



2022 SPP TRANSMISSION EXPANSION PLAN REPORT

By SPP Engineering

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REVISION HISTORY

| DATE OR VERSION NUMBER | AUTHOR | CHANGE DESCRIPTION | COMMENTS |
|------------------------|-----------|------------------------------------|----------|
| 4/11/2022 | SPP Staff | Approved by MOPC | |
| 4/26/2022 | SPP Staff | Approved by SPP Board of Directors | |
| | | | |

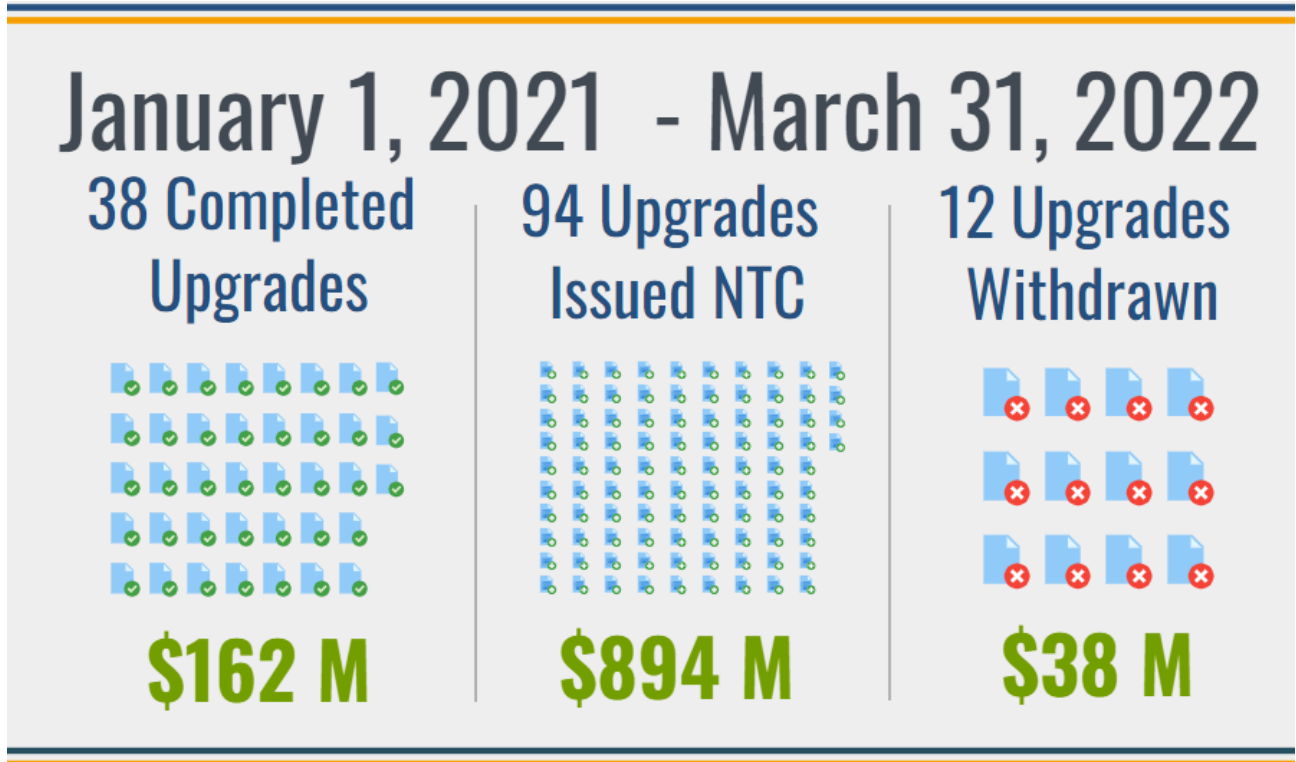
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EXECUTIVE SUMMARY



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 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. Approved projects from the Integrated Transmission Planning Assessment (ITP)
4. Upgrades within approved Balanced Portfolios (BP)²
5. Approved High Priority Upgrades (HP)
6. Endorsed Sponsored Upgrades (SP)
7. Approved Interregional Upgrades (IR)²
8. Approved projects from the ITP 20-Year Assessment (ITP20)
9. Approved projects from Generator Retirement Process (GR)²

¹ [SPP OATT Business Practices](#)

² There are currently no Balanced Portfolio Upgrades, Interregional Upgrades or Generator Retirement upgrades included in the STEP.

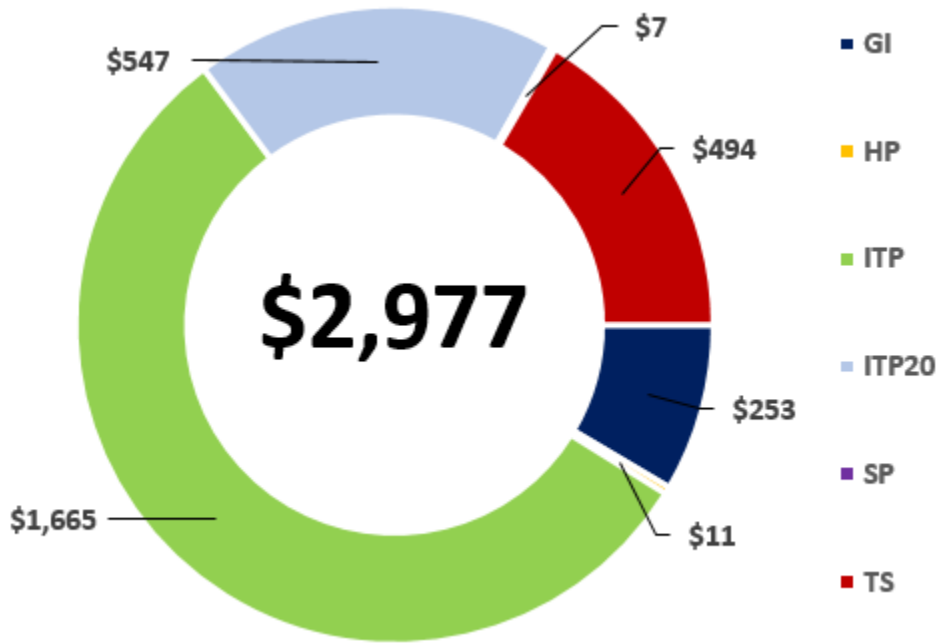


Figure 1: STEP Upgrades by Type (\$ Millions)

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](#)). 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](#).

PORTFOLIO SUMMARY

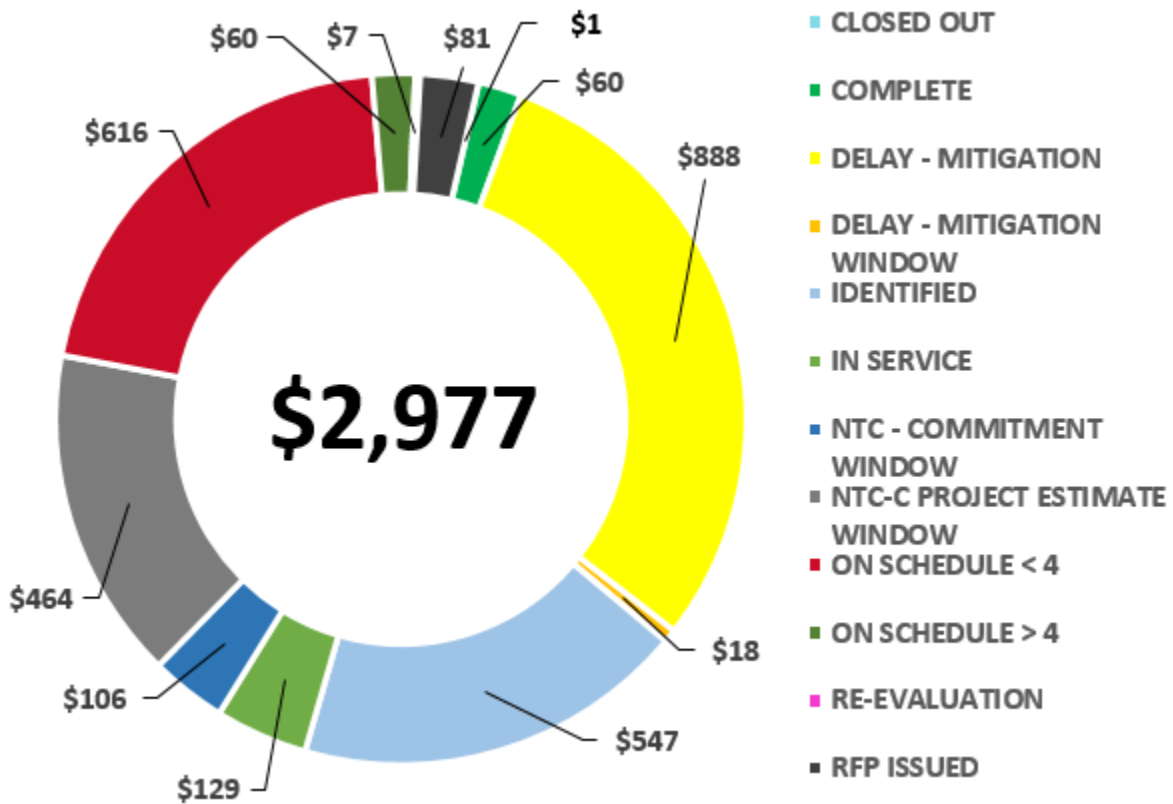


Figure 2: STEP Upgrades by Status (\$ Millions)

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

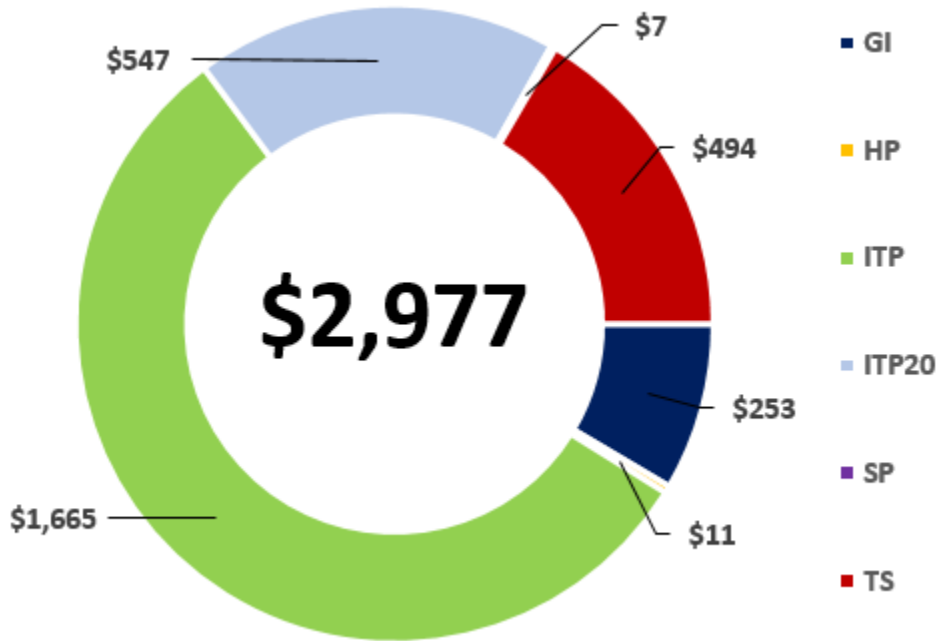


Figure 3: STEP Upgrades by Type (\$ Millions)

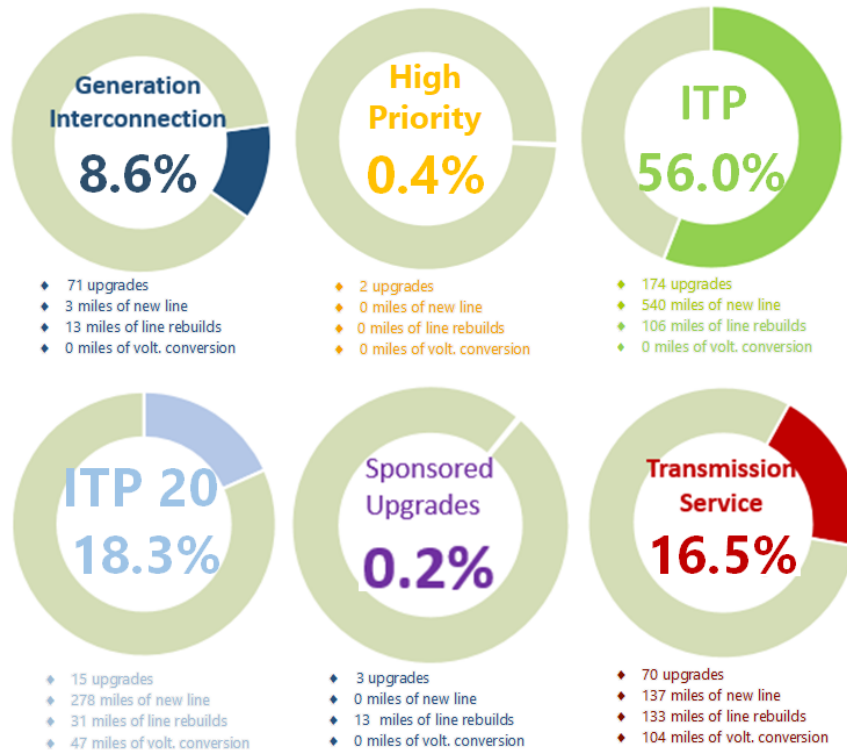


Figure 4: Upgrade Summary by Type³

³ Mileage not available for all upgrade categories.

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), included in an approved ITP 20-Year Assessment, 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.

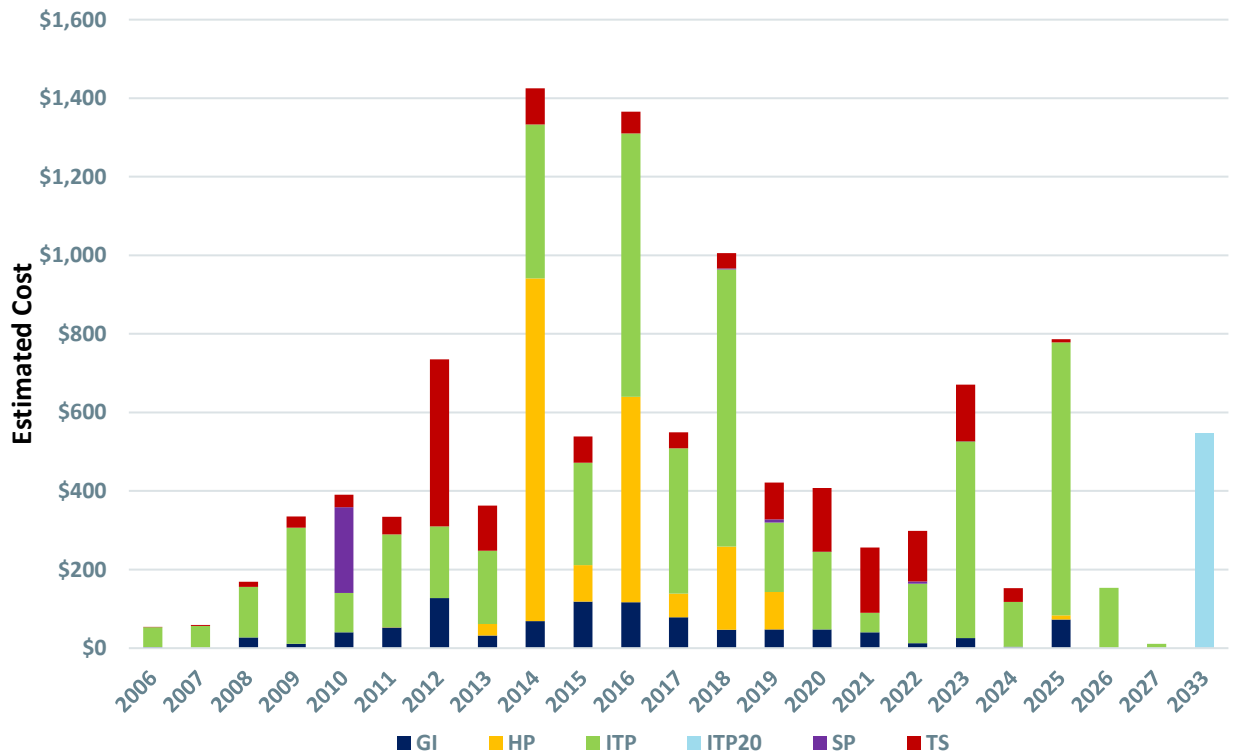


Figure 5: Upgrade Cost by In-Service Year (\$ Millions)

| Source Study | Complete | Delayed | Suspended | On Schedule | Identified | Total |
|--------------------|----------------|--------------|------------|----------------|--------------|-----------------|
| 2006 STEP | \$189 | \$0 | \$0 | \$0 | \$0 | \$189 |
| 2007 STEP | \$494 | \$0 | \$0 | \$0 | \$0 | \$494 |
| 2008 STEP | \$413 | \$0 | \$0 | \$0 | \$0 | \$413 |
| Balanced Portfolio | \$823 | \$0 | \$0 | \$0 | \$0 | \$823 |
| 2009 STEP | \$548 | \$0 | \$0 | \$0 | \$0 | \$548 |
| Priority Projects | \$1,318 | \$0 | \$0 | \$0 | \$0 | \$1,318 |
| 2010 STEP | \$116 | \$0 | \$0 | \$0 | \$0 | \$116 |
| 2012 ITPNT | \$184 | \$0 | \$0 | \$0 | \$0 | \$184 |
| 2012 ITP10 | \$365 | \$451 | \$0 | \$0 | \$0 | \$816 |
| 2013 ITPNT | \$489 | \$0 | \$0 | \$0 | \$0 | \$489 |
| 2013 ITP20 | \$0 | \$0 | \$0 | \$0 | \$547 | \$547 |
| 2014 ITPNT | \$439 | \$0 | \$0 | \$0 | \$0 | \$439 |
| HPILS | \$569 | \$11 | \$0 | \$0 | \$0 | \$580 |
| 2015 ITPNT | \$196 | \$0 | \$0 | \$0 | \$0 | \$196 |
| 2015 ITP10 | \$44 | \$0 | \$0 | \$0 | \$0 | \$44 |
| IS Integration | \$272 | \$0 | \$0 | \$0 | \$0 | \$272 |
| 2016 ITPNT | \$401 | \$49 | \$0 | \$0 | \$0 | \$450 |
| 2017 ITP10 | \$10 | \$0 | \$0 | \$0 | \$0 | \$11 |
| 2017 ITPNT | \$52 | \$2 | \$0 | \$0 | \$0 | \$53 |
| 2018 ITPNT | \$30 | \$21 | \$0 | \$0 | \$0 | \$52 |
| 2019 ITP | \$11 | \$88 | \$0 | \$208 | \$0 | \$306 |
| 2020 ITP | \$34 | \$81 | \$0 | \$192 | \$0 | \$307 |
| 2021 ITP | \$0 | \$0 | \$0 | \$532 | \$0 | \$532 |
| Ag Studies | \$864 | \$1 | \$0 | \$83 | \$0 | \$948 |
| DPA Studies | \$454 | \$257 | \$0 | \$34 | \$0 | \$746 |
| GI Studies | \$863 | \$7 | \$0 | \$172 | \$0 | \$1,042 |
| Sponsored Upgrade | \$11 | \$0 | \$0 | \$6 | \$0 | \$17 |
| Total | \$9,188 | \$967 | \$0 | \$1,228 | \$547 | \$11,931 |

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

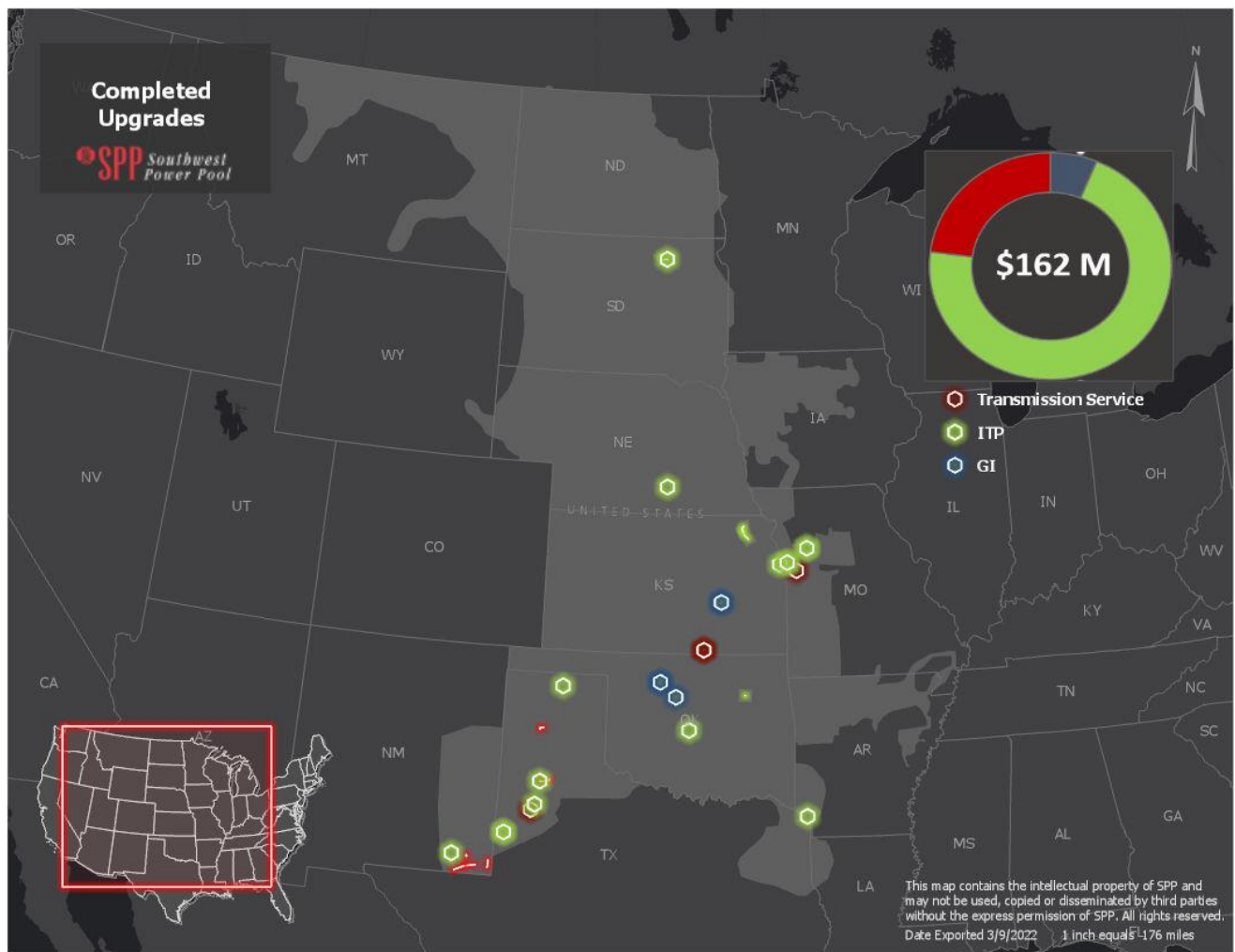


Figure 6: Completed Upgrades

| NTC ID | IN SERVICE DATE | UID | OWNER | UPGRADE NAME | SOURCE STUDY | COST ESTIMATE |
|--------|-----------------|--------|-------|---|-----------------------|---------------|
| 200365 | 6/1/2021 | 51410 | SPS | Jal - Teague 115 kV Ckt 1 Rebuild | SPP-2014-AG1-AFS-6 | \$0 |
| 200420 | 5/15/2021 | 50943 | SPS | Northwest - Rolling Hills 115 kV Rebuild Ckt 1 | SPP-2015-AG1-AFS-6 | \$5,521,713 |
| 200420 | 4/15/2021 | 51565 | SPS | Livingston Ridge - Wipp 115 kV Ckt 1 Rebuild | SPP-2015-AG1-AFS-6 | \$324,414 |
| 200420 | 6/1/2021 | 51567 | SPS | Carlsbad - Pecos 115 kV Terminal Upgrades | SPP-2015-AG1-AFS-6 | \$0 |
| 200421 | 4/15/2021 | 50922 | SPS | Wolfforth 230/115 kV Ckt 1 Transformer | SPP-2015-AG2-AFS-3 | \$4,271,874 |
| 200444 | 3/28/2021 | 51625 | SPS | Indiana - SP-Erskine 115 kV Terminal Upgrades | 2017 ITP10 | \$108,657 |
| 200457 | 4/15/2021 | 51818 | SPS | Cox Interchange - Hale Co Interchange 115 kV Ckt 1 | SPP-2016-AG1-AFS-3 | \$13,785,357 |
| 200466 | 2/25/2021 | 71958 | EKC | Creswell (CRSW TX-1) 138/69/13.2 kV Transformer Ckt 1 | SPP-2016-AG2-AFS-1 | \$3,513,227 |
| 200466 | 4/29/2021 | 71959 | EKC | Creswell (CRSW TX-2) 138/69/13.2 kV Transformer Ckt 2 | SPP-2016-AG2-AFS-1 | \$3,288,745 |
| 210507 | 11/15/2021 | 92153 | SPS | Bopco - Road Runner 345 kV Ckt 1 New Line | DPA-2017-November-808 | \$36,646,140 |
| 210507 | 11/15/2021 | 92154 | SPS | Bopco - China Draw 345 kV Ckt 1 New Line | DPA-2017-November-808 | \$32,405,135 |
| 210507 | 11/15/2021 | 102153 | SPS | Bopco 345/115 kV Ckt 1 Transformer | DPA-2017-November-808 | \$5,718,715 |
| 210507 | 11/15/2021 | 102154 | SPS | Bopco 345/115 kV Ckt 2 Transformer | DPA-2017-November-808 | \$5,962,651 |
| 210507 | 11/15/2021 | 102157 | SPS | Bopco 345 kV Substation | DPA-2017-November-808 | \$6,341,420 |
| 210538 | 1/1/2021 | 112367 | NPPD | Hastings 115 kV Breakers | 2019 ITP | \$434,289 |
| 210539 | 6/30/2021 | 112369 | EM | Craig 161 kV Breaker | 2019 ITP | \$259,864 |
| 210539 | 12/31/2021 | 112372 | EM | Southtown 161 kV Breakers | 2019 ITP | \$1,348,442 |
| 210540 | 6/1/2021 | 112358 | OGE | Westmoore 138 kV Breakers | 2019 ITP | \$271,289 |
| 210541 | 4/29/2021 | 112362 | SPS | Carlsbad Interchange 115 kV Breaker | 2019 ITP | \$601,516 |
| 210541 | 5/30/2021 | 112363 | SPS | Hale County Interchange 115 kV Breakers | 2019 ITP | \$257,408 |
| 210541 | 3/15/2021 | 112364 | SPS | Denver City Interchange North 115 kV Breaker | 2019 ITP | \$387,425 |

| NTC ID | IN SERVICE DATE | UID | OWNER | UPGRADE NAME | SOURCE STUDY | COST ESTIMATE |
|--------------------------------|-----------------|--------|-------|--|----------------------------|----------------------|
| 210541 | 3/15/2021 | 112365 | SPS | Denver City Interchange South 115 kV Breakers | 2019 ITP | \$478,433 |
| 210541 | 4/15/2021 | 112433 | SPS | Hansford - Spearman 115 kV Rebuild | 2019 ITP | \$558,937 |
| 210544 | 11/17/2021 | 112393 | AEP | Tulsa SE - 21st Street Tap 138 kV Ckt 1 | 2019 ITP | \$2,201,381 |
| 210556 | 4/13/2021 | 112187 | OGE | Henessey 138 kV Ckt 1 Terminal Upgrades | Generation Interconnection | \$119,147 |
| 210577 | 11/1/2021 | 112500 | EREC | Aberdeen Jct - Richmond 115 kV Ckt 1 (EREC) | 2020 ITP | \$4,319,598 |
| 210577 | 11/1/2021 | 122511 | EREC | Richmond 115/69 kV Transformer | 2020 ITP | \$1,068,027 |
| 210577 | 11/1/2021 | 122512 | EREC | Richmond 69 kV Capacitor Bank | 2020 ITP | \$219,100 |
| 210577 | 11/1/2021 | 132894 | EREC | Richmond 69 kV Substation | 2020 ITP | \$5,658,500 |
| 210580 | 7/2/2021 | 122812 | EKC | Circleville - Goff 115 kV Ckt 1 Rebuild | 2020 ITP | \$14,232,227 |
| 210580 | 6/18/2021 | 122814 | EKC | Goff - Kelly 115 kV Ckt 1 Rebuild | 2020 ITP | \$5,483,173 |
| 210583 | 12/22/2021 | 122808 | EM | Southtown 161 kV Breaker | 2020 ITP | \$389,812 |
| 210584 | 12/31/2021 | 132893 | NWE | Aberdeen Junction 115 kV Terminal Upgrades | 2020 ITP | \$989,393 |
| 210590 | 4/23/2021 | 143184 | EMW | Pleasant Hill 161kV and Lake Winnebago 161 kV Terminal Upgrades | SPP-2020-AG1-AFS-3 | \$483,586 |
| | 7/8/2021 | 51338 | EKC | Burns 345kV (GEN-2014-001 NU) ⁴ | Generation Interconnection | \$2,098,946 |
| | 7/28/2021 | 51360 | EKC | Tap Emporia Energy Center - Wichita 345kV (GEN-2014-001 TOIF) ⁴ | Generation Interconnection | \$1,674,997 |
| | 3/11/2021 | 71951 | OGE | Cleo Corner 138kV GEN-2015-048 Addition (TOIF) ⁴ | Generation Interconnection | \$410,000 |
| | 3/11/2021 | 71953 | OGE | Cleo Corner - Cleo Plant Tap 138kV Ckt 1 ⁴ | Generation Interconnection | \$61,890 |
| 38 Upgrade(s) Completed | | | | | | \$161,895,428 |

Table 2: Completed Upgrades

⁴ Per SPP Business Practice 7060 Section 3.4, SPP will not issue NTCs for identified project(s) associated with Generation Interconnection Agreements where the affected TO is a party to the GIA, these details for Generation Interconnection projects, along with the cost responsibilities, are identified in the GIA.

UPGRADES APPROVED FOR CONSTRUCTION

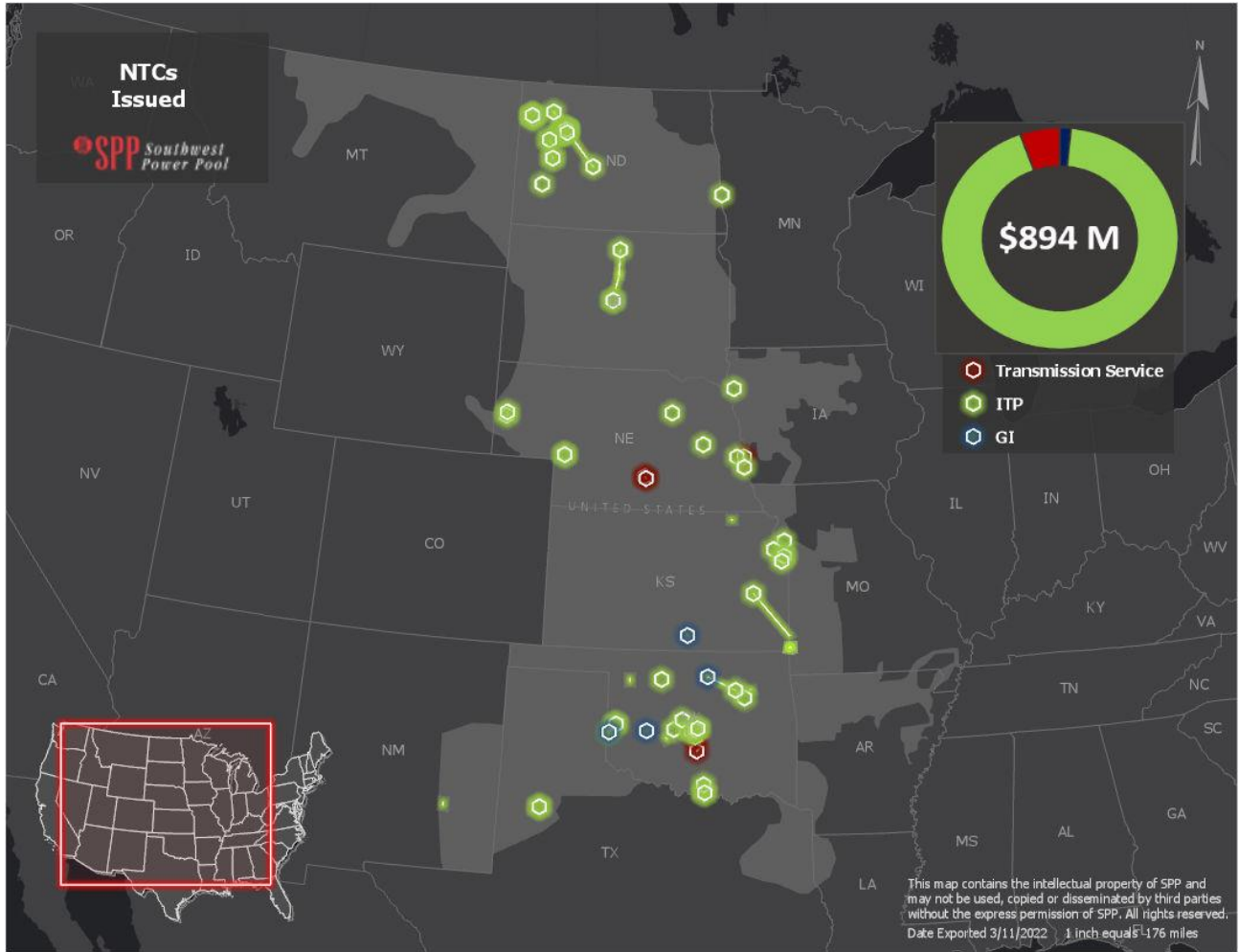


Figure 7: NTCs Issued

| NTC ID | NTC ISSUE DATE | UID | OWNER | UPGRADE NAME | SOURCE STUDY | COST ESTIMATE OF NEW UPGRADES | COST ESTIMATE OF PREVIOUSLY APPROVED UPGRADES |
|--------|----------------|--------|-------|--|----------------------|-------------------------------|---|
| 210592 | 1/21/21 | 112509 | WR | Wolf Creek - Blackberry 345kV Terminal Equipment | 2019 ITP | \$10,056,365 | \$0 |
| 210593 | 2/10/21 | 112458 | TSOK | Sooner - Wekiwa 345 kV New Line | 2019 ITP | \$0 | \$97,111,851 |
| 210600 | 2/16/21 | 143177 | OPPD | S1260 - S1362 161 kV Ckt 1 Rebuild | DPA-2018-October-949 | \$858,928 | \$0 |

| NTC ID | NTC ISSUE DATE | UID | OWNER | UPGRADE NAME | SOURCE STUDY | COST ESTIMATE OF NEW UPGRADES | COST ESTIMATE OF PREVIOUSLY APPROVED UPGRADES |
|--------|----------------|--------|-------|--|----------------------------------|-------------------------------|---|
| 210600 | 2/16/21 | 143178 | OPPD | S3456 to S3458 345 kV Ckt 1 Terminal Upgrades | DPA- 2018- October- 949 | \$100,000 | \$0 |
| 210600 | 2/16/21 | 143179 | OPPD | S3455 to S3740 345 kV CKT1 Rebuild | DPA- 2018- October- 949 | \$600,000 | \$0 |
| 210605 | 3/2/21 | 112383 | EKC | Multi-Marshall County - Baileyville - South Seneca 115 kV | 2019 ITP | \$0 | \$2,528,868 |
| 210606 | 3/4/21 | 122637 | EKC | Spring Creek 345 kV (GEN-2016- 119) | DISIS- 2016-002 | \$16,625 | \$0 |
| 210609 | 5/17/21 | 122537 | OGE | Border 345kV Capacitive Reactive Support | DISIS- 2016-002 | \$3,996,000 | \$0 |
| 210611 | 5/17/21 | 112307 | AEP | Oklahoma 345 kV Capacitive Reactive Power Support | DISIS- 2016-002 | \$9,453,182 | \$0 |
| 210615 | 5/17/21 | 50724 | SPS | Capitan - CV Pines 115 kV Ckt 1 Rebuild | 2014 ITPNT | \$0 | \$1,741,345 |
| 210616 | 6/4/21 | 122848 | OGE | Minco 345 kV Terminal Equipment | 2020 ITP | \$2,500,000 | \$0 |
| 210616 | 6/4/21 | 122849 | OGE | Pleasant Valley 345 kV Substation | 2020 ITP | \$21,500,000 | \$0 |
| 210616 | 6/4/21 | 122850 | OGE | Pleasant Valley 345/138 kV Transformer Ckt 1 | 2020 ITP | \$4,225,000 | \$0 |
| 210616 | 6/4/21 | 122851 | OGE | Pleasant Valley 345/138 kV Transformer Ckt 2 | 2020 ITP | \$4,225,000 | \$0 |
| 210616 | 6/4/21 | 122858 | OGE | Cimarron - Draper 345 kV Terminal Upgrades #2 | 2020 ITP | \$2,288,668 | \$0 |
| 210616 | 6/4/21 | 143176 | OGE | Draper 345 kV Terminal Equipment | 2020 ITP | \$2,288,668 | \$0 |

| NTC ID | NTC ISSUE DATE | UID | OWNER | UPGRADE NAME | SOURCE STUDY | COST ESTIMATE OF NEW UPGRADES | COST ESTIMATE OF PREVIOUSLY APPROVED UPGRADES |
|--------|----------------|--------|-------|---|------------------------|-------------------------------|---|
| 210612 | 6/8/21 | 122674 | OGE | Renfrow 345 kV Relay Setting Adjustment | DISIS-2016-002 | \$15,000 | \$0 |
| 210617 | 10/11/21 | 143253 | WFEC | Paoli - Lexington kV 138 kV | DPA-2020-May-1203 | \$7,865,000 | \$0 |
| 210617 | 10/11/21 | 143254 | WFEC | Lexington - Lil Axe 138 kV | DPA-2020-May-1203 | \$5,340,500 | \$0 |
| 210617 | 10/11/21 | 143255 | WFEC | Paoli 138 kV Terminal Upgrades | DPA-2020-May-1203 | \$450,000 | \$0 |
| 210617 | 10/11/21 | 143256 | WFEC | Canadian Switch 138 kV Terminal Upgrades | DPA-2020-May-1203 | \$500,000 | \$0 |
| 210618 | 11/4/21 | 50446 | NPPD | Holt Co. Substation 345 kV | 2012 ITP10 | \$0 | \$577,000 |
| 210619 | 11/4/21 | 143705 | NPPD | Kearney NE - Tower 115 kV Ckt 1 New Line | DPA-2021-February-1278 | \$11,250,834 | \$0 |
| 210619 | 11/4/21 | 144283 | NPPD | Tower 115 kV Terminal Equipment | DPA-2021-February-1278 | \$374,583 | \$0 |
| 210619 | 11/4/21 | 144284 | NPPD | Kearney 115 kV Terminal Equipment | DPA-2021-February-1278 | \$374,583 | \$0 |
| 210623 | 11/5/21 | 112360 | AEP | Riverside Station 138 kV Breakers | 2019 ITP | \$0 | \$41,100,000 |
| 210627 | 11/5/21 | 122796 | AEP | Chisholm Substation 345 kV Terminal Upgrades | 2020 ITP | \$8,370,000 | \$0 |
| 210627 | 11/5/21 | 143182 | AEP | Chisholm - Woodward - Border 345 kV Ckt 1 (AEP) | 2020 ITP | \$1,259,660 | \$0 |

| NTC ID | NTC ISSUE DATE | UID | OWNER | UPGRADE NAME | SOURCE STUDY | COST ESTIMATE OF NEW UPGRADES | COST ESTIMATE OF PREVIOUSLY APPROVED UPGRADES |
|--------|----------------|--------|-------|--|------------------------|-------------------------------|---|
| 210628 | 11/5/21 | 122823 | OGE | Border - Woodward Tap 345 kV Substation | 2020 ITP | \$11,500,000 | \$0 |
| 210628 | 11/5/21 | 122824 | OGE | Chisholm - Woodward - Border 345 kV Ckt 1 (OGE) | 2020 ITP | \$2,220,833 | \$0 |
| 210588 | 11/17/21 | 122766 | OGE | Anadarko - Gracemont 138kV Ckt 1 Rebuild (OGE) | 2020 ITP | \$3,037,502 | \$0 |
| 210626 | 12/3/21 | 122598 | NEET | Blackberry - Wolf Creek 345 kV | 2019 ITP | \$85,168,938 | \$0 |
| 210630 | 1/31/22 | 122601 | OGE | Gracemont - Lawton East Side 345 kV Terminal Equipment | DISIS-2016-002 | \$10,000 | \$0 |
| 210631 | 1/31/22 | 122667 | OGE | Redbud 345kV | DISIS-2016-002 | \$15,000 | \$0 |
| 210643 | 2/25/22 | 143127 | OGE | Gracemont 345 kV | DISIS-2017-001 | \$15,000 | \$0 |
| 210659 | 3/8/22 | 144206 | SPS | Wilco 115 kV Substation | DPA-2021-Feb-1279-1280 | \$9,225,928 | \$0 |
| 210659 | 3/8/22 | 144207 | SPS | Twist 115 kV Substation | DPA-2021-Feb-1279-1280 | \$8,909,901 | \$0 |
| 210659 | 3/8/22 | 144208 | SPS | Twist - Wilco 115 kV Ckt 1 | DPA-2021-Feb-1279-1280 | \$2,678,226 | \$0 |
| 210633 | 3/10/22 | 143591 | AEP | Blue Circle - Catoosa 69 kV Ckt 1 Rebuild | 2021 ITP | \$9,020,000 | \$0 |
| 210637 | 3/10/22 | 143663 | EKC | Jarbalo Junction 115 kV Breaker | 2021 ITP | \$267,179 | \$0 |

| NTC ID | NTC ISSUE DATE | UID | OWNER | UPGRADE NAME | SOURCE STUDY | COST ESTIMATE OF NEW UPGRADES | COST ESTIMATE OF PREVIOUSLY APPROVED UPGRADES |
|--------|----------------|--------|-------|---|--------------|-------------------------------|---|
| 210645 | 3/11/22 | 122739 | NPPD | Columbus East 230/115 kV transformer | 2021 ITP | \$4,600,000 | \$0 |
| 210645 | 3/11/22 | 122741 | NPPD | Scottsbluff - Victory Hill 115kV Ckt 2 | 2021 ITP | \$6,910,000 | \$0 |
| 210645 | 3/11/22 | 143599 | NPPD | Scottsbluff 115 kV Ckt 2 Terminal Upgrades | 2021 ITP | \$1,010,000 | \$0 |
| 210645 | 3/11/22 | 143600 | NPPD | Victory Hill 115 kV Ckt 2 Terminal Upgrades | 2021 ITP | \$950,000 | \$0 |
| 210645 | 3/11/22 | 144143 | NPPD | Ogallala - Ogallala (NPPD) 115 kV Ckt 1 | 2021 ITP | \$280,000 | \$0 |
| 210646 | 3/10/22 | 143660 | OPPD | S3454 - S3740 345 kV New Line | 2021 ITP | \$38,380,095 | \$0 |
| 210646 | 3/10/22 | 143661 | OPPD | S3454 345 kV Terminal Upgrades | 2021 ITP | \$1,624,037 | \$0 |
| 210646 | 3/10/22 | 143662 | OPPD | S3740 345 kV Terminal Upgrades | 2021 ITP | \$1,680,146 | \$0 |
| 210647 | 3/10/22 | 143664 | EM | Shawnee Mission 161 kV | 2021 ITP | \$255,075 | \$0 |
| 210647 | 3/10/22 | 143665 | EM | Shawnee Mission 161 kV Breaker | 2021 ITP | \$255,075 | \$0 |
| 210647 | 3/10/22 | 143666 | EM | Craig 161 kV Breaker #2 | 2021 ITP | \$319,002 | \$0 |
| 210650 | 3/11/22 | 122733 | BEPC | Whitlock 230 kV Terminal Upgrades | 2021 ITP | \$614,000 | \$0 |
| 210655 | 3/10/22 | 143587 | EMW | Platte City 161 kV Terminal Upgrade | 2021 ITP | \$51,502 | \$0 |
| 210639 | 3/11/22 | 122735 | EREC | Sully Buttes 230 kV Terminal Upgrades | 2021 ITP | \$1,528,722 | \$0 |
| 210640 | 3/11/22 | 143667 | MRES | Moorehead 230 kV Substation Reconfiguration | 2021 ITP | \$7,935,000 | \$0 |
| 210641 | 3/11/22 | 143980 | NIPCO | Hinton 69 kV Terminal Equipment | 2021 ITP | \$168,228 | \$0 |

| NTC ID | NTC ISSUE DATE | UID | OWNER | UPGRADE NAME | SOURCE STUDY | COST ESTIMATE OF NEW UPGRADES | COST ESTIMATE OF PREVIOUSLY APPROVED UPGRADES |
|--------|----------------|--------|-------|--|--------------|-------------------------------|---|
| 210642 | 3/10/22 | 112399 | SPS | Lubbock South - Jones 230 kV Ckt 1 Terminal Upgrades | 2021 ITP | \$238,289 | \$0 |
| 210642 | 3/10/22 | 112401 | SPS | Lubbock South - Jones 230kV Ckt 2 Terminal Upgrades | 2021 ITP | \$397,668 | \$0 |
| 210644 | 3/11/22 | 144220 | TSGT | Ogallala - Ogallala 115 kV Ckt 1 (TSGT) | 2021 ITP | \$153,392 | \$0 |
| 210648 | 3/11/22 | 122734 | WAPA | Oahe 230 kV Terminal Upgrades (WAPA) | 2021 ITP | \$650,000 | \$0 |
| 210648 | 3/11/22 | 143613 | WAPA | Sully Buttes - Whitlock 230 kV Line Clearance Increase | 2021 ITP | \$2,068,000 | \$0 |
| 210648 | 3/11/22 | 143614 | WAPA | Whitlock - Glenham 230 kV Clearance Increase | 2021 ITP | \$5,789,000 | \$0 |
| 210652 | 3/11/22 | 143588 | BEPC | Kummer Ridge - Round Up 345 kV | 2021 ITP | \$72,919,000 | \$0 |
| 210652 | 3/11/22 | 143589 | BEPC | Kummer Ridge 345 kV Terminal Upgrades | 2021 ITP | \$342,000 | \$0 |
| 210652 | 3/11/22 | 143590 | BEPC | Round Up 345 kV Terminal Upgrades | 2021 ITP | \$342,000 | \$0 |
| 210652 | 3/11/22 | 143714 | BEPC | Finstad - Tande 345 kV New Line | 2021 ITP | \$72,000,000 | \$0 |
| 210652 | 3/11/22 | 144171 | BEPC | Judson - Tande 345 kV Tap Line | 2021 ITP | \$22,500,000 | \$0 |
| 210652 | 3/11/22 | 144198 | BEPC | XFR 345/115 kV Eastfork (115 kV) | 2021 ITP | \$5,000,000 | \$0 |
| 210652 | 3/11/22 | 144227 | BEPC | Finstad 115 kV Terminal Equipment #2 | 2021 ITP | \$2,334,441 | \$0 |
| 210652 | 3/11/22 | 144230 | BEPC | Finstad 345 kV New Substation | 2021 ITP | \$12,000,000 | \$0 |
| 210652 | 3/11/22 | 144231 | BEPC | Finstad Switched Shunt | 2021 ITP | \$1,500,000 | \$0 |

| NTC ID | NTC ISSUE DATE | UID | OWNER | UPGRADE NAME | SOURCE STUDY | COST ESTIMATE OF NEW UPGRADES | COST ESTIMATE OF PREVIOUSLY APPROVED UPGRADES |
|--------|----------------|--------|-------|--|--------------|-------------------------------|---|
| 210652 | 3/11/22 | 144233 | BEPC | Finstad 345/115 kV Ckt 2 Transformer | 2021 ITP | \$5,000,000 | \$0 |
| 210652 | 3/11/22 | 144235 | BEPC | Finstad 345/115 kV Ckt1 Transformer (115 kV) | 2021 ITP | \$5,000,000 | \$0 |
| 210652 | 3/11/22 | 144236 | BEPC | Leland Olds - Finstad - 345 kV New Line | 2021 ITP | \$184,000,000 | \$0 |
| 210652 | 3/11/22 | 144237 | BEPC | Leland Olds 345 kV Terminal Equipment | 2021 ITP | \$2,500,000 | \$0 |
| 210652 | 3/11/22 | 144238 | BEPC | Tande 345 kV Terminal Equipment | 2021 ITP | \$2,500,000 | \$0 |
| 210653 | 3/11/22 | 144148 | MWE | E Newtown 115 kV New Statcom | 2021 ITP | \$19,500,000 | \$0 |
| 210653 | 3/11/22 | 144163 | MWE | Folvag 115 kV Terminal Equipment | 2021 ITP | \$500,000 | \$0 |
| 210653 | 3/11/22 | 144177 | MWE | NE Williston - Folvag 115 kV New Line | 2021 ITP | \$3,800,000 | \$0 |
| 210653 | 3/11/22 | 144178 | MWE | NE Williston 115 kV Terminal Equipment | 2021 ITP | \$500,000 | \$0 |
| 210653 | 3/11/22 | 144199 | MWE | Eastfork 345/115 kV (345 kV) | 2021 ITP | \$2,334,441 | \$0 |
| 210653 | 3/11/22 | 144202 | MWE | E New Town 115/32.5 kV Transformer (115 kV) | 2021 ITP | \$1,500,000 | \$0 |
| 210653 | 3/11/22 | 144226 | MWE | Finstad - Vanhook 115 kV New Line | 2021 ITP | \$3,834,545 | \$0 |
| 210653 | 3/11/22 | 144239 | MWE | Vanhook 115 kV Terminal Equipment | 2021 ITP | \$2,334,441 | \$0 |
| 210654 | 3/11/22 | 143668 | EDE | Joplin West 7th - Stateline 161 kV Rebuild | 2021 ITP | \$4,948,819 | \$0 |

| NTC ID | NTC ISSUE DATE | UID | OWNER | UPGRADE NAME | SOURCE STUDY | COST ESTIMATE OF NEW UPGRADES | COST ESTIMATE OF PREVIOUSLY APPROVED UPGRADES |
|-----------------------------|----------------|--------|-------|---|--------------|-------------------------------|---|
| 210654 | 3/11/22 | 143669 | EDE | Joplin West 7th 161 kV Terminal Upgrades | 2021 ITP | \$468,900 | \$0 |
| 210654 | 3/11/22 | 143670 | EDE | Stateline 161 kV Terminal Upgrades | 2021 ITP | \$468,900 | \$0 |
| 210656 | 3/11/22 | 122863 | OGE | Midwest 138 kV Ckt 1 Terminal Upgrades | 2021 ITP | \$0 | \$65,000 |
| 210656 | 3/11/22 | 143786 | OGE | Cleo Corner 69 kV Terminal Upgrades | 2021 ITP | \$168,228 | \$0 |
| 210656 | 3/11/22 | 143806 | OGE | Marietta 2 - Marietta 4 138 kV Ckt 1 New Line (OGE) | 2021 ITP | \$1,575,000 | \$0 |
| 210656 | 3/11/22 | 143815 | OGE | Marietta 2 138 kV Voltage Conversion | 2021 ITP | \$5,000,000 | \$0 |
| 210656 | 3/11/22 | 143816 | OGE | Rocky Point - Marietta 2 138 kV Ckt 1 Rebuild | 2021 ITP | \$8,806,000 | \$0 |
| 210656 | 3/11/22 | 143817 | OGE | Rocky Point 69 kV Replace Relays | 2021 ITP | \$250,000 | \$0 |
| 210657 | 3/11/22 | 144173 | WFEC | Marietta 4 138 kV Ckt 1 Terminal Equipment | 2021 ITP | \$736,000 | \$0 |
| 94 Upgrade(s) Issued | | | | | | \$750,497,049 | \$143,124,064 |

Table 3: NTCs Issued

NTCS WITHDRAWN

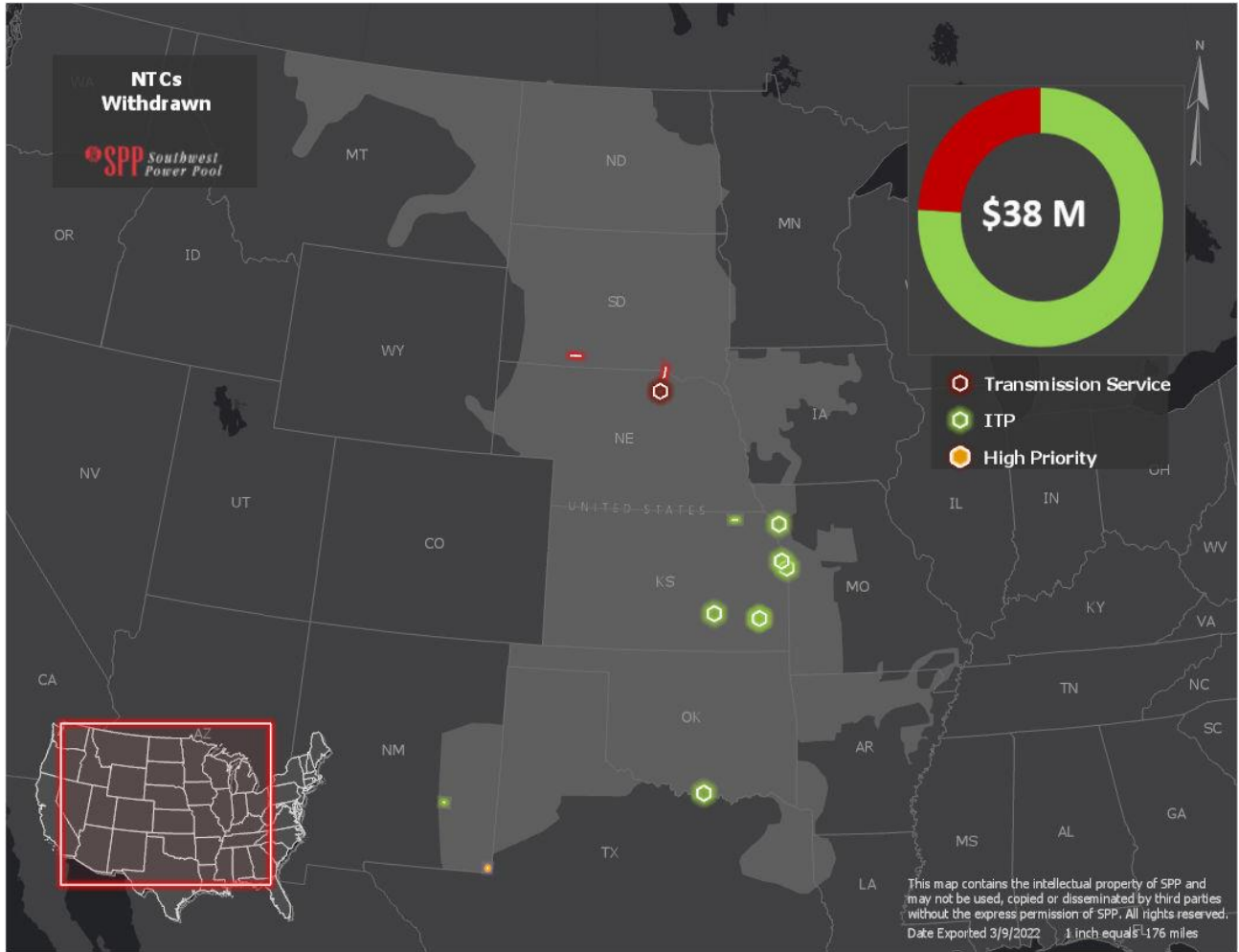


Figure 8: NTCs Withdrawn

| NTC ID | NTC WITHDRAWN DATE | UID | OWNER | UPGRADE NAME | SOURCE STUDY | COST ESTIMATE OF WITHDRAWN UPGRADES |
|--------|--------------------|--------|-------|--|--------------|-------------------------------------|
| 210603 | 2/23/2021 | 50874 | SPS | Dollarhide - Toboso Flats 115 kV Ckt 1 | HPILS | \$0 |
| 210604 | 3/2/2021 | 112382 | EKC | Baileyville - Smittyville 115kV Ckt 1 | 2019 ITP | \$7,327,262 |
| 210613 | 5/17/2021 | 122771 | EKC | Butler 138 kV Terminal Equipment | 2020 ITP | \$11,945,992 |
| 210613 | 5/17/2021 | 133087 | EKC | Tioga 138 kV Terminal Equipment | 2020 ITP | \$7,427,533 |

| NTC ID | NTC WITHDRAWN DATE | UID | OWNER | UPGRADE NAME | SOURCE STUDY | COST ESTIMATE OF WITHDRAWN UPGRADES |
|--------------------------------|--------------------|--------|-------|---|-------------------|-------------------------------------|
| 210614 | 5/17/2021 | 50723 | SPS | CV Pines - Price 115 kV Ckt 1 Rebuild | 2014 ITPNT | \$0 |
| 210621 | 11/4/2021 | 122633 | NPPD | Eagle Creek 27 MVAR Capacitor Bank 115 kV | DPA-2019-May-1037 | \$2,700,000 |
| 210622 | 11/4/2021 | 122631 | WAPA | Fort Randall - Spencer 115kV Ckt 1 Re-conductor | DPA-2019-May-1037 | \$2,650,000 |
| 210622 | 11/4/2021 | 122632 | WAPA | Martin - Vetal Tap 115 kV Ckt 1 Rebuild | DPA-2019-May-1037 | \$3,800,000 |
| 210624 | 11/4/2021 | 122805 | EM | Stilwell 161 kV Breaker | 2020 ITP | \$566,485 |
| 210624 | 11/4/2021 | 122810 | EM | Craig 161 kV Breakers | 2020 ITP | \$1,132,970 |
| 210625 | 10/26/2021 | 122809 | EMW | Lake Road 161 kV Breakers | 2020 ITP | \$488,531 |
| 210658 | 3/8/2022 | 122597 | WFEC | Marietta 69 kV | 2019 ITP | \$100,000 |
| 12 Upgrade(s) Withdrawn | | | | | | \$38,138,773 |

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

| | | |
|----------------|-------------------------------|------------------------------|
| 2020-AG2-AFS-2 | Report Tables | Facility Log |
| 2021-AG1-AFS-2 | Report Tables | Facility Log |

ATTACHMENT AR STUDIES

[SPP-DPT-2021-001](#) [SPP-DPT-2021-002](#)

ATTACHMENT AQ REQUESTS

[2020 Delivery Point Addition Studies](#)
[2021 Delivery Point Addition Studies](#)
[2022 Delivery Point Addition Studies](#)

COMPLETED ILTCR STUDIES

[ILTCR 2020AG1-BEPM-001](#)

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](#)

TRANSMISSION PLANNING (ITP)

SPP completed the 2021 ITP Study upon Board approval of the report and portfolio on January 25, 2022.

[2021 ITP Report v1.0](#)

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

SPP did not complete a Sponsored Upgrade study during the reporting period.

INTERREGIONAL STUDIES

In addition to directing interregional activities across all applicable areas of the organization in accordance with SPP's Joint Operating Agreements (JOAs) and other similar coordination arrangements, SPP also coordinates interregional transmission planning activities with neighboring Planning Regions as approved by the FERC for purposes of Order 1000.

During the reporting period, SPP collaborated with Midcontinent Independent System Operator (MISO) to perform a Joint Targeted Interconnection Queue (JTIQ) study with the goal identifying transmission projects required to address the significant transmission limitations restricting the opportunity to interconnect new generating resources near the MISO-SPP seam. The study identified a seven-project JTIQ Portfolio with a planning level estimated cost of \$1.65 billion. The recommended JTIQ Portfolio is expected to fully address the set of transmission constraints evaluated in the JTIQ Study as being significant barriers to the development of new generation along the MISO-SPP seam. A link to the JTIQ study report is available at the link below.

[Interregional Relations](#)

In addition to work with MISO, SPP also participated in planning coordination with the Southeastern Regional Transmission Planning (SERTP) group.

20-YEAR ASSESSMENT

SPP did not perform a 20-Year Assessment during the reporting period.

APPENDIX 1

(See accompanying list of STEP Projects)