

2015 STEP

2015 SPP Transmission Expansion Plan Report

January 5, 2015

Engineering

Revision History

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01/14/2015	SPP staff	Endorsed by MOPC
01/20/2015	SPP Staff	Updates to totals, maps, and graphs in Section 4.3
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Section 1: Executive Summary

The 2015 SPP Transmission Expansion Plan (STEP) is a comprehensive listing of all transmission projects in SPP for the 20-year planning horizon. Projects in the 2015 STEP include:

- Upgrades required to satisfy requests for Transmission Service;
- Upgrades required to satisfy requests for Generation Interconnection;
- Approved projects from the 10-Year and Near Term Assessments;
- Approved Balanced Portfolio upgrades;
- Approved High Priority upgrades; and
- Endorsed Sponsored upgrades.

The 2015 STEP consists of 568 upgrades with a total cost of \$5.7 billion. The chart below illustrates the cost distribution of the 2015 STEP based on project type. More detail on the total portfolio is listed in [Section 12](#).

2015 STEP Cost by Project Type

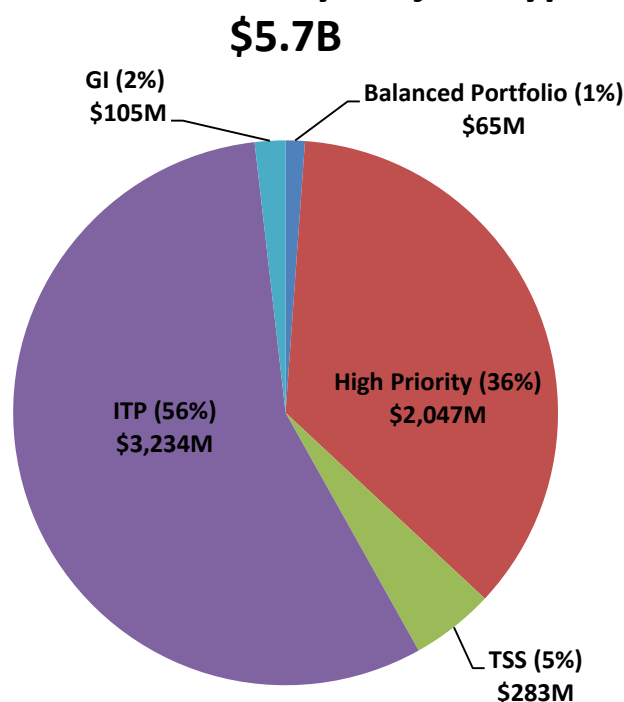


Figure 1.1: Cost by Project Type – 2015 STEP

After the SPP Board of Directors approves transmission expansion projects or once service agreements are filed with FERC, SPP issues Notifications to Construct (NTC) letters to appropriate Transmission Owners. A list of the NTCs issued in 2014 can be found in [Section 13](#). A breakdown of the total list of NTCs issued in 2014 is below is Figure 1.2.

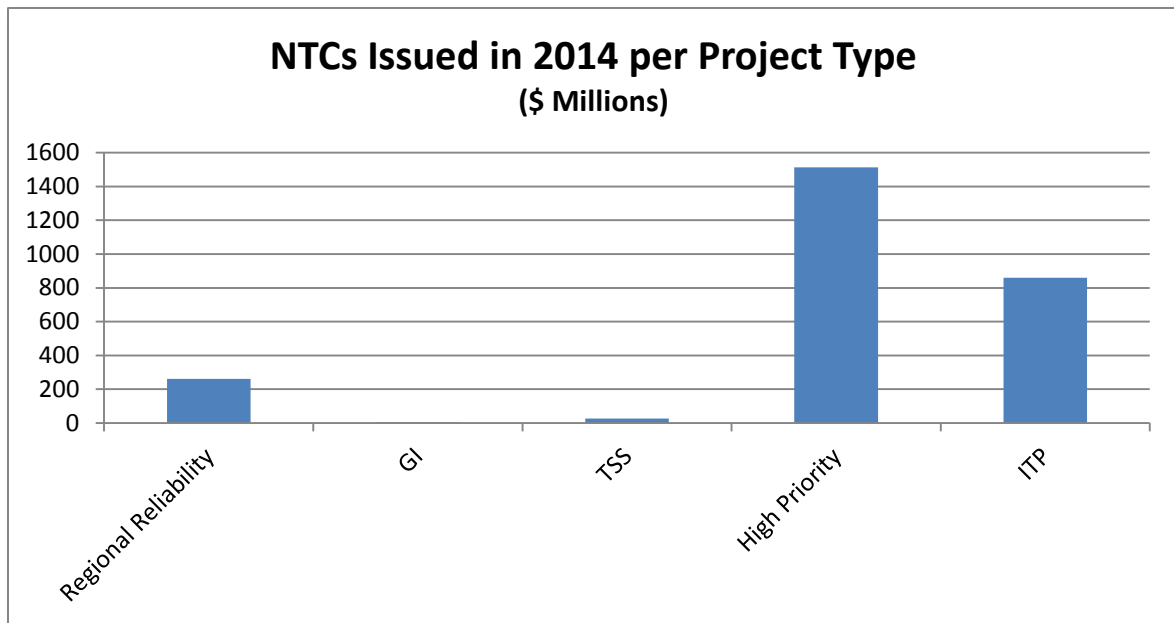


Figure 1.2: NTCs Issued in 2014 per Project Type

In 2014, SPP issued 38 NTC letters with estimated construction costs of \$1.48 billion for 89 projects to be constructed over the next five years through 2019. Of this \$1.48 billion, the project cost breakdown is as follows:

- \$58.3 million for Regional Reliability;
- \$3 million for Generation Interconnection;
- \$38.6 million for Transmission Service;
- \$573 million for High Priority; and
- \$806.6 million for ITP projects.

SPP actively monitors the progress of approved projects by soliciting feedback from project owners. One hundred thirty seven (137) upgrades were completed as of December 31, 2014. The breakdown includes:

- 65 ITP - \$491.5 million
- 5 Transmission Service - \$28.2 million
- 15 Generation Interconnection - \$61.7 million
- 22 Regional Reliability - \$60.8 million
- 26 High Priority - \$865.5 million
- 4 Balanced Portfolio - \$307.9 million

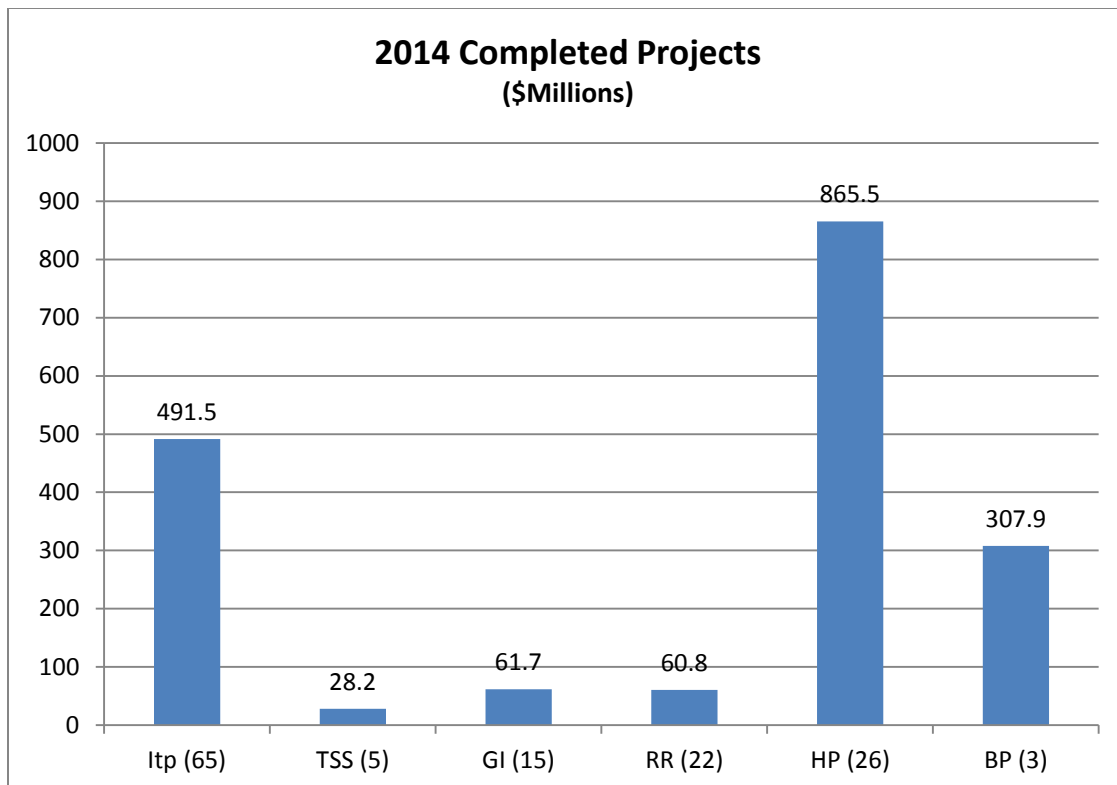


Figure 1.3: 2014 Completed Projects

Tables listing EHV projects completed in 2014 as well as active EHV projects carrying forward into 2015 are located in [Section 14](#). Tables listing projects completed in 2014 can be found in [Section 17](#).

Section 2: Transmission Services

2.1: Transmission Service 2014 Overview

Studies are conducted as a result of customer-submitted long-term firm transmission service requests to determine if the SPP transmission system can accommodate transmission service above what is currently in use. In October of 2013, SPP implemented a new process for evaluating transmission service requests, designed to expedite the evaluation of requests in the queue currently (The “Backlog Clearing Process”). The Backlog Clearing Process¹ is intended to clear the queue of pending requests in anticipation of a new process that will permanently replace the existing process and that will be more efficient and streamlined. This successor process to the Backlog Clearing Process is nearing completion in the SPP stakeholder process

The Transmission Provider will combine all long-term point-to-point and long-term designated network resource requests received during a specified period of time into a single Aggregate Transmission Service Study. Using this Aggregate Transmission Service Study process, the Transmission Provider will combine all requests received during an open season to develop a more efficient expansion of the transmission system that provides the necessary ATC to accommodate all such requests at the minimum total cost.

During 2014, SPP Staff posted 22 Aggregate Facilities Studies, as compared to 23 in 2013, to meet 60-day study completion deadlines and FERC Order 890 requirements. Order 890 requires Transmission Providers to file notice with FERC if more than 20% of the Facilities Studies in any two (2) consecutive calendar quarters are not completed in the 60-day study window. In 2014, SPP was not required to file with FERC, as there were no two (2) consecutive quarters in which more than 20% of the studies were late. This was due in large part to the timely submission of documentation by Transmission Owners.

The tables below summarize the Aggregate Studies that were closed and produced Service Agreements during 2014. The tables show the number of requests and requested capacity (MW) for the initial study (AFS1) and the final number of requests and requested capacity (MW) for the last study iteration.



¹ The SPP Tariff filing can be found at the following location: [2013-11-08 Ag Study Backlog Clearing Process Tariff Revisions ER13-2164-001](#)

	2012-AG1-AFS-1	2012-AG1-AFS-7
# of requests-beginning of study	47	
# of MW-beginning of study	3019	
# of requests-end of study		32
#of MW-end of study		1700

Table 2.1: Initial and Final Request and Capacity Amounts for 2012-AG1

	2012-AG2-AFS-1	2012-AG2-AFS-9
# of requests-beginning of study	49	
# of MW-beginning of study	5733	
# of requests-end of study		6
#of MW-end of study		313

Table 2.2: Initial and Final Request and Capacity Amounts for 2012-AG2

	2012-AG3-AFS-1	2012-AG3-AFS-9
# of requests-beginning of study	76	
# of MW-beginning of study	10,412	
# of requests-end of study		14
#of MW-end of study		564

Table 2.3: Initial and Final Request and Capacity Amounts for 2012-AG3

	2013-AG1-AFS-1	2013-AG1-AFS-7
# of requests-beginning of study	50	
# of MW-beginning of study	4057	
# of requests-end of study		15
#of MW-end of study		688

Table 2.4: Initial and Final Request and Capacity Amounts for 2013-AG1

The table below summarizes the Aggregate Studies for 2014.

Study	Currently Active Iteration	Due Date	Requests Currently in Study	MW Currently in Study	Currently Posted Study	Date Posted
2013-AG2	AFS-8	1/25/2015	4	348	AFS-7	11/11/2014
2013-AG3	AFS-5	1/18/2015	16	1,855	AFS-4	11/4/2014
2014-AG1	AFS-4	2/25/2015	37	4958	AFS-3	12/12/2014
Total			57	7,161		

Table 2.5: Active 2014 Aggregate Studies

The graph below shows the total estimated cost of Transmission Service projects included in the 2015 STEP as compared to previous STEP Reports. Fluctuations in the annual STEP estimates may be influenced by the number of new projects identified in completed Transmission Service Studies either having been issued NTCs or approved and awaiting the issuance of an NTC, the completion of Transmission Service related projects, and the increase

and decrease of Transmission Owner submitted projects cost estimates within the applicable STEP timeframe.

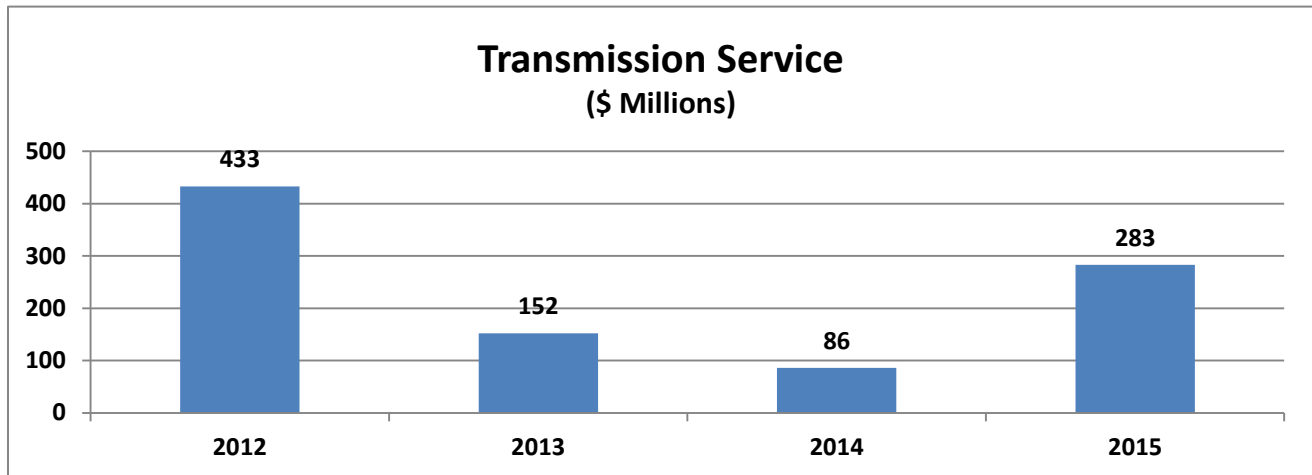
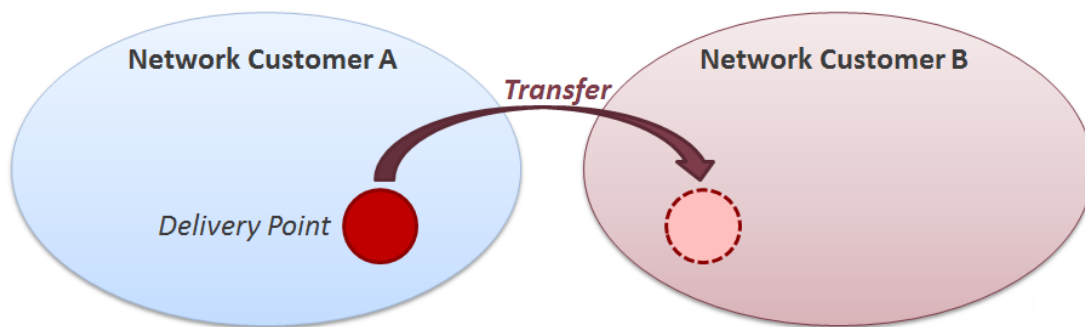


Figure 2.1: STEP Cost Estimate Comparison for Transmission Service Projects – 2012-2015

A list of Transmission Service projects completed in 2014 can be found in [Section 17](#).

2.2: Tariff Attachments AQ and AR



Attachment AQ

SPP Tariff Attachments AQ defines a process through which delivery point additions, modifications, or abandonments can be studied without having to go through the Aggregate Study process. Delivery points submitted through the process are examined in an initial assessment to determine if a project is likely to have a significant effect on the transmission system. If necessary, a full study is then performed on the requested delivery points to determine any necessary upgrades. There was one (1) NTC issued in 2014 as a result of the AQ process.

The number of requests and required studies are summarized in Table 2.4 below.

Study Year	Delivery Point Requests	Full Studies Required	Load Increase
2011	84	9	550 MW
2012	156	51	1,200 MW
2013	87	22	882 MW
2014	96	19	1,032 MW

Table 2.6: AQ Study Summary – 2011-2014

Attachment AR

Attachment AR defines a screening process used to evaluate potential Long-Term Service Request (LTSR) options or proposed Delivery Point Transfers (DPT). The LTSR option provides customers with a tool to assess possible availability of transmission service. The DPT screening study option enables customers to implement a DPT via issuance of a service agreement more expediently pending the results of the screening. Both of these screening tools allow for a more streamlined Aggregate Study process by reducing the number of requests in the studies.

During 2014, one (1) DPT study was posted. Service was granted for that DPT study. Six (6) LTSR studies were requested and posted.

Section 3: Generation Interconnection

3.1: Generation Interconnection Overview

A Generation Interconnection (GI) study is conducted pursuant to Attachment V of the SPP Tariff whenever a request is made to connect new generation to the SPP transmission system. GI studies are conducted by SPP in collaboration with affected Transmission Owners to determine the required modifications to the transmission system, including cost and scheduled completion date required to provide the service.



As of October 30, 2014, SPP received 81 SPP and 16 affected system GI requests, similar to the 35 SPP and 7 affected system study requests received through the same period in 2013. As of that date, there were 79 active queue requests for 11,752 MW under study and 51 requests were removed from the queue either from being withdrawn by the requesting Transmission Owner or from the execution of a Generation Interconnection Agreement (GIA). The 16 affected system study requests were made by neighboring systems requesting SPP's evaluation of the impact of the requests on SPP's transmission system.

The approval of Priority Projects has facilitated the increase of Generation Interconnection requests. About 6,500 MW of additional Generation Interconnection Agreements were approved based on the existence of Priority Projects and Balanced Portfolio.

The graph below shows the total estimated cost of Generation Interconnection projects included in the 2015 STEP as compared to previous STEP Reports. Fluctuations in the annual STEP estimates may be influenced by the number of new projects identified in completed Generation Interconnection Studies that have either been issued NTCs or are approved and are awaiting the issuance of an NTC, the completion of Generation Interconnection related projects, and the increase and decrease of Transmission Owner submitted projects cost estimates within the applicable STEP timeframe.

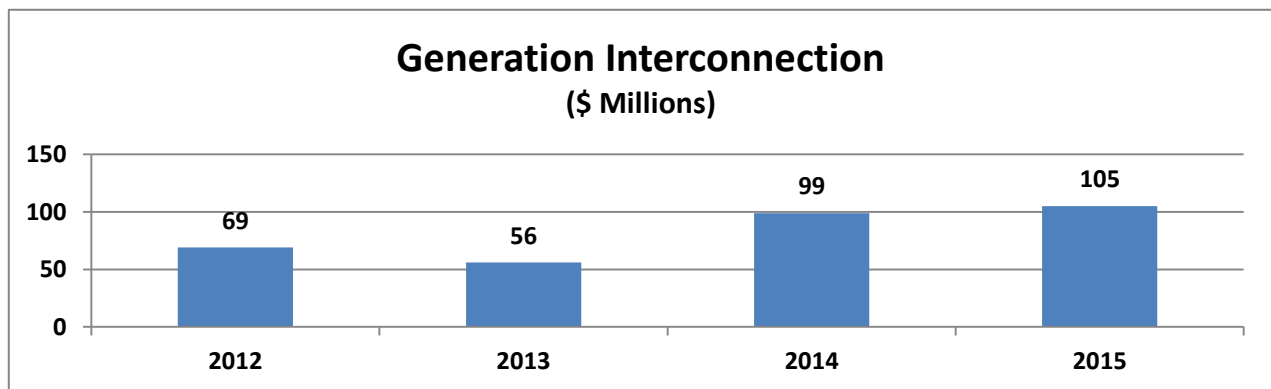


Figure 3.1: STEP Cost Estimate Comparison for Generation Interconnection Projects – 2012-2015

A list of Generation Interconnection projects completed in 2014 can be found in [Section 17](#).

3.2: Generator Interconnection Improvements

SPP-proposed changes to the Definitive Interconnection System Impact Study (DISIS) process were conditionally approved by FERC on June 13, 2014. Existing Generator Interconnection Requests had until August 12, 2014 to transition to the new process. The first DISIS study performed under the new process started on October 1, 2014 and is scheduled to be completed January 31, 2015.

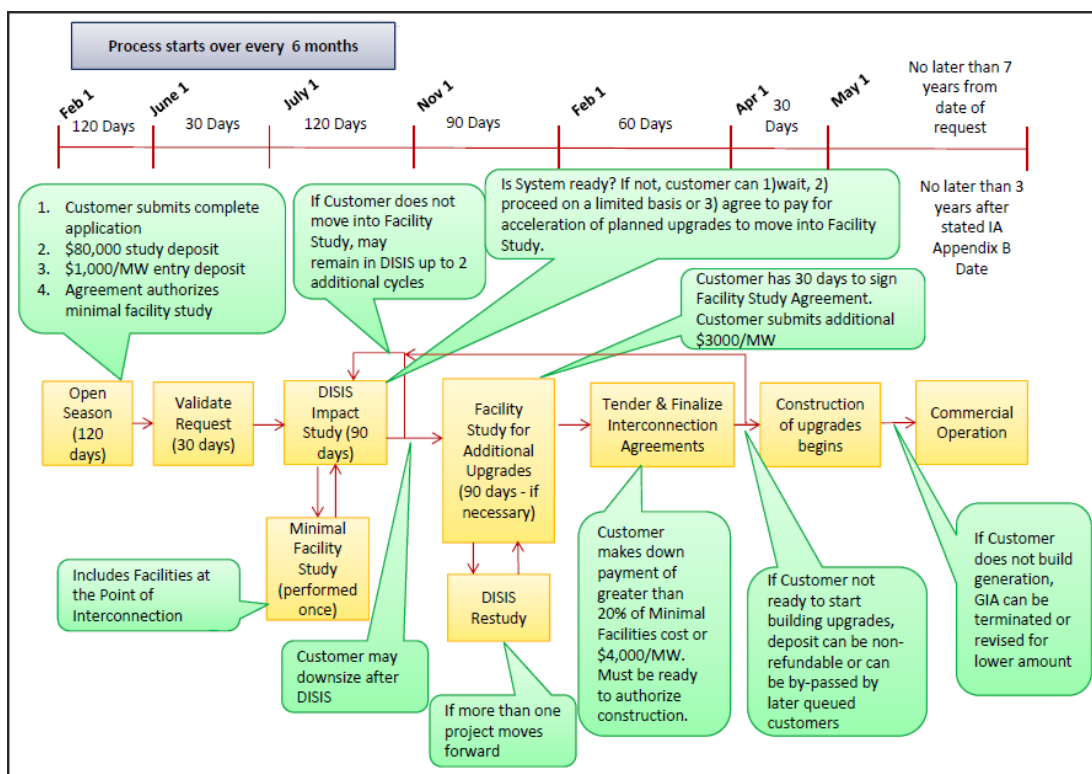


Figure 3.2: Generator Improvement Process Flowchart

Section 4: Integrated Transmission Planning

The Integrated Transmission Planning (ITP) process is Southwest Power Pool's iterative three-year study process that includes 20-Year, 10-Year, and Near Term Assessments.



The 20-Year Assessment (ITP20), performed once every three (3) years, identifies transmission projects, generally above 300 kV, needed to develop a grid flexible enough to provide benefits to the region across multiple scenarios.

The 10-Year Assessment (ITP10), performed once every three (3) years, focuses on facilities 100 kV and above to meet system needs over a 10-year horizon.

The Near Term Assessment (ITPNT), performed annually, assesses system upgrades, at all applicable voltage levels, required in the near-term planning horizon to address reliability needs.

Along with the Highway/Byway cost allocation methodology, the ITP process promotes transmission investment that will meet reliability, economic, and public policy needs intended to create a cost-effective, flexible, and robust transmission network which will improve access to the region's diverse generating resources and facilitate efficient market processes. A list of ITP projects completed in 2014 can be found in [Section 17](#).

4.1: ITP20

The first phase of the ITP process was completed with the Board of Directors' acceptance of the ITP20 Report on July 30, 2013. For more information on the 2013 ITP 20-Year Assessment, see the [full report](#) available on SPP's website (SPP.org > Engineering > Transmission Planning). A list of 2013 ITP20 projects can be found in [Section 18](#).

During its July 29, 2014 meeting, the SPP BOD discussed the necessity of beginning the 2016 ITP20 in January 2015 as scheduled. The Board decided to defer work on the 20-Year Assessment for further consideration at the October 2014 MOPC meeting. The BOD also recommended the submission of a deferral to the Federal Energy Regulatory Committee (FERC) seeking authorization to delay the performance of the ITP20 as prescribed by SPP's OATT. In its place, the BOD recommended performing a consecutive ITP 10-Year Assessment starting in 2015.

The Strategic Planning Committee (SPC), during its September 9, 2014 meeting, unanimously supported a proposal from SPP to delay the start of the Board-directed 2016 ITP10 by at least six (6) months while the Clean Power Plan (CPP) rule is finalized (or until a time shortly following the Rule's finalization).

The MOPC unanimously approved a recommendation from the Economic Studies Working Group (ESWG) per the SPC to delay the start of the 2016 ITP10 by at least six (6) months at its October 2014 meeting.

4.2: 2015 ITP10

The second phase of the ITP study process includes the ITP 10-Year Assessment performed under the requirements of Attachment O, Section III of the SPP OATT. The

approved portfolio includes projects ranging from comprehensive regional solutions to local reliability upgrades to address the expected reliability, economic, and policy needs of the studied 10-year planning horizon.

The Federal Energy Regulatory Commission (FERC) issued Order 1000 on June 17, 2010. Order 1000 requires the removal of federal right of first refusal (ROFR) for certain transmission projects under the SPP Tariff. To comply with this requirement, SPP developed the Transmission Owner Selection Process (TOSP) to competitively solicit proposals for projects that no longer have ROFR². The TOSP is outlined in Attachment Y of the SPP Tariff. During the Integrated Transmission Planning (ITP) process, once the applicable ITP study scope has been approved and the needs assessment performed, SPP shall notify stakeholders of the identified transmission needs and provide a transmission-planning response window of 30 calendar days. During this time, any stakeholder may submit a Detailed Project Proposal (DPP) pursuant to Section III.8.b. of Attachment O of the SPP Tariff. All DPPs will be kept confidential³.

In addition, SPP Business Practice 7650 outlines the specific DPP processes associated with Order 1000.

For the 2015 ITP10, needs were not directly addressed with projects proposed by stakeholders, as in the past. This change was due to FERC Order 1000. Under Order 1000, a 30-day window allowed potential projects to be submitted through the DPP process and was not limited to incumbent transmission owners. Potential projects submitted outside this 30-day window were considered as Non Competitive Solutions (NCS). Since DPP submittals are held in confidence and are competitively confidential, SPP Staff did not present potential projects until Phase III of the DPP process.

The 2015 ITP10 study was conducted based on a pair of futures. These futures consider evolving changes in technology, public policy and climate changes that may influence the transmission system and energy industry as a whole. By accounting for multiple future scenarios, SPP staff can assess what transmission needs arise for various uncertainties. In all futures, EPA environmental regulations, as known or anticipated at the time of the study, are incorporated.

Future 1: Business as Usual

This future includes all statutory/regulatory renewable mandates and goals as well as other energy or capacity as identified in the Policy Survey resulting in 11.5 GW of renewable resources modeled in SPP, load growth projected by load serving entities including the High Priority Incremental Loads, and SPP member-identified generator retirement projections. This future assumes no major changes to policies that are currently in place.

² SPP.org > Engineering > Order 1000

³ SPP.org > Engineering > Order 1000 > Detailed Project Proposal

Future 2: Decreased Base Load Capacity

This future considers factors that could drive a reduction in existing generation. It will include all assumptions from the Business as Usual future with a decrease in existing base load generation capacity. This future will retire coal units less than 200 MW, reduce hydro capacity by 20% across the board, and utilize the Palmer Drought Severity Index for an average of August 1934 and August 2012 to simulate a reduction in existing capacity affected by drought conditions: 10% under moderate, 15% under severe, and 20% under extreme conditions. These target reductions were adjusted, as appropriate, based on locational and operational characteristics provided by the unit owners within each zone.

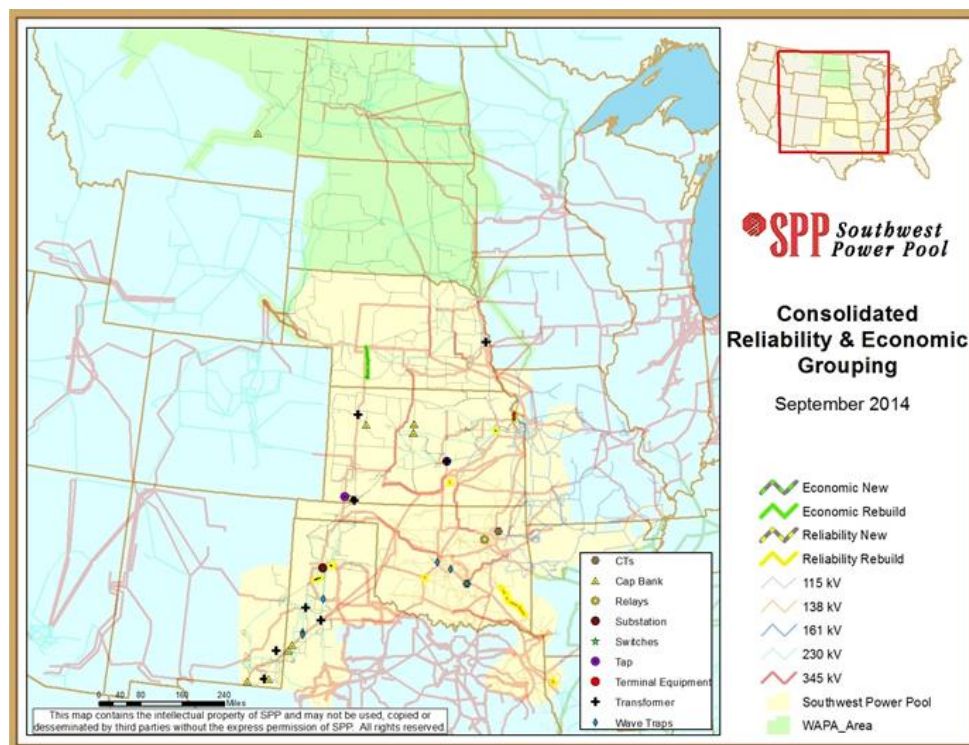


Figure 4.1: 2015 ITP10 Consolidated Reliability and Economic Grouping Map

The table below details the statistics of the final portfolio:

	Consolidated Portfolio [#]		
	Reliability	Economic	Total
Total Cost	\$209.6M	\$69.7M	\$273.1M
Total Projects	31	3	32
Total Miles	166	94	260
1-Year Cost		\$11.9M	14
APC Benefit		\$37.8M	
B/C Ratio		3.2*	

[#]2 projects are included in both the economic and reliability portfolios

*B/C includes only APC benefit of economic projects

Table 4.1: 2015 ITP10 Final Portfolio Statistics

The complete list of recommended 2015 ITP10 projects can be found in [Section 15](#) of this report.

4.3: 2015 ITP Near-Term (ITPNT)

The 2015 ITPNT analyzed the SPP region's immediate transmission needs over the near-term planning horizon. The ITPNT assessed: (a) regional upgrades required to maintain reliability in accordance with the NERC TPL Reliability Standards and SPP Criteria in the near-term horizon; (b) zonal upgrades required to maintain reliability in accordance with more stringent individual Transmission Owner planning criteria in the near-term horizon; and (c) coordinated projects with neighboring Transmission Providers. ITPNT projects are reviewed by SPP's Transmission Working Group (TWG), Markets and Operations Policy Committee (MOPC), and approved by the Board of Directors. Following Board of Directors' approval, staff will issue Notification to Construct (NTC) letters for upgrades that require a financial commitment within the next four-year timeframe.

SPP developed models for the 2015 ITPNT analysis based on the SPP Model Development Working Group (MDWG) models, for which Transmission Owners and Balancing Authorities provided generation dispatch and load information. The study scope⁴ – approved by the TWG on January 3, 2014 – contains:

- The years and seasons to be modeled;
- Treatment of upgrades in the models;
- Scenario cases to be evaluated;
- Description of the contingency analysis and monitored facilities; and
- Any new special conditions that are modeled or evaluated for the study including the development of the model for SPP's Consolidated Balancing Authority (CBA) dispatch.

SPP performed analyses identifying potential bulk power system reliability needs. These findings were presented to Transmission Owners and the Transmission Working Group (TWG) to solicit transmission solutions to the potential issues identified. Also considered were transmission solutions from other SPP studies, such as the Aggregate Transmission Service Study and Generation Interconnection processes. From the resulting list of potential solutions, staff identified the cost effective regional solutions for potential reliability needs. Staff presented these solutions for member and stakeholder review at SPP's December 2014 planning summit. Through this process, SPP developed a draft list of 69 kV and above solutions necessary to provide reliable service in the SPP region in the near-term planning horizon.

⁴ [2015 ITPNT Scope](#)

The maps in Figures 4.1 and 4.2 show the draft ITPNT thermal and voltage solutions in correlation to the areas identified with reliability criteria violations. The complete list of 2015 ITPNT projects is located in [Section 16](#) of this report.

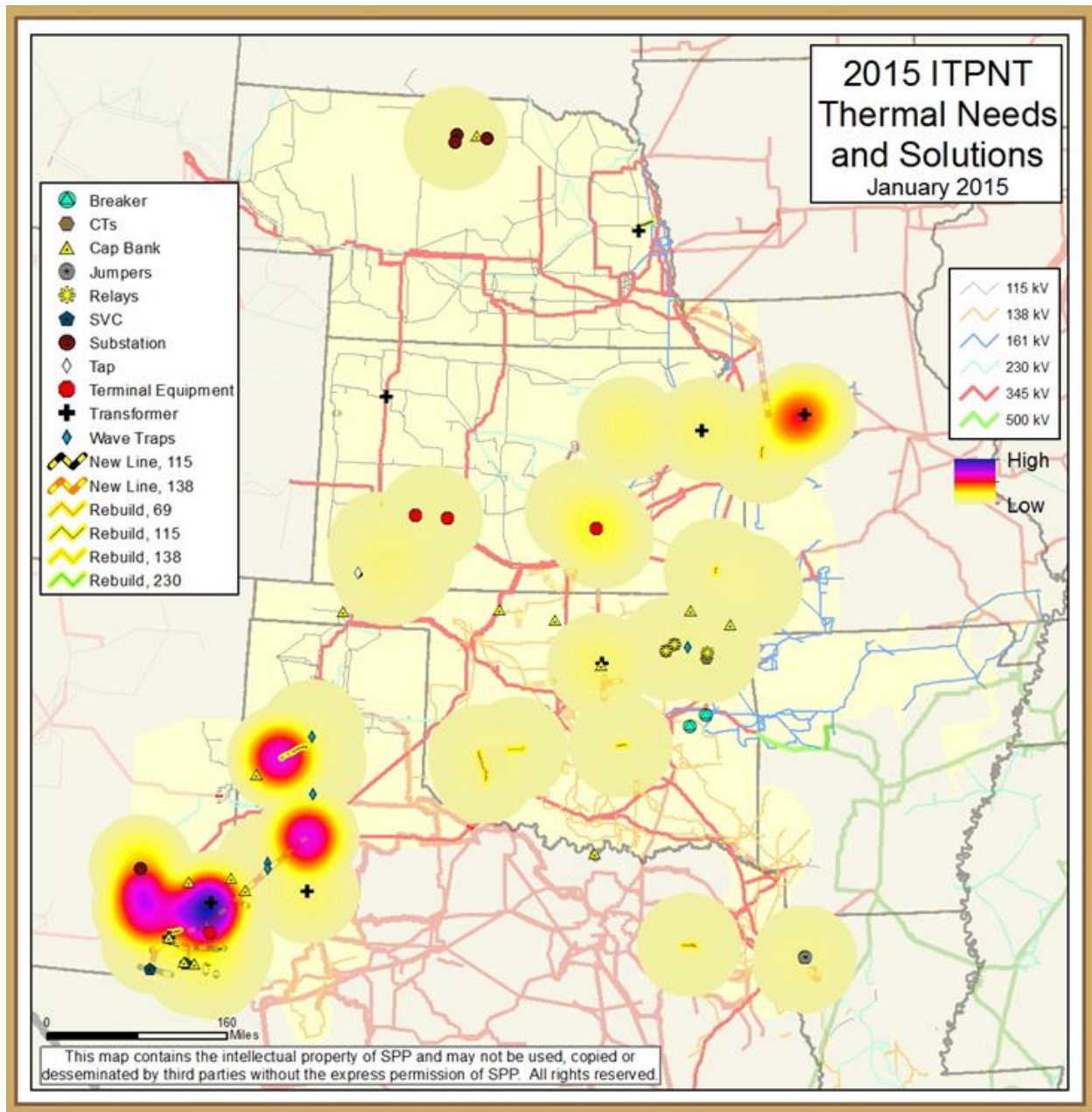


Figure 4.2: 2015 ITPNT Thermal Needs and Solutions

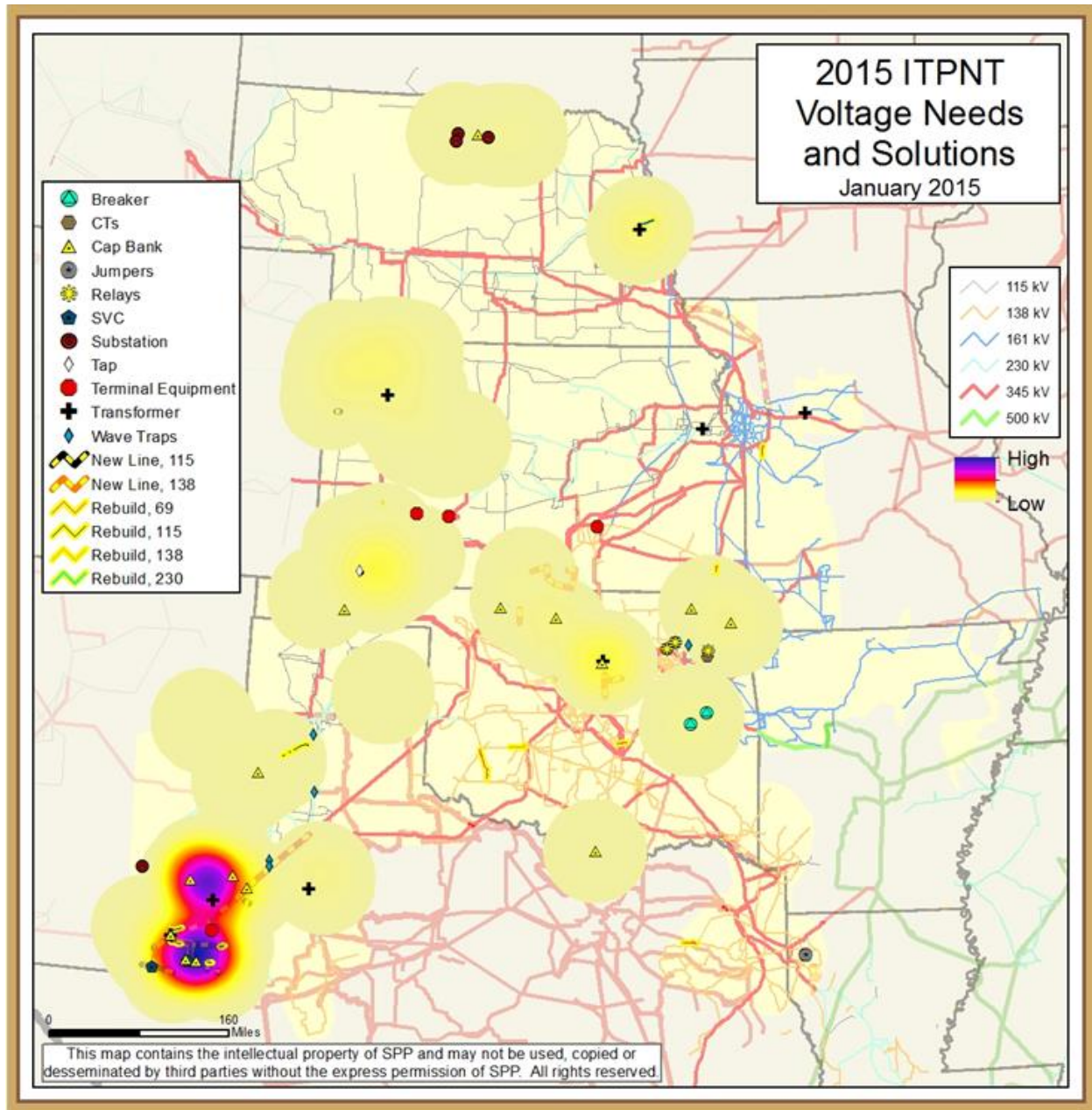


Figure 4.3: 2015 ITPNT Voltage Needs and Solutions

The 2015 ITPNT Project Plan consists of the following:

- 208 thermal and 64 voltage violations resolved in the 2015 ITPNT.
- 42 proposed projects consisting of 70 proposed upgrades at a total estimated cost of \$248.2 million for upgrades that will receive an NTC, NTC-C, or NTC Modify.
 - 41 will be issued a new Notice to Construct (NTC/NTC-C) at an estimated cost of \$213.1 million.
 - One (1) upgrade has been identified as needing a modified NTC (NTC Modify) at an estimated cost of \$35.1 million.

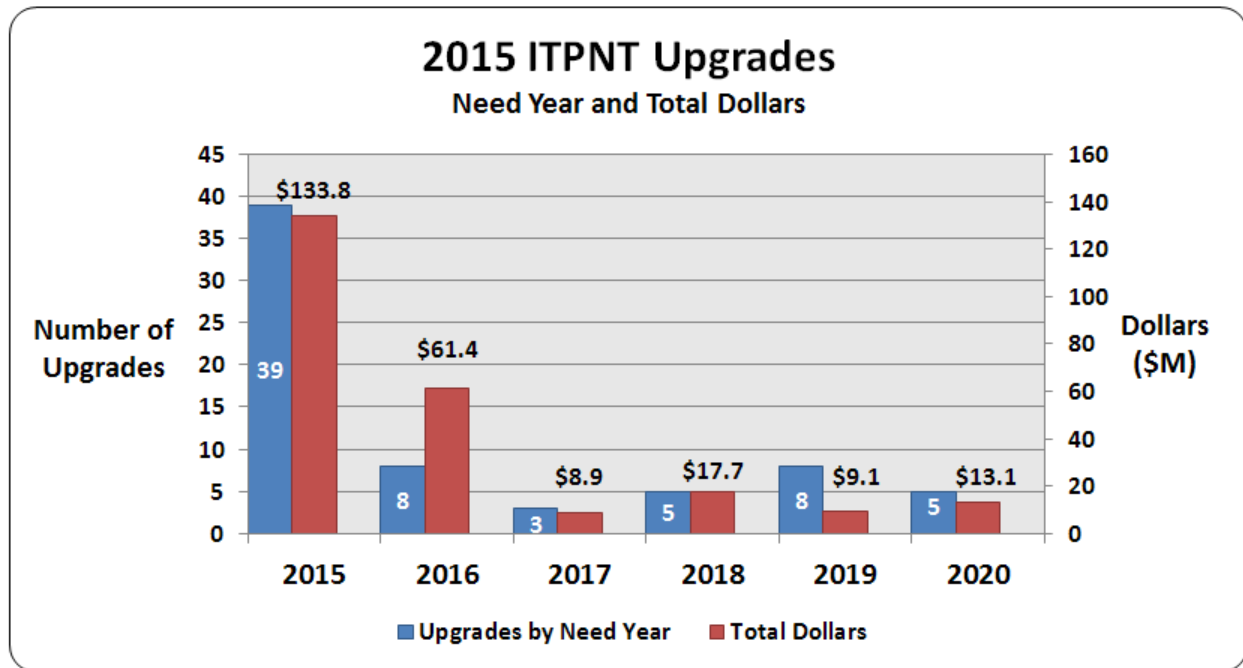


Figure 4.4: 2015 ITPNT Upgrades by Need Year and Total Dollars

- Project Plan mileage consists of:
 - 21 miles of new transmission line.
 - 162 miles of rebuild/reconductor.
 - 2 miles of voltage conversion.

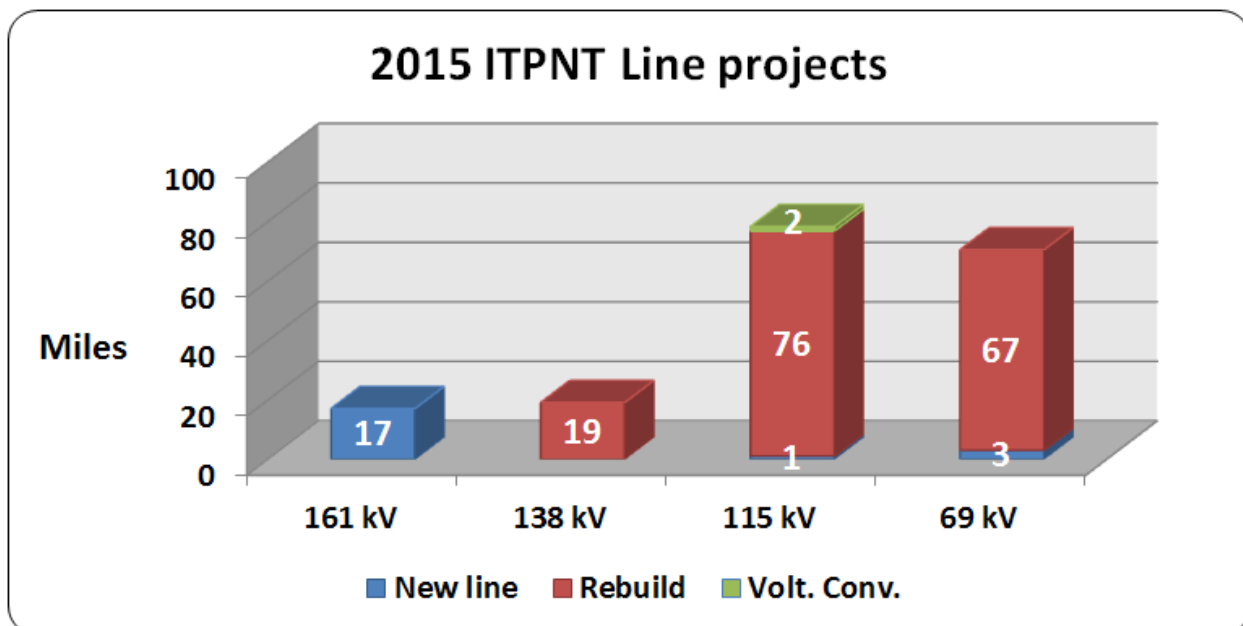


Figure 4.5: 2015 ITPNT Project Plan Mileages by Voltage Class

Section 5: Balanced Portfolio

The SPP Board of Directors approved the Balanced Portfolio projects in April 2009 and directed staff to finalize the Balanced Portfolio Report in accordance with the SPP Tariff and then issue Notifications to Construct (NTC). The NTCs were issued in June 2009.

The Balanced Portfolio was an initiative to develop a group of economic transmission upgrades benefitting the entire SPP region and to allocate those project costs regionally. The benefits of this group of 345 kV transmission upgrades have been demonstrated by model analysis to outweigh the costs, and the regional cost sharing creates balance across the SPP region. For more information on the Balanced Portfolio, see the [full report](#) (SPP.org > Engineering > Transmission Planning).

Figure 5.1 below is a graph of the total estimated costs attributed to Balanced Portfolio projects for the 2015 STEP and previous years. The estimated project costs are affected by the completion of projects, as seen in Table 5.1, and adjustments in project cost estimates by Project Owners.

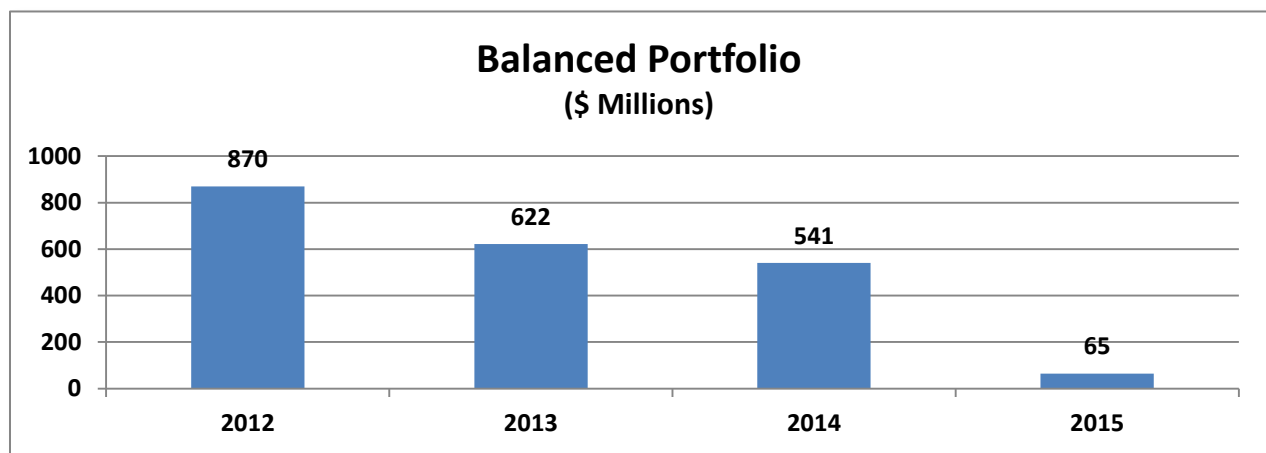


Figure 5.1: STEP Cost Estimate Comparison for Balanced Portfolio Projects – 2012-2015

NTC ID	Project ID	Project Owner	Project Name	Current Cost Estimate
20041	701	OGE	Stateline - Woodward EHV 345 kV	\$115,000,000
20041	701	OGE	WOODWARD DISTRICT EHV 345/138KV TRANSFORMER CKT 2	\$0
20043	704	SPS	Tuco Interchange - Stateline 345 kV	\$192,875,814
20043	701	OGE	Stateline 345 kV	\$0

Table 5.1: Balanced Portfolio Projects Completed in 2014



Figure 5.2: Approved Balanced Portfolio

Section 6: High Priority Studies

Attachment O, Section IV.2, of SPP's OATT describes the process for which high priority studies may be requested by stakeholders and performed by SPP as the Transmission Provider. Stakeholders may request high priority studies, including a request for the Transmission Provider to study potential upgrades or other investments necessary to integrate any combination of resources, whether demand resources, transmission, or generation, identified by the stakeholders. For each high priority study the Transmission Provider shall publish a report, including but not limited to, the study input assumptions, the estimated cost of the upgrades, any third party impacts, the expected economic benefits of the upgrades, and identify reliability impacts, if any, of the upgrades. The Transmission Provider may recommend, based on the results of a high priority study, a high priority upgrade for inclusion in the SPP Transmission Expansion Plan in accordance with the approval process set forth in Section V of SPP's OATT.

Figure 6.1 below is a comparison of the cost estimates for projects coming out of high priority studies performed in 2010 and 2013-14. Study details follow in sections 6.1 and 6.2

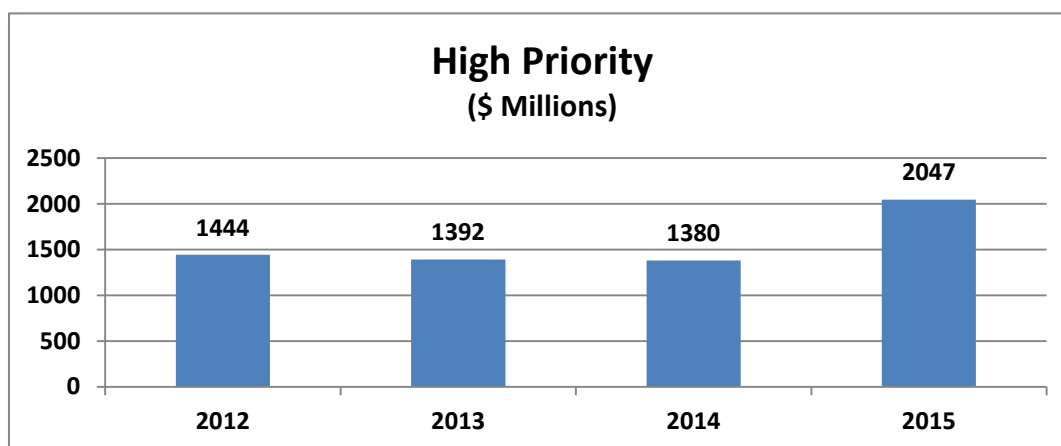


Figure 6.1: STEP Cost Estimate Comparison for High Priority Projects – 2012-2015

6.1: SPP Priority Projects

In 2010, the SPP Board of Directors and Members Committee approved for construction a group of "priority" high voltage electric transmission projects estimated to bring benefits of at least \$3.7 billion to the SPP region over 40 years. The projects will improve the regional electric grid by reducing congestion, better integrating SPP's east and west regions, improving SPP members' ability to deliver power to customers, and facilitating the addition of new renewable and non-renewable generation to the electric grid. For information on Priority Projects, see the [full report](#) (SPP.org > Engineering > Transmission Planning).

Twenty (20) SPP Priority Projects were completed in 2014. A list of SPP Priority Projects completed in 2014 can be found in [Section 17](#).

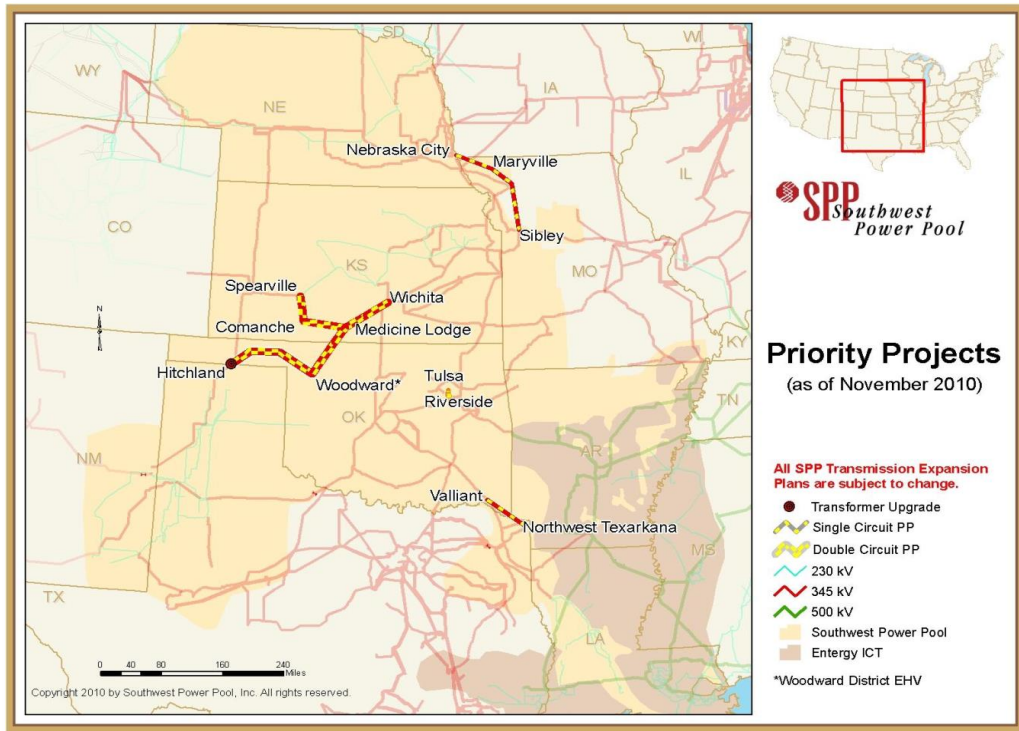


Figure 6.2: SPP Priority Projects

6.2: High Priority Incremental Load Study (HPILS)

Southwest Power Pool's High Priority Incremental Load Study (HPILS) evaluated transmission needs resulting from significant incremental load growth expectations in certain parts of SPP. At its April 2013 meeting, SPP Board of Directors Chairman Jim Eckelberger directed the performance of a high priority study to evaluate transmission needs resulting from expected incremental loads that had not previously been studied. SPP Staff began the High Priority Incremental Load Study (HPILS) after its scope was approved, with no opposition, by the Markets and Operations Policy Committee (MOPC) at their July 16-17, 2013 meeting. Stakeholder oversight of the study was provided primarily by a task force (HPILSTF) established by the Transmission Working Group (TWG).

HPILS was completed and a draft report issued in March of 2014. The HPILS report included an explanation of study processes and assumptions, an identification of projects needed over the 10-year study horizon to reliably meet load growth expectations, and a list of projects recommended for construction. Over a series of meetings in late March and early April of 2014, various SPP stakeholder groups reviewed the HPILS report. The report was unanimously approved by the HPILSTF. The TWG approved that the report indicated completion of the technical requirements of the HPILS scope. The MOPC reviewed the report at their April 15-16 meeting but, after a failed motion to "approve the HPILS report and Appendix C as submitted", did not forward a recommendation to the BOD regarding the HPILS report and recommended projects.

Because HPILS was performed pursuant to Chairman Jim Eckelberger's direction, Staff presented the HPILS report to the BOD and Members Committee for consideration at their April 29, 2014 meeting. Staff recommended that the BOD direct construction of those projects that meet near-term needs and as shown in Attachment C of the report. Additional recommendations were also made to address concerns raised by stakeholders during the MOPC discussion. After considerable discussion with input from stakeholders in attendance, the BOD approved the recommendations, following a Members Committee vote that reflected eleven members supporting, two opposing, and one abstaining.

The BOD approval of the HPILS projects recommended for construction is supported by the bases shown below:

1. The projects were identified by a study performed in accordance with a stakeholder approved scope.
2. The projects were identified as cost effective solutions that met identified reliability needs associated with expected incremental load.
3. The projects approved for construction address the more urgent, near-term reliability needs such that risks associated with realization of incremental load in lower than expected amounts are minimized.
4. Concerns raised during MOPC discussion were sufficiently addressed with approval of the recommendations presented to the BOD.

HPILS was conducted in accordance with the high priority study provisions outlined in the SPP Open Access Transmission Tariff (OATT). In accordance with the HPILS scope, a cost-effective transmission plan was developed to address reliability needs over a 10-year period under updated load growth and corresponding generation expansion assumptions. The HPILS also reevaluated three projects previously approved in the 2012 Integrated Transmission Plan 10-Year Assessment (ITP10) for which Notifications to Construct with Conditions (NTC-Cs) had been suspended by the Board in April 2013, pending further evaluation. The study included an evaluation of project costs and economic benefits under selected scenarios and sensitivities. HPILS included the economic analysis of the total portfolio as well as the incremental benefit of the suspended NTC-C for the Tuco-Amoco-Hobbs or equivalent solutions.

The total cost⁵ of the projects for which new NTCs were recommended was estimated to be \$573 M (million). Regarding the three NTC-Cs that were re-evaluated as part of the study, it was determined that the Tuco – New Deal 345 kV and Grassland – Wolfforth 230 kV projects were no longer needed. As a result, the associated NTC-Cs should be withdrawn, which would remove \$114 M from the SPP Transmission Expansion Plan (STEP).

HPILS identified the Tuco-Yoakum-Hobbs 345 kV project as a better performing and lower cost alternative to the Tuco-Amoco-Hobbs 345 kV project. It was recommended that the

⁵ Unless otherwise specified, all costs are Engineering and Construction costs in 2014 dollars.

Tuco-Amoco-Hobbs NTC-C be modified to reflect the Tuco-Yoakum-Hobbs project with a 2020 in-service date at a cost savings of at least \$20 M.

The HPILS Portfolio's impact on the STEP is shown in Table 6.1 below.

Project Category	Cost Estimate
New NTC Projects	\$573 M
Withdrawal of Suspended NTC-C for Tuco - New Deal	(\$57 M)
Withdrawal of Suspended NTC-C for Grassland - Wolfforth	(\$57 M)
Modification of Suspended NTC-C for Tuco-Amoco-Hobbs	(\$258 M)
Reinstate NTC-C for Tuco-Yoakum-Hobbs	\$238 M
HPILS Impact on the STEP	\$439 M

Table 6.1: HPILS Portfolio Impact on the STEP

State(s)	Upgrade Name	Issue NTC	50/50 Need Year	90/10 Need Year	Cost Estimate
KS	Clark Co. 345/115 kV Ckt 1 Transformer	Yes	2015	2015	\$10,516,124
NE	Thedford 345/115 kV Transformer	Yes	2016	2016	\$9,306,000
NE	Thedford 345 kV Terminal Upgrades	Yes	2016	2016	\$930,800
NM	Potash Junction 230/115 kV Ckt 1	Yes	2015	2015	\$3,320,942
NM	Andrews 230/115 kV Ckt 1 Transformer	Yes	2015	2015	\$9,503,243
NM	Kiowa 345 kV Substation	Yes	2018	2018	\$10,142,928
NM	Road Runner 345/115 kV Ckt 1 Transformer	Yes	2018	2018	\$4,577,343
NM	Road Runner 345 kV Substation Conversion	Yes	2018	2018	\$3,930,065
NM	Kiowa 345/230 kV Ckt 1 Transformer	Yes	2018	2018	\$5,955,675
NM	Potash Junction - Road Runner 345 kV Ckt 1 Voltage Conversion	Yes	2018	2018	\$7,097,576
NM	Hobbs - Kiowa 345 kV Ckt 1	Yes	2018	2018	\$55,846,663
NM	China Draw - North Loving 345 kV Ckt 1	Yes	2018	2018	\$18,290,178
NM	Kiowa - North Loving 345 kV Ckt 1	Yes	2018	2018	\$23,457,538
NM	China Draw 345/115 kV Ckt 1 Transformer	Yes	2018	2018	\$4,390,007
NM	China Draw 345 kV Ckt 1 Terminal Upgrades #1	Yes	2018	2018	\$4,318,803
NM	North Loving 345/115 kV Ckt 1 Transformer	Yes	2018	2018	\$5,583,339
NM	North Loving 345 kV Substation	Yes	2018	2018	\$6,579,825
LA	Benteler - McDade 345 kV Ckt 1	No	2023	2018	\$13,083,537

State(s)	Upgrade Name	Issue NTC	50/50 Need Year	90/10 Need Year	Cost Estimate
LA	McDade 345/138 kV Ckt 1 Transformer	No	2023	2018	\$10,516,124
LA	Messick 500/345 kV Ckt 1 Transformer	No	2023	2018	\$19,718,950
LA	McDade - Messick 345 kV Ckt 1	No	2023	2018	\$45,792,379
LA	Benteler 345/138 kV Ckt 1 Transformer	No	2023	2018	\$10,516,124
NM	Potash Junction 345/115 kV Ckt 1 Transformer	No	2019	2019	\$10,516,124
NM	Andrews 345/115 kV Ckt 1 Transformer	No	2022	2022	\$10,516,124
NM	Andrews - Hobbs 345 kV Ckt 1 Voltage Conversion	No	2022	2022	\$30,530,000
NM	Oasis - Roosevelt County Interchange Switch 115 kV Ckt 1 Terminal Upgrades	No	2023	2023	
OK	Mooreland - Woodward District EHV 345 kV Ckt 1	No	2018	2018	\$13,083,537
OK	Border - Chisholm 345 kV Ckt 1	No	2021	2021	\$654,177
OK	Chisholm - Woodward District EHV 345 kV Ckt 1	No	2021	2021	\$654,177
OK	Chisholm 345/230 kV Ckt 2 Transformer	No	2021	2021	\$10,516,124
TX	Hitchland 230/115 kV Ckt 2 Transformer	No	2023	2023	\$6,020,434
TX	Carlisle 230/115kV Ckt 1 Transformer	No	2023	2023	\$6,020,434
TX	Sundown - Wolfforth 230 kV Ckt 1 Reconductor	No	2023	2023	\$22,580,725
TX	Sundown 230/115 kV Ckt 2 Transformer	No	2023	2023	\$6,020,434
TX	Lubbock South - Wolfforth 230 kV Ckt 1 Terminal Upgrades	No	2023	2023	
TX	Plant X 230/115 kV Ckt 2 Transformer	No	2023	2023	\$6,020,434
TX	Seminole 230/115 kV Ckt 1 Transformer	No	2023	2023	\$6,020,434
TX	Seminole 230/115 kV Ckt 2 Transformer	No	2023	2023	\$6,020,434
TX	Wolfforth 230/115 kV Ckt 1 Transformer	No	2023	2023	\$6,020,434
TX	Yoakum 345/230 kV Ckt 1 Transformer	NTC-C Modify	2020	2020	\$4,929,607
TX	Yoakum 345 kV Ckt 1 Terminal Upgrades	NTC-C Modify	2020	2020	\$1,714,283
TX	Tuco - Yoakum 345 kV Ckt 1	NTC-C Modify	2020	2020	\$160,991,967
TX/NM	Hobbs - Yoakum 345 kV Ckt 1	NTC-C Modify	2020	2020	\$69,907,711
NM	Potash Junction - Road Runner 230 kV Ckt 1	NTC-C Modify	2015	2015	\$3,491,968
NM	Road Runner 230/115 kV	NTC-C	2015	2015	\$2,107,123

State(s)	Upgrade Name	Issue NTC	50/50 Need Year	90/10 Need Year	Cost Estimate
	Substation	Modify			
NM	Hobbs 345/230 kV Transformer Ckt 1	NTC-C Modify	2018	2018	\$10,262,813

Table 6.2: Final Reliability Projects 230 kV and above for TYH option in the HPILS Portfolio

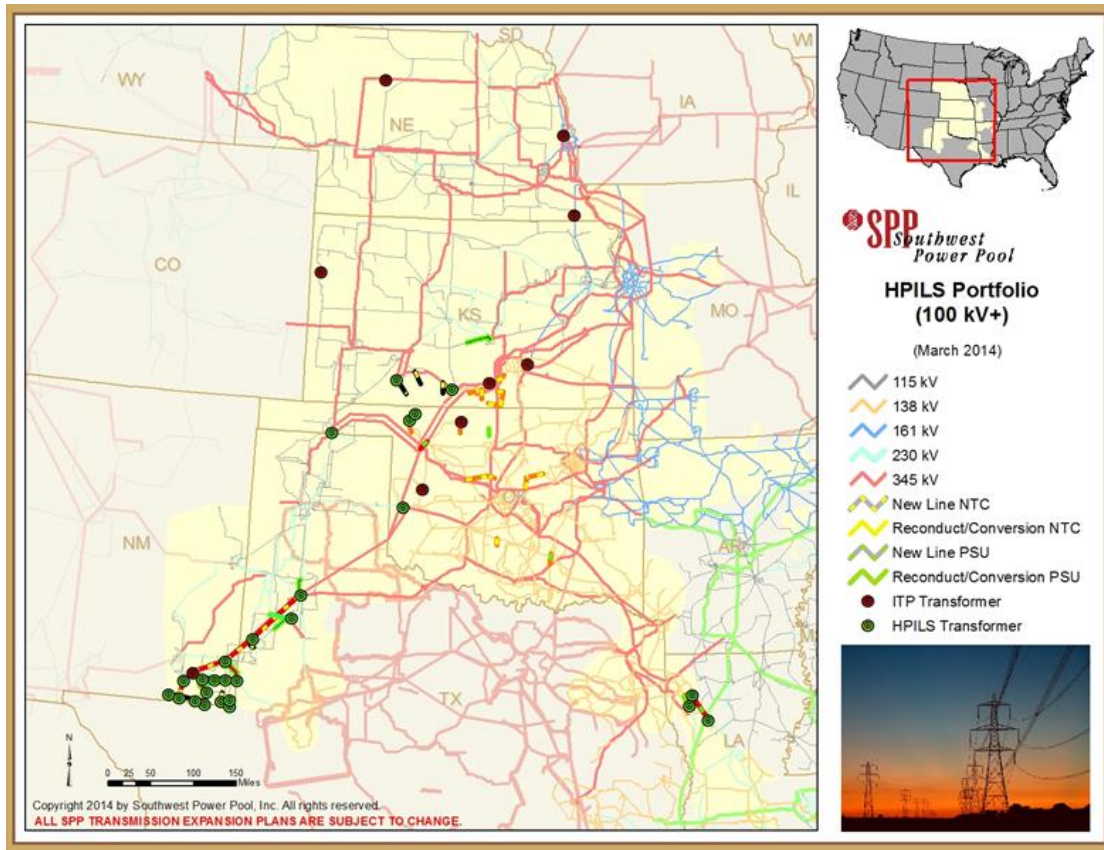


Figure 6.3: Finalized HPILS Portfolio (100 kV and above)

Section 7: Sponsored Upgrades

Sponsored upgrades are Network Upgrades requested by a Transmission Customer or other entity which do not meet the definition of any other category of Network Upgrades. Any entity may request a Sponsored Upgrade. SPP will evaluate the impact of any Sponsored upgrade on transmission system reliability and identify any necessary mitigation of these impacts. The proposed Sponsored upgrades will be submitted to the MOPC and BOD for endorsement.

The Project Sponsor must be willing to assume the cost of the Sponsored upgrade, study costs, and any cost associated with necessary mitigation.

No Sponsored upgrades were completed in 2014.

Section 8: Regional Cost Allocation Review (RCAR)

Upon conclusion of the Regional Cost Allocation Review (RCAR) Report in October 2013, SPP Staff and the RARTF recommended that a second RCAR process (RCAR II) be commenced and work in parallel with the 2015 ITP10 Assessment, and that it be completed shortly after the completion of the 2015 ITP10.

The RCAR II is an analysis to measure the cost allocation impacts of SPP's Highway/Byway methodology to zones. The costs and benefits of transmission projects with Notifications to Construct (NTC) are assessed for each zone. Any zone with benefits that are not roughly commensurate with their costs (defined as B/C ratio less than 0.8) will be analyzed for potential remedies. Potential remedies, in order of most to least preferable, may include but are not limited to:

1. Acceleration of planned upgrades;
2. Issuance of NTCs for selected new upgrades;
3. Apply Highway funding to one or more Byway projects;
4. Apply Highway funding to one or more Seams projects,
5. Zonal Transfers (similar to Balanced Portfolio Transfers) to offset costs or a lack of benefits to a zone;
6. Exemptions from cost associated with the next set of projects; and
7. Change cost allocation percentages.

In 2014, Staff has worked with stakeholders through the TWG, ESWG, and MOPC to further refine the benefit metric techniques that will be used in the RCAR II. These techniques were approved by the BOD in July 2014.

A preliminary RCAR II model development and analysis (referred to as the "ITP10 Cumulative Assessment") is currently being performed and is scheduled to conclude in January 2015. The results of the ITP10 Cumulative Assessment will be included in the 2015 ITP10 report. After approval of the 2015 ITP10 in January 2015, RCAR II models will be updated in order to develop final RCAR II models and perform a final analysis. Staff will work with the TWG and ESWG to finalize the RCAR II models. The RCAR II analysis and report are scheduled to be completed in April 2015.

Section 9: Interregional Coordination

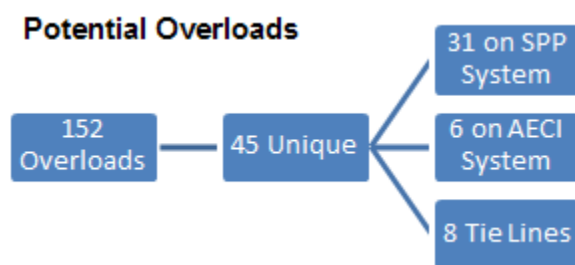
9.1: Interregional Planning

In 2014, SPP participated in two different joint planning processes. SPP's respective Joint Operating Agreements (JOA) with AECI and MISO outline the requirements for joint and coordinated planning procedures and the resulting product of a Coordinated System Plan (CSP).

The SPP-AECI JOA requires a reliability-focused study be performed every other year. The scope of the 2014 SPP-AECI CSP was to evaluate the reliability and robustness of the combined SPP and AECI transmission systems in the near-term and long-term planning horizons, collaborate on the development of mutually beneficial transmission improvements, and identify potential transmission projects for approval and construction. The study consisted of an ACCC steady state powerflow analysis, a low hydro scenario, and transfer analysis to determine incremental Available Transfer Capability (ATC) as a result of any seams projects.

These three components of the study were included in the scope after significant SPP and AECI stakeholder input. The study was overseen by the SPP-AECI Interregional Planning Stakeholder Advisory Committee (IPSAC) and consists of stakeholders from both SPP and AECI. SPP and AECI staff met with the IPSAC on four different occasions throughout the year to obtain the stakeholder input vital to completing the study. On multiple occasions, study updates were provided to various other SPP working groups, committees, and stakeholder summits.

The base case (N-0) and contingency (N-1) analysis that was completed in the steady state powerflow portion of the study provided a list of potential thermal and voltage limit violations. This list was provided to stakeholders along with a request for stakeholders to propose solutions to address the potential violations. Potential overloads and potential low voltage issues are represented below. The map in Figure 9.1 is an overview of all the issues identified in all the model years included in the study.



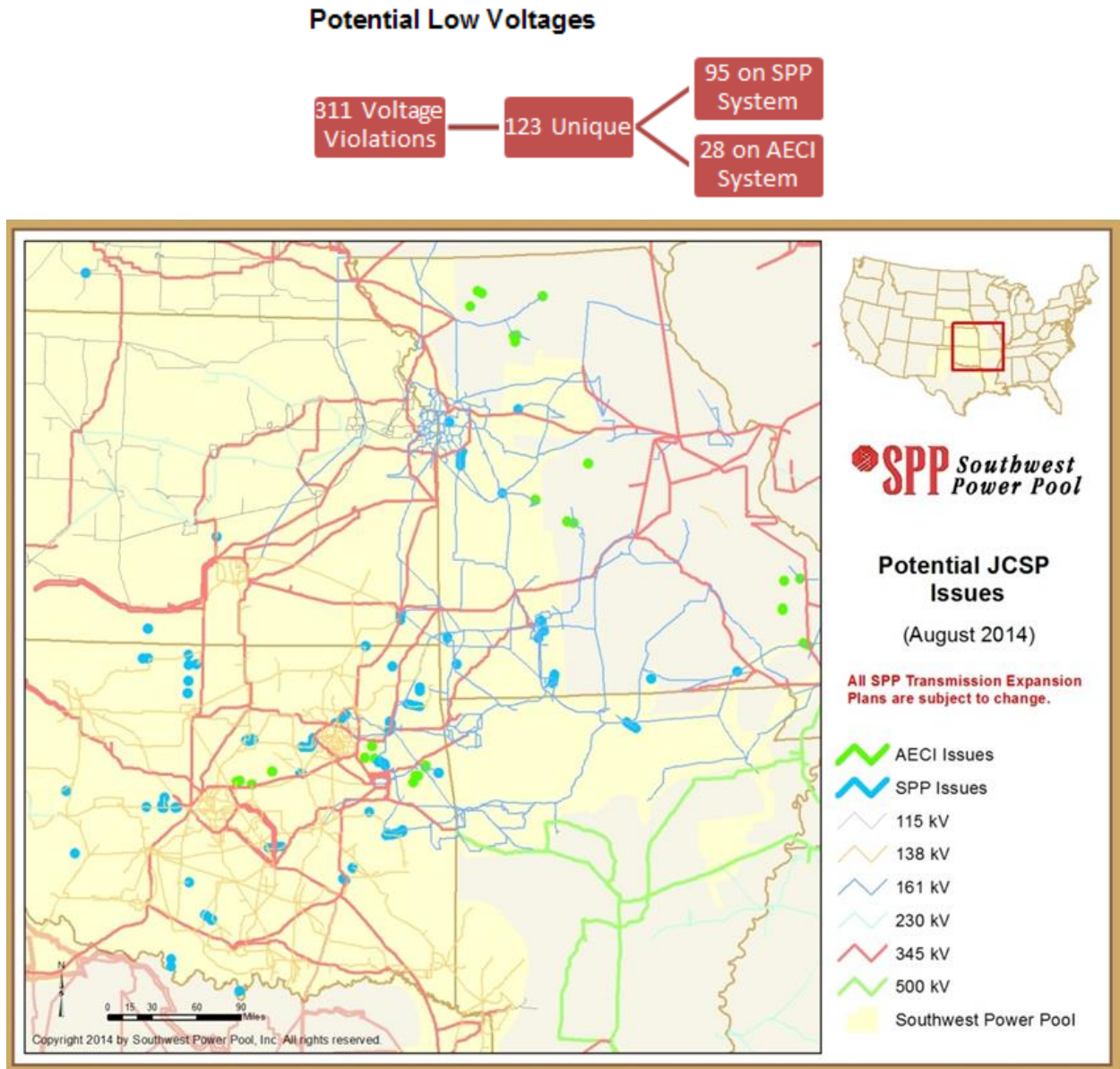
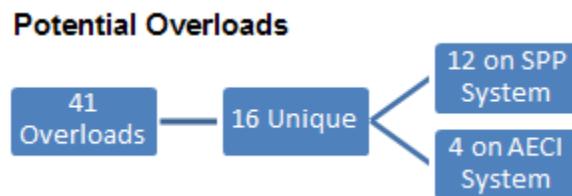
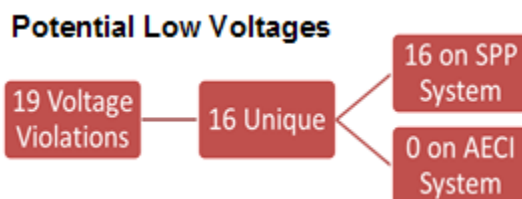


Figure 9.1: Potential JCSP Issues

The low hydro scenario (N-0) and contingency (N-1) powerflow analysis that was completed provided a list of potential thermal and voltage limit violations. This list was provided to stakeholders along with a request for stakeholders to submit solutions to address the potential violations. Potential overloads and potential low voltage issues are represented below.





SPP and AECI staff took the approach of focusing on developing potential joint projects that were mutually beneficial to both entities. After an extensive amount of coordination was done to ensure study results were accurate, SPP and AECI staff developed a list of the top mutually beneficial projects. These potential solutions were compared for cost-effectiveness and feasibility versus SPP's and AECI's regional solutions to those same issues. Once the cost comparisons and stakeholder input were taken into account, no joint transmission solutions were identified that would provide a more cost effective solution than SPP or AECI's regional solutions. All potential voltage and thermal issues on the SPP system identified in the joint study are being addressed by the 2015 ITPNT. The next SPP-AECI CSP will take place in 2016; however AECI and SPP will continue to coordinate in the interim on potential seams transmission upgrade opportunities that may materialize from each party's respective regional planning processes.

Also in 2014, SPP began a Coordinated System Plan study with MISO pursuant to the joint planning procedures contained in the SPP-MISO JOA. The study began in April of 2014 and is scheduled to conclude in June 2015 when both parties will have the opportunity to begin a regional review process for any Interregional Projects that may be recommended from the CSP study. The purpose of the CSP study is to jointly evaluate seams transmission issues and identify transmission solutions that efficiently address the identified issues to the benefit of SPP and MISO. This study will incorporate an economic evaluation of seams transmission issues and an assessment of potential reliability violations. A high-level overview of the scope of the CSP study is shown in the table below:

MISO-SPP CSP Tasks	
Scope Development	
1. Develop and finalize scope document for CSP study	
2. Develop detailed schedule for CSP study	
3. Economic Evaluation and Reliability Assessment	
Economic Evaluation	Reliability Assessment
• Future and Model Development	• Perform steady-state reliability assessment using jointly developed power flow models
• Historical and Projected Congestion Analysis	• Test system stability using scenario(s) appropriate for studying dynamics.

MISO-SPP CSP Tasks	
• Solution Development	• Determine if there are interregional alternatives to proposed regional solutions
• Solution Evaluation and Robustness Testing	• Evaluate potential transmission solutions, as needed, based on identified issues.
• Reliability Analysis	
• Determine interregional cost allocation	
4. Draft Coordinated System Plan study report	
5. Regional Evaluation and Cost Allocation (if needed)	

9.2: Interregional Requirements of Order 1000

SPP is currently waiting on a response from FERC on its July 2013 filing to satisfy the interregional requirements of Order 1000. SPP and MISO entered into a CSP in 2014 based on the SPP-MISO JOA and current pending filings. SPP will comply with interregional requirements of Order 1000 with Southeastern Regional Transmission Planning Region SERTP beginning in 2015.

9.3: ITP Seams Coordination Enhancements

SPP continues to enhance and refine coordination with SPP's neighbors during SPP's regional planning studies, including the ITP10. The goal of the enhanced coordination is to better ensure that the planning along the SPP seams is as robust as the transmission planning in the middle of the SPP footprint. To accomplish this, SPP's seams coordination objective was to coordinate with SPP's neighbors at every milestone of the planning process and on the same schedule as SPP staff coordinates with SPP stakeholders. As described in section 9.1, there were two ongoing seams planning studies during the course of the 2015 ITP10 which provided additional coordination opportunities as these seams studies were leveraged in the 2015 ITP10 assessment.

Coordination Activities

Seams coordination in the ITP10 focused on SPP's Tier 1 neighbors. Throughout the previous sections of this report, coordination with SPP's Tier 1 neighbors is discussed as it pertains to each specific section. The subsections below provide additional information regarding that coordination.

Model Development & Resource Plan

In addition to using the Multi-regional Modeling Working Group (MMWG) models as a starting point for SPP's model development, SPP also provided SPP's Tier 1 neighbors with an opportunity to review and provide edits to the ITP10 model. AECI and MISO each provided specific feedback on the modeling for their respective footprints. This review was similar to reviews performed by SPP stakeholders as the Tier 1 neighbors had the

opportunity to review load, generation, topology, and other modeling inputs. Additionally, SPP's neighbors provided feedback on the resource plan that SPP used to model the retirements and generation expansion for 2024 in the ITP10. Since SPP and MISO have a process in place to share their regional planning models, SPP was able to utilize the resource expansion plan MISO used in the MISO Transmission Expansion Plan (MTEP) 2013. The MISO expansion plan was supplemented by incorporating additional resources, as needed, for Entergy and Cleco as these areas were not included in the MTEP 2013.

Congestion Assessment

While in the ITP10, SPP did not report on transmission needs outside of the SPP footprint. Each of SPP's Tier 1 neighbors were provided with the results of SPP's identified transmission needs to begin discussion of whether or not there was an opportunity to coordinate on a joint transmission solution based on SPP's identified needs. Specifically with AECI, SPP met on several occasions discussing the transmission needs SPP identified that are close to the seam with AECI. The list of transmission needs was also shared with MISO. These needs along the seam closely aligned with the transmission needs identified in the SPP-MISO Coordinated System Plan Study discussed below.

Coordination with Ongoing Seams Assessments

During the 2015 ITP10, there were also two seams studies which were ongoing. The first is the SPP-AECI Joint Coordinated System Plan Study. The AECI Study focused on identifying and addressing potential reliability needs along the SPP-AECI seam. These needs could be in either the SPP or the AECI system. The needs identified in the AECI Study closely aligned with those identified in the ITP10 and the ITPNT. For this reason SPP staff was able to coordinate the two studies. All of the solutions proposed in the AECI Study were evaluated in the ITP10, and likewise the ITP10 proposed projects were evaluated in the AECI Study.

The second seams assessment is the SPP-MISO Coordinated System Plan Study (MISO Study). The MISO Study began in early 2014 and will conclude in June 2015. The MISO Study is currently in the solution development phase with the transmission needs having been published in October. The data that was used for model development in the MISO Study was used, where applicable, to enhance and improve the modeling in the ITP10. This provided SPP with the most recent and updated modeling of the large seam between SPP and MISO. The transmission needs on the SPP system identified in the MISO Study are consistent with the analysis performed in the ITP10.

While both of these seams assessments were separate studies from the 2015 ITP10, their performance during the ITP10 encouraged a more focused analysis on the seams region in the ITP10 by providing additional and more updated modeling information, better coordination and exchange of assumptions and data, and an expanded list of proposed transmission solutions focused on identifying transmission along the SPP seams.

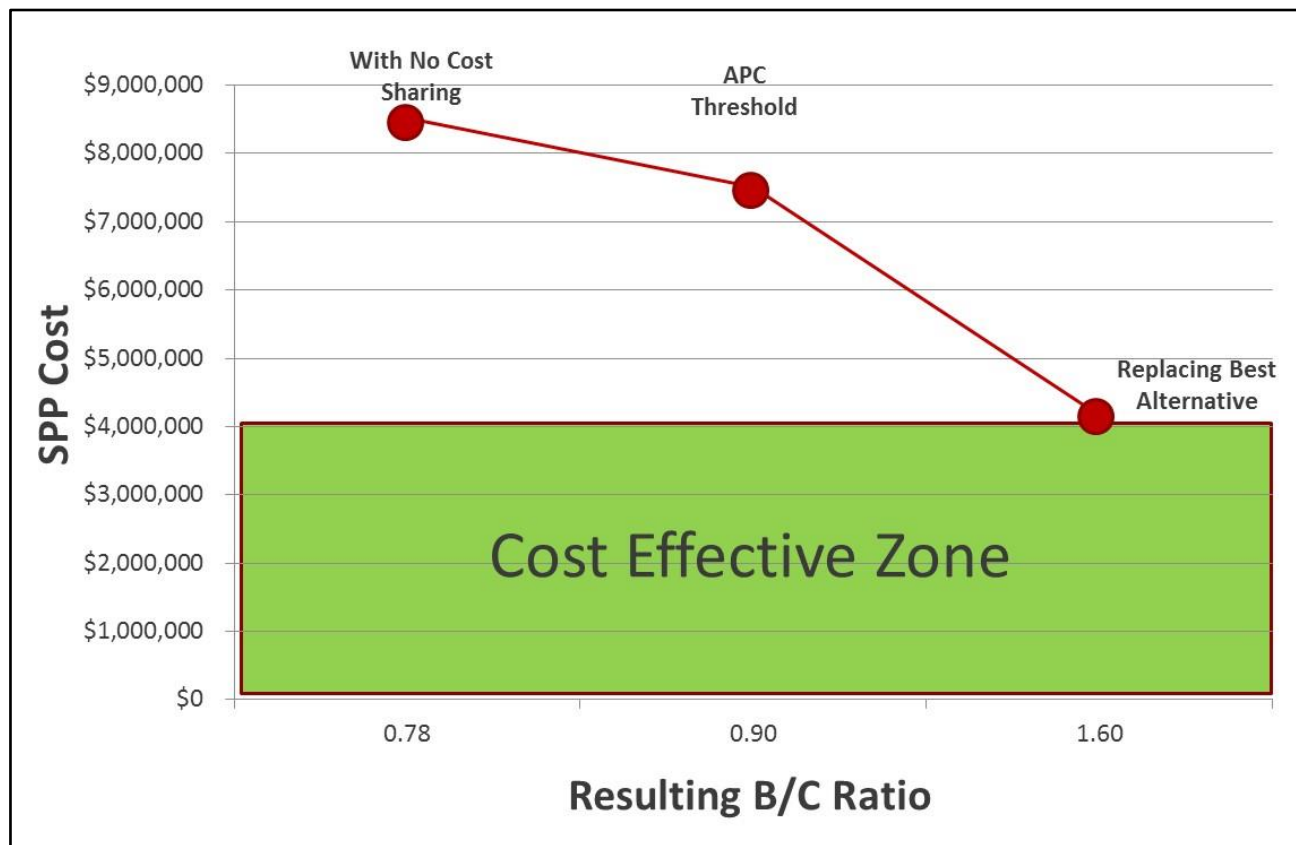
Solution Evaluation

Evaluating seams transmission solutions includes an additional variable that is not present when evaluating an SPP regional transmission solution, namely, seams cost sharing. This unknown variable was seen as being a hurdle for moving forward in the planning process for seams projects in previous ITP assessments because a seams project would provide

benefits to regions outside SPP, but the SPP ITP solution development and evaluation process would assume all of the cost is being paid for by stakeholders in the SPP region. This issue was addressed in the 2015 ITP10 by a more focused evaluation of potential seams projects earlier in the planning process and by identifying the level of cost sharing a seams project would need in order to be the most cost-effective solution for SPP.

During project screening SPP staff identified projects that could potentially benefit one or more of SPP's neighbors. The projects which appeared to provide significant benefit to SPP and potentially benefit a seams neighbor were then evaluated to determine if there was a level of cost sharing which would cause the seams project to be more cost-effective than SPP's other regional solutions. After compiling this information SPP approached the applicable seams neighbor and began working with that neighbor to further evaluate the project to determine the neighbor's level of interest in the project.

The chart below shows a generic example of this evaluation.



The chart above illustrates a generic project that, if SPP approved without a seams partner, would result in an APC B/C ratio of .78 which is below the .9 B/C ratio threshold used in the ITP10. In order for that project to meet the .9 threshold the SPP portion of the costs would have to be reduced by approximately \$1,000,000. This means a seams partner would need to agree to cost share the project and pay, at a minimum, about 12% of the project. In this generic example with the 12% cost sharing, while the project would meet the 2015 ITP10 APC threshold, it would not be the preferred solution as there is a regional project which provides SPP a B/C ratio just under 1.6. In order for this generic example project to be the preferred solution it must be more cost effective than the

regional solution. For this particular scenario, the SPP portion of the cost could only be \$4,000,000 for the B/C ratio to surpass the SPP regional solution. The seams partner would need to agree to pay, at a minimum, about 53% of the total project cost. If there is a cost sharing agreement where the seams partner agrees to pay 53% of the project then that project would be considered the preferred solution in the 2015 ITP10.

This analysis described above was performed on all projects which appeared to provide significant benefit to SPP and also to an SPP neighbor. This was no less than 17 projects. Of those projects evaluated AECl expressed interest in several of them. Those projects were evaluated further with AECl to identify the specific value provided to AECl, the project feasibility, and total cost-effectiveness. After evaluation of all potential seams projects, there were not any seams projects which were both viable and more cost-effective than a regional alternative.

Projects which were shown to potentially benefit MISO will be evaluated in the MISO Study.

9.4: Eastern Interconnection Planning Collaborative

SPP is a participating Planning Authority (“PA”) in the Eastern Interconnection Planning Collaborative (EIPC). The activities of the EIPC can be found on the EIPC website at www.eipconline.com.

A significant amount of time and effort has been expended by the EIPC to facilitate an improved understanding regarding the interdependencies between the bulk power electric system and the natural gas supply and delivery network. In 2014, EIPC also created two scenarios: an updated base case for 2023, as well as a drought for 2023 to inform interregional planning efforts.

Section 10: Sub-Regional Planning

Based on FERC Order 890 and Section III.2.b of Attachment O of the OATT, sub-regional areas were defined and local area planning meetings were held during 2014 in conjunction with the SPP planning summits.

The purpose of local area planning meetings is to identify unresolved local issues and transmission solutions at a more granular level than are accomplished at general regional planning meetings. Local area planning meetings provide stakeholders with local needs the opportunity to give advice and recommendations to the Transmission Provider and Transmission Owners. Local area planning meetings are open, coordinated, and transparent, providing a forum to review local area planning criteria as specified in Section II of the OATT, Attachment O. Feedback offered at each sub-regional meeting is taken into consideration by SPP staff when developing the regional reliability plan.

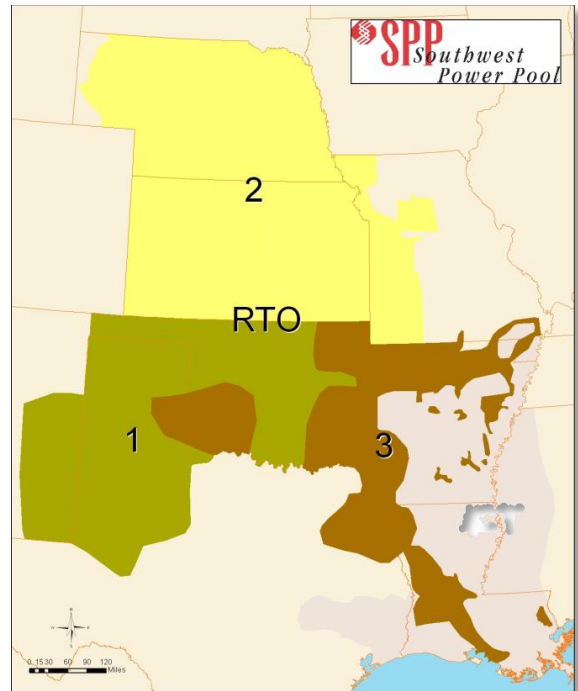


Figure 10.1: SPP Sub-Regional Map

10.1: Stakeholder Process and Forums

Notices for the sub-regional planning meetings are posted on SPP.org and distributed to the appropriate email distribution lists. Sub-regional planning meetings are open to all entities. Any regulatory agency is invited and encouraged to participate. The map above represents the three SPP local areas.

2014 Sub-Regional Meetings

SPP held sub-regional planning meetings via net teleconferences following the October planning summit held in Little Rock at SPP's corporate headquarters. Teleconferences with each sub-regional as well as the Integrated System were held on October 10, 2014. Subject matter experts from SPP staff were present at all of the meetings to receive suggestions, answer questions, and discuss any concerns that stakeholders had about the transmission needs in their respective region. Minutes for each sub-regional net teleconference can be found on SPP's website (SPP.org>Engineering>Transmission Planning>2014 October Summit).

Section 11: Project Tracking

11.1: Business Practice 7060

Applicable to projects issued an NTC on or after January 1, 2012, the MOPC approved Business Practice 7060 on March 27, 2012. The Business Practice commenced a cost estimation process defined by a tiered approach for project cost estimates based upon the level of project definition that is known. It also introduced the Notification to Construct with Conditions (NTC-C) issued to applicable projects, projects with an estimated cost of \$20 million or greater and a nominal operating voltage greater than 100 kV. The table below lists the cost estimate stage definitions.

Estimate Name	Stage			End Usage	Precision Bandwidth
	Non-Competitive Projects		Competitive Projects		
	Projects > 100 kV & > \$20 Million	All other BOD Approved Projects			
Conceptual (SPP Prepared)	1	1	1	Concept screening for ITP20/ITP10	-50% to + 100%
Study	2	2	2	Study of feasibility and plan development for ITP10/ITPNT	-30% to +30%
	NTC-C Issued	NTC Issued	RFP Issued		
NTC-C Project (CPE)	3	N/A	N/A	Established baseline (NTC-C)*	-20% to +20%
	New NTC Issued				
NTC Project (NPE)	N/A	3	N/A	Established baseline (NTC)*	-20% to +20%
RFP Response (RRE)	N/A	N/A	3	Established baseline (RFP Response)*	-20% to +20%
			NTC Issued		
Design & Construction	4	4	4	Design after NTC issued to build the project	-20% to +20%**

*BOD approval required to reset the baseline.

**Actual cost is expected to be within +/-20% of final baseline estimate.

Table 11.1: BP 7060 Cost Estimate Stage Definitions

The precision bandwidths defined in Business Practice 7060 are used as guidelines for NTC review triggers. For a project that is issued a NTC-C, an automatic review of the project is initiated if the $\pm 20\%$ precision bandwidth of the cost estimate that is received after NTC-C issuance, called the NTC-C Project Estimate (CPE), exceeds the $\pm 30\%$

bandwidth of the cost estimate previously submitted during the study phase of the project, titled the Study Estimate.

In October 2014, the MOPC approved changes to Business Practice 7060 to accommodate the Transmission Owner Selection Process (TOSP) developed to comply with FERC Order 1000 for Competitive Projects.

11.2: Project Cost Working Group

Business Practice 7060 also defined the role of the Project Cost Working Group (PCWG) for reviewing projects that have experienced a cost variance that exceeds $\pm 20\%$ of the established baseline estimate. The PCWG will initially be responsible for only applicable projects. If the PCWG recommends a restudy and/or changes or revocation of a NTC, the recommendation to the MOPC would follow SPP's existing processes for approval to the BOD. The BOD will make the final determination on whether to restudy and/or change or revoke the NTC.

The PCWG is also responsible for maintaining the Standardized Cost Estimate Reporting Template (SCERT) developed to provide consistency of cost estimates and facilitate the Project Tracking process. The SCERT is to be utilized by Transmission Owners for all project cost estimates and applicable monthly/quarterly updates.

11.3: NTC Letters Issued in 2014

After the SPP Board of Directors approves transmission expansion projects or once service agreements are filed with FERC, SPP issues Notifications to Construct (NTC) letters to appropriate Transmission Owners.

In 2014, SPP issued 39 NTC letters with estimated construction costs of \$1.48 billion for 108 projects to be constructed over the next five years through 2019. Of this \$1.48 billion, the project cost breakdown is as follows:

- \$58.3 million for Regional Reliability;
- \$3 million for Generation Interconnection;
- \$38.6 million for Transmission Service;
- \$573 million for High Priority; and
- \$806.6 million for ITP projects.

A list of the NTCs issued in 2014 can be found in [Section 13](#).

11.4: Projects Completed in 2014

After the SPP Board of Directors approves transmission expansion projects or once Interconnection or Network Integrated Transmission Services Agreements are filed with FERC, SPP issues Notifications to Construct (NTC) letters to appropriate Transmission Owners. SPP actively monitors the progress of approved projects by soliciting feedback from project owners. One hundred thirty seven (137) upgrades were completed as of December 31, 2014. The breakdown includes:

- 65 ITP - \$491.5 million

- 5 Transmission Service - \$28.2 million
- 15 Generation Interconnection - \$61.7 million
- 22 Regional Reliability - \$60.8 million
- 26 High Priority - \$865.5 million
- 4 Balanced Portfolio - \$307.9 million

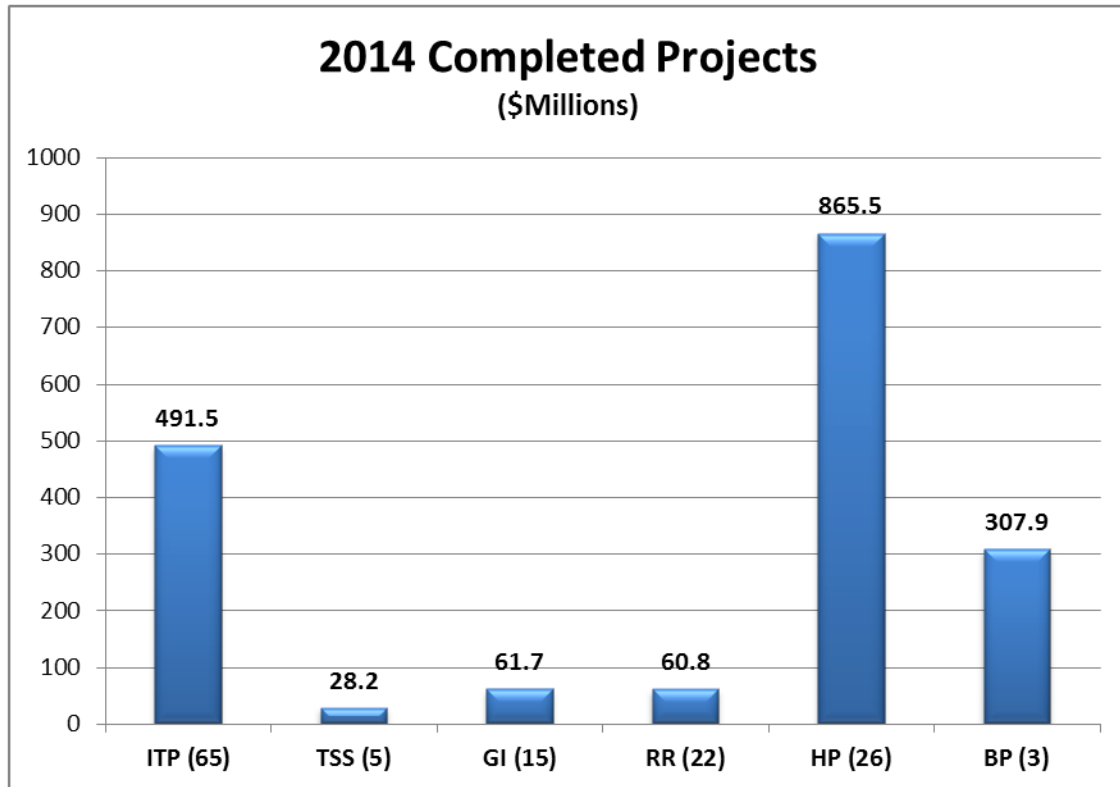


Figure 11.1: Projects Completed in 2014

Tables listing projects completed in 2014 can be found in [Section 17](#).

Section 12: STEP List

The 2015 STEP List includes a comprehensive listing of transmission projects identified by the SPP RTO. Not all projects in the List have been approved by the BOD, but all BOD-approved projects are included in the list. The List also includes Tariff study projects, economic projects, and zonal projects.

Projects in the STEP List are categorized in the column labeled “Project Type” by the following designations:

- Balanced Portfolio – Projects identified through the Balanced Portfolio process
- Generation Interconnection – Projects associated with a FERC-filed Generation Interconnection Agreement
- High Priority – Projects identified in the high priority process
- ITP – Projects needed to meet regional reliability, economic, or policy needs in the ITP study processes
- Transmission Service – Projects associated with a FERC-filed Service Agreement
- Zonal Reliability – Projects identified to meet more stringent local Transmission Owner criteria
- Regional Reliability – Projects identified in the Aggregate Study and Delivery Point Study processes to meet SPP Criteria

The complete Network Upgrade list includes two dates.

1. In-service: Date Transmission Owner has identified as the date the upgrade is planned to be in-service.
2. SPP Need Date: Date upgrade was identified as needed by the RTO.

A copy of the 2015 STEP project list can be found at the following location:

SPP.org>Transmission Planning>2015 SPP Transmission Expansion Plan Project List

Facility owner abbreviations used in the STEP List:

Abbreviation and Identification	
AECC	Arkansas Electric Cooperatives
AECI	Associated Electric Cooperative, Incorporated
AEP	American Electric Power
CUS	City Utilities, Springfield Missouri
DETEC	Deep East Texas Electric Cooperative
EDE	Empire District Electric Company
GMO	KCP&L Greater Missouri Operations Company
GRDA	Grand River Dam Authority
GRIS	Grand Island Electric Department (GRIS)
INDN	City Power & Light, Independence, Missouri
ITCGP	ITC Great Plains
KCPL	Kansas City Power and Light Company
LEA	Lea County Cooperative
LES	Lincoln Electric System
MIDW	Midwest Energy, Incorporated
MKEC	Mid-Kansas Electric Company
NPPD	Nebraska Public Power District
OGE	Oklahoma Gas and Electric Company
OMPA	Oklahoma Municipal Power Authority
OPPD	Omaha Public Power District
PW	Prairie Wind Transmission
RCEC	Rayburn Electric Cooperative
SEPC	Sunflower Electric Power Corporation
SPS	Southwestern Public Service Company
SWPA	Southwestern Power Administration
WFEC	Western Farmers Electric Cooperative
WR	Westar Energy

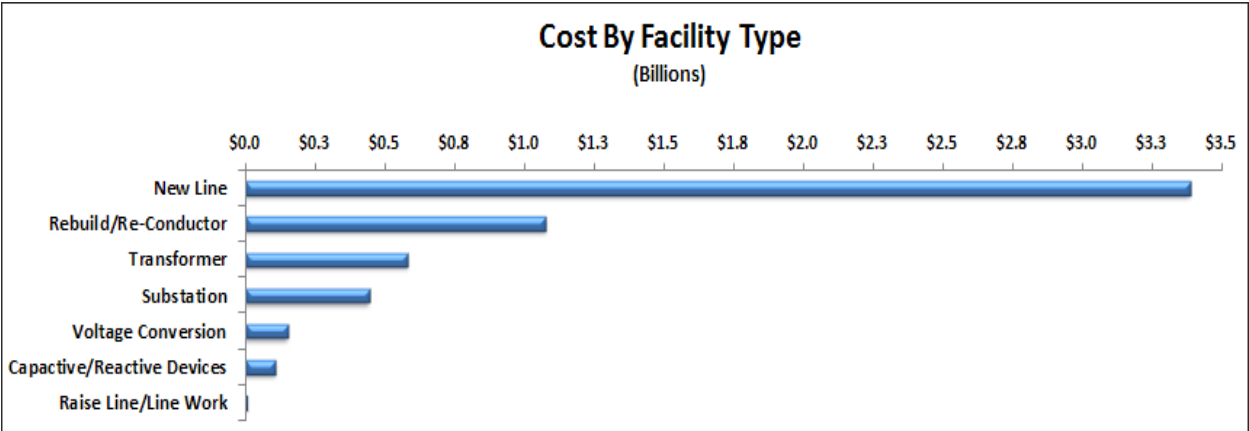


Figure 12.1: Total Cost by Facility Type (Dollars)

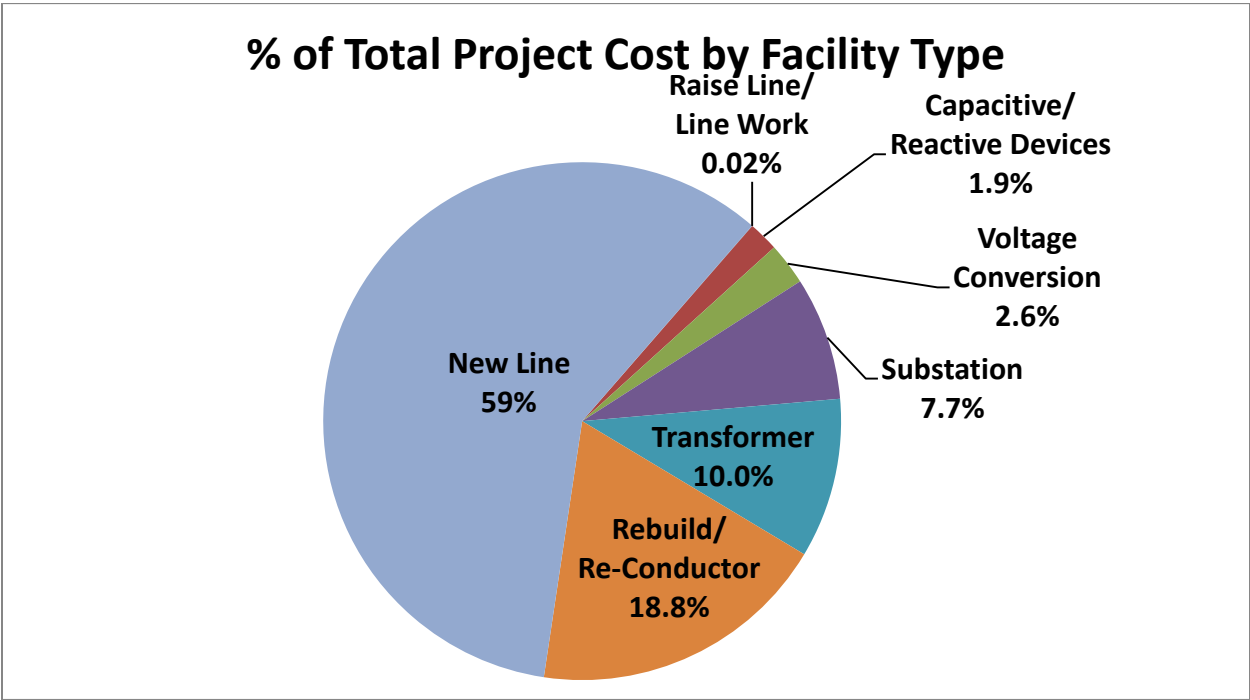


Figure 12.2: Percentage of Total Cost of Facility Type

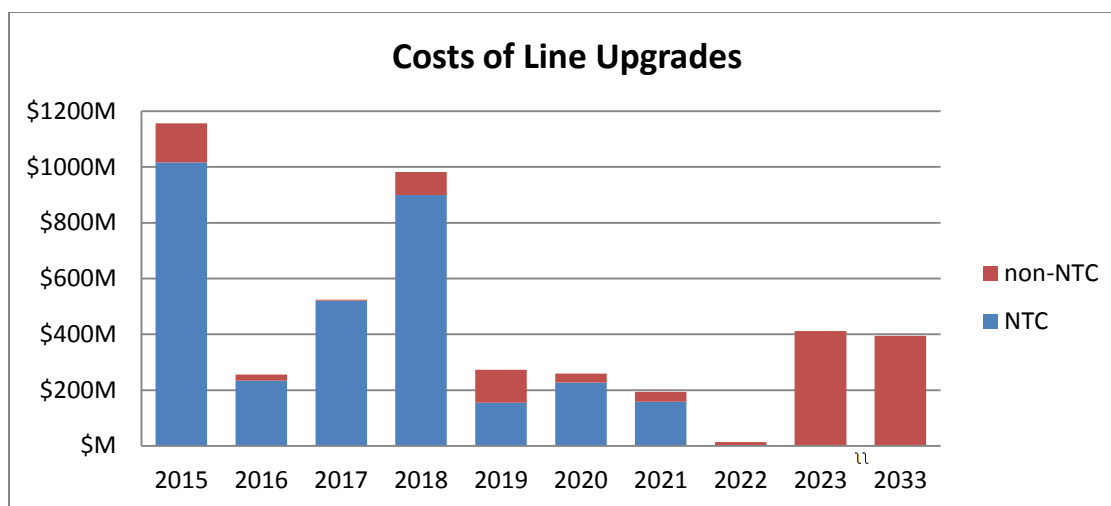


Figure 12.3: Total Cost of Line Upgrades

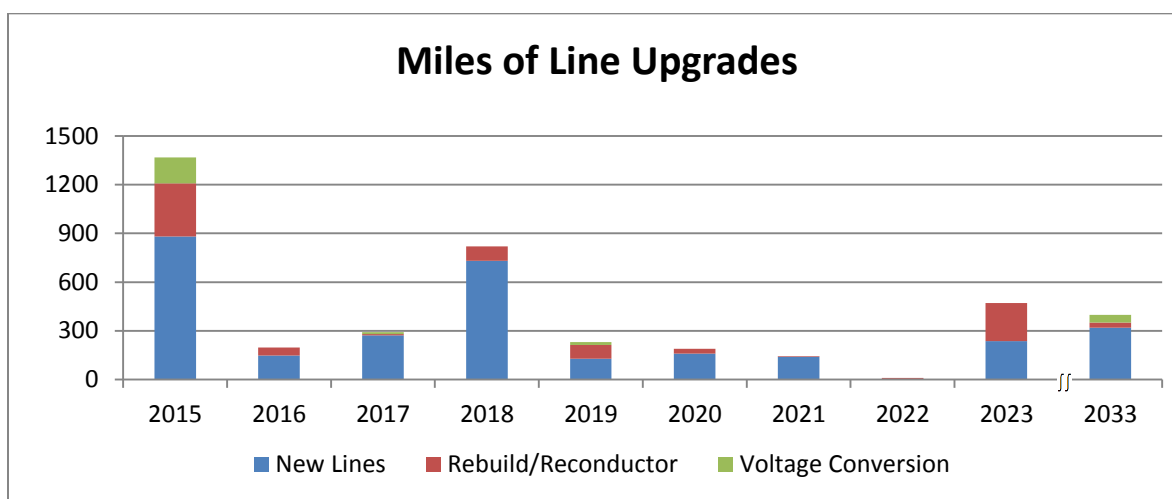


Figure 12.4: Total Miles of Line Upgrades by Project Type

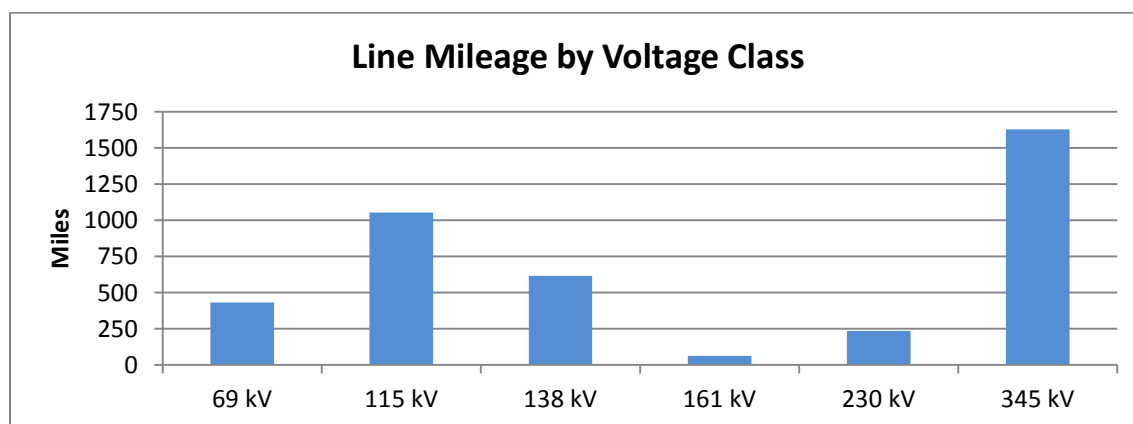


Figure 12.5: Total Line Mileage by Voltage Class

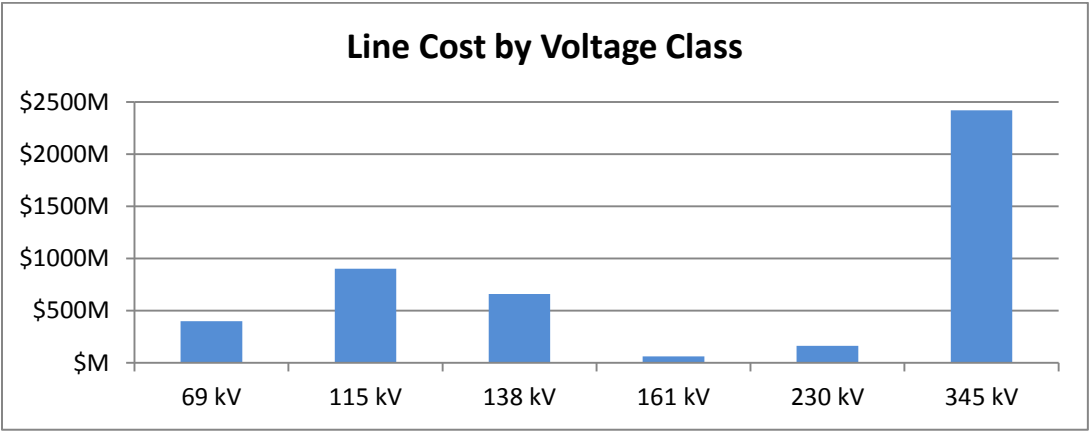


Figure 12.6: Total Line Cost by Voltage Class

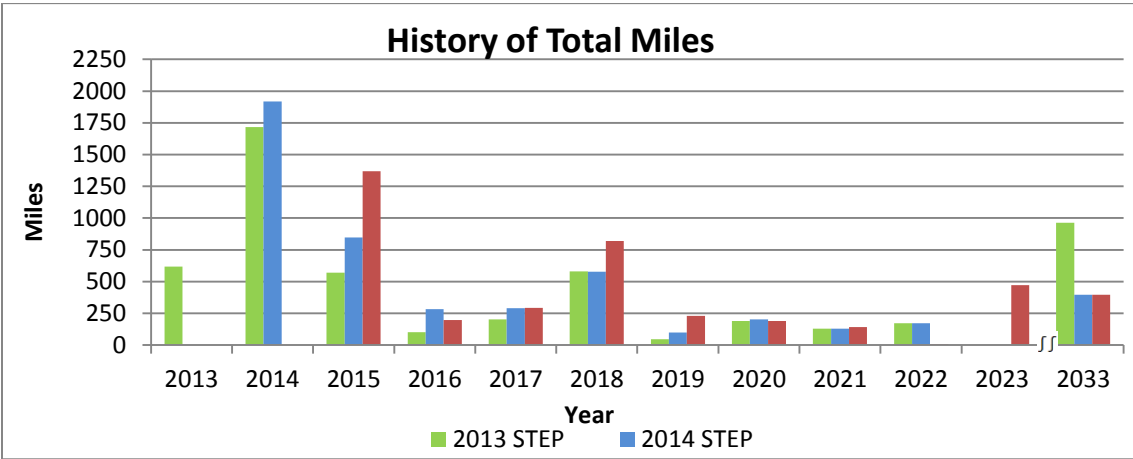


Figure 12.7: History of Total Miles 2013-2033

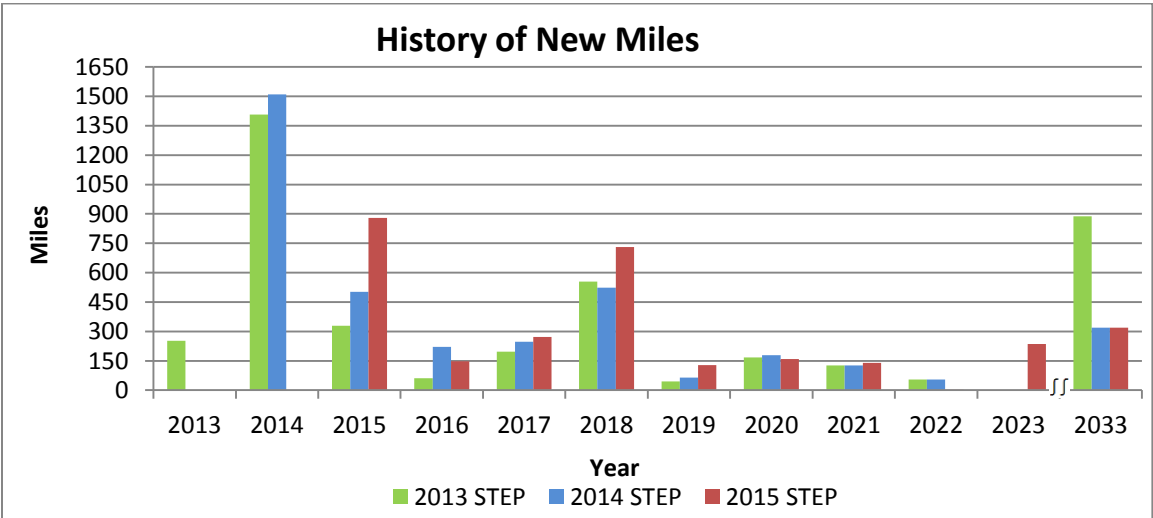


Figure 12.8: History of New Line Miles 2013-2033

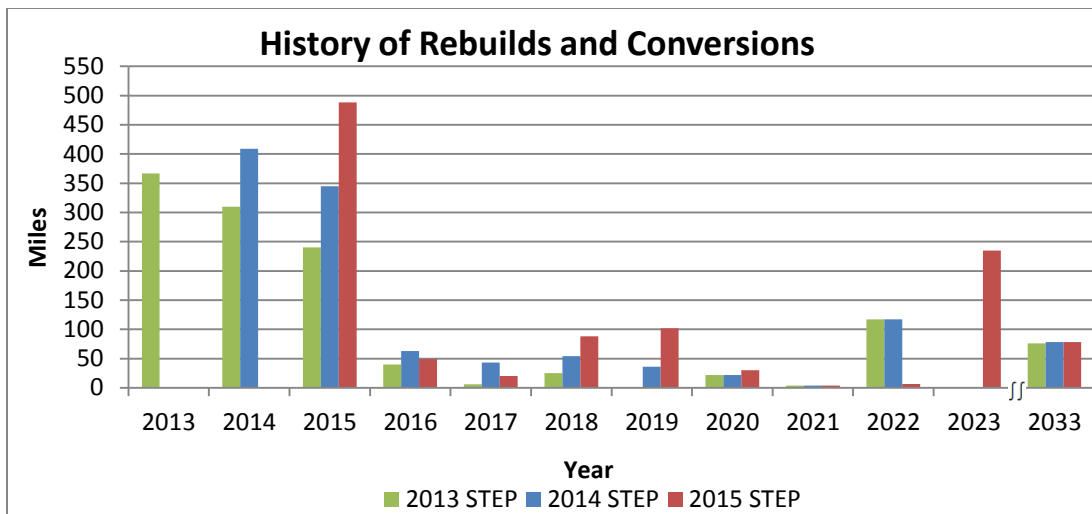


Figure 12.9: History of Line Rebuilds and Conversions 2013-2033

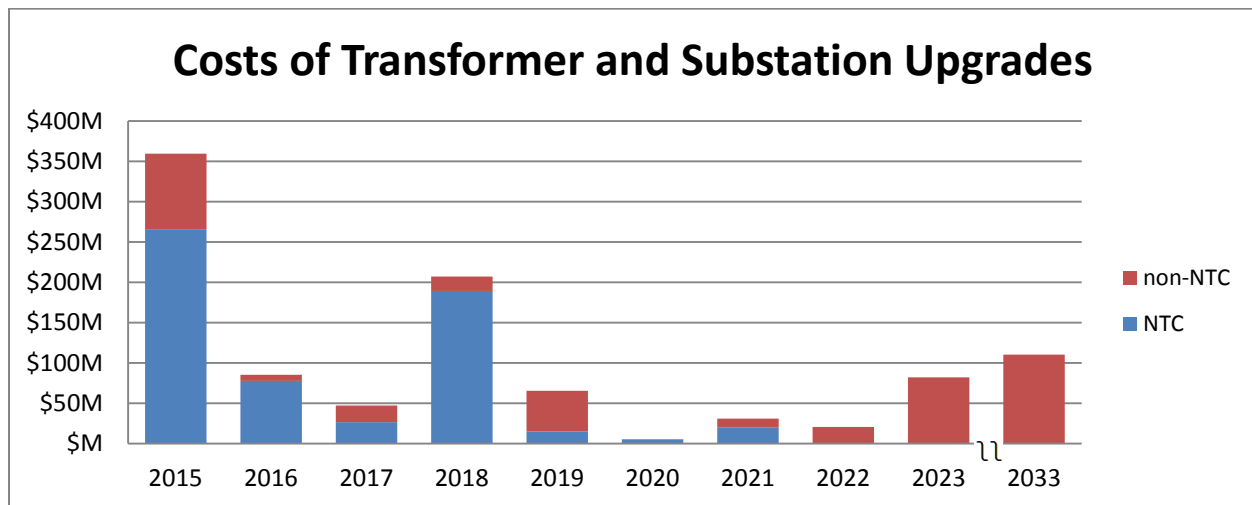


Figure 12.10: Costs of Transformer and Substation Upgrades

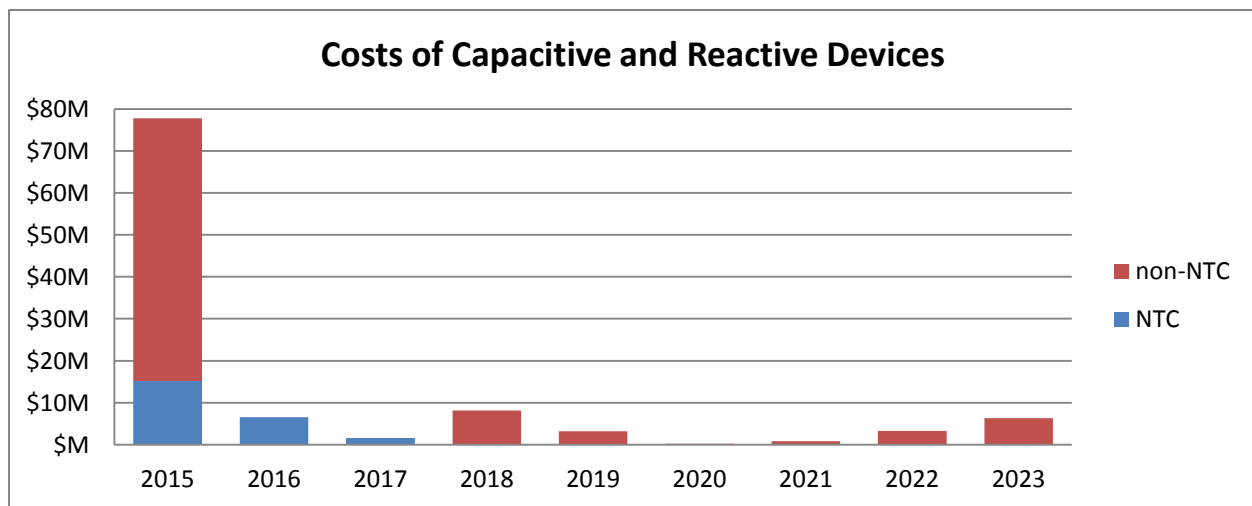


Figure 12.11: Costs of Capacitive and Reactive Devices

Section 13: NTCs Issued in 2014

NTC ID	Project ID	Facility Owner	Project Name	Current Cost Estimate
200239	945	ITCGP	Multi - Spearville - Ironwood - Clark Co. - Thistle 345 kV Double Circuit	\$50,565,144
	945	ITCGP	Multi - Spearville - Ironwood - Clark Co. - Thistle 345 kV Double Circuit	\$50,565,144
	945	ITCGP	Multi - Spearville - Ironwood - Clark Co. - Thistle 345 kV Double Circuit	\$1,850,000
	945	ITCGP	Multi - Spearville - Ironwood - Clark Co. - Thistle 345 kV Double Circuit	\$9,191,986
	945	ITCGP	Multi - Spearville - Ironwood - Clark Co. - Thistle 345 kV Double Circuit	\$200,000
200241	30438	GRDA	Line - Kerr - 412 Sub 161 kV Ckt 1	\$161,100
	30440	GRDA	Line - 412 Sub - Kansas Tap 161 kV Ckt 1	\$161,100
200242	30097	WR	Device - Vaughn Cap 115 kV	\$1,184,617
	30437	WR	Multi - Geary County 345/115 kV and Geary - Chapman 115 kV	\$27,938,225
	30437	WR	Multi - Geary County 345/115 kV and Geary - Chapman 115 kV	\$20,530,196
	30437	WR	Multi - Geary County 345/115 kV and Geary - Chapman 115 kV	\$16,190,561
	30553	WR	Line - Butler - Weaver 138 kV Ckt 1	\$221,294
	30556	WR	Sub - McDowell Creek Switching Station 115 kV Terminal Upgrades	\$258,795
	30558	WR	XFR - Neosho 345/138 kV Ckt 1	\$7,790,221
	30568	WR	Device - Clay Center Switching Station 115 kV	\$1,390,166
	30579	WR	Line - Wellington - Creswell 69 kV	\$7,405,817
	30579	WR	Line - Wellington - Creswell 69 kV	\$8,131,536
	30580	WR	Line - Crestview - Kenmar 69 kV	\$8,968,153
	30580	WR	Line - Crestview - Kenmar 69 kV	\$5,590,592
	30584	WR	Line - Montgomery - Sedan 69 kV Ckt 1	\$10,537,806
	30584	WR	Line - Montgomery - Sedan 69 kV Ckt 1	\$32,548,502
200243	30656	OGE	GEN-2012-040 POI	\$3,033,890
200244	30390	WR	Line - East Manhattan - JEC 230 kV	\$58,317,000
	30560	WR	Line - Sumner County - Viola 138 kV Ckt 1	\$51,513,963
200245	844	WFEC	Line - Mustang - Sunshine Canyon 69 kV Ckt 1	\$4,725,000
	30562	WFEC	Line - Elk City - Red Hills 138 kV Ckt 1	\$3,675,000
	30563	WFEC	Device - Sandy Corner 138 kV	\$504,000
200246	512	AEP	Line - Ellerbe Road - Forbing Tap 69 kV Ckt 1	\$8,174,689
	30559	AEP	Line - Chapel Hill REC - Welsh Reserve 138 kV Ckt 1	\$6,651,694
	30573	AEP	Line - Broadmoor - Fort Humbug 69 kV Ckt 1	\$6,695,986
	30574	AEP	Line - Daingerfield - Jenkins Rec 69 kV Ckt 1 Rebuild	\$2,819,806
	30575	AEP	Line - Hallsville - Longview Heights 69 kV Ckt 1	\$8,851,677
	30576	AEP	Line - Hallsville - Marshall 69 kV Ckt 1	\$15,248,925
	30598	AEP	Line - Letourneau Tertiary #1 - Letourneau Tap 69 kV Ckt 1	\$2,358,802
200247	30582	OGE	Device - County Line 69 kV #2	\$740,254
200248	30565	SEPC	Device - Mingo 115 kV	\$4,812,363
	30589	SEPC	Device - Ruleton 115 kV	\$2,791,167
200250	30583	GMO	XFR - Harrisonville 161/69 kV Ckt 2	\$2,773,480
	30583	GMO	XFR - Harrisonville 161/69 kV Ckt 2	\$1,005,220

NTC ID	Project ID	Facility Owner	Project Name	Current Cost Estimate
200251	1083	AEP	Line - Welsh Reserve - Wilkes 138 kV Ckt 1	\$24,880,495
200252	30581	OGE	Line - Park Lane - Ahloso - Harden City - Frisco - Lula 69/138 kV Ckt 1	\$5,693,264
	30581	OGE	Line - Park Lane - Ahloso - Harden City - Frisco - Lula 69/138 kV Ckt 1	\$6,929,179
	30581	OGE	Line - Park Lane - Ahloso - Harden City - Frisco - Lula 69/138 kV Ckt 1	\$2,121,320
	30581	OGE	Line - Park Lane - Ahloso - Harden City - Frisco - Lula 69/138 kV Ckt 1	\$6,749,202
200253	30374	NPPD	Multi - Hoskins - Neligh 345 kV	\$68,774,278
	30374	NPPD	Multi - Hoskins - Neligh 345 kV	\$12,118,564
	30374	NPPD	Multi - Hoskins - Neligh 345 kV	\$17,804,878
	30496	NPPD	Multi - Stegall 345/115 kV and Stegall - Scottsbluff 115 kV	\$6,616,429
	30496	NPPD	Multi - Stegall 345/115 kV and Stegall - Scottsbluff 115 kV	\$26,894,676
	30496	NPPD	Multi - Stegall 345/115 kV and Stegall - Scottsbluff 115 kV	\$5,975,996
	30566	NPPD	Line - Maxwell - North Platt 115 kV Ckt 1	\$25,767
200254	30596	NPPD	Multi - Broken Bow Wind - Ord 115 kV Ckt 1	\$411,258
	30596	NPPD	Multi - Broken Bow Wind - Ord 115 kV Ckt 1	\$34,182,113
200255	30361	AEP	Multi - Chisholm - Gracemont 345 kV	\$5,326,722
	30361	AEP	Multi - Chisholm - Gracemont 345 kV	\$93,361,588
	30361	AEP	Multi - Chisholm - Gracemont 345 kV	\$20,410,547
200256	766	SPS	XFR - Newhart 230/115 kV Ckt 2	\$6,886,931
	856	SPS	Multi - Centre St. - Hereford NE 115 kV Ckt 1 and Centre St. and Hereford 115 kV Load Conversion	\$9,247,136
	856	SPS	Multi - Centre St. - Hereford NE 115 kV Ckt 1 and Centre St. and Hereford 115 kV Load Conversion	\$435,146
	1004	SPS	XFR - Swisher 230/115 kV Ckt 1	\$3,183,028
	1139	SPS	Line - Allen Sub - Lubbock South Interchange 115 kV Ckt 1	\$10,946,449
	30552	SPS	Line - Oxy Permian Sub - West Bender Sub 115 kV Ckt 1	\$971,535
	30555	SPS	Quahada Switching Station 115 kV	\$8,023,016
	30577	SPS	Line - Chavis - Price - CV Pines - Capitan 115 kV Ckt 1	\$5,961,279
	30577	SPS	Line - Chavis - Price - CV Pines - Capitan 115 kV Ckt 1	\$3,793,668
	30577	SPS	Line - Chavis - Price - CV Pines - Capitan 115 kV Ckt 1	\$3,793,053
	30616	SPS	Sub - Curry County 115 kV	\$813,381
200257	30569	SPS	Multi - Potash Junction - Road Runner 230/115 kV Ckt 1	\$10,576,672
	30569	SPS	Multi - Potash Junction - Road Runner 230/115 kV Ckt 1	\$43,096,827
	30578	SPS	Multi - Bailey Co. - Lamb Co. 115/69 kV	\$5,367,770
	30578	SPS	Multi - Bailey Co. - Lamb Co. 115/69 kV	\$5,074,202
	30578	SPS	Multi - Bailey Co. - Lamb Co. 115/69 kV	\$8,038,605
	30578	SPS	Multi - Bailey Co. - Lamb Co. 115/69 kV	\$8,208,578
	30578	SPS	Multi - Bailey Co. - Lamb Co. 115/69 kV	\$3,028,707
	30578	SPS	Multi - Bailey Co. - Lamb Co. 115/69 kV	\$16,737,611
	30578	SPS	Multi - Bailey Co. - Lamb Co. 115/69 kV	\$3,187,532
	30578	SPS	Multi - Bailey Co. - Lamb Co. 115/69 kV	\$3,187,532
200258	30561	OPPD	XFR - S1366 161/69 kV Ckt 1	\$4,426,730
	30561	OPPD	XFR - S1366 161/69 kV Ckt 1	\$422,270
	30590	OPPD	Multi - S906 - S912 69 kV	\$1,360,327
	30590	OPPD	Multi - S906 - S912 69 kV	\$69,679
	30609	OPPD	Line - S907 - S919 69 kV Ckt 1	\$3,141,600

Southwest Power Pool, Inc.

NTC ID	Project ID	Facility Owner	Project Name	Current Cost Estimate
200259	30588	OPPD	Multi - Fremont - S6801 161/69 kV Ckt 1	\$3,606,519
	30588	OPPD	Multi - Fremont - S6801 161/69 kV Ckt 1	\$29,069,150
	30588	OPPD	Multi - Fremont - S6801 161/69 kV Ckt 1	\$2,416,277
200262	1142	SPS	Line - Canyon East - Randall 115 kV Ckt 1 Rebuild	\$12,806,065
	1144	SPS	XFR - Hitchland 230/115 kV Ckt 2	\$4,087,144
	30420	SPS	Line - Bushland Interchange - Deaf Smith County Interchange 230 kV Ckt 1	\$285,176
	30509	SPS	Line - Canyon East Sub - Canyon West Sub 115 kV Ckt 1	\$2,694,811
	30510	SPS	Line - Mustang - Shell CO2 115 kV Ckt 1	\$15,473,119
	30766	SPS	XFR - Yoakum County Interchange 230/115 kV Ckts 1 and 2	\$3,632,101
	30766	SPS	XFR - Yoakum County Interchange 230/115 kV Ckts 1 and 2	\$3,432,506
200263	30507	MIDW	Line - Hays Plant - Vine Street 115 kV Ckt 1	\$15,720
200264	30508	OGE	Line - Division Ave - Lakeside 138 kV Ckt 1	\$1,720,000
200265	30523	MKEC	Line - Cudahy - Kismet 115 kV Ckt 1	\$12,869,230
	30524	MKEC	Line - Cimarron River Tap - Kismet 115 kV Ckt 1	\$5,747,750
200267	30610	WR	BUTLER - WEAVER 138KV CKT 1 #2	\$18,396,464
200269	30612	OGE	HEFNER - TULSA 138KV CKT 1	\$1,131,409
200270	30597	OGE	Multi - Knobhill - Lane - Noel 138 kV Ckt 1	\$4,009,000
200271	30597	WFEC	Multi - Knobhill - Lane - Noel 138 kV Ckt 1	\$450,000
200272	30746	AEP	Line - Darlington - Red Rock 138 kV Ckt 1	\$15,277,233
	30747	AEP	Line - Grady - Round Creek 138 kV Ckt 1	\$12,132,497
	30748	AEP	Line - Grady - Phillips Gas 138 kV Ckt 1 and 2	\$8,318,584
	30750	AEP	Line - Stonewall - Wapanucka 138 kV Ckt 1	\$8,934,149
	30769	AEP	Line - Benteler - Port Robson 138 kV Ckt 1 and 2	\$2,248,743
	30769	AEP	Line - Benteler - Port Robson 138 kV Ckt 1 and 2	\$2,548,575
	30770	AEP	Sub - Ellis 138 kV	\$4,100,000
200273	30619	AEP	Line - Darlington - Roman Nose 138 kV Ckt 1	\$11,652,107
200275	30644	MKEC	Line - Anthony - Harper 138 kV Ckt 1	\$13,253,238
	30732	MKEC	Line - Anthony - Bluff City - Caldwell - Mayfield - Milan 138 kV Ckt 1	\$6,325,795
	30732	MKEC	Line - Anthony - Bluff City - Caldwell - Mayfield - Milan 138 kV Ckt 1	\$12,662,775
	30732	MKEC	Line - Anthony - Bluff City - Caldwell - Mayfield - Milan 138 kV Ckt 1	\$9,093,172
	30732	MKEC	Line - Anthony - Bluff City - Caldwell - Mayfield - Milan 138 kV Ckt 1	\$12,195,327
200276	30640	MKEC	Line - Kansas Avenue - Dobson - Gano 115 kV Ckt 1	\$134,366
	30642	MKEC	Line - Garden City - Kansas Avenue 115 kV Ckt 1	\$112,722
	30645	MKEC	Line - Harper - Rago 138 kV Ckt 1	\$12,790,167
200277	30567	NPPD	Device - Spalding 115 kV Cap Bank	\$538,071
	30678	NPPD	XFR - Thedford 345/115 kV	\$9,306,000
	30678	NPPD	XFR - Thedford 345/115 kV	\$930,800
200278	30622	OGE	Multi - Knipe - SW Station - Linwood & Warwick Tap 138 kV Ckt 1	\$12,767,120
	30622	OGE	Multi - Knipe - SW Station - Linwood & Warwick Tap 138 kV Ckt 1	\$9,899,440
	30622	OGE	Multi - Knipe - SW Station - Linwood & Warwick Tap 138 kV Ckt 1	\$8,218,020
200279	30624	OGE	Sub - Alva OGE 69 kV	\$150,000
	30625	OGE	Line - Jenson - Jenson Tap 138 kV Ckt 1	\$0

NTC ID	Project ID	Facility Owner	Project Name	Current Cost Estimate
200280	30772	OPPD	Sub - S1260 161 kV	\$4,636,045
	30789	OPPD	Sub - S1398 161 kV	\$2,824,664
200281	30774	WR	Sub - Tallgrass 138 kV	\$4,100,000
200282	30331	SPS	Device - Eagle Creek 115 kV	\$1,470,325
	30649	SPS	Multi - Andrews 230/115 kV Transformer and Andrews - NEF 115 kV Ckt 1	\$10,671,660
	30649	SPS	Multi - Andrews 230/115 kV Transformer and Andrews - NEF 115 kV Ckt 1	\$3,523,472
	30672	SPS	Multi - Dollarhide - Toboso Flats 115 kV	\$822,700
	30672	SPS	Multi - Dollarhide - Toboso Flats 115 kV	\$5,062,341
	30675	SPS	Multi - China Draw - Yeso Hills 115 kV	\$1,046,485
	30675	SPS	Multi - China Draw - Yeso Hills 115 kV	\$14,583,586
	30694	SPS	Multi - Ponderosa - Ponderosa Tap 115 kV	\$5,404,344
	30694	SPS	Multi - Ponderosa - Ponderosa Tap 115 kV	\$996,485
	30694	SPS	Multi - Ponderosa - Ponderosa Tap 115 kV	\$4,174,446
	30756	SPS	Multi - Battle Axe - Road Runner 115 kV	\$2,964,499
	30756	SPS	Multi - Battle Axe - Road Runner 115 kV	\$13,816,310
	30777	SPS	Sub - Oxy South Hobbs 115 kV	\$327,861
	30824	SPS	XFR - Potash Junction 230/115 kV Ckt 1	\$3,508,346
	30825	SPS	Line - China Draw - Wood Draw 115 kV Ckt 1	\$13,704,501
200283	1140	SPS	Multi - Tuco - Stanton 345 kV	\$6,158,183
	1140	SPS	Multi - Tuco - Stanton 345 kV	\$27,602,755
	1140	SPS	Multi - Tuco - Stanton 345 kV	\$23,362,589
	30376	SPS	Multi - Tuco - Yoakum - Hobbs 345/230 kV Ckt 1	\$129,945,941
	30376	SPS	Multi - Tuco - Yoakum - Hobbs 345/230 kV Ckt 1	\$5,047,343
	30376	SPS	Multi - Tuco - Yoakum - Hobbs 345/230 kV Ckt 1	\$16,204,449
	30376	SPS	Multi - Tuco - Yoakum - Hobbs 345/230 kV Ckt 1	\$90,628,750
	30569	SPS	Multi - Potash Junction - Road Runner 230/115 kV Ckt 1	\$43,096,827
	30569	SPS	Multi - Potash Junction - Road Runner 230/115 kV Ckt 1	\$10,576,672
	30637	SPS	Multi - Hobbs - Kiowa 345 kV Ckt 1	\$11,249,526
	30637	SPS	Multi - Hobbs - Kiowa 345 kV Ckt 1	\$59,808,956
	30638	SPS	Multi - Kiowa - North Loving - China Draw 345/115 kV Ckt 1	\$5,950,217
	30638	SPS	Multi - Kiowa - North Loving - China Draw 345/115 kV Ckt 1	\$7,873,653
	30638	SPS	Multi - Kiowa - North Loving - China Draw 345/115 kV Ckt 1	\$19,255,234
	30638	SPS	Multi - Kiowa - North Loving - China Draw 345/115 kV Ckt 1	\$25,716,516
	30638	SPS	Multi - Kiowa - North Loving - China Draw 345/115 kV Ckt 1	\$4,649,045
	30638	SPS	Multi - Kiowa - North Loving - China Draw 345/115 kV Ckt 1	\$4,172,734
	30639	SPS	Multi - Potash Junction - Road Runner 345 kV Conv. and Transformers at Kiowa and Road Runner	\$2,176,451
	30639	SPS	Multi - Potash Junction - Road Runner 345 kV Conv. and Transformers at Kiowa and Road Runner	\$11,569,711
	30639	SPS	Multi - Potash Junction - Road Runner 345 kV Conv. and Transformers at Kiowa and Road Runner	\$5,443,140
	30639	SPS	Multi - Potash Junction - Road Runner 345 kV Conv. and Transformers at Kiowa and Road Runner	\$3,989,689
	30695	SPS	Multi - Livingston Ridge - Sage Brush - Lagarto - Cardinal 115 kV	\$4,950,983

Southwest Power Pool, Inc.

NTC ID	Project ID	Facility Owner	Project Name	Current Cost Estimate
	30695	SPS	Multi - Livingston Ridge - Sage Brush - Lagarto - Cardinal 115 kV	\$3,822,672
	30695	SPS	Multi - Livingston Ridge - Sage Brush - Lagarto - Cardinal 115 kV	\$6,115,613
	30695	SPS	Multi - Livingston Ridge - Sage Brush - Lagarto - Cardinal 115 kV	\$6,186,323
	30695	SPS	Multi - Livingston Ridge - Sage Brush - Lagarto - Cardinal 115 kV	\$8,811,206
	30695	SPS	Multi - Livingston Ridge - Sage Brush - Lagarto - Cardinal 115 kV	\$1,200,057
	30695	SPS	Multi - Livingston Ridge - Sage Brush - Lagarto - Cardinal 115 kV	\$9,244,612
	30717	SPS	Line - Hopi Sub - North Loving - China Draw 115 kV Ckt 1	\$9,980,879
	30717	SPS	Line - Hopi Sub - North Loving - China Draw 115 kV Ckt 1	\$13,283,227
200284	30628	WFEC	Device - Freedom 69 kV	\$237,000
	30629	WFEC	Line - Carmen - Eagle Chief 69 kV Ckt 1	\$0
	30635	WFEC	Device - Eagle Chief 69 kV	\$190,000
200286	30771	MIDW	Multi - Midwest Pump - Midwest Pump Tap 115 kV Ckt 1	\$4,477,251
	30771	MIDW	Multi - Midwest Pump - Midwest Pump Tap 115 kV Ckt 1	\$2,443,469
200287	30661	WFEC	Multi - Carmen - Cherokee Junction 138 kV	\$3,945,000
	30661	WFEC	Multi - Carmen - Cherokee Junction 138 kV	\$2,068,000
	30661	WFEC	Multi - Carmen - Cherokee Junction 138 kV	\$2,475,000
	30661	WFEC	Multi - Carmen - Cherokee Junction 138 kV	\$2,680,000
	30661	WFEC	Multi - Carmen - Cherokee Junction 138 kV	\$6,300,000
200290	30619	OGE	Line - Darlington - Roman Nose 138 kV Ckt 1	\$12,701,091
200291	319	WR	Multi - Cowskin - Westlink - Tyler - Hoover 69 kV	\$4,151,903
	319	WR	Multi - Cowskin - Westlink - Tyler - Hoover 69 kV	\$5,834,124
	319	WR	Multi - Cowskin - Westlink - Tyler - Hoover 69 kV	\$4,737,867
200292	30556	WR	Sub - McDowell Creek Switching Station 115 kV Terminal Upgrades	\$258,795
200294	30596	NPPD	Multi - Broken Bow Wind - Ord 115 kV Ckt 1	\$34,182,113
	30596	NPPD	Multi - Broken Bow Wind - Ord 115 kV Ckt 1	\$411,258
200295	30588	OPPD	Multi - Fremont - S6801 161/69 kV Ckt 1	\$2,416,277
	30588	OPPD	Multi - Fremont - S6801 161/69 kV Ckt 1	\$29,069,150
	30588	OPPD	Multi - Fremont - S6801 161/69 kV Ckt 1	\$3,606,519
200296	30390	WR	Line - East Manhattan - Jeffrey Energy Center 230 kV Ckt 1	\$58,317,000
	30560	WR	Line - Sumner County - Viola 138 kV Ckt 1	\$51,513,963
200298	30761	AEP	Multi - Linwood - Cedar Grove - South Shreveport 138 kV	\$6,566,218
200299	30581	OGE	Line - Park Lane - Ahloso - Harden City - Frisco - Lula 69/138 kV Ckt 1	\$5,693,264
	30581	OGE	Line - Park Lane - Ahloso - Harden City - Frisco - Lula 69/138 kV Ckt 1	\$2,121,320
	30581	OGE	Line - Park Lane - Ahloso - Harden City - Frisco - Lula 69/138 kV Ckt 1	\$6,929,179
	30581	OGE	Line - Park Lane - Ahloso - Harden City - Frisco - Lula 69/138 kV Ckt 1	\$6,749,202
200305	1083	AEP	Line - Welsh Reserve - Wilkes 138 kV Ckt 1	\$24,880,495
200306	30731	AEP	Line - Mt. Pleasant - West Mt. Pleasant 69 kV Ckt 1	\$4,715,419
200308	30640	MKEC	Line - Kansas Avenue - Dobson - Gano 115 kV Ckt 1	\$134,366

NTC ID	Project ID	Facility Owner	Project Name	Current Cost Estimate
200309	30376	SPS	Multi - Tuco - Yoakum - Hobbs 345/230 kV Ckt 1	\$90,628,750
	30376	SPS	Multi - Tuco - Yoakum - Hobbs 345/230 kV Ckt 1	\$16,204,449
	30376	SPS	Multi - Tuco - Yoakum - Hobbs 345/230 kV Ckt 1	\$5,047,343
	30376	SPS	Multi - Tuco - Yoakum - Hobbs 345/230 kV Ckt 1	\$129,945,941
	30569	SPS	Multi - Potash Junction - Road Runner 230/115 kV Ckt 1	\$43,096,827
	30569	SPS	Multi - Potash Junction - Road Runner 230/115 kV Ckt 1	\$10,576,672
	30637	SPS	Multi - Hobbs - Kiowa 345 kV Ckt 1	\$11,249,526
	30637	SPS	Multi - Hobbs - Kiowa 345 kV Ckt 1	\$59,808,956
	30638	SPS	Multi - Kiowa - North Loving - China Draw 345/115 kV Ckt 1	\$25,716,516
	30638	SPS	Multi - Kiowa - North Loving - China Draw 345/115 kV Ckt 1	\$19,255,234
	30638	SPS	Multi - Kiowa - North Loving - China Draw 345/115 kV Ckt 1	\$4,649,045
	30638	SPS	Multi - Kiowa - North Loving - China Draw 345/115 kV Ckt 1	\$4,172,734
	30638	SPS	Multi - Kiowa - North Loving - China Draw 345/115 kV Ckt 1	\$7,873,653
	30638	SPS	Multi - Kiowa - North Loving - China Draw 345/115 kV Ckt 1	\$5,950,217
	30639	SPS	Multi - Potash Junction - Road Runner 345 kV Conv. and Transformers at Kiowa and Road Runner	\$3,989,689
	30639	SPS	Multi - Potash Junction - Road Runner 345 kV Conv. and Transformers at Kiowa and Road Runner	\$5,443,140
	30639	SPS	Multi - Potash Junction - Road Runner 345 kV Conv. and Transformers at Kiowa and Road Runner	\$11,569,711
	30639	SPS	Multi - Potash Junction - Road Runner 345 kV Conv. and Transformers at Kiowa and Road Runner	\$2,176,451
	30695	SPS	Multi - Livingston Ridge - Sage Brush - Lagarto - Cardinal 115 kV	\$9,244,612
	30695	SPS	Multi - Livingston Ridge - Sage Brush - Lagarto - Cardinal 115 kV	\$1,200,057
	30695	SPS	Multi - Livingston Ridge - Sage Brush - Lagarto - Cardinal 115 kV	\$8,811,206
	30695	SPS	Multi - Livingston Ridge - Sage Brush - Lagarto - Cardinal 115 kV	\$6,186,323
	30695	SPS	Multi - Livingston Ridge - Sage Brush - Lagarto - Cardinal 115 kV	\$6,115,613
	30695	SPS	Multi - Livingston Ridge - Sage Brush - Lagarto - Cardinal 115 kV	\$3,822,672
	30695	SPS	Multi - Livingston Ridge - Sage Brush - Lagarto - Cardinal 115 kV	\$4,950,983
	30717	SPS	Line - Hopi Sub - North Loving - China Draw 115 kV Ckt 1	\$9,980,879
	30717	SPS	Line - Hopi Sub - North Loving - China Draw 115 kV Ckt 1	\$13,283,227
200310	30619	AEP	Line - Darlington - Roman Nose 138 kV Ckt 1	\$11,652,107
200311	30619	OGE	Line - Darlington - Roman Nose 138 kV Ckt 1	\$12,701,091
	30622	OGE	Multi - Knipe - SW Station - Linwood & Warwick Tap 138 kV Ckt 1	\$12,767,120
	30622	OGE	Multi - Knipe - SW Station - Linwood & Warwick Tap 138 kV Ckt 1	\$8,218,020
	30622	OGE	Multi - Knipe - SW Station - Linwood & Warwick Tap 138 kV Ckt 1	\$9,899,440

Section 14: 345 kV Projects

14.1 345 kV Projects Completed in 2014

Facility Owner	Upgrade Name	Network Upgrade Type
AEP	Kings River 345/161KV TRANSFORMER CKT 1	Regional Reliability
AEP	E Rogers - Shipe Road 345 kV	Regional Reliability
AEP	East Rogers - Kings River 345 kV Ckt 1	Regional Reliability
AEP	NORTHWEST TEXARKANA - VALLIANT 345KV CKT 1	High Priority
AEP	Chisholm - Gracemont 345kV Ckt 1 (AEP)	ITP10
AEP	Chisholm 345/230 kV Substation	ITP10
AEP	Chisholm 230 kV	ITP10
ITCGP	Elm Creek - Summit 345 kV Ckt 1 (ITCGP)	ITP10
ITCGP	Elm Creek 345/230 kV Transformer	ITP10
ITCGP	Elm Creek 345 kV Terminal Upgrades	ITP10
KCPL	Iatan - Stranger 345 kV Voltage Conversion Ckt 1	ITP10
MKEC	Spearville 345/115 kV Transformer CKT 1	Generation Interconnection
NPPD	Hoskins - Neligh 345 kV Ckt 1	Regional Reliability
NPPD	Neligh 345/115 kV Substation	Regional Reliability
NPPD	Cherry Co. - Gentleman 345 kV Ckt 1	ITP10
NPPD	Cherry Co. Substation 345 kV	ITP10
NPPD	Cherry Co. - Holt Co. 345 kV Ckt 1	ITP10
NPPD	Holt Co. Substation 345 kV	ITP10
NPPD	Stegall 345/115 kV Transformer Ckt 1	Regional Reliability
NPPD	Stegall 345 kV Terminal Upgrades	Regional Reliability
NPPD	Thedford 345/115 kV Transformer	High Priority
NPPD	Thedford 345 kV Terminal Upgrades	High Priority
OGE	ARCADIA - REDBUD 345KV CKT 3	Transmission Service
OGE	NORTHWEST 345/138KV TRANSFORMER CKT 3	Transmission Service
OGE	Chisholm - Gracemont 345 kV Ckt 1 (OGE)	ITP10
OGE	Tatonga - Woodward District EHV 345 kV Ckt 2	ITP10
OGE	Matthewson - Tatonga 345 kV Ckt 2	ITP10
OGE	Cimarron - Matthewson 345 kV Ckt 2	ITP10
OGE	Matthewson 345 kV	ITP10
OGE	Northwest 345/138 kV Transformer Ckt 3 accelerated	Transmission Service
OGE	Woodward District EHV 345kV Substation	Generation Interconnection
OGE	Beaver County 345kV Substation GEN-2010-001 Addition	Generation Interconnection
OGE	Mathewson 345kV Substation GEN-2011-007 Addition	Generation Interconnection
OPPD	Nebraska City - Mullin Creek 345 kV (OPPD)	High Priority
OPPD	S3459 345/161 kV Transformer	ITP10
OPPD	S3459 345 kV Terminal Upgrades	ITP10
SEPC	Mingo 345/115 kV Ckt 2 Transformer	Regional Reliability
SEPC	Mingo 345 kV Terminal Upgrades	Regional Reliability

Facility Owner	Upgrade Name	Network Upgrade Type
SEPC	Buckner - Spearville 345 kV Ckt 1 Terminal Upgrades	Regional Reliability
SEPC	GEN-2008-017 Interconnection Facilities at Setab 345kV	Generation Interconnection
SEPC	GEN-2008-017 Network Upgrades at Setab 345kV	Generation Interconnection
SPS	Tuco - Yoakum 345 kV Ckt 1	High Priority
SPS	Yoakum 345/230 kV Ckt 1 Transformer	High Priority
SPS	Hobbs 345/230 kV Ckt 1 Transformer	High Priority
SPS	Hobbs - Yoakum 345 kV Ckt 1	High Priority
SPS	China Draw - North Loving 345 kV Ckt 1	High Priority
SPS	Kiowa - North Loving 345 kV Ckt 1	High Priority
SPS	China Draw 345/115 kV Ckt 1 Transformer	High Priority
SPS	China Draw 345 kV Ckt 1 Terminal Upgrades	High Priority
SPS	Kiowa 345 kV Substation	High Priority
SPS	North Loving 345/115 kV Ckt 1 Transformer	High Priority
SPS	North Loving 345 kV Terminal Upgrades	High Priority
SPS	Road Runner 345/115 kV Ckt 1 Transformer	High Priority
SPS	Road Runner 345 kV Substation Conversion	High Priority
SPS	Kiowa 345/115 kV Ckt 1 Transformer	High Priority
SPS	Kiowa - Potash Junction 345/115 kV Ckt 1	High Priority
SPS	Hobbs - Kiowa 345 kV Ckt 1	High Priority
SPS	Walkemeyer Tap 345 kV Substation	Regional Reliability
SPS	Walkemeyer Tap 345/115 kV Transformer	Regional Reliability
SPS	Eddy County - Tolk 345kV Ckt 1	Generation Interconnection
TBD	Cass Co. - S.W. Omaha (aka S3454) 345 kV Ckt1	ITP20
TBD	S3459 345/161 kV Transformer Ckt 2	ITP20
TBD	South Fayetteville 345/161 kV Transformer Ckt1	ITP20
TBD	Chamber Springs - South Fayetteville 345 kV Ckt1	ITP20
TBD	Maryville 345/161 kV Transformer Ckt1	ITP20
TBD	Nashua 345/161 kV Transformer Upgrade Ckt11	ITP20
TBD	Keystone - Red Willow 345 kV Ckt1	ITP20
TBD	Tolk - Tuco 345 kV Ckt1	ITP20
TBD	Holcomb 345/115 kV Transformer Ckt2	ITP20
TBD	Neosho - Wolf Creek 345 kV Ckt1	ITP20
TBD	Auburn 345/115 kV Transformer Ckt2	ITP20
TBD	Auburn - Swissvale 345 kV Ckt1 Voltage Conversion	ITP20
TBD	Auburn - Jeffrey EC 345 kV Ckt1 Voltage Conversion	ITP20
TBD	Benteler - McDade 345 kV Ckt 1	Regional Reliability
TBD	McDade 345/138 kV Ckt 1 Transformer	Regional Reliability
TBD	McDade - Messick 345 kV Ckt 1	Regional Reliability
TBD	Benteler 345/138 kV Ckt 1 Transformer	Regional Reliability
TBD	Mooreland - Woodward District EHV 345 kV Ckt 1	Regional Reliability
TBD	Center - Dolet Hiles 345 kV Ckt 1	Regional Reliability
TBD	Center 345/138 kV Ckt 1 Transformer	Regional Reliability
TBD	Border - Chisholm 345 kV Ckt 1	Regional Reliability

14.2 345 kV Projects with NTCs in the 2015 STEP

Facility Owner	Upgrade Name	Network Upgrade Type
AEP	Kings River 345/161KV TRANSFORMER CKT 1	Regional Reliability
AEP	E Rogers - Shipe Road 345 kV	Regional Reliability
AEP	East Rogers - Kings River 345 kV Ckt 1	Regional Reliability
AEP	NORTHWEST TEXARKANA - VALLIANT 345KV CKT 1	High Priority
AEP	Chisholm - Gracemont 345kV Ckt 1 (AEP)	ITP10
AEP	Chisholm 345/230 kV Substation	ITP10
AEP	Chisholm 230 kV	ITP10
ITCGP	Elm Creek - Summit 345 kV Ckt 1 (ITCGP)	ITP10
ITCGP	Elm Creek 345/230 kV Transformer	ITP10
ITCGP	Elm Creek 345 kV Terminal Upgrades	ITP10
KCPL	Iatan - Stranger 345 kV Voltage Conversion Ckt 1	ITP10
MKEC	Spearville 345/115 kV Transformer CKT 1	Generation Interconnection
NPPD	Hoskins - Neligh 345 kV Ckt 1	Regional Reliability
NPPD	Neligh 345/115 kV Substation	Regional Reliability
NPPD	Cherry Co. - Gentleman 345 kV Ckt 1	ITP10
NPPD	Cherry Co. Substation 345 kV	ITP10
NPPD	Cherry Co. - Holt Co. 345 kV Ckt 1	ITP10
NPPD	Holt Co. Substation 345 kV	ITP10
NPPD	Stegall 345/115 kV Transformer Ckt 1	Regional Reliability
NPPD	Stegall 345 kV Terminal Upgrades	Regional Reliability
NPPD	Thedford 345/115 kV Transformer	High Priority
NPPD	Thedford 345 kV Terminal Upgrades	High Priority
OGE	ARCADIA - REDBUD 345KV CKT 3	Transmission Service
OGE	NORTHWEST 345/138KV TRANSFORMER CKT 3	Transmission Service
OGE	Chisholm - Gracemont 345 kV Ckt 1 (OGE)	ITP10
OGE	Tatonga - Woodward District EHV 345 kV Ckt 2	ITP10
OGE	Matthewson - Tatonga 345 kV Ckt 2	ITP10
OGE	Cimarron - Matthewson 345 kV Ckt 2	ITP10
OGE	Matthewson 345 kV	ITP10
OGE	Northwest 345/138 kV Transformer Ckt 3 accelerated	Transmission Service
OGE	Woodward District EHV 345kV Substation	Generation Interconnection
OGE	Beaver County 345kV Substation GEN-2010-001 Addition	Generation Interconnection
OGE	Mathewson 345kV Substation GEN-2011-007 Addition	Generation Interconnection
OPPD	Nebraska City - Mullin Creek 345 kV (OPPD)	High Priority
OPPD	S3459 345/161 kV Transformer	ITP10
OPPD	S3459 345 kV Terminal Upgrades	ITP10
SEPC	Mingo 345/115 kV Ckt 2 Transformer	Regional Reliability
SEPC	Mingo 345 kV Terminal Upgrades	Regional Reliability
SEPC	Buckner - Spearville 345 kV Ckt 1 Terminal Upgrades	Regional Reliability
SEPC	GEN-2008-017 Interconnection Facilities at Setab 345kV	Generation Interconnection

Facility Owner	Upgrade Name	Network Upgrade Type
SEPC	GEN-2008-017 Network Upgrades at Setab 345kV	Generation Interconnection
SPS	Tuco - Yoakum 345 kV Ckt 1	High Priority
SPS	Yoakum 345/230 kV Ckt 1 Transformer	High Priority
SPS	Hobbs 345/230 kV Ckt 1 Transformer	High Priority
SPS	Hobbs - Yoakum 345 kV Ckt 1	High Priority
SPS	China Draw - North Loving 345 kV Ckt 1	High Priority
SPS	Kiowa - North Loving 345 kV Ckt 1	High Priority
SPS	China Draw 345/115 kV Ckt 1 Transformer	High Priority
SPS	China Draw 345 kV Ckt 1 Terminal Upgrades	High Priority
SPS	Kiowa 345 kV Substation	High Priority
SPS	North Loving 345/115 kV Ckt 1 Transformer	High Priority
SPS	North Loving 345 kV Terminal Upgrades	High Priority
SPS	Road Runner 345/115 kV Ckt 1 Transformer	High Priority
SPS	Road Runner 345 kV Substation Conversion	High Priority
SPS	Kiowa 345/115 kV Ckt 1 Transformer	High Priority
SPS	Kiowa - Potash Junction 345/115 kV Ckt 1	High Priority
SPS	Hobbs - Kiowa 345 kV Ckt 1	High Priority
SPS	Walkemeyer Tap 345 kV Substation	Regional Reliability
SPS	Walkemeyer Tap 345/115 kV Transformer	Regional Reliability
SPS	Eddy County - Tolk 345kV Ckt 1	Generation Interconnection
TBD	Cass Co. - S.W. Omaha (aka S3454) 345 kV Ckt1	ITP20
TBD	S3459 345/161 kV Transformer Ckt 2	ITP20
TBD	South Fayetteville 345/161 kV Transformer Ckt1	ITP20
TBD	Chamber Springs - South Fayetteville 345 kV Ckt1	ITP20
TBD	Maryville 345/161 kV Transformer Ckt1	ITP20
TBD	Nashua 345/161 kV Transformer Upgrade Ckt11	ITP20
TBD	Keystone - Red Willow 345 kV Ckt1	ITP20
TBD	Tolk - Tuco 345 kV Ckt1	ITP20
TBD	Holcomb 345/115 kV Transformer Ckt2	ITP20
TBD	Neosho - Wolf Creek 345 kV Ckt1	ITP20
TBD	Auburn 345/115 kV Transformer Ckt2	ITP20
TBD	Auburn - Swissvale 345 kV Ckt1 Voltage Conversion	ITP20
TBD	Auburn - Jeffrey EC 345 kV Ckt1 Voltage Conversion	ITP20
TBD	Benteler - McDade 345 kV Ckt 1	Regional Reliability
TBD	McDade 345/138 kV Ckt 1 Transformer	Regional Reliability
TBD	McDade - Messick 345 kV Ckt 1	Regional Reliability
TBD	Benteler 345/138 kV Ckt 1 Transformer	Regional Reliability
TBD	Mooreland - Woodward District EHV 345 kV Ckt 1	Regional Reliability
TBD	Center - Dolet Hiles 345 kV Ckt 1	Regional Reliability
TBD	Center 345/138 kV Ckt 1 Transformer	Regional Reliability
TBD	Border - Chisholm 345 kV Ckt 1	Regional Reliability
TBD	Chisholm - Woodward District EHV 345 kV Ckt 1	Regional Reliability

Facility Owner	Upgrade Name	Network Upgrade Type
TBD	Battle Axe 345 kV Ckt 1 Terminal Upgrades	Regional Reliability
TBD	China Draw 345 kV Ckt 1 Terminal Upgrades #2 (Battle Axe)	Regional Reliability
TBD	Battle Axe - Road Runner 345 kV Ckt 1	Regional Reliability
TBD	Battle Axe 345/115 kV Ckt 1 Transformer	Regional Reliability
TBD	Andrews 345/115 kV Ckt 1 Transformer	Regional Reliability
TBD	Potash Junction 345/115 kV Ckt 1 Transformer	Regional Reliability
TBD	Andrews - Hobbs 345 kV Ckt 1 Voltage Conversion	Regional Reliability
TBD	Potash Junction 345/115 kV Ckt 2 Transformer	Regional Reliability
TBD	Chisholm 345/230 kV Ckt 2 Transformer	Regional Reliability
TSMO	Iatan - Nashua 345 kV Ckt 1 (KCPL)	Balanced Portfolio
TSMO	NASHUA 345/161KV TRANSFORMER CKT 1	Balanced Portfolio
TSMO	Sibley - Mullin Creek 345 kV	High Priority
TSMO	Nebraska City - Mullin Creek 345 kV (GMO)	High Priority
TSMO	Iatan - Nashua 345 kV Ckt 1 (GMO)	Balanced Portfolio
WR	Elm Creek - Summit 345 kV Ckt 1 (WR)	ITP10
WR	Geary County 345/115 kV Substation	Regional Reliability
WR	Viola 345/138 kV Transformer Ckt 1	Regional Reliability
WR	Geary County 345 kV	Regional Reliability
WR	Viola 345 kV Terminal Equipment	Regional Reliability
WR	Neosho 138/69 kV Ckt 1 Transformer	Regional Reliability
WR	Moundridge 345 kV Terminal Upgrades	Regional Reliability
WR	Moundridge 345/138 kV Ckt 1 Transformer	Regional Reliability
WR	Tap on Wolf Creek - LaCygne 345kV Ckt 1	Generation Interconnection
WR	Tap on Wolf Creek - LaCygne 345kV Ckt 1 GEN-2010-003 Addition	Generation Interconnection

Section 15: 2015 ITP10 Project List

Name	Type	Size	Focus
Road Runner 345/115 kv Transformer	Regional Reliability	115	Transformer
Road Runner 345 kv Terminal Upgrades	Regional Reliability	345	Substation
S3459 345/161 kv Transformer	Regional Reliability	161	Transformer
S3459 345 kv Terminal Upgrades	Regional Reliability	345	Substation
Russell 115 kv Cap Bank	Regional Reliability	115	Device
Waldo 115 kv Cap Bank	Regional Reliability	115	Substation
Anadarko - Gracemont 138 kv Ckt 1 Reconductor	Regional Reliability	138	Rebuild/Reconductor
Pantex North - Pantex South 115 kv Ckt 1 Reconductor	Regional Reliability	115	Rebuild/Reconductor
Highland Park - Pantex South 115 kv Ckt 1 Reconductor	Regional Reliability	115	Rebuild/Reconductor
Martin - Pantex North 115 kv Ckt 1 Reconductor	Regional Reliability	115	Rebuild/Reconductor
Cimarron - Draper 345 kv Terminal Upgrades	Regional Reliability	345	Substation
Amoco - Sundown 230 kv Terminal Upgrades	Economic/Regional Reliability	230	Substation
South Shreveport - Wallace Lake 138 kv Ckt 1 Rebuild	Regional Reliability	138	Rebuild/Reconductor
Claremore 161 kv Terminal Upgrades	Regional Reliability	161	Substation
North Platt - Stockville 115 kv Ckt 1 Rebuild	Economic	115	Rebuild/Reconductor
Red Willow - Stockville 115 kv Ckt 1 Rebuild	Economic	115	Rebuild/Reconductor
Mingo 345/115 kv Ckt 2 Transformer	Economic	115	Transformer
Mingo 345 kv Terminal Upgrades	Regional Reliability	345	Substation
Iatan - Stranger 345 kv Voltage Conversion Ckt 1	Economic	345	Voltage Conversion
Lovington 115/69 kv Ckt 2 Transformer	Regional Reliability	69	Transformer
Lovington 115 kv Terminal Upgrades	Regional Reliability	115	Substation
Moundridge 345 kv Terminal Upgrades	Regional Reliability	345	Substation
Moundridge 345/138 kv Ckt 1 Transformer	Regional Reliability	138	Transformer
Plains Interchange 115 kv Cap Bank	Regional Reliability	115	Device
Ochoa 115 kv Cap Banks	Regional Reliability	115	Device
Miles City 115 kv Cap Bank	Regional Reliability	115	Device
Walkemeyer Tap 345 kv Substation	Regional Reliability	345	Substation
Walkemeyer Tap 345/115 kv Transformer	Regional Reliability	115	Transformer
Walkemeyer - Walkemeyer Tap 115 kv Ckt 1 (SPS)	Regional Reliability	115	New Line
Walkemeyer - Walkemeyer Tap 115 kv Ckt 1 (SEPC)	Regional Reliability	115	New Line
Walkemeyer 115 kv Terminal Upgrades	Regional Reliability	115	Substation
North Liberal - Walkemeyer 115 kv Ckt 1	Regional Reliability	115	New Line
North Liberal 115 kv Terminal Upgrades	Regional Reliability	115	Substation

Name	Type	Size	Focus
Canyon West - Dawn 115 kV Ckt 1 Rebuild	Regional Reliability	115	Rebuild/Reconductor
Dawn - Panda 115 kV Ckt 1 Rebuild	Regional Reliability	115	Rebuild/Reconductor
Plant-X 230/115 kV Ckt 2 Transformer	Regional Reliability	115	Transformer
Forbes - Underpass North 115 kV Ckt 1 Rebuild	Regional Reliability	115	Rebuild/Reconductor
Murray Gill East Energy Center - Interstate 138 kV Ckt 1 Rebuild	Regional Reliability	138	Rebuild/Reconductor
Bush Tap - Hastings 115 kV Ckt 1	Regional Reliability	115	New Line
Allred 115 kV Cap Bank	Regional Reliability	115	Device
China Draw 115 kV Cap Banks	Regional Reliability	115	Device
North Loving 115 kV Cap Banks	Regional Reliability	115	Device
Grinnell 115 kV Cap Bank	Regional Reliability	115	Device
Sand Springs 138 kV Terminal Upgrades	Regional Reliability	138	Substation
Park Lane 115 kV Terminal Upgrades	Regional Reliability	138	Substation
Amarillo South 230 kV Terminal Upgrades	Regional Reliability	230	Substation
Tuco 230/115kV Ckt 1 Transformer	Regional Reliability	115	Transformer
Enogex Wilburton Tap - Lone Oak 138 kV Ckt 1 Rebuild	Regional Reliability	138	Rebuild/Reconductor
Enogex Wilburton Tap - Sardis 138 kV Ckt 1 Rebuild	Regional Reliability	138	Rebuild/Reconductor
Clayton - Sardis 138 kV Ckt 1 Rebuild	Regional Reliability	138	Rebuild/Reconductor
Clayton - Neshoba 138 kV Ckt 1 Rebuild	Regional Reliability	138	Rebuild/Reconductor
Bethel - Neshoba 138 kV Ckt 1 Rebuild	Regional Reliability	138	Rebuild/Reconductor
Bethel - Broken Bow 138 kV Ckt 1 Rebuild	Regional Reliability	138	Rebuild/Reconductor

Section 16: 2015 ITPNT Project List

Reliability Project(s)	Project Area(s)	Monitored Element(s)*	Miles Added/Modified	Need Date
Rebuild Hobart-Snyder 69 kV line, upgrade jumpers, switches, CT ratios and relay settings at both substations and upgrade the bus at Snyder	AEPW	HOBART - ROOSEVELT TAP 69 kV CKT 1 ROOSEVELT TAP-SNYDER 69 kV	28.7	6/1/2015
New -50/+200 MVar SVC at China Draw 115 kV, new -50/+200 MVar SVC at Road Runner 115 kV	SPS	DOLLARHIDE SUB 115 kV AGAVE_RHILL3 115 kV CHINA_DRAW 3 115 kV BATTLE_AXE 3 115 kV		4/1/2015
Rebuild Grand Saline-Mineola 69 kV line, switches, CT ratios and relay settings at both substations, upgrade jumpers at Grand Saline	AEPW	GRAND SALINE - MINEOLA 69 kV CKT 1	13.8	6/1/2020
Rebuild Canyon West-Dawn-Panda-Deaf Smith 115 kV line	SPS	CANYON WEST SUB - DAWN SUB 115 kV CKT 1 DAWN SUB - Panda Energy Substation Hereford 115 kV CKT 1	25.64	4/1/2018
Replace wave traps at Amoco and Sundown 230 kV	SPS	AMOCO SWITCHING STATION - SUNDOWN INTERCHANGE 230 kV CKT 1		4/1/2020
Replace wave trap at Claremore 161 kV	GRDA	PYRAMID CORNERS 69 kV		6/1/2018
Install a second 345/115 kV transformer at Mingo; Install any necessary 115 kV terminal equipment	SUNC	ONEOK 3 115 kV MCDONLD3 115 kV BVERVLLY 115 kV ATWOOD 115 kV		6/1/2015
Install second 115/69 kV transformer at Lovington; Install any necessary 69 kV terminal equipment	SPS	LEA COUNTY REC-SAN ANDRES INTERCHANGE 115/69 kV TRANSFORMER CKT 1		6/1/2015
Upgrade wave trap at Amarillo South Interchange-Swisher County Interchange 230 kV	SPS	AMARILLO SOUTH INTERCHANGE - SWISHER COUNTY INTERCHANGE 230 kV CKT 1		4/1/2020
Rebuild Southwestern Station-Carnegie 138 kV, upgrade jumpers and CT ratios at Southwestern Station	AEPW	CARNEGIE - SOUTHWESTERN STATION 138 kV CKT 1	16.5	6/1/2016
Rebuild of the PCA Interchange and Quahada 115kV line	SPS	PCA INTERCHANGE - QUAHADA 115 kV CKT 1 CARLSBAD INTERCHANGE - PECOS INTERCHANGE 115 kV CKT 1 CENTRAL VALLEY REC-LUSK 69 kV	11.08	6/1/2016

Reliability Project(s)	Project Area(s)	Monitored Element(s)*	Miles Added/ Modified	Need Date
		UNITED SALT SUB 69 kV		
Rebuild of the Little River and Maud 69kV line	OKGE	LTRIVRT2 69 - MAUD 69 kV CKT 1	10.73	6/1/2015
Rebuild of Harrisonville North and Ralph Green 69kV line	GMO	HARRISONVILLE NORTH - RALPH GREEN 69 kV CKT 1	8.76	6/1/2015
Tap the Lawrence Hill-Swissvale 230kV line into Baldwin Creek substation and add a 230/115kV transformer at Baldwin Creek	WERE	LAWRENCE HILL (LAWH TX-3) 230/115/13.8 kV TRANSFORMER CKT 1		6/1/2017
Replace existing 161/69 kV transformer at South Waverly	KCPL	SOUTH WAVERLY 161/69 kV TRANSFORMER CKT 1 ODESSA 161/69 kV TRANSFORMER CKT 1		6/1/2015
Tap Ainsworth-Stuart 115 kV line, install new 9 MVar Capacitor Bank at new Bassett substation	NPPD	EMMETE.TAP EMMETE.P22 7 115 kV EMMETE.P22		6/1/2016
Install 138/69 kV bus tie transformer in OG&E Stillwater substation and interface OG&E Stillwater 69 kV substation with existing Stillwater Municipal 69 kV transmission system	OKGE	STILLWATER KINZIE (KINAUTO1) 138/69/13.8 kV TRANSFORMER CKT 1		6/1/2019
Rebuild Neosho SES-Labette 69 kV line	WERE	LABETTE SWITCHING STATION - NEOSHO 69 kV CKT 1	4.6	6/1/2019
Upgrade 115/69 kV transformer 1 at Lynn County	SPS	LYNN COUNTY INTERCHANGE (PENN 0154552) 115/69/13.2 kV TRANSFORMER CKT 1		6/1/2019
Rebuild Linwood-South Shreveport 138 kV line and upgrade jumpers at Linwood	AEPW	CEDARGROVE - LINWOOD 138 kV CKT 1 CEDAR GROVE – SOUTH SHREVEPORT 138 kV CKT 1	2.5	6/1/2017
Upgrade 138 kV terminal equipment at Benton	WERE	BENTON (BENT TX-2) 345/138/13.8 kV TRANSFORMER CKT 1		6/1/2017
Upgrade breaker and relay at CPPX 69 kV substation	GRDA	CPP TRANSF #2 - WILGRO 69 kV CKT 1		6/1/2016
Install second one stage 14.4 MVar Capacitor Bank at Texas County 115 kV bus	SPS	HASKELL - SEWARD-3 115 kV CKT 1 CIMARRON RIVER PLANT 115 kV N-CIMRN3 115.00 115 kV		6/1/2015
Install 14.4 MVar Capacitor Bank at Cargill 115 kV bus	SPS	FRIONA SUB 115 kV DEAF SMITH REC-#20 115 kV DEAF SMITH REC-#6 115 kV		6/1/2015
Rebuild Brooks Street-Edwards Street 69 kV line and upgrade jumpers at each end	AEPW	BROOKS STREET - EDWARDS STREET 69 kV CKT 1	0.8	6/1/2016
Install 14.4 MVar Capacitor Bank at		STILLWATER PERKINS TAP 69 kV		6/1/2019

Reliability Project(s)	Project Area(s)	Monitored Element(s)*	Miles Added/ Modified	Need Date
Boomer 69 kV bus	GRDA	STILLWATER CENTRAL 69 kV STILLWATER HOSPITAL 69 kV STILLWATER BOOMER 69 kV		
Install 14.4 MVar Capacitor Bank at Lea County Bronco 69 kV bus	SPS	LEA COUNTY REC-LOVINGTON INTERCHANGE 115/69 kV TRANSFORMER CKT 1 LEA COUNTY REC-CROSSROADS 69 kV LEA COUNTY REC-BRONCO TAP 69 kV LEA COUNTY REC-BRONCO 69 kV		6/1/2016
Install 14.4 MVar Capacitor Bank at the Lea Rec Plains Interchange 69 kV bus	SPS	LEA COUNTY REC-PRICE 69 kV LEA COUNTY REC-LEWIS 69 kV LEA COUNTY REC-NEWTEx 69 kV		6/1/2015
Install 14.4 MVar Capacitor Bank at Four Corners 69 kV bus	OKGE	KREMLINT2 69 kV KREMLIN 69 kV		6/1/2015
Install new 69 kV breaker at Warner Tap to facilitate closing of the 69 kV switch at Wells substation	OKGE	CHECOTA 69 kV WELLS 69 kV		6/1/2015
Install 12 MVar Capacitor Bank at Newport 69 kV bus	GRDA	NEWPORT 69 kV MONKEY ISLAND 69 kV		6/1/2015
Install 10 MVar Capacitor Bank at Lea County Williams 69 kV bus	SPS	LEA COUNTY REC-DALLAS 69 kV LEA COUNTY REC-WILLIAMS SUB 69 kV LEA COUNTY REC-CAPROCK 69 kV		6/1/2015
Install a 5 MVar Capacitor Bank at Winchester 69 kV bus	WFEC	WINCH_TAP 69 kV WINCHESTER2 69 kV		6/1/2020
Install 3.6 MVar Capacitor Bank at Childers 69 kV bus	GRDA	PYRAMID CORNERS 69 kV		6/1/2018
Install 3 MVar Capacitor Bank at Thackerville 69 kV bus	WFEC	THACKERVILLE 69 kV		6/1/2019
Replace CTs and relays on Collinsville and Skiatook 69 kV line	GRDA	COLLINSVILLE - SKIATOOK TAP 69 kV CKT 1		6/1/2017
Tap Hitchland-Finney 345 kV line at NewSub, new 345/115 kV transformer at NewSub, new NewSub-Walkemeyer 115 kV line	SPS / SUNC	CTU SUBLETTE - PIONEER TAP 115 kV CKT 1 BUCKNER7 345 - SPEARVILLE 345 kV CKT 1 CIMARRON RIVER PLANT - HAYNE3 115 kV CKT 1 CIMARRON RIVER PLANT 115 kV HAYNE3 115 kV KISMET 3 115 kV CUDAHY 115 kV	1	6/1/2015
Convert RIAC substation to 115 kV, new 3-way 115 kV line switch tapping Roswell Intg-Brasher 115 kV line, wreckout	SPS	ROSWELL INTERCHANGE (AC *017772) 115/69/13.2 kV TRANSFORMER CKT 1	1.5	6/1/2015

Reliability Project(s)	Project Area(s)	Monitored Element(s)*	Miles Added/ Modified	Need Date
existing 69 kV transmission lines to RIAC substation and rebuild 69 kV line from north with new 115 kV line to RIAC, new breaker terminal at Roswell Intg, new 0.1 mile line out of Roswell Intg-Roswell 115 kV				
Reconductor IMC #1 Tap-Intrepid West, IMC #1-Livingston Ridge, Intrepid West-Potash Junction, Byrd-Monument, Ponderosa Tap-Whitten, National Enrichment Plant-Targa 115 kV lines, upgrade terminal equipment at Byrd 115 kV, upgrade wave trap at Whitten 115 kV, install 100 MVar Capacitor Bank at Potash 230 kV, install 28.8 MVar Capacitor Bank at Roadrunner 115 kV, install 28.8 MVar Capacitor Bank at Ochoa 115 kV, install 28.8 MVar Capacitor Bank at Agave Hill 115 kV	SPS	National Enrichment Plant Sub - TARGA 3 115KV CKT 1 INTREPDW_TP3 - POTASH JUNCTION INTERCHANGE 115 kV CKT 1 IMC_#1_TP 3 115 kV I. M. C. #1 SUB 115 kV WOOD_DRAW 3 115 kV	31.84	6/1/2015
Upgrade terminal equipment at Buckner and Spearville 345 kV	SUNC	BUCKNER7 345 - SPEARVILLE 345 kV CKT		6/1/2015
Ainsworth - Ainsworth Wind 115 kV Ckt 1 Rebuild	NPPD	STUART 115 kV AINSWORTH 115 kV EMMETE.TAP EMMETE.P22 7 115 kV EMMETE.P22	7.13	6/1/2020
Accelerate NTC 200295 - Install new 161/69 kV transformer at Fremont to accommodate a new 161 kV interconnection, new 69 kV line from Fremont to new substation S6801, new 161 kV line from S1226 to new substation S1301	OPPD	991 TAP 69 kV FREMONT SUB A 69 kV FREMONT SUB B 69 kV	20	6/1/2016

Section 17: Projects Completed in 2014

17.1 ITP Projects Completed in 2014

NTC ID	PID	Facility Owner	Project Name	Cost Estimate
19985	140	WFEC	ACME - WEST NORMAN 69KV CKT 1	\$912,000
200166	151	SPS	Tuco Interchange 115/69 kV Transformer Ckt 3	\$3,212,132
20081	235	OGE	COLONY - FT SMITH 161KV CKT 1 #2	\$2,120,000
20003	311	WFEC	ACME - FRANKLIN SW 138KV CKT 1	\$2,065,000
20003	311	WFEC	ACME - WEST NORMAN 138KV CKT 1	\$1,601,000
20003	311	WFEC	OU SW - WEST NORMAN 138KV CKT 1	\$1,577,000
20000	450	AEP	161KV CKT 1	\$11,962,000
20000	450	AEP	Shipe Road 345/161 kV transformer Ckt 1	\$13,104,000
20000	450	AEP	Flint Creek - Shipe Road 345 kV Ckt 1	\$34,085,000
200216	502	AEP	Northwest Henderson - Poynter 69 kV Ckt 1	\$7,815,833
200167	503	AEP	Diana - Perdue 138 kV Ckt 1	\$1,004,187
200168	549	GRDA	Maid - Pryor Foundry South 69 kV Ckt 1	\$1,993,805
200168	550	GRDA	Maid - Redden 69 kV Ckt 1	\$2,104,778
20029	615	OGE	COTTONWOOD CREEK - CRESENT 138KV CKT 1	\$8,100,000
20031	696	SPS	CHAVES COUNTY INTERCHANGE - ROSWELL INTERCHANGE 115KV CKT 1	\$8,610,000
20034	646	GMO	Clinton 161/69 kV transformer	\$1,968,315
20027	649	AEP	LOCUST GROVE - LONE STAR 115KV CKT 1	\$2,150,000
20079	653	MKEC	PRATT - ST JOHN 115KV CKT 1	\$15,079,303
200204	669	OGE	Five Tribes - Pecan Creek 161 kV Ckt 1	\$3,022,363
20087	715	GMO	GLENARE - LIBERTY 69KV CKT 1 #2	\$1,950,000
20084	774	SPS	CHERRY1 - POTTER COUNTY INTERCHANGE 230KV CKT 1	\$3,792,408
20084	774	SPS	CHERRY1 230/115KV TRANSFORMER CKT 1	\$9,736,187
20084	774	SPS	Hastings Sub 115 kV	\$1,048,295
20084	791	SPS	NEWHART 230 230/115KV TRANSFORMER CKT 1	\$12,864,507
20084	791	SPS	NEWHART 230 - SWISHER COUNTY INTERCHANGE 230KV CKT 1	\$19,959,385
20084	791	SPS	KRESS INTERCHANGE - NEWHART 115KV CKT 1	\$16,108,465
20084	791	SPS	CASTRO COUNTY INTERCHANGE - NEWHART 115KV CKT 1	\$15,491,109
20084	791	SPS	HART INDUSTRIAL - NEWHART 115KV CKT 1	\$2,568,905
20084	791	SPS	HART INDUSTRIAL - LAMTON INTERCHANGE 115KV CKT 1	\$17,384,254
20084	795	SPS	PLEASANT HILL 230/115KV TRANSFORMER CKT 1	\$16,422,903
20084	795	SPS	OASIS INTERCHANGE - PLEASANT HILL 230KV CKT 1	\$18,647,234
20084	795	SPS	PLEASANT HILL - ROOSEVELT COUNTY INTERCHANGE 230KV CKT 1	\$18,805,425
200170	816	NPPD	Albion - Genoa 115 kV Ckt 1	\$1,049,361
20084	704	SPS	TUCO INTERCHANGE 345/230KV TRANSFORMER CKT 2	\$12,550,762
200214	839	SPS	Cox Interchange - Kiser 115 kV Ckt 1 #2	\$6,400,000
200214	841	SPS	Graham Interchange 115/69 kV Transformer Ckt 1	\$1,981,510
20132	846	WFEC	Anadarko - Blanchard 138 kV Ckt 1	\$14,737,500

NTC ID	PID	Facility Owner	Project Name	Cost Estimate
200167	882	AEP	Carthage - Rock Hill 69 kV Ckt 1 #2	\$11,830,128
200214	940	SPS	Hitchland Interchange 345/230 kV Transformer Ckt 2	\$4,723,219
200216	1012	AEP	Diana - Perdue 138 kV Ckt 1 #2	\$18,805,489
200204	1017	OGE	Classen - Southwest 5 Tap 138 kV Ckt 1	\$109,481
20130	1029	SPS	Lynn County Interchange 115 kV	\$5,342,685
200166	1034	SPS	Hereford Interchange - Northeast Hereford Interchange 115 kV Ckt 1	\$4,139,406
20130	774	SPS	CHERRY SUB - HASTINGS SUB 115KV CKT 1	\$5,540,583
20131	1073	WR	Franklin - Mulberry 69 kV Ckt 1	\$6,949,300
20131	1073	WR	Franklin - Sheffield 69KV CKT 1	\$1,320,792
20131	1073	WR	Franklin 161 kV	\$8,063,989
20132	1084	WFEC	ALVA - FREEDOM 69KV CKT 1	\$6,243,750
20131	1073	WR	Franklin 161/69KV TRANSFORMER CKT 1	\$5,348,455
200214	1143	SPS	Lubbock South 230/115/13.2 kV Transformer Ckt 2	\$4,063,897
20030	30039	WFEC	ESQUANDALE 69KV	\$243,000
200218	30207	NPPD	Cozad 115 kV Capacitor	\$518,350
200211	30349	WR	Auburn Road 230/115/13.8 kV Ckt 1 Auto Upgrade	\$32,936,593
200166	30351	SPS	Crosby 115 kV #2	\$985,519
200166	30353	SPS	Move lines from Lea County to Hobbs 230/115 kV	\$11,282,344
200167	30354	AEP	Coweta 69 kV	\$1,428,440
200167	30346	AEP	Cornville 138 kV	\$21,664,838
200214	839	SPS	Kiser Substation 115/69 kV Ckt 1	\$6,400,000
200210	30426	MIDW	Pheasant Run - Seguin 115 kV Ckt 1	\$7,811,905
200214	30430	SPS	Floyd 115 kV Capacitor	\$1,731,323
200212	30431	WR	El Paso - Farber 138 kV Ckt 1	\$3,917,751
200214	30467	SPS	Potash Junction 115/69 kV Transformer Ckt 2	\$2,289,368
200253	30566	NPPD	Maxwell - North Platt 115 kV Terminal Upgrades	\$25,767
200250	30583	GMO	Harrisonville 161/69 kV Ckt 2 Transformer	\$2,773,480
200250	30583	GMO	Harrisonville 161 kV Ckt 2 Terminal Upgrades	\$1,005,220

17.2 Transmission Service Projects Completed in 2014

NTC ID	PID	Facility Owner	Project Name	Cost Estimate
20067	904	MKEC	FLATRDG3 - MEDICINE LODGE 138KV CKT 1	\$4,631,255
20067	906	MKEC	MEDICINE LODGE - PRATT 115KV CKT 1	\$13,645,827
200193	1000	SPS	Jones Station Bus#2 - Lubbock South Interchange 230 kV CKT 2 terminal upgrade	\$190,000
20091	30224	WR	BURLINGTON JUNCTION - COFFEY COUNTY NO. 3 WESTPHALIA 69KV CKT 1	\$3,027,106
20091	30224	WR	COFFEY COUNTY NO. 3 WESTPHALIA - GREEN 69KV CKT 1	\$6,726,750

17.3 Generation Interconnection Projects Completed in 2014

NTC ID	Project ID	Project Owner	Upgrade Name	Current Cost Estimate
	30379	GRDA	Pawnee 138 kV	\$2,500,000
	30380	GRDA	FAIRFAX - PAWNEE 138KV CKT 1	\$11,900,000
	30381	AEP	Shidler 138 kV	\$399,000
	30381	OGE	Osage - Shidler 138kV	\$399,300
	30593	ITCGP	Spearville 345kV Substation GEN-2010-015 Addition	\$4,264,906
	30751	OGE	Tatonga 345kV Substation GEN-2007-021 Addition	\$1,973,375
	30752	OGE	Tatonga 345kV Substation GEN-2007-044 Addition	\$1,973,375
	30753	SPS	Hitchland 115kV Interchange GEN-2007-046 Addition	\$513,231
	30754	WR	GEN-2009-040 POI TOIFs	\$540,103
	30754	WR	GEN-2009-040 POI NUs	\$5,272,127
	30754	WR	Knob Hill - South Seneca 115kV Tap for GEN-2009-040 POI	\$1,056,200
	30764	OGE	Woodward District EHV 138 kV Substation GEN-2008-029 Addition	\$4,200,000
	30765	OGE	Beaver County 345kV Substation	\$15,744,936
	30781	NPPD	Rosemont 115kV Substation	\$5,950,000
	30788	OGE	Advanced Construction of Mathewson 345kV Substation for Limited Operation of GEN-2011-007	\$5,000,000

17.4 Balanced Portfolio Projects Completed in 2014

NTC ID	Project ID	Project Owner	Project Name	Current Cost Estimate
20041	701	OGE	Stateline - Woodward EHV 345 kV	\$115,000,000
20041	701	OGE	WOODWARD DISTRICT EHV 345/138KV TRANSFORMER CKT 2	
20043	704	SPS	Tuco Interchange - Stateline 345 kV	\$192,875,814
20043	701	OGE	Stateline 345 kV	

17.5 Priority Projects Completed in 2014

NTC ID	PID	Facility Owner	UPGRADE NAME	Current Cost Estimate
20099	940	SPS	Hitchland Interchange - Woodward District EHV 345 kV CKT 1 (SPS)	
20099	940	SPS	Hitchland Interchange - Woodward District EHV 345 kV CKT 2 (SPS)	\$56,479,846
20100	941	OGE	Hitchland Interchange - WOODWARD DISTRICT EHV 345KV CKT 1 (OGE)	\$168,000,000
20100	941	OGE	Hitchland Interchange - WOODWARD DISTRICT EHV 345KV CKT 2 (OGE)	
20121	942	OGE	Thistle - Woodward EHV 345 kV ckt 1 (OGE)	\$142,040,000
20121	942	OGE	Thistle - Woodward EHV 345 kV ckt 2 (OGE)	
200163	943	PW	Thistle - Woodward EHV 345 kV ckt 1 (PW)	\$22,610,000
200163	943	PW	Thistle - Woodward EHV 345 kV ckt 2 (PW)	\$22,610,000
200239	945	ITCGP	Ironwood - Clark Co. 345 kV Ckt 1	\$50,565,144
200239	945	ITCGP	Ironwood - Clark Co. 345 kV Ckt 2	\$50,565,144
200162	945	ITCGP	Clark Co 345 kV - Thistle 345 kV ckt 1	\$91,618,023
200162	945	ITCGP	Clark Co 345 kV - Thistle 345 kV ckt 2	\$91,618,023
200163	946	PW	Thistle - Wichita 345 kV ckt 1 (PW)	\$58,140,000
200163	946	PW	Thistle - Wichita 345 kV ckt 2 (PW)	\$58,140,000
200162	945	ITCGP	Thistle 345/138 kV transformer	\$6,284,694
20103	946	WR	Wichita 345 kV Terminal Upgrades	\$10,746,938
200162	945	ITCGP	Flat Ridge - Thistle 138 kV	\$7,106,987
200239	945	ITCGP	Ironwood 345 kV Substation	\$1,850,000

NTC ID	PID	Facility Owner	UPGRADE_NAME	Current Cost Estimate
200239	945	ITCGP	Ironwood - Spearville 345 kV Ckt 2	\$9,191,986
200239	945	ITCGP	Ironwood - Spearville 345 kV Ckt 1	\$200,000

17.6 Sponsored Projects Completed in 2014

NTC ID	Project ID	Project Owner	Project Name	Current Cost Estimate
NA				

Section 18: 2013 ITP20 Project List

Name	Type	Size	Focus
Keystone – Red Willow	New Branch	345 kV	Reliability
Tolk – Tuco	New Branch	345 kV	Reliability
S3459	2nd Transformer	345/161 kV	Economic
Holcomb	2nd Transformer	345/115 kV	Reliability
Maryville	New Transformer	345/161 kV	Reliability
Pecan Creek – Muskogee	Upgrade 2 circuits	345 kV	Reliability
Nashua	Upgrade Transformer	345/161 kV	Reliability
JEC – Auburn Hills – Swissvale	Rebuild (New Auburn Hills transformer)	345 kV, 345/115 kV	Reliability
Clinton – Truman – N Warsaw	Upgrade Branch	161 kV	Reliability
S3740 - S3454	New Branch	345 kV	Reliability
Chamber Springs – S Fayetteville	New Branch & Transformer	345 KV, 345/161 kV	Economic
Wolf Creek - Neosho	New Branch	345 kV	Economic