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2024 SPP Transmission Expansion Plan Report

By SPP Engineering

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Version 1

# Revision History

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| 1/16/2024 | SPP Staff | Submitted to MOPC |  |
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# Executive Summary



The SPP Transmission Expansion Plan (STEP) is a comprehensive listing of all transmission projects in SPP for the 20-year planning horizon. Projects in the current portfolio include all Network Upgrades for which construction activities are ongoing or those for which construction has completed but not all closeout requirements have been fulfilled in accordance with Section 13 in Business Practice 7060.[[1]](#footnote-1) Projects in the STEP portfolio include:

1. Upgrades required to satisfy requests for transmission service (TS)
2. Upgrades required to satisfy requests for generator interconnection (GI)
3. Requests pursuant to Attachment AQ of this Tariff (AQ)[[2]](#footnote-2)
4. Approved projects from the Integrated Transmission Planning Assessment (ITP)
5. Upgrades within approved Balanced Portfolios (BP)[[3]](#footnote-3)
6. Approved high priority upgrades (HP)
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Figure 1: STEP Upgrades by Type ($ Millions)

SPP actively monitors and supports the progress of transmission expansion projects, emphasizing the importance of maintaining accountability for areas such as regional grid reliability standards, firm transmission commitments, and SPP Open Access Transmission Tariff (tariff) cost recovery. SPP staff solicits quarterly feedback from the project owners to determine the progress of each approved transmission project. This report charts the progress of all SPP transmission projects approved by the SPP Board of Directors (Board) or through a Federal Energy Regulatory Commission (FERC)-filed service agreement under the tariff. A summary of the project portfolio is also included.

**Stakeholder Action Requested.** We invite stakeholders and all interested parties to submit any written comments on the projects included in the STEP via the SPP Request Management System ([RMS](https://spprms.issuetrak.com/login.asp)). SPP solicits feedback on proposed solutions to transmission needs through stakeholder working groups and planning summits, as well as through meetings, teleconferences, web conferences, and via email or secure web-based workspaces. These meetings provide an open forum where all stakeholders have an opportunity to provide advice and recommendations to SPP to aid in the development of the STEP. In addition to these opportunities, we also invite stakeholders to provide SPP with any transmission needs they deem to be beneficial to the transmission planning process through our website or [RMS](https://spprms.issuetrak.com/login.asp).

# Portfolio Summary

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Figure 2: STEP Upgrades by Status ($ Millions)

SPP assigns a project status to all network upgrades based on the projected in-service dates provided by the Designated Transmission Owner (DTO) relative to the Need Date determined for the project. Project status definitions are provided below:

* **Closed Out:** Construction complete and in-service; all close-out requirements fulfilled. Upgrades are reported as Closed Out for one quarter and then removed from the active portfolio
* **Complete:** Construction complete and in-service
* **Delay - Mitigation:** Projected In-Service Date beyond Need Date; interim mitigation provided or project may change but time permits the implementation of project
* **Delay – Mitigation Window:** Behind schedule, interim mitigation pending or project may change but time permits the implementation of project
* **Identified:** Upgrade identified and included in Board-approved study results
* **In Service:** Upgrade is operational, but not all construction activities are complete
* **Notification to Construct with Conditions (NTC-C) Project Estimate Window:** Within the NTC-C Project Estimate (CPE) window
* **Notification to Construct (NTC) Commitment Window:** NTC/NTC-C issued, still within the 90-day written commitment to construct window and no commitment received
* **On Schedule < 4:** On Schedule within four-year horizon
* **On Schedule > 4:** On Schedule beyond four-year horizon
* **Re-evaluation:** Project active; pending re-evaluation
* **RFP Issued:** Responses for competitive upgrades are being submitted and/or reviewed
* **Suspended:** NTC/GIA suspended

Figure 3: STEP Upgrades by Type ($ Millions)



Figure 4: Upgrade Summary by Type[[4]](#footnote-4)

# Project Summary

In adherence to the tariff and SPP Business Practice 7060 (BP 7060), SPP issues NTCs to DTOs to begin work on network upgrades that have been approved or endorsed by the SPP Board to meet the construction needs of the STEP, tariff, or RTO.

Figure 5 shows the estimated cost by in-service year for all network upgrades resulting from studies identified in Attachment O of the tariff. Table 1 shows all upgrade costs by upgrade status in each study. Note: Figure 5 and Table 1 provide data for all projects issued an NTC or NTC-C, included in an active Generator Interconnection Agreement (GIA), or identified in the tariff as a base plan upgrade. This chart includes costs for network upgrades no longer included in the active Project Tracking Portfolio.

 Figure 5: Upgrade Cost by In-Service Year ($ Millions)

| Source Study | Complete | Closed Out | Delay | In Service | Commitment Window | On Schedule | Re-evaluation | Total |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2006 STEP | $0 | $189 | $0 | $0 | $0 | $0 | $0 | $189 |
| 2007 STEP | $0 | $494 | $0 | $0 | $0 | $0 | $0 | $494 |
| 2008 STEP | $0 | $413 | $0 | $0 | $0 | $0 | $0 | $413 |
| 2009 STEP | $0 | $550 | $0 | $0 | $0 | $0 | $0 | $550 |
| 2010 STEP | $0 | $116 | $0 | $0 | $0 | $0 | $0 | $116 |
| 2012 ITP10 | $0 | $365 | $451 | $0 | $0 | $0 | $0 | $816 |
| 2012 ITPNT | $0 | $185 | $0 | $0 | $0 | $0 | $0 | $185 |
| 2013 ITPNT | $0 | $489 | $0 | $0 | $0 | $0 | $0 | $489 |
| 2014 ITPNT | $0 | $439 | $0 | $0 | $0 | $0 | $0 | $439 |
| 2015 ITP10 | $0 | $44 | $0 | $0 | $0 | $0 | $0 | $44 |
| 2015 ITPNT | $0 | $196 | $0 | $0 | $0 | $0 | $0 | $196 |
| 2016 ITPNT | $0 | $408 | $36 | $0 | $0 | $0 | $2 | $446 |
| 2017 ITP10 | $0 | $10 | $0 | $0 | $0 | $0 | $0 | $11 |
| 2017 ITPNT | $0 | $53 | $0 | $0 | $0 | $0 | $0 | $53 |
| 2018 ITPNT | $0 | $30 | $24 | $0 | $0 | $0 | $0 | $54 |
| 2019 ITP | $36 | $10 | $62 | $0 | $0 | $226 | $0 | $333 |
| 2020 ITP | $10 | $35 | $115 | $0 | $0 | $138 | $14 | $313 |
| 2021 ITP | $1 | $0 | $694 | $1 | $0 | $300 | $0 | $995 |
| 2022 ITP | $0 | $0 | $10 | $1 | $0 | $9 | $0 | $20 |
| 2023 ITP | $0 | $0 | $0 | $0 | $396 | $0 | $0 | $396 |
| AG Studies | $75 | $885 | $1 | $0 | $0 | $150 | $0 | $1,112 |
| Balanced Portfolio | $0 | $823 | $0 | $0 | $0 | $0 | $0 | $823 |
| DPA Studies | $59 | $496 | $207 | $0 | $0 | $4 | $0 | $765 |
| GI Studies | $469 | $319 | $30 | $104 | $0 | $91 | $0 | $1,013 |
| HPILS | $0 | $569 | $11 | $0 | $0 | $0 | $0 | $580 |
| IS Integration | $0 | $272 | $0 | $0 | $0 | $0 | $0 | $272 |
| Priority Projects | $0 | $1,318 | $0 | $0 | $0 | $0 | $0 | $1,318 |
| Sponsored Upgrade | $6 | $14 | $8 | $0 | $0 | $16 | $0 | $44 |
| **Grand Total** | **$655** | **$8,721** | **$1,649** | **$106** | **$396** | **$933** | **$17** | **$12,476** |

Table 1: Upgrade Cost by Study and Status ($ Millions)

# NTC and Upgrade Activity

In adherence with the tariff and BP 7060, SPP issues NTCs to DTOs to begin work on network upgrades that have been approved or endorsed by the Board to meet the construction needs of the tariff or RTO. Figure 6 and Table 2 show completed upgrades. Figure 7 and Table 3 show upgrades issued NTCs. Figure 8 and Table 4 show upgrades where the NTC was withdrawn during the reporting period.

### Completed Upgrades



Figure 6: Completed Upgrades

| **NTC ID**  | **IN SERVICE DATE** | **UID** | **OWNER** | **UPGRADE NAME** | **SOURCE STUDY** | **COST ESTIMATE** |
| --- | --- | --- | --- | --- | --- | --- |
| 210543 | 10/25/2023 | 112452 | SEPC | Pile - Scott City 115kV Terminal Upgrades | 2019 ITP | $130,000 |
| 210543 | 10/11/2023 | 112453 | SEPC | Scott City - Setab 115kV Terminal Upgrades | 2019 ITP | $144,495 |
| 210578 | 1/31/2023 | 122717 | GRDA | GRDA1 345 kV Terminal Upgrades Transformer Ckt 1 | 2020 ITP | $374,400 |
| 210578 | 1/31/2023 | 122718 | GRDA | GRDA1 161 kV Terminal Upgrades Transformer Ckt 1 | 2020 ITP | $453,000 |
| 210579 | 11/30/2023 | 143157 | WAPA | Bismarck 12.47 kV Reactors | 2020 ITP | $4,309,263 |
| 210586 | 2/23/2023 | 122865 | WFEC | Mooreland - Aspen 138 kV Terminal Upgrades | 2020 ITP | $202,500 |
| 210586 | 2/23/2023 | 122866 | WFEC | Mooreland - Pic 138 kV Terminal Upgrades | 2020 ITP | $405,000 |
| 210637 | 2/10/2023 | 143663 | EKC | Jarbalo Junction 115 kV Breaker | 2021 ITP | $195,694 |
| 210647 | 5/1/2023 | 143666 | EM | Craig 161 kV Breaker #2 | 2021 ITP | $267,643 |
| 210656 | 3/1/2023 | 143786 | OGE | Cleo Corner 69 kV Terminal Upgrades | 2021 ITP | $168,228 |
| 210483 | 5/31/2023 | 72015 | WFEC | Omega - Watonga SW 138 kV Ckt 1 Voltage Conversion | DPA-2017-August-767-774-776 | $12,428,000 |
| 210483 | 5/31/2023 | 72029 | WFEC | Kingfisher SW - Park Community 138 kV Ckt 1 New Line | DPA-2017-August-767-774-776 | $6,141,513 |
| 210560 | 1/18/2023 | 122575 | BEPC | Northshore 230 kV Substation | DPA-2018-August-918 | $12,877,495 |
|  | 5/1/2023 | 112333 | AEP | Gracemont - Lawton East Side 345 kV Substation GEN-2016-091 (TOIF) (AEPW) | Generation Interconnection | $1,704,279 |
|  | 5/1/2023 | 112334 | AEP | Gracemont - Lawton East Side 345 kV Substation GEN-2016-091 (NU) (AEPW) | Generation Interconnection | $17,798,882 |
| 210569 | 1/13/2023 | 112457 | EKC | Neosho - Riverton 161kV Rebuild (EKC) | SPP-2019-AG1-AFS-2 | $7,612,143 |
| 210570 | 1/13/2023 | 112456 | EDE | Neosho - Riverton 161kV Rebuild (EDE) | SPP-2019-AG1-AFS-2 | $72,381,260 |
| **17 Upgrade(s) Completed** |  |  | **$137,593,795** |

Table 2: Completed Upgrades

### Upgrades Approved for Construction



Figure 7: NTCs Issued

| NTC ID | NTC ISSUE DATE | UID | OWNER | UPGRADE NAME | SOURCE STUDY | COST ESTIMATE OF NEW UPGRADES | COST ESTIMATE OF PREVIOUSLY APPROVED UPGRADES |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 220754 | 12/15/2023 | 122754 | WFEC | Anadarko - Gracemont 138 kV Ckt3 (WFEC) | 2023 ITP | $19,500,000 | $0 |
| 220754 | 12/15/2023 | 122756 | WFEC | Anadarko138 kV Substation | 2023 ITP | $20,000,000 | $0 |
| 220739 | 12/15/2023 | 122761 | OGE | Czech Hall 138 kV Terminal Upgrade | 2023 ITP | $69,476 | $0 |
| 220720 | 3/16/2023 | 143588 | BEPC | Kummer Ridge - Round Up 345 kV | 2021 ITP | $0 | $78,293,357 |
| 220720 | 3/16/2023 | 143589 | BEPC | Kummer Ridge 345 kV Terminal Upgrades | 2021 ITP | $0 | $342,000 |
| 220720 | 3/16/2023 | 143590 | BEPC | Round Up 345 kV Terminal Upgrades | 2021 ITP | $0 | $342,000 |
| 220727 | 8/24/2023 | 144206 | SPS | Twist 115 kV Substation | DPA-2021-Feb-1279-1280 | $0 | $9,087,788 |
| 220727 | 8/24/2023 | 144207 | SPS | RB-Exum - Hilmar Cheese Ckt 1, Twist 115 kV New Lines, north side. | DPA-2021-Feb-1279-1280 | $0 | $3,909,647 |
| 220727 | 8/24/2023 | 144208 | SPS | RB-Kemp - Moore County Ckt 1, Twist 115 kV New Lines, south side. | DPA-2021-Feb-1279-1280 | $0 | $3,561,243 |
| 210697 | 1/12/2023 | 144326 | OGE | Badger 345 kV Substation Reconfiguration | DISIS-2017-001 | $8,500,000 | $0 |
| 220722 | 5/24/2023 | 156240 | BEPC | North Dakota/Saskatchewan Border (Tableland) - Tande 230 kV Ckt 1 | SPP- 2021-AG2 | $78,880,406 | $0 |
| 220722 | 5/24/2023 | 156241 | BEPC | Tande 230 kV Terminal Equipment | SPP- 2021-AG2 | $2,562,090 | $0 |
| 220722 | 5/24/2023 | 156248 | BEPC | North Dakota/Saskatchewan Border (Tableland) - Wheelock 230 kV Ckt 1 | SPP- 2021-AG2 | $65,123,051 | $0 |
| 220722 | 5/24/2023 | 156249 | BEPC | Wheelock 230 kV Terminal Upgrade | SPP- 2021-AG2 | $2,476,563 | $0 |
| 220741 | 11/15/2023 | 156301 | GRDA | Kerr - Maid 161 kV Ckt 1 Rebuild #2 | 2023 ITP | $8,440,000 | $0 |
| 220741 | 11/15/2023 | 156302 | GRDA | Kerr 161 kV Terminal Equipment | 2023 ITP | $730,199 | $0 |
| 220741 | 11/15/2023 | 156303 | GRDA | Maid 161 kV Terminal Equipment | 2023 ITP | $1,107,600 | $0 |
| 220741 | 11/15/2023 | 156304 | GRDA | Kerr - Maid 161 kV Ckt 2 Rebuild | 2023 ITP | $8,440,000 | $0 |
| 220741 | 11/15/2023 | 156305 | GRDA | Kerr 161 kV Terminal Equipment Ckt 2 | 2023 ITP | $730,200 | $0 |
| 220741 | 11/15/2023 | 156306 | GRDA | Maid 161 kV Terminal Upgrade Ckt 2 | 2023 ITP | $1,107,600 | $0 |
| 220726 | 10/3/2023 | 156411 | NEET | Crossroads - Hobbs 345 kV ckts 1 & 2 | 2021 ITP | $196,135,073 | $0 |
| 220726 | 10/3/2023 | 156412 | NEET | Hobbs - Phantom 345 kV ckts 1 & 2 | 2021 ITP | $95,479,502 | $0 |
| 220734 | 12/12/2023 | 156454 | SEPC | Concordia West 230/115 kV Transformer | DISIS-2017-002 | $7,720,372 | $0 |
| 220735 | 12/12/2023 | 156469 | WAPA | Groton South - Groton BE7 115kV CKT2 New Line | DISIS-2017-002 | $2,800,000 | $0 |
| 220729 | 10/6/2023 | 156471 | EKC | Viola to Renfrow 345 kV Rebuild | DISIS-2017-002 | $47,418,633 | $0 |
| 220732 | 10/24/2023 | 156493 | SPS | Carpentar 345 kV Line Reactor | DISIS-2017-002 | $836,245 | $0 |
| 220732 | 10/24/2023 | 156494 | SPS | Potter County 345 kV Line Reactor | DISIS-2017-002 | $1,228,089 | $0 |
| 220732 | 10/24/2023 | 156495 | SPS | Carpenter 345 kV-Finney 345 kV Line Reactors | DISIS-2017-002 | $1,884,762 | $0 |
| 220732 | 10/24/2023 | 156497 | SPS | Border 345 kV-Tuco 345 kV Line Reactors | DISIS-2017-002 | $2,316,446 | $0 |
| 220724 | 9/13/2023 | 156850 | WAPA | Ft Randall - Spencer 115 kV Ckt 1 Rebuild | DISIS-2017-002 | $14,216,800 | $0 |
| 220732 | 10/24/2023 | 156857 | SPS | Randall 230 kV Reactive Support | DISIS-2017-002 | $66,361,449 | $0 |
| 220733 | 10/25/2023 | 156858 | AEP | Sweetwater 230 kV Reactive Support | DISIS-2017-002 | $58,762,790 | $0 |
| 220751 | 11/19/2023 | 157186 | SEPC | Ellsworth Tap - Great Bend 115 kV Ckt 1 Structure Upgrade | 2023 ITP | $750,000 | $0 |
| 220746 | 12/15/2023 | 157202 | EM | Craig 161 kV Ckt 2 Terminal Upgrade | 2023 ITP | $1,329,162 | $0 |
| 220746 | 12/15/2023 | 157203 | EM | Lenexa South 161 kV Ckt 2 Terminal Upgrade | 2023 ITP | $1,329,161 | $0 |
| 220739 | 12/15/2023 | 157241 | OGE | Seminole 345/138 kV Transformer Ckt 3 (138 kV) | 2023 ITP | $3,415,129 | $0 |
| 220739 | 12/15/2023 | 157242 | OGE | Seminole 345/138 kV Transformer Ckt 3 (345 kV) | 2023 ITP | $4,891,214 | $0 |
| 220739 | 12/15/2023 | 157254 | OGE | Lightning Creek 138 kV Breaker #1 | 2023 ITP | $1,418,348 | $0 |
| 220746 | 12/15/2023 | 157255 | EM | Blue Valley 161 kV Breaker #1 | 2023 ITP | $310,000 | $0 |
| 220746 | 12/15/2023 | 157256 | EM | Craig 161 kV Breaker #1 | 2023 ITP | $609,491 | $0 |
| 220746 | 12/15/2023 | 157257 | EM | Craig 161 kV Breaker #3 | 2023 ITP | $609,490 | $0 |
| 220746 | 12/15/2023 | 157258 | EM | Craig 161 kV Breaker #4 | 2023 ITP | $609,491 | $0 |
| 220746 | 12/15/2023 | 157259 | EM | Craig 161 kV Breaker #5 | 2023 ITP | $609,491 | $0 |
| 220737 | 12/15/2023 | 157263 | AEP | Longwood - Oak Pan-Harr 138 kV Ckt 1 Rebuild | 2023 ITP | $4,070,000 | $0 |
| 220737 | 12/15/2023 | 157264 | AEP | Longwood 138 kV Terminal Upgrade | 2023 ITP | $150,000 | $0 |
| 220737 | 12/15/2023 | 157266 | AEP | Flournoy - Oak Pan-Harr 138 kV Ckt 1 Rebuild | 2023 ITP | $15,260,000 | $0 |
| 220737 | 12/15/2023 | 157268 | AEP | Turk 138/115 kV Transformer Ckt 1 (138 kV) | 2023 ITP | $5,250,000 | $0 |
| 220739 | 12/15/2023 | 157274 | OGE | Woodward Nitrogen 69 kV Terminal Upgrade | 2023 ITP | $815,000 | $0 |
| 220748 | 12/15/2023 | 157280 | WAPA | Dawson County-Fort Peck 230 kV Line Reactor | 2023 ITP | $4,007,750 | $0 |
| 220760 | 12/5/2023 | 157296 | SPS | XFR - Phantom 345/115 kV Transformer | DPA-2022-March-1564 | $13,713,562 | $0 |
| 220760 | 12/5/2023 | 157302 | SPS | Road Runner - Red Bluff 115 kV Reconductor | DPA-2022-March-1564 | $7,627,279 | $0 |
| 220760 | 12/5/2023 | 157303 | SPS | Phantom 115 kV New Cap Bank (72 MVAR) | DPA-2022-March-1564 | $7,675,058 | $0 |
| 220760 | 12/5/2023 | 157304 | SPS | Livingston Ridge 115 kV New Cap Bank (57.6 MVAR) | DPA-2022-March-1564 | $3,481,978 | $0 |
| 220760 | 12/5/2023 | 157305 | SPS | Lynch 115 kV New Cap Bank (14.4 MVAR) | DPA-2022-March-1564 | $2,746,172 | $0 |
| 220760 | 12/5/2023 | 157307 | SPS | Phantom 345 kV New Cap Bank (200 MVAR) | DPA-2022-March-1564 | $18,426,313 | $0 |
| 220760 | 12/5/2023 | 157308 | SPS | Malaga Bend 115 kV New Cap Bank (28.8 MVAR) | DPA-2022-March-1564 | $3,032,336 | $0 |
| 220760 | 12/5/2023 | 157309 | SPS | North Loving 345 kV New Cap Bank (100 MVAR) | DPA-2022-March-1564 | $12,183,265 | $0 |
| 220760 | 12/5/2023 | 157310 | SPS | North Loving 115 kV New Cap Bank (28.8 MVAR) | DPA-2022-March-1564 | $3,032,765 | $0 |
| 220747 | 12/15/2023 | 157375 | BEPC | Broadland 345 kV Reactor | 2023 ITP | $5,445,170 | $0 |
| 220750 | 12/15/2023 | 157377 | SPS | Moore Co 115 kV Terminal Upgrade | 2023 ITP | $210,000 | $0 |
| 220758 | 12/15/2023 | 157382 | WFEC | Anadarko 138 kV Terminal Upgrade Ckt 1 | 2023 ITP | $1,000,000 | $0 |
| 220743 | 12/15/2023 | 157383 | NPPD | Sub 976 115/69 kV Transformer Ckt 2 (69 kV) | 2023 ITP | $5,600,000 | $0 |
| 220743 | 12/15/2023 | 157384 | NPPD | Fremont 115/69 kV Transformer Ckt 2 (115 kV) | 2023 ITP | $300,000 | $0 |
| 220745 | 12/15/2023 | 157385 | LES | Sub 1214 - 70th & Bluff 161 kV Ckt 1 Rebuild (LES) | 2023 ITP | $1,200,000 | $0 |
| 220744 | 12/15/2023 | 157386 | OPPD | Sub 1214 161 kV Terminal Upgrade | 2023 ITP | $114,179 | $0 |
| 220745 | 12/15/2023 | 157387 | LES | 70th & Bluff 161 kV Terminal Upgrade | 2023 ITP | $2,700,000 | $0 |
| 220739 | 12/15/2023 | 157390 | OGE | Southgate - Westmoore Tap 138 kV Extend Line | 2023 ITP | $6,470,000 | $0 |
| 220739 | 12/15/2023 | 157392 | OGE | Westmoore 138 kV Terminal Upgrade #2 | 2023 ITP | $4,790,000 | $0 |
| 220739 | 12/15/2023 | 157393 | OGE | Pennsylvania 138 kV Terminal Upgrade | 2023 ITP | $200,000 | $0 |
| 220738 | 12/15/2023 | 157395 | OGE | Gracemont 138 kV Ck 2 Terminal Upgrade | 2023 ITP | $2,171,478 | $0 |
| 220754 | 12/15/2023 | 157396 | WFEC | Anadarko 138 kV Ckt 3 Terminal Upgrade | 2023 ITP | $2,500,000 | $0 |
| 220745 | 12/15/2023 | 157397 | LES | 70th & Bluff 161/115 kV Transformer Ckt 1 (115 kV) | 2023 ITP | $4,900,000 | $0 |
| 220749 | 12/15/2023 | 157403 | EKC | Neosho 345 kV Terminal Upgrade | 2023 ITP | $3,415,129 | $0 |
| 220749 | 12/15/2023 | 157405 | EKC | Butler 138 kV Terminal Upgrade | 2023 ITP | $1,329,161 | $0 |
| 220749 | 12/15/2023 | 157406 | EKC | Midian 138 kV Ckt 1 Terminal Upgrade | 2023 ITP | $1,329,161 | $0 |
| 220737 | 12/15/2023 | 157475 | AEP | Pine & Peoria Tap - 46Th Street Tap 138 kV Ckt 1 Rebuild | 2023 ITP | $1,481,809 | $0 |
| 220737 | 12/15/2023 | 157517 | AEP | Tulsa North - 46Th Street Tap 138 kV Ckt 1 Rebuild | 2023 ITP | $14,714,997 | $0 |
| 220737 | 12/15/2023 | 157518 | AEP | Tulsa North 138 kV Terminal Upgrade | 2023 ITP | $150,000 | $0 |
| 220736 | 12/15/2023 | 157526 | AEP | Shidler - Webb City Tap 138 kV Ckt 1 Rebuild | 2023 ITP | $4,718,963 | $0 |
| 220736 | 12/15/2023 | 157527 | AEP | Webb City Tap 138 kV Terminal Upgrade | 2023 ITP | $902,559 | $0 |
| 220736 | 12/15/2023 | 157528 | AEP | Shidler 138 kV Terminal Upgrade | 2023 ITP | $150,000 | $0 |
| 220736 | 12/15/2023 | 157529 | AEP | Webb City Tap - Osage 138 kV Ckt 1 Rebuild (AEP) | 2023 ITP | $4,765,631 | $0 |
| 220738 | 12/15/2023 | 157530 | OGE | Osage 138 kV Terminal Upgrade | 2023 ITP | $4,500,000 | $0 |
| 220736 | 12/15/2023 | 157534 | AEP | Webb City Tap 138 kV Terminal Upgrade #2 | 2023 ITP | $902,559 | $0 |
| 220753 | 12/15/2023 | 157551 | WAPA | Fort Thompson 345/230 kV Transformer Ckt 1 (345 kV) | 2023 ITP | $12,963,375 | $0 |
| 220753 | 12/15/2023 | 157552 | WAPA | Fort Thompson 345/230 kV Transformer Ckt 2 (230 kV) | 2023 ITP | $4,891,214 | $0 |
| 220753 | 12/15/2023 | 157553 | WAPA | Fort Thompson 345/230 kV Transformer Ckt 2 (345 kV) | 2023 ITP | $12,963,375 | $0 |
| 220753 | 12/15/2023 | 157554 | WAPA | Fort Thompson 345/230 kV Transformer Ckt 1 (230 kV) | 2023 ITP | $2,728,949 | $0 |
| 220743 | 12/15/2023 | 157594 | NPPD | Gerald Gentleman Station - Ogallala 230 kV Line & Terminal Upgrades | 2023 ITP | $1,600,000 | $0 |
| 220743 | 12/15/2023 | 157595 | NPPD | Ogallala 230 kV Terminal Upgrade | 2023 ITP | $100,000 | $0 |
| 220749 | 12/15/2023 | 157620 | EKC | Franklin 161/69 kV Transformer Ckt 2 (69 kV) | 2023 ITP | $1,661,885 | $0 |
| 220749 | 12/15/2023 | 157621 | EKC | Franklin 161/69 kV Transformer Ckt 2 (161 kV) | 2023 ITP | $1,661,884 | $0 |
| 220739 | 12/15/2023 | 157644 | OGE | Fitzgerald Creek - Kinze 138 kV Line Tap | 2023 ITP | $10,016,640 | $0 |
| 220739 | 12/15/2023 | 157650 | OGE | Valley 138 kV Terminal Equipment | 2023 ITP | $483,360 | $0 |
| 220742 | 12/15/2023 | 157721 | NWE | Huron West Park 115 kV Terminal Upgrade | 2023 ITP | $393,298 | $0 |
| 220742 | 12/15/2023 | 157724 | NWE | Huron B Tap 115 kV Terminal Upgrade | 2023 ITP | $393,298 | $0 |
| 220755 | 12/15/2023 | 157736 | MSG | Devaul 115 kV Reactor | 2023 ITP | $1,671,705 | $0 |
| 220738 | 12/15/2023 | 157879 | OGE | Anadarko - Gracemont 138 kV Ckt 3 New Line (OGE) | 2023 ITP | $22,081,965 | $0 |
| 220738 | 12/15/2023 | 157880 | OGE | Webb City Tap - Osage 138 kV Ckt 1 Rebuild (OGE) | 2023 ITP | $28,250,000 | $0 |
| 220742 | 12/15/2023 | 157891 | NWE | Huron - Huron West Park 115 kV Ckt 1 Rebuild (NWE) | 2023 ITP | $11,554,745 | $0 |
| 220742 | 12/15/2023 | 157892 | NWE | Huron - Huron 'B' Tap 115 kV Ckt 1 Rebuild (NWE) | 2023 ITP | $207,080 | $0 |
| 220738 | 12/15/2023 | 157897 | OGE | Anadarko - Gracemont 138kV Ckt 2 New Line  (OGE) | 2023 ITP | $22,081,965 | $0 |
| 220754 | 12/15/2023 | 157899 | WFEC | Anadarko - Gracemont 138kV Ckt 2 New Line (WFEC) | 2023 ITP | $19,500,000 | $0 |
| 220748 | 12/15/2023 | 157946 | WAPA | Gavins Point - Yankton Junction 115 kV Ckt 1 Rebuild (WAPA) | 2023 ITP | $4,000,000 | $0 |
| 220748 | 12/15/2023 | 157948 | WAPA | Gavins Point 115 kV Terminal Upgrade | 2023 ITP | $264,000 | $0 |
| 220742 | 12/15/2023 | 157949 | NWE | Yankton Junction 115 kV Ckt 1 Terminal Upgrade | 2023 ITP | $393,298 | $0 |
| 220747 | 12/15/2023 | 158019 | BEPC | Groton 345 kV Reactor | 2023 ITP | $5,162,152 | $0 |
| 220762 | 12/20/2023 | 158042 | NPPD | Norfolk - Stanton North 115 kV line | DPA-2021-October-1442 | $14,436,071 | $0 |
| 220762 | 12/20/2023 | 158043 | NPPD | Hoskins 230/115 kV Transformer | DPA-2021-October-1442 | $11,617,895 | $0 |
| 220746 | 12/15/2023 | 158045 | EM | Craig 161 kV Breaker #6 | 2023 ITP | $609,492 | $0 |
| 220744 | 12/15/2023 | 158445 | OPPD | Sub 976 69 kV Terminal Equipment | 2023 ITP | $165,695 | $0 |
| 220723 | 10/3/2023 | 158446 | OPPD | S1363 - S1362 161 kV | SUS-038 | $7,754,624 | $0 |
| 220723 | 10/3/2023 | 158447 | OPPD | S1281 - S1361 161 kV | SUS-038 | $3,111,647 | $0 |
| 220723 | 10/3/2023 | 158448 | OPPD | Tap S1345 - S1236 161 kV | SUS-038 | $13,199,959 | $0 |
| 220749 | 12/15/2023 | 158452 | EKC | Benton 345 kV Terminal Upgrade | 2023 ITP | $3,415,129 | $0 |
| 220749 | 12/15/2023 | 158453 | EKC | Wichita 345 kV Terminal Upgrade | 2023 ITP | $3,415,129 | $0 |
| 220738 | 12/15/2023 | 158573 | OGE | Redbud 345 kV Terminal Upgrade | 2023 ITP | $3,415,129 | $0 |
| 220738 | 12/15/2023 | 158574 | OGE | Matthewson 345 kV Terminal Equipment #2 | 2023 ITP | $3,415,129 | $0 |
| 220761 | 12/15/2023 | 158629 | SPS | Potter County 345/230 kV Transformer Ckt 2 (345 kV) | 2023 ITP | $7,500,000 | $0 |
| 220761 | 12/15/2023 | 158630 | SPS | Potter County 345/230 kV Transformer Ckt 1 (230 kV) | 2023 ITP | $7,500,000 | $0 |
| 220761 | 12/15/2023 | 158631 | SPS | Potter County 345/230 kV Transformer Ckt 1 | 2023 ITP | $7,500,000 | $0 |
| 220761 | 12/15/2023 | 158632 | SPS | Potter County 345 kV Substation Expansion | 2023 ITP | $7,500,000 | $0 |
| 220738 | 12/15/2023 | 158637 | OGE | Gracemont 138 kV Ckt 3 Terminal Equipment | 2023 ITP | $2,171,478 | $0 |
| 220754 | 12/15/2023 | 158638 | WFEC | Anadarko 138 kV Ckt 3 Terminal Equipment | 2023 ITP | $2,500,000 | $0 |
| 220749 | 12/15/2023 | 158653 | EKC | 87th St. Terminal Equipment Ckt 2 | 2023 ITP | $5,100,000 | $0 |
| 220749 | 12/15/2023 | 158654 | EKC | 87th St. 345/115 kV Transformer | 2023 ITP | $5,100,000 | $0 |
| **126 Upgrade(s) Issued** |  |  | **$1,180,592,162** | **$95,536,035** |

Table 3: NTCs Issued

### NTCs Withdrawn



Figure 8: NTCs Withdrawn

| NTC ID | NTC WITHDRAWN DATE | UID | OWNER | UPGRADE NAME | SOURCE STUDY | COST ESTIMATE OF WITHDRAWN UPGRADES |
| --- | --- | --- | --- | --- | --- | --- |
| 210719 | 2/27/2023 | 122803 | SEPC | Russell 115 kV Capacitor Bank | 2020 ITP | $7,172,538 |
| 220756 | 11/29/2023 | 122755 | OGE | Gracemont 138 kV Ckt 2 Terminal Equipment | 2020 ITP | $1,124,593 |
| 220757 | 11/29/2023 | 122577 | WFEC | Anadarko - Gracemont 138 kV Ckt 1 Rebuild | 2020 ITP | $5,750,000 |
| 220757 | 11/29/2023 | 122753 | WFEC | Anadarko - Gracemont 138 kV Ckt 2 Rebuild | 2020 ITP | $30,712,664 |
| 210720 | 3/16/2023 | 50600 | WFEC | Hazelton 69 kV Capacitor | DPA-2012-MAR-143-147 | $735,000 |
| 210721 | 3/16/2023 | 50628 | WFEC | Hazelton Capacitor 69 kV #2 | DPA-2012-MAR-151-154-161-JUL-218-SEP-243 | $0 |
| 220725 | 8/3/2023 | 112510 | SPS | Hobbs Interchange to Millen Rebuild 115 kV Ckt1 | DPA-2018-Mar-854 | $3,165,684 |
| 220725 | 8/3/2023 | 122510 | SPS | Johnson Draw 115 kV Capacitor Bank | DPA-2018-Mar-854 | $0 |
| **8 Upgrade(s) Withdrawn** |  |  |  | **$48,660,479** |

Table 4: NTCs Withdrawn

# Study Overviews

### **Transmission Service Studies**

The Transmission Services department evaluates long-term requests for network integration and point-to-point transmission service through various processes, including the Aggregate Transmission Service Study (ATSS) process under Attachment Z1 of the tariff, performs screening studies through the Delivery Point Transfer (DPT) and Long-Term Service Request (LTSR) processes under Attachment AR of the tariff and Delivery Point Addition (DPA) studies under Attachment AQ of the tariff. Links to studies posted during the reporting period are below.

### Completed Aggregate Facility Studies

2023-AG1-AFS-2 [Report Tables](https://opsportal.spp.org/documents/studies/files/2023_Aggregate_Studies/2023-AG1-AFS-2%20ReportTables_Post.xls) [Facility Log](https://opsportal.spp.org/documents/studies/files/2023_Aggregate_Studies/2023-AG1-AFS-2-tblFacilityLog-Post.xls)

2022-AG2-AFS-2 [Report Tables](https://opsportal.spp.org/documents/studies/files/2022_Aggregate_Studies/2022-AG2-AFS-2-ReportTables_Post.xls) [Facility Log](https://opsportal.spp.org/documents/studies/files/2022_Aggregate_Studies/2022-AG2-AFS-2-tblFacilityLog-Post.xls)

2022-AG1-AFS-2 [Report Tables](https://opsportal.spp.org/documents/studies/files/2022_Aggregate_Studies/2022-AG1-AFS-2-ReportTables_Post.xls) [Facility Log](https://opsportal.spp.org/documents/studies/files/2022_Aggregate_Studies/2022-AG1-AFS-2-tblFacilityLog-Post.xls)

2021-AG1-AFS-1 [Report Tables](https://opsportal.spp.org/documents/studies/files/2022_Aggregate_Studies/2022-AG1-AFS-1-ReportTables_Highlights_Post.xls) [Facility Log](https://opsportal.spp.org/documents/studies/files/2022_Aggregate_Studies/2022-AG1-AFS-1-tblFacilityLog-Post.xls)

### Attachment AR Studies

2023 Delivery Point Transfer Request

[SPP-DPT-2023-001](https://opsportal.spp.org/documents/studies/files/2023_Screening_Studies/SPP-DPT-2023-001-Report_Final.zip)

2022 Delivery Point Transfer Request

[SPP-DPT-2022-001](https://opsportal.spp.org/documents/studies/files/2022_Screening_Studies/SPP-DPT-2022-001.zip)

[SPP-DPT-2022-002](https://opsportal.spp.org/Studies/ScreenList?yearTypeId=215)

2023 Long Term Service Request

[LTSR-2023-001](https://opsportal.spp.org/documents/studies/files/2023_Screening_Studies/LTSR-2023-001_Results.zip)

[LTSR-2023-002](https://opsportal.spp.org/documents/studies/files/2023_Screening_Studies/LTSR-2023-002_Results_v2.zip)

2022 Long Term Service Request

[LTSR-2022-001](https://opsportal.spp.org/Studies/ScreenList?yearTypeId=214)

[LTSR-2022-002](https://opsportal.spp.org/Studies/ScreenList?yearTypeId=214)

[LTSR-2022-003](https://opsportal.spp.org/Studies/ScreenList?yearTypeId=214)

[LTSR-2022-004](https://opsportal.spp.org/Studies/ScreenList?yearTypeId=214)

[LTSR-2022-005](https://opsportal.spp.org/Studies/ScreenList?yearTypeId=214)

### Attachment AQ Requests

[2023 Delivery Point Addition Studies](https://opsportal.spp.org/Studies/DeliveryList?yearTypeId=227)

[2022 Delivery Point Addition Studies](https://opsportal.spp.org/Studies/DeliveryList?yearTypeId=216)

[2021 Delivery Point Addition Studies](https://opsportal.spp.org/Studies/DeliveryList?yearTypeId=206)

[2020 Delivery Point Addition Studies](https://opsportal.spp.org/Studies/DeliveryList?yearTypeId=194)

### **Generator Interconnection Studies**

SPP’s Generator Interconnection team creates stakeholder value by evaluating impacts of connecting new power sources to the existing transmission system. We facilitate agreements between generation producers and transmission owners while ensuring positive outcomes for the regional power grid. Links to studies posted during the reporting period are below.

[Generator Interconnection Studies](https://opsportal.spp.org/Studies/Gen)

### **Transmission Planning (ITP)**

SPP Board approved the 2022 ITP Assessment reports and portfolios on October 31, 2023.

[2023 ITP Assessment Report v1.0](https://www.spp.org/engineering/transmission-planning/)

### **Balanced Portfolio**

SPP did not perform a Balanced Portfolio study during the reporting period.

### **High Priority Studies**

SPP did not perform a High Priority study during the reporting period.

### **Sponsored Upgrade Studies**

| **Study Name** | **ILTCRs Studied** | **Study Report Final** | **Board Approval** |
| --- | --- | --- | --- |
| SUS-035 Cimarron XFMR | Yes5 | 12/6/2022 | [1/31/2023](https://www.spp.org/spp-documents-filings/?id=18449) |
| SUS-036 Franklin | Yes[[5]](#footnote-5) | 1/20/2023 | [4/25/2023](https://www.spp.org/spp-documents-filings/?id=18449) |
| SUS-038 Omaha Metro Area 161kV | No | 6/16/2023 | [7/25/2023](https://www.spp.org/spp-documents-filings/?id=18449) |

Table 5: 2023 Sponsored Upgrades

### **Interregional Studies**

SPP coordinates interregional transmission planning activities with neighboring Planning Regions as approved by the FERC for purposes of Order 1000. Furthermore, SPP coordinates interregional planning and operations activities across all applicable areas of the organization in accordance with SPP's Joint Operating Agreements (JOAs) and other similar coordination arrangements that may not be required by FERC Order 1000.

Throughout 2023, SPP continued collaboration with Midcontinent Independent System Operator (MISO) through refining the Joint Targeted Interconnection Queue (JTIQ) project proposal. Key takeaways were a revised portfolio with cost allocation updates, as well as JTIQ being awarded $464 million from the Department of Energy’s Grid Resilience and Innovation Partnership Program (GRIP). Staff also initiated the SPP Stakeholder process with education presentation as well as began updating Tariff language to begin the RR process in 2024.

MISO-SPP did not propose performing a Coordinated System Plan (CSP) study since a CSP was completed in 2022. Although not part of the CSP process, significant time and resources were dedicated to Long Range Transmission Plan in MISO as well as toward the Interregional NOPR, FERC Order 2023 and other Common Seams Initiatives. In 2023, the MISO-SPP JOA had revisions to clarify various Affected Systems coordination processes and the enhancement of study tie line improvements. However, the Targeted Market Efficiency Project’s process, an effort to identify mutually beneficial transmission improvements within MISO and SPP’s transmission systems that address historical market-to-market (M2M) congestion has been delayed and is now targeted to be included in the MISO-SPP JOA in the last half of 2024.

Furthermore, SPP and Associated Electric Cooperative, Inc. (AECI) did not perform a Joint Coordinated System Plan (JCSP) in 2023 in accordance with the AECI-SPP JOA in which the JCSP is performed every other year. The 2024 JCSP study process has started early evaluating the reliability and robustness of the SPP and AECI transmission system and due to more frequent extreme winter weather conditions will include the extreme weather analysis from the 2024 ITP Assessment and AECI will included extreme winter weather analysis with power transfers in the 2024 AECI Long Range Plan Assessment.

In addition to work with MISO and AECI, SPP also participated in planning coordination the Southeastern Regional Transmission Planning (SERTP) group in accordance with Addendum 4 to Attachment O of the SPP Tariff.

### **20-Year Assessment**

The goal of the 2022 20-Year Assessment (20YA) is to develop a collection of extra high voltage (EHV) transmission projects for the SPP region to leverage in its integrated transmission planning process. The 20YA identifies economic and public policy EHV transmission projects further into the future that are needed to provide a grid flexible enough to provide benefits to the region across multiple scenarios. The assessment results in the identification of projects that economically deliver energy within the SPP region while addressing a reasonable range of future industry uncertainty. The resulting library of projects from the 20YA will provide a source of candidate projects that will inform the shorter-term ITP assessments for the purpose of injecting longer-term vision into those assessments. There are no Notifications to Construct (NTCs) requested for issuance from the 20YA.

[2022 20-YR Assessment Report v1.0](https://www.spp.org/engineering/transmission-planning/)

# ITP20 Upgrades

ITP20 assessments were performed in 2010, 2013, and 2022. While the projects proposed by those studies are incorporated into the STEP Project List, they were not included in SPP’s project tracking effort as part of the Quarterly Tracking Report prior to Q1 2019. A list of active ITP20 projects will be maintained in the STEP Report and Quarterly Project Tracking Report lists going forward. The 2013 ITP20 projects are listed below in Table 6. The 2022 ITP20 projects are listed below in Table 7.

| Project ID | Upgrade ID | Owner | Upgrade Name | Study | RTO Determined Need Date | Latest Cost Estimate |
| --- | --- | --- | --- | --- | --- | --- |
| 30401 | 50492 | TBD | Cass Co. - S.W. Omaha (aka S3454) 345 kV Ckt1 | 2013 ITP20 | 1/1/2033 | $33,126,800 |
| 30599 | 50769 | AEP | South Fayetteville 345/161 kV Transformer Ckt1 | 2013 ITP20 | 1/1/2033 | $12,600,000 |
| 30599 | 50770 | TBD | Chamber Springs - South Fayetteville 345 kV Ckt1 | 2013 ITP20 | 1/1/2033 | $21,295,800 |
| 30600 | 50771 | EMW | Maryville 345/161 kV Transformer Ckt1 | 2013 ITP20 | 1/1/2033 | $12,600,000 |
| 30602 | 50773 | TBD | Keystone - Red Willow 345 kV Ckt1 | 2013 ITP20 | 1/1/2033 | $130,141,000 |
| 30603 | 50774 | TBD | Tolk - Tuco 345 kV Ckt1 | 2013 ITP20 | 1/1/2033 | $75,718,400 |
| 30604 | 50775 | SEPC | Holcomb 345/115 kV Transformer Ckt2 | 2013 ITP20 | 1/1/2033 | $12,600,000 |
| 30605 | 50776 | TBD | Neosho - Wolf Creek 345 kV Ckt1 | 2013 ITP20 | 1/1/2033 | $117,126,900 |
| 30606 | 50777 | TBD | Clinton - Truman 161 kV Ckt1 Reconductor | 2013 ITP20 | 1/1/2033 | $15,701,325 |
| 30606 | 50778 | TBD | North Warsaw - Truman 161 kV Ckt1 Reconductor | 2013 ITP20 | 1/1/2033 | $1,082,850 |
| 30608 | 50779 | EKC | Auburn 345/115 kV Transformer Ckt2 | 2013 ITP20 | 1/1/2033 | $12,600,000 |
| 30608 | 50780 | TBD | Auburn - Swissvale 345 kV Ckt1 Voltage Conversion | 2013 ITP20 | 1/1/2033 | $20,112,700 |
| 30608 | 50781 | TBD | Auburn - Jeffrey EC 345 kV Ckt1 Voltage Conversion | 2013 ITP20 | 1/1/2033 | $35,493,000 |
| 30607 | 50782 | OGE | Muskogee/Pecan Creek 345 kV Terminal Upgrades | 2013 ITP20 | 1/1/2033 | $34,605,675 |
| 14 Total Projects | **$534,804,450** |

Table 6: 2013 ITP20 Upgrades

| Project ID | Upgrade ID | Owner | Upgrade Name | Study | RTO Determined Need Date | Latest Cost Estimate |
| --- | --- | --- | --- | --- | --- | --- |
| 93109 | 157811 | TBD | Ft. Smith - Thistle 345 kV CKT 1 | 2022 20 Year Assessment | 1/1/2042 | $461,160,280 |
| 93109 | 158510 | OGE | Ft. Smith 345 kV Terminal Equipment | 2022 20 Year Assessment | 1/1/2042 | $2,428,753 |
| 93109 | 158511 | SEPC | Thistle 345 kV Terminal Equipment | 2022 20 Year Assessment | 1/1/2042 | $2,428,753 |
| 93110 | 157812 | TBD | Flint Creek - Buffalo Flats 345 kV | 2022 20 Year Assessment | 1/1/2042 | $349,831,855 |
| 93110 | 158512 | EM | Buffalo Flats 345 kV Terminal Equipment | 2022 20 Year Assessment | 1/1/2042 | $2,428,753 |
| 93110 | 158513 | AEP | Flint Creek 345 kV Terminal Equipment | 2022 20 Year Assessment | 1/1/2042 | $2,428,753 |
| 93111 | 157813 | OGE | Ft Smith - Sooner 345 kV CKT 1 | 2022 20 Year Assessment | 1/1/2042 | $290,563,847 |
| 93111 | 158514 | OGE | Ft. Smith 345 kV Terminal Equipment #2 | 2022 20 Year Assessment | 1/1/2042 | $2,428,753 |
| 93111 | 158515 | OGE | Sooner 345 kV Terminal Equipment | 2022 20 Year Assessment | 1/1/2042 | $2,428,753 |
| 93113 | 157905 | TBD | Huben - Lacygne 345 kV Ckt 1 New Line | 2022 20 Year Assessment | 1/1/2042 | $198,791,206 |
| 93113 | 158520 | AECI | Huben 345 kV Terminal Equipment | 2022 20 Year Assessment | 1/1/2042 | $2,428,753 |
| 93113 | 158521 | EM | Lacygne 345 kV Terminal Equipment | 2022 20 Year Assessment | 1/1/2042 | $2,428,753 |
| 93114 | 157824 | TBD | Riverside Station - Matthewson 345 kV (OGE) | 2022 20 Year Assessment | 1/1/2042 | $180,577,999 |
| 93114 | 158522 | OGE | Matthewson 345 kV Terminal Equipment | 2022 20 Year Assessment | 1/1/2042 | $2,428,753 |
| 93114 | 158523 | AEP | Riverside Station 345 kV Terminal Equipment | 2022 20 Year Assessment | 1/1/2042 | $2,428,753 |
| 93115 | 157825 | SPS | Potter County Interchange - Tolk Station 345 kV | 2022 20 Year Assessment | 1/1/2042 | $147,667,045 |
| 93115 | 158524 | SPS | Potter County Interchange 345 kV Terminal Equipment | 2022 20 Year Assessment | 1/1/2042 | $2,428,753 |
| 93115 | 158525 | SPS | Tolk Station 345 kV Terminal Equipment | 2022 20 Year Assessment | 1/1/2042 | $2,428,753 |
| 93116 | 157826 | MDU | Twin Brooks 3 to Ellendale 3 345 kV Tap | 2022 20 Year Assessment | 1/1/2042 | $16,467,621 |
| 93116 | 157827 | WAPA | Groton Tap - Groton 345 kV | 2022 20 Year Assessment | 1/1/2042 | $32,935,242 |
| 93116 | 157828 | WAPA | Broadland - Groton 345 kV | 2022 20 Year Assessment | 1/1/2042 | $32,935,242 |
| 93116 | 157873 | TBD | Twin Brooks 3 to Ellendale 3 345 kV Tap (OTP) | 2022 20 Year Assessment | 1/1/2042 | $16,467,621 |
| 93116 | 157875 | WAPA | Groton Tap 345 kV Sub | 2022 20 Year Assessment | 1/1/2042 | $0 |
| 93117 | 157829 | EM | Sibley - Nashua 345 kV | 2022 20 Year Assessment | 1/1/2042 | $43,969,609 |
| 93117 | 158526 | EM | Nashua 345 kV terminal Equipment | 2022 20 Year Assessment | 1/1/2042 | $2,428,753 |
| 93117 | 158527 | EM | Sibley 345 kV Terminal Equipment | 2022 20 Year Assessment | 1/1/2042 | $2,428,753 |
| 93120 | 157846 | TBD | Sibley - Hawthorn 345 kV CKT 2 | 2022 20 Year Assessment | 1/1/2042 | $25,368,257 |
| 93120 | 158530 | AEP | Hawthorn 345 kV Terminal Equipment #2 | 2022 20 Year Assessment | 1/1/2042 | $2,428,753 |
| 93120 | 158531 | EM | Sibley 345 kV Terminal Equipment #2 | 2022 20 Year Assessment | 1/1/2042 | $2,428,753 |
| 93121 | 157847 | WFEC | Anadarko 345/138 kV Transformer | 2022 20 Year Assessment | 1/1/2042 | $4,891,214 |
| 93121 | 157848 | TBD | Anadarko - Gracemont 345 kV | 2022 20 Year Assessment | 1/1/2042 | $5,619,548 |
| 93121 | 157849 | WFEC | Anadarko - Gracemont 345 kV (WFEC) | 2022 20 Year Assessment | 1/1/2042 | $5,619,547 |
| 93121 | 157850 | WFEC | Anadarko 345 kV Substation | 2022 20 Year Assessment | 1/1/2042 | $13,972,613 |
| 93121 | 122591 | OGE | Gracemont 345 kV Terminal Equipment | 2022 20 Year Assessment | 1/1/2042 | $0 |
| 93122 | 157851 | TBD | Cimarron - Norman Hill 345 kV CKT 2 | 2022 20 Year Assessment | 1/1/2042 | $20,616,250 |
| 93122 | 158532 | OGE | Cimarron 345 kV Terminal Equipment | 2022 20 Year Assessment | 1/1/2042 | $2,428,753 |
| 93122 | 158533 | OGE | Norman Hill 345 kV Terminal Equipment | 2022 20 Year Assessment | 1/1/2042 | $2,428,753 |
| 37 Total Projects | **$1,891,172,550** |

Table 7: 2022 ITP20 Upgrades

# Appendix 1

*(See accompanying list of STEP Projects)*

1. [SPP OATT Business Practices](https://spp.org/spp-documents-filings/?id=18162) [↑](#footnote-ref-1)
2. Pursuant to RR 467, all Upgrades resulting from under attachment AQ are tracked independently of transmission service upgrades as of 6/1/2022 [↑](#footnote-ref-2)
3. There are no Generator Retirement, Balanced Portfolio or Interregional projects included in the STEP report. [↑](#footnote-ref-3)
4. Mileage not available for all upgrade categories. [↑](#footnote-ref-4)
5. Documents contains ILTCR information [↑](#footnote-ref-5)