



September 1, 2026

The Honorable Debbie-Anne A. Reese
Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

**RE: El Paso Electric Company, Docket No. ER26 - ____ - 000
Request for Approval of Transmission Rate Incentives**

Dear Secretary Reese:

Pursuant to Sections 205 and 219 of the Federal Power Act (“FPA”),¹ Part 35 of the regulations of the Federal Energy Regulatory Commission (“FERC” or “Commission”),² and Order Nos. 679 *et seq.*,³ El Paso Electric Company (“EPE”) respectfully submits this filing requesting approval of certain transmission incentive treatments related to EPE’s investment in a transmission interconnection tie reliability project (referred to herein as the “Eddy Tie” or “Project”). The Project will rebuild in its entirety and replace the existing high voltage direct current (“HVDC”) tie facility between the Western and Eastern Interconnections of the United States, located outside of the city of Artesia in Eddy County, New Mexico on a parcel of land owned by the Bureau of Land Management (“BLM”). The existing HVDC interconnection tie is nearing the end of its service life and operates intermittently and on a non-firm basis only.

Specifically, EPE respectfully requests the Commission approve the following incentives: 1) authorization to include 100 percent of prudently incurred Construction Work in Progress (“CWIP”) in rate base for the Project (“CWIP Incentive”); 2) recovery of 100 percent of prudently-incurred transmission-related costs of the Project if it is abandoned or canceled for reasons beyond the control of EPE (“Abandoned Plant Incentive”); and 3) the addition of 100

¹ 16 U.S.C. §§ 824d, 824s.

² 18 C.F.R. Part 35.

³ *Promoting Transmission Investment through Pricing Reform*, Order No. 679, 116 FERC ¶ 61,057 (“Order No. 679”), *order on reh’g*, Order No. 679-A, 117 FERC ¶ 61,345 (2006), *order on reh’g*, 119 FERC ¶ 61,062 (2007).

basis points to EPE's base rate of return on equity ("ROE") for its investment in the Project to account for the risks associated with EPE's pursuit of the Project ("ROE Incentive").

The requested incentives satisfy the statutory and regulatory elements for approval and are otherwise just and reasonable, and consistent with Commission precedent.⁴ Accordingly, the Commission should grant the requests submitted herein, and approve the incentives effective December 18, 2026, without hearing, modification, or condition. As discussed below, the requested effective date will closely align with the pace of the pending state regulatory approvals.

I. BACKGROUND

A. El Paso Electric Company

EPE is a vertically integrated electric utility whose primary business is serving native load in far west Texas and southern New Mexico. EPE provides service to approximately 480,000 customers in an area of approximately 10,000 square miles. EPE owns distribution facilities through which it provides service to its customers at retail rates and owns transmission facilities over which it offers service under its Open Access Transmission Tariff ("OATT") on file with the Commission. EPE's transmission rates are governed by the Commission-approved formula rate approved in EPE's last rate case, Docket No. ER22-282-00. The formula-rate template, as approved, has entries necessary to implement the grant of transmission incentives of the kind sought in this filing. EPE rates and services are regulated at the state level by both the New Mexico Public Regulation Commission ("NMPRC") and by the Public Utility Commission of Texas ("PUCT").

B. Description of the Eddy Tie Project

An HVDC tie is a highly specialized power electronic transmission facility that connects two independent, asynchronous alternating current ("AC") power grids, which enables electricity to flow between the two grids without requiring them to be perfectly synchronized in

⁴ *Id.* See also, *Promoting Transmission Investment Through Pricing Reform*, 141 FERC ¶ 61,129 (2012) ("2012 Policy Statement").

phase or frequency. In 1982, EPE and the Texas-New Mexico Power Company (which is now a part of Public Service Company of New Mexico (“PNM”)) received approval from New Mexico state regulators to construct, own, operate, and maintain a direct current (“DC”) terminal adjacent to a Southwestern Public Service Company (“SPS”) switching station in Eddy County, New Mexico; a 345KV transmission line between the DC terminal and the AMRAD substation in Otero County (“AMRAD-Eddy Line”); to expand the AMRAD 115KV substation; and add a new 345KV substation at AMRAD. The Eddy Tie, which was placed in service in 1984, is a 200 MW HVDC back-to-back Line-Commutated Converter that was originally built by General Electric (“GE”). EPE owns 67 percent of the existing facilities, and PNM owns the remaining 33 percent. The replacement HVDC tie will be wholly owned and operated by EPE.

The Eddy Tie is one of only eight back-to-back HVDC ties in the United States that connect the Eastern and Western grids. Most public utility transmission systems in the United States are connected solely to the Western Interconnection *or* the Eastern Interconnection, but not both. EPE is connected to both.

Due to its age, the Eddy Tie has faced limitations in its ability to transfer power between the Eastern and Western grids. Currently, the maximum power transfer capability of the Eddy Tie is restricted to 105 MW of non-firm service to prevent component failures within the Tie. Additionally, there have been numerous unplanned outages caused by a variety of equipment failures, including failed control boards, power electronic valve modules, gassing converter transformers, and faulty high-voltage equipment bushings. Over time, these equipment failures have increased, and sourcing spare parts to keep the Eddy Tie operational has become increasingly difficult and expensive. These unplanned outages have affected the reliability of EPE’s transmission system by limiting the amount of power that can be imported into EPE’s system during the peak months as well as during emergencies and extreme weather events.

The Project includes not only a new HVDC terminal but also upgrades to existing transmission infrastructure on the transmission line emanating from the new terminal. Together, the Project will establish a new firm 345 kV connection between the Western and Eastern Interconnections and enable firm access to resources located on either side of the terminal.

As demonstrated in the sworn testimony accompanying the filing, in addition to re-establishing an additional firm transfer path across the two Interconnections, the Project is

expected to result in both reliability benefits (in the form of load-serving capabilities, especially during emergency and peak conditions), and consumer affordability benefits (in the form of lower costs resulting from greater access to more resources to the east of the tie, while reducing congestion on the western transmission paths). The Project will also effectuate the efficient transfer of power between the two Interconnections and is being designed and constructed in a way that allows it to be substantially expanded over time, without creating additional environmental impacts.

In sum, the Eddy Tie has been in service for more than 40 years and has reached the end of its useful life from an operational perspective and needs to be replaced to maintain system reliability and provide meaningful access between the Eastern and Western Interconnections on a firm basis. The testimonies of EPE Witnesses Jonathan Trejo, Omar Gallegos, Richard Gonzalez and David Hawkins address the Eddy Tie Project, including how it improves reliability and opens market opportunities for power transfers between the two Interconnections. The witnesses also address the financial, construction and regulatory risks associated with EPE's pursuit of this Project, and how the Project is just the type of project the Commission's transmission incentives were designed to foster.

EPE currently estimates that the total cost of the Project will be approximately \$296.5 million. However, the cost of the Project is expected to increase significantly if binding contracts for equipment and construction services are not entered into before year-end 2026.

II. REQUEST FOR TRANSMISSION RATE INCENTIVES

A. Legal Standard

In the Energy Policy Act of 2005, the United States Congress added section 219 to the FPA, directing the Commission to establish, by rule, incentive-based rate treatments to promote capital investment in certain transmission infrastructure.⁵ The Commission then issued Order No. 679 to establish processes by which a public utility may seek transmission rate incentives.⁶ Later, the Commission issued a policy statement to provide guidance regarding its

⁵ *Energy Policy Act of 2005*, Pub. L. No. 109-58, § 1241, 119 Stat. 594 (2005).

⁶ See note 3, *supra*.

evaluation of applications for transmission rate incentives under FPA section 219 and Order No. 679.⁷

The courts have long recognized that a primary purpose of the FPA is to encourage the orderly development of plentiful supplies of electricity at reasonable prices.⁸ To carry out this purpose, the Commission has broad authority to provide incentive rate treatments and may consider non-cost factors, as well as cost factors.⁹ More specifically, under Order No. 679, an applicant must show: (1) that the facilities for which it seeks incentives satisfy the requirements of FPA section 219 (*i.e.*, the projects either ensure reliability or reduce the cost of delivered power by reducing congestion); (2) that the total package of incentives is tailored to address the demonstrable risks or challenges faced by the applicant in undertaking the project (*i.e.*, the incentives meet the “nexus” test); and (3) and that the resulting rates are just and reasonable.¹⁰ As discussed below, the Eddy Tie Project satisfies all of these requirements.

As discussed more fully below, EPE is requesting approval of the CWIP Incentive, the Abandoned Plant Incentive, and an ROE Incentive of 100 basis points for its investment in the Eddy Tie Project. The approval of the requested incentives is consistent with the requirements of FPA Section 219, Commission Order No. 679, and prior Commission precedent.

It is important to note that the Commission does not require applicants to prove whether “but-for” an enhanced ROE, they would not proceed with the proposed project, or to prove that the cost of the incentives is outweighed by the benefits to be received by customers.¹¹ The Commission has established that the requirement that the resulting rates be just and reasonable does not require “but for” tests, as the courts have recognized.¹² Indeed, Congress did not direct such a requirement in FPA section 219.¹³ The Commission has determined that to require an applicant to demonstrate that a proposed incentive is necessary to ensure an investment is made is the equivalent of a “but for” test.¹⁴ That being said, the Commission requires that an

⁷ 2012 Policy Statement.

⁸ See American Electric Power Service Corporation, Incentives Rate Treatment, Order on Rehearing, 118 FERC ¶ 61,041 at P 18 (2007) (citing e.g., CPUC v. FERC, 367 F.3d at 929, citing *NAACP v. FPC*, 425 U.S. 662, 670 (1976)) (“AEP Order on Rehearing”).

⁹ *Id.* (citing Order No. 679-A, 117 FERC ¶ 61,345 at P 39, citing *Permian*, 390 U.S. at 791-92; *CPUC v. FERC*, 367 F.3d at 929; *Maine PUC v. FERC*, 454 F.3d 278, slip op. at 19).

¹⁰ Order No. 679-A at P 27.

¹¹ AEP Order on Rehearing at P 15.

¹² *Id.*

¹³ *Id.*

¹⁴ *Id.* at P 16.

applicant adequately establish a nexus between the incentives requested and the proposed Project.¹⁵ EPE demonstrates in this application the required nexus and provides sufficient information to show that the Project will further the goals of the Commission, as envisioned by Congress, and is therefore eligible for the requested transmission incentives.

B. The Project Promotes Reliability *and* Reduces the Cost of Delivered Power

EPE notes that the Commission requires that an applicant seeking incentive transmission rates demonstrate that the project for which it seeks incentives *either* promotes reliability *or* reduces the cost of delivered power by reducing transmission congestion. This Project does *both*. The Commission in 18 C.F.R. § 35.35(i) and Order 679, established a rebuttable presumption that this requirement is met if a project has received construction approval from an appropriate state commission or state siting authority.¹⁶ EPE has not yet received such construction approval, however EPE has applications pending before both of its state regulatory commissions.

Specifically, on April 13, 2026, EPE filed an application for a Certificate of Public Convenience and Necessity (“CCN”) with the NMPRC in Docket No.26-0000071. On June 3, 2026, EPE filed an application for a CCN with the PUCT in Docket No. 59836. In both applications, EPE has requested a final order no later than December 2026, to avoid cost increases on the major project components of the new terminal. As of the date of this filing, no parties in either of the pending state proceedings have opposed the Project. The NMPRC staff has recommended approval,¹⁷ and EPE is awaiting a final decision from the NMPRC. EPE will update this Commission if the state regulators act on this matter while the instant application is pending.

1) The project promotes reliability

As explained by EPE Witnesses Jonathan Trejo and David Hawkins, the Eddy Tie Project will provide a 200 MW bidirectional link between the Eastern and Western Interconnections on a firm basis. The existing Tie only allows for the single directional (DC) non-firm transmission corridor from one Interconnection to the other and is subject to

¹⁵ *Id.*

¹⁶ See Order No. 679 P. 54; See also 18 C.F.R. § 35.35(i).

¹⁷ A proposed staff final order is expected on September 11, 2026.

prolonged outages due to equipment failures. Outages of the tie can significantly affect reliability. For example, EPE's service territory experienced heatwaves on June 23 and 24, 2026 and the last week of July 2026, which led to several consecutive new all-time peaks. During these periods, the Eddy Tie was unavailable¹⁸ for imports from the Southwest Power Pool ("SPP") into EPE's territory, pushing EPE's import limits from the West to their maximum. Generally, third-party wheeling transactions through the Eddy Tie are currently also very limited due to the non-firm nature of the terminal's capability and the regular occurrence of outages.

Once completed by the end of 2030, the Project will allow for reliable firm services, with up to 200 MWs of transfer capabilities between the Eastern and Western Interconnections of the nation. Witnesses Gallegos and Hawkins explain that even on a non-firm basis, there has been interest in wheeling transactions across the Tie, and if demand increases, EPE could expand the new Tie to a maximum of 1.5 GW of firm transfer capability. Interregional transfer capabilities have been recognized by Congress, the Commission and NERC as important for reliability, especially during extreme weather events.¹⁹ Most recently, Commissioner Rosner emphasized the importance of interregional transmission, stating: "[i]n 2023, Congress directed NERC to study the reliability benefits of interregional transmission. NERC's study - the Interregional Transfer Capability Study - identified a 35 GW gap that, if left unaddressed, will contribute to a grid that is less reliable. This is a concerning finding that we must address."²⁰ The Eddy Tie Project is the type of project that addresses the reliability gap identified by Congress, NERC, and FERC.²¹

2) The project reduces congestion

The Project reduces congestion and increases access to more affordable generation

¹⁸ The Eddy Tie has been out of service since June 9, 2026, and the outage has been extended several times. Currently, the Tie is expected to return into service in mid-September 2026. In short, the Tie has been unavailable for most of the peak summer period.

¹⁹ Testimony of David C. Hawkins at pp. 11-12.

²⁰ FERC Commissioner Rosner's Concurrence in Docket No. ER26-1311-000 (April 13, 2026). Available at https://www.ferc.gov/news-events/news/commissioner-rosners-concurrence-regarding-interregional-transmission-southwest#_ftn2.

²¹ For further discussion of the importance of grid reliability, see White House Executive Order 14262, *Strengthening the Reliability and Security of the United States Electric Grid* (April 8, 2025) (Referring to Executive Order 14156 dated January 20, 2025 (Declaring a National Energy Emergency)). Available at: <https://www.whitehouse.gov/presidential-actions/2025/04/strengthening-the-reliability-and-security-of-the-united-states-electric-grid/>.

resources. Imports into EPE's territory from the West flow primarily through Western Electricity Coordinating Council ("WECC") Path 47, which consists of the 345 kV lines on the western side of the EPE system. When those western lines become constrained, EPE's ability to import power from the West diminishes.²² By unlocking the potential for firm imports to flow from East to West, the Project will alleviate the congestion in the West. In addition, the 200 MW of firm transfer capability that the Project will create will allow entities on both sides of the Eddy Tie to access markets and generating resources they previously could not have taken advantage of. Access to lower-priced generation would reduce consumer prices and increase affordability. The Testimony of EPE Witness Gallegos supports this assertion, with the following facts:

- Currently, customers cannot take full advantage of available lower-cost generation because the Eddy Tie is available at reduced capacity and on non-firm basis. The Tie's condition affects system reliability, especially during summer peak and extreme weather.²³
- Since 2022, there have been a number of peak days when reserve margins fell, and the Eddy Tie was flowing Eastern Interconnection resources to support EPE and the Western Interconnection. These flows allowed EPE to avoid load-shedding.²⁴
- The January 2026 Polar Vortex had great impact on utilities in the Eastern Interconnection. The Eddy Tie was utilized to flow power from resources in the Western Interconnection to load in the Eastern Interconnection during the freeze event. The flows from west to east across the Tie were requested by the Southwest Power Pool as a proactive measure to mitigate resource adequacy risks.²⁵
- There are energy market differentials that exist on either side of the Eddy Tie. Studies have identified the Western and Eastern Interconnections corridors as having the highest average transmission congestion values of \$43/MWh (with the exception of the ERCOT to Southwest corridor, which is valued higher at \$61/MWh).²⁶
- The replacement of the Eddy Tie is expected to result in approximately \$128 million in Net Present Value savings to customers over the 40-year life of the facility.

²² Testimony of David C. Hawkins at pp. 3-4.

²³ Testimony of Omar A. Gallegos at pp. 4 and 10-12.

²⁴ *Id.* at pp. 10-11.

²⁵ *Id.* at pp. 11-12.

²⁶ *Id.* at pp. 17-18.

EPE's evaluation assessed the revenue requirement of its selected portfolio of resources with and without the Eddy Tie. With the replacement Eddy Tie taken into account, the revenue requirement of the selected portfolio was substantially lower. The production cost benefits, fuel and purchased power costs benefits identified in the analysis totaled \$2.45 billion in nominal dollars, or \$464 million on a net present value basis. The Eddy Tie Project would result in a Benefit/Cost Ratio of 1.38, which is a robust result.²⁷

3) The project facilitates regional market expansion

Finally, the Project could facilitate the efforts to enhance markets in the West. Specifically, the WECC region and SPP will have the ability to access each other's resources and transact through the Tie. Organized markets, such as SPP, have historically brought benefits to customers via least-cost dispatch mechanisms. Moreover, should demand for transactions across the new Tie increase in future years, EPE could increase the Tie's capabilities substantially, as discussed above. The Testimony of EPE Witness Hawkins addresses this issue as follows:

- The Project would allow for power to move between the two Interconnections by moving across the market seam through the Eddy Tie. When power resources are more scarce or more constrained on one side of the seam, compared to conditions on the other side of the seam, the terminal allows flows towards the side with greater scarcity or constraints.²⁸
- Firm service across the Tie will provide regional benefits and improved inter-Interconnection transfer capabilities between SPP and WECC. The replacement Eddy Tie's is expected to unlock benefits to customers in the southwestern region, with or without organized markets on the western side of the seam. When organized markets are present on both sides, beneficial transactions across the seam will likely be enhanced.²⁹
- The Brattle Group studied multiple scenarios of EPE's participation in organized western markets, and the impact of the Eddy Tie was included as a benefit to EPE's

²⁷ *Id.* at pp. 21-22.

²⁸ Testimony of David C. Hawkins at p. 13.

²⁹ *Id.* at pp. 9-14.

customers. According to the Brattle Group study, EPE joining Markets + would yield benefits of about \$21.6 million to EPE customers, for the one year evaluated. The overall benefits include benefits from the Eddy Tie.³⁰

- EPE commissioned another study performed by E3, which assumed no organized market on the west side of the new terminal and EPE securing 70 MW of firm Tie transfer capability. E3 identified \$821 million in nominal benefits over a 15-year period (through 2045) from the replacement Eddy Tie. Even if the benefits of avoided new generation costs were not considered, the nominal benefits identified in the analysis through 2045 totaled approximately \$610 million.³¹

Based on these demonstrations, the Eddy Tie Project meets the Commission's first requirement for receiving transmission incentives. Specifically, the Project ensures reliability and reduces the cost of delivered power by reducing congestion in the Western Interconnection.

C. The Total Package of Incentives is Tailored to Address the Project Risks

As discussed below, there is a direct nexus between the risks and challenges of the Project and the incentives sought. When an applicant provides sufficient support to allow the Commission to evaluate each element of the package and the relationship of all elements of the package, this nexus test is met.³² In this filing, EPE provides sufficient information to allow the Commission to evaluate each element of the package, and the relationship of all elements of the package. EPE demonstrates that the Project faces risks that justify the incentives proposed. Such risks include permitting, siting, construction, procurement, labor, and financial risks.

1) Abandoned Plant Incentive

With respect to the Abandoned Plant Incentive, the primary risks that would be outside EPE's control are permitting, siting, construction and procurement risks.³³ These risks are heightened during the pre-construction phase of the Project. State and federal permitting will be required to site the transmission facilities. Specifically, certain areas of the Project are

³⁰ *Id.* at pp.14-15.

³¹ *Id.* at pp. 15-16 and Exhibit DCH-1.

³² 2012 Policy Statement at P 10 (quoting Order No. 679-A at P 40).

³³ Testimony of Omar A. Gallegos at pp. 29-36; *see also* Testimony of Richard S. Gonzalez at pp. 19-25.

subject to easements and other land use restrictions, which means that EPE will have to be successful in securing numerous permits to complete the Eddy Tie. EPE expects that historical or cultural preservation permits, and environmental permits may be necessary. In addition, there are many agencies that are involved in the permitting process, including federal, state, and local agencies. There is no guarantee, of course, that any of the agencies will grant them, or if they are granted, that they will not be made subject to conditions or legal challenge. As previously noted, state commission approvals are currently pending in Texas and New Mexico. Whether regulatory approvals, land rights and other permits can be fully secured is uncertain, and therefore risky.

Even after construction begins, risks are present, especially in the procurement of equipment and materials. Significant supply chain issues are present, since there is a very small pool of suppliers and vendors for the types of components required for the Project and its HVDC features.³⁴

EPE will be shouldering these risks and challenges alone;³⁵ this is not a joint venture pursuit, EPE is developing the Project without project partners or co-owners. Such risks are beyond the control of EPE and are precisely the kinds of risk for which the Abandoned Plant Incentive was designed. EPE's efforts to invest in the Project are directly related to the recovery of prudently-incurred costs. If the Project is abandoned for reasons beyond EPE's control, recovery of these of prudently incurred costs is appropriate.³⁶

2) Construction Work in Progress Incentive

With respect to the CWIP Incentive, EPE's pursuit of the Project means that it will be making significant expenditures for a period of four years before the Project reaches its in-service date.³⁷ The CWIP Incentive would allow for the inflow of cash during this time through the inclusion of 100% of prudently-incurred transmission-related CWIP in rate base. This type of incentive recovery will improve cash flow and reduce rate shock, because unlike the

³⁴ Testimony of Omar A. Gallegos at pp. 24-26; Testimony of Jonathan M. Trejo at p. 24.

³⁵ Testimony of Omar A. Gallegos at pp. 24-27.

³⁶ In the event that EPE seeks abandoned plant recovery for costs expended during the time period prior to the effective date of Commission authorization of its Abandoned Plant Incentive for the Project, EPE would be eligible to seek recovery of 50% of its prudently-incurred costs, consistent with prior precedent. *See, e.g., San Diego Gas & Elec. Co.*, 154 FERC ¶ 61,158, *order on reh'g*, 157 FERC ¶61,056 (2016).

³⁷ Testimony of Richard S. Gonzalez at pp. 4-6, 15-17, 20-25.

alternative Allowance for Funds Used During Construction (“AFUDC”) treatment, the facilities will be allowed to earn a return on CWIP in rate base during the time before the facilities are in-service. This promotes affordability for customers by lessening the impact of the new facilities.³⁸

With CWIP treatment, when the facilities are placed in service, EPE's rates would be lower than they otherwise would be under AFUDC treatment. EPE would not accrue AFUDC on any of the components of the Project during any period when those components are earning a current return on CWIP in rate base. First, under its accounting procedures, EPE will assign each project that has a Commission-approved CWIP incentive a unique Work Breakdown Structure (“WBS”) number for internal cost tracking purposes.³⁹ Second, EPE will record actual construction costs to each WBS through work orders that are coded to correspond to the WBS for the project. Costs incurred under these work orders will be separately identifiable from costs incurred for transmission facilities for which the EPE has not requested CWIP treatment.⁴⁰ Third, EPE requests waiver of the Commission's regulations related to CWIP in 18 C.F.R. §§ 35.13(h)(38), 35.25(c)(4) and (g). Such regulations were designed primarily for CWIP associated with generation projects, and the Commission has waived them in the context of transmission incentives granted under Order No. 679.⁴¹

In addition, EPE's currently effective formula rate template has fields embedded within it that will permit projects allowed CWIP in rate base to be specifically identified and treated in a way that will protect against concurrent AFUDC treatment. The CWIP Incentive addresses timing issues associated with the recovery of large transmission investments and allows recovery of a return on construction costs during the construction period, rather than delaying cost recovery until the plant is in service.⁴² This type of rate treatment is directly related to the recovery of prudently incurred costs.

Lastly, EPE proposes to provide transparency with respect to its investment through the annual filing of FERC-730, Report of Transmission Investment Activity.⁴³ The annual FERC-730 requires EPE to provide information regarding transmission investment costs and project

³⁸ *Id.* at 5.

³⁹ *Id.* at pp. 6-7.

⁴⁰ *Id.*

⁴¹ *See, e.g., New York Transco, LLC, et al.*, 185 FERC ¶ 61,222 at P 53 (2023).

⁴² Order No. 679-A at P 38, and 2012 Policy Statement at P 12.

⁴³ Testimony of Richard S. Gonzalez at pp. 7-8.

construction status, including estimated completion dates. In addition, EPE will use its existing processes and protocols under its currently effective transmission formula rates to identify and reflect the CWIP entries into EPE's OATT rates. These existing processes provide transparency to customers.⁴⁴

3) Return on Equity Incentive

With respect to the ROE Incentive, the Commission stated in Order No. 679-A that incentive ROEs for new transmission projects would be authorized if particular risks and challenges are demonstrated. In the 2012 Policy Statement, additional guidance was provided. There, the Commission identified four showings that an applicant is expected to make to justify an ROE adder: (1) that the proposed project faces risks and challenges that are not either already accounted for in the applicant's base ROE or addressed through risk-reducing incentives; (2) that the applicant has taken appropriate steps and implemented appropriate mechanisms to minimize the risks during project development; (3) that alternatives to the project have been or will be considered in either a relevant transmission planning process or another appropriate forum, and (4) whether the applicant commits to limit the application of the ROE adder to a cost estimate.⁴⁵ The Project satisfies all four showings identified in the 2012 Policy Statement.

a) The Project is Exactly the Type of Project that the Commission Anticipated Would Face Risks and Challenges Not Already Accounted For or Addressed

In the 2012 Policy Statement, the Commission offered examples of the types of projects that it would anticipate may face the types of risks and challenges that would not be addressed by either the base ROE or risk-reducing incentives: (a) projects to relieve chronic or severe grid congestion that has had demonstrated cost impacts to consumers; (b) projects that unlock location constrained generation resources that previously had limited or no access to the wholesale electricity markets; (c) projects that apply new technologies to facilitate more efficient and reliable usage and operation of existing or new facilities.⁴⁶

The Eddy Tie Project is a prime example of *all three types* of projects that the

⁴⁴ *Id.*

⁴⁵ 2012 Policy Statement at PP 20, 24, 25, and 28.

⁴⁶ 2012 Policy Statement at P 21 and n.28.

Commission identified in the 2012 Policy Statement. First, it will relieve congestion on the western transmission paths that EPE must use to import power into its service territory. Access to resources from the East, over a tie that is capable of moving 200 MW of power on a firm basis, will lessen reliance on congested western import paths. Second, the Eddy Tie Project will directly connect, on a firm basis, generation resources in SPP to consumers in WECC, and generation resources in WECC to consumers in SPP. Third, the Eddy Tie Project will use the latest advanced technology, technology that is emerging and not widely in service in the United States. The technology will allow for maximum flow optimization between the Western and Eastern Interconnections.

The testimony of EPE witnesses David Hawkins and Omar Gallegos address the Project's impacts, with an emphasis on the first and second project categories: providing congestion relief on western transmission import paths and unlocking currently constrained access to generation located on the other side of the Interconnection seam. David Hawkins provides an evaluation of wheeling transactions for the past five years,⁴⁷ and demonstrates how firm service across the Eddy Tie (firm service that the Project will create) will provide reliability and customer benefits and open up a path for inter-Interconnection transfer capabilities between SPP and WECC.⁴⁸ Witness Omar Gallegos further addresses the Eddy Tie Project's ability to reduce congestion on western transmission paths and to unlock resources by providing firm transfer capability between the two Interconnections.⁴⁹ In addition, Mr. Hawkins addresses how the Project's capability to move power across the seam of the nation's two electric Interconnections on a firm basis is expected to unlock benefits to customers in the southwestern region, even without the presence of organized markets on the western side of the seam.⁵⁰

EPE commissioned a study in which it assumed that (a) a replacement Eddy Tie is in service in 2030, *without* the presence of an organized market on the west side of the new terminal, and that (b) EPE relied upon a limited portion (70 MW) of the 200 MW of firm transfer capability that the new Tie would enable, in service to EPE's customers. The study was performed by E3. It identified \$821 million in nominal benefits over a 15-year period (from

⁴⁷ Testimony of David C. Hawkins at p. 9.

⁴⁸ *Id.* at pp. 10-14.

⁴⁹ Testimony of Omar A. Gallegos at pp. 13-18.

⁵⁰ Testimony of David C. Hawkins at pp. 10-14.

2030 through 2045) from the replacement Eddy Tie.⁵¹ These benefits were the result of offsetting new generation builds within EPE's service territory by 70 MW of firm capacity purchases over the Eddy Tie, as well as capturing benefits of SPP market opportunities on the east side of the Eddy Tie.⁵² Access to resources to the east of the Tie has been constrained because they could not reliably flow through the Tie towards the Western Interconnection. These resources would be unlocked by the new Tie's firm capabilities. The same is true with respect to access to western resources — resources currently constrained, but that would be unlocked for those consumers located on the east side of the seam.

EPE witness David Hawkins also addresses congestion relief impacts when organized markets are present on both sides of the seam. He explains that EPE had the Brattle Group study multiple scenarios of EPE's participation in organized western markets. The scenarios evaluated the organized market benefits using a one-year snapshot of system and market conditions for 2032. As a component of these scenarios, the impact of a new Eddy Tie was included in the study assumptions. The Eddy Tie scenarios all showed various levels of benefits to EPE's customers depending on the market choice of EPE's neighboring utilities. According to these analyses, EPE joining Markets + would yield benefits of about \$21.6 million to EPE customers, for that one year evaluated. These overall benefits include benefits from firm transfers across the Eddy Tie.⁵³

EPE witness Jonathan Trejo addresses the third category of projects identified by the Commission, demonstrating how the Project will apply new technologies to facilitate more efficient and reliable usage and operation of the facilities.⁵⁴ As Mr. Trejo explains, the new HVDC tie will utilize the latest Voltage Source Converter ("VSC")-based technology, which represents advanced power electronic devices known as Insulated-Gate Bipolar Transistors in a modular multi-level converter ("MMC") arrangement. The selection of VSC, or VSC-based technology, for modern HVDC interconnections reflects the electric industry's transition toward more flexible, controllable, and resilient transmission solutions. The application of VSC-based technology represents a new technology that will facilitate more efficient and reliable usage and

⁵¹ *Id.* at pp. 16-17.

⁵² Even if the benefits of avoiding new generation builds were not included, E3 identified \$610 million in benefits. Testimony of David C. Hawkins at p.16 and Exhibit DCH-1.

⁵³ Testimony of David C. Hawkins at p. 14.

⁵⁴ Testimony of Jonathan M. Trejo at pp. 16-24.

operation of the new facility.⁵⁵

Unlike earlier HVDC systems that relied on thyristor-based converters (like the existing Eddy Tie), VSC technology is built upon advanced power electronic devices known as Insulated-Gate Bipolar Transistors, or IGBTs. These devices are fundamentally different in that they are fully controllable switches. That means operators can turn them on and off with precision (and from remote locations), allowing real-time control over both the magnitude and direction of power flow. This capability is critical in today's grid environment, where power must be routed dynamically and reliably between regions, including across systems that are not synchronized. The full capability of these IGBT devices is realized through what is known as a modular multilevel converter, or MMC, architecture. Rather than relying on a single large converter, the MMC design uses many smaller, identical submodules, each containing IGBT switches and a capacitor. These submodules are connected in series to collectively produce the very high voltages required for HVDC transmission.⁵⁶

This modular structure provides several key advantages. First, it enables scalability. By stacking these smaller building blocks together, the system can reach extremely high voltage levels while using proven, lower-voltage components. Second, it improves reliability. Because the system is composed of many submodules, redundancy can be built in, allowing the converter to continue operating even if individual components are taken offline for maintenance or experience a fault. Third, the MMC arrangement produces a highly refined electrical output. By coordinating the switching of hundreds of IGBTs, the converter creates a waveform that is very close to a smooth wave. As a result, there is significantly less electrical distortion, which reduces the need for additional filtering equipment and improves overall efficiency. In addition, VSC-based MMC systems provide operational capabilities that are not achievable with earlier HVDC technologies. They can independently generate or absorb reactive power, which allows them to support voltage levels on the grid. They can also operate effectively in weak or even de-energized systems, enabling so-called "black start" capabilities and facilitating integration with renewable energy resources. Finally, power flow in a VSC system can be reversed simply by changing the direction of current, without needing to reverse the polarity of the DC voltage. This makes these systems particularly well-suited for multi-terminal networks and evolving grid

⁵⁵ *Id.* at 14-21.

⁵⁶ *Id.* at 17-18.

configurations.⁵⁷

The VSC-based, high-voltage direct current technology proposed for the Project represents an advanced and relatively recent evolution in transmission infrastructure—one that is not yet widely deployed within the United States. While high-voltage direct current transmission itself has existed for several decades, the modern form of that technology—based on self-commutated converters utilizing IGBTs in a modular multilevel converter configuration—has only been developed and commercialized in more recent years. This newer architecture provides significant operational advantages, including enhanced controllability, improved efficiency, and the ability to interconnect asynchronous systems. However, despite those benefits, its adoption within the United States remains limited. The United States currently has only a limited number of HVDC transmission lines in operation overall, and those facilities are relatively isolated. The majority of the existing transmission grid continues to rely on conventional alternating current technology, reflecting historical development patterns and longstanding infrastructure investments.⁵⁸ The Eddy Tie Project's reliance on new, highly-advanced technology makes it different.

The level of deployment of the latest-available VSC-based HVDC technology is very limited. Industry data indicates that North America accounts for only a small share of VSC-based HVDC systems in operation worldwide, demonstrating that the United States is still in the early stages of adopting this advanced technology. Although VSC-based HVDC technology is recognized as an effective means of interconnecting asynchronous systems such as the Eastern and Western Interconnections, relatively few such projects have been constructed in the United States. It is an emerging technology within the United States — one that can meet the evolving challenges of the nation's electric grid more effectively than traditional technologies.⁵⁹

b) EPE is Taking Steps and Has Implemented Appropriate Mechanisms to Minimize Risks During Project Development

EPE is committed to using best practices in project management and procurement. First, EPE solicited for qualified vendors before identifying a supplier for the HVDC major

⁵⁷ *Id.* at pp. 18-19.

⁵⁸ *Id.* at pp. 21-23.

⁵⁹ *Id.* at p. 24.

elements with which to proceed.⁶⁰ Second, EPE selected a vendor with proven capabilities and expertise.⁶¹ Third, EPE is striving to enter into binding contractual terms before year-end in order to lock-in more favorable pricing of project components.⁶² Finally, EPE is seeking risk-reducing incentives for the Project in the form of the Abandoned Plant Incentive. In addition, EPE has designed the Project in a manner that would allow substantial future expansion, thus potentially lowering the cost of any necessary upgrades.

c) EPE Considered Alternatives to the Project

EPE considered but rejected alternatives to the Project.⁶³ For example, EPE considered refurbishing the existing terminal, and contacted vendors to evaluate that option.⁶⁴ Such efforts were unsuccessful. The existing terminal is not capable of being refurbished.⁶⁵ EPE's evaluation then turned to the only alternative — pursuit of a new terminal. One of the major reasons the Eddy Tie Project is superior to other means of creating firm access across the seam between the Western Interconnection and the Eastern Interconnection is that it is being pursued at a location adjacent to EPE's current transmission system.⁶⁶ This eliminated the need for the installation of long, costly line extensions across a vast territory for which land rights are difficult to secure. As proposed, the investment is focused on construction of a new state-of-the-art HVDC terminal at a location next to the current non-firm-only terminal.⁶⁷ Selecting alternative locations would have resulted in additional expenses and time to permit and build the Project. In contrast, by pursuing the Eddy Tie Project, EPE will have an opportunity to secure firm access across the Interconnection seam within four years.⁶⁸

⁶⁰ *Id.*

⁶¹ *Id.*

⁶² *Id.* at 25-26.

⁶³ *Id.* at pp. 12-13, 16. *See also* Testimony of Omar A. Gallegos at pp. 22-24.

⁶⁴ Testimony of Jonathan M. Trejo at p. 13.

⁶⁵ *Id.*

⁶⁶ The Project's location — on the seam between the Western Interconnection and the Eastern Interconnection — means that it is not considered a regional or interregional transmission project under EPE's FERC-approved OATT. It is a transmission project that electrically connects the nation's two electric Interconnections, rather than a transmission project that electrically connects two or more transmission systems within a single planning region, or two or more planning regions within a single Interconnection.

⁶⁷ Testimony of Jonathan M. Trejo at pp. 14-23.

⁶⁸ Assuming all permits, land rights, and regulatory authorizations are granted, procurement and construction delays should be limited in scope.

d) EPE is Willing to Limit Application of the ROE Incentive Adder in the Event the Actual Total Project Cost Exceeds the Estimate

As to this fourth showing for transmission incentives eligibility under the 2012 Policy Statement, the Commission stated that it would be “open to approaches that control transmission development costs and provide more transparency regarding how incentives will be applied to costs beyond initial estimates.”⁶⁹ EPE commits that should the actual total cost of the Project exceed the estimate of \$296,538,466 identified in this filing, it will limit its ROE Incentive Adder such that the ROE Incentive Adder would not apply to that portion of the total Project cost that exceeds the total Project estimate by greater than 25 percent. In short, 125 percent of \$296,538,466 will act as a ceiling above which the ROE Incentive Adder will not be applied. In making this filing, EPE seeks to provide transparency in the limitation of the ROE Incentive Adder. Because EPE’s currently-effective transmission formula rate template already contains fields that permit implementation of transmission incentives, EPE would use its existing template as the vehicle by which it would implement the ROE Incentive Adder approved by the Commission in response to the instant application.

D. The Resulting Rates are Just and Reasonable

EPE's base ROE has been determined to be just and reasonable.⁷⁰ The proposed ROE Incentive Adder is within the range of adders approved by the Commission in other dockets,⁷¹ and is particularly appropriate here, given the Commission’s 2012 Policy Statement. As noted above, in the 2012 Policy Statement, the Commission offered three types of examples of projects that may face the types of risks and challenges that would not be addressed by either

⁶⁹ 2012 Policy Statement at P 28.

⁷⁰ *El Paso Electric Co.*, 188 FERC ¶ 61,104 (2024) (approving EPE's base ROE).

⁷¹ *New York Power Authority*, 188 FERC ¶ 61,022 (2024) (approving applicant's proposed 75 basis point ROE incentive adder); *New York Transco, LLC, et al.*, 185 FERC ¶ 61,222 (2023) (approving a 75 basis point ROE incentive adder); *Northeast Utilities Service Co.*, 124 FERC ¶ 61,044 (2008) (confirming, on rehearing, the grant of a 100 basis point ROE incentive adder on top of the applicant's 10.4% base ROE, while also permitting a separate adder of up to 50 basis points for use of advanced technology). The total combined ROE adder of up to 150 basis points granted in the Northeast Utilities Service Company case involved a Middletown-to-Norwalk Project in Southwest Connecticut (“SWCT”). The project completed a 345-kV loop into SWCT to integrate the region as a load center with New England’s 345-kV transmission system. The SWCT project did not yield inter-regional benefits. Unlike the Eddy Tie Project, neither the SWCT project nor any of the other projects crossed and connected the nation's two major electric Interconnections. The project that is the subject of the instant filing — one that involves a transmission project bridging the seam between the nation's two major electric Interconnections using advanced technology — warrants an incentive adder established at the proposed 100 basis point level.

the base ROE or risk-reducing incentives. The Eddy Tie Project meets the criteria of *all three types*, and it does so by creating firm inter-Interconnection access between the Western Interconnection and the Eastern Interconnection of the United States. An ROE Incentive Adder of 100 basis points is appropriate in such circumstances.

In addition, it is important to recognize that instead of investing capital in other projects, EPE has voluntarily chosen (as a sole investor) to commit a large amount of capital to build backbone high voltage transmission facilities that it believes will increase reliability and reduce the cost of delivered power on both sides of the seam by reducing transmission congestion. This, coupled with the high financial, construction, and supply chain risks, all support the need for an ROE incentive at the requested level.⁷²

III. COMMUNICATIONS

Communications regarding this filing should be sent to the following individuals:

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IV. REQUEST FOR EFFECTIVE DATE AND ACCEPTANCE FOR FILING

EPE respectfully requests that the Commission approve its transmission incentives with an effective date of December 18, 2026.

⁷² AEP Order on Rehearing, at P 32 (approving an ROE in the “upper end of the zone of reasonableness” and positively recognizing the voluntary nature of the investment in backbone transmission facilities.).

V. FILING CONTENTS

This filing contains the following items:

1. This transmittal letter;
2. Attachment A – Testimony of Jonathan M. Trejo
3. Attachment B – Testimony of Omar A. Gallegos
4. Attachment C – Testimony of David C. Hawkins
5. Attachment D – Testimony of Richard S. Gonzalez

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that the foregoing document was served on each person for whom service is required under the Commission regulations.

Dated at El Paso, Texas, this first day of September, 2026.

/s/ Milena Yordanova

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Attachment A – Testimony of Jonathan M. Trejo

**UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION**

El Paso Electric Company

)

Docket No. ER26-__-000

**DIRECT TESTIMONY OF

JONATHAN M. TREJO

ON BEHALF OF

EL PASO ELECTRIC COMPANY**

September 1, 2026

EL PASO ELECTRIC COMPANY
DIRECT TESTIMONY OF
JONATHAN M. TREJO

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EXHIBITS

- Exhibit JMT-1: Review of LCC-HVDC and VSC-HVDC Technologies and Applications (IEEE Xplore Industry Article).
- Exhibit JMT-2: Connecting the Country with HVDC, High-Voltage Direct Current (HVDC) transmission has significant advantages compared to conventional alternating current (AC) line (U.S. Department of Energy’s, Office of Electricity).

**EL PASO ELECTRIC COMPANY
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1 **I. INTRODUCTION AND QUALIFICATIONS**

2 **Q1. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

3 **A.** My name is Jonathan M. Trejo. My business address is 100 N. Stanton Street,
4 El Paso, Texas 79901.

5

6 **Q2. WHO IS YOUR CURRENT EMPLOYER AND WHAT POSITION DO YOU**
7 **HOLD?**

8 **A.** I am employed by El Paso Electric Company (“EPE” or the “Company”) as the
9 Manager of the Protection, Metering, Automation, and Control Department.

10

11 **Q3. PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND**
12 **PROFESSIONAL EXPERIENCE.**

13 **A.** I graduated from New Mexico State University with a Bachelor of Science degree
14 in Engineering in 2007, a Master of Business Administration with a specialization
15 in Finance in 2010, and a Master of Science degree in Electrical Engineering in
16 2013. I received a Graduate Certificate in Public Utility Regulation & Economics
17 from New Mexico State University in 2019. I am a licensed Professional Engineer
18 (“P.E.”) in the states of Texas, New Mexico, and Arizona and hold a Professional
19 Project Management certificate through the Project Management Institute.

20 In 2012, I began working for EPE as a Substation & Protection Engineer,
21 specializing in the design of high voltage substations and protection and control
22 schemes. In 2013, I transitioned to a Protection and Control Engineer, a position I

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1 held until 2020, when I was promoted to Principal Protection and Control Engineer.
2 In this role, I was responsible for the design, implementation, and commissioning
3 of several high voltage protection and control projects, investigating and
4 researching new technologies, and developing standards related to protection and
5 control engineering. I also served as the subject matter expert for all protection and
6 control standards of the North American Electric Reliability Corporation
7 (“NERC”). Additionally, I assisted with the operation and maintenance of the Eddy
8 County HVDC Tie, including sourcing spare parts and troubleshooting of the Tie
9 during unplanned outages. In 2021, I was promoted to Supervisor of Protection and
10 Control Engineering, overseeing the design of complex high voltage protection and
11 control schemes, SCADA upgrades, telemetry, and metering schemes. In 2024, I
12 was promoted to be the Manager of Protection, Metering, Automation and Control
13 group.
14 In addition, I occasionally teach graduate lab courses in electrical engineering
15 focusing on power systems and protection at New Mexico State University.

16

17 **Q4. WHAT ARE YOUR CURRENT RESPONSIBILITIES WITH EPE?**

18 **A.** As the Manager of Protection, Metering, Automation, and Control, I oversee and
19 lead activities related to the engineering, construction and maintenance of EPE’s
20 protection and metering systems. The Protection and Control Department’s
21 responsibilities include designing, constructing, and testing protection and control
22 systems needed for the safe and reliable operation of the electric grid. The Metering

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1 Department's responsibilities include the installation and testing of metering
2 systems on residential, commercial, industrial, and other large customers. In
3 addition, the Metering Department is also responsible for the metering of all
4 generation facilities (both conventional and inverter-based generation) and tie-lines
5 within the EPE service territory.
6

7 **II. PURPOSE OF DIRECT TESTIMONY**

8 **Q5. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

9 **A.** The purpose of my testimony is to support EPE's Application for Approval of
10 Transmission Rate Incentives ("Application") for a project designed to replace the
11 existing Eddy High Voltage Direct Current ("HVDC") Tie (the "Eddy Tie" or
12 "Tie"). Specifically, my testimony describes the existing Eddy Tie, including its
13 design, current operating condition, and the technical and operational limitations
14 resulting from its age and obsolescence. I explain why the existing facility can no
15 longer reliably serve its intended purpose and why replacement, rather than
16 refurbishment, is necessary. My testimony also describes the proposed replacement
17 facility, including the new and advanced HVDC technology EPE plans to deploy;
18 the benefits of that technology to the transmission system; and the manner in which
19 the new facility will unlock location constrained generation resources, enhance
20 reliability, resiliency, and operational performance. In addition, I summarize the
21 transmission-related upgrades that will support the replacement project and
22 describe how EPE plans to maintain operations during construction. Finally, I

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1 describe the estimated capital cost of the replacement project and related facilities,
2 and explain how the proposed project represents a necessary investment that will
3 allow for reliable interconnection transfer capability between the Eastern and
4 Western Interconnections for the benefit of EPE's customers and third-party users
5 of the electric grid.
6

7 **Q6. ARE YOU SPONSORING ANY EXHIBITS IN SUPPORT OF YOUR**
8 **TESTIMONY?**

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

- 10 • Exhibit JMT-1: Review of LCC-HVDC and VSC-HVDC Technologies and
11 Applications (IEEE Xplore Industry Article).
- 12 • Exhibit JMT-2: Connecting the Country with HVDC, High-Voltage Direct
13 Current (HVDC) transmission has significant advantages compared to
14 conventional alternating current (AC) line (U.S. Department of Energy's,
15 Office of Electricity). Also available at [Connecting the Country with HVDC](#)
16 [| Department of Energy](#)

17

18 **III. DESCRIPTION OF THE EXISTING EDDY TIE**

19 **Q7. PLEASE DESCRIBE THE EXISTING EDDY TIE FACILITY.**

20 A. The existing Eddy Tie was designed at its inception to be an HVDC back-to-back
21 Line-Commutated Converter ("LCC") with a maximum capability of 200 MW. It
22 was originally built by General Electric ("GE") and placed into service in 1984.
23 The Eddy Tie is located in Eddy County, New Mexico, approximately 10 miles east
24 of Artesia, New Mexico, on a parcel of Bureau of Land Management ("BLM")

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land. The Eddy Tie is one of only eight back-to-back HVDC ties located in the United States. It is used to connect the Eastern and Western grids.

Q8. WHAT IS AN HVDC TIE?

A. An HVDC tie is a highly specialized power electronic transmission facility that connects two independent, asynchronous alternating current (“AC”) power grids, which enables electricity to flow between the two grids without requiring them to be perfectly synchronized in phase or frequency. Please see Figure JMT-1 below for an electrical schematic of an HVDC tie.

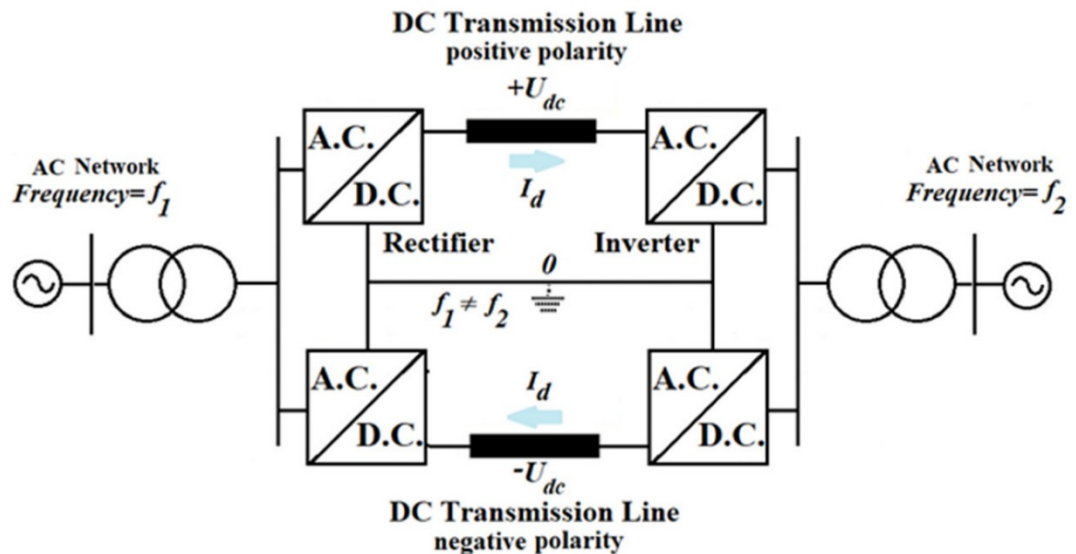


Figure JMT-1 – HVDC Tie Schematic

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1 **Q9. WHY DOES THE TRANSMISSION SYSTEM IN THE U.S. NEED HVDC**
2 **TIES?**

3 **A.** The U.S. grid is divided into two main, separate, and asynchronous
4 interconnections: Eastern and Western. In addition, there is a portion of Texas
5 (ERCOT) that is operated independently from the Eastern and Western
6 Interconnections. HVDC ties are essential to connect these otherwise independent
7 power grids. HVDC ties are the only way to move power between these
8 independent systems, as they allow electricity to be converted to direct current
9 ("DC"), bypassing the need for perfect frequency and phase angle synchronization.
10 Essentially, HVDC ties act as electricity highways allowing power to bypass
11 congested alternating current ("AC") lines, which strengthens the grid during
12 emergency, weather-related shortages. HVDC ties enable reliable electricity
13 transfer between the grids. They also facilitate energy integration and enhance grid
14 resilience against severe weather disasters. Figure JMT-2 below shows the location
15 of the existing HVDC ties that connect the Eastern Grid to the Western Grid.

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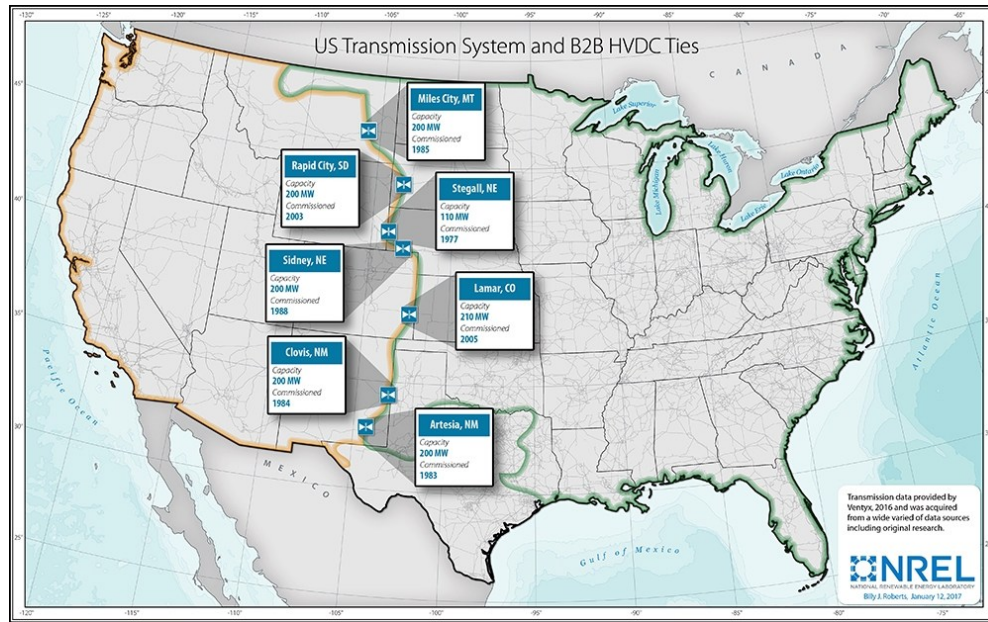


Figure JMT-2 – HVDC Tie Locations

**Q10. IS THE EXISTING EDDY TIE CAPABLE OF PERFORMING AS
ORIGINALLY DESIGNED?**

A. No. The Tie is not capable of performing at its original design of 200 MW. Even at a reduced level, it is not capable of performing in a way that would support power transfers on a firm basis from one Interconnection to the other. The Tie's current capabilities are non-firm only.

IV. CURRENT CONDITION OF THE EDDY TIE

Q11. WHEN WAS THE EDDY TIE BUILT?

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1 **A.** The Eddy Tie was built in 1983 and commissioned in 1984, so it has been in
2 operation for over 40 years. Given this age, and for the reasons I will explain in
3 detail in this section of my testimony, the Eddy Tie must be replaced.

4
5 **Q12. HAS THE FACILITY’S AGE AFFECTED ITS ABILITY TO SERVE ITS**
6 **INTENDED PURPOSE?**

7 **A.** Yes. Due to its age, the Eddy Tie has faced limitations in its ability to transfer power
8 between the Eastern and Western grids. Currently, the maximum power transfer
9 capability of the Eddy Tie is restricted to 105 MW to prevent component failures
10 within the Tie. Additionally, there have been more unplanned outages due to the
11 failure of older equipment. In recent years, the Tie has experienced unplanned
12 outages caused by failed control boards, power electronic valve modules, gassing
13 converter transformers, and faulty high-voltage equipment bushings. As time has
14 passed, equipment failures have increased, and sourcing spare parts to keep the Tie
15 operational has become increasingly difficult. These unplanned outages have
16 affected the reliability of EPE’s transmission system by limiting the amount of
17 power that can be imported into EPE’s system during the peak months, and by
18 subjecting those power flows to frequent interruption. The import capability from
19 the Eastern Interconnection is non-firm only.

20

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1 **Q13. PLEASE EXPLAIN HOW THE CONDITION OF THE EXISTING EDDY**
2 **TIE IS AFFECTING THE RELIABILITY OF EPE'S TRANSMISSION**
3 **SYSTEM.**

4 **A.** The current Eddy Tie is available for use on a non-firm basis only. Due to the
5 number and duration of outages at the Tie, the Tie is incapable of supporting
6 firm transmission service across it. This prevents EPE and other entities from
7 securing firm transmission capacity across the Tie. From a resource and
8 transmission planning perspective, therefore, EPE cannot rely on the Tie. This
9 inability to book the Tie to import long-term generation capacity has decreased the
10 operational flexibility of EPE's transmission system. In addition, currently there
11 are operating limits on the Tie that limit its total transfer capability, which will be
12 later discussed in my testimony.

13

14 **Q14. PLEASE DESCRIBE THE MAINTENANCE OF THE FACILITY OVER**
15 **ITS LIFETIME.**

16 **A.** Until relatively recently, the maintenance of the Eddy Tie was primarily managed
17 by Southwestern Public Service Company ("SPS"), which owns and operates
18 significant transmission facilities on the eastern side of the Eddy Tie. SPS routinely
19 performed maintenance on the Tie either annually or bi-annually. For example,
20 every year SPS would take the Tie down for maintenance and perform maintenance
21 activities on all the major equipment (transformers, breakers, filters, switchgear,
22 valve modules, relays, etc.). For several years, the Tie was taken down twice a year

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1 to perform the same maintenance activities. SPS also performed weekly inspections
2 of the Eddy Tie to ensure that all equipment was operating as intended and
3 designed.

4 In the last ten years, SPS has expressed concerns about the ability to find
5 replacement parts for the maintenance of the Eddy Tie. Since that time, EPE and
6 SPS have collaborated on the maintenance of the Tie.

7

8 **Q15. DOES EPE PAY FOR THE MAINTENANCE COST?**

9 **A.** Yes. EPE pays approximately two-thirds of the total cost of maintenance for the
10 Tie. A third-party owner, Public Service Company of New Mexico ("PNM"), pays
11 the remaining one-third.

12

13 **Q16. WHAT IS THE TYPICAL LIFESPAN FOR AN HVDC TIE?**

14 **A.** Numerous research papers published by the Electric Power Research Institute
15 ("EPRI") and the Institute of Electrical and Electronic Engineers have concluded
16 that the typical lifespan of a back-to-back HVDC tie is approximately thirty to forty
17 years.

18

19 **Q17. IS THE EDDY TIE AT THE END OF ITS OPERATIONAL LIFE?**

20 **A.** Yes. The Eddy Tie has been in operation for over 40 years and has reached the end
21 of its useful life from an operational perspective. Back-to-back HVDC stations of
22 this vintage were not designed to exceed their intended lifespan, despite any

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1 incremental improvements. Its sister unit, located in Oklaunion, Texas, was a nearly
2 identical back-to-back 200 MW tie built and commissioned by GE in 1984, the
3 same year the Eddy Tie was commissioned. In 2014, the Oklaunion DC tie was
4 decommissioned and fully replaced. EPE has managed, with difficulty, to
5 scavenger for parts to keep the Eddy Tie alive (though not robust) for twelve years
6 longer than the life-span of the Oklaunion DC tie. Simply put, the Eddy Tie has
7 long exceeded its life expectancy.

8

9 **Q18. IS THE EXISTING EDDY TIE EXPERIENCING FREQUENT OUTAGES?**

10 **A.** Yes. Over the past five years, the Eddy Tie has experienced a total of thirty-five
11 unscheduled outages, primarily due to the failure of aging components and
12 equipment. For instance, in 2020, the 230kV converter transformer was replaced
13 due to internal gassing. In 2021, there were thyristor and valve module failures. In
14 2023, control boards failed, and in 2024, faulty high voltage bushings were found
15 and replaced on the 345kV shunt reactor. Most recently, in 2025, the Tie
16 encountered a failure of a three-phase battery charging system. Each of these
17 failures resulted in the Tie being out of service while solutions were investigated
18 and implemented. Whenever a failure occurs or components or equipment are
19 replaced, it comes with a cost that is ultimately borne by customers.

20

21 **Q19. HOW HAVE THESE OUTAGES AFFECTED THE DAY-TO-DAY**
22 **OPERATION OF THE TIE?**

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1 **A.** As discussed above, the total transfer capability of the Tie is currently limited to
2 105 MW. This limitation is primarily due to the increase in failed power electronic
3 modules when the Tie is run above the 105 MW capacity limit. Also, there is
4 potential damage to the Tie from repeated on/off cycling; the Tie cannot withstand
5 stops and starts. To increase the chances that the Tie would survive its repeated
6 unplanned outages, EPE established operational limits which include the following:

- 7 • The minimum “on” time is three days or 72 continuous hours.
- 8 • The minimum “off” time is two days or 48 continuous hours.
- 9 • The minimum net schedule is 35 MW.
- 10 • 24-hour advance notice is required for a system impact study and
11 coordination with SPS (acting as operating agent) as to start/stop times in
12 order to schedule crews to be on site.

13

14 **Q20. IS IT FEASIBLE TO UPGRADE OR REFURBISH THE EXISTING EDDY**
15 **TIE?**

16 **A.** No. A major overhaul or refurbishment is not possible. Even if it were possible, it
17 would not be cost-effective. A complete refurbishment of the Tie would require the
18 replacement of all of the power electronic components, control systems, cooling
19 equipment, and high-voltage substation equipment. From a cost perspective, a
20 complete refurbishment would net to approximately the same cost as building a
21 new DC tie. However, as I address below, complete refurbishment is not possible.
22 In addition, a complete overhaul would require the Tie to be taken out of service
23 for a substantial amount of time, which would eliminate any opportunity for non-
24 firm transfers from one Interconnection to the other. In contrast, constructing the

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1 new Tie will allow EPE to continue to operate the old facility on non-firm basis
2 until the Project is completed.
3

4 **Q21. HAS EPE REACHED OUT TO ANY VENDORS TO SEE IF THE**
5 **EXISTING TIE CAN BE REFURBISHED?**

6 **A.** Yes. EPE has had discussions with the original manufacturer of the Eddy Tie (GE
7 Vernova) regarding a refurbishment of the existing Tie. During those discussions,
8 GE notified EPE that GE could only support the refurbishment of the HVDC power
9 electronic valve modules, but all the other major components could not be
10 refurbished because they were in end-of-life condition. In other words, a complete
11 refurbishment of the existing Eddy Tie is not possible. As a result, EPE has
12 proceeded to refurbish the power electronic valve modules to help extend the life
13 of the Eddy Tie while EPE goes through the process of planning for the replacement
14 of the Tie.
15

16 **Q22. IF THE EXISTING FACILITY IS NOT REPLACED AT THIS TIME, HOW**
17 **MUCH LONGER DO YOU ESTIMATE IT WILL REMAIN OPERABLE?**

18 **A.** Given the current condition of the Tie and its equipment, it is anticipated that the
19 Tie could remain operational for another year or perhaps another few years. EPE
20 has implemented a power electronic valve module replacement program to allow
21 the Tie to function while EPE seeks regulatory approvals to replace the Tie. This

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1 module would not create firm transfer capability across the Tie. The expectation,
2 though, is that the new module will allow for continued non-firm power transfers.
3

4 **V. DESCRIPTION OF THE NEW HVDC TECHNOLOGY**

5 **Q23. PLEASE DESCRIBE THE TECHNOLOGY THAT THE NEW FACILITY**
6 **WILL USE.**

7 **A.** The new 200 MW back-to-back HVDC tie will utilize the latest Voltage Source
8 Converter (“VSC”)-based technology, which represents advanced power electronic
9 devices known as Insulated-Gate Bipolar Transistors in a modular multi-level
10 converter (“MMC”) arrangement. This arrangement will be complemented by the
11 Control & Protection system, consisting of centralized computers with discrete
12 processing, high speed communications, and customized software. Additionally,
13 the new facility will incorporate modern asset monitoring and cybersecurity
14 systems, enabling EPE to operate and maintain the new facility with maximum
15 efficiency. These are significant upgrades over the existing facility.

16

17 Figure JMT-3 below shows a picture of VSC HVDC valve hall with an MMC
18 arrangement.

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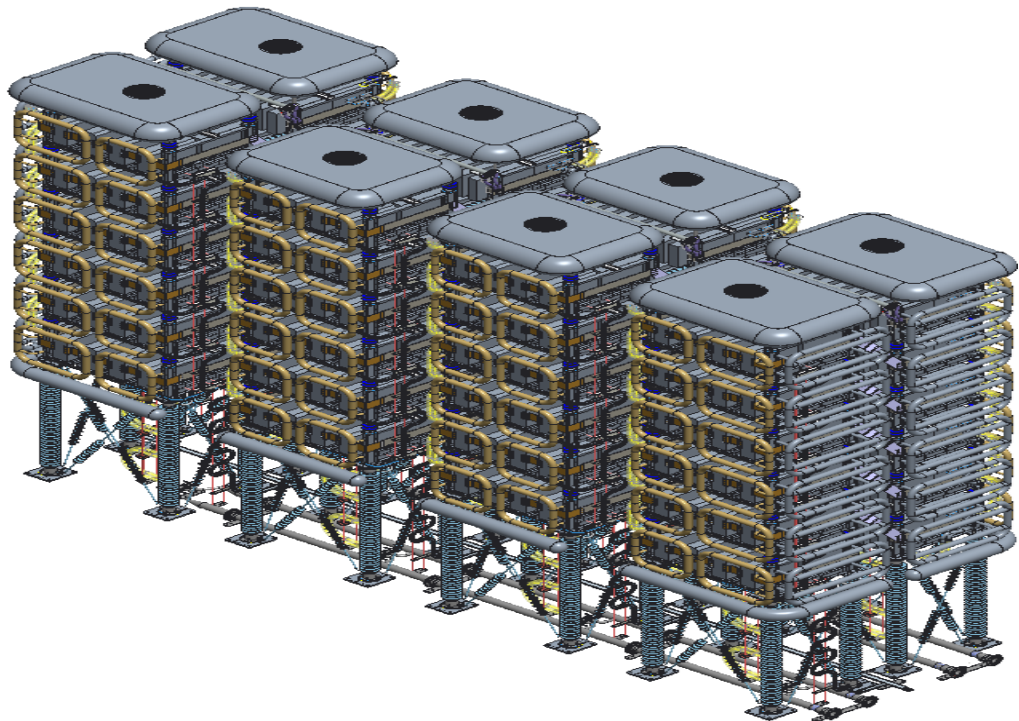


Figure JMT-3 – VSC MMC Valve Hall & Technology

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1 **Q24. PLEASE DESCRIBE THE AVAILABLE ALTERNATIVES FOR HVDC**
2 **TECHNOLOGY.**

3 **A.** There is only one available alternative to a HVDC tie. It is called a Variable
4 Frequency Transformer (“VFT”). VFTs are like HVDC ties in that they can connect
5 two asynchronous grids together. However, VFTs operate similar to a conventional
6 power system machine, using a rotor and stator to exchange power via magnetic
7 coupling, whereas HVDC ties use power electronics to control the exchange of
8 power.

9 **Q25. IS THE VFT TECHNOLOGY A FEASIBLE OPTION?**

10 **A.** No, not in my opinion. VFTs do not provide the same benefits that HVDC ties
11 provide. For example, VFTs have slower dynamic response for faults and limited
12 real and reactive power controllability, compared to HVDC VSC technology. VFT
13 technology is not widely used. I am aware of only one such installation in the
14 United States. In addition, there is only one vendor in the world that can provide
15 this solution. For all of these reasons, I believe that pursuing VFT technology would
16 be an inferior alternative. HVDC VSC technology is a much better solution for the
17 Eddy Tie replacement.

18

19 **Q26. PLEASE DESCRIBE WHY THE HVDC VSC TECHNOLOGY IS**
20 **CONSIDERED SUPERIOR FOR PROJECTS LIKE THE EDDY TIE.**

21 **A.** The selection of VSC, or VSC-based technology, for modern HVDC
22 interconnections reflects the electric industry’s transition toward more flexible,

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1 controllable, and resilient transmission solutions. Furthermore, the selection of
2 VSC technology for the Eddy Tie Project is directly responsive to the Federal
3 Energy Regulatory Commission’s (“FERC” or “Commission”) Transmission
4 Incentive Policy, which identifies several types of projects that FERC anticipated
5 may face the types of risks and challenges that could support the agency’s grant of
6 a return on equity (“ROE”) adder and other risk-responsive incentives. One of these
7 types of projects is reserved for projects that apply new technologies to facilitate
8 more efficient and reliable usage and operation of existing or new facilities.¹ In my
9 opinion, the application of VSC-based technology represents a new technology that
10 will facilitate more efficient and reliable usage and operation of the new Eddy Tie
11 facility.

12 Unlike earlier HVDC systems that relied on thyristor-based converters (like the
13 existing Eddy Tie), VSC technology is built upon advanced power electronic
14 devices known as Insulated-Gate Bipolar Transistors, or IGBTs. These devices are
15 fundamentally different in that they are fully controllable switches. That means
16 operators can turn them on and off with precision (and from remote locations),
17 allowing real-time control over both the magnitude and direction of power flow.
18 This capability is critical in today’s grid environment, where power must be routed
19 dynamically and reliably between regions, including across systems that are not
20 synchronized.

¹ 2012 Policy Statement at P 21 and n.28.

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1 The full capability of these IGBT devices is realized through what is known as a
2 modular multilevel converter, or MMC, architecture. Rather than relying on a
3 single large converter, the MMC design uses many smaller, identical submodules,
4 each containing IGBT switches and a capacitor. These submodules are connected
5 in series to collectively produce the very high voltages required for HVDC
6 transmission. This modular structure provides several key advantages.

7 First, it enables scalability. By stacking these smaller building blocks together, the
8 system can reach extremely high voltage levels while using proven, lower-voltage
9 components.

10 Second, it improves reliability. Because the system is composed of many
11 submodules, redundancy can be built in, allowing the converter to continue
12 operating even if individual components are taken offline for maintenance or
13 experience a fault.

14 Third, the MMC arrangement produces a highly refined electrical output. By
15 coordinating the switching of hundreds of IGBTs, the converter creates a waveform
16 that is very close to a smooth wave. As a result, there is significantly less electrical
17 distortion, which reduces the need for additional filtering equipment and improves
18 overall efficiency.

19 In addition, VSC-based MMC systems provide operational capabilities that are not
20 achievable with earlier HVDC technologies. They can independently generate or
21 absorb reactive power, which allows them to support voltage levels on the grid.
22 They can also operate effectively in weak or even de-energized systems, enabling

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1 so-called “black start” capabilities and facilitating integration with renewable
2 energy resources.

3 Finally, power flow in a VSC system can be reversed simply by changing the
4 direction of current, without needing to reverse the polarity of the direct current
5 (“DC”) voltage. This makes these systems particularly well-suited for multi-
6 terminal networks and evolving grid configurations.

7 For all of these reasons—the precision control enabled by IGBTs, the scalability
8 and redundancy of the modular multilevel design, and the operational flexibility
9 required by modern power systems – VSC-based HVDC technology is the right
10 solution for the Eddy Tie replacement project today.

11

12 **Q27. PLEASE DESCRIBE THE BENEFITS OF THE NEW TECHNOLOGY**
13 **SPECIFICALLY FOR EPE’S TRANSMISSION SYSTEM AND REGION.**

14 **A.** HVDC VSC technology offers several benefits to the EPE power grid. First, HVDC
15 VSC systems allow for precise control of power flow, reactive power, and voltage,
16 which is crucial for maintaining grid stability for EPE. Secondly, an HVDC VSC
17 system can operate as a grid-forming technology, meaning it can maintain grid
18 frequency and voltage even in the absence of conventional generators, a feature
19 essential for black-start capabilities. Voltage control is especially important for
20 EPE, because EPE is seeing a large increase in inverter-based resources which will
21 require the precise control of voltages. HVDC VSC systems can also independently
22 absorb reactive power, which provides voltage support on either side of the tie *even*

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1 *when there is no power transfer across it.* Lastly, HVDC VSC systems exhibit
2 excellent AC fault ride-through capabilities, enabling them to continue operating
3 during grid disturbances, including extreme weather events, thereby enhancing grid
4 resilience.

5 **Q28. ARE THERE OTHER SIGNIFICANT BENEFITS OF THE SELECTED**
6 **NEW TECHNOLOGY?**

7 **A.** Yes. The new HVDC VSC technology will help alleviate water consumption in
8 the Artesia region due to its integrated cooling technology. This is extremely
9 important for EPE's service territory because it is located in the desert southwest
10 region, which is limited in water resources. The existing Eddy Tie uses an open-
11 loop cooling system, which relies on water's evaporative effect to cool the HVDC
12 power electronic valves. In contrast, the new VSC valve cooling designs are closed-
13 loop, meaning there is virtually no water loss in the system. Currently, the Eddy
14 Tie facility consumes nearly 1.6 million gallons of groundwater annually, primarily
15 for the valve cooling system. The new VSC technology will decrease this water
16 consumption *to almost zero gallons of water consumption per year.* This decrease
17 in water consumption will also help to decrease the monthly O&M cost for water
18 usage at the new HVDC tie.

19

20 **Q29. HAS EPE CONDUCTED ANY STUDIES RELATED TO THE NEW HVDC**
21 **TECHNOLOGY AND ITS IMPACT TO THE GRID?**

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1 **A.** Yes. EPE hired Power Engineers (now WSP) to conduct feasibility studies for the
2 addition of the new HVDC VSC technology to the EPE power grid. These studies
3 included steady-state power flow analysis, transient stability analysis, and short-
4 circuit analysis. The studies also included the voltage control capabilities needed
5 from the tie to maintain system reliability as well as the ride through characteristics
6 needed from the tie to keep the system intact during system disturbances. Overall,
7 the studies concluded that the new technology would integrate with EPE's system,
8 with some needed system upgrades, including an increase in capacity on the 345kV
9 line from Amrad to Empire substations and installation of optical ground wire on
10 the transmission line. Those upgrades are discussed in greater detail later in my
11 testimony.

12
13 **Q30. PLEASE DESCRIBE IF THE HVDC VSC TECHNOLOGY IS NEW AND**
14 **HOW IS IT BEING DEPLOYED WITHIN THE USA FOR PROJECTS**
15 **SIMILAR TO THE EDDY TIE.**

16 **A.** The VSC, or VSC-based, high-voltage direct current technology proposed for this
17 project represents an advanced and relatively recent evolution in transmission
18 infrastructure—one that is not yet widely deployed within the United States.
19 While high-voltage direct current transmission itself has existed for several
20 decades, the modern form of that technology—based on self-commutated
21 converters utilizing Insulated-Gate Bipolar Transistors in a modular multilevel
22 converter configuration—has only been developed and commercialized in more

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1 recent years. This newer architecture provides significant operational advantages,
2 including enhanced controllability, improved efficiency, and the ability to
3 interconnect asynchronous systems. However, despite those benefits, its adoption
4 within the United States remains limited.

5 In fact, the United States currently has only a relatively small number of HVDC
6 transmission lines in operation overall. The majority of the existing transmission
7 grid continues to rely on conventional alternating current (“AC”) technology,
8 reflecting historical development patterns and longstanding infrastructure
9 investments.

10 More importantly, when focusing specifically on the latest-available VSC-based
11 HVDC technology—the type proposed here—the level of deployment is even more
12 limited. Industry data indicates that North America accounts for only a small share
13 of VSC-based HVDC systems in operation worldwide, demonstrating that the
14 United States is still in the early stages of adopting this advanced technology.

15 Consistent with that observation, only a handful of projects in the United States has
16 implemented VSC-based HVDC systems for transmission or interconnection
17 purposes. These projects, such as the Cross-Sound Cable between New York and
18 New England and the Trans Bay Cable in California, were developed to address
19 specific reliability and congestion challenges in localized areas. While they
20 demonstrate the technical feasibility and benefits of the technology, they do not
21 represent widespread or routine deployment across the national grid.

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1 Although HVDC—and especially VSC-based HVDC—is widely recognized as an
2 effective means of interconnecting asynchronous systems such as the Eastern,
3 Western, and ERCOT interconnections, relatively few such projects have been fully
4 constructed in the United States. Instead, much of the recent activity in this space
5 consists of proposed or planned projects that have not yet reached commercial
6 operation.

7 Taken together, these facts demonstrate that VSC-based HVDC technology, while
8 proven and increasingly utilized internationally, remains an emerging technology
9 within the United States. Its deployment is still limited to a small number of
10 projects, and it has not yet been adopted on a broad, national basis.

11 For purposes of the Commission’s analysis of the transmission incentives proposed
12 in EPE’s Application, this relative lack of widespread deployment is significant. It
13 underscores the degree to which projects utilizing this technology involve unique
14 characteristics, including technical complexity, integration challenges, and
15 development risks, that differ from more conventional transmission investments.

16 At the same time, it highlights the forward-looking nature of such projects, which
17 are designed to address evolving grid needs that cannot be met as effectively with
18 traditional technologies.

19 In sum, the VSC-based HVDC technology proposed for the Eddy Tie Project is
20 both advanced and emerging within the U.S. context: it is not yet commonly
21 deployed, but it is increasingly recognized as an important component of the future

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1 transmission grid. By utilizing this latest technology, the new Eddy Tie will
2 facilitate more efficient and reliable usage and operation of the facility.

3

4 **VI. SELECTION OF NEW TECHNOLOGY AND VENDOR**

5 **Q31. HAS EPE SELECTED THE VENDOR FOR THE REPLACEMENT OF THE**
6 **EDDY TIE?**

7 **A.** Yes. EPE intends to proceed with GE Vernova as the vendor for the replacement
8 of the Eddy Tie. Given the complexity and the niche market of HVDC technology,
9 there are only four proven vendors in the world that can manufacture HVDC ties.
10 These vendors are GE Vernova, Siemens, Hitachi, and Mitsubishi.

11

12 **Q32. WHAT WERE THE FACTORS LEADING TO LEADING TO EPE'S**
13 **SELECTION OF GE VERNOVA AS THE VENDOR?**

14 **A.** The main factors leading to the selection of a vendor were as follows: technical
15 capability, lead time and price. GE Vernova's proposal led on all three aspects
16 when compared to the other vendors. GE Vernova was also the only vendor to
17 provide a firm price and schedule compared to the other vendors during the bidding
18 process. Its price, though, will expire at year-end, and is subject to increase at that
19 time. Firm pricing is important. Favorable approval of the instant application will
20 help make the project a reality, and will allow EPE to satisfy the conditions
21 precedent to locking in vendor pricing.

22

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1 **Q33. WHAT IS THE TOTAL CAPITAL COST FOR THE REPLACEMENT OF**
2 **THE TIE?**

3 **A.** The estimated cost to replace the Eddy Tie (not including Allowance for Funds
4 Used During Construction, or AFUDC) is \$289,391,575 if certificates of Public
5 Convenience and Necessity from state regulators and approval of EPE's instant
6 Application for transmission incentives are obtained by the end of 2026. This
7 amount includes a cost of \$242,600,000 from GE Vernova for the major
8 components of the HVDC tie (i.e. transformers, valves, protection and control
9 equipment, DC components, AC components, etc.); \$3,483,250 for civil
10 construction costs (foundations, conduit, ground grid, construction costs, removal
11 of old equipment etc.); \$10,500,000 for the site preparation (grading, drainage,
12 etc.); \$6,500,000 for the new valve hall building needed to house the power
13 electronic valves, cooling equipment, and protection and control equipment; and
14 \$26,308,325 for a ten percent contingency cost on the project. The Project also
15 requires a limited number of improvements to the EPE transmission line that is to
16 connect to the new terminal. I address those improvements in the pages that follow.

17

18 **Q34. WILL THE COST OF THE PROJECT CHANGE IF APPROVALS ARE**
19 **OBTAINED AFTER THE END OF 2026?**

20 **A.** Yes. The \$242,600,000 price of the GE Vernova contract described above assumes
21 regulatory approvals are granted prior to December 31, 2026, all of which are
22 necessary for the project to proceed in a timely fashion and adhere to the projected

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1 costs. Specifically, approvals of EPE's applications for Certificate of Convenience
2 and Necessity from state regulators, as well as approval of the instant Application
3 before the Commission, are necessary.

4 GE Vernova's price was negotiated with the understanding that GE would need to
5 reserve manufacturing slots and to commit engineering and other resources to the
6 Project. If approvals occur after December 31, 2026, the estimated cost of the GE
7 Vernova contract will increase to \$270,000,000, or approximately 11 percent
8 higher. The increase in cost reflects long-term price uncertainty being experienced
9 by electrical sub-station equipment manufacturers and the demand for equipment
10 driven largely by data center growth. There is currently a large demand for HVDC
11 projects in Europe and Asia, and therefore it is difficult for any vendor to guarantee
12 prices past twelve to eighteen months. The higher contract price would raise the
13 total cost of the project over \$317 million. If approvals occur after June 30, 2027,
14 the price of the new Eddy Tie will have to be renegotiated with GE Vernova.

15

16 **Q35. DOES EPE NEED TO ACQUIRE ANY NEW LAND RIGHTS TO**
17 **IMPLEMENT THE PROJECT? IF SO, AT WHAT COST?**

18 **A.** Yes. As I mentioned above, the existing Eddy Tie is located on BLM land. EPE
19 is in the process of acquiring an easement of approximately sixteen acres of land
20 from the BLM for the replacement of the Tie. This property will be located adjacent
21 to the existing Eddy Tie as shown in Figure JMT-4 below. The red area in the figure
22 is the easement that EPE is pursuing with the BLM to build the new replacement

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tie, while the lightly-shaded green area to the south of the new easement is the location of the existing Eddy Tie. The cost for the 30-year easement is \$46,891.



Figure JMT-4 – BLM Easement for New HVDC Tie, as Proposed by EPE

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VII. TRANSMISSION UPGRADES

Q36. IS EPE SEEKING THE PRICE OF THE TRANSMISSION UPGRADES TO BE INCLUDED IN THE CONSIDERATION FOR TRANSMISSION INCENTIVES?

A. Yes. EPE is seeking approval not only of the new Tie, but also of the transmission upgrades associated with the new Tie.

Q37. PLEASE DESCRIBE THE TRANSMISSION-RELATED ASPECTS OF THE PROJECT.

A. The transmission-related aspects of the project involve replacing one existing wood H-Frame 345kV transmission structure along the 125-mile transmission line commencing at Amrad Substation and terminating at Empire Substation. Empire substation is approximately 2200 feet east of the Eddy Tie. The existing wood structure is to be replaced with a steel H-Frame structure designed in accordance with current EPE Transmission Construction Standards, applicable to National Electrical Safety Code (“NESC”) requirements, and EPE loading criteria. The project will increase phase-to-ground clearances and restore the line to achieve a higher MVA capacity. The existing line segment is presently limited to 400 MVA due to conductor sag limitations caused by clearance constraints. Following replacement of the identified structure, the line is expected to achieve a higher capacity.

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1 The Project also includes the installation of optical ground wire (“OPGW”) along
2 the full route between Amrad Substation and Empire Substation. The OPGW will
3 provide high-speed fiber optic communications necessary to support protective
4 relaying, SCADA, system protection schemes, and integration of the proposed Tie.

5

6 **Q38. HOW DID EPE DETERMINE THAT ONE TRANSMISSION STRUCTURE**
7 **NEEDED TO BE UPGRADED?**

8 **A.** EPE performed clearance evaluations using LiDAR survey data and PLS-CADD
9 modeling. These analyses indicated that, to achieve a higher MVA rating, one span
10 along the Amrad - Empire 345kV line did not provide sufficient phase-to-ground
11 clearance under applicable loading and temperature conditions to support the
12 conductor's thermal capability at the higher MVA rating. The clearance limitations
13 would have reduced the operational line rating to approximately 400 MVA, without
14 the structure upgrade. As a result, one wood structure was identified for
15 replacement with a taller steel structure to increase the rating.

16

17 **Q39. WHAT IS THE APPROXIMATE COST OF THE TRANSMISSION-RELATED**
18 **UPGRADES?**

19 **A.** The estimated cost of the transmission-related upgrades (transmission structure
20 replacement and high-speed fiber connection) related to the project is \$7,100,000.
21 EPE is including the transmission-related aspects of the project in the total Project
22 cost.

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1 **VIII. OPERATIONS DURING CONSTRUCTION**

2 **Q40. WHEN IS THE PROJECT TARGETED TO BE FULLY OPERATIONAL?**

3 **A.** Assuming that EPE can receive all necessary regulatory approvals by the end of
4 December, it is projecting that the replacement Eddy Tie could be fully operational
5 by the fourth quarter of 2030. If the approvals take longer, then it is projected that
6 the replacement Eddy Tie could be operational by the fourth quarter of 2031 (but
7 delay will mean that the overall costs will increase, as explained above).

8

9 **Q41. WILL THE PROJECT REQUIRE THE EXISTING TIE TO BE TAKEN**
10 **OUT OF SERVICE?**

11 **A.** No. Since EPE is pursuing the acquisition of new land rights to build the
12 replacement Eddy Tie, the existing Tie can remain in service until the new tie is
13 completed and fully commissioned. If EPE were not acquiring the new land rights,
14 the existing Tie would have been taken out of service for approximately 18 to 24
15 months to rebuild the tie in the existing location.

16

17 **Q42. WILL SPS CONTINUE TO MAINTAIN THE EDDY TIE ONCE THE**
18 **REPLACEMENT EDDY TIE IS COMPLETED?**

19 **A.** No. EPE will lead all maintenance and operation efforts related to the new DC Tie.
20 With the proposed new VSC MMC technology, the new Eddy Tie will only need
21 to be taken out of service for one week each year to perform maintenance activities.
22 The new Tie will also have remote monitoring capabilities that will notify EPE

personnel of any alarms or maintenance needs, which means that maintenance crews will only need to be dispatched for major maintenance items. EPE's System Operations Team will be operating the Tie.

6 Q43. DOES THIS CONCLUDE YOUR TESTIMONY?

7 **A.** Yes, it does.

**UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION**

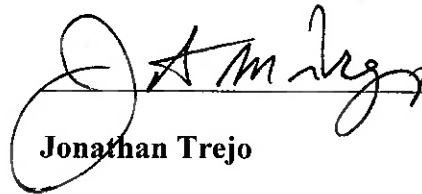
El Paso Electric Company

)

Docket No. ER26-__-000

VERIFICATION

I, Jonathan Trejo, being duly sworn, state that the contents of the foregoing affidavit are true, correct, and accurate to the best of my knowledge, information, and belief.



Jonathan Trejo

Dated: 7/23/26

Exhibit JMT_1

A Review of LCC-HVDC and VSC-HVDC Technologies and Applications

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Abstract—High Voltage Direct Current (HVDC) systems has been an alternative method of transmitting electric power from one location to another with some inherent advantages over AC transmission systems. The efficiency and rated power carrying capacity of direct current transmission lines highly depends on the converter used in transforming the current from one form to another (AC to DC and vice versa). A well configured converter reduces harmonics, increases power transfer capabilities, and reliability in that it offers high tolerance to fault along the line. Different HVDC converter topologies have been proposed, built and utilised all over the world. The two dominant types are the line commutated converter LCC and the voltage source converter VSC. This review paper evaluates these two types of converters, their operational characteristics, power rating capability, control capability and losses. The balance of the paper addresses their applications, advantages, limitations and latest developments with these technologies.

Keywords—Line commutated converter, Voltage source converter, HVDC.

I. INTRODUCTION

The first electric generator was DC machine, as well as the first electric power transmission system by Thomas Edison [1, 2]. In the last few decades, High Voltage Direct Current (HVDC) technology has been used, due to some of its inherent benefits in long distance transmission application. It is widely used all over the world for bulk power delivery over long distances, interconnections of asynchronous systems, stability of AC lines, power control, long submarine transmission and renewable energy integration. Reduction in the right of way (ROW) is another edge over AC systems [3].

HVDC transmission system involve the use of converter for the conversion of AC to DC (rectifier) at the transmitting end, and converting the DC back to AC at the receiving end (inverter), [4]. This converter usually has a 12-pulse arrangement, of valves connected in a star-delta, star-star formation to the AC networks. A reactor, dc capacitor and AC filters are also part of the converter circuitry. The two ends of the converters are connected via DC transmission lines which can either be overhead cable or submarine cable or directly in

the same location as in the case of back to back configuration. Continuous progress in HVDC systems is linked to advances in the power electronics technologies for the fabrication of a highly efficient semiconductor devices for HVDC converter topology [5].

There are two dominant methods used in converting AC to DC and vice versa. These methods are the Line commutated converter LCC and the voltage source converter VSC. The success of these two technologies became possible with the development of power electronics devices [6, 7]. Before the power electronics was the transverter, electrolytic and the atmospheric converter, all these are part of the several attempts made for AC/DC conversion. These entire attempts failed due to some technical reasons and safety measures inherent in using them [8].

The invention of mercury-arc valves brought temporary success to AC/DC conversion which later became outdated. The mercury arc valve which operated then have either been scrapped or upgraded to semiconductor converter technology [9]. Semiconductors devices have been in used since 1970s and are still a growing technology because of the high switching capacity and ability to withstand high current rating. Examples are the diode, diac, triac, thyristors, MOS-controlled thyristors (MCTs) [10], insulated-gate bipolar transistors (IGBT) and integrated gate-commutated thyristors (IGCTs) etc. [11].

This paper looks critically into the two dominant HVDC converter technologies taking into consideration their operational characteristic and their output AC waveform when subjected to three-phase short circuit as well as dc line fault. The simulation is carried out on DigSILENT Powerfactory and the results of each technology are compared alongside each other.

II. CONVERTER CONFIGURATION AND TOPOLOGY

HVDC interconnections can be configured in different forms to suit different desired performance and operational requirements, namely:

- Back to back connection: This has both the inverter and the rectifier in the same location, and the valves are normally in the same building. It therefore has a short dc line of few meters located inside the same environment.
- Monopolar connection: This has both converters separated by a single dc pole line, either positive or negative voltage. The ground is used as a current return path. Most submarine cable connections use monopolar systems.
- Homopolar connection: This has two or more dc line of the same polarity connected to the converters. Negative polarity is normally used for less corona and reactive power loss. Ground is used as the return path. It works as a monopole when one pole develop a fault. The disadvantage of high cost make it unpopular and seldom used.
- Bipolar connection: This is the most popular method in HVDC interconnection of converters. It is similar to the homopolar connection, but it has different polarities. Each pole is independent, that is, it can operate with a single pole with ground used as return path [3].
- Multi-terminal connection: This has more than two sets of converters operating independently. Each converters can operate as a rectifier or an inverter [12].

A. COMPONENTS OF A CONVERTER STATION

- Converter transformer: LCC HVDC uses special type of transformer different from the AC transformer in that it has special features such as on load tap changes and follow different configuration. For example, the 12-pulse converter can follow six single-phase two windings, three single phase three winding or two three-phase two windings configuration to suit specification and operational performance [13, 14]. But the VSC HVDC uses same transformer as the normal AC transformer.
- Smoothing Reactors: This is used for removal of ripples of the DC current. It is also used to limit the rate of rise of the fault current on the DC line.
- Harmonic filters: These are connected to the converter terminals to provide a low impedance path to ground for removal of harmonics current. Filter used also provide the AC line with the reactive power compensation.

III. LINE COMMUTATED CONVERTER (LCC-HVDC)

LCC, also known as a current source converter CSC uses a thyristors base technology for its converter. The thyristors is a silicon semiconductor devices with four layers of N and P type material acting as a bi-stable switches, triggered on with a gate pulse and stayed in that on condition until the next current zero crossing. In other for LCC to commute, the converters require a very high synchronous voltage source, thereby hindering it use for a black start operation. With LCC current rating reaching up to 6250A and blocking voltage of 10KV, this make LCC to have the highest voltage and power rating level of all the HVDC converter technologies [15-17].

LCC achieves its control by regulating the firing angle α on both rectifier and inverting side. It has an approach that utilizes

TABLE I. RECENT LCC –HVDC PROJECTS

Project Name	Location	Characteristic			
		(MW)	(KV)	Year	(km)
UK - Netherlands		1000	±400	2011	260
Jinpin – Sunan	China	7200	±800	2012	2093
Mundra – Haryana	India	2500	±500	2012	960
Rio – Madeira	Brazil	800	100	2012	B-B
Rio – Madeira	Brazil	2x3150	±600	2013	2375
Xiluodu – Guangdong	China	6400	±500	2013	1251
Nuozhadu – Guangdong	China	5000	±800	2013	1451
Southern Hami – Zhengzhou	China	8000	±800	2014	2200
Biswanath – Agra	India	6000	±800	2014	1728
Xiluodu-Zhejiang	China	8000	±800	2014	1688
Zhundong – Sichuan*	China	10000	±1100	2015	2600

a uni-directional line commutated flow of DC current which is inject into a receiving AC network, thereby termed CSC because the output current is kept at a constant level [18]

Power reversal from one station to another is carried out by inverting the DC voltage polarity in both stations but the current direction remains constant. The technology operates with good reliability and minimal maintenance. It's the most suitable way of transmitting bulk power using high voltage transmission lines. These features make LCC technology the most popular among HVDC schemes [19].

Table 1 shows few of the recent LCC-based HVDC around the globe. Zhundong-Sichuan scheme has the highest voltage and power, and the longest distance, project in China [20].

IV. VOLTAGE SOURCE CONVERTER (VSC-HVDC)

Voltage source converter uses insulated gate bipolar transistor IGBT technology. The current in this technology can both be switched on and off at any time independent of the AC voltage, that is, it creates its own AC voltages in case of blackstart [21]. Its converters operate at a high frequency with pulse width modulation PWM which allows simultaneous adjustment of the amplitude and phase angle of converter while keeping the voltage constant [22]. VSC has high degree of flexibility with inbuilt capability to control both its active and reactive power as shown in fig. 1, which makes it more useful in urban power network area [23].

This technology was develop in the 1990's with the first project commissioned by ABB, 1997 [9]. But due to its capacity limits, VSC-HVDC has not been able to make much edge over its contemporary LCC scheme due to low device rating, high power losses and high dielectric stress on equipment insulation. Its application is approaching 1800MW, 500KV. An example is the 1400MW, ±525KV Nordlink that interconnect the grid of Statnett in Norway and TenneT in Germany over a distance of 623km [24]. A lot of research is ongoing to override this limitation [25] and to have the ability to ride through fault [26]. Ref. [27] explain VSC control, modelling, simulation and stability analysis in power systems.

The basic building block of VSC-HVDC topology start with two-level converter [28, 29]. It is like a six-pulse bridge in

which IGBT with inverse-parallel diodes replaced the thyristors, and the dc smoothing reactor of LCC is replaced by DC capacitor as shown in fig. 2. It derives its name from the fact that it has a switching devices which are complementarily operated to generate two levels of voltage ($+V_{dc}/2$ and $-V_{dc}/2$) at the ac output terminal of the converter. This complementary operation only allows one switching devices to operate at a time, and the other is turned off. Simultaneous turning on of both two switching devices will lead to short circuit of the capacitor across the dc link which may destroy the converter switches due to over-current. With this topology, each semiconductors switch withstands the full voltage stress that is flowing in the link [30].

Prevention of the dc voltage from changing polarity is done by the diode that is connected in parallel to the IGBT, since the diode can only conduct when forward biased, thereby discharging the dc circuits. But the current flows in both direction, passing through either the IGBT or the diode [31].

It adopt the pulse width modulation (PWM) techniques to control the gate switching frequency of the IGBT, and to reduce the harmonic distortion generated by the converter. Due to high switching losses in the IGBTs as a result of the PWM which is switched on and off many times in a cycles, the overall transmission efficiency of a two-level converter is very poor compared to the LCC converter. Another major setback is that a high level of electromagnetic interference occur when two-level converter is used for a high voltage DC systems [32].

An attempt to reduce the poor harmonic distortion and to have a high efficient VSC converter, brings about the multi-level converter (which start from the three-level converter with three discrete voltage level).

It synthesizes more than two voltage level at the AC terminal of each phase as shown in fig. 3. Several types of multilevel converter have been mention and analyzed in the literature [33-35], such as the diode clamped, where diodes are used as clamped and the dc output is subdivided into switches by a capacitors.

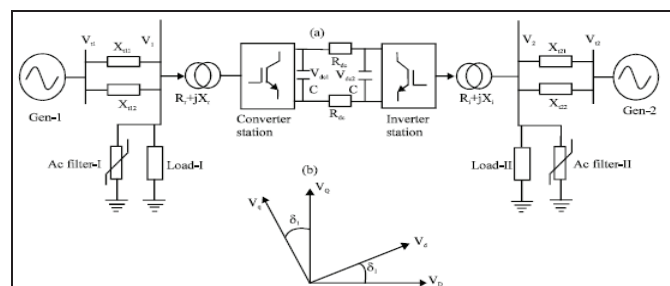


Fig. 1. VSC-HVDC scheme design

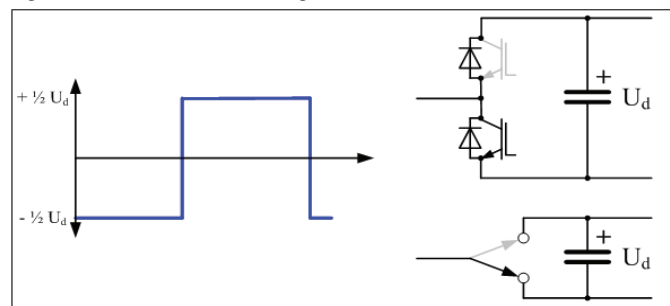


Fig. 2. Block diagram of a two-level VSC-HVDC

With n-levels, there will be n+1 capacitors, and n-1 switch pair are required to work in a complementary manner to generate the output dc voltage. High efficiency for switching at fundamental frequency, low cost and a lesser number of components are some of its merits. However it suffer setback as its less attractive for high voltage transmission due to difficulty in charging and discharging of its dc capacitor, lack of modular index and large inductance stray in the clamping path which have effect on the converter switching characteristics [33, 34]. Flying capacitors multilevel converter is another type which made use of a pre-charged capacitor. Unlike the diode clamped, two or more switch can synthesize an output voltage at the ac output terminal of the converter, and has a phase redundancies which allows specific choice of capacitor to be charge or discharged for voltage balancing across different levels. It has the ability to control real and reactive power flow, and to ride through fault and voltage sag because of its large number of capacitors [35]. Nevertheless, as the level increases, so does the size of the capacitors, as it becomes bulky. Also the control to track the voltage for all the capacitor becomes complicated as it requires high frequency switches. The single phase full bridge is the building block for the cascaded H-bridge multilevel link. It has four switches connected to an isolated capacitor (separate dc source). Each H-link generate three voltage levels. Easy modularized layout package for the series H-bridges makes it cheap and quickly to fabricate. It also have more possible voltage-levels output than the dc source. Good for reactive power compensation. With good voltage balancing capability through adaptive control action. However, cascaded H-bridge conversion is not suitable for HVDC application because it H-bridge requires the use of many isolated DC sources in series [36].

Recently, a new alternative of VSC-HVDC circuits was proposed in 2003, at the University of Bundeswehr in Munich, Germany, by Prof. Rainer Marquardt [37, 38]. This converter topologies is based on series-connection of several sub-modules of two semiconductor switches and a capacitor. This topology is known as modular multilevel converter (MMC or M2C) as shown in the (fig 3). The converter can either adopt the half bridge cascaded or full-bridge connections for the arrangement of each sub modules. The half-bridge modular multilevel (HB-MMC) addresses some of the limitation encountered in the convectional VSC converter, such as the reduction in the magnitude of the transient dc fault current, converter scalable to the highest transmission voltage through addition of more levels, great reduction in the harmonic content and elimination of low-order harmonics which usually requires large filters, and losses reduced to approximately 1% per converter, all these features made HB-MMC to be widely adopted in recent years. But the HB-MMC freewheeling diodes is unable to stop AC grid contribution to the dc fault current which makes it in need of fast acting dc circuit breaker, else the excessive current stresses may damage the freewheeling diode. The recent technology that overrides the overcurrent fault condition of the HB-MMC is the full bridge multilevel converter (FB-MMC). Though, this technology increases semiconductor losses but the important feature of dc fault reverse blocking capability was achieved by the converter by blocking current flow in the converter switches during dc faults, thereby disallowing both active and reactive power

exchange that may want to occur between the dc systems and the ac grid [39, 40].

Other recent HVDC converter topologies with intrinsic dc fault ride-through capabilities are alternative arm modular multilevel (AA-MMC) converters and hybrid cascaded multilevel converter with ac side H-bridge cells. These converters achieve dc fault reverse blocking capability in order to eliminate ac grid contribution to dc side faults, but has little footprint and conversion losses compared to the H-bridge modular multilevel converter [39-41].

Independent control of power at each converter is possible, with one converter controlling the DC voltage at the link to match the nominal level and the other converter sets the amount of active power through the link. With the help of the phase reactor from the series inductance between the converter and the AC grid (fig 4), active and reactive power control was achieved as depict in (1) and (2).

$$P = \frac{U_{ac} U_{conv} \sin \delta}{X} \quad (1)$$

$$Q = \frac{U_{conv} (U_{conv} - U_{ac} \sin \delta)}{X} \quad (2)$$

X-represent the series reactance of the phase reactor and the transformer in the converter station.

Ability of VSC-HVDC to absorb and inject active and reactive power is shown in the P-Q-capability chart below (fig 4). This P-Q capability chart characteristic can be termed to a circle with a radius equal to the maximum MVA rating of the converters. Available reactive power depends on the active power transmitted which directly fall between the operating ranges of the converter MVA rating. The converters are restricted by the power electronics switches current rating and the capability circles. Vac is raised above the AC grid voltage to inject reactive power. The converter voltage however suffers restriction to the maximum rating of the power electronics which limit the capability chart for higher AC voltage.

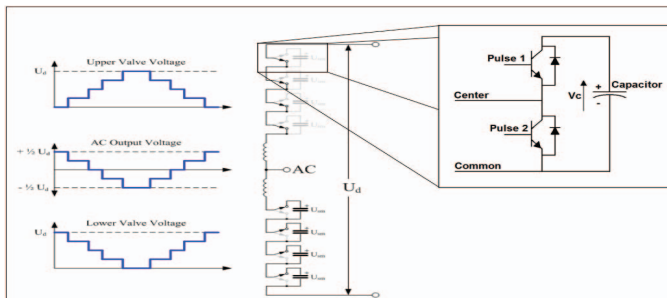


Fig. 3. Modular multilevel converter topology

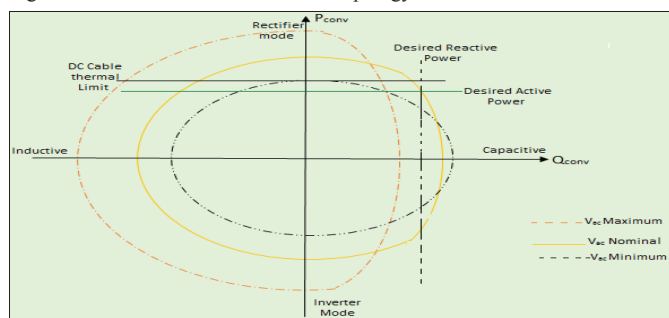


Fig. 4. simplified PQ characteristic of a VSC HVDC terminal [42]

Nevertheless, VSC remains the most suitable choice in transmitting renewable energy (such as: wind power and solar power) either offshore or onshore systems. Table II shows some existing VSC-HVDC installations.

TABLE II. SOME VSC-HVDC INSTALLATIONS

Project Name	Location	Characteristics			
		(KV)	Year	(MW)	(Km)
Borwin 1	Germany	±150	2009	400	200
Caprivi link	Namibia	±350	2010	300	951
Transbay	USA	±200	2010	400	85
EWIC	UK	±200	2012	500	261
Inelfe	France	±320	2013	1000	65
Skagerrak 4	Norway	±500	2014	700	244

TABLE III. A COMPARISON OF LCC AND VSC SCHEMES

LCC	VSC
Thyristor base technology	IGBT base technology
The semiconductor can with-stand voltage in either polarity	Withstand current in either direction
Constant current direction	Current direction changes with power
Energy is stored inductively	Store energy capacitively
Turned on by a gate pulse but rely on external circuit for its turn off	Both turn on and off is carried out without the help of an external circuit
High power capability	Lower power capability
Good overload capability	Has weak overload capability
Requires stronger AC systems for excellent performance	Operate well in a weak AC systems
Requires additional equipment for black start operation	Possesses black start capability
Requires AC and DC harmonic filters for removal of distortion and harmonics	Requires no filter because it generates an insignificant level of harmonics
Poor in reactive power control	Good reactive power control
Large site area, dominated by harmonic filters	A more compact site area
Requires converter transformer	Conventional transformer is used
Lower station losses	Higher station losses
More mature technology	Still at its infancy
Reversal of power is done by reversing the voltage polarity	Power is reverse by changing the current direction
Higher voltage capability of over 1000KV	Lower voltage capability of almost 600KV
Mostly used to transmit bulk power for a long distance	Used for transmitting power from remote area with renewable energy
Suffers commutation failures as a result of a sudden drop in the amplitude or phase shift in the AC voltage, which result in dc temporal over-current. Though, the effect has no significant impact on the AC systems as it's a self-clearing effect within a few power frequency cycles.	Ability to turn on as well to be turned off of VSC makes it immune to any voltage dips or transient AC disturbance, therefore, it does not suffer commutation failure.
Commutation failures, need for change in dc polarity when converter want to change from rectifier to inverter mode make LCC HVDC more problematic to adopt in a multi-terminal HVDC system. Reason for low number of LCC base technology for multi-terminal HVDC.	Suitable for multi-terminal HVDC systems because it does suffer from commutation failures, has independent, multidirectional power flow, and operate with the same voltage polarity.
During short circuits on the dc line, control of the firing angle of the thyristors valves stops the increase of	Continuous conduction in the diode will cause an increase in dc fault current even when the IGBTs are

dc fault current. This converter control and protections reduces the damage caused by the fault current. Incased of overhead lines fault, power transmission is stopped for arc de-ionization, after which power transmission resumed.	turned off. The ac circuit breakers at both VSC HVDC ends must be opened to stop the diode conduction. The converter link must be re-started after fault has been removed.
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TABLE IV. A COMPARISON OF THE THYRISTOR AND IGBT

Features	Thyristors	IGBT
Max. Voltage rating (V)	8000	1700
Voltage blocking	Sync/Async	Async.
Voltage blocking	Sync/Async	Async.
Gating	Pulse	Voltage
Conduction drop (V)	1.2	3
Switching frequency (KHz)	1	20
Development target maximum voltage rating (KV)	10	3.5
Development target maximum current rating (KA)	8	2

Fig. 5 shows an overview of HVDC projects around the world and fig. 6 depict HVDC available ratings for different transmission medium.

V. FAULT CHARACTERISTIC OF LCC AND VSC

To slightly explain the transient response of LCC and VSC HVDC to faults in the AC network on the two side of the converters' end, both technologies are modelled using DigSILENT Powerfactory.

Fig 7 show the LCC HVDC setup. It's a bipolar HVDC systems, each pole consisting of twelve-pulse thyristors on both the inverter and rectifier side, with 1000MW of power at $\pm 600\text{KV}$ transmitted per pole via 1000km overhead dc lines. An external grid is connected at both the rectifier and inverter end to supply and to receive power respectively.

VSC HVDC setup is modelled as shown in fig. 8. Each converter rated at 1000MW, 600KV via 1000km overhead lines.

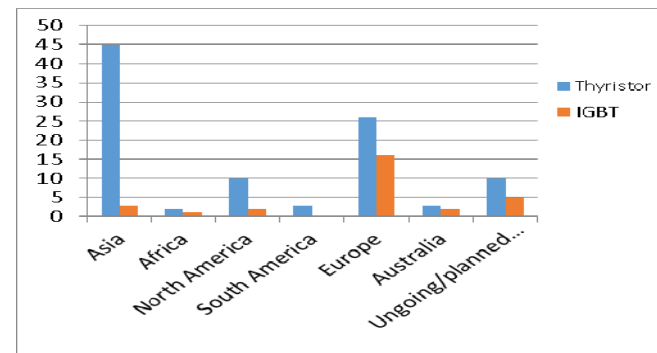


Fig. 5. Overview of HVDC projects around the world

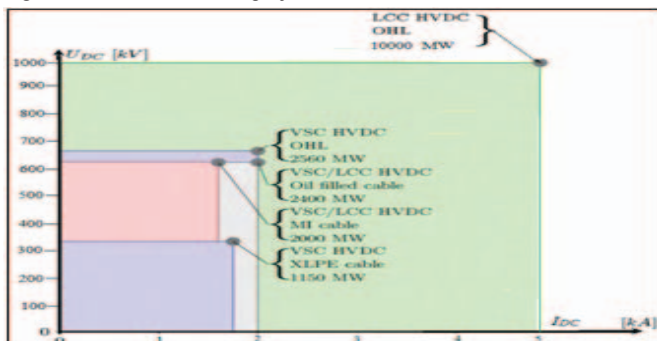
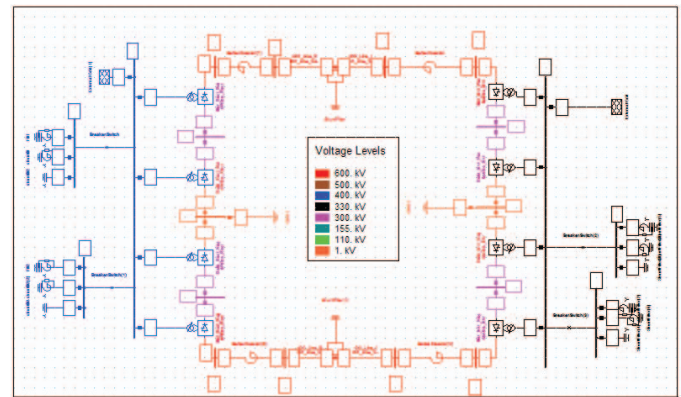
Fig. 6. Available ratings of HVDC systems (U_{DC} refers to voltage per pole, and I_{DC} is the current rating, in a bipolar setup, $P=2U_{DC} I_{DC}$)[13]

Fig. 7. LCC modelling on DigSILENT.

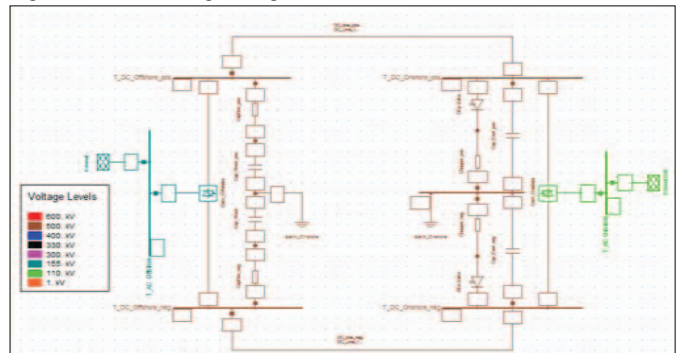


Fig. 8. VSC HVDC model on DigSILENT

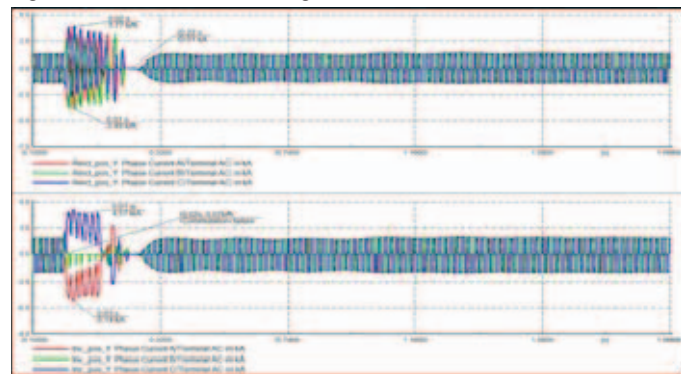


Fig. 9. LCC HVDC converter current during fault

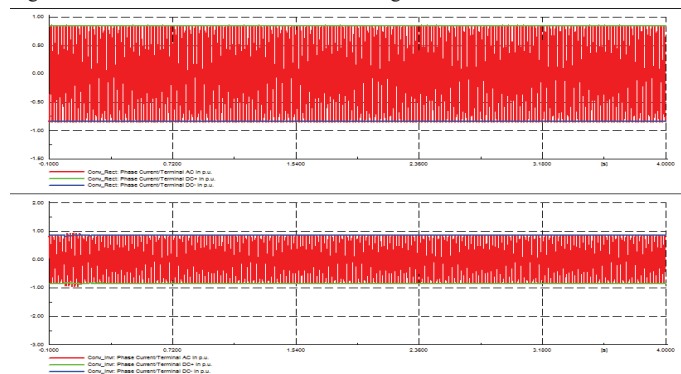


Fig. 10. VSC-Converter current

To study these responses, the AC busbar at the inverter side is subjected to a three-phase short circuit of 10Ω fault impedance for 200ms using the time domain simulation (EMT). After the EMT simulation, fig. 9 shows the graphic subplots for the current waveforms of the converter. During

fault, each converter controller helps in alleviating the effect of the fault on the converter. Like in the case of LCC, the voltage current order limiter (VDCOL) in the rectifier controller help to reduce the dc current, which in turn aid the inverter side to regain fast from commutation problem.

Fig. 10 shows subplot for VSC HVDC, during three-phase AC fault on the inverter busbar with little or no impact of the AC fault on the converter operation. This subplot shows that VSC HVDC system is immune to AC fault.

Different fault analysis which has been carried out on both two technologies on ability to reduce switching surge overvoltage and power systems restoration after blackout was discussed in [43]. The use of LCC-HVDC for different purposes, such as to improved voltage stability, transient and rotor angle stability was discussed in [44-47], while [48-50] talks on the new hybrid multi-level converter (alternate-Arm multi-level) with half-bridge multi-level benefit of low distortion, losses and full H-bridge converter benefit of DC-side fault blocking capability. The alternate-Arm multi-level discussed also have the ability to supply reactive during severe abnormal operation. This makes it more useful for AC grid during fault since it can provide reactive power support during voltage instability.

VI. FUTURE TREND

VSC HVDC has more technical advantages than the contemporary LCC HVDC being a new method of HVDC transmission technology. The future trend in the development of this technology is likely to lead to a more efficient and cheaper use of VSC-HVDC. With an ongoing, never ceasing improvement, research and development on VSC-HVDC technology, especially in the area of converter design and topology, such breakthrough will surely contribute to the spread of VSC-HVDC transmission systems with overhead lines and accelerate the practical realization of HVDC networks that use voltage source converter technology.

Future trends also include the manufacturing of better power cable with higher voltage rating for VSC HVDC transmission. 320XLPE HVDC are still the maximum rating in service. But with ongoing research on power cables with high power rating and reduced cost, this will bring about more attraction to VSC-HVDC technology.

The use of VSC HVDC will continue to increase and apply to different power system interconnections at higher dc voltage and power rating.

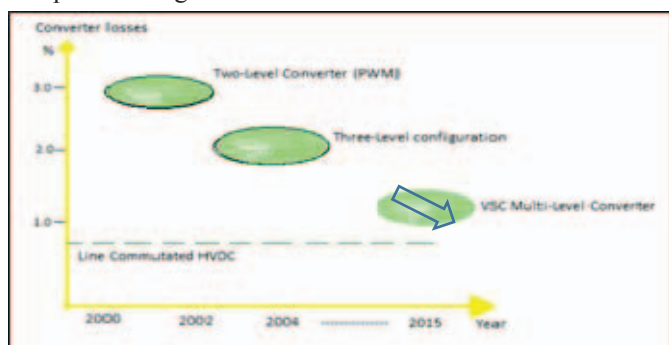


Fig. 11. LCC and VSC power loss

Fig. 11 shows the earlier stage of VSC based HVDC converter technology with much power losses. But due to the development in the converter and control technology, the present VSC-based HVDC technology is of lower magnitude. But with the introduction of the multi-level VSC configuration, this has significantly narrow the gap between LCC and VSC HVDC schemes.

VII. CONCLUSION

The two dominant HVDC transmitting technology have been reviewed in this paper. Power electronics being the building block of any converter station, and the efficiency of these two technologies depend in the converter topology and the switches (semiconductors) used in fabricating them. LCC has the highest power rating and can sustain better during faults. However, for power control, flexibility and high converter efficiency, the VSC is superior. Though with this trend, LCC may remain the more utilized of these technologies in the foreseeable future due to its high reliability and well established thyristors base technology that it utilizes, but with the improvement in VSC technology and the advantages which it offers over LCC, VSC is bound to grow, and gain more recognition and market share, especially with the large-scale renewable energy integration into traditional AC power grids going on worldwide.

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Exhibit JMT_2

U.S. DEPARTMENT
of ENERGY[Home](#) [Topics](#) [Grid Deployment and Transmission](#) [Connecting the Country with HVDC](#)[BLOG](#)

Connecting the Country with HVDC

High-Voltage Direct Current (HVDC) transmission has significant advantages compared to conventional alternating current (AC) line.

[Office of Electricity](#)

September 27, 2023

 Estimated Read Time 5 min

Today, the U.S. Department of Energy's (DOE) Office of Electricity (OE) and Wind Energy Technologies Office (WETO) released a \$10 million [funding opportunity announcement](#) to fund research to drive innovation and reduce costs of high-voltage direct current (HVDC) voltage source converter (VSC) transmission systems. This investment is intended to enable future cost-effective grid upgrades required to integrate increasing renewable energy generation on to the grid, both onshore and offshore.

HVDC transmission has significant advantages compared to conventional alternating current (AC) lines, including greater efficiency over long distances, lower costs at these distances, and the ability to

connect asynchronous systems. The latter is important because the U.S. power grid is divided into three asynchronous systems: the Eastern interconnection, the Western interconnection, and the Texas interconnection. Transferring power between these regions without disrupting the frequency of either system is only possible with direct current (DC) links.

In the early years of our country's electric grid, AC became the standardized system for transmitting electricity because DC power systems were expensive and technically complex. Since then, advancements in power electronics have made HVDC transmission more economically feasible. On a typical HVDC link, power is sent to a converter station, where the current is converted from AC to DC. Power is then transmitted over HVDC cables to a second converter station, which converts the power back to AC to be sent to end users.

In 1970, the country's first HVDC system—Pacific DC Intertie—was completed. This system enabled the delivery of low-cost hydropower from the Pacific Northwest to load centers in Southern California. Since then, several additional HVDC lines have been added, as shown in [figure 1](#). In recent years, as the country works to decarbonize and reimagine a grid with high shares of renewables, there is potential that HVDC transmission could play a critical role in developing a least-cost, reliable, carbon-free grid.



Figure 1: North American HVDC Deployment

Many of our country's natural resources are far from load centers and the hourly availability of resources does not always correlate with energy demand. Long distance transmission lines could play a critical role in delivering low-cost renewable energy from areas with excess supply to areas with high demand. This could facilitate decarbonization in high-load regions and reduce the amount of unused electricity, helping enable efficient use of the country's resources.

HVDC transmission systems do face challenges. By design, AC current periodically goes to zero. This characteristic is exploited for conventional protection systems; in the case of a disturbance on the grid, electric current can easily be stopped. DC current does not have the same property and stopping the current can cause significant wear to the system. Innovators are working to design technology to detect, isolate, and [mitigate faults on DC systems](#).

Transitioning from AC systems requires adjustments to grid planning standards and modeling techniques to adequately plan for the technical differences of HVDC systems. While AC systems are standardized so components from various manufacturers can easily be integrated, DC systems do not have the same level of standardization and interoperability.

Ultimately, HVDC technology has many benefits for the American grid as it is cost-effective over long distances. Converter stations required for HVDC deployment are expensive, however, with a breakeven distance of approximately [37 miles for submarine lines and 124 miles for overhead lines](#), HVDC systems offer cost savings that outweigh these high converter costs. These savings include relatively low loss rates and cheaper construction costs. Over long distances, HVDC losses can be up to 30-50% lower than comparable HVAC systems, reducing long-term costs.

HVDC's connection to asynchronous grids could provide flexibility and reliability advantages. The ability to transfer energy between the Eastern Interconnection, Western Interconnection, Texas, and Quebec could enable reserve sharing, especially during contingency conditions, which would improve grid reliability and resilience. Additionally, the ability to connect asynchronous systems could enable greater integration of [microgrids](#), offshore wind resources, [and fractal grids through HVDC connections](#).

HVDC technology—including voltage source converters—also allows for control of energy flows. System operators can inject power onto the grid to minimize the impact of disturbances and recover from blackouts. This ability could be particularly useful to accommodate high shares of variable resources, which otherwise [could compromise system frequency and stability](#).

OE supports research and development of HVDC technology due to its significant advantages over conventional AC lines. Our office was

excited to announce the recent [winners of the American-Made HVDC Prize](#). The knowledge gained from this prize will help reduce technology gaps that hinder HVDC deployment in our country and enable new innovative solutions to technical challenges through the development of new hardware, controls, and advanced concepts. Furthermore, OE also recently released the [HVDC Cost Reduction \(CORE\) Initiative](#) that supports research and development to reduce HVDC technology and long-distance transmission costs 35% by 2035 (35 by 35). The CORE initiative requires coordinated action, guided by an aggressive goal: to develop and domestically manufacture HVDC transmission technologies to meet all U.S. market demands by 2035 in a cost competitive manner. Congress directed FY 2023 appropriations for OE to fund this initiative.

As a partner in this space, [WETO](#) also supports HVDC technology advancement to enable [deployment of offshore and land-based wind](#). They recently announced the selection of four [HVDC-based projects](#) to initiate standards creation, develop a HVDC benchmark system, develop requirements for multi-terminal HVDC systems, and create a HVDC curriculum for workforce development.

By incentivizing innovation in HVDC technology we not only accelerate progress, but empower a new generation of thinkers to shape the world we want to live in. Together, we can unlock the full potential of HVDC and usher in an era of cleaner, more accessible energy for all.

Explore more on these topics:

[GRID DEPLOYMENT AND TRANSMISSION](#)[WIND](#)[ELECTRIC GRIDS](#)

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Attachment B – Testimony of Omar A. Gallegos

**UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION**

El Paso Electric Company

)

Docket No. ER26-__-000

**DIRECT TESTIMONY OF

OMAR A. GALLEGOS

ON BEHALF OF

EL PASO ELECTRIC COMPANY**

September 1, 2026

**EL PASO ELECTRIC COMPANY
DIRECT TESTIMONY OF
OMAR A. GALLEGOS**

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EXHIBITS

Exhibit OAG-1: Map

Exhibit OAG-2: Net Benefit Analysis

**EL PASO ELECTRIC COMPANY
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1 **I. INTRODUCTION AND QUALIFICATIONS**

2 **Q1. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

3 **A.** My name is Omar A. Gallegos. My business address is 100 N. Stanton Street,
4 El Paso, Texas 79901.

5

6 **Q2. WHO IS YOUR CURRENT EMPLOYER AND WHAT POSITION DO YOU**
7 **HOLD?**

8 **A.** I am employed by El Paso Electric Company (“EPE” or the “Company”) as
9 Vice President of System Planning and Construction.

10

11 **Q3. PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND**
12 **PROFESSIONAL EXPERIENCE.**

13 **A.** In 1995, I graduated from the University of Texas at El Paso with a Bachelor of
14 Science degree in Mechanical Engineering and a Master of Business
15 Administration degree in 2006. In 2014, I completed a Graduate Certificate in
16 Public Utility Regulation and Economics from New Mexico State University.

17 From 1995 to May 2009, I was employed by Delphi Corporation in product
18 engineering. During my final eight years at Delphi Corporation, I was Supervisor
19 for Product Engineering, where my responsibilities included design development,
20 product validation, cost estimating, and project management.

21 In May 2009, I accepted a position with EPE as a Real-Time Scheduler. In that

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1 capacity, I was responsible for managing energy transfer schedules over the
2 Company's transmission lines in accordance with Federal Energy Regulatory
3 Commission ("FERC") requirements and North American Electric Reliability
4 Corporation ("NERC") reliability standards. From September 2010 to May 2013,
5 I was an Associate - Business Development working as a Project Manager for
6 renewable energy projects and new generation projects. My responsibilities in that
7 position included financial analysis, business process flows, and evaluation of
8 emerging technologies. In May 2013, I was promoted to System Operations Outage
9 Coordinator where I coordinated EPE's outages in adherence with reliability
10 requirements. In March 2014, I was promoted to Manager-Asset Management
11 Services. During that time, I was responsible for Transmission and Distribution
12 project management initiatives, budgeting, asset management, and support of
13 regulatory permitting for transmission assets. In February 2016, I was promoted to
14 Director of the Resource Planning Department with responsibility for development
15 of EPE's annual Loads and Resources ("L&R") analysis, Integrated Resource Plan
16 ("IRP"), New Mexico Renewable Portfolio Standard ("RPS") plan, and selection
17 of resources via competitive Requests for Proposals. In July 2016, I assumed
18 responsibility of EPE's Resource Planning and Management Department. In 2022,
19 I was named Vice President of Energy Delivery. The Energy Delivery Division is,
20 essentially, the Transmission and Distribution ("T&D") "wires" portion of EPE,
21 which includes Transmission, Substations and Relays ("TSR"); Distribution

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1 System Engineering; Distribution Operations; TSR Construction and Maintenance;
2 Meter Testing; and Project Management subdivisions. I am responsible for
3 ensuring that each of these systems operate in a safe and reliable manner to
4 collectively provide T&D service to EPE customers.

5

6 **Q4. WHAT ARE YOUR CURRENT RESPONSIBILITIES WITH EPE?**

7 **A.** In April 2026, I was named Vice President of System Planning and Construction.
8 In this role I am responsible for the oversight and direction of EPE's Integrated
9 System Planning, inclusive of Resource Planning, Transmission System Planning
10 and Distribution System Planning. This includes grid strategy, modernization and
11 incorporation of distributed and load side resources. Additionally, I am responsible
12 for the oversight of Engineering, Permitting and Construction of Generation and
13 Transmission Projects.

14

15 **Q5. HAVE YOU PREVIOUSLY PRESENTED TESTIMONY IN**
16 **REGULATORY PROCEEDINGS?**

17 **A.** Yes. I have previously filed testimony with the Public Utility Commission of Texas
18 and with the New Mexico Public Regulation Commission.

19

20 **II. PURPOSE OF DIRECT TESTIMONY**

21 **Q6. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?**

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1 **A.** My testimony supports EPE’s Application before the Commission for transmission
2 incentives related to replacing the existing HVDC Eddy County Converter Station
3 (the “Eddy Tie” or “Tie”) with a new 200-megawatt (“MW”) facility based on new
4 technology (the “Project”).

5 First, to provide context for the significant benefits that the Project will bring to
6 EPE’s system and third-party users of the system, I offer a description of EPE’s
7 transmission system. I then summarize how the project will unlock constrained
8 generation on both sides of the Eddy Tie. Currently, customers cannot take full
9 advantage of available lower-cost generation because the Eddy Tie is available on
10 non-firm basis only and at about half of its original capacity. The degradation of
11 the Tie affects system reliability, especially during summer peak periods and
12 extreme weather events, when access to energy and reliable transmission are most
13 needed. In addition, I discuss how the Project is likely to relieve congestion on the
14 western transmission paths, because resources from the Eastern Interconnection
15 will be available for imports across the Eddy Tie to replace the traditional imports
16 from the west. I support my opinion with information from the studies
17 commissioned by EPE to evaluate the Project benefits. Finally, I discuss how
18 challenges in supply chain and in the Engineering, Procurement, and Construction
19 (“EPC”) market increase the risk profile of the Eddy Tie Project.

20

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1 **Q7. ARE YOU SPONSORING ANY EXHIBITS IN SUPPORT OF YOUR**
2 **TESTIMONY?**

3 **A.** Yes, I am sponsoring the following exhibits:

- 4 • Exhibit OAG-1: Map
5 • Exhibit OAG-2: Net Benefit Analysis
6

7 **III. DESCRIPTION OF THE EPE SYSTEM**

8 **Q8. PLEASE DESCRIBE EPE’S TRANSMISSION SYSTEM AND ITS**
9 **CONNECTIONS TO THE EAST AND WEST.**

10 **A.** EPE’s transmission system is comprised of 500 kV, 345kV, 115kV, and 69kV
11 transmission lines that transmit power to and across EPE’s service territory and to
12 and from other interconnected systems. EPE’s service territory is located in the
13 southeasternmost corner of the Western Interconnection as depicted in Exhibit
14 OAG-1. The Western Interconnection is regulated by the Western Electricity
15 Coordinating Council (“WECC”) on behalf of the NERC. WECC monitors
16 compliance with NERC Reliability Standards and defines additional WECC-
17 specific reliability standards to ensure reliable planning and operation of the
18 Western Interconnection. As depicted in Exhibit OAG-1, EPE's service territory is
19 interconnected to the Western Interconnection via three 345kV tie-lines formally
20 identified as the “WECC Path 47.”

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1 The Eddy Tie is located at the eastern boundary of the EPE system. The Tie is
2 where the Western Interconnection of the United States is connected to the Eastern
3 Interconnection of the United States. The original design of the existing Eddy Tie
4 provided an asynchronous connection to the Eastern Interconnection. The
5 Southwest Power Pool, located in the Eastern Interconnection, lies on the other side
6 of the Tie. EPE does not have an interconnection to the Electric Reliability Council
7 of Texas, or ERCOT, system. EPE also has two 115kV transmission tie-lines to
8 Mexico which are normally not energized and only available for use for emergency
9 purposes under Presidential Permits issued by the United States Department of
10 Energy.

11

12 **Q9. PLEASE DESCRIBE EPE'S CURRENT CONNECTIONS TO THE**
13 **WESTERN INTERCONNECTION IN MORE DETAIL.**

14 **A.** WECC Path 47 is explicitly defined by the following three transmission lines:

- 15 • Greenlee-Hidalgo-Luna: ~120 miles and initially constructed in 1977;
16 • Springerville-Macho Springs-Luna: ~200 miles and initially constructed in
17 1989; and
18 • West Mesa-Arroyo: ~200 miles and initially constructed in 1977.

19 Both the Greenlee-Hidalgo-Luna and the West Mesa-Arroyo lines are wood H-
20 frame structures with a small quantity of steel structures as a result of replacements
21 due to maintenance or forced outage restoration. The Springerville-Macho

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1 Springs-Luna transmission line is also a wood H-frame construction except for the
2 approximately 50 miles that traverse the Gila National Forest. In that area, the
3 transmission lines are steel structures because of the increased potential for
4 wildfires in the Gila. In recent years, the Gila has experienced wildfires every year.
5 Since 2020 there have been six fires that have encroached within 10 miles of the
6 transmission line, while in 2025 the Buck Fire actually traversed 50 of the steel
7 transmission structures.

8 WECC Path 47 has a total firm capacity of 940 MW that is allocated between EPE,
9 Public Service Company of New Mexico (“PNM”), and Tri-State Generation and
10 Transmission Association, Inc. EPE’s allocation is 645 MW, which is used to
11 import EPE’s 633 MW of generation from the Palo Verde Generating Station in
12 Arizona to EPE's service territory.

13

14 **Q10. AS CURRENTLY CONFIGURED, DOES EPE’S SYSTEM AT THE**
15 **SOUTHEASTERN EDGE OF THE WECC HAVE IMPORT LIMITATIONS**
16 **FROM THE WEST?**

17 **A.** Yes. WECC Path 47 has a firm capacity limitation and a more restrictive import
18 limitation in conditions known as “N-1.” Federal standards require that the
19 transmission system be operated in a manner that if one transmission element is
20 suddenly de-energized as part of a forced outage, the transmission system must stay
21 stable and no transmission element can exceed its rating. As such, this results in

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1 total contractual firm capacity of 940 MW on Path 47, with EPE's share being 645
2 MW. Imports from the west are drastically impacted under N-1 conditions. For
3 example, an outage on the Springerville to Luna line would reduce EPE's import
4 capacity (for importing power from the west to EPE's service territory) by 207
5 MWs, resulting in a total import capability of only 438 MW. To put it in
6 perspective, this reduction accounts for over 8% of EPE's all-time peak load of
7 2,538 MWs reached on July 31, 2026.

8
9 **Q11. ARE THESE IMPORT LIMITATIONS IN THE WEST BEING**
10 **MITIGATED BY THE EDDY TIE PROVIDING ACCESS TO THE**
11 **EASTERN INTERCONNECTION?**

12 **A.** Yes. This is especially true during the summer peak season when the limitations
13 on Path 47 can impact EPE's resource availability for serving firm load and trigger
14 the need for imports from the Eastern Interconnection. Imports from the Eastern
15 Interconnection are possible only on non-firm basis across the current Eddy Tie.
16 Once the Project is completed, however, it would provide the capability for 200
17 MWs of electricity to reliably flow on a firm basis from the Eastern Interconnection
18 to the Western Interconnection, reducing the need for imports through the already
19 heavily utilized Path 47. The Project would also allow for access to market
20 participants located in the Eastern Interconnection to buyers and sellers located in
21 the Western Interconnection.

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1 **IV. DESCRIPTION OF THE EXISTING EDDY TIE AND ITS USAGE**

2 **Q12. PLEASE DESCRIBE THE EXISTING EDDY TIE.**

3 **A.** The existing Eddy Tie was completed in 1984. It is a back-to-back HVDC tie
4 interconnecting EPE to the Eastern Interconnection. EPE witness Jonathan Trejo
5 further describes in his testimony the technical aspects of the existing Eddy Tie and
6 its diminished operational state.

7

8 **Q13. WHERE IS THE EDDY TIE LOCATED?**

9 **A.** The Eddy Tie is located just outside of Artesia, New Mexico, approximately 140
10 miles from EPE's urban load pockets of Las Cruces, New Mexico and El Paso,
11 Texas. The Eddy Tie is a part of EPE's transmission system and is referenced in
12 Exhibit OAG-1.

13

14 **Q14. HOW IS THE EDDY TIE USED BY EPE?**

15 **A.** The most important uses of the Eddy Tie are during EPE's peak season to enhance
16 energy availability during energy scarcity events and during N-1 transmission
17 outages from the west, as explained above. It is also used for reliability purposes
18 to help balance power flows on the system by injecting power from the east.

19 In addition, EPE and third-party entities utilize the Eddy Tie for opportunity sales
20 and/or purchases, including simultaneous exchange transactions. For EPE, these
21 opportunity transactions reduce fuel costs and purchased power costs and provide

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1 direct benefit for our customers by reducing their overall power cost. The Eddy
2 Tie enables EPE to provide wheeling service to third parties, who are also looking
3 for opportunities to serve electric consumers located to the west or to the east.
4 Unfortunately, all services provided over the Tie are on a non-firm basis. The state
5 of the Tie is such that it is not capable of supporting firm service across it.

6

7 **Q15. HAS EPE RELIED UPON THE EXISTING EDDY TIE IN EMERGENCY**
8 **AND SCARCITY CONDITIONS?**

9 **A.** Yes. EPE has been able to utilize the Eddy Tie to flow power across the Tie from
10 east to west during energy scarcity events and when EPE has been in energy
11 emergencies. The dates of those scarcity and emergency events since 2022 are
12 provided in Table OAG-01. Since 2022, there were an additional thirteen days of
13 strained system conditions during the summer (not shown on Table OAG-01)
14 where reserve margins dipped to under 100 MW and the Eddy Tie was flowing
15 with Eastern Interconnection resources and supporting EPE load in the Western
16 Interconnection. With the Eddy Tie providing access to resources to the east, EPE
17 was able to avoid drastic measures (such as the potential for load-shedding) during
18 these scarcity and emergency events.

19

**EL PASO ELECTRIC COMPANY
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Table OAG-01

Date	Energy Emergency Alert (“EEA”)
7/1/2024	EEA 2
5/17/2024	Strained Conditions*
7/20/2023	EEA 2
6/19/2023	EEA 2
6/16/2022	EEA 2
6/10/2022	EEA 2
8/21/2019	EEA 3

*The Eddy Tie was called on during strained conditions to avoid an EEA.

**Q16. WAS THE EDDY TIE UTILIZED DURING THE JANUARY 2026
EXTREME WEATHER POLAR VORTEX AND SUMMER 2026
HEATWAVES?**

A. The January 2026 Polar Vortex was an outbreak of Arctic air that plunged much of North America into prolonged, extreme cold due to a destabilized jet stream. It had only marginal impact on EPE’s gas supply, and EPE did not require imports from the east. However, impacts were greater to utilities in the Eastern Interconnection. The Eddy Tie was utilized to flow power from west to east to support energy needs of Eastern Interconnection load during the freeze event. It was requested by the Southwest Power Pool to flow east as a proactive measure to mitigate resource adequacy risks for the residents and oil and gas production load in the Eastern

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1 Interconnection, including load in the southeastern New Mexico portion of the
2 Eastern Interconnection.

3 However, on June 23 and June 24, and July 27 to 31, 2026 EPE also experienced a
4 heat wave within its service territory, which resulted in several consecutive days of
5 extreme demand. On June 24, 2026, all-time peak record was 2,394 MWs, higher
6 than last year's record by 69 MWs. On July 31, 2026, the all-time peak rose further
7 to 2,538 MWs. During this time, EPE's overall import capabilities from the west
8 were stretched to their very limit. On some instances, EPE had to rely on
9 interruptible load to reduce the overall consumption. EPE could not utilize the Eddy
10 Tie in the summer due to a prolonged outage, which began on June 9, 2026, and is
11 expected to continue until mid-September. EPE had no access to alternative
12 supplies in the east in the event of a transmission failure of our western import paths
13 or in the event of a generation failure within EPE's service territory.

14

15 **Q17. WHAT SPECIFIC BENEFITS FROM THE EXISTING EDDY TIE HAVE**
16 **BEEN RECOGNIZED BY STATE REGULATORS?**

17 **A.** At the time EPE and Texas New Mexico Power ("TNP") were seeking state
18 approval for the original construction of the Eddy Tie, retail regulators found that
19 construction of the Tie and its associated facilities (referred to at the time as the
20 Eastern Interconnection Project) would result in lower cost bulk power than was

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1 then available; greater service reliability; and greater flexibility in how EPE and
2 TNP (now Public Service Company of New Mexico) operate their systems.

3 **Q18. WERE SUCH BENEFITS REALIZED?**

4 **A.** Yes. Since its operation, the Eddy Tie has provided benefits to consumers in the
5 form of reduced cost and a means of delivery of power sourced from the east, by
6 securing access to additional lower-costs markets and increased reliability of the
7 bulk electric system. The potential for the same kinds of benefits of reduced bulk
8 electric cost and added reliability exist still. It is also important to note that
9 society's increased dependence on reliable electric service has become more
10 paramount given electrification, dependence on electronics, and digital systems.
11 These characteristics accentuate the importance of the reliability benefits the Eddy
12 Tie brings to electric consumers located on either side of the Tie.

13

14 **V. BENEFITS OF THE PROPOSED EDDY TIE REPLACEMENT**

15 **Q19. PLEASE SUMMARIZE THE BENEFITS OF THE PROJECT TO EPE'S**
16 **CUSTOMERS, GENERATORS, AND THE RELIABILITY OF THE BULK**
17 **ELECTRIC SYSTEM.**

18 **A.** The Project involves the construction of a new HVDC tie with the most current
19 technology. In terms of quantitative benefits, the new Eddy Tie will provide a
20 reduction of fuel and purchased power costs via the market and arbitrage
21 opportunities mentioned above. Further, the Project will relieve grid congestion in

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1 the already stressed paths in the West. Availability of 200 MW firm transmission
2 between the Western and Eastern Interconnections will unlock location constrained
3 generation resources that previously had limited or no access to the neighboring
4 electricity markets. Specifically, the Tie will unlock EPE's and third-parties' access
5 to generation resources in the East. This is especially true for access to lower cost
6 renewable energy from the East. Similarly, customers on the eastern side of the Tie
7 will gain access to generation in the West, and such access will be especially
8 important during times when resources are constrained in the Eastern
9 Interconnection, but not in the Western Interconnection. Users of the transmission
10 grid on either side of the Tie stand to benefit from new, fully-functioning,
11 technologically-advanced infrastructure that would be capable of firm power
12 transfers from one Interconnection of the United States to the other. For example,
13 EPE's peak load has grown more than 200 MWs in the last five years. To reliably
14 meet demand during extreme weather or during outages on the western import
15 paths, EPE will need to utilize the Tie to access power supplies from the Eastern
16 Interconnection.

17

18 **Q20. WHY DOES THE EDDY HVDC TIE HELP IMPROVE DISPATCH AND**
19 **ACCESS TO AVAILABLE GENERATION FOR CUSTOMERS IN BOTH**
20 **THE EASTERN AND WESTERN INTERCONNECTIONS?**

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1 **A.** The Eddy Tie bridges the Western and Eastern Interconnections. It therefore allows
2 energy resources on either side to reach consumers. Additionally, since each
3 market has its own supply and demand ecosystem, there will typically be a price
4 differential between the two markets. Explained more simply, the two regions peak
5 in electricity demand at different times, in part due to the time zone spread but also
6 because of varying climate differentials across the broad geography. For example,
7 it is unlikely that a heat wave, which drives summer peak demand, would
8 encompass both western Arizona/California and the area encompassing eastern
9 New Mexico and the panhandle of Texas. Both of these phenomena are referred to
10 as geographic load diversity. Based on this diversity, the Eddy Tie unlocks the
11 potential for customers and generators on both sides of the Tie to access markets
12 that they would not be able to access absent reliable operation of the Tie.

13

14 **Q21. HAS EPE LEVERAGED THE EXISTING EDDY TIE IN THE PAST FOR**
15 **OPPORTUNITIES TO ACCESS CHEAPER POWER SOURCES AND IN**
16 **EVENTS OF EMERGENCIES WHEN WESTERN POWER IS NOT**
17 **AVAILABLE THROUGH PATH 47?**

18 **A.** Yes. EPE received Commission approval for simultaneous exchanges which
19 permitted power transactions from 2021 through 2023. Subsequently, EPE was
20 again granted Commission approval to engage in these types of transactions
21 through the end of 2026. EPE exercised the FERC approval rights to transact in

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1 2024 and 2025. EPE plans to seek an extension of the simultaneous exchange
2 transaction from FERC in 2026.¹ However, the simultaneous exchanges approved
3 by the Commission are subject to the physical limitations of the Eddy Tie and
4 specifically state that the transactions are “contingent upon the availability of the
5 Eddy County DC-Tie.”²

6
7 **Q22. INDEPENDENT OF EPE’S ANALYSIS, HAS THE U.S. DEPARTMENT OF**
8 **ENERGY NOTED THE MARKET VALUE ACROSS THE WESTERN AND**
9 **EASTERN INTERCONNECTION ALONG THE EDDY TIE**
10 **TRANSMISSION CORRIDOR?**

11 **A.** Yes. The U.S. Department of Energy (“DOE”) has identified the southeastern New
12 Mexico Eddy Tie corridor as one of three National Interest Electric Transmission
13 Corridors (“NIETC”) for further development.³ This NIETC designation process
14 was undertaken by the DOE to identify transmission corridors where the lack of
15 transmission infrastructure can harm electric customers with higher energy costs,
16 energy scarcity during climate events and longer system restoration, and the

¹ See Simultaneous Exchange with TransAlta, Service Agreement No. 352, Docket No. ER21-01736-000; and Simultaneous Exchange with Dynasty, Service Agreement No. 355, Docket No. ER24-00198-001.

² *Id.*

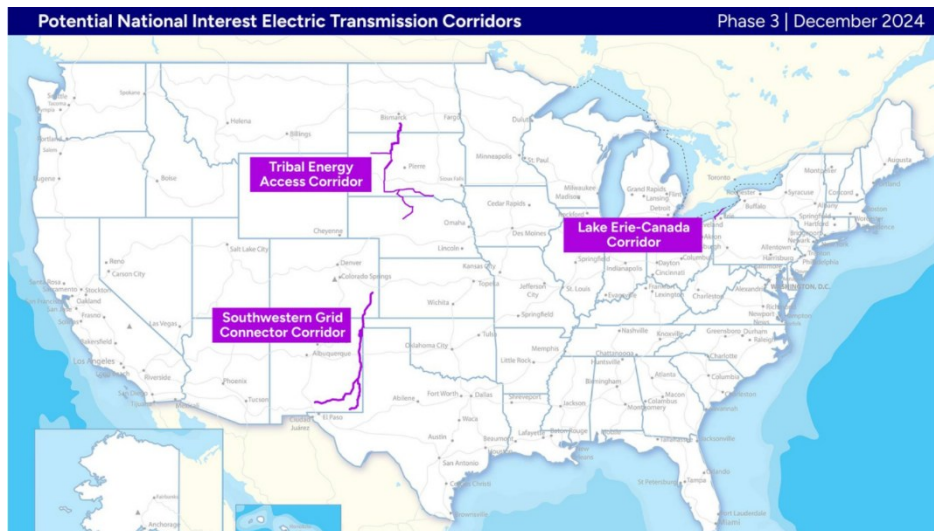
³ See U.S. Department of Energy, *National Interest Electric Transmission Corridor*, <https://www.energy.gov/gdo/national-interest-electric-transmission-corridor-designation-process>.

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development of new transmission would promote important national interests, including increased reliability and reduced costs to customers.

Q23. IS THERE A MAP IDENTIFYING THESE CORRIDORS?

A. Yes. The following image is provided from the same energy.gov reference above. Note that the Eddy Tie corridor in conjunction with the planned Xcel 765kV transmission line correlates to the denoted DOE Southwestern Grid Connector Corridor.



Q24. HAS THE TRANSMISSION CONGESTION VALUE BEEN QUANTIFIED INDEPENDENT OF EPE'S ANALYSIS?

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1 **A.** Yes. A Lawrence Berkeley National Laboratory report dated July 2024⁴ quantified
2 average transmission congestion values across multiple regions. The graphic below
3 is from that report. The corridors between the Western and Eastern Interconnections
4 were identified with the highest values with the exception of the ERCOT to
5 Southwest corridor denoted at \$61/MWh. The Eddy Tie corridor was quantified at
6 \$43/MWh. This demonstrates the beneficial energy market differentials that exist
7 on either side of the Eddy Tie.

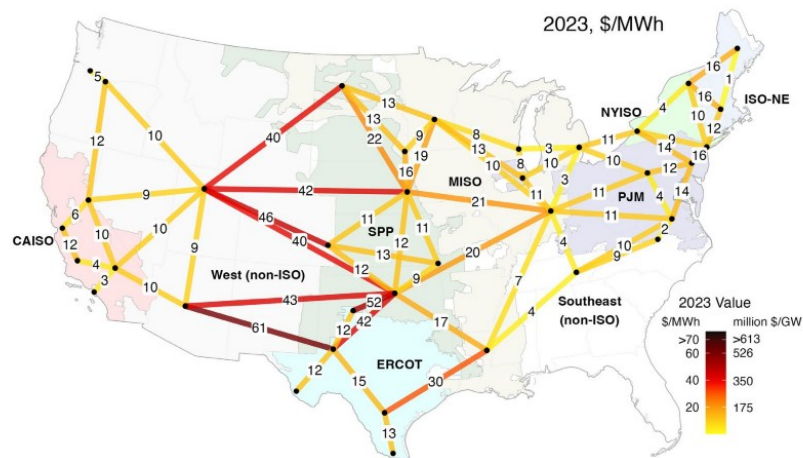


Figure 1. 2023 transmission value across a set of selected links. Transmission value was relatively high for links that cross between two of the three grid interconnection regions (the Western Interconnection includes CAISO and much of the Non-Iso West, the Texas Interconnection includes ERCOT, and the Eastern Interconnection includes the remaining regions shown). Also, a number of links that cross between different system operators within the same interconnection region saw relatively high transmission value. Note: at a GW of new transmission capacity, these values would likely be reduced by 10 – 30% due to market depth constraints as discussed in the text.

⁴ Available at: https://eta-publications.lbl.gov/sites/default/files/lbnl-transmissionvalue-techbrief-2023update-20230710_0.pdf

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1 **VI. RELIABILITY BENEFITS OF THE REPLACEMENT OF THE EDDY TIE**

2 **Q25. PLEASE DESCRIBE WHAT IS MEANT BY RELIABILITY WITH**
3 **REGARD TO AN ELECTRIC UTILITY SYSTEM.**

4 **A.** Reliability at the bulk electric system level entails attaining sufficient energy
5 resources to meet forecasted load and the ability to deliver that power via the
6 transmission system to the various load pockets. It encompasses maintaining the
7 capability of the transmission system to move power to load and sufficient reserve
8 margins to meet the industry standard of meeting one loss of load event in ten
9 years,⁵ while also satisfying federal reliability requirements that govern how the
10 transmission system must withstand the loss of facilities under various conditions.

11

12 **Q26. DOES THE EXISTING EDDY TIE PROVIDE RELIABILITY BENEFITS?**

13 **A.** Yes, it does. But as discussed by witness David Hawkins in his direct testimony,
14 those benefits are greatly diminished by the condition of the existing Eddy Tie.

15

16 **Q27. WILL THE PROPOSED PROJECT PROVIDE ADDITIONAL**
17 **RELIABILITY BENEFITS?**

18 **A.** Yes. First, the replacement project would restore the capacity of the Eddy Tie to
19 the full 200 MW capacity on a consistent basis. As EPE witness Jonathan Trejo

⁵ EPE is in a transition to adopting the one loss of load in ten years standard by 2030.

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1 explains in his testimony, the age of the existing Eddy Tie has significantly
2 diminished its reliable capacity. It is at the end of its useful life. Second, the new
3 Tie's advanced technology and reactive power capabilities and ancillary services
4 will also provide greater grid resiliency via voltage stability, as also explained in
5 more detail by Mr. Trejo. Furthermore, with the ability to quickly change flows,
6 and even direction of flow, the Project can assist in responsiveness to address
7 reliability challenges from forced outages. For example, if there were an unplanned
8 loss of one of EPE's transmission lines to the west, the Eddy Tie could be utilized
9 to import power from the Eastern Interconnection on short notice if power is
10 acquired. EPE witness David Hawkins provides additional testimony on the
11 reliability benefits in his testimony.

12

13 **Q28. WILL THE PROPOSED EDDY TIE REPLACEMENT HELP PROMOTE**
14 **THE DEVELOPMENT OF ADDITIONAL ENERGY RESOURCES?**

15 **A.** Yes. The new Eddy Tie, given the strong capabilities it will provide, will allow for
16 firm transfers across it, and will provide an option for EPE and third-party entities
17 to source energy resources from the eastern side of the Tie. Additionally, resources
18 on the western side of the Tie could also be sourced by users in the east. Given the
19 current state of the existing Eddy Tie, EPE has not sourced resources to the east of
20 the Tie on a long-term firm basis, because those resources would be repeatedly
21 stranded when the Tie goes down. The current non-firm-only status of the Tie will

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1 be replaced with advanced technology and fully-functioning infrastructure capable
2 of supporting firm services.

3

4 **Q29. WILL THE PROPOSED EDDY TIE REPLACEMENT HAVE BENEFITS**
5 **RELATED TO DISPATCH AND USE OF RESOURCES?**

6 **A.** Yes. EPE's fuel and purchased power cost impact is presented by EPE witness
7 David Hawkins and shows the estimated cost savings. This was also corroborated
8 by consulting firm E3, whom EPE contracted to perform an analysis using E3's
9 energy market forecast. The E3 analysis, as presented by Mr. Hawkins, also
10 estimated fuel and purchased power cost savings.

11

12

VII. NET PUBLIC BENEFIT

13 **Q30. IS THERE A METHODOLOGY FOR ASSESSING THE NET BENEFITS**
14 **OF AN HVDC TIE BETWEEN TWO MARKETS?**

15 **A.** Yes. Production cost modeling, using software products allows for illustrative
16 computer-generated optimal generation resource dispatch to quantify estimated fuel
17 and purchased power cost over a multiple-year horizon. In order to assess the value
18 of an HVDC tie, the model is run with two scenarios, one with and one without the
19 Eddy Tie. The results are illustrative, but they allow for a quantification of
20 differences in fuel and purchased power cost between the two scenarios. EPE used
21 this methodology to illustrate the net benefit of the replacement of the Eddy Tie.

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1

2 **Q31. DOES THE REPLACEMENT OF THE EDDY TIE RESULT IN A NET**
3 **BENEFIT TO CUSTOMERS?**

4 **A.** Yes. The replacement of the Eddy Tie is expected to result in approximately \$128
5 million in Net Present Value savings to customers over the 40-year life of the Eddy
6 Tie. EPE evaluated the benefits of the Eddy Tie Project over a 40-year life utilizing
7 the load and resources selected as part of EPE's 2025 All-Source Request For
8 Proposals ("RFP"). This analysis assessed the revenue requirement of EPE's
9 selected portfolio of resources with and without the Eddy Tie. With the
10 replacement Eddy Tie taken into account, the revenue requirement of the selected
11 portfolio was substantially lower. The production cost benefits, fuel and purchased
12 power costs benefits, of the replacement Eddy Tie identified in this analysis are
13 \$2.45 billion in nominal dollars, or \$464 million on a net present value basis. A
14 project's benefit can also be quantified in terms of the Benefit Cost Ratio ("BCR"),
15 which is calculated as cost savings divided by the revenue requirement. The Eddy
16 Tie Project results in a BCR of 1.38, which is a robust result. See my Exhibit
17 OAG-2.

18

19 **VIII. EVALUATION OF ALTERNATIVES**

20 **Q32. ARE THERE ANY ALTERNATIVES TO THE PROPOSED PROJECT**
21 **THAT WOULD PROVIDE THE SAME ACCESS TO POWER FROM THE**

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1 **EASTERN INTERCONNECTION FOR FUEL AND PURCHASED POWER**
2 **BENEFITS AS WELL AS THE ADDED RELIABILITY BENEFITS?**

3 **A.** EPE considered alternatives to the Project. For example, EPE considered
4 refurbishing the existing terminal, and contacted vendors to evaluate that option.
5 Such efforts were unsuccessful. The existing terminal is not capable of being
6 refurbished. EPE's evaluation then turned to the pursuit of a new terminal. The
7 reason the Eddy Tie Project is superior to other means of creating firm access across
8 the seam between the Western Interconnection and the Eastern Interconnection is
9 that it is being pursued at a location adjacent to EPE's current transmission system.
10 This eliminated the need for the installation of long, costly line extensions across
11 territory for which land rights are difficult to secure. As proposed, the investment
12 is focused on construction of a new state-of-the art HVDC terminal at a location
13 next to the current non-firm-only terminal. To have looked at other locations would
14 have meant projects that were more expensive to build and that would have taken
15 longer to permit and build. In contrast, by pursuing the Eddy Tie Project, EPE will
16 be able to secure firm access across the interconnection seam within four years.
17 The energy price differentials between the two markets are only accessible via a
18 connection such as an HVDC tie. For example, building an alternative transmission
19 line to the west would access only the same trading hubs in the west to which
20 already EPE has access. It would not offer the benefits of leveraging energy price
21 differentials between the two interconnections.

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1 **Q33. WOULD AN ADDITIONAL TRANSMISSION LINE TO THE WEST**
2 **OFFER THE SAME RELIABILITY BENEFIT DURING ENERGY**
3 **SCARCITY EVENTS IN THE WEST?**

4 **A.** No. An additional transmission line to the west is unlikely to address energy
5 scarcity events in the Western Interconnection, because that transmission line could
6 only reach western resources, and western import capability into the EPE service
7 territory is limited. With the proposed new Tie's ability to access resources to the
8 east, and with the EPE service territory having the benefit of being right on the
9 border between the Western and Eastern Interconnections, there is greater
10 likelihood that resources to the east could be secured and moved across the new
11 Tie. These resources could address conditions of energy scarcity in the west. For
12 those located in the Eastern Interconnection, the new Tie would provide similar
13 access. Consumers to the east could look to western resources to support load
14 service during times when conditions within the Eastern Interconnection are
15 constrained or scarce.

16

17 **IX. SUPPLY CHAIN DELAYS AND EQUIPMENT PRICING RISK**

18 **Q34. PLEASE EXPLAIN HOW SUPPLY CHAIN CONSTRAINTS CREATE**
19 **HIGHER PRICES AND FINANCIAL RISKS FOR THE PROJECT?**

20

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1 **A.** Supply chain constraints represent one of the most significant risks facing the
2 development of large transmission infrastructure projects similar to the Eddy Tie
3 Project. Modern transmission projects depend upon highly specialized
4 equipment—including power transformers, circuit breakers, protective equipment,
5 transmission structures, conductors, and high-voltage cable—that is manufactured
6 by a relatively limited number of entities worldwide. Some of the final products are
7 assembled in the United States; some are imported.

8 In EPE’s experience, lead times for many of these components have increased
9 substantially in recent years, with procurement periods for certain transmission
10 equipment extending from months to several years. For example, today, 345kV
11 gas circuit breakers have a lead time of two (2) years or more; 115 kV and 345kV
12 coupling capacitor voltage transformers (CCVT) have lead times of up to 14
13 months; pre-packaged substations can have lead times up to nine (9) months.

14 These conditions create meaningful financial and operational risks for EPE. Such
15 risks are present for the Eddy Tie Project, and the rest of EPE’s capital projects.

16 The combination of supply chain delays and increased demand for transmission
17 components has also resulted in skyrocketing prices for certain kinds of materials
18 needed for transmission projects. Examples include a 400% increase for three
19 Phase Pad Mounted 1500kva transformers for the period from October 2022 to July
20 2026, an approximate 110% increase for 75kva Single Phase Pad Mounted
21 transformers for just the nine-month period from October 2025 to July 2026, a 44%

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1 increase for 795 kcmil (MCM) “Arbutus” AAC bare aluminum electrical wire for
2 the same nine-month period.

3 From a financial perspective, supply chain delays affect a transmission project in
4 several ways. First, delays frequently result in increased project costs. When
5 procurement schedules are extended, EPE remains exposed to inflationary
6 pressures affecting labor, raw materials, transportation, and construction services.
7 As a result, equipment and construction costs often increase beyond original
8 estimates, requiring additional capital investment to complete the project.

9 Second, schedule delays increase the carrying costs associated with project
10 financing. Transmission projects require significant capital expenditures during the
11 development and construction phases. In recent years, because of supply chain
12 delays, EPE has had to procure materials well in advance or at the very beginning
13 of the project, which requires it to pre-pay for the materials and be prepared to
14 expend most of the costs at the very beginning of its projects. For example, EPE is
15 currently pre-purchasing equipment worth millions of dollars to be ready to be
16 installed in the 2027 and 2028 timeframe. In addition, some contracts for
17 construction services now require 10% to 15% down payments in order to mobilize
18 a contractor. If engineered equipment is required for a project, there are milestone
19 payments at various stages of the design, engineering, manufacturing and
20 installation of the engineered equipment. Therefore, as development schedules
21 extend, the utility must continue financing the project while experiencing

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1 corresponding increases in interest expense, financing costs, and cash requirements.
2 This dynamic can materially increase the overall cost of the investment.
3 Third, supply chain delays postpone the date on which a transmission project can
4 be placed into service. Absent a CWIP incentive, this deferment delays the utility's
5 ability to begin recovering prudently incurred costs and earning a return on its
6 investment. While project expenditures continue to accumulate during the delay
7 period, the anticipated revenue stream associated with the project is pushed further
8 into the future, creating pressure on cash flows and financial metrics. This
9 mismatch between investment expenditures and cost recovery can have a
10 significant impact on EPE's financial position and the remaining capital projects in
11 its portfolio.
12 EPE, similarly to other utilities, is undertaking projects that require large cash
13 outlays, relative to its existing rate base or annual transmission revenue
14 requirement. The financial impact of these large projects can be magnified because
15 substantial transmission investments can create periods of negative cash flow and
16 place additional pressure on a utility's financial position and credit profile. Supply
17 chain delays exacerbate those risks by extending the period between capital
18 deployment and cost recovery while simultaneously increasing overall project
19 costs.

20

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1 **Q35. DO THESE SUPPLY-CHAIN RISKS AFFECT ONLY EPE, OR DO THEY**
2 **ALSO AFFECT CUSTOMERS?**

3 **A.** The risks extend beyond EPE itself. The Eddy Tie Project is developed to provide
4 significant reliability, economic, and operational benefits to customers in a way
5 that improves the transfer capability across the seam that splits the nation's electric
6 grid into two interconnections. If the Project is delayed due to supply chain
7 constraints, those benefits are also delayed, while the cost of the project is likely
8 to increase.

9 For example, the Project is designed to relieve congestion, improve access to
10 lower-cost generation resources, strengthen reliability, and or increase transfer
11 capability between WECC and SPP regions. However, the Project cannot provide
12 those benefits until they are completed and placed into service. As a result,
13 customers may continue to incur higher energy costs, transmission constraints may
14 persist, and reliability improvements may be postponed for an extended period.

15 In addition, the Project is designed to increase cross-interconnection transfer
16 capability and provide access to broader wholesale markets, thus delivering
17 economic value by allowing EPE and third-parties to access lower-cost energy
18 resources over a wider geographic area. Delays in constructing the Project
19 postpone these economic benefits and can reduce the overall value realized from
20 the investment.

21

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1 **Q36. WHY ARE THESE RISKS RELEVANT TO THE COMMISSION'S**
2 **CONSIDERATION OF TRANSMISSION INCENTIVES?**

3 **A.** These risks are directly relevant because they constitute project-specific challenges
4 that are frequently outside of EPE's reasonable control and that can materially
5 affect the financial viability and risk profile of the Project. Projects like the Eddy
6 Tie, involving substantial capital commitments, extended development schedules,
7 and significant exposure to construction and procurement uncertainties, present
8 precisely the type of financial risks that transmission incentive policies are designed
9 to address.

10 As demonstrated by the examples above, supply chain uncertainty increases the
11 probability of sizable cost escalation, schedule slippage, delayed cost recovery,
12 negative cash flow impacts, and pressure on credit metrics. These risks are
13 particularly acute for projects requiring specialized equipment or projects that are
14 large, relative to the size of the sponsoring utility. Accordingly, supply chain
15 constraints represent a meaningful component of the overall risk profile associated
16 with developing major transmission infrastructure, and should be considered when
17 evaluating the financial risks and challenges faced by such projects.

18 In summary, supply chain delays do not merely create scheduling challenges; they
19 increase project costs, defer revenues, increase financing requirements, weaken
20 project economics, and postpone the reliability and economic benefits that
21 transmission projects are intended to provide. These factors collectively elevate the

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1 financial risks borne by EPE for this Project, and are therefore highly relevant to
2 the Commission's evaluation of transmission incentives.

3

4 **X. ENGINEERING, PROCUREMENT, AND CONSTRUCTION RISKS**

5

6 **Q37. YOU OVERSEE TRANSMISSION PROJECT DEVELOPMENT.**

7 **EXPLAIN WHAT RISKS ARE YOU ENCOUNTERING FOR LARGE**

8 **TRANSMISSION PROJECTS?**

9 **A.** From a project development prospective, there are several factors increasing the
10 risks for transmission projects. These factors are workforce shortages, increasing
11 demand for EPC services across multiple infrastructure sectors, and supply chain
12 constraints.

13 Large transmission projects, like the Eddy Tie Project, are now competing with
14 generation, renewable energy, industrial, and unprecedented data center
15 developments for the same limited pool of skilled labor and EPC resources. EPE has
16 noticed that workforce shortages remain a significant challenge throughout the
17 construction and energy sectors, and that competition for skilled labor continues to
18 affect project execution, timing and pricing. As a result, EPE is encountering a more
19 constrained and expensive EPC marketplace than has historically been the case.
20 EPE's projects are still being completed, but the financial risks are amplified,
21 especially for smaller utilities like EPE.

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1 **Q38. HOW DOES A LIMITED NUMBER OF QUALIFIED EPC BIDDERS**
2 **AFFECT PROJECT RISK?**

3 **A.** EPE has seen less participation in RFPs. There have been fewer bidders overall, and
4 fewer bids that are *both* reasonably-priced *and* from bidders with proven skills and
5 capabilities. In other words, it is much more difficult for utilities like EPE to lock in
6 a firm price from a skilled service provider. As discussed in Witness Trejo's
7 testimony, for the Eddy Tie Project, given the complexity and the niche market of
8 HVDC technology, there are only four proven vendors in the world that can
9 manufacture HVDC ties. The limited number of vendors for HVDC ties
10 significantly restricted EPE's choice in vendors and associated pricing. For the
11 Project's transmission upgrades and related work, we are also seeing a smaller pool
12 of available EPC service providers that possess the capabilities to deliver the project
13 on time and at a reasonable, firm price.

14 A reduced number of qualified EPC bidders reduces competition, which in turn
15 increases both the cost risk and execution risk associated with the Eddy Tie Project.
16 Currently, contractors possess greater pricing leverage and are able to incorporate
17 higher labor rates, larger contingency allowances, and broader risk protections into
18 their proposals. Consequently, project owners like EPE face increased construction
19 costs before work even begins. The reduced competitive environment also limits
20 EPE's ability to negotiate favorable contract provisions relating to pricing, schedule
21 commitments, and risk allocation. For the Eddy Tie project, GE Vernova was the

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1 only vendor to provide a firm price and schedule during the bidding process;
2 however, there are provisions for inflationary impact on a subset of costs per
3 commodity indices. EPE is also responsible for the balance of the high voltage
4 substation equipment procurement and construction. The scarcity of available
5 vendors, coupled with the unwillingness or incapability of vendors to provide
6 binding commitments on price and completion dates, makes it increasingly
7 challenging to secure timely regulatory approvals before state governmental
8 authorities responsible for issuing approvals on siting, certification, and retail rate
9 recovery. This also increases the regulatory risks associated with the Project.

10

11 **Q39. WHAT ROLE DO LABOR SHORTAGES PLAY IN THIS INCREASED**
12 **RISK?**

13 **A.** The industry is currently experiencing shortages of qualified workers. Labor
14 shortages are one of the significant drivers of the increased financial risk facing the
15 electric transmission industry. When contractors are uncertain regarding future
16 labor availability or anticipate wage escalation during the construction period, they
17 incorporate that uncertainty into their bid pricing. This often manifests through
18 higher labor cost estimates, increased overtime assumptions, productivity
19 contingencies, retention incentives, and escalation allowances. Because labor
20 represents a significant component of construction costs for transmission projects
21 like the Eddy Tie Project, even modest increases in labor pricing can materially

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1 affect overall project costs. Accordingly, the unfavorable labor market conditions
2 increase the risk of project delays and result in adverse impacts on final project
3 costs.

4

5 **Q40. DOES A CONSTRAINED BIDDING ENVIRONMENT CREATE**
6 **ADDITIONAL RISKS BEYOND HIGHER INITIAL COST ESTIMATES?**

7 **A.** Yes. A constrained bidding environment also creates substantial schedule and
8 execution risks. Contractors that possess the capability to perform large
9 transmission infrastructure work often maintain backlogs of pending projects.
10 Even when such contractors are willing to bid, they may have limited flexibility
11 regarding mobilization schedules, staffing resources, or equipment availability.
12 Specifically, for EPE's HVDC order, as explained by Witness Trejo, the firm price
13 for the major Tie components has a relative short expiration timeframe, and is
14 subject to escalation should regulatory delays hold up EPE's ability to enter into a
15 binding contract.

16 The resulting schedule uncertainty can have financial consequences. Delays may
17 increase interest during construction, expose projects to additional inflationary
18 pressures, require extension of project management and engineering services, and
19 postpone the realization of benefits that the transmission project is intended to
20 provide. In addition, delays frequently increase exposure to future labor market
21 escalation. Based on my experience overseeing EPE transmission projects, labor

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1 shortages and supply chain disruptions are key contributors to cost overruns and
2 schedule delays.

3

4 **Q41. PLEASE EXPLAIN HOW THE CONSTRAINED EPC MARKET**
5 **CONDITIONS AFFECT THE EDDY TIE PROJECT AND THE REST OF**
6 **EPE'S TRANSMISSION PROJECTS.**

7 **A** All of EPE's projects are subject to increased financial risk due to labor shortages,
8 constrained EPC market conditions, and supply chain delays. Our entire project
9 portfolio is affected, thus increasing the overall financial risk to the company. The
10 Eddy Tie Project has an even heightened risk compared to other transmission
11 projects because it requires highly specialized equipment, and specific engineering
12 and construction skills, that are not widely available.

13

14 **Q42. HOW DO THESE EXISTING MARKET CONDITIONS SUPPORT THE**
15 **COMMISSION'S GRANT OF TRANSMISSION INCENTIVES?**

16 **A.** These unfavorable market conditions support transmission incentives because they
17 materially increase the risks assumed by EPE as it seeks to pursue construction of
18 a new HVDC terminal at the seam between the two electric interconnections that
19 comprise the nation's grid. The Commission has long recognized that the most
20 compelling case for incentive ROEs are new projects that present special risks or

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1 challenges, not routine investments made in the ordinary course.⁶ The Eddy Tie
2 Project meets the Commission's criteria.⁷ The Eddy Tie replacement is not an
3 ordinary project. It is unique. Its location is unique. Its equipment and technology
4 are unique. Its impacts are unique. Its risks are unique. The Project is an HVDC
5 terminal. This is not an ordinary or routine facility. Most of the nation's public
6 utility systems do not have them. The Project's location at the seam of the nation's
7 two electric interconnections makes it unlike investments made in the ordinary
8 course of EPE operations. The Project has the potential to favorably impact
9 conditions in *both* the Western Interconnection and the Eastern Interconnection.
10 Routine investments don't do that. The Project comes with greater risks for EPE,
11 too, compared to routine transmission projects. There are only four vendors for
12 the HVDC terminal technology that EPE is proposing for the Eddy Tie Project. It
13 is a niche area of the market, and the skilled workforce necessary to build this kind
14 of HVDC terminal is in demand across several continents.

15 The combination of labor scarcity, escalating construction costs, reduced bidder
16 participation, and increased schedule uncertainty substantially elevates the
17 financial risks associated with developing the Project. Unlike risks that can be fully
18 mitigated through typical prudent project management, these risks arise from
19 broader market conditions that are largely outside the control of EPE.

⁶ See Promoting Transmission Investment Through Pricing Reform, Order No. 679, Docket No. RM06-4-000, at PP 27,94 (2006), Order 679-A, at P 60, Docket No. RM06-4-001 (2006).

⁷ See *generally* Order 679 and 679-A.

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1 When qualified EPC firms are limited in number and demand for skilled labor
2 significantly exceeds supply, project owners like EPE face increased exposure to
3 cost escalation, scheduling uncertainty, change-order risk, and financing costs.
4 These risks affect the probability of successful project execution, and materially
5 increase the amount of capital placed at risk during development and construction.
6 In the case of the Eddy Tie Project, the necessary capital necessary for the project
7 is approximately three times the size of EPE's annual transmission revenue
8 requirement. It is an investment quite large for the size and borrowing power of
9 EPE.

10 Accordingly, transmission incentives help compensate investors for undertaking
11 these heightened risks, and facilitate the timely development of infrastructure
12 necessary to maintain reliability, support economic growth, and accommodate
13 evolving electricity demand. The Eddy Tie is a vital project at the interconnection
14 seam because it will unlock the potential for imports from SPP in the Eastern
15 Interconnection, while also improving reliability and relieving congestion in the
16 Western Interconnection. In my opinion, the current EPC market environment
17 presents risks to the Project that are both substantial and demonstrably greater than
18 those historically associated with ordinary transmission infrastructure
19 improvements, thereby supporting the grant of the package of incentives requested
20 by EPE. The package is designed to work together to address the risks in a way

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1 that could support EPE's pursuit of the investment in today's challenging
2 environment.

3

4

XI. CONCLUSION

5 **Q43. DOES THIS CONCLUDE YOUR TESTIMONY?**

6 **A.** Yes, it does.

**UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION**

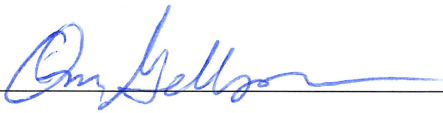
El Paso Electric Company

)

Docket No. ER26-__-000

VERIFICATION

I, Omar Gallegos, being duly sworn, state that the contents of the foregoing affidavit are true, correct, and accurate to the best of my knowledge, information, and belief.



Omar Gallegos

Dated: 8/20/2026

Exhibit OAG-1

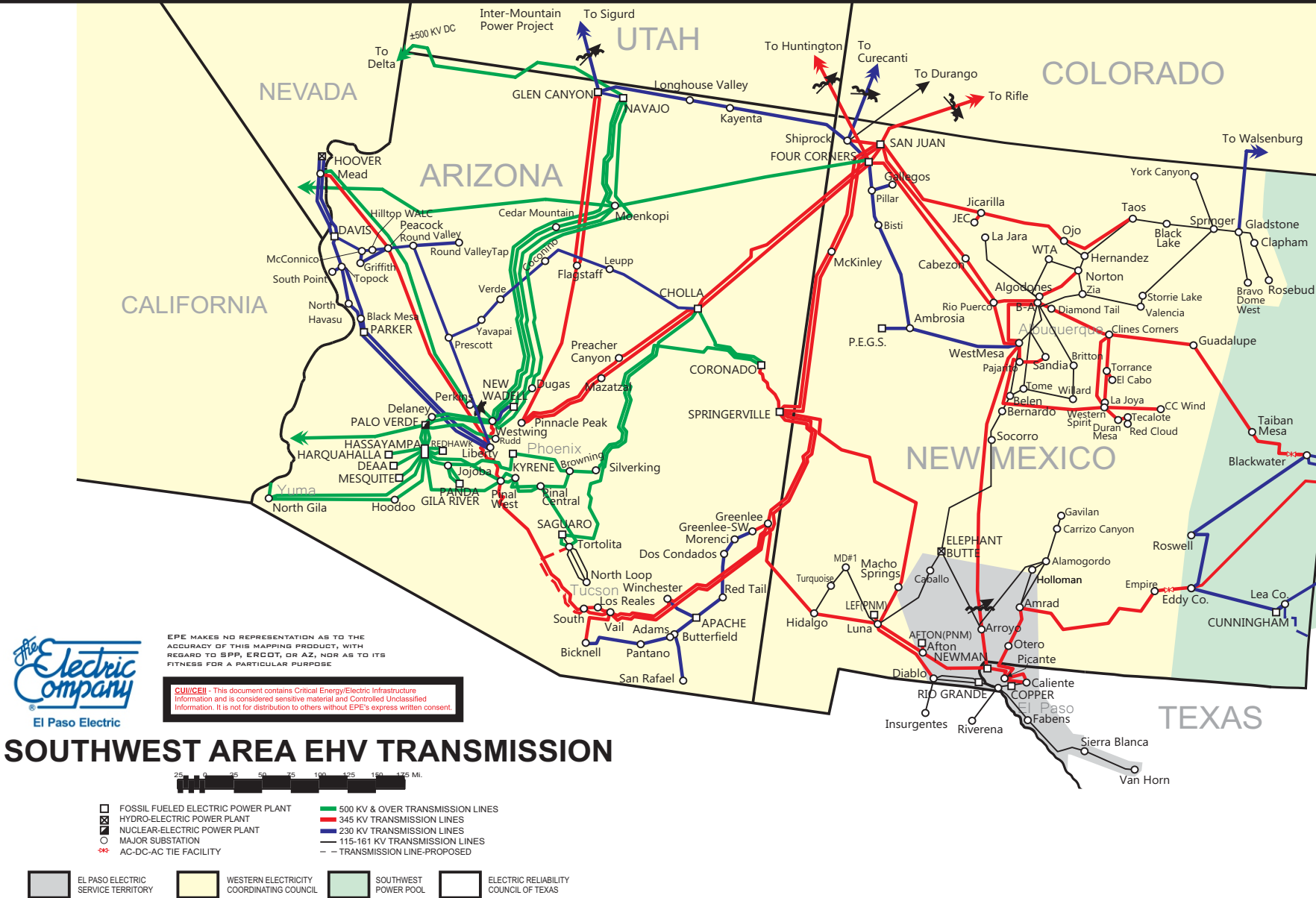


Exhibit OAG-2

40-Years	Nominal (\$M)	NPV (\$M)
Gross System Cost Savings	\$ (2,445.60)	(\$463.62)
Revenue Requirements for Eddy Tie	\$ 1,031.42	\$ 335.66
Net System Cost Savings**	\$ (1,414.18)	\$ (127.96)

1.38123469 Benefit Cost Ratio*

Total System Cost Comparison from PLEXOS (2026-2045)	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	Total
Eddy Tie is not replaced	\$ 242.61	\$ 341.66	\$ 515.92	\$ 861.50	\$ 877.17	\$ 908.51	\$ 961.53	\$ 985.50	\$ 1,070.11	\$ 1,151.82	\$ 1,198.55	\$ 1,270.97	\$ 1,330.54	\$ 1,399.12	\$ 1,482.16	\$ 1,534.06	\$ 1,600.11	\$ 1,644.35	\$ 1,718.48	\$ 1,781.02	\$22,875.71
Eddy Tie is replaced	\$ 242.62	\$ 341.59	\$ 515.97	\$ 861.81	\$ 854.07	\$ 886.21	\$ 941.58	\$ 961.49	\$ 1,041.09	\$ 1,125.53	\$ 1,165.11	\$ 1,238.35	\$ 1,298.45	\$ 1,357.86	\$ 1,429.53	\$ 1,487.33	\$ 1,549.65	\$ 1,592.45	\$ 1,668.15	\$ 1,725.11	\$22,283.97
Nominal Gross System Cost Savings	\$ 0.01	\$ (0.07)	\$ 0.05	\$ 0.31	\$ (23.11)	\$ (22.31)	\$ (19.95)	\$ (24.01)	\$ (29.03)	\$ (26.29)	\$ (33.44)	\$ (32.63)	\$ (32.08)	\$ (41.26)	\$ (52.63)	\$ (46.73)	\$ (50.46)	\$ (51.90)	\$ (50.33)	\$ (55.91)	\$ (591.74)
Nominal Revenue Requirements for Eddy Tie Replacement***	\$ -	\$ -	\$ -	\$ -	\$ 43.95	\$ 42.95	\$ 41.64	\$ 40.40	\$ 39.22	\$ 38.10	\$ 37.02	\$ 35.96	\$ 34.90	\$ 33.84	\$ 32.79	\$ 31.73	\$ 30.68	\$ 29.63	\$ 28.57	\$ 27.52	\$ 568.91
Nominal Net System Cost Savings	\$ 0.01	\$ (0.07)	\$ 0.05	\$ 0.31	\$ 20.84	\$ 20.64	\$ 21.70	\$ 16.39	\$ 10.20	\$ 11.81	\$ 3.58	\$ 3.33	\$ 2.82	\$ (7.41)	\$ (19.84)	\$ (15.00)	\$ (19.78)	\$ (22.27)	\$ (21.76)	\$ (28.39)	\$ (22.83)

Total System Cost Comparison Projected (2046-2065)	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	Total
Project System Cost Savings	\$ (57.31)	\$ (58.74)	\$ (60.21)	\$ (61.71)	\$ (63.26)	\$ (64.84)	\$ (66.46)	\$ (68.12)	\$ (69.82)	\$ (71.57)	\$ (73.36)	\$ (75.19)	\$ (77.07)	\$ (79.00)	\$ (80.97)	\$ (83.00)	\$ (85.07)	\$ (87.20)	\$ (89.38)	\$ (91.62)	\$ (1,463.91)
Nominal Gross System Cost Savings	\$ (57.31)	\$ (58.74)	\$ (60.21)	\$ (61.71)	\$ (63.26)	\$ (64.84)	\$ (66.46)	\$ (68.12)	\$ (69.82)	\$ (71.57)	\$ (73.36)	\$ (75.19)	\$ (77.07)	\$ (79.00)	\$ (80.97)	\$ (83.00)	\$ (85.07)	\$ (87.20)	\$ (89.38)	\$ (91.62)	\$ (1,463.91)
Nominal Revenue Requirements for Eddy Tie Replacement	\$ 26.67	\$ 26.02	\$ 25.37	\$ 24.72	\$ 24.07	\$ 23.42	\$ 22.78	\$ 22.13	\$ 21.49	\$ 20.85	\$ 20.20	\$ 19.56	\$ 18.92	\$ 18.28	\$ 17.65	\$ 17.01	\$ 16.38	\$ 15.74	\$ 15.11	\$ 14.48	\$ 410.87
Nominal Net System Cost Savings	\$ (30.64)	\$ (32.72)	\$ (34.84)	\$ (36.99)	\$ (39.18)	\$ (41.41)	\$ (43.68)	\$ (45.99)	\$ (48.34)	\$ (50.72)	\$ (53.16)	\$ (55.63)	\$ (58.15)	\$ (60.72)	\$ (63.33)	\$ (65.99)	\$ (68.70)	\$ (71.46)	\$ (74.27)	\$ (77.13)	\$ (1,053.04)

Total System Cost Comparison Projected (2066-2069)	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	Total
Project System Cost Savings	\$ (93.91)	\$ (96.25)	\$ (98.66)	\$ (101.13)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (389.95)
Nominal Gross System Cost Savings	\$ (93.91)	\$ (96.25)	\$ (98.66)	\$ (101.13)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (389.95)
Nominal Revenue Requirements for Eddy Tie Replacement	\$ 13.85	\$ 13.22	\$ 12.60	\$ 11.97	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 51.65
Nominal Net System Cost Savings	\$ (80.05)	\$ (83.03)	\$ (86.06)	\$ (89.15)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (338.30)

Explanatory Notes:
* \$463.62 million in benefits divided by \$335.66 million in costs = B/C ratio of 1.38.
** Assumes a discount rate of 6.88% and escalation at 2.50%.
*** This illustrative cost comparison uses standard AFUDC treatment. In EPE's application, EPE is seeking CWIP incentive treatment, which would permit limited recovery in the years before the new Eddy Tie is in service.

Attachment C – Testimony of David C. Hawkins

**UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION**

El Paso Electric Company

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Docket No. ER26-__-000

**DIRECT TESTIMONY
OF
DAVID C. HAWKINS
ON BEHALF OF
EL PASO ELECTRIC COMPANY**

September 1, 2026

**EL PASO ELECTRIC COMPANY
DIRECT TESTIMONY OF
DAVID C. HAWKINS**

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EXHIBITS

Exhibit DCH-1 : E3 Eddy Tie Analysis

**EL PASO ELECTRIC COMPANY
DIRECT TESTIMONY OF
DAVID C. HAWKINS**

I. INTRODUCTION AND QUALIFICATIONS

Q1. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is David C. Hawkins. My business address is 100 N. Stanton Street, El Paso, Texas 79901.

Q2. WHO IS YOUR CURRENT EMPLOYER AND WHAT POSITION DO YOU HOLD?

A. I am employed by El Paso Electric Company (“EPE” or the “Company”) as Vice President of Operations Support.

Q3. PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND PROFESSIONAL EXPERIENCE.

A. I hold a Master of Science degree and a Bachelor of Science degree in Electrical Engineering from New Mexico State University. I have been with EPE since 2002, where I have held various positions including Vice President of Generation, System Planning and Dispatch and Vice President of Power Marketing, Fuels and Resource Planning. Before joining EPE, I served as a Wholesale Power Marketing Analyst at Public Service Company of New Mexico (“PNM”).

Q4. WHAT ARE YOUR RESPONSIBILITIES WITH EPE AS VICE PRESIDENT OF OPERATIONS SUPPORT?

A. I am responsible for the oversight and direction of EPE’s System Operations, Environmental and Safety, Energy Resources and Support Services departments. These

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1 departments are responsible for grid reliability; fuel and energy needs for the system and
2 required regulatory support; compliance with related North American Electricity
3 Reliability Corporation (“NERC”) standards; monitoring EPE's water and air emissions for
4 regulatory compliance; fleet operations; security; and facilities operations. I oversaw
5 System Planning and Interconnections, as well as Resource Strategy and Land
6 Management through April 6, 2026.

7
8 **Q5. HAVE YOU PREVIOUSLY PRESENTED TESTIMONY IN REGULATORY**
9 **PROCEEDINGS?**

10 **A.** Yes. I have previously filed testimony with the Federal Energy Regulatory Commission
11 (“FERC” or “Commission”), testified before the Public Utility Commission of Texas
12 (“Texas PUC”), and before the New Mexico Public Regulation Commission (“NMPRC”).
13

14 **II. PURPOSE OF TESTIMONY**

15 **Q6. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

16 **A.** My testimony supports EPE’s Application before the Commission for transmission
17 incentives related to replacing the existing 200 MW Eddy County Converter Station (the
18 “Eddy Tie” or “Tie”) with a new 200-megawatt (“MW”) facility (the “Project”).

19 Specifically, I address the Project’s reliability benefits to the transmission system and
20 resource diversity benefits to EPE and third-party transmission customers. I also discuss
21 the Project’s reliability and operational benefits in the context of the ongoing western
22 markets expansion of the Southwest Power Pool (“SPP”) Markets + and California
23 Independent System Operator Extended Day-Ahead Market (“EDAM”).

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III. SYSTEM RELIABILITY BENEFITS

Q7. WHAT IS SYSTEM RELIABILITY?

A. System reliability is the ability of a utility's system to continuously deliver power to customers at accepted standards and in the amounts demanded. System reliability includes adequacy, which is the capacity to have sufficient generation, transmission, and distribution resources to meet and match customer demand at all times, including during peak loads, planned outages, or extreme weather conditions. System reliability also includes security, which is the ability to withstand sudden, unexpected disturbances such as equipment failures or the loss of major generation or transmission resources without widespread service interruptions.

Q8. HOW DOES THE EXISTING EDDY TIE SUPPORT SYSTEM RELIABILITY?

A. The Company's combined service territory in Texas and New Mexico is uniquely situated. EPE is connected to SPP through the existing Eddy Tie, which gives EPE a bi-directional link to the Eastern Interconnection. This is important because EPE otherwise operates within the Western Interconnection. Historically, EPE has relied upon short-term wholesale market purchases, imported over available transmission capacity, to meet reliability needs and reduce EPE's customers' costs. The Eddy Tie allows EPE to import power from, or export power to, the east, providing an alternative supply path that is independent of EPE's western transmission connections.

Imports from the Western Interconnection flow primarily through Path 47, which consists of the 345 kV lines on the western side of EPE's system. When those western lines become constrained—whether from high loads during summer peaks, planned maintenance

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1 outages, or a contingency event like losing one of those 345 kV lines under N-1 conditions
2 — EPE’s ability to import power from the west diminishes. The Eddy Tie addresses this
3 issue because it connects to the Eastern Interconnection and therefore represents an
4 independent import path. The connectivity through the Eddy Tie provides diversity and
5 resiliency. In practical terms, it means the EPE system is not wholly dependent on a single
6 directional transmission corridor from the west.

7
8 **Q9. HAS THE CURRENT CONDITION OF THE EXISTING EDDY TIE REDUCED**
9 **ITS SYSTEM RELIABILITY BENEFITS?**

10 **A.** Yes. As discussed by EPE witnesses Jonathan M. Trejo and Omar A. Gallegos, the Eddy
11 Tie is nearing the end of its useful life. Replacement parts are so difficult to find that the
12 Tie is chronically out of service. The Tie is the only part of the EPE transmission system
13 that is unable to provide firm and reliable service across it. Unless a replacement tie is
14 approved, EPE will have to plan its system without the benefit of a firm eastern import
15 path, which would create greater reliance on, and place even greater stress on, the western
16 lines. Therefore, the replacement of the Eddy Tie is a reliability priority to restore diversity
17 that allows EPE to manage constraints on the western side of its system and to capture
18 opportunities from lower-priced renewable generation on the east side of the
19 Interconnection.

20 The importance of the Eddy Tie for system reliability and resiliency was most recently
21 demonstrated during the heatwave on June 23 and 24 and the last week of July 2026.
22 During this period, EPE surpassed its peak demand several times, and on some instances
23 several times a day. The Eddy Tie was out of service since early June and the outage had

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1 to be extended numerous times due to operational issues. During these peak days, the Tie's
2 already limited non-firm capability was not available for imports from the east, which
3 stretched EPE's import capabilities from the west to their very limit. This left EPE without
4 access to the generation resources on the east. During these heatwaves, EPE managed to
5 meet record peak demand through its own generation and power purchased from the west
6 but had to call on interruptible customers to restrict their services. However, should
7 generation or transmission failure have occurred within our Balancing Authority Area or
8 on the western paths, EPE would have had no access to alternative sources of power to the
9 east and would have had to implement emergency procedures.

10
11 **Q10. HOW DOES THE PROPOSED PROJECT TO REPLACE THE EDDY TIE**
12 **SUPPORT EPE'S OPERATIONAL RELIABILITY?**

13 **A.** The proposed Eddy Tie replacement project would restore the ability of this part of the
14 EPE transmission system to support firm service, allowing for reliable transmission import
15 capability to access a geographically diverse source of resources. It would allow EPE's
16 customers to benefit to a greater degree from resources located to the east of EPE's service
17 territory at times when such resources can be secured at lower cost, and at times when other
18 resources are unavailable due to transmission constraints, failures, or extremely high
19 demand.

20 **Q11. WOULD THE TIE UNLOCK LOCATION CONSTRAINED GENERATION**
21 **RESOURCES THAT PREVIOUSLY HAD LIMITED OR NO ACCESS TO THE**
22 **MARKETS ON BOTH SIDES OF THE TIE?**

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1 **A.** Yes. As explained below, the Tie will enable generation resources in the Western and
2 Eastern Interconnection to access markets on the opposite side of the Tie. Specifically, for
3 EPE and other western utilities, the Tie will provide access to the Southwest Power Pool
4 (“SPP”) market. Currently, the derated capacity and non-firm nature of the transmission
5 service preclude short and long-term purchase agreements among interested parties,
6 including EPE. Purchases are made within uncertain windows of opportunity when the Tie
7 is available, which may or may not coincide with market participants’ need for additional
8 energy or with its longer-term planning needs. EPE’s recent experience during the June
9 and July 2026 heatwaves demonstrates this point and the magnitude of the reliability
10 problem created by the lack of fully functioning interconnection tie.

11
12 **Q12. IS THE EDDY TIE EXCLUSIVELY FOR EPE’S OWN USE, OR CAN THIRD**
13 **PARTIES USE THIS PART OF EPE’S TRANSMISSION SYSTEM?**

14 **A.** Access to the Eddy Tie is available to others under EPE’s Open Access Transmission Tariff
15 (“OATT”). Upon completion of the Project, third-parties will continue to have access
16 under the OATT, but OATT service across the Tie will be able to be offered on firm basis
17 for the first time in many years.

18
19 **Q13. WOULD THE EDDY TIE REPLACEMENT PROJECT ALLOW ACCESS TO**
20 **RESOURCES ON BOTH A LONG-TERM BASIS AND A SHORT-TERM BASIS?**

21 **A.** Yes. The Eddy Tie Project would restore the firm nature of this part of EPE’s transmission
22 system and would allow access to resources on a long-term basis, a short-term basis, or
23 both. On a long-term basis, the replacement Eddy Tie would allow EPE to enter into long-

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1 term purchased power agreements with generators in the Eastern Interconnection. EPE has
2 considered the opportunity for such-long term agreements in the past but could not pursue
3 any opportunities because of lack of firm transmission service across the Eddy Tie. On a
4 short-term basis, as I discuss below, a replacement Eddy Tie would facilitate EPE's and
5 third-parties' purchasing power opportunistically when prices are favorable or during
6 periods of unanticipated demand. In other words, the replacement Eddy Tie would restore
7 real-time operational flexibility, allow for better resource planning, and improve reliability.
8

9 **Q14. DO EPE AND THIR-PARTY CUSTOMERS REALIZE COST SAVINGS FROM**
10 **SHORT-TERM PURCHASES?**

11 **A.** Yes. Short-term purchases allow EPE and other parties to meet energy needs for shorter
12 durations for either reliability benefits, or when there are lower-cost alternatives to EPE's
13 other resources. When power is available to the east of the Eddy Tie at prices below EPE's
14 cost of generation or western wholesale power market prices, the replacement Eddy Tie
15 would allow EPE and third parties to make short-term power purchases from those eastern
16 resources. In the case of EPE, these savings would be passed on to customers. In addition,
17 when transmission constraints limit access to existing power sources to the west from third-
18 party utilities, the replacement Eddy Tie would allow for an alternative solution and offer
19 economic and reliability benefits. I will discuss these customer benefits later in my
20 testimony.
21

22 **IV. OPPORTUNITIES FROM REPLACING THE EDDY TIE**

**EL PASO ELECTRIC COMPANY
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1 **Q15. WILL EPE AND THIRD-PARTY CUSTOMERS BENEFIT IN OTHER WAYS**
2 **FROM THE NEW TIE?**

3 A. Yes. The replacement Eddy Tie is expected to increase the frequency and volume of power
4 flows across the terminal, allowing for greater opportunities for power to be purchased
5 from and sold to entities located across the Eddy Tie.

6
7 **Q16. PLEASE EXPLAIN HOW THIRD-PARTIES WOULD BENEFITS FROM THE**
8 **EDDY TIE.**

9 A. The Eddy Tie, once it is restored to firm status with the replacement, is likely to be
10 attractive to a wide variety of users. EPE has seen considerable interest from third-parties
11 in the past, especially in the summer months, for transactions across the Tie, but the derated
12 Tie capacity and non-firm-only service severely limited entities from accessing the eastern
13 markets. Once the Tie is restored to 200 MW firm capacity, third-parties may identify
14 opportunities to purchase power from sellers located to the east of the Tie, and then secure
15 transmission services from EPE to move that power across the Eddy Tie into EPE's system
16 and beyond (or vice versa) to (i) take advantage of resource availability in the east at
17 advantageous prices, and/or (ii) serve consumer needs to the east of the tie with western
18 resources, when western resources are not being fully used by western consumers. The
19 Eddy Tie is part of the EPE transmission system. Companies that seek to move power over
20 available transmission on EPE's system, known as wheeling, make transmission
21 reservations and wheel power over the EPE transmission system. Wheeling transactions
22 that move across the new Eddy Tie would be subject to the FERC-approved transmission
23 service rate under EPE's OATT.

**EL PASO ELECTRIC COMPANY
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**Q17. HAVE THIRD-PARTIES BEEN INTERESTED IN WHEELING THROUGH THE
EPE TRANSMISSION SYSTEM TO MOVE POWER ACROSS THE EDDY TIE?**

A. Yes. Between 2021 and 2025, there were approximately 468,000 MWh of third-party wheeling transactions across the Eddy Tie. During those years, the Tie was available on a non-firm basis only, subject to interruption. The ability to have a more stable transmission path as a result of the Eddy Tie replacement project would minimize interruptions to wheeling transactions and facilitate both firm and non-firm transmission services. Also, once firm transmission service is available, transmission customers will be able to reserve capacity much easier because no studies will need to be performed prior to confirming each service request. As explained in the testimony of EPE witness Jonathan Trejo, the degraded state of the existing Tie requires EPE to trigger a study prior to granting a non-firm service request. Further, EPE is enforcing operational limits across the tie for reliability purposes, which make the service both less reliable and less attractive to transmission customers. These restrictions will be eliminated once the Project is completed.

V. OPPORTUNITIES AT THE SEAM

Q18. WHAT IS A SEAM AS IT RELATES TO THE ELECTRIC GRID?

A. A “seam” refers to the boundary between regional transmission organizations or balancing authority areas. The electric grid in the United States is divided between two broad areas, called Interconnections. The Eddy Tie is located at the seam between those two Interconnections. It sits at the point where the Western Interconnection of the United States connects to the Eastern Interconnection of the United States. EPE’s transmission system

**EL PASO ELECTRIC COMPANY
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1 is considered part of the Western Interconnection, but unlike most other electric utilities in
2 the west, EPE's system directly connects to the Eastern Interconnection.

3
4 **Q19. WHICH MARKET IS LOCATED TO THE EAST OF THE TIE?**

5 **A.** The transmission system of Southwestern Public Service Company ("SPS") is located to
6 the east of the Eddy Tie and is directly connected to the Tie. SPS is in the Eastern
7 Interconnection and is a member of the SPP. In other words, through the SPS system, the
8 Tie provides access to the SPP wholesale power market and its resources.

9
10 **Q20. WOULD SPP MARKET PARTICIPANTS BENEFIT FROM THE EDDY TIE?**

11 **A.** I expect so. The Eddy Tie will open a new opportunity for those located on the eastern side
12 of it. SPP will benefit from additional reliability options with the ability to have resources
13 located in the Western Electricity Coordinating Council ("WECC") travel across the Eddy
14 Tie into the SPP region. Additionally, the path would provide an option for the economic
15 procurement of resources from the west, when market conditions make SPP resources more
16 expensive, by comparison.

17
18 **Q21. IS IT SIGNIFICANT THAT THE LOCATION OF THE EDDY TIE IS AT THIS**
19 **SEAM?**

20 **A.** Yes. There are very few locations within the United States where the two Interconnections
21 are electrically connected at the seam through a high-voltage direct current ("HVDC")
22 terminal. The Eddy Tie is significant in this respect, especially nowadays when
23 interregional transfer capabilities have been recognized as critical for overall bulk electric

**EL PASO ELECTRIC COMPANY
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1 system reliability, particularly under stressed conditions and extreme weather events. EPE
2 witness Trejo addresses this issue in more detail in his direct testimony.

3
4 **Q22. WHAT ARE INTERREGIONAL TRANSFER CAPABILITIES AND WHAT IS**
5 **THEIR IMPORTANCE?**

6 **A.** Interregional transfer capabilities refer to the amount of power that can be reliably moved
7 between transmission planning regions, often aligning with the total transfer capability
8 across connecting lines. Following numerous extreme weather events throughout the
9 country in the recent years, I believe there is a general consensus among industry members,
10 regulators and even customers, that interregional transfers are important during extreme
11 weather events, when one region experiences high demand coupled with generation and/or
12 transmission failures, thus necessitating imports, sometimes on emergency basis, from
13 neighboring areas. Well-known examples of beneficial interregional transfers include the
14 transfers from the PJM Interconnection (“PJM”) market into the Midcontinent Independent
15 System Operator (“MISO”) and SPP territory during winter storm Uri (winter of 2021);¹
16 the somewhat consistent transfers between PJM, MISO, and SPP during both summer and
17 winter peak demand periods; and the transfers from Hydro Quebec and Ontario into New
18 York Independent System Operator’s (“NYISO”) area, which could be further wheeled
19 into PJM. Imports into CAISO from Arizona and the Pacific Northwest during heatwaves

¹ See FERC - NERC - Regional Entity Staff Report: *The February 2021 Cold Weather Outages in Texas and the South Central United States* p. 14 (Nov. 2021) (“Report”) (explaining that “Unlike ERCOT, which can only import slightly more than 1,000 MW over its direct current ties, SPP and MISO imported power from other Balancing Authorities to make up for their increasing load levels and generation shortfalls, because the eastern part of the Eastern Interconnection did not have the same arctic weather conditions. Specifically, MISO was able to import large amounts of power from neighbors to the east (e.g. PJM Interconnection, LLC), and SPP was able to transfer some of that power through MISO. Those east-to-west transfers into MISO peaked at nearly 13,000 MW on February 15).

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1 are also common. EPE has offered excess power from its Palo Verde Generating Facility
2 for export into CAISO in the past, especially in days of record demand in California. In
3 contrast, the Commission has expressed concerns with the limited interregional transfer
4 capabilities into the Electric Reliability Council of Texas (“ERCOT”), which significantly
5 reduce the region’s ability to respond to extreme weather events.² The North American
6 Electric Reliability Corporation (“NERC”) has also recognized the reliability benefits from
7 interregional transfers. As ordered by Congress in 2023, NERC performed an Interregional
8 Transfer Capability Study and determined that the country could use an additional 35 GW
9 of transfer capacity between regions to bolster reliability during extreme weather.³ While
10 minimum interregional transfer capabilities are not mandatory as a matter of regulation,
11 the importance of transfer capabilities for the reliability of the bulk electric system has been
12 demonstrated during extreme events.

13
14 **Q23. IS THE LOCATION OF THE EDDY TIE IMPROVE INTERREGIONAL**
15 **TRANSFER CAPABILITIES BETWEEN THE SPP AND WECC MARKETS?**

16 **A.** Yes, without a doubt. The Eddy Tie is designed to provide interregional transfers between
17 SPP and WECC. It will increase the firm transfer capabilities between these two regions
18 from zero to 200 MW, and potentially to up to 1.5GW in the future. This added system
19 flexibility will allow not only EPE but third-party transmission customers to access
20 needed resources during extreme events.

² Report at p. 20 (“Finally, the Team recommends additional study in five areas ...[recommendation] (26), additional ERCOT connections to other interconnections.”)

³ See *NERC Interregional Transfer Capability Study (ITCS) Strengthening Reliability Through the Energy Transformation* (Nov. 2024).

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1

2 **Q24. HOW DOES THIS LOCATION TRANSLATE INTO MARKET**
3 **OPPORTUNITIES?**

4 **A.** It allows for power to move between the two Interconnections by moving across the seam
5 through the Eddy Tie. When market conditions on one side of the terminal are different
6 from market conditions on the other side of the terminal, these differences create
7 opportunities for transactions that provide cost savings for retail customers in EPE's
8 service territory. When power resources are more scarce or more constrained on one side
9 of the seam, compared to conditions on the other side of the seam, the terminal allows for
10 resources to move across the seam to reach buyers on the side where the greater scarcity
11 or constraints exist.

12

13 **Q25. THERE IS NO ORGANIZED WHOLESALE MARKET AT THE WESTERN**
14 **INTERFACE OF THE EDDY TIE AT THIS TIME. DOES THAT MATTER?**

15 **A.** No. The absence of an organized wholesale market at the western interface of the Tie does
16 not prevent the Tie from being an important link between the Western and Eastern
17 Interconnections. The Tie will allow for firm power flows across it, initially at 200 MW,
18 and with the flexibility for that to increase substantially in future years, improving
19 interregional transfer capabilities between SPP and WECC. The replacement Eddy Tie's
20 capability to move power across the seam *on a firm basis* is expected to unlock benefits to
21 customers, with or without the presence of organized markets on the western side of the
22 seam. Of course, organized wholesale power markets are forming in the Western
23 Interconnection. When organized markets are present on both sides of the seam, the

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1 opportunities for beneficial transactions across the seam will likely be enhanced. As
2 discussed by EPE witness Omar A. Gallegos, the Project is designed to accommodate
3 additional capacity of up to 1.5 GWs should there be sufficient interest from market
4 participants on both sides.

5
6 **Q26. DID EPE EVALUATE THE IMPACT OF THE EDDY TIE AS IT RELATES TO**
7 **ORGANIZED DAY-AHEAD MARKETS?**

8 **A.** Yes. As part of the NMPRC's Inquiry and Proposed Rulemaking Pertaining to Investor-
9 Owned Electric Utilities' Regional Market Activity (NMPRC Docket No. 23-00268-UT),
10 EPE requested the Brattle Group to conduct a study of the day-ahead markets. The study
11 was also triggered by EPE's need to identify the best market option and associated benefits
12 for its customers.

13
14 **Q27. PLEASE SUMMARIZE THE ANALYSES PERFORMED BY THE BRATTLE**
15 **GROUP.**

16 **A.** The Brattle Group studied multiple scenarios of EPE's participation in organized western
17 markets. The scenarios evaluated the organized market benefits using a one-year snapshot
18 of system and market conditions for 2032. As a component of these scenarios, the impact
19 of the Eddy Tie was included as a benefit to EPE's customers. The Eddy Tie scenarios all
20 showed various levels of benefits to EPE's customers depending on the market choice of
21 EPE's neighboring utilities. According to the Brattle Group study, the current scenario
22 (EPE joining Markets + and PNM joining EDAM) would yield benefits of about \$21.6
23 million to EPE customers. These overall benefits include benefits from firm transfers

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1 across the Eddy Tie. The potential benefits for third-party customers have not been studied
2 or quantified.

3
4 **Q28. WOULD THE PROJECT FACILITATE MANAGEMENT OF THE SEAMS**
5 **ISSUES BETWEEN THE TWO EXPANDING WESTERN MARKETS (MARKETS**
6 **+ AND EDAM)?**

7 **A.** Yes. EPE is planning to join Markets+. Others in the Western Interconnection are planning
8 to join EDAM. As both EDAM and Markets+ mature, and as the Western Interconnection
9 moves from a largely bilateral trading system to a multi-market environment, the ties at the
10 interconnection boundaries, including the replacement HVDC Eddy Tie, will be critical
11 infrastructure for managing the seams between these neighboring market and reliability
12 frameworks. As noted above, EPE is capable of expanding the Tie's capacity to meet these
13 future market developments.

14
15 **Q29. ARE THE PROJECT BENEFITS LIMITED TO THE BENEFITS OF**
16 **PARTICIPATION IN DAY-AHEAD MARKETS?**

17 **A.** No. As I explained, there are significant benefits to the Eddy Tie without considering day-
18 ahead markets. The Brattle Group's analysis emphasizes that there are *additional* benefits
19 associated with the replacement of the Eddy Tie that EPE customers would realize once
20 day-ahead markets are fully operating. EPE evaluated how its customers would benefit
21 from a replacement tie without regard to the absence of an organized market at present on
22 the Eddy Tie's western side. Specifically, EPE directed an examination of how customers
23 in its service territory would benefit if EPE were to secure 70 MW of the new Tie's 200

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1 MW of firm transfer capability. The evaluation, which was performed by E3, relied on
2 price forecasts in SPP as well as at the Palo Verde trading hub in the West. Based on these
3 assumptions, E3 identified an estimated \$821 million in nominal benefits through 2045
4 (\$376 million on a net present value basis). These benefits were the result of offsetting
5 new generation builds in EPE's service territory by 70 MW of firm capacity purchases over
6 the Eddy Tie, as well as capturing benefits of SPP market opportunities on the east side of
7 the Tie. Even if one were to eliminate from the analysis the benefits of avoided new
8 generation costs, the nominal benefits were estimated through 2045 at approximately \$610
9 million (\$277 million on a net present value basis), as shown in the attached summary of
10 E3's analysis, identified as Exhibit DCH-1.

11
12 **Q30. DID EPE PERFORM ADDITIONAL ANALYSIS THAT DEMONSTRATES THE**
13 **BENEFITS OF THE EDDY TIE REPLACEMENT PROJECT?**

14 **A.** Yes. EPE evaluated the benefits of the Eddy Tie Project over a 40-year life utilizing the
15 load and resources selected as part of EPE's 2025 All-Source Request for Proposals. This
16 analysis assessed the revenue requirement of EPE's selected portfolio of resources with
17 and without the Eddy Tie. With the replacement Eddy Tie taken into account, the revenue
18 requirement of the selected portfolio was substantially lower. EPE witness Omar A.
19 Gallegos presents EPE's analysis of net benefits over a 40-year period.

20
21 **VI. CONCLUSION**

22 **Q31. DOES THIS CONCLUDE YOUR TESTIMONY?**

23 **A.** Yes.

**UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION**

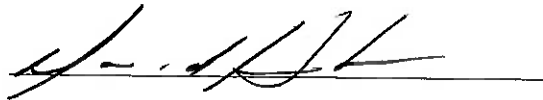
El Paso Electric Company

)

Docket No. ER26-__-000

VERIFICATION

I, David Hawkins, being duly sworn, state that the contents of the foregoing affidavit are true, correct, and accurate to the best of my knowledge, information, and belief.

A handwritten signature in black ink, appearing to read 'D. Hawkins', is written over a horizontal line.

David Hawkins

Dated: 7/23/2026

Exhibit DCH-1

El Paso Electric

Eddy Tie Analysis

Total System Cost Comparison (2026-2045)

NOMINAL (\$ MILLIONS)	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	Total
Base Case	\$154.06	\$244.36	\$208.10	\$218.34	\$440.42	\$478.72	\$530.91	\$560.16	\$628.04	\$663.62	\$715.64	\$763.83	\$853.26	\$918.30	\$948.25	\$1,002.89	\$1,041.59	\$1,080.82	\$1,160.89	\$1,199.20	\$13,811.39
70 MW Eddy	\$154.41	\$244.79	\$208.47	\$218.05	\$411.03	\$428.31	\$501.67	\$528.50	\$598.43	\$638.67	\$677.12	\$717.49	\$823.39	\$880.82	\$912.23	\$966.09	\$997.06	\$1,033.80	\$1,116.73	\$1,144.19	\$13,201.27
Nominal Net System Cost Savings	\$0.35	\$0.43	\$0.38	(\$0.29)	(\$29.39)	(\$50.40)	(\$29.24)	(\$31.66)	(\$29.62)	(\$24.94)	(\$38.52)	(\$46.34)	(\$29.87)	(\$37.47)	(\$36.02)	(\$36.79)	(\$44.53)	(\$47.02)	(\$44.16)	(\$55.01)	(\$610.11)

NET PRESENT VALUE (\$ MILLIONS)	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	Total
Base Case	\$144.54	\$215.10	\$171.87	\$169.19	\$320.19	\$326.54	\$339.77	\$336.35	\$353.81	\$350.76	\$354.89	\$355.39	\$372.48	\$376.11	\$364.39	\$361.58	\$352.34	\$343.02	\$345.68	\$335.03	\$6,289.03
70 MW Eddy	\$144.87	\$215.48	\$172.18	\$168.96	\$298.83	\$292.16	\$321.06	\$317.34	\$337.13	\$337.58	\$335.79	\$333.83	\$359.44	\$360.76	\$350.55	\$348.31	\$337.27	\$328.10	\$332.53	\$319.66	\$6,011.83
NPV Net System Cost Savings	\$0.33	\$0.38	\$0.31	(\$0.23)	(\$21.36)	(\$34.38)	(\$18.71)	(\$19.01)	(\$16.68)	(\$13.18)	(\$19.10)	(\$21.56)	(\$13.04)	(\$15.35)	(\$13.84)	(\$13.27)	(\$15.06)	(\$14.92)	(\$13.15)	(\$15.37)	(\$277.20)

Attachment D – Testimony of Richard S. Gonzalez

**UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION**

El Paso Electric Company) **Docket No. ER26-____-000**

DIRECT TESTIMONY

OF

RICHARD S. GONZALEZ

ON BEHALF OF

EL PASO ELECTRIC COMPANY

September 1, 2026

**EL PASO ELECTRIC COMPANY
DIRECT TESTIMONY OF
RICHARD S. GONZALEZ**

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**EL PASO ELECTRIC COMPANY
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1 **I. INTRODUCTION AND QUALIFICATIONS**

2 **Q1. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

3 **A.** My name is Richard S. Gonzalez. My business address is 100 N. Stanton Street,
4 El Paso, Texas 79901.

5

6 **Q2. HOW ARE YOU EMPLOYED?**

7 **A.** I am employed by El Paso Electric Company (“EPE” or “Company”) in the position
8 of Treasurer.

9

10 **Q3. PLEASE SUMMARIZE YOUR EDUCATIONAL AND BUSINESS**
11 **BACKGROUND.**

12 **A.** I hold a Bachelor of Business Administration in Economics and a Master of
13 Business Administration from the University of Texas at El Paso. I have been
14 employed by EPE since July 2002. In February 2024, I was appointed Treasurer
15 of EPE. Prior to becoming Treasurer, I held various positions within the Company
16 as Manager of Financial Planning & Analysis, Manager of Cash Management and
17 Investor Relations, Supervisor of Investor Relations, Financial Analyst, and Load
18 Forecaster.

19

20 **Q4. WHAT ARE YOUR PRINCIPAL RESPONSIBILITIES WITH EPE?**

21 **A.** I have responsibility for the treasury, financial planning & analysis, and claims &

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1 risk functions at EPE. I also have oversight of trust investments and administration.

2

3 **Q5. HAVE YOU PREVIOUSLY PRESENTED TESTIMONY BEFORE ANY**
4 **REGULATORY AGENCY?**

5 **A.** Yes. I have filed testimony several times before the New Mexico Public Regulation
6 Commission (“NMPRC”) and the Public Utility Commission of Texas (“PUCT”)
7 in the past.

8

9 **II. PURPOSE OF TESTIMONY**

10 **Q6. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

11 **A.** The purpose of my testimony is to support EPE’s request for authorization
12 to recover 100% Work in Progress (“CWIP”) in rate base for the Eddy Tie Project
13 (or “Project”), and for authorization to recover all prudently incurred abandonment
14 costs if Project termination results from factors outside of EPE’s control
15 (“Abandoned Plant” incentives). In addition, my testimony supports EPE’s request
16 to add 100 basis points to its approved rate of return on equity (“ROE”), which is
17 currently 10.25%. My testimony: (i) explains why EPE should be authorized to
18 recover 100% of CWIP in rate base; (ii) supports EPE’s request for Abandoned
19 Plant Incentives; and (iii) explains the basis for EPE’s request of an additional ROE
20 for the Project, and why CWIP treatment and the ability to recover Abandoned
21 Plant costs, alone, are insufficient to address EPE’s financial risk associated with

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1 the Project given EPE's relatively small size, the magnitude of its capital
2 investments being developed simultaneously, and its need to ensure that the
3 Company's authorized return reflects the increase in capital costs so
4 that EPE can maintain access to the capital it requires to provide safe and reliable
5 service to customers.

III. CONSTRUCTION WORK IN PROGRESS

**Q7. PLEASE DESCRIBE THE CWIP INCENTIVE THAT EPE IS
REQUESTING FOR THE EDDY TIE PROJECT.**

A. EPE seeks authorization to include 100% of its prudently incurred CWIP in rate
base for the Eddy Tie Project. The CWIP incentive serves as a useful tool to ease
the financial pressures associated with transmission development by providing a
measure of up-front regulatory certainty, rate stability, and improved cash flow. It
spreads the costs over the time period in which they are incurred, as opposed to
deferring recovery and placing all of the costs in rates at once when the facilities
are placed in service. Under 100% CWIP recovery, a utility can recover the
financing costs of construction on a current basis, instead of adding these costs to
the capital investment amount added to rate base following the construction period.
However, as with Allowance for Funds Used During Construction ("AFUDC"), a
project will not begin to depreciate until it is placed into service. Allowing a current
return on CWIP: (1) results in lower financing costs, because it allows for a certain

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1 level of recovery, through rates, over the years during which the project is being
2 constructed, and this tends to lower project costs overall; and (2) reduces the overall
3 amount that will need to be charged to customers in the form of depreciation. The
4 pre-Commercial Operation Date (“COD”) recovery of financing costs through
5 CWIP means that these costs will not be added back to the post-COD plant balance
6 counted towards post-COD AFUDC, which is recovered through depreciation and
7 return, and avoids rate shock when the project goes in service by providing for more
8 gradual rate increases associated with the investment, beginning with the years
9 during which construction occurs. The Commission recognizes that the CWIP
10 Incentive may help address the longer lead times required for new transmission
11 construction and the challenges with cash flow that companies seeking to invest in
12 new transmission may face.

13
14 **Q8. WHAT RISKS AND CHALLENGES WOULD THE CWIP INCENTIVE**
15 **HELP ADDRESS FOR THE EDDY TIE PROJECT?**

16 **A.** The anticipated Project investment is estimated at approximately \$296,538,466,
17 which is a significant capital investment for the company. To put it in perspective,
18 the investment is about three times the size of EPE’s annual transmission revenue
19 requirement.¹ The Project has a proposed in-service date by the end of 2030, which

¹ EPE’s revenue requirement is about \$110 million (based on 2025 actual data).

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1 requires EPE to provide investment within a compressed time frame (just over three
2 years). To meet the construction schedule required for the target in-service date,
3 EPE will need to expend significant funds for the engineering, procurement, land
4 acquisition, permitting, and overall development of the Project in this short
5 timeframe. During this period, EPE will incur not only the costs necessary to
6 perform such activities, but also financing costs associated with the requisite
7 investment. Without grant of a CWIP incentive, EPE and its customers will incur
8 the costs associated with raising additional capital through financing efforts during
9 a period in which interest rates are higher than in recent past years and continuously
10 increasing. This would place greater stress on EPE's balance sheet. It also would
11 have a negative effect on EPE's cash flow, especially when added to the other
12 planned transmission investments.

13 Allowing EPE to include 100% of CWIP in rate base will help reduce overall
14 Project costs by providing a measure of upfront certainty, improved cash flow, and
15 reduced borrowing costs. It will also reduce rate shock to customers as would
16 otherwise occur under an approach strictly based on AFUDC treatment.
17 Additionally, the CWIP Incentive will help EPE maintain a more attractive credit
18 profile and lower capital costs, which will lower the overall cost of the Project for
19 customers. Credit rating agencies, like Moody's Investor Service, have routinely
20 recognized the inclusion of CWIP in rate base as supportive of utility credit quality
21 because, among other things, it helps moderate the financial pressure of

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1 construction-related debt by providing a cash return during construction.

2

3 **Q9. DOES THE RECOVERY OF 100% OF CWIP ELIMINATE ALL**
4 **FINANCIAL RISK FOR EPE?**

5 **A.** No. The recovery of 100% of CWIP would not eliminate all financial risk for EPE.
6 The CWIP incentive will assist EPE with its financial requirements and rating
7 agency coverage ratios by replacing non-cash AFUDC earnings with cash earnings,
8 but doing so would not eliminate the need for additional incentive measures
9 necessary to address risks. EPE is seeking additional incentives in the form of
10 Abandoned Plant recovery, and in the form of a ROE adder. These three incentives
11 are intended to work together to address the risks associated with the Project. The
12 Abandoned Plant and ROE incentives are discussed in the pages that follow.

13

14 **Q10. PLEASE DESCRIBE THE ACCOUNTING PROCEDURES THAT EPE**
15 **HAS PROPOSED CONSISTENT WITH THE COMMISSION'S**
16 **REQUIREMENTS.**

17 **A.** EPE proposes to implement accounting procedures to ensure that there will be no
18 AFUDC recorded for amounts included in CWIP. This is required by FERC
19 regulations set forth in 18 C.F.R. § 35.25 (e) and (f). First, under the accounting
20 procedures, EPE will assign each project that has a Commission-approved CWIP
21 incentive a unique Work Breakdown Structure ("WBS") number for internal cost

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1 tracking purposes. Second, EPE will record actual construction costs to each WBS
2 through work orders that are coded to correspond to the WBS for the project. Costs
3 incurred under these work orders will be separately identifiable from costs incurred
4 for transmission facilities for which the EPE has not requested CWIP treatment.
5 Third, for the Eddy Tie Project, EPE will use its Commission-approved
6 transmission formula rate template to show data inputs related to the facilities for
7 which CWIP treatment is granted. EPE's transmission formula rate template is
8 structured to handle CWIP entries. As work on the project advances forward, EPE
9 will reflect the appropriate CWIP entries in its annual update of its Open Access
10 Transmission Tariff ("OATT") formula rates.

11

12 **Q11. HOW WILL EPE PROVIDE TRANSPARENCY WITH RESPECT TO ITS**
13 **IMPLEMENTATION OF THE CWIP INCENTIVE SOUGHT IN THE**
14 **INSTANT FILING?**

15 **A.** The Commission requires applicants for 100% CWIP recovery to make an annual
16 filing with the Commission but allows the applicant to propose a method to limit
17 its filing requirement related to CWIP.² EPE proposes to satisfy this requirement
18 through the annual filing of FERC-730 (Report of Transmission Investment
19 Activity). The annual FERC-730 requires EPE to provide information regarding

² See FERC Order No. 679 at P 121.

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1 transmission investment costs and project construction status, including estimated
2 completion dates. In addition, EPE will use its existing processes and protocols
3 under its currently-effective transmission formula rates to identify and reflect the
4 CWIP entries into EPE's OATT rates. These existing processes provide
5 transparency to ratepayers.

6 **IV. RECOVERY OF COSTS OF ABANDONED PLANT**

7 **Q12. HOW DOES THE INCENTIVE TO RECOVER COSTS OF**
8 **ABANDONMENT OF THE PROJECT LOWER EPE'S INVESTMENT**
9 **RISK?**

10 **A.** Constructing new electric transmission infrastructure is not easy. There are many
11 external obstacles. First, EPE's applications for Certificate of Public Convenience
12 and Necessity from New Mexico and Texas are currently pending, and EPE cannot
13 predict the outcome of these proceedings. Further, there are extensive licensing and
14 permitting processes before governing regulatory bodies. EPE has not yet been able
15 to secure all of the regulatory approvals that will be necessary to construct the Project.
16 EPE expects that a number of approvals and permits will be required, including, a
17 grant of right-of-way from the United States Bureau of Land Management ("BLM").
18 The outcomes of these regulatory activities are not fully known at this time, and they
19 could substantially impact the Project – its viability to proceed forward, its
20 completion, and its costs. The risk of cancellation exists for various reasons
21 unrelated to the efforts and actions of EPE, the sole project sponsor. The ability to

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1 recover costs of abandoned plant lessens the devastation of facing a situation in which
2 there is no means of recovering costs so substantial that they represent approximately
3 300 percent of the Company's annual transmission revenue requirement.

4 The Commission's practice of providing the opportunity to recover costs of
5 abandonment for electric transmission projects over the past decade has been an
6 effective way to offset some of the risks utilities like EPE would otherwise have to
7 carry, thus enabling a utility to pursue transmission projects without fear that, if a
8 project does not reach completion through no fault of its own, the public utility will
9 not be without a means to recover the costs incurred.

10
11 **V. RETURN ON EQUITY ADDER INCENTIVE**

12 **Q13. DOES THE PROJECT QUALIFY FOR ROE INCENTIVE ADDER?**

13
14 **A.** Yes, it does. The Project meets the requirements of the 2012 Transmission
15 Incentives Policy Statement.³ In summary, the Project would create the capability
16 for firm transfers of power between the Eastern and Western Interconnections of
17 the United States. The creation of such capabilities at the seam where the two
18 interconnections meet will reduce instances of congestion to the west, and permit
19 improved access to resources located both west and east of the Project. In addition,
20 the Project is being designed to take advantage of technology and equipment

³ 2012 Transmission Incentives Policy Statement, 141 FERC ¶ 61,129 at P 21 & n.28.

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1 performance and functional capabilities that are not available in the existing tie, and
2 were not in existence at the time the existing tie was placed in service. EPE
3 witnesses David Hawkins, Jonathan Trejo, and Omar Gallegos have also provided
4 detailed account of the Project and its conformity to the criteria of FERC's Policy
5 Statement.

6
7 **Q14. PLEASE EXPLAIN HOW THE PROJECT USES ADVANCED**
8 **TRANSMISSION TECHNOLOGIES.**

9 **A.** "Advanced transmission technologies" are considered to be technologies that
10 increase the capacity, efficiency, or reliability of an existing or new transmission
11 facility.⁴ As discussed in greater detail by witnesses Jonathan Trejo and David
12 Hawkins, the Project has attributes of all three. The Project would increase the
13 capacity of the existing tie from a facility that is capable of providing service on a
14 non-firm basis only to a facility capable of providing firm service at a level of 200
15 MW, with the potential for increasing firm service level to 1.5 GW. The Project's
16 technology and equipment is more efficient than that used in the existing tie. The
17 Project will utilize the latest Voltage Source Converter ("VSC")-based technology,
18 which represents advanced power electronic devices known as Insulated-Gate
19 Bipolar Transistors in a modular multi-level converter ("MMC") arrangement.
20 This new technology will allow for remote operation, among other operational

⁴ *Id.*

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1 benefits, a tremendous improvement over the capabilities of the existing facility
2 installed in the 1980s. The new terminal is also capable of adjusting to changes in
3 power flows without the need for on-site manual equipment adjustments. In
4 addition, the capability of the new equipment to permit reliable firm transfers of
5 power, both west-to-east and east-to-west, improves reliability for those seeking
6 access to resources located within either the Western Interconnection or the Eastern
7 Interconnection. Therefore, the Project meets the Commission's definition of
8 "advanced transmission technologies."

9 **Q15. IS THIS WHAT MAKES THE PROJECT UNIQUE?**

10 **A.** Yes. This single Project can improve conditions in *both of the nation's electrical*
11 *interconnections*. The Project is unique in its ability to do so. In addition, the
12 Project will improve the reliability of the transmission system within EPE's
13 territory for the benefit of its existing and future customers.

14
15 **Q16. WOULD THE PROJECT REDUCE THE COST OF DELIVERED POWER**
16 **BY REDUCING CONGESTION?**

17 **A.** Yes. The Project's capability to create firm power transfers across the seam of the
18 two interconnections would allow for entities like EPE, located to the west of the
19 seam, to secure resources to the east of the seam. The ability to do so is important,
20 especially in circumstances in which the flow of power within the west is
21 constrained. Further, access to resources to the east is expected to reduce the cost

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1 of delivered power. This issue is addressed further by Witness Omar Gallegos and
2 David Hawkins.

3 **Q17. IS THERE A NEXUS BETWEEN THE REQUESTED ROE ADDER OF 100**
4 **BASIS POINTS AND THE RISKS FACED BY EPE?**

5 **A.** Yes. In requesting a ROE adder of 100 basis points, the unique factors present in
6 this situation are directly related to the level of ROE adder proposed. In fact, all
7 three of the incentives EPE has proposed were designed to work together in order
8 to result in a total package of incentives that are tied to the risks of this particular
9 Project.

10

11 **Q18. PLEASE HIGHLIGHT A FEW OF THE OTHER RISKS, WHICH THE**
12 **INCENTIVES, TAKEN TOGETHER, WERE DESIGNED TO ADDRESS.**

13 **A.** Should the Public Utility Commission of Texas and the New Mexico Public
14 Regulation Commission delay approval of the requested Certificate of Public
15 Convenience and Necessary and issue a decision after December 31, 2026, the price
16 of the major project elements will increase by about 11%, causing additional
17 financial strain on EPE and its ability to finance its operations, as well as this and
18 other ongoing and planned reliability projects. Furthermore, the Project would
19 encompass an area of approximately 15.8 acres of BLM land immediately adjacent
20 to the existing Eddy Tie facility site. Any delays in obtaining the necessary permits
21 from BLM would also delay the project and lead to cost overruns. These factors

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1 will impact negatively EPE's ability to finance and complete the Project by the
2 target end of 2030 timeframe.

3 Economic regulation of utilities under the best circumstances can produce stability
4 and strength for an entity, but if the regulatory authority's rules and procedures are
5 not supportive of stable cash flows for the regulated company or are unpredictable,
6 it can instead be an area of considerable risk. All three leading U.S. credit rating
7 agencies identify regulatory risk as one of the principal determinants of the ratings
8 of rate-regulated utilities; consequently, unsupportive, and unpredictable regulatory
9 decisions and policies result in lower credit ratings, impair investor confidence and
10 impact EPE's ability to borrow under favorable terms.

11 **Q19. ARE THERE ANY ADDITIONAL COSTS AND RISKS ASSOCIATED**
12 **WITH THE PROJECT?**

13 **A.** Yes. Specifically, the existing Eddy Tie facility is co-owned by EPE and the Public
14 Service Company of New Mexico ("PNM") with a two-thirds and one-third
15 ownership, respectively. However, PNM has opted not to participate in the
16 replacement Eddy Tie. EPE will be the sole owner and operator of the proposed
17 new Eddy Tie facility and will be responsible for the entire financing required for
18 the Project. In addition, the existing Eddy Tie will continue to operate during the
19 construction of the brand new 200 MW Eddy Tie Project. As a result, should
20 replacement parts and other maintenance be needed for the existing Tie during the
21 period of construction of the Project, EPE will incur costs for such work. Such

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1 costs may be significant, because parts are not readily available and, in some cases,
2 need to be manufactured specifically for the Tie. The testimony of witness Jonathan
3 Trejo provides detailed information about the challenges and costs associated with
4 the existing facility.

5 In addition, EPE has designed the Project in a manner that would allow expansion
6 of the facility from 200 MW to up to 1.5 GW of firm capability. Preserving the
7 capability for future expansion is important, given the level of load growth that is
8 expected to occur in the very near future.

9

10 **Q20. PLEASE EXPLAIN HOW EPE PLANS TO FINANCE THE PROJECT.**

11 **A.** EPE anticipates utilizing cash from operations, short-term borrowings on its
12 revolving credit facility during construction, , and long-term debt. Currently, the
13 Project is not included in EPE's capital construction program because it has not
14 received all regulatory approvals. If the Project is approved, it will be included in
15 the program and eligible for consideration from EPE's parent company for an
16 equity contribution. In the past, EPE has received equity contributions from its
17 parent company for capital projects. However, equity infusions are not guaranteed
18 and depend on many factors outside of EPE's control. In my experience, the timing
19 and amount of such capital infusions for specific projects are influenced by
20 regulatory approvals, overall capital program requirements, market conditions, and
21 the parent company's assessment of the utility's financing needs and financial risk

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1 profile of EPE at the time. Nevertheless, given the importance of the Project for
2 reliability and access to the Southwest Power Pool market, EPE plans to borrow the
3 necessary capital, even if capital from the parent company is unavailable to partially
4 support the Project.

5
6 **Q21. PLEASE EXPLAIN THE FINANCIAL RISKS AND CHALLENGES EPE**
7 **WILL FACE DUE TO THE PROJECT COSTS.**

8 **A.** The sizable investment will place additional pressure on EPE's balance sheet,
9 liquidity position, and credit metrics. As explained above, EPE expects to fund the
10 Project through a combination of cash generated from operations, borrowings under
11 its revolving credit facility during construction, potential equity contributions from
12 its parent company, and long-term debt. However, in addition to this project, EPE
13 is investing in other infrastructure necessary to support customer growth and
14 maintain grid reliability. The anticipated cash capital expenditures for the years
15 2026 through 2030 includes over \$3 billion related to existing and new generation
16 capital expenditures, including solar and battery renewable projects, and
17 approximately \$3 billion related to transmission and distribution projects to
18 upgrade and replace aging equipment, and to improve its system to meet customer
19 growth. The cumulative effect of these investments increases EPE's financing
20 needs and reduces financial flexibility, while increasing the company's and the
21 Project's risk profile.

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1 **Q22. WHY ARE THE CWIP AND ABANDONED PLANT INCENTIVES,**
2 **ALONE, INSUFFICIENT TO ADDRESS THE FINANCIAL RISK OF THE**
3 **EDDY TIE PROJECT?**

4 **A.** The CWIP and Abandoned Plant incentives reduce specific project risks, but they
5 do not eliminate the substantial risks associated with developing and financing a
6 large transmission project such as the Eddy Tie Project. The CWIP incentive
7 principally addresses short-term cash-flow and financing pressures during
8 construction, while the Abandoned Plant incentive mitigates the risk of non-
9 recovery of prudently incurred costs if the Project is terminated for reasons beyond
10 EPE's control.

11 Notwithstanding those incentives, EPE will continue to face significant residual
12 risks throughout the development and construction of the Project. These risks
13 include construction risk, cost escalation risk, supply-chain risk, permitting and
14 regulatory risk, financing risk, liquidity risk, and lost opportunity cost to finance
15 other projects associated with committing substantial amounts of capital. These are
16 risks that are not fully addressed by either the CWIP or Abandoned Plant incentives.
17 The requested ROE incentive is designed to address these residual risks by
18 providing additional compensation commensurate with the risks assumed by EPE
19 and its creditors. The ROE incentive does not eliminate the risks of developing the
20 Project; rather, it helps align the Project's risk-adjusted return with the magnitude
21 of the financial and operational challenges involved in its development. The

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1 requested incentive is tailored to the risks and challenges associated with the Project
2 and complements, rather than duplicates, the benefits provided by the CWIP and
3 Abandoned Plant incentives.

4 This consideration is particularly important given EPE's substantial ongoing capital
5 investment program and the significant capital commitments required to support
6 customer growth, reliability, and transmission expansion. Capital devoted to the
7 Eddy Tie Project must compete with other investments both within EPE's broader
8 capital program and in the financial markets. A higher authorized ROE makes the
9 Project more financially attractive relative to alternative uses of capital, and
10 provides additional confidence that the resources necessary to complete the Project
11 can be secured on reasonable terms.

12 In addition, the current financing environment presents further challenges. Higher
13 interest rates have increased borrowing costs and raised investor return
14 expectations. As a result, investors are increasingly selective in allocating capital
15 to large infrastructure projects. Under these circumstances, an ROE incentive can
16 play an important role in supporting investment by improving the overall risk-return
17 profile of the Project and helping ensure that sufficient capital remains available to
18 support its timely development and construction. This benefit is distinct from the
19 protections afforded by the CWIP and Abandoned Plant incentives and addresses
20 risks that would otherwise remain uncompensated.

21

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1 **Q23. WHAT IS EPE'S APPROVED ROE?**

2 **A.** EPE's ROE approved by the Commission is 10.25%.

3

4 **Q24. WHY ARE ADDITIONAL 100 BASIS POINTS NECESSARY FOR THE**
5 **CONSTRUCTION OF THE PROJECT AND EPE'S FINANCIAL**
6 **STABILITY?**

7 **A.** The requested ROE will allow the Project to be treated as high priority both by EPE
8 and among investors. The immediate financial needs and the criticality of the
9 Project require a higher ROE to attract investment in a short period of time. The
10 ROE would support EPE's ability to attract capital, maintain financial strength, and
11 undertake this investment while continuing to fund other critical system
12 improvements needed to serve customers reliably. The added ROE does not
13 eliminate the Project's risks, but it provides EPE with a reasonable opportunity to
14 earn a return commensurate with those risks.

15 The requested rate of return is not unreasonable when considered in the context of
16 the current project-financing environment and EPE's financial needs for this and
17 other projects. As an initial matter, current interest rates are high compared to the
18 period on which EPE's ROE was based.⁵ Interest rates are expected to remain at
19 the current high level or continue to rise in the foreseeable future, at least during

⁵ EPE's ROE was approved in the fall of 2024, but it was developed based on data from prior years.

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1 the period when EPE plans to borrow capital for the Eddy Tie Project to finish it
2 on time by the end of 2030.⁶ In addition, the yield on the 30-year U.S. Treasuries,
3 which serves as a key benchmark for long-term financing costs and investor return
4 expectations, has increased from 1.64% in January 2021 to 5.27% in July 2026.
5 This indicates that a higher ROE is necessary to attract capital for the Project.
6 The current high-interest-rate environment materially increases the financial risks
7 and challenges associated with developing major and highly specialized
8 transmission infrastructure, like the Eddy Tie. Transmission projects are among
9 the most capital-intensive investments undertaken by electric utilities. The Eddy
10 Tie Project, as well as all other EPE planned transmission projects (discussed in
11 Question 21 above), require significant expenditures for engineering, permitting,
12 land acquisition, equipment procurement, and construction. For the Eddy Tie
13 Project, the expenditures will have to be made well before the facilities enter service
14 and begin generating revenues. EPE will have to start procuring major equipment

⁶ See Yahoo Finance “Fed expected to hold rates steady — but an interest rate hike isn't off the table” (July 27, 2026). Available at https://finance.yahoo.com/economy/article/fed-expected-to-hold-rates-steady--but-an-interest-rate-hike-isnt-off-the-table-090000519.html?guccounter=1&guce_referrer=aHR0cHM6Ly93d3cuZ29vZ2xILmNvbS8&guce_referrer_sig=AQAAAMBWmloHcd_2Lqr1lGCxJsYvIGYEZEJcGWN6WrrzP7SGqOQe2aP_0Yh5rnReUOunpx5YDNAYWluttTobTDdY-LTUX8LgVkiheckvNjFL2UBdQC6UVz8hMAIJEphyola0_Kzvdqo9nHeH4adp_bj7iw9BgFwQg-IxSUMZCopaUyXv; See also Axios, “The great rate reset” (July 23, 2026)(arguing that “It takes a much richer reward to persuade investors to lend their money, especially for the longer run.”). Available at <https://www.axios.com/2026/07/23/rates-treasury-yields-borrowing>.

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1 immediately after all regulatory approvals are received, which will require most of
2 the capital upfront for both the HVDC Tie and for the associated transmission
3 upgrades. EPE has requested regulatory approvals by the end of 2026 in order to
4 lock-in current pricing for large expenditures, which means EPE needs to obtain
5 the necessary capital in the first quarter of 2027 and procure the majority of the
6 equipment as soon as possible thereafter. Witness Omar Gallegos addresses the
7 lead time for the necessary equipment components and supply chain risk associated
8 with the Project.

9 Further, when borrowing costs rise, the overall cost of financing the project
10 increases, which directly increases the total investment ultimately required to place
11 the facilities into service. For large transmission projects, even relatively modest
12 increases in interest rates can result in additional financing costs over the life of the
13 project. Therefore, based on the current market conditions and expectations, I
14 anticipate EPE's borrowing costs in 2027 to increase due to higher interest rates
15 and overall global forces at work in capital markets.

16 High interest rates also increase the carrying costs associated with CWIP and other
17 forms of project financing during the development and construction period. As
18 mentioned above, absent a CWIP incentive, EPE must finance the Project before it
19 can begin recovering costs from customers. During that period, financing costs
20 continue to accrue. As interest rates rise, the cost of carrying those investments
21 increases correspondingly, creating additional financial pressure on the utility and

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1 increasing the overall cost of the project.

2 The financial impact of high interest rates is further magnified when projects
3 experience delays. Transmission development is frequently affected by permitting
4 requirements, labor shortages, and supply chain constraints. When a project's
5 schedule is extended, the utility must continue carrying a large capital investment
6 for a longer period while incurring additional financing costs. At the same time, the
7 project's in-service date is deferred, delaying the utility's ability to begin
8 recovering prudently incurred costs and earning a return on its investment.
9 Consequently, schedule delays become substantially more costly in a high-interest-
10 rate environment. While EPE does not anticipate substantial delays at this time,
11 delays are not unlikely given the supply chain challenges experienced by many in
12 the electric industry, including EPE.

13 As I have sought to address in my testimony, high interest rates are also putting
14 additional pressure on EPE's liquidity, cash flows, and credit metrics. EPE must
15 maintain access to capital markets throughout the Project development process.
16 Increased borrowing costs can strain financial resources, reduce interest-coverage
17 ratios, and place downward pressure on credit quality. These effects may be
18 particularly significant for EPE, because the size of this Project and all other EPE
19 capital-intensive projects are large relative to the size of the utility's balance sheet.
20 In addition, a high-interest-rate environment increases the overall investment risk
21 associated with project development. Investors and lenders are less willing to

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1 invest in projects and generally require higher returns when interest rates are
2 elevated, increasing the cost of both debt and equity capital. This raises the
3 threshold that projects like the Eddy Tie must meet to attract investment, and may
4 reduce the willingness of creditors to support projects involving substantial upfront
5 costs.

6 Accordingly, high interest rates create meaningful financial risks to EPE by
7 increasing financing costs, increasing carrying charges during construction,
8 magnifying the consequences of schedule delays, deferring cost recovery, and
9 placing additional pressure on utility cash flows and credit metrics. These risks are
10 particularly acute for the Eddy Tie Project, which requires substantial upfront
11 investment.

12 **Q25. HAVE THE CREDIT RATING AGENCIES IDENTIFIED POTENTIAL**
13 **NEGATIVE IMPACTS TO EPE's CASH FLOWS?**

14 **A.** Yes. The latest credit opinions on EPE issued by the rating agencies contain factors
15 that may result in credit rating downgrades. In the Moody's credit opinion
16 published on January 22, 2026, Moody's indicated that if EPE's cash coverage ratio
17 (cash flow from operations pre-working capital to debt ratio) falls below 15% on a
18 sustained basis, if a more contentious political or regulatory environment emerges
19 in Texas or New Mexico that creates material uncertainty over cost or investment
20 recovery, or if financial policies are detrimental to the credit quality of EPE, it could
21 result in a downgrade in credit ratings. Additionally, in the credit opinion issued

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1 by Fitch on May 1, 2025, Fitch similarly concluded that if EPE were subjected to
2 materially unfavorable regulatory developments or if its coverage ratio (Funds from
3 Operations leverage) exceeded 5.3x on a sustained basis, it could result in a
4 downgrade in credit ratings. The package of incentives requested in this
5 Application, and mainly the ROE, addresses the coverage ratio factors discussed
6 by the credit agencies. Further, a timely and favorable decision by the Commission
7 will likely minimize the regulatory uncertainty mentioned by Moody's and Fitch.

8

9 **Q26. YOU SAID EPE PLANS SEVERAL LARGE CAPITAL PROJECTS**
10 **WHICH, COMBINED WITH THE EDDY TIE PROJECT, PRESENT**
11 **FINANCIAL CHALLENGES TO EPE THAT COULD BE MITIGATED BY**
12 **THE ADDITIONAL ROE. PLEASE EXPLAIN.**

13

14 **A.** Yes. The Eddy Tie Project is just one of a number of infrastructure investments
15 EPE expects to make over the next few years. The anticipated cash capital
16 expenditures for the years 2026 through 2030 include the capital necessary to
17 complete the construction of additional solar generation and battery capacity.
18 EPE's peak load continues to grow as does the need for additional generating
19 resources. In addition, EPE expects to make significant capital investments in
20 transmission and distribution infrastructure to upgrade and replace aging
21 equipment, expand its system to meet customer growth, and for additional

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1 infrastructure to add and improve customer service options through advanced
2 metering. EPE's nuclear generation units also require capital investments to sustain
3 their operations. The Company's capital construction program has grown over 50%
4 from approximately \$4 billion to \$6 billion over the next five years. The Eddy Tie
5 Project is not included in the list of projects highlighted above and will represent
6 an additional expense, increasing the financial risk EPE needs to absorb in the next
7 three to five years. The Project will be constructed during a period of elevated
8 capital investment needs across EPE's system. As the overall capital program
9 grows, EPE must rely on additional debt financing, equity contributions, and
10 internally generated cash flow to fund construction. This increases pressure on
11 liquidity, credit metrics, and the Company's balance sheet. In addition, the
12 concentration of multiple large projects occurring simultaneously increases
13 execution risk. As a result, cost overruns may occur, and construction delays,
14 supply-chain disruptions, inflationary pressures, and/or higher interest rates
15 affecting one project may adversely impact the Company's ability to efficiently
16 execute the remainder of its capital program.

17 Absent the additional ROE, EPE may not be able to finance the Project at
18 reasonable terms and on time to avoid delays. It is important to highlight that while
19 the Project is similar to other transmission projects, it is also unique because it
20 requires highly specific equipment produced by only four manufacturers in the
21 world, and it requires niche expertise that is not widely available. This increases

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1 the Project risk and triggers the need for additional ROE to attract investment.

2

3 **Q27. GIVEN THE FINANCIAL RISK OF THE PROJECT, ARE THE BENEFITS**
4 **TO CONSUMER SUFFICIENT TO JUSTIFY IT?**

5 **A.** Yes. As witnesses Jonathan Trejo, Omar Gallegos, and David Hawkins explain, there
6 are many benefits to consumers that justify the risk and challenges. The major benefits
7 are prevention of potential outages given EPE's constantly growing peak demand and
8 limited transmission capacity for imports from the west, grid stability, access to
9 resources in the Eastern Interconnection, and elimination of chronic and expensive
10 repairs for the existing tie, which only offers intermittent non-firm service.

11

12 VI. CONCLUSION

13 **Q28.** Does this conclude your testimony?

14 **A.** Yes, it does.

**UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION**

El Paso Electric Company

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Docket No. ER26-____-000

VERIFICATION

I, Richard Gonzalez, being duly sworn, state that the contents of the foregoing affidavit are true, correct, and accurate to the best of my knowledge, information, and belief.

A handwritten signature in black ink, appearing to read 'Richard Gonzalez', is written over a horizontal line.

Richard Gonzalez

Dated: 8-18-26

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