



EL PASO ELECTRIC COMPANY SYSTEM EXPANSION PLAN 2023-2032

2022



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TRANSMISSION
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1.0 EXECUTIVE SUMMARY

El Paso Electric Company's ("EPE") System Planning Department performs System Expansion Plan ("Plan") studies annually as described in EPE's Open Access Transmission Tariff ("OATT") Attachment K ("Attachment K"). This process is a technical evaluation of EPE's Bulk Electric System performed for a ten-year planning horizon (currently from 2023 through 2032). The Plan determines system facility additions and upgrades necessary to comply with Western Electricity Coordinating Council ("WECC") and the North American Electric Reliability Corporation ("NERC") reliability requirements under these conditions:

- Equipment will not be loaded more than its normal facility limits for All Facilities in Service ("AFIS").
- Equipment will not be loaded more than its emergency facility limits for any single-element ("N-1") contingency.
- Real-time violations that have been identified because of actual system conditions or real-time contingency analysis will be addressed.
- Conformance with NERC Standard TPL-001-4 criteria will be applied to certain planning events.
- Equipment voltage limits (high or low) will not be exceeded.
- System Expansion Projects Scheduled for Completion before Peak of 2023, and Project Schedule for 2023-2032 System Expansion Plan Projects. Future local generation resources serving native load have been identified by EPE Resource Planning input and/or in the 2022 EPE L&R as detailed in the Generation Resources are summarized in Table 2. Input from EPE's Resource planning on future generation was taken as modeling assumed this took first assumptions and modeling priority. Second modeling and assumptions priority for generation retirements and additions was the 2022 EPE L&R assumptions.

This Plan's content has been organized as follows:

- An Introduction Section briefly summarizes requirements and scope of the EPE System Expansion Plan
- A Planning Organizations Section list and summarizes all regional and subregional planning groups that EPE participates in.
- A General Assumptions Section addresses Load Projections, Demand Side Management, Generation Resources, Reliability Criteria, System Operating Limit ("SOL") Methodology for the Operating Horizon, Open Planning Meetings, and Base Case System Assumptions.
- The Tables Section consists of:
 - Table 1 which identifies Peak Energy Efficiency Adjustment assumed for the current System Expansion Plan.
 - Table 2 which identifies Projected EPE Local Generation assumed for the current System Expansion Plan.
 - Table 3A identifies projects scheduled for completion before the peak of 2023.

- Table 3B lists a comparison between recommended completion dates for planned projects listed in the 2021 System Expansion Plan and this current 2022 System Expansion Plan.
- New or modified projects for the current System Expansion Plan are summarized in Tables 4A and 4B.
- Table 5 identifies static reactive support projects identified in the current System Expansion Plan.
- Table 6 identifies dynamic reactive support projects identified in the current System Expansion Plan.
- A description of major EPE planned projects for each year is provided under the Transmission Project Summary. Information includes the Project Name, Operating Voltage, Planned in Service Date, Project Description, and Project Justification.

The basis for Native system peak demand projections has historically been set by EPE's annual Long-Term Forecast Report. For this year's Plan, the upper bound native system demand values within EPE's 2022 Long-Term Forecast Report are being assumed as the EPE native system demand peak load and losses targets for each year (i.e. modeled within peak/summer powerflow cases). Incorporated within EPE's 2022 Long-Term Forecast Report and the 2022 Loads and Resources ("L&R") are EPE Public Policy requirements. It is in this manner that Public Policy requirements are considered in the Plan.

The system performance analyses presented in this Plan include an assessment of outage impacts, generator interconnection impacts, and economic planning evaluations. The major projects identified within this report are summarized below by geographical area and estimated in-service year.

WEST EL PASO SERVICE TERRITORY

- Verde 115 kV Switching Station (Non-Serving Load Station) and Related 115 kV Line Reconfiguration (2023)
- Afton North Substation and Afton-Newman 345 kV Line Reconfiguration (2025)
- Afton-Afton North 345 kV Double Bundled Line New (2025)
- Airport 345/115/24 kV Substation (2026)
- Afton North-Airport 345 kV Line (New, Replaces Former 115 kV Line Project from 2021 Plan) (2026)
- Airport 345/115 kV Autotransformer (2026)
- Verde 115 kV Substation (Load Serving Station Portion Added) (2027)
- Vado Substation 345/115 kV New (2028)
- Two Vado 345/115 kV Autotransformers (New) (2028)
- Vado-Salopek 115 kV Double Bundled Line (Rebuild, Reconductor) (2028)

- Anthony-Vado 115 kV Double Bundled Line (Rebuild, Reconductor) (2028)
- McNutt Substation (New) and Related 115 kV Line Reconfiguration (2029)
- WS1 Substation (New) and Related 115 kV Line Reconfiguration (2031)
- WS2 Substation (New) and Related 115 kV Line Reconfiguration (2031)

DOWNTOWN NETWORK AND CENTRAL EL PASO SERVICE TERRITORY

- Dallas (Full) 69 kV Substation, Transformer and substation equipment upgrades at the same location (2023)
- CE2 Substation (New) and Related 115 kV West Loop Line Reconfiguration (2025)
- CE2-Austin 115 kV Double Bundled Line (Rebuild, Reconductor, Part of In-and-Out into CE2 Substation) (2025)
- Cromo-Rio Grande 115 kV Line Reconductor (2025)
- Rio Grande-Sunset 69 kV (5500/5600) & Rio Grande-Sunset North 115 kV Double Bundled Line (Rebuild, Reconductor (2025)
- Austin-Marlow 115 kV Line (Ground Clearance Limitation to be Removed, Resulting in Higher Line Rating) (2025)
- Mesa Area Switching Station and Related 115 kV West Loop Line Reconfiguration (Downtown El Paso); Concept to be refined in the next System Expansion Plan (2025 Only, Switching Station remains out of service until 2031); See West Loop Map for the lines terminating at the Mesa Area Switching Station (2025)
 - West Loop Note: Certain “Plan A” assumptions captured in the drawings for the West Loop were modeled and unless the studies dictated new build or reconductoring was needed, no reconductoring was called for. Further, if reconductoring was called for, alternative options within the maps and the modeling could be considered new build, complete rebuild, or alternative solutions resulting in line rating increases.
- Mesa Area Switching Station-Executive 115 kV Line (New) (Downtown El Paso) (2025)
 - See “West Loop Note” above
- Cromo-CE2 115 kV Line Reconductor (2026)
- CE4 Substation (New) and Related 115 kV West Loop Line Reconfiguration (2028)
- CE4-Executive 115 kV Line (New) (2028)
- CE4-Patriot 115 kV Line (Existing, Partial New Build) (2028)
- CE3 Substation (New) and Related 115 kV West Loop Line Reconfiguration (2029)
- CE3-CE4 115 kV Line (New) (2029)
- Marlow-Trowbridge 115 kV Double Bundled Line Rebuild (2030)

- Mesa Area Switching Station (Reintroduced) and Related 115 kV Line Reconfiguration (Downtown El Paso); Concept to be refined in the next System Expansion Plan; See West Loop Map for the lines terminating at the Mesa Area Switching Station (2031)
 - See “West Loop Note” above
- Austin-Marlow 115 kV Double Bundled Line Rebuild (2032)
- CE2-Rio Grande 115 kV Double Bundled Line Rebuild (2032)

NORTHEAST EL PASO SERVICE TERRITORY

- Newman-Chaparral 115 kV Double Bundled Line (Rebuild, Reconductor) (2023)
- McCombs Substation (New) and Related 115 kV Transmission Line Reconfiguration (2024)
- Newman-McCombs 115 kV Lines, Circuit 1 & 2 (Reconductor) (2024)
- NE3 Substation (New) and Related 115 kV Line Reconfiguration (2031)

EAST EL PASO SERVICE TERRITORY

- Ascarate-Rio Bosque 69 kV Line Reconductor (2023)
- Hawkins Substation 69 kV (New) and Line Reconfiguration (2025)
- Caliente 345/115 kV Autotransformer #3 (New) (2025)
- Ascarate-Trowbridge 115 kV Double Bundled Line (Rebuild, Reconductor) (2025)
- Caliente-MPS (16700) 115 kV Line (Rebuild, Reconductor) (2026)
- Ascarate-Copper 115 kV Double Bundled Line Rebuild (2031)
- EA1 Substation (New) and Related 115 kV Line Reconfiguration (2031)
- Copper-Pendale 115 kV Double Bundled Line Rebuild (2032)
- Durazno-Ascarate 115 kV Line Rating Uprate (Remove Jumpers as Limiting Element resulting in a line rating uprate with removal to achieve full line conductor-based rating at the designed temperature) (2032)
- Pendale-Lane 115 kV Line Rating Uprate (Remove Jumpers as Limiting Element resulting in a line rating uprate with removal to achieve full line conductor-based rating at the designed temperature) (2032)

FAR EAST EL PASO SERVICE TERRITORY

- Clint-Valley 69 kV Line Reconductor (2023)
- Pellicano-Montwood 115 kV Double Bundled Line Reconductor (2023)
- FE4 Substation New and Related 69 kV Line Reconductor and Reconfiguration (2024)

- FE5 Substation New and Related 115 kV Reconductor and Reconfiguration (2024)
- Lane-Americas 69 kV Line Reconductor (2024)
- Lane-Wrangler 115 kV Double Bundled Line Rebuild (2024)
- San Felipe Substation 115/69 kV New (2026)
- Seabeck Switching Station 115 kV New (2026)
- Seabeck-Horizon 115 kV Line Rebuild, Upgrade (2026)
- Seabeck-San Felipe 115 kV Line New (2026)
- Sparks-San Felipe Line 69 kV to 115 kV (Voltage Conversion, Rebuild, Reconductor) (2026)
- Coyote (FE6) 115 kV New Full Substation (2027)
- Pine Switching Station 115 kV New (2027)
- Pine-Seabeck 115 kV Line New (2027)
- Coyote-Pine 115 kV Line Reconductor (2027)

LAS CRUCES, HATCH, AMRAD, ARTESIA SERVICE TERRITORY

- Moongate Substation (New) and Related Moongate-Jornada 115 kV Line (2023)
- Apollo-Cox Line (Voltage Conversion, Reconductor) 69 kV to 115 kV (Related to the two line items below) (2024)
- Apollo-Moongate 115 kV Line (Voltage Conversion, Partial New Build) (2024)
- Moongate-Arroyo 115 kV Line (Voltage Conversion, Partial Reconductor, Partial New Build) (2024)
- Jornada-Arroyo 115 kV Line Reconductor (2024)
- Leasburg Substation 115 kV New (2027)
- Jornada-Leasburg 115 kV Line Rating Uprate (Remove Series Elements as Limiting Element resulting in a line rating uprate with removal to achieve full line conductor-based rating at the designed temperature) and Reconfiguration of the Hatch-Jornada 115 kV Line into Leasburg (2027)
- Leasburg-Hatch 115 kV Line Rating Uprate (Remove Series Elements as Limiting Element resulting in a line rating uprate with removal to achieve full line conductor-based rating at the designed temperature) and Reconfiguration of the Hatch-Jornada 115 kV Line into Leasburg (2027)
- New Amrad SVC device connecting on high-voltage side to Amrad 345 kV using its own dedicated step-up transformer to a dedicated bay, size assumed +/- 100 MVAR (symmetrical range) (2027)
- New Eddy HVDC Tie Replacement (2028)

**El Paso Electric Company
System Planning Department**

P.O. Box 982
El Paso, Texas
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MEMORANDUM

TO: Bryn T. Davis
Senior Director - Asset Management Services.

December 12, 2022

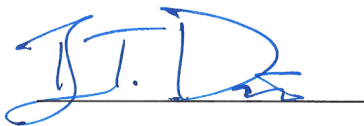
FROM: David Tovar
Manager - System Planning

SUBJECT: EPE 2023-2032 System Expansion Plan

Enclosed is the El Paso Electric Company ("EPE") 2023-2032 System Expansion Plan ("The Plan"). The Plan is a forecast of recommended electrical transmission and substation capital additions and/or modifications which, from an internal system planning perspective, are deemed necessary for maintaining adequate system reliability.

The Plan has been prepared by System Planning in collaboration and coordination with multiple EPE departments and is presented here to provide formal recommendations to appropriate management, engineering, and operational personnel for implementation in an economical and timely fashion. System expansion projects have been identified with regards to implementation dates, costs, descriptions, and justifications.

Please acknowledge through your signature your approval for dissemination of the Plan to all internal stakeholders.



Bryn T. Davis
Senior Director - Asset Management Services

Date



2.0 INTRODUCTION

El Paso Electric Company's ("EPE") System Planning Department performs System Expansion Plan ("Plan") studies annually as described in EPE's Open Access Transmission Tariff ("OATT") Attachment K ("Attachment K"). This process is a technical evaluation of EPE's Bulk Electric System performed for a ten-year planning horizon (currently from 2023 through 2032). The Plan determines system facility additions and upgrades necessary to comply with Western Electricity Coordinating Council ("WECC") and the North American Electric Reliability Corporation ("NERC") reliability requirements under these conditions:

- Equipment will not be loaded more than its normal facility limits for All Facilities in Service ("AFIS").
- Equipment will not be loaded more than its emergency facility limits for any single-element ("N-1") contingency.
- Real-time violations that have been identified because of actual system conditions or real-time contingency analysis will be addressed.
- Conformance with EPE's Planning Criteria for NERC Standard TPL-001-4 will be applied to certain planning events.
- Equipment voltage limits (high or low) will not be exceeded.

The projects presented within El Paso Electric Company System Expansion Plan 2023-2032 are a result of technical analyses performed by System Planning with contributions from the Interconnections & Transmission Plan Department. This new Plan updates and replaces EPE's previous 2022-2031 System Expansion Plan.

3.0 PLANNING ORGANIZATIONS

EPE is involved in regional and subregional planning organizations. EPE's participation in these planning organizations facilitates EPE's coordination of its transmission plans with the plans of the other transmission providers/entities. See EPE's OATT, Attachment K for more details on how these activities relate to EPE's planning process.

3.1 Regional Planning Organizations

3.1.1 Western Electricity Coordinating Council (WECC)

EPE actively participates in WECC committees.

WECC is a non-profit corporation approved by the Federal Energy Regulatory Commission (FERC) to serve as the Regional Entity tasked with assuring a reliable Bulk Electric System in the Western Interconnection geographical area of the United States of America.

3.1.2 WestConnect

EPE actively participates in the WestConnect regional transmission planning process.

WestConnect members collaboratively assess stakeholder needs and may develop cost-effective transmission projects. EPE is an active member participant in the WestConnect regional transmission planning process established by FERC Order No. 1000.

3.2 Subregional Planning Group

3.2.1 Southwest Area Transmission (SWAT) Subregional Planning Group

EPE actively participates in the activities of the Southwest Area Transmission (SWAT) Subregional Planning Group that is comprised of transmission regulators/governmental entities, transmission users, transmission owners, transmission operators and environmental entities.

The SWAT addresses future transmission needs on a subregional basis.

4.0 GENERAL ASSUMPTIONS

4.1 Load Projections

The basis for Native system peak demand projections has historically been set by EPE's annual Long-Term Forecast Report. For this year's Plan, the upper bound native system demand values within EPE's 2022 Long-Term Forecast Report are being assumed as the EPE native system demand peak load and losses targets for each year (i.e. modeled within peak/summer powerflow cases).

EPE's 2022 native system peak demand exceeded the forecasted Expected native system peak demand from EPE's 2021 Long-Term Forecast report ("Forecast"), published by Economic Research department on April 1, 2021.

The 2022 Forecast predicts 10-year CAGR of 1.3% for native system peak demand. The Forecast includes demand side management and energy efficiency programs as detailed in the next section. For this 2022 Plan, native load, system losses and station service modeled for future years were determined using the forecasted the Upper Bound Native System Demand value from the Forecast. Note that station service is modeled explicitly as load.

Each substation load was projected for the planning years based on available historical 2021 coincident peak load; Distribution System's monthly (non-coincident) load reports; load projections in the August 2022 Distribution Expansion Plan update; and input from EPE's Load Forecasting and Commercial Services departments. EPE System Planning Group forecasts future substation loads by substation transformers based on these inputs.

The 2022 Forecast predicted a Native System Energy increase for 2022 of 2.59% compared to year 2021. The 2022 Forecast also predicted that Native System Peak Demand in 2022 will increase 2.68% compared to 2021 peak.

4.2 Demand Side Management

In Attachment K within EPE's OATT (posted on EPE's website at www.epelectric.com), EPE includes demand side resources through energy efficiency programs to mitigate the need for new transmission. Mandated energy efficiency goals accounted for in the Forecast are shown in Table 1. EPE expects an increase to its total cumulative energy efficiency load adjustments compared to the previous forecast. The 2022 Forecast shows a continuous increase in the energy efficiency demand adjustment with a projected peak of 98 MW in 2031.

Demand savings achieved through the EPE Energy Efficiency Programs are across all customer classes and across the whole transmission system. No single project or customer provides a significant amount of demand savings to dramatically impact the transmission system.

4.3 Generation Resources

EPE's Resource Planning Department ("RP") identified future generation resources and purchased power to serve native load in its 2022 Loads & Resources 2023-2042 document ("L&R") dated July 20, 2022. It compares owned resources and power purchases against forecasted load to determine new resources that may be needed.

The basis for future local generation resources serving native load as detailed in the Generation Resources are summarized in Table 2 were EPE Resource Planning Department input conveyed to EPE System Planning together with the 2022 EPE L&R. Input from EPE's Resource Planning Department on future generation took first priority for generation retirements purposes, generation additions purposes, assumptions, modeling purposes while the 2022 EPE L&R assumptions took second priority for the same purposes.

The following new generation was assumed in the System Expansion Plan modeling and is reflected on Table 2.

As shown on Table 2, input from EPE's Resource Planning Department in conjunctions with 2022 L&R portfolio identifies the following:

- 228 MW (summer rating)/255 MW (winter rating) Newman 6 GT5 resource/unit is planned to be energized in 2023
- Solar/battery combination storage facility of 120/50 MW in 2022 (Buena Vista)
- Solar facility of 20 MW in 2023 (PV1)
- Solar facility of 150 MW in 2024 (Hecate)
- Solar/battery combination storage facility of 130/65 MW in 2025 (Galehead)
- Solar/battery combination storage facility of 150/65 MW in 2025 (EDFR)
- Solar/battery combination storage facility of 100/50 MW in 2025 (PNE)
- Solar/battery combination storage facility of 250/333 MW in 2030
- Solar/battery combination storage facility of 432/381 MW in 2032
- 88 MW combustion turbine (CT) in 2032

4.4 Reliability Criteria

The Plan follows Good Utility Practice and planning as described in EPE's OATT Attachment K. It uses a deterministic approach for transmission system planning. Each annual review verifies that modeling, assumptions, and planned facilities meet WECC and NERC compliance requirements under normal (N-0), and single contingency (N-1) conditions for EPE's transmission area. Under these two conditions, the network must be operated within WECC, NERC and EPE's Planning Criteria for NERC Standard TPL-001-4 to supply projected customer loads and firm transmission services over the ten-year planning horizon. In addition, for this 2022 Plan, there was some consideration to study results for initially-out-of-service (IOS) single BES element conditions. The

Plan uses steady-state powerflow analyses to identify transmission projects (facility upgrades and/or additions) required to mitigate any criteria violations with the goal of providing sufficient lead time to incorporate them. The Plan summarizes each individual expansion project's scope, in-service date, justification, and purpose. Additionally, EPE reviews operational planning cases to determine transmission line loading conditions, mitigation practices and the need to upgrade transmission lines to facilitate operational needs and practices.

The Plan focuses on facilities under heavy summer coincidental peak demand conditions which is typically considered worst case scenarios for EPE's system since EPE is a summer peaking utility. Light Winter cases are examined as well.

EPE strives to complete all system improvements in a prudent, safe, and timely fashion. Nevertheless, scheduling factors may delay projects forcing EPE to apply temporary alternatives or measures to mitigate potential overloads.

4.5 Southwest Power Pool Reliability Coordinator Area System Operating Limit Methodology Western Interconnection Revision 1.1

On August 30, 2019, Revision 1.1 of the Southwest Power Pool Reliability Coordinator Area System Operating Limit Methodology Western Interconnection went into effect. It requires that EPE operate its system in the pre-contingency state (All-Facilities-in-Service, AFIS) so that all facilities shall be within their normal (continuous) facility (thermal) ratings and that for the post-contingency state for single (element) contingencies, all facilities shall be within their emergency facility (thermal) ratings.

4.6 Open Planning Meetings

The transmission planning process, per Attachment K, includes Open Planning meetings while developing this Plan. Two meetings were held -- one in September 2021 and the second in March 2022 -- to allow third party participants to review or submit data and request studies of potential Stakeholder needs. Stakeholders are allowed to submit data up to posted due dates to be incorporated into EPE's Plan case models. Data submitted after the due dates will not be incorporated into the current Plan, although they will be considered in the next year's planning cycle, if applicable. To date, no applicable Stakeholder data has been submitted to EPE that was incorporated into the Plan. The purpose of the Plan is to identify and evaluate, on a regular basis, future electric transmission system modifications and additions or alternatives that may be required to serve the anticipated area load growth, existing third-party customers' transmission needs, Public Policy requirements and NERC/WECC reliability requirements in the EPE service territory for a ten-year planning horizon.

4.7 Plan Case System Assumptions

System expansion analyses utilize powerflow studies and stability studies for each Plan year from 2023 through 2032. These analyses incorporated in-progress system expansion projects assumed to be completed before the peak of 2023. System modeling also includes the following assumptions:

- The forecasted substation load for each Plan year was adjusted to the modified projected coincidental peak loads using the Forecast (dated April 1, 2022) and historical load data.
- Generation, system configuration, imports, and interchange schedules -- including contractual agreements with third-party entities -- were set according to load demand in each Plan case.
- El Paso Electric load power factor was set to 0.98 per unit (lagging) in each Plan case.
- Plan cases modeled PNM's Afton G1 and Afton S1 as "Off" when the Arroyo PST power flow was set to 151 MW north to south.
- Eddy County flow from the DC tie was modeled at zero (0) MW open ended at the Artesia bus in each of the Plan cases.
- EPE's share of Southern New Mexico Imports ("SNMI") was set at a schedule of 645 MW (per contractual rights) and EPE imports ("EPI") at 747 MW in all Plan cases.
- No on-line generation was modeled at Lordsburg. Luna Energy Facility ("LEF") was left as scheduled in the WECC cases used with the assumption that 100 MW scheduled to EPE under the Phelps Dodge (Freeport) Exchange Agreement and additional power from LEF to EPE, if needed, to meet EPI of 747 MW.
- Rebuilding of 69 kV lines will be designed to operate at 115 kV to support conversion of the EPE 69 kV systems to 115 kV future operational use. Lines will operate at their planned voltage until future conversions are implemented.
- The 59 MVAR line reactor at the Hidalgo 345 kV Substation bus end of the Hidalgo-Greenlee 345 kV Line and the 49 MVAR line reactor at the Macho Springs 345 kV Substation bus end of the Macho-Springerville 345 kV Line are "must-on" line reactors for every Plan case. However, the Luna 345 kV Line reactors were modeled on or off as needed. These reactors can be switched off during an outage of a Path 47 345 kV line.

Note that the final generation sites may have not yet been determined for the resource additions called for in the L&R to be phased in from 2023 to 2032. Therefore, the transmission configuration used in the Plan studies may change requiring different upgrades assumed in future interconnection and facility studies, per FERC's Large Generator Interconnection Procedures ("LGIP").

4.8 Case Development

4.8.1 WECC-Approved Cases

Plan cases were developed with the General Electric Positive Sequence Load Flow (“GE- PSLF”) program which was used for the numerous powerflow and contingency studies performed for the Plan. Each case is a “database” of the WECC transmission system -- originating from the latest “WECC cases” for the appropriate year. These WECC-approved Heavy Summer and Light Winter base cases contain system configurations and conditions from other nearby Transmission Planners. System Planning then incorporates EPE’s latest forecasted loads, expected generation resources, both of which incorporate EPE’s Public Policy requirements, and any topology changes not already included in the WECC-supplied cases. Many projects listed in the previous plan are removed (or reverted to the existing topology) to re-verify their need and schedule in the current Plan.

4.8.2 Topology Changes

In addition to the most current load and generation updates, System Planning incorporates topology changes not already included in the WECC-supplied cases such as planned substation-level and transmission changes. Substation changes, such as those detailed in EPE’s latest 2022 Distribution Expansion Plan, include capacity upgrades, additions, deletions, location changes, and/or postponements. Planned transmission changes typically include capacity upgrades, additions, deletions, location changes, and postponements that are usually driven by the substation-level changes, generation changes, other studies (e.g. those in the LGIP), or routing changes due to regulatory orders or right-of-way issues or other input.

If a newly planned substation is postponed, any transmission changes associated with that substation may also be postponed. This may affect study results since many future projects depend on previously identified improvements. Factors affecting completion dates include, for example, those identified above. Where completion targets are not achieved, or in instances in which EPE experiences more rapid load growth than forecasted, EPE evaluates and identifies short-term corrective measures to mitigate impacts, as necessary.

Table 3A shows expansion projects that were called for and budgeted in the last Plan (2022-2031) but are now re-scheduled to be completed before the peak of 2023. These projects have been modeled in the 2023 Plan cases and beyond to help mitigate potential contingency overloads.

Table 3B shows a comparison between project schedule recommended completion dates for planned projects in the 2021 Plan and the current 2022 Plan.

New or modified Plan projects are summarized in Tables 4A & 4B and detailed in each year’s project descriptions.

4.9 System Improvement Methodology

After Plan cases were modified as outlined above, contingency analyses are performed for each

Plan year to identify reliability criteria violations on EPE facilities within EPE’s service area. If violations were identified, mitigating improvements (e.g., Plan projects) were added to EPE’s transmission system. Each year’s Plan cases carried over the previous year’s system improvements. These upgrades will be reflected in the following year’s assessment.

Some Plan projects are a result of studies performed outside of System Planning, such as those from the LGIP, third-party generators or Transmission Service Requests while others are incorporated from the latest EPE capital budget. Projects listed in the Plan are specific to the expansion of the EPE internal electrical transmission system. Any projects outside the local electrical system planning area may be evaluated in separate studies.

Additionally, the Plan does not normally include maintenance projects nor external system expansion projects other than those in the WECC-approved base cases. Furthermore, projects associated with non-EPE large generator interconnections are not included unless a Large Generator Interconnection Agreement (LGIA) has been executed.

4.10 Project’s Summary Explained

Tables 4A and 4B identify each year’s system improvements. It also includes generic projects as “Additional Future Capital Improvements” added in each year to serve as placeholders in areas of the system where it is difficult, at present, to identify whether and how much specific transmission infrastructure may be necessary. In most cases, System Planning recommends a completion date by May of the given year (unless otherwise noted), to support peak summer load.

The Plan also contains a brief description and justification for each planned system improvement along with basic one-line diagrams illustrating new additions broken down by year (included in Tabs 2023 through 2032). The planned in-service date of the recommended system improvement projects reflects the date the project was modeled to meet planning requirements and it does not represent the construction completion date of the project. Furthermore, deferred projects identified in prior expansion plans are also not included in Tabs 2023-2032. Deferred projects from prior expansion plans are listed on Table 3B.

New this year is Table 6 which details assumptions for existing EPE thermal generator units retiring and assumed to be converted to synchronous condensers in order to support and offset the inertia and dynamic reactive support/supply potentially lost due to EPE thermal unit retirements. Note that these conversions were modeled in this year’s 2022 EPE Plan powerflow cases in the future year noted in Table 6. Note that these conversions were modeled as connected directly on the high voltage part of the EPE system. Also note that planning alternatives to these assumed and modeled conversions include offsets due to the addition of static dynamic reactive support from capacitors added to the EPE system on the distribution and transmission portions, dynamic reactive support from any added EPE system generation additions and/or their subcomponents capable of supplying such support, and dynamic reactive support from additions or other devices such as SVC and STATCOM devices. Evaluation of the balance amongst these reactive supply solutions to offset EPE thermal generating unit retirements will be evaluated through each and will be considered for inclusion in future EPE Plans.

4.11 Acknowledgements

This document was prepared by EPE System Planning in collaboration with contributions from the following EPE departments: Distribution Systems, TSR Engineering, Asset Management Services, Economic Research, Interconnections Department, Resource Planning, and other EPE departments or personnel. Supporting documentation for the numerous studies is not included in this document due to space constraints.

5.0 TABLES

Table 1. Yearly Peak Energy Efficiency Adjustment

Calendar Year	Total Energy Efficiency Demand Adjustment (MW)	Calendar Year	Total Energy Efficiency Demand Adjustment (MW)
2022	10	2027	59
2023	20	2028	68
2024	29	2029	78
2025	39	2030	88
2026	49	2031	98

Table 2. Projected EPE Local Generation

Generator	Type	Capacity (MW) (1)	Planned In Service	Planned Retirement (4)	Notes
Airport PV	Photovoltaic	12	Pre-2015		2
Chaparral PV	Photovoltaic	10	Pre-2015		2
Patriot PV	Photovoltaic	10	Jan. 2015		2
Hatch PV	Photovoltaic	5	Pre-2015		2
Santa Teresa PV	Photovoltaic	20	Pre-2015		2
Macho Springs	Photovoltaic	50	Pre-2015		
Copper	Gas Combustion Turbine	63	Pre-2015	Dec. 2030	
MPS 1	Gas Combustion Turbine	90	Jan. 2015		
MPS 2	Gas Combustion Turbine	90	Jan. 2015		
MPS 3	Gas Combustion Turbine	90	Jan. 2016		
MPS 4	Gas Combustion Turbine	90	Jan. 2017		
Newman G1	Gas-fired Steam Turbine	74	Pre-2015	Dec. 2027	
Newman G2	Gas-fired Steam Turbine	74	Pre-2015	Dec. 2022	
Newman G3	Gas-fired Steam Turbine	93	Pre-2015	Dec. 2031	
Newman 4 GT1	Gas Combustion Turbine	70	Pre-2015	Dec. 2031	
Newman 4 GT2	Gas Combustion Turbine	70	Pre-2015	Dec. 2031	
Newman 4 ST1	Combined Cycle HRSG	80	Pre-2015	Dec. 2031	
Newman 5 GT3	Gas Combustion Turbine	70	Pre-2015		
Newman 5 GT4	Gas Combustion Turbine	70	Pre-2015		
Newman 5 ST2	Combined Cycle HRSG	148	Pre-2015		
Newman 6 GT5	Gas Combustion Turbine	228	Jun. 2023		3
Rio Grande G6	Gas-fired Steam Turbine	45	Pre-2015	<i>Inactive Reserve</i>	
Rio Grande G7	Gas-fired Steam Turbine	44	Pre-2015	Dec. 2022	
Rio Grande G8	Gas-fired Steam Turbine	139	Pre-2015	Dec. 2033	
Rio Grande G9	Gas Combustion Turbine	88	Pre-2015		
Buena Vista	Photovoltaic/Battery Storage	120 (120 Solar/50 Battery)	May. 2023		6
PV1	Photovoltaic	20	May. 2023		2
Hecate	Photovoltaic	150	May. 2024		6
BSC1	Photovoltaic/Battery Storage	130 (130 Solar/65 Battery)	May. 2025		5
BSC2	Photovoltaic/Battery Storage	150 (150 Solar/65 Battery)	May. 2025		5
BSC3	Photovoltaic/Battery Storage	100 (100 Solar/50 Battery)	May. 2025		5
BSC4	Photovoltaic/Battery Storage	250 (250 Solar/333 Battery)	May. 2030		5
CTR1	Gas Combustion Turbine	88	May. 2032		5
BSC5	Photovoltaic/Battery Storage	432 (432 Solar/381 Battery)	May. 2032		5

Notes:

1. Null, note from former plan does not apply to current plan.
2. This photovoltaic generation connects into EPE's distribution system.
3. Plan identifies Newman 6GT5 approximately 1 mile east of existing Newman Generation Station.
4. Null, note from former plan does not apply to current plan.
5. Planned facilities pending studies to determine location.
6. LGIA Ratings.

5.1 Project Changes from 2021 EPE Plan:

EPE Bulk Electric System project completed projects or planned project changes are noted between EPE's 2021 Plan and this EPE 2022 Plan. See Tables 3A and 3B for the details of these project completions and changes, respectively.

5.1.1 Completed Projects:

EPE System Expansion Projects scheduled for completion before Peak of Year 2023 (in-service date expected prior to or on June 1, 2023) are summarized in Table 3A below.

Table 3A. System Expansion Projects Scheduled for Completion Before Peak of 2023
(All projects below are modeled in the 2023 Plan Case)

System Upgrade Needed	Location of Upgrade	Improvement Identification	Planned In Service Date
New Substation	North Bliss Substation	New substation to serve load growth of Fort Bliss	Feb-22
Reconductor Line Resulting in New Line Rating Upgrade	Marlow-Trowbridge 115 kV Line	Improves Reliability under N-1	Feb-22
New 115 kV Capacitors (2 x 15.6 MVAR)	North Bliss Substation	Improve reactive capability and voltage profile in Northeast El Paso area under N-1	Feb-22
Reconductor Line	Jornada-Arroyo 115 kV Line	Improves Reliability under N-1	Jun-22
New Substation and Related 115 kV Lines	Talavera Substation	Assist with Load Growth	Sep-22
New 115 kV Capacitors (2 x 15.6 MVAR)	Talavera Substation	Improve reactive capability and voltage profile in Las Cruces area under N-1	Sep-22
New Substation and Related 115 kV Line Reconfiguration	Roberts Substation	Generation Resources	Dec-22
New Line Shunt Reactor on Otero-Picante 345 kV Line (50 MVAR)	Picante Substation	Facilitates line switching options and voltage control options at Picante Substation	Dec-22
In-and-Out of Caliente-Amrad 345 kV Line	Picante Substation	Improves Reliability under N-1	Dec-22
Reconductor, Rebuild Line	Newman-Chaparral 115 kV Line	Improves Reliability under N-1	Feb-23
Reconductor Line	Ascarate-Rio Bosque 69 kV Line	Improves Reliability under N-1	May-23
Reconductor Line	Clint-Valley 69 kV Line	Improves Reliability under N-1	May-23
Rebuild Line to Double-Bundled	Pellicano-Montwood 115 kV Line	Improves Reliability under N-1	May-23
New Substation and Related Moongate-Jornada 115 kV Line	Moongate Substation	New substation to serve load growth of East Las Cruces	May-23
Transformer and substation equipment upgrades at the same location	Dallas (Full) Substation	Assist with Load Growth	May-23
New 69 kV Capacitors (2 x 15.6 MVAR)	Ascarate Area	Improve reactive capability and voltage profile in Central El Paso area under N-1	May-23
New 115 kV Capacitors (2 x 15.6 MVAR)	Moongate Substation	Improve reactive capability and voltage profile in Las Cruces area under N-1	May-23
New Switching Station and Related 115 kV Line Reconfiguration	Verde Switching Station	New switching station to connect planned EPE generation addition and Related 115 kV Line Reconfiguration	May-23

5.1.2 Revised Projects:

EPE System Expansion Projects that were revised are summarized in Table 3B that follows.

**Table 3B. Summary of Previous Plan's Project Schedule
EPE 2023-2032 System Expansion Plan**

Project Description	Recommended Completion Date 2021 Plan (Month- Year)	Recommended Completion Date 2022 Plan (Month- Year)
Newman-Chaparral 115 kV Double Bundled Line (Rebuild, Reconductor)	Mar-22	Feb-23
Moongate Substation (New) and Related Moongate-Jornada 115 kV Line (New)	Dec-22	May-23
Dallas (Full) 69 kV Substation, Transformer and substation equipment upgrades at the same location		May-23
Ascarate-Rio Bosque 69 kV Line (Reconductor)		May-23
Clint-Valley 69 kV Line (Reconductor)		May-23
Pellicano-Montwood 115 kV Double Bundled Line (Rebuild)		May-23
Verde Switching Station (New) and Related 115 kV Line Reconfiguration		May-23
McCombs Substation (New) and Related 115 kV Line Reconfiguration	Sep-22	May-24
Newman-McCombs 115 kV Lines, Circuit 1 & 2 (Reconductor)		May-24
FE4 Substation (New) and Related 69 kV Line Reconductor and Reconfiguration		May-24
FE5 Substation (New) and Related 115 kV Line Reconductor and Reconfiguration		May-24
Lane-Americas 69 kV Line (Reconductor)		May-24
Lane-Wrangler 115 kV Double Bundled Line (Rebuild)		May-24
Jornada-Arroyo 115 kV Line (Reconductor)	Oct-22	Dec-24
Apollo-Cox Line (Voltage Conversion, Reconductor) 69 kV to 115 kV	Jul-22	Dec-24
Apollo-Moongate 115 kV Line (Voltage Conversion, Partial New Build)	Dec-22	Dec-24
Moongate-Arroyo 115 kV Line (Voltage Conversion, Partial Reconductor, Partial New Build)		Dec-24
Afton North Substation 345 kV (New) and Afton-Newman 345kV Line Reconfiguration	May-23	May-25
Afton-Afton North 345 kV Double Bundled Line (New)	May-23	May-25
Rio Grande-Sunset 69 kV Lines (5500/5600) and Rio Grande-Sunset North 115 kV Double Bundled Line (Rebuild, Reconductor)	May-25	May-25
CE-2 Substation (New) and Related 115 kV West Loop Line Reconfiguration	May-25	May-25
CE2-Austin 115 kV Double Bundled Line (Rebuild, Reconductor, Part of In-and-Out into CE2 Substation)		May-25
Mesa Area Switching Station (New) and Related 115 kV West Loop Line Reconfiguration		May-25
Mesa Area Switching Station-Executive 115 kV Line (New)		May-25
Hawkins Substation 69 kV (New) and Line Reconfiguration		May-25
Caliente 345/115 kV Autotransformer #3 (New)		May-25
Austin-Marlow 115 kV Line (Ground Clearance Limitation to be Removed, Resulting in Higher Line Rating)		May-25
Ascarate-Trowbridge 115 kV Double Bundled Line (Rebuild, Reconductor)		May-25
Cromo-Rio Grande 115 kV Line (Reconductor)		May-25
West Mesa Line Shunt Reactor (100 MVAR) on the West Mesa end of the WestMesa-Arroyo 345 kV Line		Oct-25
Arroyo Variable Line Shunt Reactor (50-100 MVAR) on the Arroyo end of the WestMesa-Arroyo 345 kV Line		Oct-25
Seabeck Switching Station 115 kV (New)	Oct-24	May-26
Seabeck-Horizon 115 kV Line (Rebuild, Upgrade)	Oct-24	May-26
San Felipe Substation 115/69 kV (New)	Oct-24	May-26
Seabeck-San Felipe 115 kV Line (New)	Oct-24	Jun-26
Caliente-MPS 16700 115 kV Line (Rebuild, Reconductor)	May-22	May-26
Cromo-CE2 115 kV Line (Reconductor)		May-26
Sparks-San Felipe Line (Voltage Conversion, Rebuild, Reconductor) 69 kV to 115 kV	Oct-24	Dec-26
Airport 345/115/24 kV Substation		Dec-26
Airport 345/115 kV Autotransformer (New)		Dec-26
Afton North-Airport 345 kV Line (New)	May-28 (1)	Dec-26

Pine Switching Station 115 kV (New)	Dec-24	May-27
Pine-Seabeck 115 kV Line (New)	Dec-24	May-27
Coyote (FE6) 115 kV New Full Substation		May-27
Coyote-Pine 115 kV Line (Reconductor)	May-25	May-27
Leasburg Substation 115 kV (New)		May-27
Jornada-Leasburg 115 kV Line Rating Uprate (Series Element Limitation to be Removed)		May-27
Leasburg-Hatch 115 kV Line Rating Uprate (Series Element Limitation to be Removed)		May-27
Verde 115 kV Substation (Load Serving Station Portion Added)		May-27
New Amrad SVC device connecting on high-voltage side to Amrad 345 kV side using its own dedicated step-up step up transformer to a dedicated bay, size assumed +/- 100 MVAR (symmetrical range)	May-26	Dec-27
Vado Substation 345/115 kV (New)	May-24	May-28
Two Vado 345/115 kV Autotransformers (New)	May-30	May-28
Anthony-Vado 115 kV Double Bundled Line (Rebuild, Reconductor)	May-26	May-28
Vado-Salopek 115 kV Double Bundled Line (Rebuild, Reconductor)	May-26	May-28
CE4 Substation (New) and Related 115 kV West Loop Line Reconfiguration	May-29	May-28
CE4-Executive 115 kV Line (New)		May-28
CE4-Patriot 115 kV Line (Existing, Partial New Build)		May-28
HVDC Tie Replacement (New)		May-28
CE3 Substation (New) and Related 115 kV West Loop Line Reconfiguration	May-26	May-29
CE3-CE4 115 kV Line (New)		May-29
McNutt Substation (New) and Related 115 kV Line Reconfiguration		May-29
Marlow-Trowbridge 115 kV Double Bundled Line (Rebuild)		May-30
EA1 Substation (New) and Related 115 kV Line Reconfiguration		May-31
NE3 Substation (New) and Related 115 kV Line Reconfiguration		May-31
WS1 Substation (New) and Related 115 kV Line Reconfiguration		May-31
WS2 Substation (New) and Related 115 kV Line Reconfiguration		May-31
Mesa Area Switching Station (Reintroduced) and Related 115 kV West Loop Line Reconfiguration		May-31
Ascarate-Copper 115 kV Double Bundled Line (Rebuild)		May-31
Durazno-Ascarate 115 kV Line Rating Uprate (Jumper Limitation to be Removed)		May-32
Pendale-Lane 115 kV Line Uprate (Jumper Limitation to be Removed)		May-32
Austin-Marlow 115 kV Double Bundled Line (Rebuild)		May-32
CE2-Rio Grande 115 kV Double Bundled Line (Rebuild)		May-32
Copper-Pendale 115 kV Double Bundled Line (Rebuild)		May-32

Notes:

1. An Afton North-Airport **115 kV** Line was planned in the previous EPE System Expansion Plan

5.2 Planned EPE Bulk Electric System Transmission Projects:

Planned EPE Bulk Electric System Projects with projected in-service dates between 2023-2032 as needed to support the local EPE Bulk Electric System transmission system are summarized in Tables 4A & 4B that follow.

**Table 4A. Project Schedule (2023-2025)
EPE 2023-2032 System Expansion Plan**

Year	Project Description	Recommended Competition Date Month-Year (2)
2023	Newman-Chaparral 115 kV Double Bundled Line (Rebuild, Reconductor)	Feb-23
	Moongate Substation (New) and Related Moongate-Jornada 115 kV Line (New)	May-23
	Dallas (Full) 69 kV Substation, Transformer and substation equipment upgrades at the same location	May-23
	Ascarate-Rio Bosque 69 kV Line (Reconductor)	May-23
	Clint-Valley 69 kV Line (Reconductor)	May-23
	Pellicano-Montwood 115 kV Double Bundled Line (Rebuild)	May-23
	Verde Switching Station (New) and Related 115 kV Line Reconfiguration	May-23
2024	McCombs Substation (New) and Related 115 kV Line Reconfiguration	May-24
	Newman-McCombs 115 kV Lines, Circuit 1 & 2 (Reconductor)	May-24
	FE4 Substation (New) and Related 69 kV Line Reconductor and Reconfiguration	May-24
	FE5 Substation (New) and Related 115 kV Line Reconductor and Reconfiguration	May-24
	Lane-Americas 69 kV Line (Reconductor)	May-24
	Lane-Wrangler 115 kV Double Bundled Line (Rebuild)	May-24
	Jomada-Arroyo 115 kV Line (Reconductor)	Dec-24
	Apollo-Cox Line (Voltage Conversion, Reconductor) 69 kV to 115 kV (Also see TL241 and TL194)	Dec-24
	Apollo-Moongate 115 kV Line (Voltage Conversion, Partial New Build)	Dec-24
	Moongate-Arroyo 115 kV Line (Voltage Conversion, Partial Reconductor, Partial New Build)	Dec-24
2025	Afton North Substation 345 kV (New) and Afton-Newman 345kV Line Reconfiguration	May-25
	Afton-Afton North 345 kV Double Bundled Line (New)	May-25
	Rio Grande-Sunset 69 kV Lines (5500/5600) and Rio Grande-Sunset North 115 kV Double Bundled Line (Rebuild, Reconduct)	May-25
	CE2 Substation (New) and Related 115 kV West Loop Line Reconfiguration	May-25
	CE2-Austin 115 kV Double Bundled Line (Rebuild, Reconductor, Part of In-and-Out into CE2 substation)	May-25
	Mesa Area Switching Station (New) and Related 115 kV West Loop Line Reconfiguration	May-25
	Mesa Area Switching Station-Executive 115 kV Line (New)	May-25
	Hawkins Substation 69 kV (New) and Line Reconfiguration	May-25
	Caliente 345/115 kV Autotransformer #3 (New)	May-25
	Austin-Marlow 115 kV Line (Ground Clearance Limitation to be Removed, Resulting in Higher Line Rating)	May-25
	Ascarate-Trowbridge 115 kV Double Bundled Line (Rebuild, Reconductor)	May-25
	Cromo-Rio Grande 115 kV Line (Reconductor)	May-25
	West Mesa Line Shunt Reactor (100 MVAR) on the West Mesa end of the WestMesa-Arroyo 345 kV Line	Oct-25
	Arroyo Variable Line Shunt Reactor (50-100 MVAR) on the Arroyo end of the WestMesa-Arroyo 345 kV Line	Oct-25

Notes:

1. Table does not include maintenance projects except for transmission line rebuilds and or conductor upgrades.
2. System Planning recommends completion prior to May for the given to aid with the summer peak period.

**Table 4B. Project Schedule (2026-2032)
EPE 2023-2032 System Expansion**

Year	Project Description	Recommended Completion Date Month-Year (2)
2026	Seabeck Switching Station 115 kV (New)	May-26
	Seabeck-Horizon 115 kV Line (Rebuild, Upgrade)	May-26
	San Felipe Substation 115/69 kV (New)	May-26
	Seabeck-San Felipe 115 kV Line (New)	Jun-26
	Caliente-MPS 16700 115 kV Line (Rebuild, Reconductor)	May-26
	Cromo-CE2 115 kV Line (Reconductor)	May-26
	Sparks-San Felipe Line (Voltage Conversion, Rebuild, Reconductor) 69 kV to 115 kV	Dec-26
	Airport 345/115/24 kV Substation	Dec-26
	Airport 345/115 kV Autotransformer (New)	Dec-26
	Afton North-Airport 345 kV Line (New, Replaces Former 115 kV Line Project from 2021 Plan)	Dec-26
2027	Pine Switching Station 115 kV (New)	May-27
	Pine-Seabeck 115 kV Line (New)	May-27
	Coyote (FE6) 115 kV New Full Substation	May-27
	Coyote-Pine 115 kV Line (Reconductor)	May-27
	Leasburg Substation 115 kV (New)	May-27
	Jomada-Leasburg 115 kV Line Rating Uprate (Series Element Limitation to be Removed)	May-27
	Leasburg-Hatch 115 kV Line Rating Uprate (Series Element Limitation to be Removed)	May-27
	Verde 115 kV Substation (Load Serving Station Portion Added)	May-27
	New Amrad SVC device connecting on high-voltage side to Amrad 345 kV side using its own dedicated step-up step up transformer to a dedicated bay, size assumed +/- 100 MVAR (symmetrical range)	Dec-27
2028	Vado Substation 345/115 kV (New)	May-28
	Two Vado 345/115 kV Autotransformers (New)	May-28
	Anthony-Vado 115 kV Double Bundled Line (Rebuild, Reconductor)	May-28
	Vado-Salopek 115 kV Double Bundled Line (Rebuild, Reconductor)	May-28
	CE4 Substation (New) and Related 115 kV West Loop Line Reconfiguration	May-28
	CE4-Executive 115 kV Line (New)	May-28
	CE4-Patriot 115 kV Line (Existing, Partial New Build)	May-28
	HVDC Tie Replacement (New)	May-28
2029	CE3 Substation (New) and Related 115 kV West Loop Line Reconfiguration	May-29
	CE3-CE4 115 kV Line (New)	May-29
	McNutt Substation (New) and Related 115 kV Line Reconfiguration	May-29
2030	Marlow-Trowbridge 115 kV Double Bundled Line (Rebuild)	May-30
2031	EA1 Substation (New) and Related 115 kV Line Reconfiguration	May-31
	NE3 Substation (New) and Related 115 kV Line Reconfiguration	May-31
	WS1 Substation (New) and Related 115 kV Line Reconfiguration	May-31
	WS2 Substation (New) and Related 115 kV Line Reconfiguration	May-31
	Mesa Area Switching Station (Reintroduced) and Related 115 kV West Loop Line Reconfiguration	May-31
	Ascarate-Copper 115 kV Double Bundled Line (Rebuild)	May-31
2032	Durazno-Ascarate 115 kV Line Rating Uprate (Jumper Limitation to be Removed)	May-32
	Pendale-Lane 115 kV Line Uprate (Jumper Limitation to be Removed)	May-32
	Austin-Marlow 115 kV Double Bundled Line (Rebuild)	May-32
	CE2-Rio Grande 115 kV Double Bundled Line (Rebuild)	May-32
	Copper-Pendale 115 kV Double Bundled Line (Rebuild)	May-32

Notes:

1. Table does not include maintenance projects except for transmission line rebuilds and or conductor upgrades.
2. System Planning recommends completion prior to May for the given to aid with the summer peak period.

5.3 Planned EPE 69 kV and 115 kV Reactive Device Projects:

Planned EPE 69 kV and 115 kV Reactive Device Projects with projected in-service dates between 2023-2032 as needed to support the local EPE 69 kV and 115 kV transmission system are summarized in Table 5 below.

Table 5. 69 kV, 115 kV, and 345 kV Bus Shunt Capacitor and Reactor Additions

System Upgrade Needed	Location of Upgrade	Improvement Identification	Recommended Completion
New 115 kV Capacitors (2 x 15.6 MVAR)	McCombs Substation	Improve reactive capability and voltage profile in the North East El Paso area under N-1	May-24
New West Mesa Line Shunt Reactor (100 MVAR) on the West Mesa end of the WestMesa-Arroyo 345 kV Line	West Mesa-Arroyo 345 kV Line	Improve reactive capability and voltage profile; Replacement of existing reactor	Oct-25
Arroyo Variable Line Shunt Reactor (50-100 MVAR) on the Arroyo end of the WestMesa-Arroyo 345 kV Line	West Mesa-Arroyo 345 kV Line	Improve reactive capability and voltage profile; Replacement of existing reactor	Oct-25
New 115 kV Capacitors (2 x 15.6 MVAR)	San Felipe Substation	Improve reactive capability and voltage profile in the Far East El Paso area under N-1	May-26

5.4 Assumed EPE Retiring Thermal Generation to be Converted to Synchronous Condenser:

Assumed EPE retiring thermal generation to be converted to a synchronous condenser are summarized in Table 6 below.

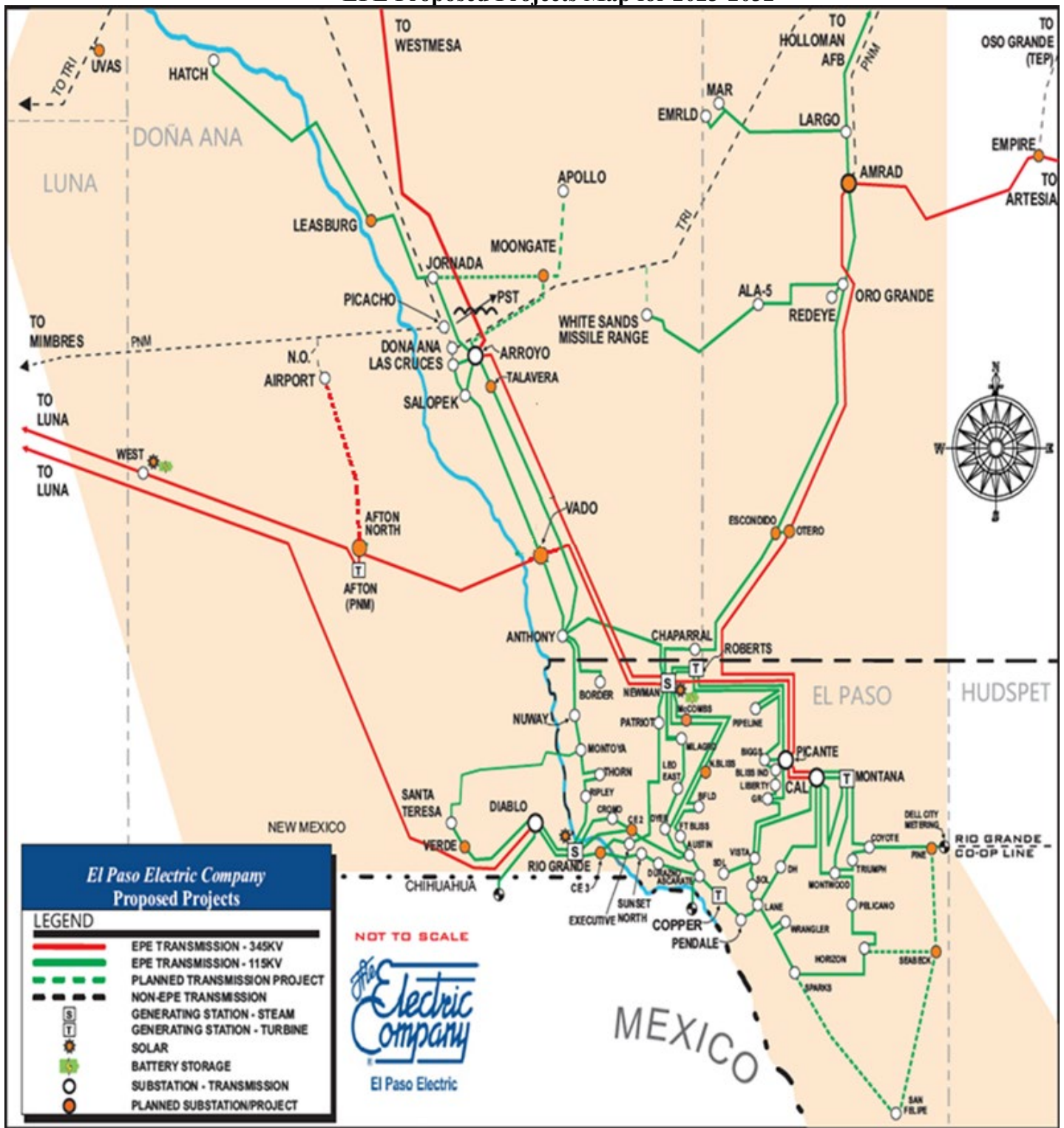
An analysis for inertia and dynamic reactive capability loss was performed by EPE System Planning that identifies some measure of deficit for both in certain years. The 2022 Plan made modeling assumptions that some existing EPE thermal generators would be converted in certain years to partially offset some of the deficit inertia loss from that source and completely offset the reactive margin deficit lost because of EPE thermal unit retirements by use and assumptions of certain retired units. The conversion of EPE thermal units with greater reactive margin range were preferred over those with estimated less range as optimal and O&M were considered the same for such conversion. In using synchronous condenser conversions of retiring thermal units, alternatives for some of this dynamic reactive capability loss from retiring thermal units could be partially met as alternatives by solar renewable addition inverter reactive capability supply, static capacitor additions to the transmission and feeder systems, static var compensators (SVC) additions, STATCOMs, or any other such device. Regardless, the 2022 Plan modeled the synchronous condenser conversion options. Note that these conversions were modeled as connected directly to the 115 kV bus (at Copper and Newman), in reality, they would be connected through a step-up transformer prior to reaching the 115 kV bus; however, other than losses, this does not seem to affect study results.

Table 6. Thermal Generation Conversion to Synchronous Condenser

Name of Retiring Thermal Unit	Year Assumed of Retirement	First Year Assumed Synchronous Condenser Conversion Operational/Modeled	Plant/Location of Retiring Thermal unit and Its Conversion
Newman 1	2028	2028	Newman (-35.1/+66.3 MVAR)
Copper	2031	2031	Copper (-25.246/+72.293 MVAR)
Newman 3	2032	2032	Newman (-35.75/+84.5 MVAR)
Newman 4 ST	2032	2032	Newman (-62.504/+78.728 MVAR)

6.0 EPE BES PLANNED PROJECTS MAP

EPE Proposed Projects Map for 2023-2032



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7.0 TRANSMISSION PROJECT SUMMARY

Transmission Projects will be identified with the following format.

PLANNED PROJECTS **YEAR XXXX**

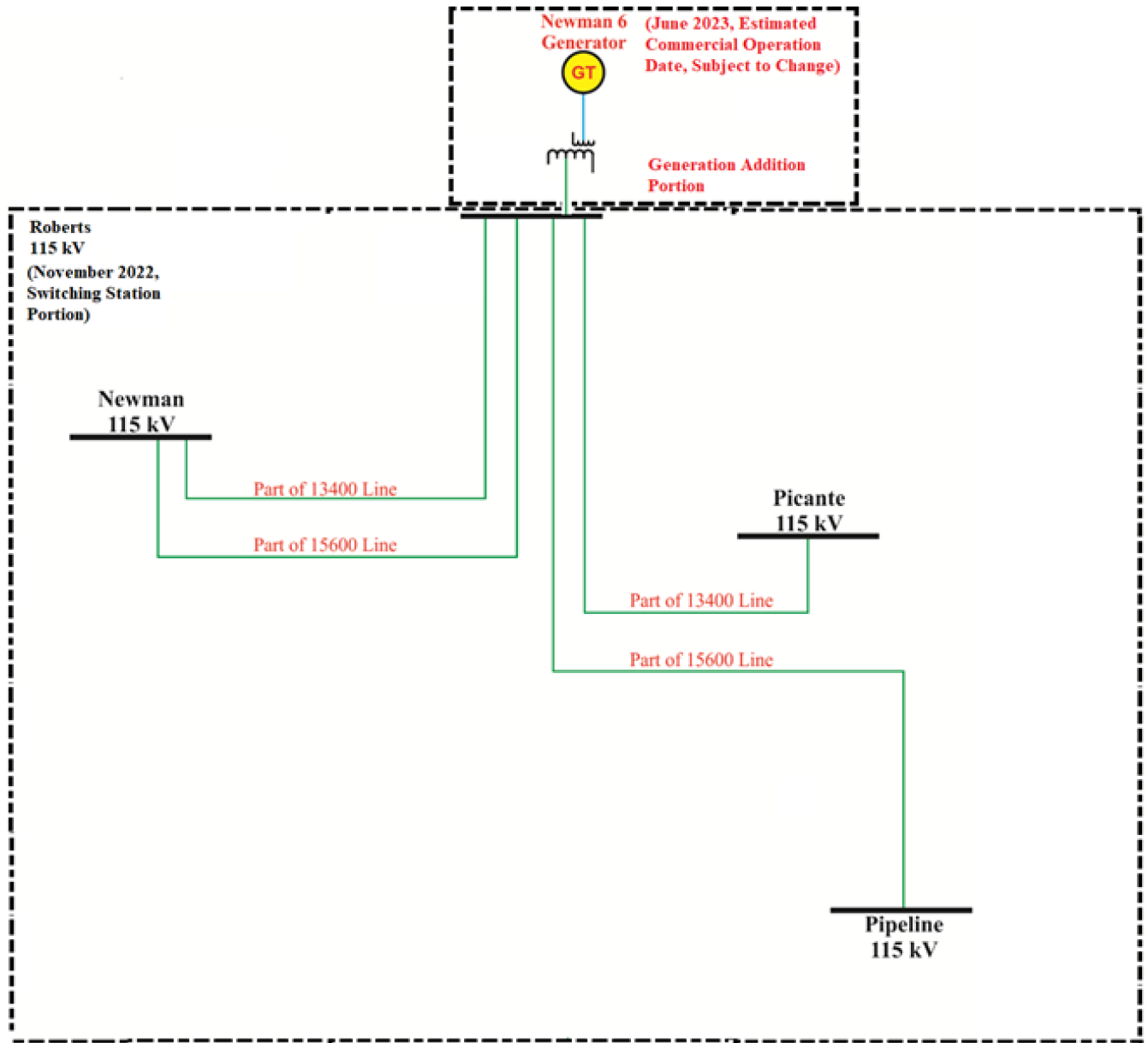
<u>Project Name:</u>	Commonly used name by El Paso Electric Company for a transmission or substation system expansion capital project. Projects of a normal maintenance nature and those located external to the EPE's transmission network are normally not included here.
<u>Operating Voltage:</u>	The operational voltage level(s) of the system element(s).
<u>In Service Date:</u>	This is recommended project completion date. In general, it is recommended that projects be completed by May of the installation year, so that anticipated system peak load demand is met.
<u>Peak Modeling Year:</u>	The year modeled in heavy summer PSLF cases.
<u>Project Description:</u>	A general description of the project.
<u>Project Justification:</u>	Project need is identified.

Transmission Projects in 2023

**PLANNED PROJECTS
YEAR 2022-2023**

<u>Project Name:</u>	Roberts Substation (New) and Related 115 kV Line Reconfiguration (Related to Newman 6 Generator Addition)
<u>Operating Voltage:</u>	115 kV
<u>In Service Date:</u>	November 2022 (Switching Station Portion)
<u>In Service Date:</u>	June 2023 (Generator Addition Portion)
<u>Peak Modeling Year:</u>	May 2023
<u>Project Description:</u>	This project involves connecting the Newman-Picante and the Newman-Pipeline 115 kV transmission lines as well as the future Newman 6 generator into the Roberts Substation.
<u>Project Justification:</u>	This Substation is needed for the interconnection of the Newman 6 Generator to EPE's 115 kV system.

ROBERTS SUBSTATION YEAR 2022-2023



NOTE: FOR ILLUSTRATION PURPOSES ONLY.
FINAL DESIGN WILL BE COMPLETED
BY TRANSMISSION LINE DESIGN
AND SR ENGINEERING

**PLANNED PROJECTS
YEAR 2023**

<u>Project Name:</u>	Newman-Chaparral 115 kV Double Bundled Line (Rebuild, Reconductor)
<u>Operating Voltage:</u>	115 kV
<u>In Service Date:</u>	February 2023
<u>Peak Modeling Year:</u>	2023
<u>Project Description:</u>	The project consists of reconductoring the Newman to Chaparral 115 kV transmission line with conductor that provides a minimum normal capacity rating of 369.6 MVA and a minimum emergency capacity rating of 492.8 MVA.
<u>Project Justification:</u>	This project has been identified as part of a facilities upgrade required to relieve conditional limitations identified. The reconductoring of the line is needed to address overloads on this line during certain N-1 contingencies.

**PLANNED PROJECTS
YEAR 2023**

<u>Project Name:</u>	Moongate Substation (New) and Related Moongate-Jornada 115 kV Line (New)
<u>Operating Voltage:</u>	115 kV
<u>In Service Date:</u>	May 2023
<u>Peak Modeling Year:</u>	2023
<u>Project Description:</u>	This project consists of constructing a new Moongate 115 kV Substation in the Las Cruces New Mexico area, with one transmission line connecting the Moongate Substation to the Jornada 115 kV substation. The Moongate-Jornada 115 kV Line will use a conductor that provides at least a normal capacity rating of 185 MVA and an emergency capacity rating of 246 MVA.
<u>Project Justification:</u>	Moongate Substation will be constructed to meet load growth and will be part of the planned Las Cruces Loop Project.

**PLANNED PROJECTS
YEAR 2023**

Project Name: Moongate Capacitor Banks (Addition)

Operating Voltage: 115 kV

In Service Date: May 2023

Peak Modeling Year: 2023

Project Description: The project consists of the addition of two 15.6 MVAR bus shunt capacitor banks connected to the 115 kV bus.

Project Justification: This project has been identified to provide reactive and voltage support in the Las Cruces area. Studies reveal that under certain IOS conditions this capacitor addition will help meet desired voltage levels.

**PLANNED PROJECTS
YEAR 2023**

Project Name: Dallas (Full) 69 kV Substation, Transformer and substation equipment upgrades at the same location

Operating Voltage: 115 kV

In Service Date: May 2023

Peak Modeling Year: 2023

Project Description: Transformer and substation equipment upgrades at the same location.

Project Justification: Dallas substation is scheduled for an upgrade in 2023. The existing 20 MVA transformers will be upgraded to 50 MVA units and an additional feeder will be extended from the substation.

**PLANNED PROJECTS
YEAR 2023**

Project Name: Ascarate-Rio Bosque 69 kV Line (Reconductor)

Operating Voltage: 69 kV

In Service Date: May 2023

Peak Modeling Year: 2023

Project Description: The project consists of reconductoring the Ascarate to Rio Bosque 69 kV transmission line with conductor that provides a minimum normal capacity rating of 111.3 MVA and a minimum emergency capacity rating of 148.8 MVA.

Project Justification: This project has been identified as part of a facilities upgrade required to address and mitigate potential overload conditions under certain planning event contingencies.

**PLANNED PROJECTS
YEAR 2023**

Project Name: Clint-Valley 69 kV Line (Reconductor)

Operating Voltage: 69 kV

In Service Date: May 2023

Peak Modeling Year: 2023

Project Description: The project consists of reconductoring the Clint to Valley 69 kV transmission line with conductor that provides a minimum normal capacity rating of 111.3 MVA and a minimum emergency capacity rating of 148.4 MVA.

Project Justification: This project has been identified as part of a facilities upgrade required to address and mitigate potential overload conditions under certain planning event contingencies.

**PLANNED PROJECTS
YEAR 2023**

Project Name: Pellicano-Montwood 115 kV Double Bundled Line
(Rebuild)

Operating Voltage: 115 kV

In Service Date: May 2023

Peak Modeling Year: 2023

Project Description: The project consists of reconductoring the Pellicano to Montwood 115 kV transmission line with conductor that provides a minimum normal capacity rating of 369.6 MVA and a minimum emergency capacity rating of 492.8 MVA.

Project Justification: This project has been identified as part of a facilities upgrade required to address and mitigate potential overload conditions under certain planning event contingencies.

**PLANNED PROJECTS
YEAR 2023**

Project Name: Ascarate (Area) Capacitor Bank (Addition/Replacement)

Operating Voltage: 69 or 115 kV

In Service Date: May 2023

Peak Modeling Year: 2023

Project Description: The project consists of the addition of 2 15.6 MVAR bus shunt capacitor banks connected to the 69 kV or 115 kV bus in order to replace an existing capacitor that recently failed.

Project Justification: This project has been identified to provide reactive and voltage support in the East El Paso area.

**PLANNED PROJECTS
YEAR 2023**

<u>Project Name:</u>	Verde Switching Station (New) and Related 115 kV Line Reconfiguration
<u>Operating Voltage:</u>	115 kV
<u>In Service Date:</u>	May 2023
<u>Peak Modeling Year:</u>	2023
<u>Project Description:</u>	The project involves the construction of a new Verde Switching Station. The project includes splitting EPE's existing Diablo-Santa Teresa 115 kV transmission line with terminations into Verde 115 kV. The Diablo-Santa Teresa 115 kV Line will then become the reconfigured Diablo-Verde 115kV Line and the Verde-Santa Teresa 115 kV Line.
<u>Project Justification:</u>	New switching station to connect to a generation addition

Transmission Projects in 2024

**PLANNED PROJECTS
YEAR 2024**

Project Name: McCombs Substation (New) and Related 115 kV Line Reconfiguration

Operating Voltage: 115 kV

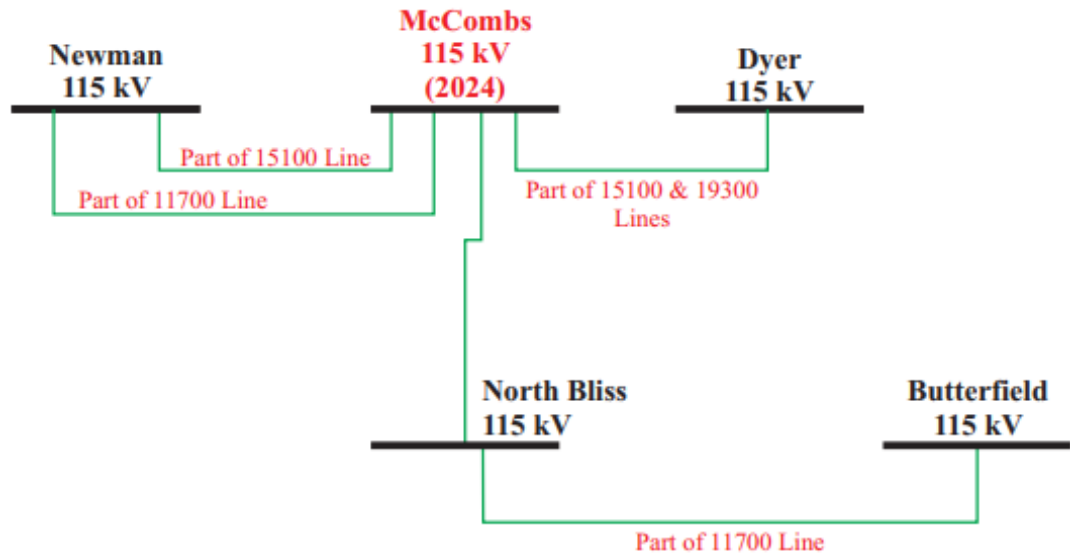
In Service Date: May 2024

Peak Modeling Year: 2024

Project Description: The new McCombs will be built to serve the load from Shearman and Shearman Temporary substations. In addition, there are several existing lines and line segments that will connect to McCombs Substation resulting in an EPE transmission system reconfiguration.

Project Justification: Distribution planning project that results in an EPE transmission system reconfiguration. Shearman Substation and Shearman Temporary Substation are being replaced to improve capacity, address legacy equipment, and location issues impacting access and operation.

**MCCOMBS SUBSTATION (NEW)
AND RELATED 115 kV LINE RECONFIGURATION
YEAR 2024**



NOTE: FOR ILLUSTRATION PURPOSES ONLY.
FINAL DESIGN WILL BE COMPLETED
BY TRANSMISSION LINE DESIGN
AND SR ENGINEERING

**PLANNED PROJECTS
YEAR 2024**

Project Name: McCombs Capacitor Banks (Addition)

Operating Voltage: 115 kV

In Service Date: May 2024

Peak Modeling Year: 2024

Project Description: The project consists of the addition of two 15.6 MVAR bus shunt capacitor banks connected to the 115 kV bus.

Project Justification: This project has been identified to provide reactive and voltage support in the North East Area.

**PLANNED PROJECTS
YEAR 2024**

<u>Project Name:</u>	Newman-McCombs 115 kV Lines, Circuit 1 & 2 (Reconductor)
<u>Operating Voltage:</u>	115 kV
<u>In Service Date:</u>	May 2024
<u>Peak Modeling Year:</u>	2024
<u>Project Description:</u>	This project consists of reconductoring the Newman-McCombs 115 kV Lines to increase the capacity of the lines with at least a normal capacity rating of 185 MVA and emergency capacity rating of 246 MVA.
<u>Project Justification:</u>	The line experiences an increase in loading under heavy summer conditions. The increase in line ratings with at least a normal capacity rating of 185 MVA and emergency capacity rating of 246 MVA will mitigate potential overload conditions under certain planning event contingencies.

**PLANNED PROJECTS
YEAR 2024**

Project Name: FE4 Substation (New) and Related 69 kV Line Reconductor and Reconfiguration

Operating Voltage: 69 kV

In Service Date: May 2024

Peak Modeling Year: 2024

Project Description: The project involves the construction of a new FE4 substation. The project includes splitting EPE's existing Americas-Valley 69 kV transmission line with terminations into FE4 69 kV. The Americas-Valley 69 kV Line will then become the reconducted Americas-FE4 69 kV Line and the FE4-Valley 69 kV Line. The Americas-FE4 69 kV Line will be reconducted to provide a minimum normal capacity rating of 111.3 MVA and a minimum emergency capacity rating of 148.4 MVA.

Project Justification: Distribution planning project that results in an EPE transmission system reconfiguration.

**PLANNED PROJECTS
YEAR 2024**

<u>Project Name:</u>	FE5 Substation (New) and Related 115 kV Line Reconductor and Reconfiguration
<u>Operating Voltage:</u>	115 kV
<u>In Service Date:</u>	May 2024
<u>Peak Modeling Year:</u>	2024
<u>Project Description:</u>	The project involves the construction of a new FE5 substation. The project includes splitting EPE's existing Wrangler-Sparks 115 kV transmission line with terminations into FE5 115 kV. The Wrangler-Sparks 115 kV Line will then become the reconducted Wrangler-FE5 115kV Line and the FE5-Sparks 115 kV Line. The Wrangler-FE5 115 kV Line will be reconducted to provide a minimum normal capacity rating of 369.6MVA and a minimum emergency capacity rating of 492.8 MVA.
<u>Project Justification:</u>	Distribution planning project that results in an EPE transmission system reconfiguration.

**PLANNED PROJECTS
YEAR 2024**

Project Name: Lane-Americas 69 kV Line (Reconductor)

Operating Voltage: 69 kV

In Service Date: May 2024

Peak Modeling Year: 2024

Project Description: The project consists of reconductoring the Lane to Americas 115 kV transmission line with conductor that provides a minimum normal capacity rating of 111.3 MVA and a minimum emergency capacity rating of 148.4 MVA.

Project Justification: This project has been identified as part of a facilities upgrade required to address and mitigate potential overload conditions under certain planning event contingencies.

**PLANNED PROJECTS
YEAR 2024**

Project Name: Lane-Wrangler 115 kV Double Bundled Line (Rebuild)

Operating Voltage: 115 kV

In Service Date: May 2024

Peak Modeling Year: 2024

Project Description: The project consists of reconductoring the Lane to Wrangler 115 kV transmission line with conductor that provides a minimum normal capacity rating of 369.6 MVA and a minimum emergency capacity rating of 492.8 MVA.

Project Justification: This project has been identified as part of a facilities upgrade required to address and mitigate potential overload conditions under certain planning event contingencies.

**PLANNED PROJECTS
YEAR 2024**

Project Name: Jornada-Arroyo 115 kV Line (Reconductor)

Operating Voltage: 115 kV

In Service Date: December 2024

Peak Modeling Year: 2024

Project Description: This project consists of reconductoring the Jornada to Arroyo 115 kV Line to increase the capacity of the line with at least a normal capacity rating of 185 MVA and emergency capacity rating of 246 MVA.

Project Justification: The line experiences an increase in loading under heavy summer conditions. The increase in line rating with at least a normal capacity rating of 185 MVA and emergency capacity rating of 246 MVA will relieve identified overloads under N-1 contingency conditions.

**PLANNED PROJECTS
YEAR 2024**

Project Name: Apollo-Cox Line (Voltage Conversion, Reconductor) 69 kV to 115 kV

Operating Voltage: 115 kV

In Service Date: December 2024

Peak Modeling Year: 2025

Project Description: This project consists of converting from a nominal operating voltage of 69 kV to a nominal operating voltage of 115 kV of the Apollo Substation. As part of this conversion, the removal of the Cox 69 kV Substation is planned. In addition, this project will involve a portion of partial new build and the completion of a portion of line reconductoring. After completion of this project, the resulting lines will be Arroyo-Moongate and Moongate-Apollo 115 kV Lines as described in the sections that follow.

Project Justification: The existing Apollo Substation will be converted and upgraded to 115 kV to mitigate N-1 contingency conditions. As part of this conversion, the removal of the Cox 69 kV Substation is planned, and the portion of the line that formerly terminated at the Cox 69 kV bus will now be terminated at the Arroyo 115 kV bus (Talavera-Arroyo 115 kV Line).

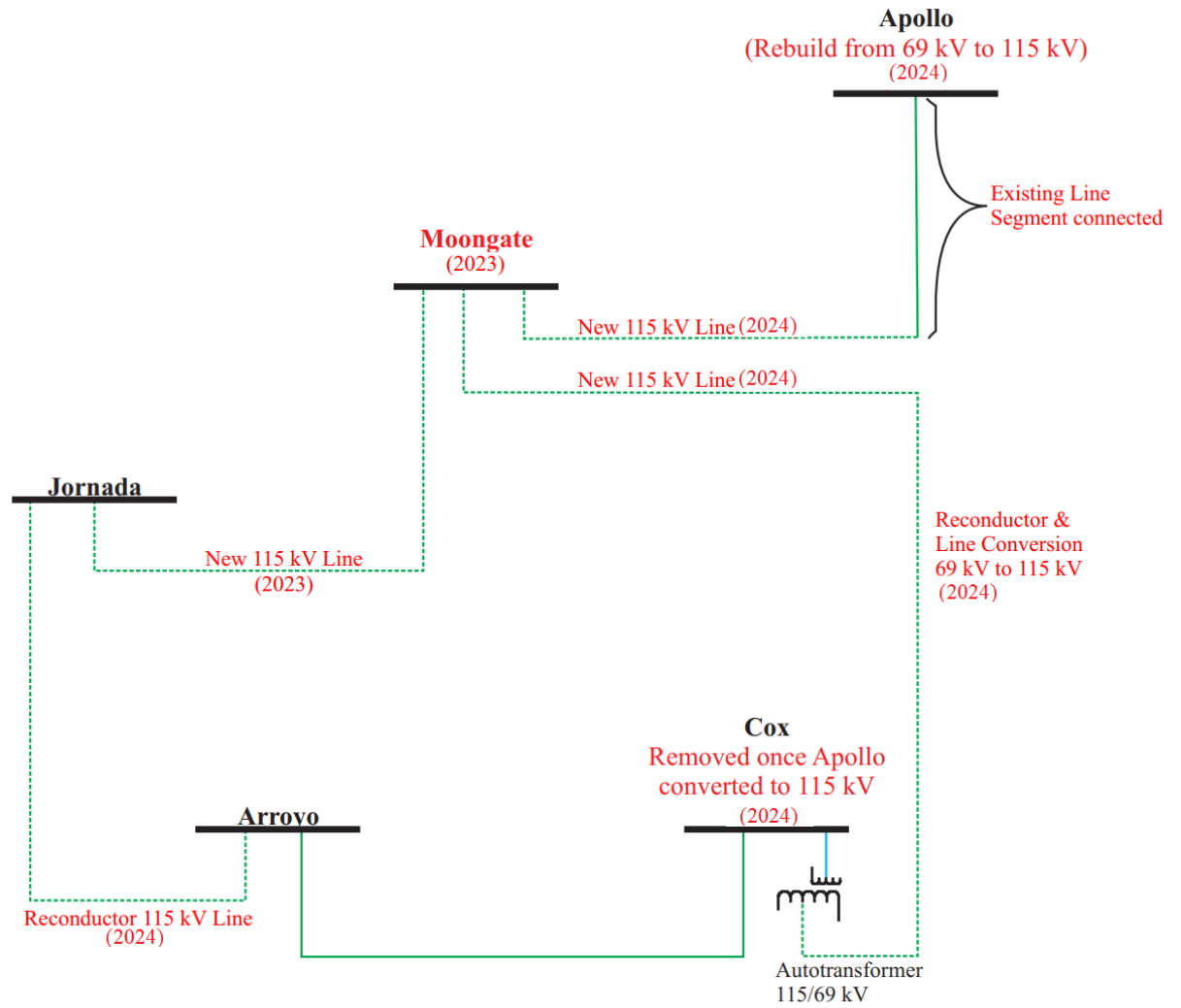
**PLANNED PROJECTS
YEAR 2024**

<u>Project Name:</u>	Apollo-Moongate 115 kV Line (Voltage Conversion, Partial New Build)
<u>Operating Voltage:</u>	115 kV
<u>In Service Date:</u>	December 2024
<u>Peak Modeling Year:</u>	2025
<u>Project Description:</u>	This project consists of a voltage conversion of this line from 69 kV to 115 kV operation in addition to partial new build on the same line.
<u>Project Justification:</u>	Apollo-Moongate 115 kV Line will be constructed to meet load growth, will provide a source into Apollo Substation, and will be part of the planned Las Cruces Loop Project.

**PLANNED PROJECTS
YEAR 2024**

<u>Project Name:</u>	Moongate-Arroyo 115 kV Line (Voltage Conversion, Partial Reconductor, Partial New Build)
<u>Operating Voltage:</u>	115 kV
<u>In Service Date:</u>	December 2024
<u>Peak Modeling Year:</u>	2025
<u>Project Description:</u>	The project consists of the completing of reconductoring of the Moongate-Arroyo 115 kV transmission line in addition to partial new build on the same line with a conductor that provides a minimum normal capacity rating of 185 MVA and a minimum emergency capacity rating of 246 MVA.
<u>Project Justification:</u>	Moongate-Arroyo 115 kV Line will be constructed to meet load growth, will provide a source into Moongate Substation, will be part of the planned Las Cruces Loop Project, and will mitigate potential overload conditions under certain planning event contingencies

LAS CRUCES LOOP YEAR (2023-2024)



NOTE: FOR ILLUSTRATION PURPOSES ONLY.
FINAL DESIGN WILL BE COMPLETED
BY TRANSMISSION LINE DESIGN
AND SR ENGINEERING

Transmission Projects in 2025

**PLANNED PROJECTS
YEAR 2025**

<u>Project Name:</u>	Afton North Substation 345 kV (New) and Afton-Newman 345kV Line Reconfiguration
<u>Operating Voltage:</u>	345 kV
<u>In Service Date:</u>	May 2025
<u>Peak Modeling Year:</u>	2025
<u>Project Description:</u>	A planned 345 kV substation in southern New Mexico will enhance system reliability. The Afton North 345 kV bus will be used to connect a 345 kV line from Afton North Substation into the proposed Vado Substation in 2028 as well as a 345 kV radial line from Afton North Substation to Airport Substation in 2027 (see diagram).
<u>Project Justification:</u>	This project is part of the Afton-Afton North-Vado project that will increase El Paso Import Capability (EPIC).

**PLANNED PROJECTS
YEAR 2025**

Project Name: Afton-Afton North 345 kV Double Bundled Line (New)

Operating Voltage: 345 kV

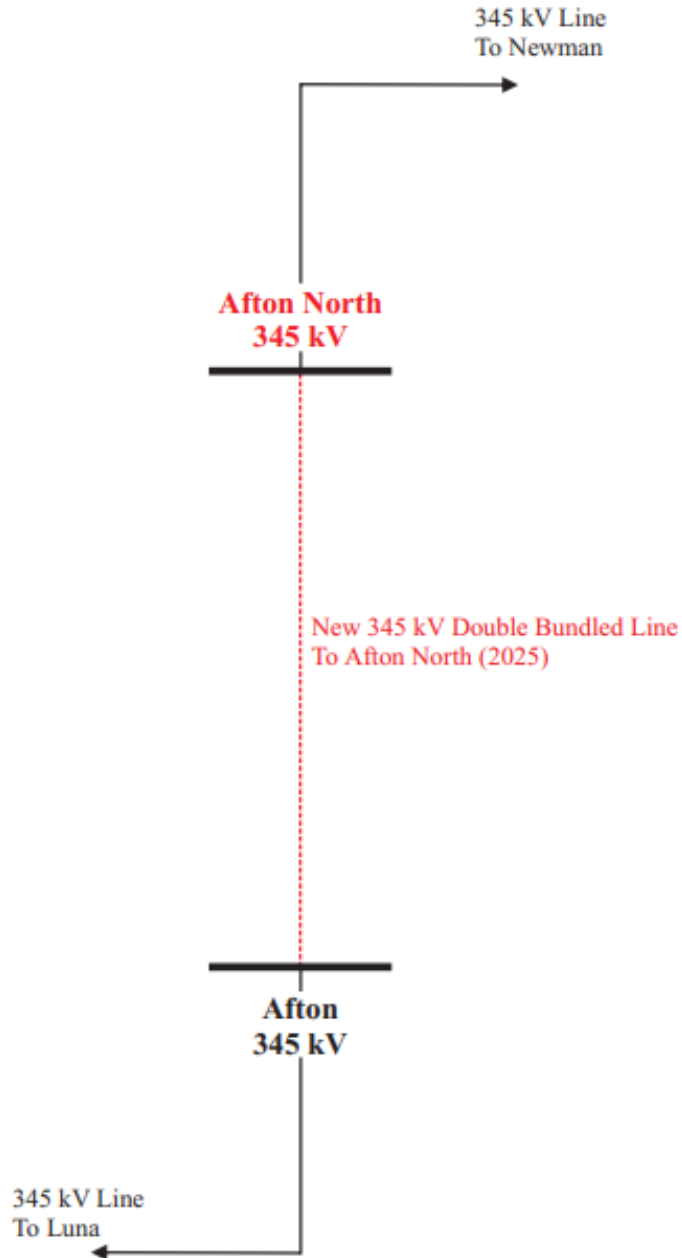
In Service Date: May 2025

Peak Modeling Year: 2025

Project Description: A new half a mile, 345 kV double bundled transmission line with at least a normal capacity rating of 921.4 MVA and emergency capacity rating of 987.2 MVA is planned to connect the Afton Substation to the new Afton North Substation in southern New Mexico. This project will enhance system reliability and will help EPE meet load growth needs.

Project Justification: This project is part of the Afton-Afton North-Vado projects, scheduled for completion by 2028, that will increase El Paso Import Capability (EPIC), improve reliability within the area, and will mitigate potential overload conditions under certain planning event contingencies.

**AFTON NORTH 345 kV SUBSTATION (NEW)
AND AFTON-NEWMAN 345 kV LINE RECONFIGURATION
YEAR 2025**

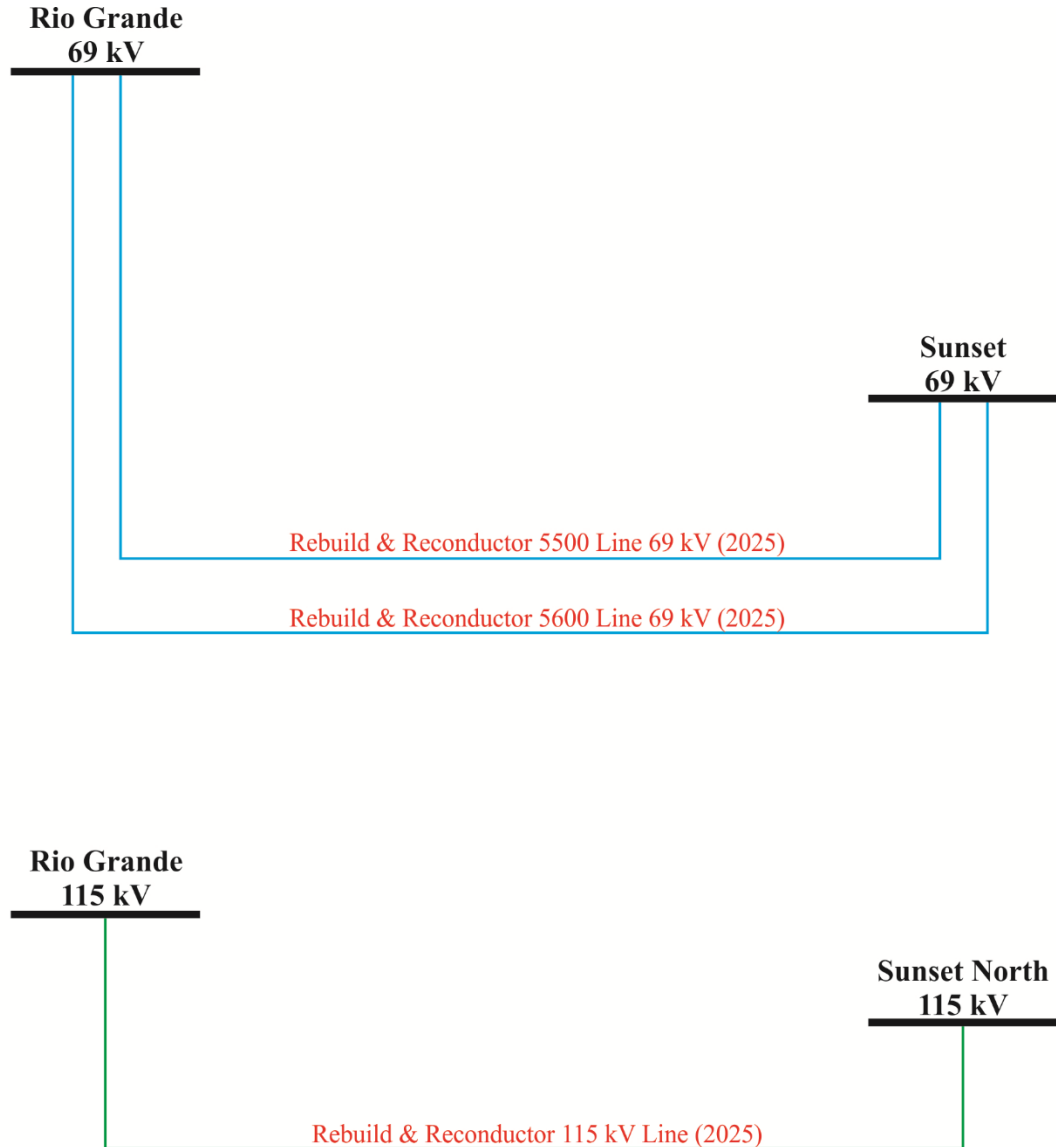


NOTE: FOR ILLUSTRATION PURPOSES ONLY.
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AND SR ENGINEERING

PLANNED PROJECTS YEAR 2025

<u>Project Name:</u>	Rio Grande-Sunset 69 kV Lines (5500/5600) and Rio Grande-Sunset North 115 kV Tied Double Circuit Capacity Line (Rebuild, Reconductor)
<u>Operating Voltage:</u>	69 kV and 115 kV
<u>In Service Date:</u>	May 2025
<u>Peak Modeling Year:</u>	2025
<u>Project Description:</u>	<p>This project involves the reconductoring of two 69 kV lines and one 115 kV line for a portion of each of these lines, traverse mountainous terrain and extend through the UTEP campus area. The 69 kV lines (5500/5600) connect Rio Grande Substation and Sunset Substation. The 69 kV lines (5500/5600) connect Rio Grande Substation and Sunset Substation. The rebuilt and reconductoring capacity of the 69 kV (5500/5600) lines require an upgrade with at least a normal capacity rating of 111 MVA and emergency capacity rating of 148 MVA each. The rebuilt and reconductoring capacity of the 115 kV Rio Grande-Sunset North line requires an upgrade with at least a normal capacity rating of 369.6 MVA and emergency capacity rating of 492.8 MVA.</p>
<u>Project Justification:</u>	<p>These lines experience increased loading during the summer peak months, a condition that is difficult to mitigate. The increase in line capacity will relieve operational mitigation measures and mitigate potential overload conditions under certain planning event contingencies.</p>

**RIO GRANDE-SUNSET 69 kV LINES (5500/5600)
AND RIO GRANDE-SUNSTE NORTH 115 kV LINE
(REBUILD/RECONDUCTOR)
YEAR 2025**

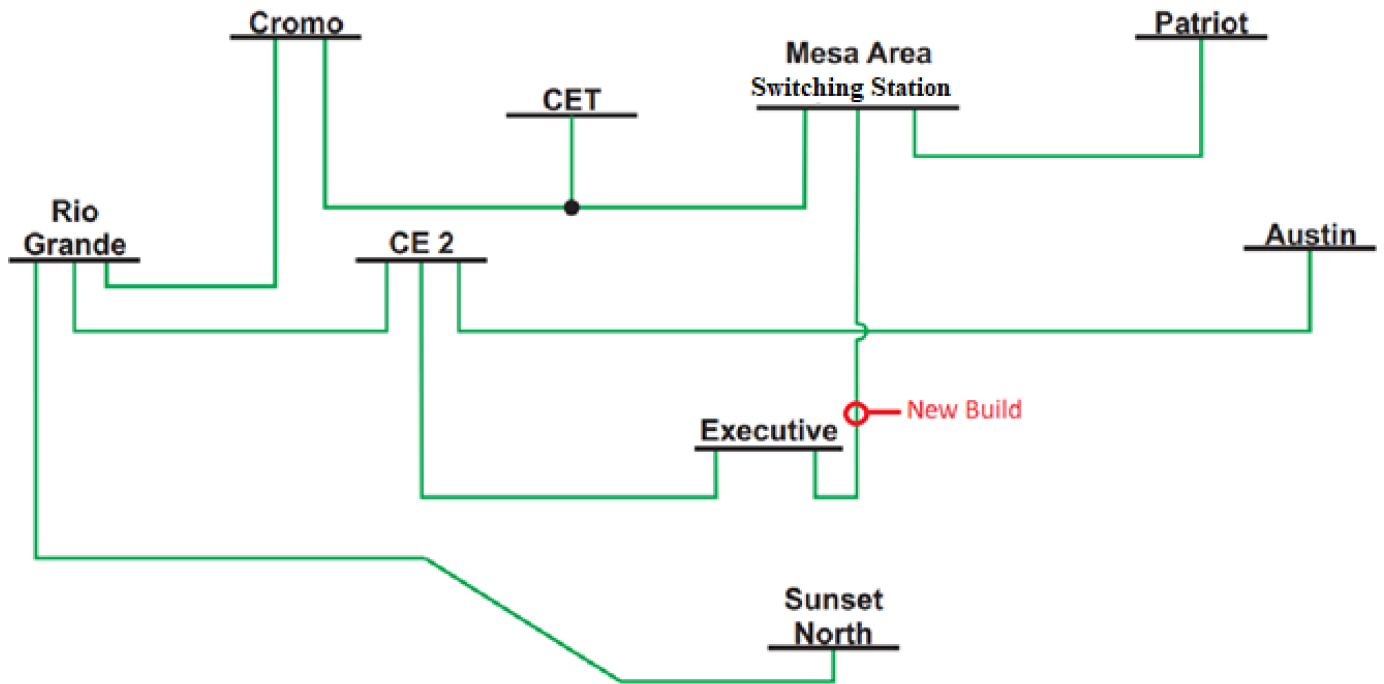


NOTE: FOR ILLUSTRATION PURPOSES ONLY.
FINAL DESIGN WILL BE COMPLETED
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AND SR ENGINEERING

**PLANNED PROJECTS
YEAR 2025**

<u>Project Name:</u>	CE-2 Substation (New) and Related 115 kV West Loop Line Reconfiguration
<u>Operating Voltage:</u>	115 kV
<u>In Service Date:</u>	May 2025
<u>Peak Modeling Year:</u>	2025
<u>Project Description:</u>	This project involves the addition of a new CE2 Substation with an in-and-out connection on the Rio Grande-Austin 115 kV Line resulting in the Rio Grande-CE2 115 kV Line and CE2-Austin 115 kV Line thereafter. With this CE2 Substation addition, Mesa Substation will be retired. Also, with the rebuilt/reconfigured Rio Grande-Sunset North 115 kV Line in service, Executive 115 kV Substation will be served from the CE2-Mesa Area Switching Station 115 kV Line. Please see associated map, below, for more details on the configuration.
<u>Project Justification:</u>	By May 2025, CE-2 will replace Mesa Substation. Also, the rebuilt/reconfigured Rio Grande-Sunset North 115 kV Line will be placed in service. These projects will result in the need to reconfigure 115 kV transmission lines to accommodate these changes. The series of 115 kV transmission line reconfiguration projects that involve the CE-2 and other new and existing substations in this part of the west service territory will be referred to as the “West Loop”.

**CE2 SUBSTATION (NEW)
AND RELATED 115 kV WEST LOOP LINE RECONFIGURATION
YEAR 2025**



NOTE: FOR ILLUSTRATION PURPOSES ONLY.
FINAL DESIGN WILL BE COMPLETED
BY TRANSMISSION LINE DESIGN
AND SR ENGINEERING

PLANNED PROJECTS YEAR 2025

<u>Project Name:</u>	CE2-Austin 115 kV Double Bundled Line (Rebuild, Reconductor, Part of In-and-Out into CE2 Substation)
<u>Operating Voltage:</u>	115 kV
<u>In Service Date:</u>	May 2025
<u>Peak Modeling Year:</u>	2025
<u>Project Description:</u>	This project consists of reconductoring the CE2 to Austin 115 kV Line to increase the capacity of the line with at least a normal capacity rating of 369 MVA and emergency capacity rating of 492 MVA.
<u>Project Justification:</u>	The line experiences an increase in loading under heavy summer conditions. The increase in line rating with at least a normal capacity rating of 369 MVA and emergency capacity rating of 492 MVA will mitigate potential overload conditions under certain planning event contingencies. Overloads were seen in two different planning years beginning with 2025 and re-emerging in 2032 with higher overloading in the latter year; therefore, the overloading in both years was addressed with one project in 2025 addressing the overloading in both years.

PLANNED PROJECTS YEAR 2025

<u>Project Name:</u>	Mesa Area Switching Station (New) and Related 115 kV West Loop Line Reconfiguration
<u>Operating Voltage:</u>	115 kV
<u>In Service Date:</u>	May 2025
<u>Peak Modeling Year:</u>	2025
<u>Project Description:</u>	<p>This project involves the addition of a new Mesa Area Switching Station with an in-and-out connection on the Cromo-Patriot 115 kV Line resulting in the Cromo-Mesa Area Switching Station 115 kV Line and Mesa Area Switching Station-Patriot 115 kV Line thereafter. With this Mesa Area Switching station addition and the rebuilt/reconfigured Rio Grande-Sunset North 115 kV Line in service, Executive 115 kV Substation will be served from the CE2-Mesa Area Switching Station 115 kV Line. Please see associated map, above, for more details on the configuration.</p>
<u>Project Justification:</u>	<p>By May 2025, Mesa Area Switching Station will be introduced. Also, the rebuilt/reconfigured Rio Grande-Sunset North 115 kV Line will be placed in service. These projects will result in the need to reconfigure 115 kV transmission lines to accommodate these changes. The series of 115 kV transmission line reconfiguration projects that involve the CE-2 and other new and existing substations in this part of the west service territory will be referred to as the “West Loop”. The use of this switching station is first identified in 2025 then re-identified in 2031.</p>

**PLANNED PROJECTS
YEAR 2025**

<u>Project Name:</u>	Mesa Area Switching Station-Executive 115 kV Line (New)
<u>Operating Voltage:</u>	115 kV
<u>In Service Date:</u>	May 2025
<u>Peak Modeling Year:</u>	2025
<u>Project Description:</u>	This project consists of building a new Mesa Area Switching Station Executive 115 kV Line to increase reliability with at least a normal capacity rating of 185 MVA and emergency capacity rating of 246 MVA.
<u>Project Justification:</u>	The line experiences an increase in loading under heavy summer conditions. The increase in line rating with at least a normal capacity rating of 185 MVA and emergency capacity rating of 246 MVA will mitigate potential overload conditions under certain planning event contingencies

**PLANNED PROJECTS
YEAR 2025**

<u>Project Name:</u>	Hawkins Substation 69 kV (New) and Line Reconfiguration
<u>Operating Voltage:</u>	69 kV
<u>In Service Date:</u>	May 2025
<u>Peak Modeling Year:</u>	2025
<u>Project Description:</u>	This project involves the construction of a new Hawkins 69 kV Substation.
<u>Project Justification:</u>	This project includes the removal of the Phelps Dodge 69 kV Substation as well as reconfiguring the existing Ascarate-Phelps Dodge and Phelps Dodge-Viscount 69 kV Lines to become the new Ascarate-Hawkins and Hawkins-Viscount 69 kV Lines.

**PLANNED PROJECTS
YEAR 2025**

<u>Project Name:</u>	Caliente 345/115 kV Autotransformer #3 (New)
<u>Operating Voltage:</u>	345 kV and 115 kV
<u>In Service Date:</u>	May 2025
<u>Peak Modeling Year:</u>	2025
<u>Project Description:</u>	A new additional third Caliente 345/115 kV autotransformer will enhance system reliability.
<u>Project Justification:</u>	This project has been identified as part of a facilities addition required to address and mitigate potential overload conditions under certain planning event contingencies and to enhance system reliability.

**PLANNED PROJECTS
YEAR 2025**

Project Name: Austin-Marlow 115 kV Line (Ground Clearance Limitation to be Removed, Resulting in Higher Line Rating)

Operating Voltage: 115 kV

In Service Date: May 2025

Peak Modeling Year: 2025

Project Description: The project consists of lifting the Austin-Marlow 115 kV Line in order to remove the ground clearance limitation which is currently derating this line. Once the line is lifted, the Austin-Marlow 115 kV Line transmission line conductor will provide a normal capacity rating of 268.3 MVA and an emergency capacity rating of 268.3 MVA. This project does not involve reconductoring nor rebuilding the line in this year.

Project Justification: This project has been identified as part of a facilities upgrade required to address and mitigate potential overload conditions under certain planning event contingencies.

PLANNED PROJECTS YEAR 2025

<u>Project Name:</u>	Ascarate-Trowbridge 115 kV Double Bundled Line (Rebuild, Reconductor)
<u>Operating Voltage:</u>	115 kV
<u>In Service Date:</u>	May 2025
<u>Peak Modeling Year:</u>	2025
<u>Project Description:</u>	The project consists of reconductoring the Ascarate-Trowbridge 115 kV transmission line with conductor that provides a minimum normal capacity rating of 369.6 MVA and a minimum emergency capacity rating of 492.8 MVA.
<u>Project Justification:</u>	This project has been identified as part of a facilities upgrade required to address and mitigate potential overload conditions under certain planning event contingencies. Overloads were seen in two different planning years beginning with 2025 and re-emerging in 2032 with higher overloading in the latter year; therefore, the overloading in both years was addressed with one project in 2025 addressing the overloading in both years.

**PLANNED PROJECTS
YEAR 2025**

<u>Project Name:</u>	Cromo-Rio Grande 115 kV Line (Reconductor)
<u>Operating Voltage:</u>	115 kV
<u>In Service Date:</u>	May 2025
<u>Peak Modeling Year:</u>	2025
<u>Project Description:</u>	This project consists of reconductoring the Cromo to Rio Grande 115 kV Line to increase the capacity of the line with at least a normal capacity rating of 185 MVA and emergency capacity rating of 246 MVA.
<u>Project Justification:</u>	The line experiences an increase in loading under heavy summer conditions. The increase in line rating with at least a normal capacity rating of 185 MVA and emergency capacity rating of 246 MVA will mitigate potential overload conditions under certain planning event contingencies.

**PLANNED PROJECTS
YEAR 2025**

<u>Project Name:</u>	West Mesa Line Shunt Reactor (100 MVAR) on the West Mesa end of the WestMesa-Arroyo 345 kV Line
<u>Operating Voltage:</u>	345 kV
<u>In Service Date:</u>	October 2025
<u>Peak Modeling Year:</u>	2025
<u>Project Description:</u>	The project consists of a 100 MVAR Line Shunt Reactor or alternative as to be determined on the West Mesa end of the Arroyo-West Mesa 345 kV Line.
<u>Project Justification:</u>	This line shunt reactor project is for the replacement of the existing line shunt reactor due to its condition.

**PLANNED PROJECTS
YEAR 2025**

Project Name: Arroyo Variable Line Shunt Reactor (50-100 MVAR) on the Arroyo end of the WestMesa-Arroyo 345 kV Line

Operating Voltage: 345 kV

In Service Date: October 2025

Peak Modeling Year: 2025

Project Description: The project consists of a 50-100 MVAR Variable Line Shunt Reactor on the Arroyo end of the Arroyo-West Mesa 345 kV Line.

Project Justification: This line shunt reactor project is for the replacement of the existing line shunt reactor due to its condition.

Transmission Projects in 2026

**PLANNED PROJECTS
YEAR 2026**

<u>Project Name:</u>	Seabeck Switching Station 115 kV (New)
<u>Operating Voltage:</u>	115 kV
<u>In Service Date:</u>	May 2026
<u>Peak Modeling Year:</u>	2026
<u>Project Description:</u>	This project involves the construction of a new Seabeck 115 kV Switching Station that will be part of the East Side Loop Expansion Project
<u>Project Justification:</u>	This project is part of the East Side Loop Expansion Project and is needed to address and mitigate potential overload conditions under certain contingencies. Additionally, the project will allow EPE to address expected development and load growth in east El Paso County.

**PLANNED PROJECTS
YEAR 2026**

Project Name: Seabeck-Horizon 115 kV Line (Rebuild, Upgrade)

Operating Voltage: 115 kV

In Service Date: May 2026

Peak Modeling Year: 2026

Project Description: This project will involve the construction of a 115 kV transmission line from Seabeck to Horizon with at least a normal capacity rating of 185 MVA and emergency capacity rating of 246 MVA.

Project Justification: This project is part of the East Side Loop Expansion Project and is needed to address potential overload conditions under certain contingencies. Additionally, the project will enable EPE to address expected development and load growth in east El Paso County

**PLANNED PROJECTS
YEAR 2026**

<u>Project Name:</u>	San Felipe Substation 115/69 kV (New)
<u>Operating Voltage:</u>	115/69 kV
<u>In Service Date:</u>	May 2026
<u>Peak Modeling Year:</u>	2026
<u>Project Description:</u>	The project consists of constructing a new San Felipe Substation 115/69 kV that will be part of the East Side Loop Expansion Project.
<u>Project Justification:</u>	This project is part of the East Side Loop Expansion Project and is needed to address projected overload conditions on the EPE system under certain contingencies. Additionally, the project will enable EPE to address expected development and load growth in eastern El Paso County.

**PLANNED PROJECTS
YEAR 2026**

Project Name: Seabeck-San Felipe 115 kV Line (New)

Operating Voltage: 115 kV

In Service Date: June 2026

Peak Modeling Year: 2026

Project Description: This project consists of constructing a new 115 kV transmission line from Seabeck Substation to San Felipe 115 kV Substation. The conductor will have at least a normal capacity rating of 185 MVA and emergency capacity rating of 246 MVA.

Project Justification: This project is part of the East Side Loop Expansion Project and will address projected overload conditions on the EPE system under certain N-1 contingencies. This project will also enable EPE to address anticipated development and load growth in east El Paso County.

**PLANNED PROJECTS
YEAR 2026**

Project Name: San Felipe Capacitor Banks (Addition)

Operating Voltage: 115 kV

In Service Date: May 2026

Peak Modeling Year: 2026

Project Description: The project consists of the addition of two 15.6 MVAR bus shunt capacitor banks connected to the 115 kV bus.

Project Justification: This project has been identified to provide reactive and voltage support in the far east El Paso area.

**PLANNED PROJECTS
YEAR 2026**

Project Name: Caliente-MPS 16700 115 kV Line (Rebuild, Reconductor)

Operating Voltage: 115 kV

In Service Date: May 2026

Peak Modeling Year: 2026

Project Description: The project consists of reconductoring the Caliente-MPS 16700 115 kV Line transmission line with conductor that provides a normal capacity rating of 268 MVA and an emergency capacity rating of 268 MVA.

Project Justification: System Planning studies have indicated that this line has the potential to load above its emergency rating under certain planning event contingencies.

**PLANNED PROJECTS
YEAR 2026**

Project Name: Cromo-CE2 115 kV Line (Reconductor)

Operating Voltage: 115 kV

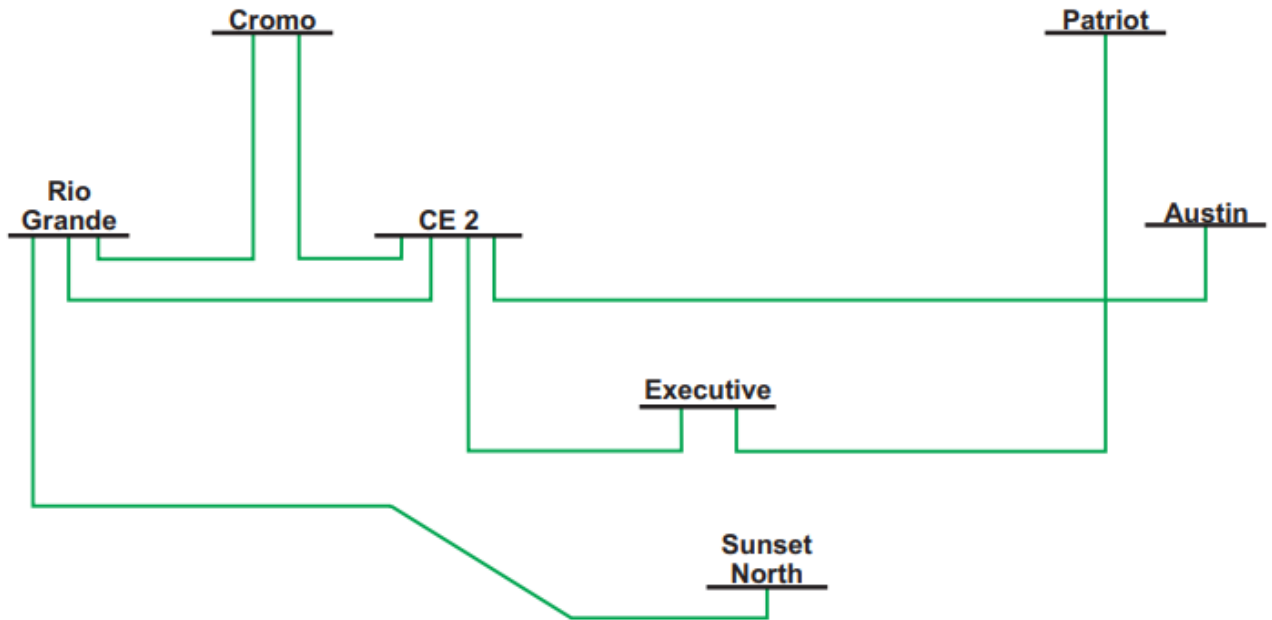
In Service Date: May 2026

Peak Modeling Year: 2026

Project Description: The project consists of reconductoring the Cromo-CE2 115 kV Line transmission line with conductor that provides a normal capacity rating of 185 MVA and an emergency capacity rating of 246 MVA.

Project Justification: System Planning studies have indicated that this line has the potential to load above its emergency rating under certain planning event contingencies.

**CE2 SUBSTATION (RECONFIGURED)
AND RELATED 115 kV WEST LOOP LINE RECONFIGURATION
YEAR 2026**

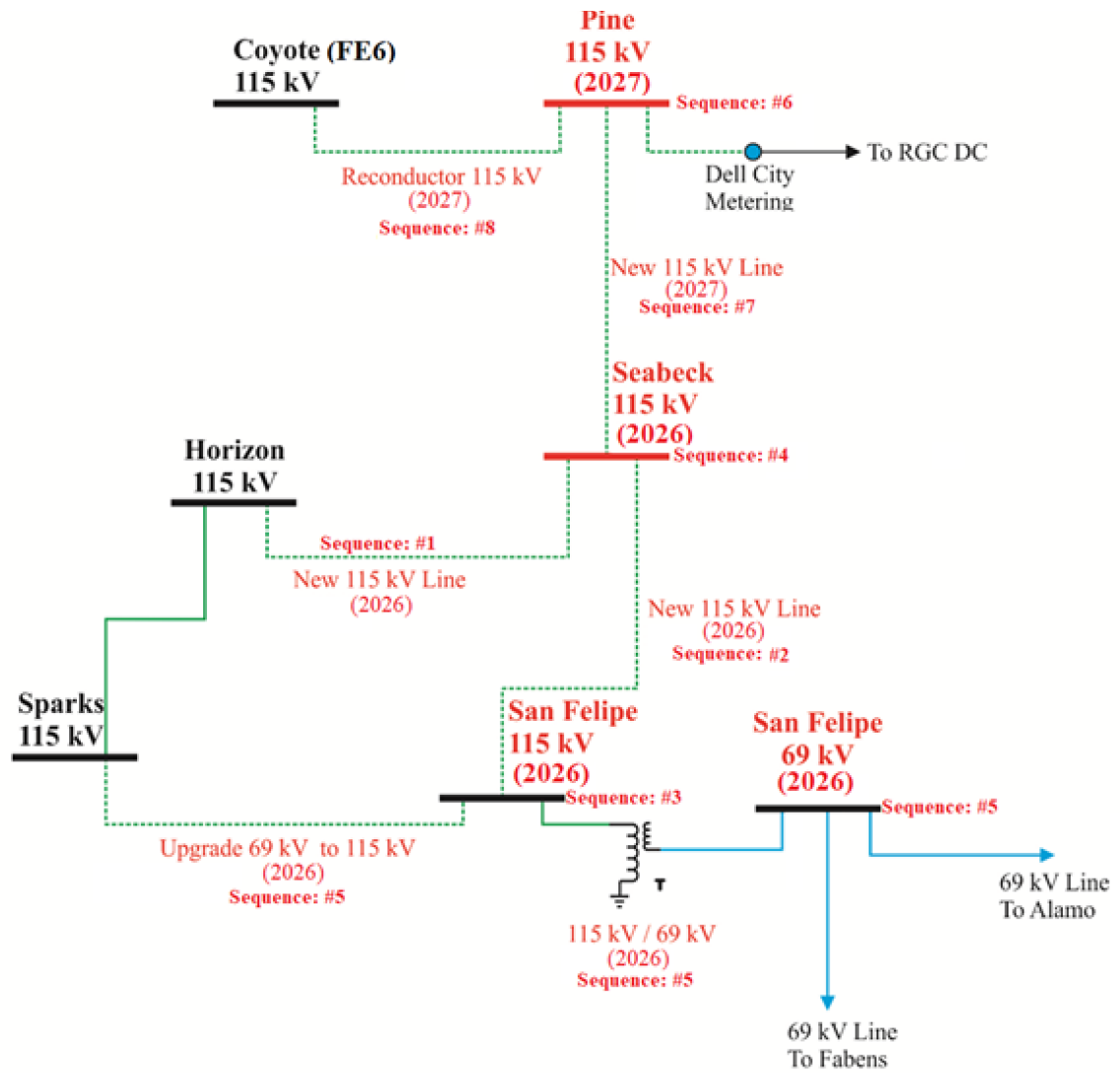


NOTE: FOR ILLUSTRATION PURPOSES ONLY.
FINAL DESIGN WILL BE COMPLETED
BY TRANSMISSION LINE DESIGN
AND SR ENGINEERING

**PLANNED PROJECTS
YEAR 2026**

<u>Project Name:</u>	Sparks-San Felipe Line (Voltage Conversion, Rebuild, Reconductor) 69 kV to 115 kV
<u>Operating Voltage:</u>	69kV and 115 kV
<u>In Service Date:</u>	December 2026
<u>Peak Modeling Year:</u>	2027
<u>Project Description:</u>	This project will involve the conversion and reconductoring the Sparks-San Felipe transmission line from 69 kV to 115 kV with at least a normal capacity rating of 185 MVA and emergency capacity rating of 246 MVA. Note that a 115/69 kV autotransformer will be assumed for San Felipe substation and assuming that the Sparks-Felipe 115 kV Line is in service. All of the above occurs before the in-service date of December 2026. Also, the 2022 Plan assumed that Felipe 69 kV Substation remains in service until the above is in service.
<u>Project Justification:</u>	This project is part of the East Side Loop Expansion Project and is needed to address potential overload conditions on the EPE system under certain contingencies. Additionally, the project will enable EPE to address expected development and load growth in east El Paso County.

EASTSIDE LOOP YEAR (2026-2027)



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AND SR ENGINEERING

**PLANNED PROJECTS
YEAR 2026**

<u>Project Name:</u>	Airport 345/115/24 kV Substation
<u>Operating Voltage:</u>	345/115/24 kV
<u>In Service Date:</u>	December 2026
<u>Peak Modeling Year:</u>	2027
<u>Project Description:</u>	A new Airport 345/115/24 kV Substation that will replace the existing Airport Substation.
<u>Project Justification:</u>	This project has been identified to enhance system reliability.

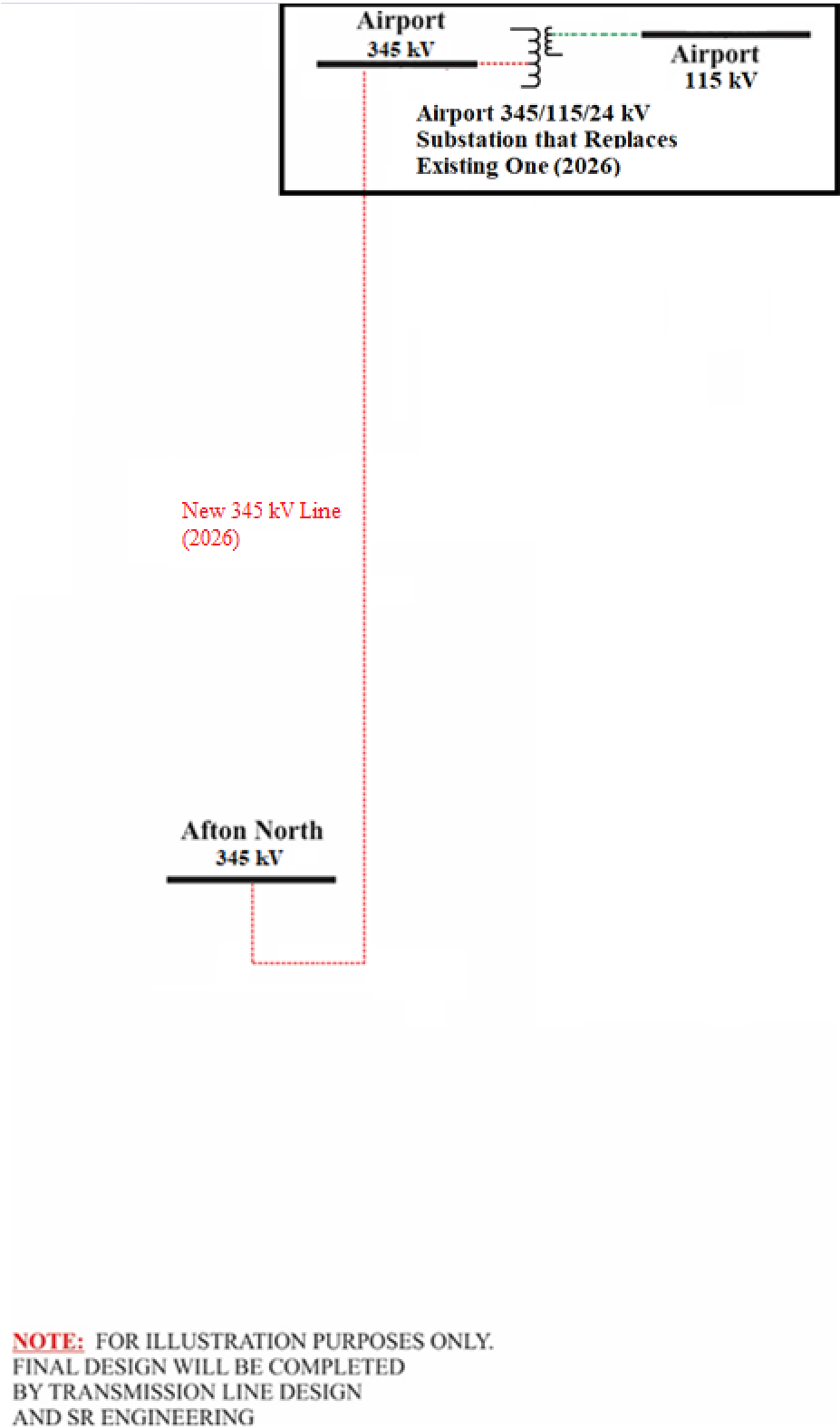
**PLANNED PROJECTS
YEAR 2026**

<u>Project Name:</u>	Airport 345/115 kV Autotransformer (New)
<u>Operating Voltage:</u>	345/115 kV
<u>In Service Date:</u>	December 2026
<u>Peak Modeling Year:</u>	2027
<u>Project Description:</u>	A new Airport 345/115 kV autotransformer will enhance system reliability.
<u>Project Justification:</u>	This project has been identified to connect the 115 kV system to the 345 kV system to enhance system reliability.

**PLANNED PROJECTS
YEAR 2026**

<u>Project Name:</u>	Afton North-Airport 345 kV Line (New, Replaces Former 115 kV Line Project from 2021 Plan)
<u>Operating Voltage:</u>	345 kV
<u>In Service Date:</u>	December 2026
<u>Peak Modeling Year:</u>	2027
<u>Project Description:</u>	A new 345 kV transmission line is planned to be built from Afton North Substation to Airport Substation with at least a normal capacity rating of 1031.4 MVA and emergency capacity rating of 1389.9 MVA. This transmission line in conjunction with a 345/115 kV autotransformer at Airport Substation will serve Airport Substation in Las Cruces, New Mexico.
<u>Project Justification:</u>	The purpose of this transmission line is to improve reliability to Airport Substation. The Afton North to Airport connection will become the source serving Airport. Presently, Airport Substation is being served via PNM's Mimbres-Picacho 115 kV transmission line through a radial connection from Airport Tap. This new line into the Airport Substation will serve to improve reliability in the area.

**AFTON NORTH-AIRPORT 345 kV TRANSMISSION LINE ADDITION
YEAR 2026**



Transmission Projects in 2027

**PLANNED PROJECTS
YEAR 2027**

<u>Project Name:</u>	Pine Switching Station 115 kV (New)
<u>Operating Voltage:</u>	115 kV
<u>In Service Date:</u>	May 2027
<u>Peak Modeling Year:</u>	2027
<u>Project Description:</u>	This project involves the construction of a new Pine 115 kV Switching Station that will be part of the East Side Loop Expansion Project.
<u>Project Justification:</u>	This project is a part of the East Side Loop Expansion Project and is needed to address and mitigate potential overload conditions under certain N-1 contingencies. Additionally, the project will enable EPE to address expected development and load growth in east El Paso County.

**PLANNED PROJECTS
YEAR 2027**

<u>Project Name:</u>	Pine-Seabeck 115 kV Line (New)
<u>Operating Voltage:</u>	115 kV
<u>In Service Date:</u>	May 2027
<u>Peak Modeling Year:</u>	2027
<u>Project Description:</u>	This project consists of constructing a new 115 kV transmission line from Pine to Seabeck with at least a normal capacity rating of 185 MVA and emergency capacity rating of 246 MVA.
<u>Project Justification:</u>	This project is part of the East Side Loop Expansion Project and is needed to address potential overload conditions under certain N-1 contingencies. Additionally, the project will enable EPE to address expected development and load growth in east El Paso County.

**PLANNED PROJECTS
YEAR 2027**

Project Name: Coyote (FE6) 115 kV New Full Substation

Operating Voltage: 115 kV

In Service Date: May 2027

Peak Modeling Year: 2027

Project Description: This project involves the construction of a new full Coyote 115 kV Substation, which will be replacing Coyote Temp Substation, that will be part of the East Side Loop Expansion Project.

Project Justification: This project is a part of the East Side Loop Expansion Project and is needed to address and mitigate potential overload conditions under certain N-1 contingencies. Additionally, the project will enable EPE to address expected development and load growth in east El Paso County.

**PLANNED PROJECTS
YEAR 2027**

<u>Project Name:</u>	Coyote-Pine 115 kV Line (Reconductor)
<u>Operating Voltage:</u>	115 kV
<u>In Service Date:</u>	May 2027
<u>Peak Modeling Year:</u>	2027
<u>Project Description:</u>	This project consists of reconductoring the Coyote to Pine 115 kV transmission line with at least a normal capacity rating of 185 MVA and emergency capacity rating of 246 MVA.
<u>Project Justification:</u>	This project is part of the East Side Loop Expansion Project and is needed to address potential overload conditions under certain N-1 contingencies. Additionally, the project will enable EPE to address expected development and load growth in east El Paso County.

**PLANNED PROJECTS
YEAR 2027**

Project Name: Leasburg Substation 115 kV (New)

Operating Voltage: 115 kV

In Service Date: May 2027

Peak Modeling Year: 2027

Project Description: With the addition of Leasburg 115 kV Substation in 2027, there will be an in-and-out connection on the Jornada-Hatch 115 kV Line resulting in the Jornada-Leasburg 115 kV and Leasburg-Hatch 115 kV Lines thereafter.

Project Justification: Leasburg 115 kV Substation will be located a few miles north of Jornada 115 kV Substation between Jornada Substation and Radium Springs exit, near and off of I-25. The addition of Leasburg 115 kV Substation will provide support to the existing feeders and load growth in the area.

**PLANNED PROJECTS
YEAR 2027**

<u>Project Name:</u>	Jornada-Leasburg 115 kV Line Rating Uprate (Series Element Limitation to be Removed)
<u>Operating Voltage:</u>	115 kV
<u>In Service Date:</u>	May 2027
<u>Peak Modeling Year:</u>	2027
<u>Project Description:</u>	The project consists of removing series element limitations resulting in an uprate of the Jornada-Leasburg 115 kV Line such that a minimum normal capacity rating of 44.6 MVA and an emergency capacity rating of 44.6 MVA are achieved. This project does not involve reconductoring nor rebuilding the line in this year.
<u>Project Justification:</u>	System Planning studies have indicated that this line has the potential to load above its emergency rating under certain planning event contingencies.

**PLANNED PROJECTS
YEAR 2027**

<u>Project Name:</u>	Leasburg-Hatch 115 kV Line Rating Uprate (Series Element Limitation to be Removed)
<u>Operating Voltage:</u>	115 kV
<u>In Service Date:</u>	May 2027
<u>Peak Modeling Year:</u>	2027
<u>Project Description:</u>	The project consists of removing series element limitations resulting in an uprate of the Leasburg-Hatch 115 kV Line such that a minimum normal capacity rating of 44.6 MVA and an emergency capacity rating of 44.6 MVA are achieved. This project does not involve reconductoring nor rebuilding the line in this year.
<u>Project Justification:</u>	System Planning studies have indicated that this line has the potential to load above its emergency rating under certain planning event contingencies.

**PLANNED PROJECTS
YEAR 2027**

<u>Project Name:</u>	Verde 115 kV Substation (Load Serving Station Portion Added)
<u>Operating Voltage:</u>	115 kV
<u>In Service Date:</u>	May 2027
<u>Peak Modeling Year:</u>	2027
<u>Project Description:</u>	The project involves the addition of a two new 50 MVA 115/23.9 kV transformers to the existing Verde Switching Station resulting in Verde Substation.
<u>Project Justification:</u>	Addition of two new 50 MVA 115/23.9 kV transformers to serve distribution load.

PLANNED PROJECTS YEAR 2027

Project Name: New Amrad SVC device connecting on high-voltage side to Amrad 345 kV side using its own dedicated step-up step up transformer to a dedicated bay, size assumed +/- 100 MVAR (symmetrical range)

Operating Voltage: 345 kV

In Service Date: December 2027

Peak Modeling Year: 2028

Project Description: The existing Static Var Compensator (SVC) is reaching the end of its expected service life. This device provides dynamic MVAR reactive support throughout the Amrad area and supports stabilization of voltage fluctuations in the area. Traditionally, this device has helped with changes in system voltage in the area as the Artesia HVDC terminal operates with a MW schedule on it. However, this device also supports voltage fluctuations under reactive and voltage varying operating conditions such as under contingencies of transmission elements in the general area.

Project Justification: Studies have indicated that the type of dynamic reactive and voltage support will continue to be needed at or near the Amrad area. Engineering studies through 2022 have indicated that a replacement SVC or STATCOM type of device sized +/- 100 MVAR suffices to stabilize the anticipated operating changes in the system in the Amrad area and provide the reliability needs for the area based on study criteria.

Transmission Projects in 2028

**PLANNED PROJECTS
YEAR 2028**

Project Name: Vado Substation 345/115 kV (New)

Operating Voltage: 345/115 kV

In Service Date: May 2028

Peak Modeling Year: 2028

Project Description: The addition of Vado 345/115 kV Substation involves several elements. The project involves an in-and-out connection on the Afton North-Newman 345 kV transmission line with terminations into Vado 345 kV resulting in the Afton North-Vado 345 kV Line and the Vado-Newman 345 kV Line. It is also planned to add two new Vado 345/115 kV Autotransformers to connect the Vado 115 kV/345 kV system. With the addition of Vado Substation in 2028, there will also be an in-and-out connection on the Anthony-Salopek 115 kV Line resulting in the Anthony-Vado 115 kV and Vado-Salopek 115 kV Lines thereafter.

Project Justification: This project is part of the Afton-Afton North-Vado projects scheduled for completion by 2028, that will increase El Paso Import Capability (EPIC). The substation will also increase reliability in the Vado/Anthony area.

**PLANNED PROJECTS
YEAR 2028**

<u>Project Name:</u>	Two Vado 345/115 kV Autotransformers (New)
<u>Operating Voltage:</u>	345 kV and 115 kV
<u>In Service Date:</u>	May 2028
<u>Peak Modeling Year:</u>	2028
<u>Project Description:</u>	It is planned to add two new Vado 345/115 kV Autotransformers to connect the Vado 115 kV/345 kV system.
<u>Project Justification:</u>	This project has been identified as part of a facilities addition required to address and mitigate potential overload conditions under certain planning event contingencies and to enhance system reliability. The two autotransformers are approximately matched capacity wise with the rating of the two 115 kV lines. In addition, each of these autotransformers will be a backup for each other under planned or unplanned out of service conditions of one of them.

**PLANNED PROJECTS
YEAR 2028**

<u>Project Name:</u>	Anthony-Vado 115 kV Double Bundled Line (Rebuild, Reconductor)
<u>Operating Voltage:</u>	115 kV
<u>In Service Date:</u>	May 2028
<u>Peak Modeling Year:</u>	2028
<u>Project Description:</u>	With the addition of Vado Substation in 2028, there will be an in-and-out connection on the Anthony-Salopek 115 kV Line resulting in the Anthony-Vado 115 kV and Vado-Salopek 115 kV Lines thereafter. By this year with the addition of Vado Substation and these connections additional capacity will be needed on the 115 kV lines out of Vado Substation. The new capacity of the Anthony-Vado 115 kV Line must have a minimum of 369 MVA under normal conditions and emergency rating of 492 MVA.
<u>Project Justification:</u>	The increased capacity of this line will allow EPE to serve west El Paso load from the Afton and Vado area increasing reliability and adding system flexibility under contingency and maintenance situations.

**PLANNED PROJECTS
YEAR 2028**

Project Name: Vado-Salopek 115 kV Double Bundled Line (Rebuild, Reconductor)

Operating Voltage: 115 kV

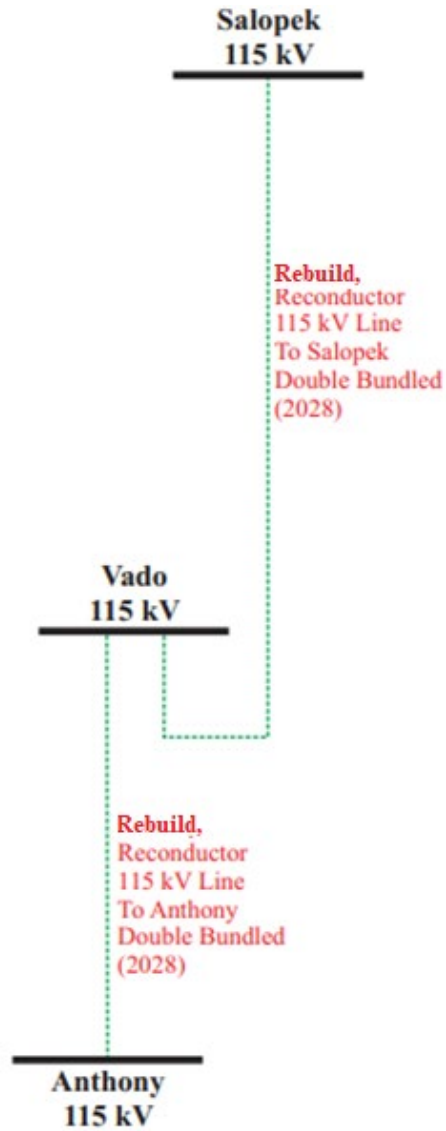
In Service Date: May 2028

Peak Modeling Year: 2028

Project Description: With the addition of Vado Substation in 2028, there will be an in-and-out connection on the Anthony-Salopek 115 kV Line resulting in the Anthony-Vado 115 kV and Vado-Salopek 115 kV Lines thereafter. By this year with the addition of Vado Substation and these connections additional capacity will be needed on the 115 kV lines out of Vado Substation. The new capacity of the Vado-Salopek 115 kV Line must have a minimum of 369 MVA under normal conditions and emergency rating of 492 MVA.

Project Justification: The increased capacity of this line will allow EPE to serve the Las Cruces load from the Afton and Vado area which will increase reliability, system flexibility, and will mitigate potential overload conditions under certain planning event contingencies.

LINE FROM VADO 115 kV TO SALOPEK 115 kV (YEAR 2028)
LINE FROM VADO 115 kV TO ANTHONY 115 kV (YEAR 2028)



NOTE: FOR ILLUSTRATION PURPOSES ONLY.
FINAL DESIGN WILL BE COMPLETED
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AND SR ENGINEERING

**PLANNED PROJECTS
YEAR 2028**

<u>Project Name:</u>	CE4 Substation (New) and Related 115 kV West Loop Line Reconfiguration
<u>Operating Voltage:</u>	115 kV
<u>In Service Date:</u>	May 2028
<u>Peak Modeling Year:</u>	2028
<u>Project Description:</u>	This project involves the addition of a CE4 Substation connected to a total of two 115 kV transmission lines.
<u>Project Justification:</u>	CE4 Substation will be located near the I-10 and Executive area. The addition of CE4 Substation will provide support to the existing feeders and load growth in the area.

**PLANNED PROJECTS
YEAR 2028**

<u>Project Name:</u>	CE4-Executive 115 kV Line (New)
<u>Operating Voltage:</u>	115 kV
<u>In Service Date:</u>	May 2028
<u>Peak Modeling Year:</u>	2028
<u>Project Description:</u>	With the addition of CE4 in 2028, a new CE4-Executive 115 kV Line is planned. The capacity of the new CE4-Executive 115 kV Line must have a minimum of 185 MVA under normal conditions and emergency rating of 246 MVA.
<u>Project Justification:</u>	The CE4-Executive 115 kV Line is one of two sources into CE4 Substation. This project will help mitigate potential overload conditions under certain planning event contingencies.

**PLANNED PROJECTS
YEAR 2028**

Project Name: CE4-Patriot 115 kV Line (Existing, Partial New Build)

Operating Voltage: 115 kV

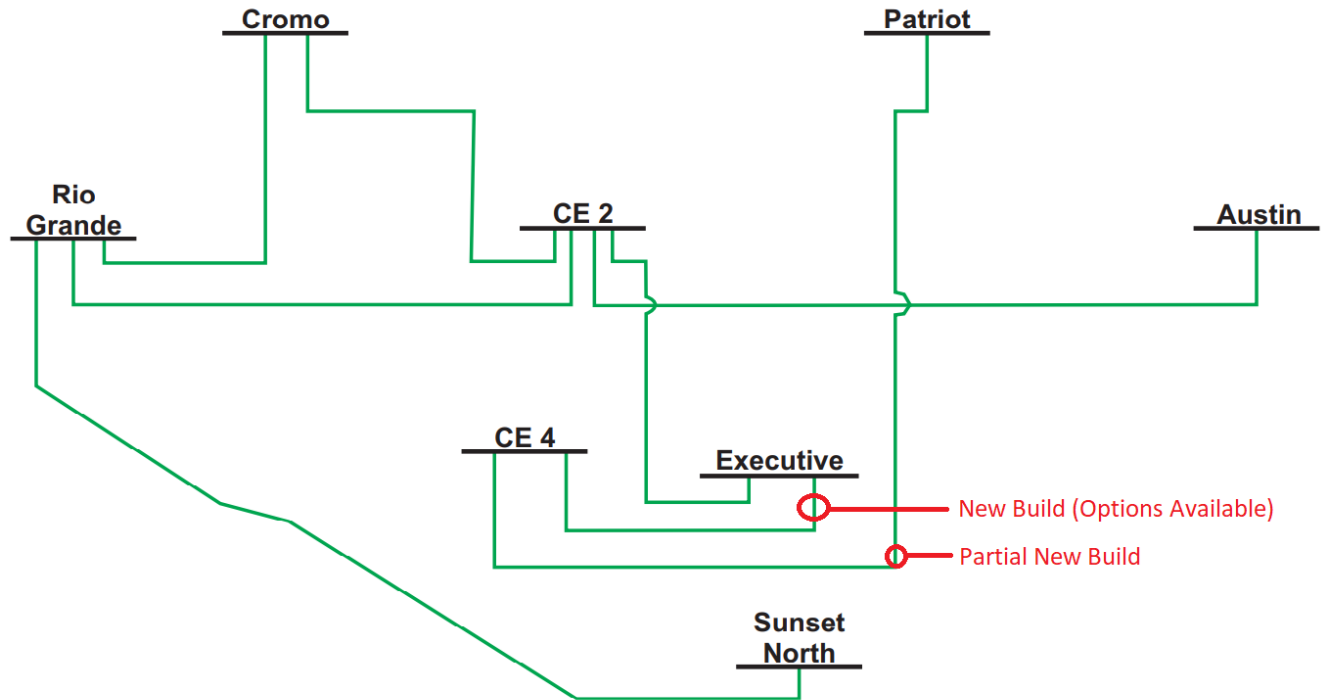
In Service Date: May 2028

Peak Modeling Year: 2028

Project Description: With the addition of CE4 in 2028, an existing line to Patriot Substation plus partial new build is planned (the CE4-Patriot 115 kV Line). New build was assumed from CE4 to the Executive Substation area with a 954 ACSR Rail single conductor rating; however, the portion from the Executive Substation area to Patriot that along with this new build will make up the CE4-Patriot 115 kV Line and the rating of the whole line will remain a minimum of 135.4 MVA under normal conditions and emergency rating of 179 MVA.

Project Justification: The CE4-Patriot 115 kV Line is one of two sources into CE4 Substation. This project will mitigate potential overload conditions under certain planning event contingencies.

**CE4 SUBSTATION (NEW)
AND RELATED 115 kV WEST LOOP LINE RECONFIGURATION
YEAR 2028**



NOTE: FOR ILLUSTRATION PURPOSES ONLY.
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**PLANNED PROJECTS
YEAR 2028**

<u>Project Name:</u>	New Eddy HVDC Tie Replacement
<u>Operating Voltage:</u>	345 kV
<u>In Service Date:</u>	May 2028
<u>Peak Modeling Year:</u>	2028
<u>Project Description:</u>	This project involves options for the replacement of the existing Eddy HVDC Tie.
<u>Project Justification:</u>	The existing Eddy HVDC Tie may at times require legacy parts for maintenance. This existing HVDC Tie is at the end of its lifespan and the replacement parts are becoming difficult to acquire. Because of this, options for a new Eddy HVDC Tie replacement are being considered.

Transmission Projects in 2029

**PLANNED PROJECTS
YEAR 2029**

<u>Project Name:</u>	CE3 Substation (New) and Related 115 kV West Loop Line Reconfiguration
<u>Operating Voltage:</u>	115 kV
<u>In Service Date:</u>	May 2029
<u>Peak Modeling Year:</u>	2029
<u>Project Description:</u>	This project involves the construction of the CE3 Substation with an in-and-out connection on the rebuilt Rio Grande-Sunset North 115 kV Line.
<u>Project Justification:</u>	CE3 Substation will be north of the water treatment plant near Executive Blvd. The addition of CE3 Substation will provide support to the existing feeders and load growth in the area.

**PLANNED PROJECTS
YEAR 2029**

Project Name: CE3-CE4 115 kV Line (New)

Operating Voltage: 115 kV

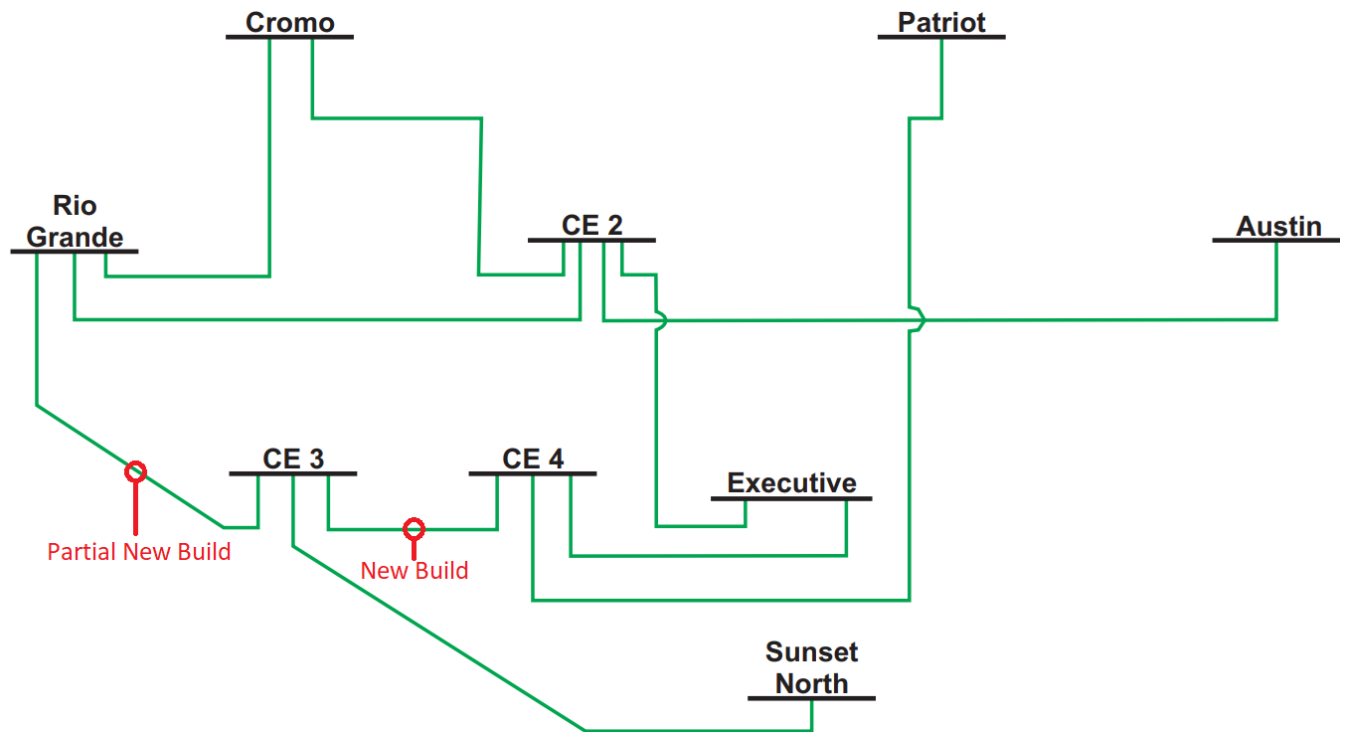
In Service Date: May 2029

Peak Modeling Year: 2029

Project Description: With the addition of CE3 in 2029, a new CE3-CE4 115 kV Line is planned. The new capacity of the CE3-CE4 115 kV Line must have a minimum of 185 MVA under normal conditions and emergency rating of 246 MVA.

Project Justification: The future planned CE3-CE4 115 kV Line is needed in the West Loop area for load serving purposes.

**CE3 SUBSTATION (NEW)
AND RELATED 115 kV WEST LOOP LINE RECONFIGURATION
YEAR 2029**



NOTE: FOR ILLUSTRATION PURPOSES ONLY.
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AND SR ENGINEERING

**PLANNED PROJECTS
YEAR 2029**

<u>Project Name:</u>	McNutt Substation (New) and Related 115 kV Line Reconfiguration
<u>Operating Voltage:</u>	115 kV
<u>In Service Date:</u>	May 2029
<u>Peak Modeling Year:</u>	2029
<u>Project Description:</u>	The new McNutt will be built to serve the load from Rio Grande and Ripley Substations and Rio Grande T12 will be removed sometime after McNutt Substation is in-service. In addition, there are several existing lines and line segments that will connect to McNutt Substation resulting in an EPE transmission system reconfiguration.
<u>Project Justification:</u>	McNutt Substation will be adjacent to the existing Diablo substation. The addition of McNutt Substation will provide support to the existing Rio Grande and Ripley feeders, will help support load growth in the area, and can ultimately lead to the retirement of Rio Grande T12.

Transmission Projects in 2030

**PLANNED PROJECTS
YEAR 2030**

<u>Project Name:</u>	Marlow-Trowbridge 115 kV Double Bundled Line (Rebuild)
<u>Operating Voltage:</u>	115 kV
<u>In Service Date:</u>	May 2030
<u>Peak Modeling Year:</u>	2030
<u>Project Description:</u>	The project consists of reconductoring the Marlow-Trowbridge 115 kV transmission line with conductor that provides a minimum normal capacity rating of 369.6 MVA and a minimum emergency capacity rating of 492.8 MVA.
<u>Project Justification:</u>	This project has been identified as part of a facilities upgrade required to address and mitigate potential overload conditions under certain planning event contingencies.

Transmission Projects in 2031

**PLANNED PROJECTS
YEAR 2031**

Project Name: EA1 Substation (New) and Related 115 kV Line Reconfiguration

Operating Voltage: 115 kV

In Service Date: May 2031

Peak Modeling Year: 2031

Project Description: This project involves the construction of the EA1 Substation with an in-and-out connection on the Scotsdale-Vista 115 kV transmission line with terminations into EA1. The Scotsdale-Vista 115 kV Line will then become the Scotsdale-EA1 115 kV Line and the EA1-Vista 115 kV Line.

Project Justification: The addition of EA1 Substation will provide support to the load growth in the Scotsdale and Vista areas of east El Paso.

**PLANNED PROJECTS
YEAR 2031**

Project Name: NE3 Substation (New) and Related 115 kV Line Reconfiguration

Operating Voltage: 115 kV

In Service Date: May 2031

Peak Modeling Year: 2031

Project Description: This project involves the construction of the NE3 Substation with an in-and-out connection on the Roberts-Pipeline 115 kV transmission line with terminations into NE3. The Roberts-Pipeline 115 kV Line will then become the Roberts-NE3 115 kV Line and the NE3-Pipeline 115 kV Line.

Project Justification: The addition of NE3 Substation will provide support to the aforementioned area addressing steady load growth on Patriot, Milagro, McCombs, and Chaparral Substations.

**PLANNED PROJECTS
YEAR 2031**

<u>Project Name:</u>	WS1 Substation (New) and Related 115 kV Line Reconfiguration
<u>Operating Voltage:</u>	115 kV
<u>In Service Date:</u>	May 2031
<u>Peak Modeling Year:</u>	2031
<u>Project Description:</u>	This project involves the construction of the WS1 Substation with an in-and-out connection on the Nuway-Montoya 115 kV transmission line with terminations into WS1. The Nuway-Montoya 115 kV Line will then become the Nuway-WS1 115 kV Line and the WS1-Montoya 115 kV Line.
<u>Project Justification:</u>	WS1 Substation will be located near the west El Paso Transmountain I-10 intersection area. The addition of WS1 Substation will provide support to the expanding commercial load growth in the area.

**PLANNED PROJECTS
YEAR 2031**

<u>Project Name:</u>	WS2 Substation (New) and Related 115 kV Line Reconfiguration
<u>Operating Voltage:</u>	115 kV
<u>In Service Date:</u>	May 2031
<u>Peak Modeling Year:</u>	2031
<u>Project Description:</u>	This project involves the construction of the WS2 Substation with an in-and-out connection on the Mesa Area Switching Station-Patriot 115 kV Line. The Mesa Area Switching Station-Patriot 115 kV Line will then become the Mesa Area Switching Station-WS2 115 kV Line and the WS2-Patriot 115 kV Line.
<u>Project Justification:</u>	WS2 Substation will be located south of Transmountain and east of I-10. The addition of WS2 Substation will provide support to the area addressing continuing load growth on Thorn, Cromo and Ripley.

**PLANNED PROJECTS
YEAR 2031**

<u>Project Name:</u>	Mesa Area Switching Station (Reintroduced) and Related 115 kV West Loop Line Reconfiguration
<u>Operating Voltage:</u>	115 kV
<u>In Service Date:</u>	May 2031
<u>Peak Modeling Year:</u>	2031
<u>Project Description:</u>	This project involves reintroducing the Mesa Area Switching Station. The switching station is planned to be an in-and-out connection on the CE2-Austin 115 kV Line and an in-and-out connection on the CE4-WS2 115 kV Line.
<u>Project Justification:</u>	By May 2031, the Mesa Area Switching Station will be reintroduced in the West Side Loop (the CE2-CE4 and related substations series of projects). This project will result in the need to reconfigure 115 kV transmission lines to accommodate these changes. This project is part of the West Side Loop and is needed to address and mitigate potential overload conditions under certain N-1 contingencies.

**PLANNED PROJECTS
YEAR 2031**

<u>Project Name:</u>	Ascarate-Copper 115 kV Double Bundled Line (Rebuild)
<u>Operating Voltage:</u>	115 kV
<u>In Service Date:</u>	May 2031
<u>Peak Modeling Year:</u>	2031
<u>Project Description:</u>	The project consists of reconductoring the Ascarate-Copper 115 kV transmission line with conductor that provides a minimum normal capacity rating of 369.6 MVA and a minimum emergency capacity rating of 492.8 MVA.
<u>Project Justification:</u>	This project has been identified as part of a facilities upgrade required to address and mitigate potential overload conditions under certain planning event contingencies.

Transmission Projects in 2032

**PLANNED PROJECTS
YEAR 2032**

<u>Project Name:</u>	Durazno-Ascarate 115 kV Line Rating Uprate (Jumper Limitation to be Removed)
<u>Operating Voltage:</u>	115 kV
<u>In Service Date:</u>	May 2032
<u>Peak Modeling Year:</u>	2032
<u>Project Description:</u>	The project consists of reconductoring the Durazno-Ascarate 115 kV Line transmission line with conductor that provides a normal capacity rating of 185 MVA and an emergency capacity rating of 246 MVA.
<u>Project Justification:</u>	This project has been identified as part of a facilities upgrade required to address and mitigate potential overload conditions under certain planning event contingencies.

**PLANNED PROJECTS
YEAR 2032**

<u>Project Name:</u>	Pendale-Lane 115 kV Line Uprate (Jumper Limitation to be Removed)
<u>Operating Voltage:</u>	115 kV
<u>In Service Date:</u>	May 2032
<u>Peak Modeling Year:</u>	2032
<u>Project Description:</u>	The project consists of reconductoring the Pendale-Lane 115 kV Line transmission line with conductor that provides a normal capacity rating of 185 MVA and an emergency capacity rating of 246 MVA.
<u>Project Justification:</u>	This project has been identified as part of a facilities upgrade required to address and mitigate potential overload conditions under certain planning event contingencies.

**PLANNED PROJECTS
YEAR 2032**

<u>Project Name:</u>	Austin-Marlow 115 kV Double Bundled Line (Rebuild)
<u>Operating Voltage:</u>	115 kV
<u>In Service Date:</u>	May 2032
<u>Peak Modeling Year:</u>	2032
<u>Project Description:</u>	The project consists of reconductoring the Austin-Marlow 115 kV transmission line with conductor that provides a minimum normal capacity rating of 369.6 MVA and a minimum emergency capacity rating of 492.8 MVA.
<u>Project Justification:</u>	This project has been identified as part of a facilities upgrade required to address and mitigate potential overload conditions under certain planning event contingencies.

**PLANNED PROJECTS
YEAR 2032**

<u>Project Name:</u>	CE2-Rio Grande 115 kV Double Bundled Line (Rebuild)
<u>Operating Voltage:</u>	115 kV
<u>In Service Date:</u>	May 2032
<u>Peak Modeling Year:</u>	2032
<u>Project Description:</u>	The project consists of reconductoring the CE2-Rio Grande 115 kV transmission line with conductor that provides a minimum normal capacity rating of 369.6 MVA and a minimum emergency capacity rating of 492.8 MVA.
<u>Project Justification:</u>	This project has been identified as part of a facilities upgrade required to address and mitigate potential overload conditions under certain planning event contingencies.

**PLANNED PROJECTS
YEAR 2032**

<u>Project Name:</u>	Copper-Pendale 115 kV Double Bundled Line (Rebuild)
<u>Operating Voltage:</u>	115 kV
<u>In Service Date:</u>	May 2032
<u>Peak Modeling Year:</u>	2032
<u>Project Description:</u>	The project consists of reconductoring the Copper-Pendale 115 kV transmission line with conductor that provides a minimum normal capacity rating of 369.6 MVA and a minimum emergency capacity rating of 492.8 MVA.
<u>Project Justification:</u>	This project has been identified as part of a facilities upgrade required to address and mitigate potential overload conditions under certain planning event contingencies.