

SPP ERAS AFS STUDY REPORT

INTRODUCTION

Associated Electric Cooperative Inc. (AECI), through coordination with the Southwest Power Pool (SPP), has identified generator interconnection requests (GIRs) within the SPP ERAS Study Cycle (the “Study Cycle”) for an Affected System Study (AFS) evaluation on the AECI transmission system (the “Study”).

The full list of active Study Cycle requests included in the Study is listed in Table 1 below.

Table 1: Study Cycle Requests Evaluated

Project	TO	SP Capacity (MW)	WP Capacity (MW)	Fuel Type	POI
ERAS-2025-001	LES	104	104	Thermal	84th & Bluff 115 kV Substation
ERAS-2025-002	SPS	208	217	Thermal	Xcel Tuco 345 kV Substation
ERAS-2025-003	OGE	186	186	Thermal	Redbud 345 kV Substation
ERAS-2025-004	OGE	779	779	Thermal	Horseshoe Lake 138 kV Substation
ERAS-2025-005	AEP	150	150	Hybrid	Danville - Magazine 161 kV Line
ERAS-2025-006	WERE	690.4	717.8	Thermal	Reno County 345 kV Substation #1443
ERAS-2025-007	WERE	425.1	450.6	Thermal	Mullin Creek 345 kV Substation
ERAS-2025-008	WERE	693.2	721.1	Thermal	Viola 345 kV Substation
ERAS-2025-009	GRDA	450	450	Thermal	GREC #1 Interconnect 161 kV Substation
ERAS-2025-010	OGE	496	496	Thermal	Horseshoe Lake 138 kV Substation
ERAS-2025-011	BEPC	750	750	Thermal	Leland Olds 345 kV Substation
ERAS-2025-012	BEPC	750	750	Thermal	Leland Olds 230 kV Substation
ERAS-2025-013	WERE	425.1	450.6	Thermal	Mullin Creek 345 kV Substation
ERAS-2025-014	SPS	120.5	159.5	Thermal	Hobbs-Andrews 345 kV Line
ERAS-2025-015	SEPC	400	400	Hybrid	Holcomb 345 kV Substation
ERAS-2025-016	SPS	224.7	232.5	Thermal	Tolk 230 kV Substation
ERAS-2025-017	SEPC	600	600	Thermal	Holcomb 345 kV Substation
ERAS-2025-018	SPS	256	256	Hybrid	Oasis 230 kV Substation
ERAS-2025-019	MIDW	80	80	Solar	5th Street Substation
ERAS-2025-020	SPS	400	400	Hybrid	Hobbs - Yoakum 345 kV Line
ERAS-2025-021	SPS	500	500	Wind	Border-Tuco 345 kV Line
ERAS-2025-022	PEC	123	123	Battery Storage	Monte Vista 138 kV Substation
ERAS-2025-023	AEP	505	510	Thermal	Northeastern 345 kV Substation
ERAS-2025-024	AEP	665	744	Thermal	Comanche 138 kV Substation
ERAS-2025-025	WFEC	175	175	Solar	Washita 138 kV Substation
ERAS-2025-026	AEP	665	744	Thermal	Oklahoma-Lawton East Side 345 kV Line
ERAS-2025-027	SPS	250	250	Battery Storage	Mahoney 230 kV Substation
ERAS-2025-028	SPS	384	384	Solar	Tuco-Yoakum 345 kV Line

Project	TO	SP Capacity (MW)	WP Capacity (MW)	Fuel Type	POI
ERAS-2025-029	KACY	170	170	Battery Storage	Nearman 161 kV Substation
ERAS-2025-030	SPS	350	350	Hybrid	G24-279 New Switch Station tying into Chaves - Eddy County 230 kV Line
ERAS-2025-031	KACY	150	150	Thermal	Quindaro 161 kV Substation
ERAS-2025-032	SEPC	150	150	Hybrid	St. John 115 kV Substation
ERAS-2025-033	SEPC	150	150	Hybrid	Fort Dodge 115 kV Substation
ERAS-2025-034	EMDE	250	250	Thermal	State Line 439 161 kV Substation
ERAS-2025-035	NWPS	137.96	137.96	Thermal	Siebrecht 115 kV Substation
ERAS-2025-036	SPS	140	140	Battery Storage	Newhart - Potter 230 kV Line

Network upgrades from the following studies were added to models prior to the addition of the Study Cycle requests:

- Network Upgrades from AECI Expansion Plan
- MISO Tranche 1 System Upgrades
- Network Upgrades from AECI's AFS of MISO DPP-2019-Cycle requests
- Network Upgrades from AECI's AFS of MISO DPP-2022-Cycle requests
- Network Upgrades from AECI's AFS of SPP DISIS-2023-001 requests
- Network Upgrades from AECI GI-103 request
- Network Upgrades from AECI GI-104 request
- Network Upgrades from AECI GI-129 request

The Network Upgrades included from these requests are detailed in Table 3 or Appendix A. Should these upgrades no longer be tagged to the higher queued studies, AECI may restudy the Study Cycle.

INPUTS AND ASSUMPTIONS

Each of the SERC member transmission planners is responsible for submitting system modeling data to SERC for development of the power flow models. Power flow analysis utilized the latest Long-Term Working Group (LTWG) models as developed by SERC Reliability Corporation (SERC). Each of the power flow models for the steady state analysis was modified to include appropriate higher-queued generation interconnection requests. Modeling parameters from the SPP ERAS steady state models were referenced for each of the Study Cycle requests. The direct connection network upgrades for MISO higher queued requests J1488 and J1490, as identified through their merchant HVDC requests H104 and H105, were included in the models:

- New J1145 – Montgomery 345 kV double circuit (2 and 3, Ameren facilities)

Full details of the inputs and assumptions are provided in Appendix A.

METHODOLOGY

Steady state analysis was performed to confirm the reliability impacts on the AECI system under a variety of system conditions and outages. AECI's transmission system must be capable of operating within the applicable normal ratings, emergency ratings, and voltage limits of AECI planning criteria. AECI is a member of SERC, one of eight Electric Reliability Organizations under the North American Electric Reliability Corporation (NERC). As a member of SERC, AECI develops its planning criteria consistent with NERC Reliability Planning Standards and the SERC planning criteria. The NERC TPL-001-5 Planning Standard Table 1 requires that, for normal and contingency conditions, line and equipment loading shall be within applicable thermal limits, voltage levels shall be maintained within applicable limits, all customer demands shall be supplied (except as noted), and stability of the network shall be maintained.

In evaluating the impacts of the Study Cycle requests, the following thermal and voltage limits were applied to the analysis for P0 or normal system conditions:

- Thermal Limits within Applicable Rating – Applicable Rating shall be defined as the Normal Rating. The thermal limit shall be 100% of Rating A.
- Voltage Limits within Applicable Rating – Applicable Rating shall have the meaning of Nominal Voltage. Voltage limits shall be set at plus or minus five percent (+/- 5%), 0.95 p.u. - 1.05 p.u. for systems operating at 60 kV or above on load serving buses.

The following thermal and voltage limits were applied to the analysis for contingency conditions under P1 and P2EHV planning events:

- Thermal Limits within Applicable Rating – Applicable Rating shall be defined as the Emergency Rating. The thermal limit shall be 100% of Rating B.
- Voltage Limits within Applicable Rating – Applicable Rating shall have the meaning of Nominal Voltage. Voltage limits shall be set at plus five percent to minus ten percent (+5%/-10%), 0.90 p.u. – 1.05 p.u. for systems operating at 60 kV or above on load serving buses.

In order for the Study Cycle requests to have a negative impact (i.e., a criteria violation) on the system, the Study Cycle must cause a three percent (3%) or greater increase in flow on an overloaded facility based upon the rating of the facility. In order for the Study Cycle requests to have a negative voltage impact on the system, the Study Cycle requests must cause a voltage violation and have a two percent (2%) or greater change in the voltage.

System upgrades are required for constraints resulting from the addition of the Study Cycle requests under P0, P1, P2.1, P2.2 (EHV only), and P2.3 (EHV only) system conditions. For the purpose of this study, P2.1 events are included as part of the P1 contingency file. As such, these events will be denoted as a P1 event in the results. All improvements were developed and studied in coordination with AECI.

AECI will perform an annual limited operations study which will indicate seasonal operating limits for SPP/MISO/AECI generation interconnection requests that will reach commercial operation in the 12-month horizon but whose AECI network upgrades have not yet been energized.

STEADY STATE ANALYSIS RESULTS

Steady state analysis results showed six (6) new thermal violations on the AECI system due to the addition of the Study Cycle requests. Refer to Table 6 in Appendix D for the most severe thermal overloads.

CONTINGENT FACILITY RESULTS

Twenty-eight (28) facilities were reported as Contingent Facilities with the addition of the Study Cycle requests. Contingent Facilities are those facilities identified that are the responsibility of higher-queued generators or are included in the Transmission Provider's transmission expansion plan and that if not included in the Study may otherwise be the responsibility of the Study Cycle requests as necessary to interconnect to the transmission system.

The transmission upgrades for the Contingent Facilities were evaluated in order to confirm that the planned system adjustments were sufficient to mitigate the overloads seen for the addition of the Study Cycle requests. Simulations were performed on each of the scenarios with the identified network upgrades and contingent network upgrades included. The upgrades shown in Table 3 were evaluated in order to mitigate the reported constraints as listed in Table 7 in Appendix D.

NEIGHBORING SYSTEM RESULTS

The Study has identified no impacts from the Study Cycle requests on the AECI ties with neighboring systems.

NETWORK UPGRADES

Transmission upgrades were evaluated to mitigate the impacts reported from the analyses as a result of the Study Cycle projects. The upgrades shown in Table 2 were evaluated in order to mitigate the reported steady state constraints for the Study Cycle as listed in Table 6 of Appendix D.

Table 2: Network Upgrades for the Study Cycle Constraints

ID	Monitored Facility	Option/Description
NU01	300819 2CASSVL 69.000 300824 2SELIGM 69.000 1	Rebuild 9.2 Mile Long Line from Cassville - Seligman to 795 ACSR at 100 °C.
NU02	301637 2KANSASTP 69.000 512715 KANSAS 2 69.000 1	Rebuild 0.01 Mile Long Tie from Kansas Tap - Kansas to 795 ACSR Rated at 100 °C.
NU03	300679 2PRDYTP 69.000 300680 2VERONA 69.000 1	Rebuild 5.5 Mile Long 69 kV line from Purdy Tap to Verona to 795 ACSR rated at 100 °C.
NU04	300679 2PRDYTP 69.000 300681 2BUTRFLD 69.000 1	Rebuild 5.8 Mile Long 69 kV line from Purdy Tap to Butterfield to 795 ACSR rated at 100 °C.
NU05	300763 2WASHBRN 69.000 300824 2SELIGM 69.000 1	Upgrade 1.23 Mile long 69 kV Segment from Seligman to Washburn to 100 °C Operation.
NU06	300381 5BEVIER 161.00 300387 2BEVIER 69.000 1	The reported overload can be mitigated with the adjustment of transformer taps; no upgrade is required.

The upgrades shown in Table 3 were evaluated in order to mitigate the reported steady state contingent constraints for the Study Cycle.

Table 3: Contingent Facilities for the Study Cycle Constraints

Constraint ID	Option/Description
CF01	Contingent on SPP DISIS-2017-002: Construct a new 161 kV switchyard ("Patrol Road") on the Maid to Gerald 161 kV line ~1 mile from Maid. Construct a new 0.8 mile-long 161 kV line from Chouteau to Patrol Road switchyard: - Construct as double bundle 1590 ACSR conductor, rated at 100 °C. - Series reactor installed on line to match impedance reactor on existing Chouteau-Maid line. - Reactor Impedance: 5 ohms, 12.263 mH. - All terminal equipment/reactors rated for 4,000 amps. At Chouteau Substation: -Add a 4,000 amp 161 kV breaker and associated equipment to the existing Chouteau to Maid line. -Add a new 161 kV terminal and associated equipment for the new 161 kV line to Patrol Road. At Chouteau West Yard: - Upgrade East to West bus from 5" to 6" bus.
CF02	Contingent on SPP DISIS-2021-001: Replace the Morgan 345/161 kV transformer with a unit rated 712 MVA Summer and 811 MVA Winter. Upgrade 161 kV breaker switchers (Switch 2022), equipment, bus, and relay limits to 3,000 amps.
CF03	Contingent on SPP DISIS-2023-001: On MO City-Liberty 161 kV line, upgrade bus work and wavetrap at MO City to 2000 amp minimum.
CF04	Contingent on MISO DPP-2019: Reconductor Moberly-Moberly Tap 0.02 mile long 161 kV line with high temp 1192 ACSS at 250C.
CF05	Contingent on MISO DPP-2020: Rebuild 5.4 mile long Nodaway-Maryville 161 kV line with 1192 ACSS at 200 °C.

Constraint ID	Option/Description
CF06	Contingent on AECI GI-128: Rebuild 0.1 mile long Mabel-Cross Road 69 kV line with 336 ACSR at 100 °C.
CF07	Contingent on AECI GI-128: Rebuild 1.8 mile long Osborn Tap North-Cross Road 69 kV line with 336 ACSR at 100 °C.
CF08	Contingent on AECI GI-130: Rebuild 9.40 mile Woody - Nuyaka 69 kV line to 795 ACSR at 100 °C.
CF09	Contingent on AECI GI-128: Rebuild 5.1 mile long Mabel Tap-Mabel 69 kV line with 336 ACSR at 100 °C.
CF10	Contingent on AECI GI-126: Rebuild existing 3.1 mile MPS Junction - Trenton City 69 kV line. Rebuild to 336 ACSR at 100 °C. Replace jumpers at Trenton City with 336 ACSR.
CF11	Contingent on AECI GI-128: Rebuild 3.2 mile long Greenbriar-Smithville 69 kV line with 1192 ACSS at 200 °C.
CF12	Contingent on MISO Tranche 1: Install a second Lamar 161/69 kV transformer rated at 84 MVA Summer, 95 MVA Winter.
CF13	Contingent on AECI GI-130: Rebuild 11.10 mile Naval Reserve - Pawya 69 kV line to 336 ACSR at 100 °C.
CF14	Contingent on SPP DISIS-2023-001: Rebuild 795 section of Remington-Shidler (3.4 miles) to 1192 ACSR at 100 °C. At Remington, replace jumpers with 1192 ACSR, upgrade relay limits to 1600 A min.
CF15	Contingent on AECI GI-129: Rebuild portion of Stillwater-Silver City 138 kV line that connects Ripley to Silver City, (24) miles, to 2156 ACSR at 100 °C. At Silver City, upgrade relay limits to 2000 A, upgrade jumpers to 2156 ACSR at 100 °C. Rebuild portion of Stillwater-Silver City 138 kV line that connects Ripley to Stillwater, (5) miles, to double bundle 2156 ACSR at 100 °C. At Stillwater, upgrade disconnect switches, breaker switchers, bushing CTs, relay limits, buswork to 3000 A. Upgrade jumpers at Stillwater to double bundle 2156 ACSR at 100 °C. These structures also carry the existing circuit connecting Ripley to Stillwater. Upgrade this existing circuit to double bundle 2156 ACSR at 100 °C. Upgrade jumpers at Stillwater to double bundle 2156 ACSR at 100 °C.
CF16	Contingent on AECI GI-130: Rebuild 10.9 mile section of Cleveland-Silver City 138 kV line between GI-130 interconnection and Cleveland to double bundle 1590 ACSR at 100 °C. At Cleveland Upgrade jumpers at Cleveland to double bundle 1590 ACSR at 100 °C. Upgrade disconnect switches to 2000 amp. Upgrade relay limits to 2000 amp.
CF17	Contingent on MISO DPP-2022: Rebuild Indian Grove-Thomas Hill 23 mile line for 161/69 kV operation. Install (1) circuit of 1192 ACSR at 100 °C. Operate at 69 kV. Upgrade jumpers on line at Thomas Hill to 1192 ACSR.
CF18	Contingent on AECI GI-128: Replace Osborn 161/69 kV xfmer 1 with an 84 MVA Summer, 95 MVA Winter unit.
CF19	Contingent on MISO DPP-2022: Rebuild Avalon-Chillicothe Industrial 8 mile line for 161/69 kV operation. Install (1) circuit of 1192 ACSS at 200 °C. Operate at 69 kV.
CF20	Contingent on AECI GI-130: Rebuild 14.7 mile long Fisher Tap-Silver City 138 kV line to 1192 ACSR at 100 °C. Upgrade jumpers on both sides of the line to 1192 ACSR. Upgrade Wave Trap on the Silver City-Fisher Tap 138 kV line at the Silver City station to 2000 amps.

Constraint ID	Option/Description
CF21	Contingent on AECI GI-130: Rebuild 9.20 mile Beggs - Nuyaka 69 kV line to 795 ACSR at 100 °C.
CF22	Contingent on AECI GI-126: Rebuild existing AECI owned 2.5 mile section of Chillicothe - Laredo (MPS) 69 kV line. Rebuild to 336 ACSR at 100 °C. Replace jumpers at Chillicothe with 336 ACSR.
CF23	Contingent on AECI GI-132: Rebuild the existing 69 kV lines from Gobbler Knob-Poplar Bluff West Tap-Poplar Bluff South-Harviell-Poplar Bluff-Township-Green Forest to double circuit 161 and 69 kV construction. Add a new 161 kV terminal at Gobbler Knob and Green Forest. The 161 kV circuit will terminate at Gobbler Knob and Green Forest and be constructed utilizing 795 ACSS High Temp at 200 °C. The 69 kV circuit will terminate at the same stations it currently does and be constructed utilizing 795 ACSR at 100 °C. The individual line segment lengths are listed below: • Rebuild 4.4-mile-long Gobbler Knob-Poplar Bluff West Tap-Poplar Bluff South 69 kV Line with 795 ACSR at 100 °C. • Rebuild 2.5-mile-long Green Forest to Township 69 kV Line with 795 ACSR at 100 °C. • Rebuild 4.5-mile-long Harviell to Poplar Bluff South 69 kV Line with 795 ACSR at 100 °C. • Rebuild 6.3-mile-long Harviell to Poplar Bluff 69 kV Line with 795 ACSR at 100 °C. • Rebuild 2.7-mile-long Poplar Bluff to Township 69 kV Line with 795 ACSR at 100 °C. • Construct a new 161 kV circuit from Gobbler Knob to Green Forest along the existing 69 kV path between these stations. Use 795 ACSS High Temp at 200 °C. Upgrade 161 kV disconnect switches on Gobbler 345/161 kV transformer #1 with 2,000 amp disconnect switches. Switches 161, 1611, 1613, 1621, 1622. Add a second 345/161 kV transformer at Gobbler Knob with ratings 500 MVA Summer/570 MVA Winter. Convert Gobbler Knob 345 kV station to a breaker and a half configuration. Add a new 345 kV terminal position to Gobbler Knob for the gen lead line.
CF24	Contingent on AECI GI-126: Upgrade to 100C, 30.5 mile section of Thomas Hill-McCredie 345 kV line from GI-126 POI to Thomas Hill.
CF25	Contingent on MISO DPP-2022: Install second Fairport 345/161 kV transformer with a unit rated 606 MVA Summer and 690 MVA Winter.
CF26	Contingent on AECI GI-129: Rebuild Fisher Tap-Keystone 138 kV line, (4.2) miles, to 1590 ACSR at 100 °C. At Fisher Tap, upgrade jumpers to 1590 ACSR at 100 °C, upgrade switches with 2000 A equipment.
CF27	Contingent on MISO DPP-2022: On the Hamburg - Percival line; Replace Jumpers at Hamburg bus with 795 ACSR jumpers, Replace Separately Mounted CT's with 1000A CT's.
CF28	Contingent on MISO DPP-2022: Rebuild 69 kV 13.2 mile long line from Northboro-Tarkio to 336 ACSR rated at 100C.

Simulations were performed on each of the scenarios with the identified network upgrades and contingent network upgrades included. Results from the simulations found that the network upgrades were able to mitigate the reported overload conditions as shown in Tables 6 and 7 in Appendix D.

AECI developed non-binding, good faith estimates of the timing and costs for upgrades needed as a result of the addition of the Study Cycle requests as shown in Table 4.

Table 4: Network Upgrade Estimated Costs

Constraint ID	Option / Description	Estimated Cost	Lead Time After Written Authorization ¹
NU01	Rebuild 9.2 Mile Long Line from Cassville - Seligman to 795 ACSR at 100 °C.	\$ 10,120,000	48 months
NU02	Rebuild 0.01 Mile Long Tie from Kansas Tap - Kansas to 795 ACSR Rated at 100 °C.	\$ 500,000	36 months
NU03	Rebuild 5.5 Mile Long 69 kV line from Purdy Tap to Verona to 795 ACSR rated at 100 °C.	\$ 6,050,000	60 months
NU04	Rebuild 5.8 Mile Long 69 kV line from Purdy Tap to Butterfield to 795 ACSR rated at 100 °C.	\$ 6,380,000	60 months
NU05	Upgrade 1.23 Mile long 69 kV Segment from Seligman to Washburn to 100 °C Operation.	\$ 442,000	48 months
NU06	The reported overload can be mitigated with the adjustment of transformer taps; no upgrade is required.	\$ -	-
Total Costs:		\$ 23,492,000	

Cost allocations for each of the impacted facilities are discussed in the Cost Allocation section below.

¹ Estimate Lead Time is the estimated time to place a network upgrade in service once AECI has received Provision of Security equal to the total Estimated Cost of the Network Upgrade.

COST ALLOCATION

Network upgrade costs are allocated to each of the Study Cycle projects based on the worst MW impact² each project had on the constraint and as described in the steps below:

1. Determine the MW impact each Study Cycle project had on each constraint using the size of each request in the season it was reported:

$$\text{Project X MW Impact on Constraint 1} = DFAX (X) * MW (X) = X1$$

$$\text{Project Y MW Impact on Constraint 1} = DFAX (Y) * MW (Y) = Y1$$

$$\text{Project Z MW Impact on Constraint 1} = DFAX (Z) * MW (Z) = Z1$$

2. Determine the maximum MW% impact each generator has as a percentage of the total Study Cycle impact on a given constraint.

$$X2 = \text{Project X MW impact \%} = \frac{X1}{\text{Total MW Impact of Study Cycle on Constraint}}$$

$$Y2 = \text{Project Y MW impact \%} = \frac{Y1}{\text{Total MW Impact of Study Cycle on Constraint}}$$

$$Z2 = \text{Project Z MW impact \%} = \frac{Z1}{\text{Total MW Impact of Study Cycle on Constraint}}$$

3. Apply three percent (3%) MW impact De Minimis Threshold: If a Study Cycle project MW% impact is less than 3% for a particular constraint then the project MW% impact is adjusted to 0 for that constraint and the Study Cycle project will not be allocated cost for that particular constraint.
4. Determine the cost allocated to each remaining Study Cycle project for each upgrade using the total cost of a given upgrade:

$$\text{Project X Upgrade 1 Cost Allocation (\$)} = \frac{\text{Network Upgrade 1 Cost (\$)} * X2}{X2 + Y2 + Z2}$$

² All negative MW impacts (helpers) were set to 0 MW impact.

The associated cost allocation of the network upgrades to each of the Study Cycle projects is shown below in Table 5. Further breakdown of costs is provided in Appendix B and Appendix C.

Table 5: Network Upgrade Estimated Cost Allocation

Project	Cluster Group	POI	SP Capacity (MW)	WP Capacity (MW)	Total
ERAS-2025-001	02 NEBRASKA	84th & Bluff 115 kV Substation	104	104	\$ -
ERAS-2025-002	05 SOUTHWEST	Xcel Tuco 345 kV Substation	208	217	\$ -
ERAS-2025-003	04 SOUTHEAST	Redbud 345 kV Substation	186	186	\$ 598,025
ERAS-2025-004	04 SOUTHEAST	Horseshoe Lake 138 kV Substation	779	779	\$ 1,814,585
ERAS-2025-005	04 SOUTHEAST	Danville - Magazine 161 kV Line	150	150	\$ -
ERAS-2025-006	03 CENTRAL	Reno County 345 kV Substation #1443	690.4	717.8	\$ 1,566,968
ERAS-2025-007	03 CENTRAL	Mullin Creek 345 kV Substation	425.1	450.6	\$ -
ERAS-2025-008	03 CENTRAL	Viola 345 kV Substation	693.2	721.1	\$ 182,339
ERAS-2025-009	04 SOUTHEAST	GREC #1 Interconnect 161 kV Substation	450	450	\$ 1,021,344
ERAS-2025-010	04 SOUTHEAST	Horseshoe Lake 138 kV Substation	496	496	\$ 456,366
ERAS-2025-011	01 NORTH	Leland Olds 345 kV Substation	750	750	\$ 8,024,790
ERAS-2025-012	01 NORTH	Leland Olds 230 kV Substation	750	750	\$ 1,702,239
ERAS-2025-013	03 CENTRAL	Mullin Creek 345 kV Substation	425.1	450.6	\$ -
ERAS-2025-014	05 SOUTHWEST	Hobbs-Andrews 345 kV Line	120.5	159.5	\$ -
ERAS-2025-015	03 CENTRAL	Holcomb 345 kV Substation	400	400	\$ 907,711
ERAS-2025-016	05 SOUTHWEST	Tolk 230 kV Substation	224.7	232.5	\$ 69,851
ERAS-2025-017	03 CENTRAL	Holcomb 345 kV Substation	600	600	\$ 2,495,465
ERAS-2025-018	05 SOUTHWEST	Oasis 230 kV Substation	256	256	\$ 1,871,574
ERAS-2025-019	03 CENTRAL	5th Street Substation	80	80	\$ -
ERAS-2025-020	05 SOUTHWEST	Hobbs - Yoakum 345 kV Line	400	400	\$ 526,760
ERAS-2025-021	05 SOUTHWEST	Border-Tuco 345 kV Line	500	500	\$ 867,232
ERAS-2025-022	04 SOUTHEAST	Monte Vista 138 kV Substation	123	123	\$ -
ERAS-2025-023	04 SOUTHEAST	Northeastern 345 kV Substation	505	510	\$ 1,181,843
ERAS-2025-024	04 SOUTHEAST	Comanche 138 kV Substation	665	744	\$ -
ERAS-2025-025	04 SOUTHEAST	Washita 138 kV Substation	175	175	\$ -
ERAS-2025-026	04 SOUTHEAST	Oklaunion-Lawton East Side 345 kV Line	665	744	\$ -
ERAS-2025-027	05 SOUTHWEST	Mahoney 230 kV Substation	250	250	\$ -
ERAS-2025-028	05 SOUTHWEST	Tuco-Yoakum 345 kV Line	384	384	\$ -
ERAS-2025-029	03 CENTRAL	Nearman 161 kV Substation	170	170	\$ -
ERAS-2025-030	05 SOUTHWEST	G24-279 New Switch Station tying into Chaves - Eddy County 230 kV Line	350	350	\$ -
ERAS-2025-031	03 CENTRAL	Quindaro 161 kV Substation	150	150	\$ -
ERAS-2025-032	03 CENTRAL	St. John 115 kV Substation	150	150	\$ -

Project	Cluster Group	POI	SP Capacity (MW)	WP Capacity (MW)	Total
ERAS-2025-033	03 CENTRAL	Fort Dodge 115 kV Substation	150	150	\$ 204,910
ERAS-2025-034	03 CENTRAL	State Line 439 161 kV Substation	250	250	\$ -
ERAS-2025-035	01 NORTH	Siebrecht 115 kV Substation	137.96	137.96	\$ -
ERAS-2025-036	05 SOUTHWEST	Newhart - Potter 230 kV Line	140	140	\$ -
Total Cost					\$ 23,492,000

VERSION HISTORY

Version	Change Description
V0 – 09/11/2026	Initial release