1	no	Fans	Foundation repair, blast and NDE fan wheel	$100,000										
16	2	no	Fans	Blast and NDE Fan wheel	$25,000										
17	3	no	Fans	Blast and NDE Fan wheel	$25,000										
18	All	no	Drum	5 year Inspection / repair	$450,000		$ 50,000			$ 50,000	$ 50,000	$ 50,000			
19	All	no	Deaerator	Continued Yearly Inspections, 5 year NDE	$500,000		$ 50,000			$ 50,000	$ 50,000	$ 50,000			
20	1	yes	GSU	Replace hand operated (HOD) switch, replace oil, spare GSU for U1	$0										
21	2	yes	GSU	Replace HOD switch, replace oil	$0										
22	3	yes	GSU	Replace HOD switch,	$0										
23	1	yes	AUX	Replace cabling, electrically test	$0										
24	2	yes	AUX	Replace cabling, electrically test, replace AUX	$0										
25	3	yes	AUX	Spare AUX to be used in any of the three units.	$0										
26	All	yes	Air Compressors	Rebuild air compressors at 20 year mark	$0										
27	1	no	Circ Water Pumps	Overhaul pumps and motors	$250,000										
28	2	no	Circ Water Pumps	Overhaul pumps and motors	$250,000										
29	3	no	Circ Water Pumps	Overhaul pumps and motors	$250,000										
30	1	yes	Circ Water Pipe	Survey for Damage / age assessment	$0										
31	2	yes	Circ Water Pipe	Survey for Damage / age assessment	$0										
32	3	yes	Circ Water Pipe	Survey for Damage / age assessment	$0										
33	All	yes	Cooling Tower	Recondition Gearboxes/ Motors / Fans / Decking	$0										
34	All	yes	Cooling Tower	Overhaul structure at 30 year mark	$0										
35	1	no	Condenser	Recoat Water Box, Eddy Current Tubes	$75,000										
36	2	no	Condenser	Recoat Water Box, Eddy Current Tubes	$75,000										
37	3	no	Condenser	Eddy Current Tubes	$25,000										
38	1	no	Condensate Pumps	Overhaul pumps and motors	$150,000										
39	2	no	Condensate Pumps	Overhaul pumps and motors	$150,000										
40	3	no	Condensate Pumps	Overhaul pumps and motors	$150,000										
41	1	yes	Boiler Feed Pumps	Overhaul pumps and motors	$0										
42	2	yes	Boiler Feed Pumps	Overhaul pumps and motors	$0										
43	3	yes	Boiler Feed Pumps	Overhaul pumps and motors	$0										
44	All	no	Feedwater	Flow Accelerated Corrosion (FAC) Study all three units	$450,000										
45	1	no	Feedwater Heaters	Eddy Current #4 heater, plus others	$40,000										
46	2	no	Feedwater Heaters	Eddy Current #4 heater, plus others	$40,000										
47	3	no	Feedwater Heaters	Eddy Current #4 heater, plus others	$40,000										
48	All	no	High Energy Piping	Comprehensive evaluation (hangers, NDE, Stress analysis)	$1,180,000						$ 295,000				
49	All	yes	DCS Controls	Plan for hardware upgrade	$0										
50	All	no	Stacks	UT Wall thickness checks	$288,000		$ 48,000								
51	All	yes	Batteries	Replace batteries and chargers 15-20 year interval	$0										
52	All	yes	Protective Relays	Upgrade remaining analog relays	$0										
53	All	no	Water Treatment	No recommendation	$0										
54	All	no	Electrical	Test power cables on low and medium voltage systems	$1,050,000										
55	All	yes	Electrical	Replace MCC breakers and Motor Starters	$0										

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Reeves Estimated CAPEX and OPEX 2025 - 2044
Update: 4/28/2025

BV Assessment CAPEX thru 2044 -->	**$ 60,663,000**
PNM Current Budget year CAPEX -->	**$ 73,126,888**
Total CAPEX thru 2044 -->	**$ 133,789,888**
Total O&M thru 2044 -->	**$ 182,783,120**

Service Factor														
Hours On line Per Unit	22075	23915	25754	27594	29434	31273	33113	34952	36792					
Unit 1 Age	78	79	80	81	82	83	84	85	86					
Index Year	13	14	15	16	17	18	19	20	21					
Year	2036	2037	2038	2039	2040	2041	2042	2043	2044					
BV Assessment Total per year -->	$ 2,648,000	$ -	$ -	$ 850,000	$ 1,145,000	$ 850,000	$ -	$ -	$ -					
Reeves 20 Year Budget Total per year -->	$7,491,486	$250,000	$250,000	$250,000	$250,000	$250,000	$250,000	$250,000	$250,000					
Combined Total -->	$ 10,139,486	$ 250,000	$ 250,000	$ 1,100,000	$ 1,395,000	$ 1,100,000	$ 250,000	$ 250,000	$ 250,000					

			Reeves 20 Year Budget 2024-2044		**Reeves 20 Year Budget Line Totals**	**U3 Turbine Major**			**U2 Minor (14 days)**	**U1 Minor (14 days)**	**U3 Minor (14 days)**			
Item			Component	Project Name		2036	2037	2038	2039	2040	2041	2042	2043	2044
1	All		common	Reeves Plant Common Small Capital Projects	$5,000,000	$ 250,000	$ 250,000	$ 250,000	$ 250,000	$ 250,000	$ 250,000	$ 250,000	$ 250,000	$ 250,000
2	3		Boiler	Reeves 2025 U3 Boiler Water wall & Roof Arch Tubes	$5,808,570									
3	2		Boiler	Reeves 2034 U2 Upper Boiler Water wall & Roof Arch Tubes	$3,168,000									
4	1		Boiler	Reeves 2030 U1 Upper Boiler Water wall & Roof Arch Tubes	$2,904,000									
5	3		Boiler	Reeves 2036 U3 Primary and Finishing Superheat	$2,097,398	$ 2,097,398								
6	2		Boiler	Reeves 2034 U2 Primary and Finishing Superheat	$1,936,059									
7	1		Boiler	Reeves 2035 U1 Primary and Finishing Superheat	$2,016,729									
8	1		Boiler	Reeves 2034 U1 Attemperator Spray Nozzle Replace	$66,613									
9	2		Boiler	Reeves 2034 U2 Attemperator Spray Nozzle Replace	$66,613									
10	3		Boiler	Reeves 2034 U3 Attemperator Spray Nozzle Replace	$66,613									
11	3		Boiler	Reeves 2031 U3 Boiler Upper and Lower Economizer	$1,448,800									
12	2		Boiler	Reeves 2034 U2 Boiler Upper and Lower Economizer	$1,564,704									
13	1		Boiler	Reeves 2030 U1 Boiler Upper and Lower Economizer	$1,390,848									
14	2		Boiler	Reeves 2029 U2 Air Preheater Cold Basket Replace	$1,094,458									
15	1		Boiler	Reeves 2029 U1 Air Preheater Cold Basket Replace	$1,094,458									
16	3		Turbine	Reeves 2025 U3 Turbine Generator Major	$2,183,649									
17	3		Turbine	Reeves 2031 U3 Turbine Generator Major	$0									
18	3		Turbine	Reeves 2036 U3 Turbine Generator Major	$4,300,000	$ 4,300,000								
19	3		Turbine	Reeves 2041 U3 Turbine Generator Major	$0									
20	2		Turbine	Reeves 2029 U2 Turbine Generator Major	$0									
21	2		Turbine	Reeves 2034 U2 Turbine Generator Major	$4,300,000									
22	2		Turbine	Reeves 2039 U2 Turbine Generator Major	$0									
23	1		Turbine	Reeves 2030 U1 Turbine Generator Major	$0									
24	1		Turbine	Reeves 2035 U1 Turbine Generator Major	$4,300,000									
25	1		Turbine	Reeves 2040 U1 Turbine Generator Major	$0									
26	3		Turbine	Reeves 2025 U3 Generator Brushes and Rigging	$80,000									
27	1		Turbine	Reeves 2024 U1 Generator Brushes and Rigging	$0									
28	1		Turbine	Reeves 2030 U1 Generator Exciter	$330,000									
29	2		Turbine	Reeves 2035 U2 Generator Exciter	$360,000									
30	3		Turbine	Reeves 2025 U3 Generator Exciter	$300,437									
31	1		Turbine	Reeves 2024 U1 DC Lube Oil System Contacts	$0									
32	1		Cond Feedwater	Reeves 2035 U1 Circulating Water Piping	$701,691									
33	2		Cond Feedwater	Reeves 2030 U2 Circulating Water Piping	$635,543									
34	3		Cond Feedwater	Reeves 2027 U3 Circulating Water Piping	$597,958									
35	3		Cond Feedwater	Reeves 2025 U3 -B Boiler Feed Pump	$238,540									
36	3		Cond Feedwater	Reeves 2034 U3 -A Boiler Feed Pump	$297,247									
37	2		Cond Feedwater	Reeves 2029 U2 -A Boiler Feed Pump	$269,226									
38	2		Cond Feedwater	Reeves 2029 U2 -B Boiler Feed Pump	$269,226									
39	1		Cond Feedwater	Reeves 2030 U1 -A Boiler Feed Pump	$274,610									
40	1		Cond Feedwater	Reeves 2030 U1 - B Boiler Feed Pump	$274,610									
41	2		Electrical	Reeves 2029 U2 Disconnect Switch (AUX) Replace	$106,714									
42	3		Electrical	Reeves 2029 U3 MCC Breakers and Starters Replace	$514,506									
43			Electrical	Reeves 2024 Battery Monitoring System	$0									
44			Electrical	Reeves 2029 DC Battery Replacement - 2 A	$88,146									
45			Electrical	Reeves 2029 DC Battery Replacement - 2 B	$88,146									
46			Electrical	Reeves 2029 DC Battery Charger	$77,108									
47			Electrical	Reeves 2029 (4) DC Inverter replacement for UPS system	$241,241									
48			Electrical	Reeves 2035 UPS Replacement	$267,253									
49	1		Electrical	Reeves 2035 U1 Generator Protective Relay Replace	$294,088									
50	2		Electrical	Reeves 2035 U2 Generator Protective Relay Replace	$294,088									
51	3		Electrical	Reeves 2035 U3 Generator Protective Relay Replace	$294,088	$ 294,088								
52	3		Electrical	Reeves 2034 U3 Step Up Transformer Replace	$2,857,432									
53	1		Electrical	Reeves 2030 U1 Step Up Transformer Replace	$2,639,825									
54	2		Electrical	Reeves 2029 U2 Step Up Transformer Replace	$2,588,064									
55	2		Electrical	Reeves 2025 U2 GSU Relay Upgrade (Multi-year 2024/2025)	$102,246									
56	2		Electrical	Reeves 2027 U2 Auxiliary Transformer Replace	$1,344,457									
57	1		Electrical	Reeves 2030 U1 Auxiliary Transformer Replace	$1,000,000									
58	3		Electrical	Reeves 2033 U3 Auxiliary Transformer Replace	$1,514,077									
59	3		Electrical	Reeves 2033 U3 Startup Transformer Replace	$1,514,077									
60			Electrical	Reeves 2030 Upgrade DCS System	$500,000									
61	2		Electrical	Reeves 2029 U2 Transformer Monitor System	$176,628									
62	1		Electrical	Reeves 2030 U1 Transformer Monitor System	$150,000									
63	1		Electrical	Reeves 2030 U1 Generation Excitation AVR Replacement	$550,000									
64	2		Electrical	Reeves 2035 U2 Generation Excitation AVR Replacement	$550,000									
65	3		Electrical	Reeves 2035 U3 Generation Excitation AVR Replacement	$550,000	$ 550,000								
66	All		Mechanical	Reeves 2030 Replace Cathodic Protection Anodes	$90,000									

APPENDIX B SCENARIO 2 - 10% Cap Factor
Reeves Estimated CAPEX and OPEX 2025 - 2044
Update: 4/28/2025

						Service Factor									
						Hours On line Per Unit	22075	23915	25754	27594	29434	31273	33113	34952	36792
						Unit 1 Age	78	79	80	81	82	83	84	85	86
						Index Year	13	14	15	16	17	18	19	20	21
						Year	2036	2037	2038	2039	2040	2041	2042	2043	2044
				BV Assessment CAPEX thru 2044 -->	**$ 60,663,000**	**BV Assessment Total per year -->**	$ 2,648,000	$ -	$ -	$ 850,000	$ 1,145,000	$ 850,000	$ -	$ -	$ -
				PNM Current Budget year CAPEX -->	**$ 73,126,888**	**Reeves 20 Year Budget Total per year -->**	$7,491,486	$250,000	$250,000	$250,000	$250,000	$250,000	$250,000	$250,000	$250,000
				Total CAPEX thru 2044 -->	**$ 133,789,888**	**Combined Total -->**	$ 10,139,486	$ 250,000	$ 250,000	$ 1,100,000	$ 1,395,000	$ 1,100,000	$ 250,000	$ 250,000	$ 250,000
				Total O&M thru 2044 -->	**$ 182,783,120**										
67	1		Mechanical	Reeves 2030 U1 Burner Actuator Replacement	$200,000										
68	All		Mechanical	Reeves 2029 U1-2-3 Fire Protection System Upgrade	$719,305										
69	All		Mechanical	Reeves 2035 Plant Air Compressors	$110,000										
70	All		Mechanical	Reeves 2030 Air Dryer Replace	$275,000										
71	2		Mechanical	Reeves 2027 U2-A Well Pump and Motor	$146,862										
72	2		Mechanical	Reeves 2035 U2 -B Well Pump and Motor	$160,000										
73	All		Mechanical	Reeves 2035 U1-2-3 Chemical Skid Replacement	$420,000										
74	2		Mechanical	Reeves 2029 U2 Cooling tower Upgrade	$749,937										
75	3		Mechanical	Reeves 2033 U3 Cooling tower Upgrade	$850,000										
76	2		Mechanical	Reeves 2030 U2 Replace (5) Cooling Fans Gearboxes	$207,000										
77	1		Mechanical	Reeves 2030 U1 Replace (6) Cooling Fans Gearboxes	$250,000										
78	3		Mechanical	Reeves 2033 U3 Replace (7) Cooling Fans Gearboxes	$290,000										
79	All		Mechanical	**Reeves 2025 U1 & 2 Cooling tower Acid Tank Replace :**	$120,000										
80	All		Mechanical	Reeves 2030 Administration Roof Replacement	$300,000										
81	All		Mechanical	Reeves 2030 Maintenance Shop Roof Replacement	$500,000										

			Reeves O&M @ 10% Capacity Factor				**U3 Turbine Major**			**U2 Minor**	**U1 Minor**	**U3 Minor**			
							2036	2037	2038	2039	2040	2041	2042	2043	2044
				Fixed O&M			$9,004,246	$9,274,373	$9,552,604	$9,839,182	$10,134,357	$10,438,387	$10,751,538	$11,074,084	$11,406,306
				Variable			$400,000	$400,000	$400,000	$400,000	$400,000	$400,000	$400,000	$400,000	$400,000
				Total OM			$9,404,246	$9,674,373	$9,952,604	$10,239,182	$10,534,357	$10,838,387	$11,151,538	$11,474,084	$11,806,306
				Totals for Capital by Year:	**$ 133,789,888**		$ 10,139,486	$ 250,000	$ 250,000	$ 1,100,000	$ 1,395,000	$ 1,100,000	$ 250,000	$ 250,000	$ 250,000
				Total O&M By Year	**$ 182,783,120**		$9,404,246	$9,674,373	$9,952,604	$10,239,182	$10,534,357	$10,838,387	$11,151,538	$11,474,084	$11,806,306
				Total Capital & O&M	**$ 316,573,008**		$19,543,732	$9,924,373	$10,202,604	$11,339,182	$11,929,357	$11,938,387	$11,401,538	$11,724,084	$12,056,306

			Environmental Controls (Not included in overall CAPEX)												
	1	no	Environmental Controls	SNCR (parts and construction)	$3,000,000										
	2	no	Environmental Controls	SNCR (parts and construction)	$3,000,000										
	3	no	Environmental Controls	SNCR (parts and construction)	$4,000,000										
	1	no	Environmental Controls	SCR (parts and construction)	$25,000,000										
	2	no	Environmental Controls	SCR (parts and construction)	$25,000,000										
	3	no	Environmental Controls	SCR (parts and construction)	$25,000,000										
	all	no	Environmental Controls	SNCR Annual O&M	$66,085,900		$ 4,267,700	$ 4,395,700	$ 4,527,600	$ 4,663,400	$ 4,803,300	$ 4,947,400	$ 5,095,800	$ 5,248,700	$ 5,406,200
	all	no	Environmental Controls	SCR Annual O&M	$23,933,900		$ 1,537,400	$ 1,583,500	$ 1,631,000	$ 1,679,900	$ 1,730,300	$ 1,782,200	$ 1,835,700	$ 1,890,800	$ 1,947,500

Appendix C. Updated 2017 Capital Plan

PNM Reeves Generating Station 2017 Life Extension Study Capital Budget Plan, Years 2017 to 2031 – Updated to reflect items completed to date.

Green – Complete
Yellow – Partial
Red – Not Complete

Unit	Description	Completed?	Comments from site visit interview 6-11-24	Totals	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31
	-------BOP items----------																		
0	Cathodic Protection System Upgrade (Circ. Water; Fuel Gas)	Partial	Gas line needs followup							240,000									
0	Add Recirc Line for Fire-Water Pumps for MCSF	No	no					90,000											
0	Replace DC Backup Batteries for UPS	Yes	completed					135,000											
0	Rebuild DC Inverters (4)	Yes	completed FY20					140,000											
0	Inspect Water Tanks	Partial	1A, 1B, 2A, 2B completed, drained, Bulk and raw and U3 need to be done					10,000											
0	5kV Breaker Upgrades (30 Breakers--51N)	Yes	completed					267,690											
0	Rebuld/replace well water pumps	Partial	one completed east remains TBD in 2028									68,000							
0	71316517 - Reeves VFD Upgrades for Blowdowns	Yes	completed		46,708														
0	71316614 - Reeves Evap Pond Reline (230' x 145')	Yes	completed				320,000												
0	71316617 - Reeves Nox Analyzer Upgrades	Yes	done 7 years ago, need to be redone 1.5M for all three for upgrade to CISCO instead of NetDAHs vs 350K for rep		84,070														
0	71316717 - Reeves CO Analyzer Upgrades	Yes	done 7 years ago, need to be redone free with NOX upgrade.		84,070														
0	71316015 - Reeves Plant Automation Project	No	no, (Includes burner controls and valves, sliding pressure)				550,414												
	BOP Yearly Totals				***214,849***	-	***870,414***	***642,690***	-	***240,000***	-	***68,000***	-	-	-	-	-		
	BOP Total-- 2017 THRU 2031			***$ 2,035,952***															
	-------Unit 1 items----------																		
1	Boiler Repairs & Tube Replacement	Partial	economizer (U/L) replaced in 2015, SSH 2017, water wall replacement, botom 1/3 in 2020. Estimate 1M in 2032			393,000		777,000											65,000
1	Turbine and Generator Repair	Yes	yes, 2020					594,000											
1	Turbine Water Induction Prevention Project	No	no					870,000											
1	Generator Excitation System	Yes	yes, 2020, controller changed to Basler.					61,000											
1	Transformer HOD Switch	No	no but in good condition					82,000											
1	Service GSU & Aux Transformers	Partial	Inspections (1 GSU, 1 Aux), brought up to code,					410,000											
1	Cooling Tower Stair Repair	Yes	yes, 2023, 261K			12,095													12,095
1	Cooling Tower Gear, Fan and Hot Water Basin Replacement, one cell per	Yes	yes, starting in 2017 one per year all three units by 2020 completed			112,145	115,509	356,924											
1	Circulating Water Pipe HDPE Replacement & Lining	No	no, needs to be done (reline min), all three units					1,000,000											
1	Vacuum Pumps (install new equipment)	No	no, needs NASH - all three units					480,000											
1	BFP Pump Rebuild (1 Pump)	No	no					190,000											
1	BFP Motor Insp., Clean & Check (Both)	Yes	yes					140,000											
1	FD Fan pedestal upgrade	Yes	yes, holding up well - low side					150,000											
1	Circ Water Pumps Rebuild (Both)	Yes	yes, during last major 2020					160,000											
1	Circ Water Pump Motors Insp., Clean & Check (Both)	Yes	yes, CDB during 2020					80,000											
1	Hotwell (Condensate) Pump Rebuild (2 Pumps)	Yes	yes, (100% but need to run both at high load - no cavitation)					74,000											
1	Hotwell (Condensate) Pump Motor Insp., Clean & Check (Both Motors)	Yes	yes, CDB - original motors - all large motors standard major CDB					68,000											
1	Steam Relief Valve Rebuild	Yes	yes, replaced in 2005 and flanged, sent out every major					50,000											
1	Water Boxes Coating Repair	No	not coated so, no.					40,000											
1	Main Steam Line Repair (10%)	Partial	inspected, seamless, no repairs performed					35,000											
1	LP Steam Line Repair (10%)	Partial	(what LP?) inspected, seamless, no repairs performed					15,000											
1	Boiler Feedwater Line Repair (10%)	Partial	inspected in major, FAC, no major repairs					25,000											
1	Stack Repair--Localized Plate Welding Based on Inspection	No	no					10,000											
1	Inspect Steam Extraction Piping for Material Erosion	No	no					10,000											
1	Condenser Tube Testing & Plugging	Yes	yes, done on minors					8,000											
1	DCS Hardware Upgrade	Yes	yes, 2020 (replaced controllers, servers, network switches, Foxboro controls EMERSON)								900,000								
1	Steam Chest Upgrade	Yes	yes, upgraded hydrualic actuators		140,000														
1	Pipe Supports (Main Steam)	Yes	yes. Comprehensive hanger eval, 2017, needs another val at some point, HEP program 5 - 10 years			3,400													
1	71316117 - Reeves U1 Attemperator Block Valves	Yes	yes 2017 (Flowserve block, Masoneilan control) - U1 and U2		165,253														
1	71316120 - Reeves U1, U2, U3 Cool Water Piping Upgrade	No	no need, does not exist.					864,266											
1	71316215 - Reeves U1 Boiler Pyrometer	Yes	yes, not automated. Should be - 2019 - U1 and U2				125,985												
	Unit 1 Yearly Totals				***305,253***	***520,640***	***241,494***	***6,550,190***	-	-	***900,000***	-	-	-	-	-	-	-	***77,095***
	Unit 1 Total-- 2017 THRU 2031			***$ 8,594,672***															

Unit	Description	Completed?	Comments from site visit interview 6-11-24	Totals	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31
	-------Unit 2 items----------																		
2	Boiler Repairs & Tube Replacement	Partial	lower 1/3 water wall, SSH 2018, upper economizer 2018, burner 1 replaced,			573,000.00			2,087,000										125,000
2	Turbine and Generator Repair	Yes	yes, 2021, genenerator - cutsforth						1,444,000										
2	Turbine Water Induction Prevention Project	No	not done						870,000										
2	Generator Excitation System	Yes	yes, controllers, 2021, Basler						61,000										
2	Transformer HOD Switch	No	not done			78,000													
2	Service GSU & Aux Transformers	Partial	Inspections (1 GSU, 1 Aux), brought up to code, DGA high on aux, potential internal arcing - two major hot spots						423,000										
2	Cooling Tower Stair, Structure, Dist. Basin and Motor Seal Repair	Yes	yes, 2023			16,733													16,733
2	Cooling Tower Decking Replacement	Yes	yes, 2017 (will need continual repairs)			119,000													
2	Cooling Tower Drift Elim. Repairs	Yes	yes			11,000													
2	Cooling Tower Dist. Valve Replacement	No	no, needs to be done, valve and gearbox			45,000													
2	Cooling Tower Gear and Fan Replacement (one cell per year)	Yes	yes, starting in 2017 one per year all three units by 2020 completed			49,121	50,594	52,112	161,027										
2	Cooling Tower Fill Replacement and Basin Cover	Yes	yes						43,000										
2	Circulating Water Pipe HDPE Replacement & Lining	No	not done, needs to be done						1,600,000										
2	Vacuum Pumps (install new equipment)	No	same as U1						480,000										
2	BFP Pump Rebuild (1 Pump)	Partial	one failed, done, other not						200,000										
2	BFP Motor Insp., Clean & Check (Both)	Yes	yes, both						140,000										
2	FD Fan pedestal upgrade	Yes	yes						160,000										
2	Circ Water Pumps Rebuild (Both)	Yes	same as U1						120,000										
2	Circ Water Pump Motors Insp., Clean & Check (Both)	Yes	same as U1						80,000										
2	Hotwell (Condensate) Pump Rebuild (1 Pump)	Yes	same as U1						39,000										
2	Hotwell (Condensate) Pump Motor Insp., Clean & Check (Both Motors)	Yes	same as U1						70,000										
2	Steam Relief Valve Rebuild	Yes	yes						50,000										
2	Water Boxes Coating Repair	Partial	repairs as needed, in good shape						40,000										
2	Main Steam Line Repair (10%)	Partial	inspected, seamless, no repairs performed						35,000										
2	LP Steam Line Repair (10%)	Partial	inspected, seamless, no repairs performed						15,000										
2	Boiler Feedwater Line Repair (10%)	Partial	inspected in major, FAC, no major repairs						25,000										
2	Stack Repair--Localized Plate Welding Based on Inspection	No	no						10,000										
2	Inspect Steam Extraction Piping for Material Erosion	No	no						10,000										
2	Condenser Tube Testing & Plugging	Yes	yes - eddy current PM? No. Once per year during minor will dye check tubes static level - 24 hours						8,000										
2	Pipe Supports (Main Steam)	Yes	yes			3,400													
2	DCS Hardware Upgrade	Yes	same as U1, 2020								900,000								
2	71316017 - Reeves U2 Boiler Optimizer	Yes	yes		233,853														
2	71316115 - Reeves U2 Boiler Pyrometer	Yes	yes				125,985												
2	71316217 - Reeves U2 Attemperator Block Valves	Yes	yes		165,253														
2	71316317 - Reeves U2 DC Starters	Yes	yes 2017 all three units		46,708														
	Unit 2 Yearly Totals				***445,814***	***895,254***	***176,579***	***52,112***	***8,171,027***	-	***900,000***	-	-	-	-	-	-	-	***141,733***
	Unit 2 Total-- 2017 THRU 2031			***$ 10,782,519***															

Unit	Description	Completed?	Comments from site visit interview 6-11-24	Totals	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31
	-------Unit 3 items----------																		
3	Boiler Repairs & Tube Replacement	Partial	upper econ 2008, lower econ 2015, water walls to be done in 2025										650,000						
3	Turbine and Generator Repair	No	tbd 2025 (Cutsforth brushes)										788,000						
3	Generator Excitation System	No	tbd 2025										121,000						
3	Transformer HOD Switch	No	no, inspected, good shape			78,000													
3	Service GSU & Aux Transformers	Yes	GSU new in 2020, aux original but testing OK			387,000													387,000
3	Iso-Phase Bus Pitting Repair	Yes	inspected, some repairs			20,000													
3	Cooling Tower Repair (2)	Yes	yes 2017			31,834													31,834
3	Cooling Tower Decking Replacement	Yes	yes 2017,			115,000													
3	Cooling Tower Drift Elim. Repairs	Yes	yes, repaired.			15,000													
3	Cooling Tower Dist. Valve Replacement	No	no, same as U2			16,000													
3	Cooling Tower Gear and Fan Replacement (one cell per year)	Yes	yes, same as U1			51,000	53,000	55,000	57,000	59,000	61,000	63,000							
3	Cooling Tower Fill Replacement and Basin Cover	No	no										63,000						
3	Circulating Water Pipe HDPE Replacement & Lining	No	no (2027)										2,300,000						
3	Vacuum Pumps (install new equipment)	No	no, same as U1										650,000						
3	BFP Pump Rebuild (1 Pump)	Yes	yes, several times										220,000						
3	BFP Motor Insp., Clean & Check (Both Motors)	Yes	multiple failures and repairs										160,000						
3	FD Fan pedestal upgrade	No	no										285,000						
3	Circ Water Pumps Rebuild	No	no										140,000						
3	Circ Water Pump Motors Insp., Clean & Check (Both)	No	no										91,000						
3	Hotwell (Condensate) Pump Rebuild (2 Pumps)	No	no										84,000						
3	Hotwell (Condensate) Pump Motor Insp., Clean & Check (Both Motors)	No	no										79,000						
3	Steam Relief Valve Rebuild	No	no, but needs to be done										57,000						
3	Main Steam Line Repair	Yes	yes but needs repeating										40,000						
3	LP Steam Line Repair	Yes	yes but needs repeating (aux? extraction?)										17,000						
3	Boiler Feedwater Line Repair (10%)	Yes	yes but needs repeating										29,000						
3	Stack Repair--Localized Plate Welding Based on Inspection	No	no										10,000						
3	Inspect Steam Extraction Piping for Material Erosion	No	no										10,000						
3	Condenser Tube Testing and Replacement	No	no										12,000						
3	Pipe Supports (Boiler Feedwater & Aux Steam)	Yes	yes with U1 and U2			11,000													
3	DCS Hardware Upgrade	Yes	same as U1 and 2, 2020								900,000								
3	BFP Motor Soft Start Upgrade	Yes	yes					328,220											
3	71316020 - Reeves U3 Turbine Water Induction Prevention Project	No	no					864,079											
3	71316417 - Reeves U3 DC Starter	Yes	yes		46,708														
	Unit 3 Yearly Totals				***46,708***	***724,834***	***53,000***	***1,247,299***	***57,000***	***59,000***	***961,000***	***63,000***	***5,806,000***	-	-	-	-	-	***418,834***
	Unit 3 Total-- 2017 THRU 2031			***$ 9,436,675***															
	Reeves Yearly Totals				***1,012,625***	***2,140,728***	***1,341,487***	***8,492,291***	***8,228,027***	***299,000***	***2,761,000***	***131,000***	***5,806,000***	-	-	-	-	-	***637,662***
	Subtotal			***$ 30,849,819***															
	10% Contingency Reserve			***$ 3,084,982***															
	Reeves Total-- 2017 THRU 2031			***$ 33,934,801***															
	Notes																		
identified in	(1) Cooling tower gear items moved forward to address high probability of failure as identified in Probability of Failure spreadsheet																		
	(2) Stair, Plenum Doors, Water Dist. & Walkways and Structure Repair																		
e been inclu	(3) Assumed end of life in year 2031 per PNM. Therefore, no major outage costs have been included for years 2030 (Unit 1) nor 2031 (Unit 2)																		

BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

IN THE MATTER OF PUBLIC SERVICE COMPANY OF NEW MEXICO'S APPLICATION FOR APPROVAL OF PURCHASED POWER AGREEMENTS, ENERY STORAGE AGREEMENTS, AND CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY FOR 2029-2032 SYSTEM RESOURCES AND THE ABANDONMENT OF THE FOUR CORNERS POWER PLANT	)	**Docket No. 26-0000____**
PUBLIC SERVICE COMPANY OF NEW MEXICO,	)	
Applicant.	)	

AFFIDAVIT

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

OMNI B. WARNER, Senior Vice President, PNM Operations, 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 Omni B. Warner,** and it is true and accurate based on my own personal knowledge and belief.

DATED this 29th day of May, 2026.

/s/ Omni B. Warner__
OMNI B. WARNER

GCG #534998