

BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

IN THE MATTER OF SOUTHWESTERN	)	
PUBLIC SERVICE COMPANY'S	)	
APPLICATION FOR: (1) REVISION OF	)	
ITS RETAIL RATES UNDER ADVICE	)	
NOTICE NO. 282; (2) AUTHORIZATION	)	CASE NO. 19-00170-UT
AND APPROVAL TO SHORTEN THE	)	
SERVICE LIFE OF AND ABANDON ITS	)	
TOLK GENERATING STATION UNITS;	)	
AND (3) OTHER RELATED RELIEF,	)	
	)	
SOUTHWESTERN PUBLIC SERVICE	)	
COMPANY,	)	
	)	
APPLICANT.	)	
	)	

DIRECT TESTIMONY

of

JARRED J. COOLEY

on behalf of

SOUTHWESTERN PUBLIC SERVICE COMPANY

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GLOSSARY OF ACRONYMS AND DEFINED TERMS

<u>Acronym/Defined Term</u>	<u>Meaning</u>
Base Period	April 1, 2018 through March 31, 2019
CCN	Certificate of Public Convenience and Necessity
Commission	New Mexico Public Regulation Commission
C1	Constructability I
EC	Economic Project
ELR	End of Life Replacement Project
FERC	Federal Energy Regulatory Commission
GI	Generation Interconnection Project
HPILS	High Priority Incremental Load Study
kV	Kilovolt
LI	Load Interconnection Project
NERC	North American Electric Reliability Corporation
NTC	Notification to Construct
OG&E	Oklahoma Gas & Electric
O&M	Operation and Maintenance
OATT	Open Access Transmission Tariff

<u>Acronym/Defined Term</u>	<u>Meaning</u>
Operating Companies	SPS, Northern States Power Company, a Minnesota corporation; Northern States Power Company, a Wisconsin corporation; Public Service Company of Colorado, a Colorado corporation.
OPGW	Optical Ground Wire
OT	Other Project
RE	Reliability Project
RTU	Remote Terminal Unit
SPP	Southwest Power Pool
SPS	Southwestern Public Service Company, a New Mexico corporation
SR	System Refurbishment Project
Test Year	Historical Test Year Period consisting of the Base Period and further incorporating all proper adjustments and capital additions
Transmission business area	Transmission and Operating Services business area
TI	Transmission Interconnection Project
WBS	Work Breakdown Structure
Xcel Energy	Xcel Energy Inc.
XES	Xcel Energy Services Inc.

LIST OF ATTACHMENTS

<u>Attachment</u>	<u>Description</u>
JJC-1	Total Company Amounts and Jurisdictional Percentages (Filename: JJC-1.xlsx)
JJC -2	Transmission Capital Additions for the Period April 1, 2018 through March 31, 2019 (Filename: JJC-2.xlsx)
JJC -3	Transmission Capital Additions for the Period April 1, 2018 through March 31, 2019 – Summary of Projects (Filename: JJC-3.xlsx)
JJC -4	Risk Assessment Categories (Filename: JJC-4.docx)
JJC -5	Cost Estimate Summary (Filename: JJC-5.docx)
JJC -6	Transmission Capital Additions for Period April 1, 2019 through August 31, 2019 (Filename: JJC-6.xlsx)
JJC -7	Total Company SPS Operation and Maintenance Expense (Filename: JJC-7.xlsx)
JJC-8	Tolk Generators Change of Operation Study (Filename: JJC-8.xlsx)

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of
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1 **I. WITNESS IDENTIFICATION AND QUALIFICATIONS**

2 **Q. Please state your name and business address.**

3 A. My name is Jarred J. Cooley. My business address is 790 South Buchanan Street,
4 Amarillo, Texas 79101.

5 **Q. On whose behalf are you testifying in this proceeding?**

6 A. I am filing testimony on behalf of Southwestern Public Service Company, a New
7 Mexico corporation (“SPS”) and wholly-owned electric utility subsidiary of Xcel
8 Energy Inc. (“Xcel Energy”).

9 **Q. By whom are you employed and in what position?**

10 A. I am employed by Xcel Energy Services Inc. (“XES”) as Manager, Transmission
11 Planning South.

12 **Q. Please briefly outline your responsibilities as Manager, Transmission**
13 **Planning South.**

14 A. I provide overall management direction for the transmission planning staff in
15 Amarillo, Texas. Their duties include planning new transmission facilities
16 required for generation and customer additions. I also actively participate on
17 behalf of SPS in the Southwest Power Pool’s (“SPP”) transmission planning
18 activities. In addition, I participate in the preparation of the SPS transmission

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1 capital budget. Finally, I interact with retail and wholesale customers seeking
2 new transmission service, as well as wind and solar developers working on
3 interconnections with the SPS transmission system.

4 **Q. Please describe your educational background.**

5 A. I received my Bachelor of Science degree in Electrical Engineering in 2010 from
6 the University of Minnesota – Twin Cities.

7 **Q. Please describe your professional experience.**

8 A. In 2010, I started full-time as an entry-level engineer in the Transmission
9 Planning department with Xcel Energy, based in Minneapolis, Minnesota. In
10 2014, I was promoted to Senior Engineer within the Transmission Planning
11 department. I continued to work in that department until 2018, when I became
12 Manager, Transmission Planning South, and moved to Amarillo, Texas.

13 **Q. Do you hold a professional license?**

14 A. Yes. I am a registered Professional Engineer in the State of Minnesota.

15 **Q. Have you filed testimony before any regulatory authorities?**

16 A. I submitted written testimony with the New Mexico Public Regulation
17 Commission (“Commission”) regarding a Certificate of Public Convenience and

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1 Necessity (“CCN”) in Case No. 19-00157-UT.¹ I have also submitted written
2 testimony with the Federal Energy Regulatory Commission (“FERC”) regarding a
3 filing by the SPP in Docket No. ER18-2358-000.

¹ *In the Matter of Southwestern Public Service Company’s Application Requesting: (1) Issuance of a Certificate of Public Convenience and Necessity Authorizing Construction and Operation of a 345-kV Transmission Line and Associated Facilities in Eddy County, New Mexico; (2) Location Approval of the 345-kV Transmission Line; (3) Determination of the Necessary Right-of-Way Width; and (4) Authorization to Accrue an Allowance for Funds Used During Construction for the Transmission Line and Associated Facilities; Case No. 19-00157-UT (pending).*

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Q. What is your assignment in this proceeding?

A. My testimony will address the following topics:

1. I explain how the Transmission capital projects are ranked, estimated, selected for funding, and managed.
2. I present the major Transmission capital additions from April 1, 2018 through August 31, 2019, including the cost data for: the capital additions that closed to plant-in-service during the period of April 1, 2018 through March 31, 2019; and the capital additions that are expected to close to plant-in-service during the period from April 1, 2019 through August 31, 2019.
3. I discuss the overall Operation and Maintenance (“O&M”) expenses for the Transmission business area for the Test Year² and how the level of expenses are reasonable and necessary to support the electric service SPS provides to its New Mexico retail customers, and that they are representative of future costs.
4. I discuss the study that was completed and identified the need to operate the Tolk Station generators as synchronous condensers because of the reduced operation of Tolk Station.

Q. Please summarize the conclusions and recommendations in your testimony.

A. The Transmission capital additions totaling \$92,790,457 on a New Mexico retail basis for the period of April 1, 2018 through August 31, 2019 that SPS is requesting in this filing are reasonable and necessary to provide, maintain, and

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1 secure the properties and facilities that are used by SPS to provide safe and
2 reliable electric utility service for its customers. The total amount consists of
3 costs for projects placed in service during the period of April 1, 2018 through
4 March 31, 2019 of \$56,083,543, and to be placed in service during the period
5 April 1, 2019 through August 31, 2019 of \$36,706,914. These costs were
6 prudently incurred and consist of reasonable and necessary capital projects to
7 construct, equip, and repair SPS's transmission system. These capital projects
8 were necessary to provide functional and safe facilities for SPS's operations and
9 are used in providing service to customers. Therefore, the Commission should
10 authorize Transmission capital additions to be included in SPS's rate base.

11 SPS's Test Year Transmission O&M expenses are reasonable and
12 necessary to support the electric service SPS provides to its New Mexico retail
13 customers and are representative of SPS's future costs. These costs are for
14 services for the operation and maintenance of SPS's transmission system. These
15 services are necessary to provide reliable and safe transmission services to
16 support SPS's operations and are used in providing service to customers. SPS's
17 standard practice includes efforts to manage and minimize related O&M expense.

18 Finally, because of the current reduced operations and proposed retirement
19 of the Tolk Station, SPS must address voltage stability and reliability needs on the

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1 transmission system. SPS's solution to address this need is to install the
2 necessary equipment to allow the two generators to operate as synchronous
3 condensers at the Tolk Station site. This solution is reasonable and necessary to
4 assure the continued stability and reliability of the SPS transmission system.

5 **Q. Were Attachments JJC-1 through JJC-8 prepared by you or under your**
6 **direct supervision?**

7 A. The preparation of Attachment JJC-1 is discussed below. Attachments JJC-2, 3
8 and 6 were prepared by my staff, as well as SPS witness Laurie J. Wold and her
9 staff. The information in Attachment JJC-2, and part of the information included
10 in Attachment JJC-3 is included in Ms. Wold's Attachment LJW-2. The
11 information in Attachment JJC-6 is included in Ms. Wold's Attachment LJW-3.
12 Attachments JJC-4 and JJC-5 were prepared by my staff. Attachment JJC-7 was
13 prepared under the supervision of SPS witness Arthur P. Freitas and represents
14 the Operations and Maintenance Expenses provided in Mr. Freitas' direct
15 testimony, Attachment APF-6. Attachment JJC-8 was prepared on August 11,
16 2017 by the SPS Transmission Planning South department before I became the
17 Manager of the department. I have reviewed these attachments and believe them
18 to be accurate and complete.

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1 **Q. How were New Mexico retail jurisdictional amounts in your testimony and**
2 **attachments calculated?**

3 A. Throughout this testimony, I quantify the expense and asset amounts on a New
4 Mexico retail basis based upon the jurisdictional allocation percentages Mr.
5 Freitas uses to develop the New Mexico retail revenue requirement in his
6 Attachment APF-6. Mr. Freitas is responsible for calculating jurisdictional
7 allocation percentages that apply to the various costs components in the cost of
8 service. My staff and I conferred with Mr. Freitas and his staff to determine these
9 New Mexico retail jurisdictional amounts presented in my testimony and
10 attachments. If the percentages used to allocate amounts to the New Mexico retail
11 jurisdiction change, those new allocation percentages will need to be applied to
12 the total company numbers to derive updated New Mexico retail amounts. My
13 Attachment JJC-1 contains the total company numbers and the jurisdictional
14 percentages used to derive the New Mexico retail amounts in my testimony. I
15 have reviewed Attachment JJC-1 and was engaged in its development, and I
16 believe it to be accurate and complete.

Q. Please describe the Transmission business area and the work that the Transmission business area performs to support SPS's operations.

A. The Transmission business area supports reliable, cost-effective, and timely engineering solutions for constructing, operating, and maintaining high-voltage transmission lines and substations to support system reliability and to strengthen infrastructure to serve our customers.

Q. Please describe the processes for identifying and ranking Transmission capital projects.

A. The Transmission Planning functional area develops the concept for transmission projects through technical studies that include: new distribution load-serving substations; transmission upgrades based on the North American Electric Reliability Corporation ("NERC") reliability standards; new generation and transmission service requests; and discussions with SPP planning staff. SPP also may issue to SPS a Notification to Construct ("NTC") for reliability projects ("RE"), projects to provide transmission service under the SPP Open Access Transmission Tariff ("OATT"), projects that have been determined by SPP to provide regional economic benefits, or projects required to provide service to new

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1 delivery points under the SPP OATT. SPP issues an NTC for transmission
2 projects that it has studied and determined are needed and beneficial to the
3 transmission network. An NTC is SPP's notification to the affected utility(ies)
4 instructing them to build the specific project(s) listed in the NTC per the
5 minimum requirements outlined for each project. All capital projects are ranked
6 using a 10-point risk assessment metric. The risk assessment categories are
7 shown in Attachment JJC-4. Key drivers for the risk prioritization strategy
8 include strategic, compliance, contractual agreements, reliability and regulatory
9 mandated, economic, external, and other risk factors. The risk assessment process
10 ranks projects on a scale of categories 1 through 10, with 10 being most urgent
11 and 5 through 10 being non-discretionary. Non-discretionary projects include
12 outages, contractual agreements, regulatory mandated, projects that have received
13 an NTC, interconnection agreements under FERC, and projects that have received
14 a high ranking during the prioritization process.

15 **Q. Please describe how the Transmission business area develops cost estimates**
16 **for the funding of proposed Transmission capital additions.**

17 A. Please refer to Attachment JJC-5, which shows the general estimating steps and
18 what project information is available as a project goes from creation to

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1 construction. When a project is prepared for the capital budget, a preliminary
2 scope is developed by Transmission Planning or other submitting organization
3 and provided to the Project Management organization. Project Management then
4 requests cost estimates from the Substation/Transmission Engineering & Design
5 organization. Project Management and Substation/Transmission Engineering &
6 Design are both part of the Portfolio Delivery organization. The Portfolio
7 Delivery organization is responsible for the management of project design and
8 construction and insuring projects are constructed within the desired scope
9 requirements and the approved financial costs.

10 Although projects can be initiated by different mechanisms as previously
11 discussed, the estimating process is the same. An initial estimate is requested. If
12 the project is an internally-developed budget item, the initial estimate is a scoping
13 estimate and is intended to be within $\pm 30\%$ of the total expected project cost. If
14 the initial estimate is for a generator facilities study or a project proposed in
15 response to an NTC, SPP's tariff includes additional cost estimation and oversight
16 requirements.

17 Each project proceeds through design reviews, called the "constructability
18 process," which reviews the scope, cost and feasibility estimates, and schedules of

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1 a project at different stages in the project's development. The Constructability I
2 ("C1") review evaluates the validity of the initial scope and looks for a fatal flaw
3 in the proposed project. A $\pm 30\%$ scoping estimate is developed after completion
4 of the C1 review. The project then proceeds to a Constructability 1.5 review.
5 This review involves a field visit to the area of the project to identify any issues
6 which cannot be discovered through review of drawings. If changes are necessary
7 due to issues discovered during a field visit, then the scope is modified. The
8 project next proceeds through the Constructability II review, where a $\pm 20\%$
9 accuracy appropriation estimate is required.

10 Following completion of the project design, but prior to start of
11 construction, a $\pm 10\%$ engineering estimate is developed. The engineering
12 estimate is the most accurate estimate created for the project and is prepared after
13 due consideration of the construction site and inclusion of known extenuating
14 circumstances. In most cases, the engineering estimate includes actual material
15 costs and may include construction bid pricing. This is the final estimate
16 developed and is the final control point for project cost and schedule. At this
17 project stage, information regarding the site and scope is known. Information

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1 regarding external influences such as final material delivery, outage windows, and
2 contractor availability may be less certain.

3 During the constructability process, input is sought from stakeholders such
4 as engineering, operations, construction, siting and land rights, regulatory, and
5 others as needed. Stakeholder participation in the process is often dependent on
6 the nature of the project.

7 SPS uses an estimating software program, Hard Dollar, to generate cost
8 estimates. Hard Dollar contains a database of historical engineering, material, and
9 construction costs that engineers can draw upon to prepare accurate cost
10 estimates. Engineers use templates from similar projects to ensure their estimates
11 include all the necessary cost elements. Any engineering consultants hired to
12 provide estimates use the same process to ensure that their estimates are
13 consistent with the methods used to prepare estimates that are generated
14 internally.

15 **Q. As an example, please explain how cost estimates were derived for the OPIE**
16 **Hobbs-Kiowa 345kV PID 30637 project.**

17 **A.** The OPIE Hobbs-Kiowa 345kV PID 30637 project resulted from the SPP High
18 Priority Incremental Load Study (“HPILS”) study process. The project was

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1 identified by SPP as a system improvement needed to facilitate the transfer of
2 generation located around Hobbs, New Mexico, to support load growth in
3 southeast New Mexico. It was also needed to prevent extreme low voltage
4 conditions under both normal and contingency conditions. Since an NTC was
5 issued and SPS had participated in the study process with SPP, SPS had provided
6 an initial study estimate for SPP's use. This cost estimate was provided prior to
7 the issuance of an NTC by SPP. After SPP issued the NTC, SPS provided a
8 refined estimate, required by SPP's procedures, upon acceptance of the NTC.
9 Because this project required a CCN in New Mexico, detailed routing information
10 and cost estimates were prepared by SPS and submitted to the Commission for
11 their independent review as part of SPS's CCN application. Internally, the project
12 was moving through the project management and estimating processes described
13 above. Thus, cost estimates for the project were subject to multiple levels of
14 review and oversight.

15 **Q. Please explain how Transmission capital costs are managed?**

16 A. After the estimates are developed, all projects follow a project flow process that
17 requires reviews and approvals at the budget, management, senior management,
18 and executive levels. After this approval, capital projects are approved through

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1 the budgeting process, and they are reviewed on a monthly basis to compare the
2 monthly forecast to actual funds spent. A review is also performed to compare
3 year-to-date actual performance with year-to-date and year-end forecasts.
4 Deviations are identified and recommendations to meet financial targets are
5 reviewed and approved. Changes are reported to the Financial Performance and
6 Planning group, which monitors capital spending. If the project is an SPP NTC
7 project, SPS must report the estimated completion cost of the NTC project
8 quarterly to SPP. If the estimated cost of the project exceeds SPP's requirements,
9 the estimate is sent for management review by the SPP Project Cost Working
10 Group and other stakeholder groups. If the costs are significantly outside of the
11 allowable range, SPP may address the issue through actions including: accepting
12 the cost variance; modifying the scope of the project to reduce the cost;
13 suspending the project for further studies; or cancelling the project.

14 **Q. How are contingencies encountered during the year handled in managing the**
15 **capital budget?**

16 A. The approved, overall Transmission capital budget contains contingency funds
17 identified for use on transmission, generation, and transmission to transmission
18 interconnection agreements that may not have been executed when the budget

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1 was developed. Such contingency budgets are necessary because projects
2 resulting from Generation Interconnection (“GI”) agreements, when executed,
3 must be constructed in a timely manner per the SPP Generator Interconnection
4 Procedures. Projects required for Transmission Interconnection (“TIs”) are also
5 required to be constructed in a timely manner per the SPP OATT. Any projects
6 that arise outside of the original budget planning cycle are funded using these
7 contingency funds. If additional funding is needed, approval for the project is
8 sought in the same manner as any new capital budget item with appropriate
9 engineering, management, and financial reviews. The capital budget also
10 includes amounts for transmission lines and substations to cover unexpected
11 events that require capital expenditures. These funds are utilized to address
12 emergency outages that occur during the year. These capital amounts included in
13 the budget are developed based on historical requirements for the repair of failed
14 equipment and/or storm-damaged equipment.

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1 **IV. TRANSMISSION CAPITAL ADDITIONS**

2 **Q. As part of this rate case, is SPS asking to include Transmission capital**
3 **additions in its rate base?**

4 A. Yes. SPS is asking to include in rate base Transmission capital additions that
5 have closed or are expected to close to plant-in-service for the period of April 1,
6 2018 through August 31, 2019. SPS has included these capital additions in its
7 Test Year rate base. In Subsection A, I discuss the capital additions that have
8 closed to plant-in-service during the period of April 1, 2018 through March 31,
9 2019. In Subsection B, I discuss the capital additions that have closed to
10 plant--in-service or are expected to close to plant-in-service during the period of
11 April 1, 2019 through August 31, 2019. All of these Transmission capital
12 additions support SPS's ability to provide safe and reliable electric service to its
13 customers.

A. Transmission Capital Additions for the period of
 April 1, 2018 through March 31, 2019

14 **Q. What is the dollar amount of the Transmission capital additions that SPS is**
15 **requesting in this case for the period of April 1, 2018 through March 31,**
16 **2019?**

17 A. SPS is requesting \$56,083,543 on a New Mexico retail basis in Transmission
18 capital additions for the period of April 1, 2018 through March 31, 2019. This

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1 amount consists of Transmission plant capital additions of \$52,507,979, as well as
2 general plant capital additions of \$3,575,548, and intangible plant capital
3 additions of \$16³. Attachments JJC-2 and JJC-3 provide all of the Transmission
4 capital additions closed to plant-in-service during this time period.

5 **Q. Have you prepared a list of SPS's requested Transmission capital additions**
6 **closed to plant-in-service during the period of April 1, 2018 through March**
7 **31, 2019?**

8 A. Yes. Attachments JJC-2 and JJC-3 both list SPS's requested Transmission capital
9 additions for the period from April 1, 2018 through March 31, 2019. Attachment
10 JJC-2 has columns similar to those contained in Ms. Wold's Attachment LJW-2.
11 Attachment JJC-3 is arranged to facilitate description of the additions by project
12 group and provides the following information:

Column A	Asset Class	Identifies the type of asset.
Column B	WBS Level 1 Project Group	Provides the Work Breakdown Structure ("WBS") Level 1 name of the project group
Column C	WBS Level 2 Number	Provides the WBS Level 2 number for the project

³ Capital Addition values may not match exactly due to rounding.

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Column D	Project Description (WBS Level 2 Description)	Provides a short title for the WBS Level 2 number for the project.
Column E	Additions to Plant-in-Service (April 1, 2018– March 31, 2019) Total Company	Provides the Total Company dollar amount for the plant additions for the period of April 1, 2018 through March 31, 2019.
Column F	Additions to Plant-in-Service (April 1, 2018– March 31, 2019) NM Retail	Provides the New Mexico Retail dollar amount for the plant additions for the period of April 1, 2018 through March 31, 2019.
Column G	WBS Level 1 Project Group Description	Provides a short description of the focus of the project group
Column H	Cost Recovery	Specifies the method of cost recovery for the project group
Column I	Project Category	Provides a classification of the project group's type

1 **Q. Please describe the different cost recovery methods listed in Attachment**
2 **JJC-3, column H.**

3 **A.** The cost recovery method in column H of Attachment JJC-3 explains how the
4 capital costs are recovered. The different cost recovery methods are as follows:

- 5 • Customer Funded – means that capital funds for the project are provided
6 by the interconnection customer.

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- 1 • SPP Balanced Portfolio – means the revenue recovery follows the SPP
2 Balanced Portfolio method of cost recovery as outlined in SPS witness
3 William A. Grant’s direct testimony.
- 4 • SPP Base Plan – means that the cost recovery follows the SPP
5 highway/byway method of cost recovery as outlined in Mr. Grant’s direct
6 testimony.
- 7 • SPS Zonal – means that 100% of the revenue requirements are rolled into
8 SPS zonal transmission rates.
- 9 • SPS Directly Assigned – means that 100% of the revenue requirements
10 are paid by SPS retail customers.

11 Some projects can have a combination of recovery methods as noted in
12 Attachment JJC-3. Mr. Grant discusses the SPP cost recovery methods in more
13 detail in his testimony. For each project that was issued an NTC, the cost
14 recovery method is specified for that project within the NTC.

15 **Q. Please describe the Transmission capital additions as shown on Attachment**
16 **JJC-3.**

17 A. The Transmission capital additions listed in Attachment JJC-3 support SPS’s
18 transmission operations and SPS’s ability to provide safe and reliable electric
19 service to its customers. These additions are for expanding the SPS transmission
20 system infrastructure and for upgrading the SPS transmission system to
21 interconnect new generation resources, to maintain reliability, and to improve
22 load-serving capability.

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As shown in Table JJC-1, the Transmission capital additions for the period of April 1, 2018 through March 31, 2019 fall within the following seven project categories: Economic Projects; Generation Interconnection Projects; Load Interconnection Projects; Reliability Projects; System Refurbishment Projects; Transmission Interconnection Projects; and Other Projects. When a project group falls into two project categories, the dollar cost of the project group is split equally between the two categories.

Table JJC-1
Transmission Capital Additions
for the Period of April 1, 2018 through March 31, 2019

Project Category	Transmission Capital Additions (total company)	Transmission Capital Additions (NM retail)
Economic (“EC”)	(\$347,025)	(\$70,964)
Generation Interconnection (“GI”)	(\$3,745,523)	(\$716,242)
Load Interconnection (“LI”)	\$4,766,127	\$996,780
Reliability (“RE”)	\$214,119,726	\$43,978,751
System Refurbishment (“SR”)	\$42,869,137	\$8,841,111
Transmission Interconnection (“TI”)	(\$314,325)	(\$64,277)
Other (“OT”)	\$12,304,349	\$3,118,384
TOTAL	\$269,652,466	\$56,083,543

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1 **Q. Please describe the types of projects included in the “EC” category.**

2 A. This category of investment contains the capital additions for transmission
3 projects that were developed through SPP’s Integrated Planning Process, which
4 provide benefits to the SPP region, including the SPS system. SPS’s New Mexico
5 retail customers benefit from these capital additions because they also provide
6 improved access to market-based energy resources. The total investment in this
7 category is (\$70,964) on a New Mexico retail basis. The projects described below
8 account for 100% of the total capital additions in this category. These projects are
9 integral to SPS’s ability to provide reliable electric service to its customers.

- 10 • **Hitchland to Woodward (-\$54,976 NM retail) (-\$268,840 total**
11 **company) (WBS Level 2 Number A.0000244.002)** – This project
12 constructed a double-circuit 345 kilovolt (“kV”) transmission line
13 between the Hitchland Substation, near Guymon, Oklahoma, and
14 Oklahoma Gas & Electric’s (“OG&E”) Woodward Substation, near
15 Woodward, Oklahoma. This project is also a Transmission
16 Interconnection Project, and therefore only half of the total shown
17 (-\$27,488 NM retail) (-\$134,420, total company) is credited to
18 Economic Projects. SPS constructed approximately 30 miles of the
19 line from Hitchland Substation to OG&E’s Beaver County Substation.
20 OG&E constructed the line from Beaver County Substation to its
21 Woodward Substation. SPP issued SPS an NTC for this project.
- 22 • **TUCO Mooreland (Woodward) (-\$86,952 NM retail) (-\$425,209**
23 **total company) (WBS Level 2 Numbers A.0000417.003, .015, and**
24 **A.0000665.005)** – This project constructed a single-circuit 345-kV
25 transmission line between the TUCO Substation, near Lubbock, Texas,
26 and Woodward, Oklahoma. This project is also a Transmission

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1 Interconnection Project, and therefore only half of the total shown
2 (-\$43,476 NM retail) (-\$212,605 total company) is credited to
3 Economic Projects. SPS constructed the line between the TUCO
4 Substation and OG&E's Border Substation near the Texas and
5 Oklahoma border, and OG&E constructed the line from the Border
6 Substation to OG&E's Woodward Substation. The project was
7 identified in the SPP's Balanced Portfolio Economic Studies. SPP
8 issued SPS an NTC for this project.

9 **Q. Please describe the types of projects included in the "GI" category.**

10 A. This category of investment contains the capital additions for transmission system
11 upgrades necessary to connect new generation sources to the SPS transmission
12 system as required by the SPP OATT. SPS is obligated to provide non-
13 discriminatory interconnection service to new generators, pursuant to the SPP
14 OATT. These capital additions may have incidental benefits to SPS's New
15 Mexico retail customers by enhancing SPS's transmission system reliability with
16 these additional resources and facilities on the system. The total investment in
17 this category during the period is (\$716,242) on a New Mexico retail basis. The
18 projects described below account for more than 100% of the total capital additions
19 in this category because other projects had customer contributions, which
20 removed dollars from the total capital additions. The remaining projects are
21 similar in nature in that they connect new generation sources to the transmission

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1 system, which is integral to SPS's ability to provide reliable electric service to its
2 customers.

- 3 • **Cochran Plains Line Ratings (\$189,434 NM retail) (\$926,365 total**
4 **company) (WBS Level 2 Numbers A.0001183.001, .004, .005. and**
5 **.006)** – This project increased the line and substation terminal ratings
6 of the 115-kV lines U-19 and U-20 between Cochran Co. Interchange
7 and Lea County Plains Switching Station. This project was needed to
8 provide the capacity to accommodate the new 350 MW Wildcat Ranch
9 wind farm generation connected at Lost Draw Switching Station.
- 10 • **GEN 2012-020 Hale Co Wind, 478MW (\$46,211 NM retail)**
11 **(\$177,510 total company) (WBS Level 2 Numbers A.0000902.001,**
12 **and .002)** – This project constructed a new 230-kV terminal at TUCO
13 Interchange for the interconnection of the Hale County wind farm.
14 This project group includes both General and Transmission Plant
15 additions.

16 **Q. Please describe the types of projects included in the “LI” category.**

17 A. This category of investment contains the capital additions for transmission system
18 upgrades necessary to connect new load-serving substations for either SPS retail
19 or wholesale customers, including cooperatives, municipal electric utilities, and
20 other investor-owned utilities. The LI request for the wholesale customers is
21 made under the SPP OATT as their request constitutes a request for network
22 transmission service. These capital additions may have incidental benefits to
23 SPS's New Mexico retail customers by enhancing SPS's transmission system
24 reliability with these additional facilities on the system. The total investment in

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1 this category is \$996,780 on a New Mexico retail basis. The project described
2 below accounts for more than 100% of the total capital additions in this category
3 because other projects had customer contributions, which removed dollars from
4 the total capital additions. The other projects are similar in nature in that they
5 connect new load serving substations, which is integral to SPS's ability to provide
6 reliable electric service to its customers.

- 7 • **Interconnection XTO Mahoney (\$1,128,516 NM retail) (\$5,478,631**
8 **total company) (WBS Level 2 Numbers A.0001008.001, .002, .004,**
9 **.005, .006, .009, and .010)** – This project installed the new Mahoney
10 Switching Station to provide a new 230-kV service point to XTO.
11 This project group includes both General and Transmission Plant
12 additions.

13 **Q. Please describe the types of projects included in the “RE” category.**

14 A. This category of investment contains the capital additions for transmission
15 upgrades identified by SPS or the SPP that are needed to maintain reliability on
16 the SPS transmission system. Upgrades required from the SPP Transmission
17 Expansion Planning process and NERC compliance fall into this category as well.
18 SPS New Mexico retail customers benefit from the improvement in transmission
19 system reliability by having a reduced risk with respect to both frequency and
20 duration of outages, and by having reduced operational constraints. The total
21 investment in this category is \$43,978,751 on a New Mexico retail basis. The

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1 projects described below account for approximately 82% of the total capital
2 additions in this category. The remaining 18% of the projects are similar in
3 nature in that they address reliability issues, which is integral to SPS's ability to
4 provide reliable electric service to its customers.

- 5 • **Atoka-Eagle Creek (\$2,984,440 NM retail) (\$14,529,578 total**
6 **company) (WBS Level 2 Numbers A.0000540.001, .003, .004, .016,**
7 **.017, and .018)** – This project constructed a 115-kV transmission line
8 between the Atoka and Eagle Creek Substations near Artesia, New
9 Mexico. The project is needed to address low voltages in the area.
10 SPP issued SPS an NTC for this project. This project group includes
11 both General and Transmission Plant additions.
- 12 • **Carlisle to Wolfforth (\$2,072,169 NM retail) (\$9,982,693 total**
13 **company) (WBS Level 2 Numbers A.0000511.001, .003, .004, .008,**
14 **.009, .015, .016, .017, .018, .020, .021, .022 and .026)** – This project
15 constructed a new 230-kV line between the Carlisle and Wolfforth
16 substations and substation line terminals to accommodate the new
17 transmission line. This project was needed for reliability and load
18 growth in the surrounding area. SPP issued SPS an NTC for the
19 project. This project group includes both General and Transmission
20 Plant additions.
- 21 • **Cochran Co - Whiteface 115kv (\$990,233 NM retail) (\$4,743,215**
22 **total company) (WBS Level 2 Numbers A.0000194.001, .005, .006,**
23 **.007, and .008)** – This project reconducted the 4.4 mile segment of
24 the 69-kV transmission line from Cochran County Substation to
25 structure number 55 at Whiteface Tap. SPP issued SPS an NTC for
26 this project. This project group includes both General and
27 Transmission Plant additions.
- 28 • **NE Hereford to New Center St. 115 kV Line (\$2,003,367 NM**
29 **retail) (\$9,608,886 total company) (WBS Level 2 Numbers**
30 **A.0000296.005, .006, .007, .008, .009 and .013)** – This project

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constructed a new 115-kV line from Northeast Hereford Interchange to a new distribution substation named New Center St. (La Plata) to allow the 69-kV substation to be removed from the 69-kV Hereford Loop. This allowed the Hereford Interchange and the Northeast Hereford Interchange 115/69-kV transformers to stay under their ratings. This project was needed for system reliability. SPP issued SPS an NTC for this project. This project group includes both General and Transmission Plant additions.

- **OPIE 2 Kiowa-Road Runner 345kV Conv_PID 30639 (\$4,237,091 NM retail) (\$20,720,087 total company) (WBS Level 2 Numbers A.0000424.088, .089, .091, .093, .095, .225, and A.0002049.001 and .002)** – This project installed new 345/115-kV transformers at the Kiowa and Roadrunner substations, and constructed a new 345/115-kV double circuit transmission line between the Kiowa and Potash Junction substations. The project was needed for reliability reasons and SPP issued SPS an NTC for the project.
- **OPIE 3 Kiowa-China Draw 345kV_PID 30638 (\$13,938,760 NM retail) (\$67,823,607 total company) (WBS Level 2 Numbers A.0000424.085, .086, .087, .160, .163, .164, .165, .167, .168, and .169)** – This project installed new 345/115-kV transformers at North Loving and China Draw substations. It also constructed a new 345-kV transmission line from Kiowa to North Loving to China Draw substation. The project was needed for reliability and SPP issued SPS an NTC for this project. This project group includes both General and Transmission Plant additions.
- **OPIE Potash-Livingston Ridge Recond (\$1,687,824 NM retail) (\$8,253,745 total company) (WBS Level 2 Numbers A.0000424.143, .144, .145, .150, and .226)** – This project rebuilt 13.5 miles of 115-kV line between Potash Junction and Livingston Ridge substations. SPP issued SPS an NTC for this project.
- **OPIE TUCO-Hobbs 345kV_PID 30376 (\$1,184,796 NM retail) (\$5,793,853 total company) (WBS Level 2 Numbers A.0000673.022, .024, .026, and .041)** – This project constructs a

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1 single-circuit 345-kV transmission line between the TUCO Substation,
2 near Lubbock, Texas, the Yoakum Substation in Texas, and the Hobbs
3 Generating Substation near Hobbs, New Mexico. The project was
4 evaluated and identified in the 2013 SPP HPILS as needed for
5 reliability to alleviate loading violations on the underlying network
6 and voltage violations due to insufficient power supply to network
7 load additions. In addition to its reliability benefits, the project was
8 also identified by SPP as providing significant economic benefits. In
9 2016, SPP issued its Integrated Transmission Planning Near-Term
10 study which identified the TUCO to Yoakum portion of the project as
11 needed as soon as 2017 to mitigate voltage issues in that area. SPP
12 issued SPS NTCs for this project.

- 13 • **Roosevelt Cty 230 Brkr 1/2 (\$2,067,917 NM retail) (\$10,062,100**
14 **total company) (WBS Level 2 Numbers A.0000519.001, .004 and**
15 **A.0001353.001) –** The project re-configured the Roosevelt County
16 Substation 230-kV bus to a double-bus, double breaker configuration
17 to accommodate the addition of the Pleasant Hill 230-kV line terminal.
18 The upgraded configuration improves reliability and mitigates long-
19 term outages in the event of a breaker that fails to open. This project
20 group includes both General and Transmission Plant additions.
- 21 • **Sierra Substation (RIAC Conversion) (\$902,384 NM retail)**
22 **(\$4,322,698 total company) (WBS Level 2 Numbers**
23 **A.0001300.009, .013, .014, .020, .022, .023, and .025) –** This project
24 constructed a new 115-kV distribution substation and the conversion
25 of a 2 mile 69-kV transmission line to 115-kV operation. SPP issued
26 SPS an NTC for this project. This project group includes both General
27 and Transmission Plant additions.
- 28 • **SPS Walkemeyer 345 115 280 MVA SUB (\$2,864,406 NM retail)**
29 **(\$13,929,487 total company) (WBS Level 2 Numbers**
30 **A.0001310.001, .002, .003, .004, .006, .007, .008, .012 and .013) –**
31 This project constructed the new Carpenter Switching Station
32 (formerly Stevens County) which is located on the 345-kV line from
33 Hitchland Interchange to Finney Switching Station. This project was
34 needed to address low voltages in the area. SPP issued SPS an NTC

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1 for this project. This project group includes both General and
2 Transmission Plant additions.

- 3 • **W40 Reconductor Canyon West-Deaf Smith (\$1,246,593 NM**
4 **retail) (\$6,096,050 total company) (WBS Level 2 Numbers**
5 **A.0001319.005, .006, .007, .008, .009, .010, and .011)** – This project
6 wrecked out and rebuilt 26 miles of 115-kV transmission line running
7 from Canyon West Substation to Deaf Smith Interchange. This project
8 was needed to eliminate the overloading of this segment during certain
9 system conditions. SPP issued SPS an NTC for this project.

10 **Q. Please describe the types of projects included in the “SR” category.**

11 A. This category of investment contains the capital additions for transmission
12 upgrades to replace storm-damaged equipment and aged or failed equipment.
13 SPS’s New Mexico retail customers benefit from these capital additions through a
14 restoration of service, improved transmission reliability, the prevention of
15 possible future outages, and avoiding higher maintenance costs associated with
16 some aging equipment. These projects include those that are ongoing in nature,
17 such as capital work to replace damaged assets. The total investment in this
18 category is \$8,841,111 on a New Mexico retail basis. The projects described
19 below account for approximately 84% of the total capital additions in this
20 category. The remaining 16% of the projects are similar in nature in that they
21 replace storm-damaged or failed equipment, which is integral to SPS’s ability to
22 provide reliable electric service to its customers.

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- 1 • **345 115kV 448MVA Xfmr spare Sub (\$665,174 NM retail)**
2 **(\$3,252,815 total company) (WBS Level 2 Number A.0001267.001)**
3 – This project purchased a spare 345/115-kV, 448 MVA transformer
4 to provide a reserve unit in the event of a failure of one of the
5 numerous similar transformers in service in the SPS service area.
- 6 • **ELR - Breakers - SPS (\$783,528 NM retail) (\$3,831,582 total**
7 **company) (WBS Level 2 Numbers A.0000640.020, .021, .023, and**
8 **.034)** – The term "ELR" stands for End of Life Replacement. This
9 project replaced circuit breakers that had reached the end of their
10 useful life. This work was done at multiple substations as part of a
11 multi-year program to replace breakers that are obsolete, for which
12 parts are no longer available and require significant operations and
13 maintenance spend to keep them in service.
- 14 • **Line ELR SPS (\$4,021,348 NM retail) (\$19,571,764 total company)**
15 **(WBS Level 2 Numbers A.0000499.004, .011, .012, .013, .015, .016,**
16 **.017, and .018)** – The term "ELR" stands for End of Life
17 Replacement. This project provided for improvement work on
18 transmission lines to address high priority capital defects, such as
19 defective wood poles and cross arms, which were discovered through
20 line inspections. Work in the ELR group included emergent work,
21 planned usually 12 to 18 months in advance of the work being
22 performed. Typically, this work replaced capital property units on a
23 like-for-like basis and returned the transmission line to overall good
24 health. This project group includes both General and Transmission
25 Plant additions.
- 26 • **S&E - SPS Line (\$1,915,309 NM retail) (\$9,366,181 total company)**
27 **(WBS Level 2 Numbers A.0000303.007, .028, .040, .041, .044, .045,**
28 **.046, .047, and .050)** – These projects provided for the storm and
29 emergency work orders for the replacement or capital repair of
30 transmission line facilities damaged by inclement weather or natural
31 disasters.

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1 **Q. Please describe the types of projects included in the “TI” category.**

2 A. This category of investment contains the capital additions for transmission system
3 upgrades necessary to connect transmission systems of neighboring utilities to the
4 SPS transmission system. SPS is obligated to provide this interconnection service
5 pursuant to the SPP OATT. SPS’s New Mexico retail customers benefit from
6 these capital additions because they may also provide improved access to market
7 based energy resources and also improved overall system reliability from
8 expanded transmission system interconnection. The total investment in this
9 category is (\$64,277) on a New Mexico Retail basis. The project described below
10 accounts for more than 100% of the total capital additions in this category
11 because other projects posted credits, which removed dollars from the total capital
12 additions. These projects are integral to SPS’s ability to provide reliable electric
13 service to its customers.

- 14 • **Hitchland II (Optima) (\$6,687 NM retail) (\$32,699 total company)**
15 **(WBS Level 2 Number A.0000974.012)** – This project installed a
16 new 345-kV interchange in Texas County, Oklahoma, north of the
17 existing SPS Hitchland Interchange. The 345-kV bus at Hitchland
18 Interchange cannot be feasibly expanded so the new Optima Switching
19 Station will provide additional interconnection capability to the
20 345-kV system in that area.

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1 **Q. Please describe the types of projects included in the “OT” category.**

2 A. This category of investment contains the capital additions for transmission
3 projects such as tool and equipment purchases, spare parts, and data acquisition
4 including fault or disturbance recorders. These capital additions support the
5 projects in the first six categories and enhance or improve transmission reliability,
6 for example by enabling SPS to conduct diagnostic testing to prevent outages.
7 The total investment in this category is \$3,118,384 on a New Mexico retail basis.
8 The projects described below account for approximately 87% of the total capital
9 additions in this category. The remaining 13% of the projects are similar in
10 nature in that they involve purchasing of equipment or spare parts, which is
11 integral to SPS’s ability to provide reliable electric service to its customers.

- 12 • **Physical Security (\$1,003,272 NM retail) (\$4,518,818 total**
13 **company) (WBS Level 2 Numbers A.0000710.001, .003, .007,**
14 **and.008)** – This project installed Physical Security Upgrades affecting
15 SPS substation protection with specific work varying by substation
16 location, current layout, and threat history. Typical security measures
17 included the installation of equipment such as cameras and motion
18 sensors at substations. This project group includes both General and
19 Transmission Plant additions.
- 20 • **RTU - EMS Upgrade - SPS (\$230,996 NM retail) (\$832,076 total**
21 **company) (WBS Level 2 Numbers A.0000588.001, .010, and .011)** –
22 This project replaced remote terminal units ("RTU") that were at the
23 end of their useful service life.

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- 1 • **Security Access Control System (\$532,481 NM retail) (\$1,918,059**
2 **total company) (WBS Level 2 Numbers A.0001118.006, .007, and**
3 **.009)** – This project replaced the existing standard locks on substation
4 entry gates with locks that use an electronic key to restrict substation
5 access to authorized personnel and to meet compliance requirements.
- 6 • **SPS Sub Communication Network Group 1 (\$174,076 NM retail)**
7 **(\$792,913 total company) (WBS Level 2 Numbers A.0000795.001**
8 **and .003)** – These projects provided for the construction of a fiber
9 optics communication infrastructure within the SPS region. The first
10 leg of a multi-year effort will start in the Amarillo area by installing
11 Optical Ground Wire ("OPGW") in the static position on selected
12 transmission lines to create a redundant fiber optic communication
13 ring with access to the Amarillo Transmission Operations Center.
14 This ring provides redundant protection paths for the line sections on
15 which the OPGW is installed as well as provides redundant paths for
16 the Supervisory Control and Data Acquisition system. This project
17 group includes both General and Transmission Plant additions.
- 18 • **Transportation - SPS (\$719,866 NM retail) (\$2,593,044 total**
19 **company) (WBS Level 2 Numbers 11302945, A.0006056.223, and**
20 **.224)** – These projects purchased fleet vehicles for operation in the
21 SPS area. The vehicles included automobiles, trucks, heavy vehicles
22 such as bucket trucks, high-reach bucket trucks, hole-diggers, and
23 trailers. Without these vehicles, crews would not have access to a
24 predictable and reliable method of transport nor have the necessary
25 equipment to perform needed transmission construction work.
- 26 **Q. Are the Transmission capital additions for the period of April 1, 2018**
27 **through March 31, 2019 presented in Attachment JJC-3 reasonable and**
28 **necessary?**
- 29 **A. Yes. As discussed in my testimony above, the Transmission capital additions**
30 **presented in Attachment JJC-3 are reasonable and necessary to expand and**

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1 sustain the transmission grid that serves as the path between generation and
2 customers taking service from the transmission and distribution systems. For
3 example, SPS must construct new transmission lines and substations to
4 interconnect new generation and to deliver energy reliably through the
5 transmission grid. SPS also must complete transmission system rehabilitation
6 projects related to transmission line and substation improvements, replacement of
7 obsolete and failed equipment, and replacement of systems damaged by storms.
8 These new and reinforced transmission lines, substations, and protection and
9 control systems are integral to providing safe and reliable service to SPS
10 customers. The process for developing costs and managing projects ensures that
11 the expenditures are reasonable and necessary and that the costs were prudently
12 incurred, as discussed earlier in my testimony.

**B. Transmission Capital Additions for the Period of
April 1, 2019 through August 31, 2019**

13 **Q. Please describe the Transmission capital additions SPS is requesting to**
14 **include in its rate base for the period of April 1, 2019 through August 31,**
15 **2019.**

16 **A.** The capital additions that have been or will be placed in service during the period
17 of April 1, 2019 through August 31, 2019 that SPS is requesting to include in rate

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1 base are similar to the projects that were closed during the period of April 1, 2018
2 through March 31, 2019 and that are discussed in the previous section of my
3 testimony. As with the projects discussed above, these projects support SPS's
4 ability to provide safe and reliable electric service to its customers.

5 **Q. What is the dollar amount of the Transmission capital additions for the**
6 **period of April 1, 2019 through August 31, 2019 that SPS is requesting to**
7 **include in rate base?**

8 A. SPS is requesting \$36,706,914 on a New Mexico retail basis in Transmission
9 capital additions for the period of April 1, 2019, through August 31, 2019. This
10 amount consists of Transmission plant capital additions of \$34,825,466, and
11 general plant capital additions of \$1,881,448. Attachment JJC-6 provides all of
12 the anticipated Transmission capital additions to plant-in-service during this time
13 period.

14 **Q. Please describe the information included in Attachment JJC-6, which**
15 **provides details about the dollar amount for Transmission capital additions**
16 **for the period of April 1, 2019, through August 31, 2019.**

17 A. Attachment JJC-6 provides the following information:

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Column A —	Asset Class	Identifies the type of asset.
Column B —	Witness	Identifies the witness supporting the project.
Column C —	Project Category	Provides a classification of the project group's type
Column D—	WBS Level 1 Project Group	Provides the WBS Level 1 name of the project group
Column E —	Additions to Plant-in-Service (April 1, 2019– August 31, 2019) Total Company	Provides the Total Company dollar amounts for the plant additions for the period of April 1, 2019 through August 31, 2019.
Column F —	Additions to Plant-in-Service (April 1, 2019– August 31, 2019) NM Retail	Provides the New Mexico Retail dollar amounts for the plant additions for the period of April 1, 2019 through August 31, 2019.

1 **Q. Please describe the Transmission capital additions placed in service for the**
2 **period of April 1, 2019 through August 31, 2019.**

3 A. The Transmission capital additions listed in Attachment JJC-6 are the capital
4 additions that have been or will be placed in service between April 1, 2019 and
5 August 31, 2019. They are similar to the projects that were closed to plant-in-
6 service during the period of April 1, 2018 through March 31, 2019 and that are
7 discussed in the previous section of my testimony. They support SPS's

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transmission operations and SPS's ability to provide safe and reliable electric service to its customers. As shown in Table JJC-2 below, the Transmission capital additions for the period of April 1, 2019 through August 31, 2019 fall within the following seven categories: EC; GI; LI; RE; SR; TI; and OT as described in the previous section of my testimony. When a project group falls into two project categories, the dollar cost of the project group is spread equally between the two categories.

Table JJC-2
Transmission Capital Additions
for the Period of April 1, 2019 through August 31, 2019⁴

Project Category	Transmission Capital Additions (total company)	Transmission Capital Additions (NM Retail)
Economic ("EC")	(\$5,173)	(\$1,058)
Generation Interconnection ("GI")	\$4,482,944	\$916,727
Load Interconnection ("LI")	\$16,083,783	\$3,454,473
Reliability ("RE")	\$136,916,798	\$28,094,652
System Refurbishment ("SR")	\$16,158,498	\$3,339,325
Transmission Interconnection ("TI")	(\$5,172)	(\$1,057)
Other ("OT")	\$3,447,912	\$903,854
TOTAL	\$177,079,590	\$36,706,916

⁴ Capital Addition values may not match exactly due to rounding.

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1 **Q. Please describe the types of projects included in the “EC” category.**

2 A. The general description of the EC category is provided in the previous subsection
3 of this testimony, which applies to the projects included for the April 1, 2019
4 through August 31, 2019 time period identified as “EC” on Attachment JJC-6.
5 The total planned investment in this category amounts to (\$1,058) on a New
6 Mexico retail basis during the period. The project described below accounts for
7 over 100% of the total capital additions in this category because the other project
8 had a credit identified from project closing activities, which removed dollars from
9 the total capital additions. The remaining project is similar in nature in that it
10 involved transmission interconnections to the SPP grid. These projects are
11 integral to SPS’s ability to provide reliable electric service to its customers.

12 • **TUCO Mooreland (Woodward) (\$95 NM retail) (\$466 total**
13 **company)** – This project constructed a single-circuit 345-kV
14 transmission line between the TUCO Substation, near Lubbock, Texas,
15 and Woodward, Oklahoma. This project is also a Transmission
16 Interconnection Project, and therefore only half of the total shown
17 (\$48 NM retail) (\$233 total company) is credited to Economic
18 Projects. SPS constructed the line between the TUCO Substation and
19 OG&E’s Border Substation near the Texas and Oklahoma border and
20 OG&E constructed the line from the Border Substation to OG&E’s
21 Woodward Substation. The project was identified in the SPP’s
22 Balanced Portfolio Economic Studies. SPP issued SPS an NTC for
23 this project.

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1 **Q. Please describe the types of projects included in the “GI” category.**

2 A. The general description of the GI category is provided in the previous subsection
3 of this testimony, which applies to the projects included for the April 1, 2019
4 through August 31, 2019 time period identified as “GI” on Attachment JJC-6.
5 The total planned investment in this category amounts to \$916,727 on a New
6 Mexico retail basis during the period. The projects described below account for
7 approximately 81% of the total capital additions in this category. The remaining
8 19% of the projects are similar in nature in that they connect new generation
9 sources to the transmission system, which is integral to SPS’s ability to provide
10 reliable electric service to its customers.

- 11 • **Cochran Plains Line Ratings (\$105,039 NM retail) (\$513,659 total**
12 **company)** – This project increased the line and substation terminal
13 ratings of the 115-kV lines U-19 and U-20 between Cochran Co.
14 Interchange and Lea County Plains Switching Station. This project
15 was needed to provide the capacity to accommodate the new 350 MW
16 Wildcat Ranch wind farm generation connected at Lost Draw
17 Switching Station.
- 18 • **GEN 2013 027 Blue Cloud Wind (\$136,665 NM retail) (\$668,313**
19 **total company)** – This project constructed the new 230-kV Needmore
20 Switching Station to accommodate the new wind generation from Blue
21 Cloud Wind.
- 22 • **Tuco Intg 345/230kV Auto #1 upgrade (\$450,624 NM retail)**
23 **(\$2,203,625 total company)** – This project upgraded the 345/230-kV
24 transformer at TUCO Interchange. This project was one of the shared

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1 network upgrades required for the connection of generation projects
2 approved by SPP in their DISIS 2014-002 study.

3 **Q. Please describe the types of projects included in the “LI” category.**

4 A. The general description of the LI category is provided in the previous subsection
5 of this testimony, which applies to the projects included for the April 1, 2019
6 through August 31, 2019 time period identified as “LI” on Attachment JJC-6.
7 The total planned investment in this category amounts to \$3,454,473 on a New
8 Mexico retail basis during the period. The projects described below account for
9 approximately 85% of the total capital additions in this category. The remaining
10 15% of the projects are similar in nature in that they connect new load serving
11 substations to the transmission system, which is integral to SPS’s ability to
12 provide reliable electric service to its customers.

- 13 • **Interconnection Milwaukee (\$1,817,884 NM retail) (\$8,744,563**
14 **total company)** – This project installed the new SPS Quincy
15 Switching Station to provide 115-kV service to South Plains Electric
16 Cooperative to serve new load from their new Milwaukee Substation.
17 This project group includes both General and Transmission Plant
18 additions.
- 19 • **OPIE 3 Roadrunner 115/25kV Expansion (\$575,196 NM retail)**
20 **(\$2,812,804 total company)** – This project expanded the 115-kV bus
21 at Roadrunner Interchange to provide a 115-kV connection point for
22 the new 115/22.86-kV distribution transformer being installed. This
23 new distribution transformer was needed to serve the rapidly
24 expanding distribution load in the area.

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- 1 • **RB - Purnell Sub (\$468,155 NM retail) (\$1,649,457 total company)**
2 – This project installed a new 115-kV terminal at SPS's XIT
3 Substation to provide 115-kV service to Rita Blanca Electric
4 Cooperative to serve new load from its new Wolves Substation. This
5 project group includes both General and Transmission Plant additions.

6 **Q. Please describe the types of projects included in the “RE” category.**

7 A. The general description of the RE category is provided in the previous subsection
8 of this testimony, which applies to the projects included for the April 1, 2019
9 through August 31, 2019 time period identified as “RE” on Attachment JJC-6.
10 The total planned investment in this category amounts to \$28,094,652 on a New
11 Mexico retail basis during the period. The projects described below account for
12 approximately 84% of the total capital additions in this category. The remaining
13 16% of the projects are similar in nature in that they address reliability issues,
14 which is integral to SPS’s ability to provide reliable electric service to its
15 customers.

- 16 • **Ink Basin Substation (\$2,639,137 NM retail) (\$12,794,482 total**
17 **company)** – This project constructed a new 230/115-kV, three breaker
18 ring bus interchange in the south-central part of Yoakum County,
19 Texas. Existing transmission circuits 115-kV V80 and 230-kV K93
20 were routed in to and out of the new interchange. A new 230/115-kV,
21 250 MVA, transformer provides a new source of power for the
22 115-kV. SPP issued SPS an NTC for this project. This project group
23 includes both General and Transmission Plant additions.

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- 1 • **Mustang-Shell CO2 115kV Line (\$3,761,501 NM retail)**
2 **(\$18,286,622 total company)** – This project constructed a new
3 115-kV transmission line between the Mustang and Shell CO2
4 substations. The project was needed to address overloads in the area.
5 SPP issued SPS a NTC for this project. This project group includes
6 both General and Transmission Plant additions.
- 7 • **OPIE TUCO-Hobbs 345kV_PID 30376 (\$17,133,610 NM retail)**
8 **(\$83,778,297 total company)** – This project constructs a single-circuit
9 345-kV transmission line between the TUCO Substation, near
10 Lubbock, Texas, the Yoakum Substation in Texas, and the Hobbs
11 Generating Substation near Hobbs, New Mexico. The project was
12 evaluated and identified in the 2013 SPP HPILS as needed for
13 reliability to alleviate loading violations on the underlying network
14 and voltage violations due to insufficient power supply to network
15 load additions. In addition to its reliability benefits, the project was
16 also identified by SPP as providing significant economic benefits. In
17 2016, SPP issued its Integrated Transmission Planning Near-Term
18 study which identified the TUCO to Yoakum portion of the project as
19 needed as soon as 2017 to mitigate voltage issues in that area. SPP
20 issued SPS NTCs for this project. This project group includes both
21 General and Transmission Plant additions.
- 22 **Q. Please describe the types of projects included in the “SR” category.**
- 23 A. The general description of the SR category is provided in the previous subsection
24 of this testimony, which applies to the projects included for the April 1, 2019
25 through August 31, 2019 time period identified as “SR” on Attachment JJC-6.
26 The total planned investment in this category amounts to \$3,339,325 on a New
27 Mexico retail basis during the period. The projects described below account for
28 approximately 80% of the total capital additions in this category. The remaining

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1 20% of the projects are similar in nature in that they replace storm-damaged or
2 failed equipment, which is integral to SPS's ability to provide reliable electric
3 service to its customers.

- 4 • **ELR - Relay - SPS (\$388,126 NM retail) (\$1,852,878 total**
5 **company)** – The term "ELR" stands for End of Life Replacement.
6 This project replaced protective relays that had reached the end of their
7 useful life. This project group includes both General and Transmission
8 Plant additions.

- 9 • **Line ELR SPS (\$820,775 NM retail) (\$4,013,726 total company)** –
10 The term "ELR" stands for End of Life Replacement. This project
11 provided for improvement work on transmission lines to address high
12 priority capital defects, such as defective wood poles and cross arms,
13 which were discovered through line inspections. Work in the ELR
14 group included emergent work, planned usually 12 to 18 months in
15 advance of the work being performed. Typically this work replaced
16 capital property units on a like-for-like basis and returned the
17 transmission line to overall good health.

- 18 • **S&E - SPS Line (\$1,440,412 NM retail) (\$7,043,855 total company)**
19 – These projects provided for the storm and emergency work orders for
20 the replacement or capital repair of transmission line facilities
21 damaged by inclement weather or natural disasters.

22 **Q. Please describe the types of projects included in the "TI" category.**

23 A. The general description of the TI category is provided in the previous subsection
24 of this testimony, which applies to the projects included for the April 1, 2019
25 through August 31, 2019 time period identified as "TI" on Attachment JJC-6.
26 The total planned investment in this category amounts to (\$1,057) on a New

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1 Mexico retail basis during the period. The project described below accounts for
2 over 100% of the total capital additions in this category because the other project
3 had a credit identified from project closing activities, which removed dollars from
4 the total capital additions. The remaining project is similar in nature in that it
5 involved transmission interconnections to the SPP grid. These projects are
6 integral to SPS's ability to provide reliable electric service to its customers.

- 7 • **TUCO Mooreland (Woodward) (\$95 NM retail) (\$466 total**
8 **company)** – This project constructed a single-circuit 345-kV
9 transmission line between the TUCO Substation, near Lubbock, Texas,
10 and Woodward, Oklahoma. This project is also an Economic Project,
11 and therefore only half of the total shown (\$47 NM retail) (\$233 total
12 company) is credited to Transmission Interconnection Projects. SPS
13 constructed the line between the TUCO Substation and OG&E's
14 Border Substation near the Texas and Oklahoma border and OG&E
15 constructed the line from the Border Substation to OG&E's
16 Woodward Substation. The project was identified in the SPP's
17 Balanced Portfolio Economic Studies. SPP issued SPS an NTC for
18 this project.

19 **Q. Please describe the types of projects included in the "OT" category.**

20 A. The general description of the OT category is provided in the previous subsection
21 of this testimony, which applies to the projects included for the April 1, 2019
22 through August 31, 2019 time period identified as "OT" on Attachment JJC-6.
23 The total planned investment in this category amounts to \$903,854 on a New
24 Mexico retail basis during the period. The projects described below account for

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1 approximately 86% of the total capital additions in this category. The remaining
2 14% of the projects are similar in nature in that they involve purchasing of
3 equipment or spare parts, which is integral to SPS's ability to provide reliable
4 electric service to its customers.

- 5 • **Fault Recorders - SPS (\$71,856 NM retail) (\$351,389 total company) –**
6 This project installed fault recorders for disturbance monitoring at
7 substations
- 8 • **Physical Security (\$199,843 NM retail) (\$809,816 total company) –**
9 This project installed Physical Security Upgrades affecting SPS substation
10 protection with specific work varying by substation location, current
11 layout, and threat history. Typical security measures included the
12 installation of equipment such as cameras and motion sensors at
13 substations. This project group includes both General and Transmission
14 Plant additions.
- 15 • **Security Access Control System (\$138,085 NM retail) (\$497,399 total**
16 **company) –** This project replaced the existing standard locks on
17 substation entry gates with locks that use an electronic key to restrict
18 substation access to authorized personnel and to meet compliance
19 requirements.
- 20 • **Tools COM Substation (\$89,272 NM retail) (\$321,569 total company)**
21 **–** These projects purchased capital tools for construction and repair
22 activities.
- 23 • **Transportation - SPS (\$275,358 NM retail) (\$991,872 total company) –**
24 These projects purchased fleet vehicles for operation in the SPS area. The
25 vehicles included automobiles, trucks, heavy vehicles such as bucket
26 trucks, high-reach bucket trucks, hole-diggers, and trailers. Without these
27 vehicles, crews would not have access to a predictable and reliable method
28 of transport nor have the necessary equipment to perform needed
29 transmission construction work.

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1 **Q. Are the Transmission capital additions presented in Attachment JJC-6**
2 **consistent with what is expected to be placed in service during the period of**
3 **April 1, 2019 through August 31, 2019?**

4 A. Yes. With respect to the included projects, the actual charges of any single capital
5 project may vary somewhat from the planned amount on Attachment JJC-6 and it
6 is possible that other projects will emerge or replace those listed. Attachment
7 JJC-6 is a reasonable estimate of the total costs of the Transmission capital
8 investment that have been or will be placed in service during the period of April
9 1, 2019 through August 31, 2019.

10 **Q. Are the Transmission capital additions for the period presented in**
11 **Attachment JJC-6 reasonable and necessary?**

12 A. Yes. As discussed in my testimony above, the Transmission capital additions
13 presented in Attachment JJC-6 are reasonable and necessary to expand and
14 sustain the transmission grid that serves as the path between generation and
15 customers taking service from the transmission and distribution systems in the
16 same manner as the Transmission capital additions that were placed into service
17 during the period of April 1, 2018 through March 31, 2019. As with those
18 projects, SPS must construct new transmission lines and substations to

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1 interconnect new generation and to deliver energy reliably through the
2 transmission grid, as well as complete transmission system rehabilitation projects
3 related to transmission line and substation improvements, replace obsolete and
4 failed equipment, and replace systems damaged by storms. These new and
5 reinforced transmission lines, substations, and protection and control systems are
6 integral to providing safe and reliable service to SPS customers. The process for
7 developing costs and managing projects ensures that the expenditures are
8 reasonable and necessary and that the costs were prudently incurred, as discussed
9 earlier in my testimony.

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1 **V. TRANSMISSION BUSINESS AREA O&M EXPENSES**

2 **Q. What topic do you cover in this section of your testimony?**

3 A. In this section, I will discuss the types of O&M services the Transmission
4 business area provided to SPS during the Test Year. I will explain that SPS's
5 Transmission business area O&M expenses for the Test Year are reasonable and
6 necessary to support the electric transmission services SPS provides to its New
7 Mexico retail customers. Finally, I will explain that these expenses are
8 representative of the ongoing level of cost SPS expects to incur for the
9 Transmission business area.

10 **Q. What are the types of O&M services and costs specifically associated with**
11 **SPS's Transmission business area?**

12 A. SPS's Transmission business area is responsible for providing the planning,
13 siting, design, construction, operation, and maintenance of transmission assets.
14 SPS's transmission system has transmission lines and substations that operate at
15 345, 230, 115, and 69-kV. The transmission system serves to transmit electricity
16 from SPS's generating facilities and other energy resources to transmission-level
17 customers and to the distribution system.

18 Transmission O&M expenses include both native SPS costs and affiliate
19 charges. Native SPS costs are those costs incurred directly by SPS associated

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1 with the provision of electric service to customers. For example, the salaries of
2 SPS employees are native costs.

3 Another component of SPS's O&M expenses are those associated with
4 services provided by XES to SPS. These services are in addition to, and not
5 duplicative of, the services that SPS employees provide. XES is a centralized
6 service company and the charges for its services must be provided "at cost," or
7 without profit. Finally, O&M expenses also include charges to SPS from other
8 Operating Companies or affiliated interests. Similar to the charges from XES,
9 these services are charged to SPS "at cost," and generally involve emergency
10 services such as storm restoration activities. SPS witness Melissa L. Schmidt
11 provides additional details regarding the methodology of charging affiliate costs
12 to SPS from XES and other affiliated interests.

13 The costs for these services also include labor, overheads, materials, and
14 supplies. SPS witness Michael T. Knoll provides testimony regarding labor costs,
15 SPS witness Richard R. Schrubbe provides testimony regarding pension and
16 related costs, and Ms. Schmidt provides testimony regarding the methodology of
17 billings for labor and labor-related overheads.

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1 **Q. Please describe SPS’s Transmission-related O&M expenses for which SPS**
2 **seeks recovery in its base rates.**

3 A. These costs, which are provided in Attachment JJC-7 inclusive of native and XES
4 provided services, relate to the following FERC accounts and descriptions,
5 summarized in Table JJC-3:

6 **Table JJC-3**
7 **Transmission Expenses by FERC Account Number**

FERC Account	Description of Expense
560	Operation Supervision and Engineering
562	Station Expenses
563	Overhead Line Expenses
564	Underground Line Expenses
566	Miscellaneous Transmission Expenses
567	Rents
568	Maintenance Supervision and Engineering
570	Maintenance of Station Equipment
571	Maintenance of Overhead Lines

8 **Q. Please generally describe the types of transmission activities related to costs**
9 **recorded to FERC Accounts listed in Table JJC-3 above.**

10 A. Below are summary descriptions of the types of transmission activities associated
11 with each of the FERC accounts listed in Table JJC-3. A more detailed
12 description of these FERC accounts can be found at 18 C.F.R. §101 (2019).

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1 With respect to FERC Account 560, Operation Supervision and
2 Engineering, this account shall include the cost of labor and expenses incurred in
3 the general supervision and direction of the operation of the transmission system
4 as a whole. Direct supervision of specific activities, such as station operation, line
5 operation, etc., shall be charged to the appropriate account.

6 With respect to FERC Account 562, Station Expenses, this account shall
7 include the cost of labor, materials used and expenses incurred in operating
8 transmission substations and switching stations. Additionally, FERC Account
9 562.1, Operation of Energy Storage Equipment, shall include the cost of labor,
10 materials used and expenses incurred in the operation of energy storage
11 equipment includible in FERC Account 351, Energy Storage Equipment—
12 Transmission, which are not specifically provided for or are readily assignable to
13 other transmission operation expense accounts.

14 With respect to FERC Account 563, Overhead Line Expenses, this
15 account shall include the cost of labor, materials used and expenses incurred in
16 the operation of overhead transmission lines.

17 With respect to FERC Account 564, Underground Line Expenses, this
18 account shall include the cost of labor, materials used and expenses incurred in
19 the operation of underground transmission lines.

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1 With respect to FERC Account 566, Miscellaneous Transmission
2 Expenses, this account shall include the cost of labor, materials used and expenses
3 incurred in transmission map and record work, transmission office expenses, and
4 other transmission expenses not provided for elsewhere.

5 With respect to FERC Account 567, Rents, this account shall include the
6 cost of rents of property of others used, occupied, or operated in connection with
7 the transmission system, including payments to the United States and others for
8 use of public or private lands and reservations for transmission line rights of way.

9 With respect to FERC Account 568, Maintenance Supervision and
10 Engineering, this account shall include the cost of labor and expenses incurred in
11 the general supervision and direction of maintenance of the transmission system.
12 Direct field supervision of specific jobs shall be charged to the appropriate
13 maintenance account.

14 With respect to FERC Account 570, Maintenance of Station Equipment,
15 this account shall include the cost of labor, materials used and expenses incurred
16 in maintenance of station equipment, the book cost of which is includible in
17 FERC Account 353, Station Equipment. Additionally, FERC Account 570.1,
18 Maintenance of Energy Storage Equipment, includes the cost of labor, materials

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1 used and expenses incurred in the maintenance of energy storage equipment
2 includible in FERC Account 351, Energy Storage Equipment—Transmission,
3 which are not specifically provided for or are readily assignable to other
4 transmission maintenance expense accounts.

5 With respect to FERC Account 571, Maintenance of Overhead Lines, this
6 account shall include the cost of labor, materials used and expenses incurred in
7 maintenance of transmission plant, the book costs of which are includible in
8 FERC Accounts 354, Towers and Fixtures; 355, Poles and Fixtures; 356,
9 Overhead Conductors and Devices; and 359, Roads and Trails.

10 **Q. Are the O&M services and associated costs related to the Transmission**
11 **business area necessary for SPS's operations?**

12 A. Yes. The O&M services and associated costs are necessary to ensure that the
13 transmission system, which is essential to providing safe and reliable electric
14 service to SPS's customers, is appropriately and reliably operated and maintained.
15 The Transmission business area provides O&M services required by all utilities
16 and without which SPS would not be able to provide electric service to its
17 customers.

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1 **Q. Do SPS's New Mexico retail customers benefit from the O&M services that**
2 **are provided by the Transmission business area?**

3 A. Yes. The O&M services provided by the Transmission business area benefit
4 SPS's New Mexico retail customers in a number of ways. For example,
5 customers directly benefit from the maintenance of overhead lines. These
6 maintenance activities on overhead lines identify and fix problems on the lines
7 before they cause a problem, helping to ensure that the transmission system is
8 operated in a safe, efficient and reliable manner to maintain continuity of electric
9 transmission service to SPS's New Mexico retail customers.

10 **Q. During the fiscal year, does the Transmission business area monitor its actual**
11 **O&M expenditures versus its O&M budget?**

12 A. Yes. Actual versus budgeted O&M expenditures are monitored on a monthly
13 basis by management employees of the Transmission business area. Variances
14 from the budget amounts are evaluated each month to ensure that the charges
15 were appropriate. When variances above or below the budgeted amount occur,
16 action plans are developed to manage actual costs back to the budget amount.
17 These action plans may either reduce or delay other expenditures so that overall
18 spending complies with the approved budget.

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1 **Q. Are employees within the Transmission business area held accountable for**
2 **deviations from the O&M budget?**

3 A. Yes. All management employees in the Transmission business area have specific
4 monthly budget targets to help ensure adherence to the annual budget. When
5 variances from the budget occur, the employee responsible for that budget is
6 required to develop an action plan to address the monthly variances and to stay on
7 or under budget for the year.

8 **Q. Is the Test Year level of O&M costs associated with the Transmission**
9 **business area reasonable and representative of the costs apt to prevail in the**
10 **future?**

11 A. Yes. The Test Year level of Transmission business area O&M expenses are
12 reasonable and representative of the costs SPS will experience in the future. As I
13 discussed earlier, SPS provides Transmission business area services efficiently,
14 making all reasonable efforts to manage costs and stay within the approved O&M
15 budget.

1 VI. STUDY PERFORMED FOR REDUCED OPERATIONS
2 AT TOLK STATION

4 A. Yes, as discussed in Ms. Weeks', Mr. Lytal's, and Mr. Grant's testimonies, a
5 number of factors, in particular a forecasted shortage of groundwater, have
6 resulted in the need to reduce operations and shorten the operational life of Tolk
7 Station. Reduced operations are defined as both Tolk Station generating units
8 being available during the months of June through September of each year and
9 typically being off line during the months of October through May.

13 A. Yes. The reduced operations and retirement of the Tolk Station generating units
14 will cause voltage stability and reliability concerns because the transmission
15 system was designed, and future plans were made, with the generating units at
16 Tolk Station providing generation and reactive support to the SPS transmission
17 system. Without Tolk Station operating, the transmission system could have
18 problems maintaining proper voltage under certain operating conditions and
19 contingencies. The renewable generation located in close electrical proximity to
20 Tolk Station does not supply enough reactive support to the system under fault

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1 conditions due to their limited inertia to make up for the removal of the two Tolk
2 Station generators.

3 **Q. How did SPS identify these voltage support and reliability needs and what**
4 **measures were examined to resolve them?**

5 Attachment JJC-8 contains the powerflow analysis SPS completed on steady state
6 and stability models and simulating generation and transmission outages to show
7 potential issues on the transmission system for Tolk Station in the reduced
8 operations mode. The contingencies performed in this analysis were chosen to
9 align with the compliance requirements that SPS must meet in the NERC standard
10 TPL-001-4. The steady state models used for the analysis were created as part of
11 the 2017 SPP Integrated Transmission Planning Near Term (ITPNT) model
12 series. The stability models used for this analysis are the 2016 SPP Model
13 Development Working Group (MDWG) models.

14 This study was performed to determine the impacts to the transmission
15 system of operating both Tolk Station generating units only during the months of
16 June through September. Additionally, the study also examined if there were any
17 system benefits to operating the existing Tolk Station generators as synchronous
18 condensers during the months of October through May. The three scenarios that
19 were studied were: (1) Tolk Station units #1 and #2 generators are turned off;

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1 (2) Tolk Station unit #1 generator is operated as a synchronous condenser and
2 Tolk Station unit #2 generator is turned off; and (3) Tolk Station units #1 and #2
3 generators are operated as synchronous condensers.

4 **Q. What were the results of this study?**

5 The study identified that if both Tolk Station generators were off during the
6 months of October through May, the transmission system could experience
7 unstable oscillations and voltage collapse during specific contingencies during
8 periods of high wind output and low fossil fuel generation output. The study also
9 identified that if at least one of the Tolk generating units was operated as a
10 synchronous condenser that would address the oscillation and voltage collapse
11 concerns in the near future. However, having only one Tolk generating unit
12 operating as a synchronous condenser would still leave the system vulnerable if
13 that synchronous condenser tripped or was out of service for maintenance and the
14 other Tolk generating unit was not on line.

15 Additionally, the study showed that, in the future models as load and
16 renewable generation output continues to grow, a single synchronous condenser
17 may not be enough to maintain voltages under contingency conditions when the
18 Tolk Station generating units are not in operation. The study showed that a

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1 second synchronous condenser would be required. In her testimony, Ms. Weeks
2 addresses which scenarios she modeled in the Strategist software that assumed
3 two synchronous condensers would be available on line and includes the cost of
4 that equipment in her analysis.

5 The SPS study was focused on the Tolk Station generating units operating
6 only during the months of June through September, not the full retirement of Tolk
7 Station. A retirement study of Tolk Station will be performed by the SPP either
8 as part of a future SPP Integrated Transmission Planning study or as part of a
9 stand-alone generation retirement process that the SPP is currently in the process
10 of creating. The retirement study through SPP will not be requested until closer
11 to the determined retirement date. The transmission requirements necessary to
12 fully retire the Tolk Station will be identified at that time.

13 **Q. Does this conclude your pre-filed direct testimony?**

14 **A.** Yes.

VERIFICATION

STATE OF TEXAS)
) ss.
COUNTY OF POTTER)

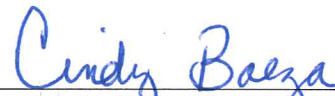
JARRED J. COOLEY, first being sworn on his oath, states:

I am the witness identified in the preceding direct testimony. I have read the direct testimony and the accompanying attachment(s) and am familiar with their contents. Based upon my personal knowledge, the facts stated in the testimony are true. In addition, in my judgment and based upon my professional experience, the opinions and conclusions stated in the testimony are true, valid, and accurate.



JARRED J. COOLEY

SUBSCRIBED AND SWORN TO before me this ____ day of June, 2019 by JARRED J. COOLEY.



Notary Public of the State of Texas
My Commission Expires: 10-06-2020



Total Company Amounts and Jurisdictional Percentages

Line No.	Witness	Description	Page No.	Line No.	Total Company Amount	Number Scale	Allocator (Name)	TY Allocator (%)	NM Amount
1	Cooley	Transmission Capital Additions April 1, 2018 through August 31, 2019	4	22	\$ 446,732,055	Dollars	(1)	(1)	\$ 92,790,457
2	Cooley	Transmission Capital Additions April 1, 2018 through March 31, 2019	5	4	\$ 269,652,466	Dollars	(1)	(1)	\$ 56,083,543
3	Cooley	Transmission Capital Additions April 1, 2019 through August 31, 2019	5	5	\$ 177,079,589	Dollars	(1)	(1)	\$ 36,706,914
4	Cooley	Transmission Capital Additions April 1, 2018 through March 31, 2019	16	17	\$ 269,652,466	Dollars	(1)	(1)	\$ 56,083,543
5	Cooley	Transmission Plant Additions April 1, 2018 through March 31, 2019	17	1	\$ 256,772,854	Dollars	12CP-TRAN	20.45%	\$ 52,507,979
6	Cooley	General Plant Additions April 1, 2018 through March 31, 2019	17	2	\$ 12,879,556	Dollars	LABXAG	27.76%	\$ 3,575,548
7	Cooley	Intangible Plant Additions April 1, 2018 through March 31, 2019	17	3	\$ 56	Dollars	LABXAG	27.76%	\$ 16
8	Cooley	Economic ("EC")	20	Table JJC-1	\$ (347,025)	Dollars	(1)	(1)	\$ (70,964)
9	Cooley	Generation Interconnection ("GI")	20	Table JJC-1	\$ (3,745,523)	Dollars	(1)	(1)	\$ (716,242)
10	Cooley	Load Interconnection ("LI")	20	Table JJC-1	\$ 4,766,127	Dollars	(1)	(1)	\$ 996,780
11	Cooley	Reliability ("RE")	20	Table JJC-1	\$ 214,119,726	Dollars	(1)	(1)	\$ 43,978,751
12	Cooley	System Refurbishment ("SR")	20	Table JJC-1	\$ 42,869,137	Dollars	(1)	(1)	\$ 8,841,111
13	Cooley	Transmission Interconnection ("TI")	20	Table JJC-1	\$ (314,325)	Dollars	(1)	(1)	\$ (64,277)
14	Cooley	Other ("OT")	20	Table JJC-1	\$ 12,304,349	Dollars	(1)	(1)	\$ 3,118,384
15	Cooley	Total	20	Table JJC-1	\$ 269,652,466	Dollars	(1)	(1)	\$ 56,083,543
16	Cooley	Economic ("EC")	21	7	\$ (347,025)	Dollars	(1)	(1)	\$ (70,964)
17	Cooley	Hitchland to Woodward	21	10	\$ (268,840)	Dollars	12CP-TRAN	20.45%	\$ (54,976)
18	Cooley	Hitchland to Woodward - EC Portion	21	17	\$ (134,420)	Dollars	12CP-TRAN	20.45%	\$ (27,488)
19	Cooley	TUCO Moorland (Woodward)	21	22	\$ (425,209)	Dollars	12CP-TRAN	20.45%	\$ (86,952)
20	Cooley	TUCO Moorland (Woodward) - EC Portion	22	2	\$ (212,605)	Dollars	12CP-TRAN	20.45%	\$ (43,476)
21	Cooley	Generation Interconnection ("GI")	22	17	\$ (3,745,523)	Dollars	(1)	(1)	\$ (716,242)
22	Cooley	Cochran Plains Line Ratings	23	3	\$ 926,365	Dollars	12CP-TRAN	20.45%	\$ 189,434
23	Cooley	GEN 2012-020 Hale Co Wind, 478MW	23	10	\$ 177,510	Dollars	(1)	(1)	\$ 46,211
24	Cooley	Load Interconnection ("LI")	24	1	\$ 4,766,127	Dollars	(1)	(1)	\$ 996,780
25	Cooley	Interconnection XTO Mahoney	24	7	\$ 5,478,631	Dollars	(1)	(1)	\$ 1,128,516
26	Cooley	Reliability ("RE")	24	21	\$ 214,119,726	Dollars	(1)	(1)	\$ 43,978,751
27	Cooley	Atoka-Eagle Creek	25	5	\$ 14,529,578	Dollars	(1)	(1)	\$ 2,984,440
28	Cooley	Carlisle to Wolfirth	25	12	\$ 9,982,693	Dollars	(1)	(1)	\$ 2,072,169
29	Cooley	Cochran Co - Whiteface 115kv	25	21	\$ 4,743,215	Dollars	(1)	(1)	\$ 990,233
30	Cooley	NE Hereford to New Center St. 115 kV Line	25	28	\$ 9,608,886	Dollars	(1)	(1)	\$ 2,003,367
31	Cooley	OPIE 2 Kiowa-Road Runner 345kV Conv. PID 30639	26	9	\$ 20,720,087	Dollars	12CP-TRAN	20.45%	\$ 4,237,091
32	Cooley	OPIE 3 Kiowa-China Draw 345kV PID 30638	26	17	\$ 67,823,607	Dollars	(1)	(1)	\$ 13,938,760
33	Cooley	OPIE Potash-Livingson Ridge Record	26	26	\$ 8,253,745	Dollars	12CP-TRAN	20.45%	\$ 1,687,824
34	Cooley	OPIE TUCO-Hobbs 345kV PID 30376	26	31	\$ 5,793,853	Dollars	12CP-TRAN	20.45%	\$ 1,184,796
35	Cooley	Roosevelt City 230 Brkr 1/2	27	13	\$ 10,062,100	Dollars	(1)	(1)	\$ 2,067,917
36	Cooley	Sierra Substation (RIAC Conversion)	27	21	\$ 4,322,698	Dollars	(1)	(1)	\$ 902,384
37	Cooley	SPS Walkemeyer 345 115 280 MVA SUB	27	28	\$ 13,929,487	Dollars	(1)	(1)	\$ 2,864,406
38	Cooley	W40 Reconnector Canyon West-Deaf Smith	28	3	\$ 6,096,050	Dollars	12CP-TRAN	20.45%	\$ 1,246,593
39	Cooley	System Refurbishment ("SR")	28	18	\$ 42,869,137	Dollars	(1)	(1)	\$ 8,841,111
40	Cooley	345 115kV 448MVA Ximr spare Sub	29	1	\$ 3,252,815	Dollars	12CP-TRAN	20.45%	\$ 665,174
41	Cooley	ELR - Breakers - SPS	29	6	\$ 3,831,582	Dollars	12CP-TRAN	20.45%	\$ 783,528
42	Cooley	Line ELR SPS	29	14	\$ 19,571,764	Dollars	(1)	(1)	\$ 4,021,348
43	Cooley	S&E - SPS Line	29	26	\$ 9,366,181	Dollars	12CP-TRAN	20.45%	\$ 1,915,309
44	Cooley	Transmission Interconnection ("TI")	30	9	\$ (314,325)	Dollars	(1)	(1)	\$ (64,277)
45	Cooley	Hitchland II (Optima)	30	14	\$ (32,659)	Dollars	12CP-TRAN	20.45%	\$ (6,687)
46	Cooley	Other ("OT")	31	7	\$ 12,304,349	Dollars	(1)	(1)	\$ 3,118,384
47	Cooley	Physical Security	31	12	\$ 4,518,818	Dollars	(1)	(1)	\$ 1,003,272
48	Cooley	RTU - EMS Upgrade - SPS	31	20	\$ 832,076	Dollars	LABXAG	27.76%	\$ 230,996
49	Cooley	Security Access Control System	32	1	\$ 1,918,059	Dollars	LABXAG	27.76%	\$ 532,481
50	Cooley	SPS Sub Communication Network Group 1	32	6	\$ 792,913	Dollars	LABXAG	(1)	\$ 174,076
51	Cooley	Transportation - SPS	32	18	\$ 2,593,044	Dollars	LABXAG	27.76%	\$ 719,866
52	Cooley	Transmission Capital Additions April 1, 2019 through August 31, 2019	34	8	\$ 177,079,589	Dollars	(1)	(1)	\$ 36,706,914
53	Cooley	Transmission Plant Additions April 1, 2019 through March 31, 2019	34	10	\$ 170,302,386	Dollars	12CP-TRAN	20.45%	\$ 34,825,466

Total Company Amounts and Jurisdictional Percentages

Line No.	Witness	Description	Page No.	Line No.	Total Company Amount	Number Scale	Allocator (Name)	TY Allocator (%)	NM Amount
54	Cooley	General Plant Additions April 1, 2019 through March 31, 2019	34	11	\$ 6,777,203	Dollars	LABXAG	27.76%	\$ 1,881,448
55	Cooley	Economic ("EC")	36	Table JIC-2	\$ (5,173)	Dollars	(1)	(1)	\$ (1,058)
56	Cooley	Generation Interconnection ("GI")	36	Table JIC-2	\$ 4,482,944	Dollars	(1)	(1)	\$ 916,727
57	Cooley	Load Interconnection ("LI")	36	Table JIC-2	\$ 16,083,783	Dollars	(1)	(1)	\$ 3,454,473
58	Cooley	Reliability ("RE")	36	Table JIC-2	\$ 136,916,798	Dollars	(1)	(1)	\$ 28,094,652
59	Cooley	System Refurbishment ("SR")	36	Table JIC-2	\$ 16,158,498	Dollars	(1)	(1)	\$ 3,339,325
60	Cooley	Transmission Interconnection ("TI")	36	Table JIC-2	\$ (5,172)	Dollars	(1)	(1)	\$ (1,057)
61	Cooley	Other ("OT")	36	Table JIC-2	\$ 3,447,912	Dollars	(1)	(1)	\$ 903,854
62	Cooley	Total	36	Table JIC-2	\$ 177,079,590	Dollars	(1)	(1)	\$ 36,706,916
63	Cooley	Economic ("EC")	37	5	\$ (5,173)	Dollars	(1)	(1)	\$ (1,058)
64	Cooley	TUCO Moreland (Woodward)	37	12	\$ 466	Dollars	12CP-TRAN	20.45%	\$ 95
65	Cooley	TUCO Moreland (Woodward) - EC portion	37	17	\$ 233	Dollars	12CP-TRAN	20.45%	\$ 48
66	Cooley	Generation Interconnection ("GI")	38	5	\$ 4,482,944	Dollars	(1)	(1)	\$ 916,727
67	Cooley	Cochran Plains Line Ratings	38	11	\$ 513,659	Dollars	12CP-TRAN	20.45%	\$ 105,039
68	Cooley	GEN 2013 027 Blue Cloud Wind	38	18	\$ 668,313	Dollars	12CP-TRAN	20.45%	\$ 136,665
69	Cooley	Tuco Intg 345/230kV Auto #1 upgrade	38	22	\$ 2,203,625	Dollars	12CP-TRAN	20.45%	\$ 450,624
70	Cooley	Load Interconnection ("LI")	39	7	\$ 16,083,783	Dollars	(1)	(1)	\$ 3,454,473
71	Cooley	Interconnection Milwaukee	39	13	\$ 8,744,563	Dollars	(1)	(1)	\$ 1,817,884
72	Cooley	OPIE 3 Roadrunner 115/25kV Expansion	39	19	\$ 2,812,804	Dollars	12CP-TRAN	20.45%	\$ 575,196
73	Cooley	RB - Purnell Sub	40	1	\$ 1,649,457	Dollars	(1)	(1)	\$ 468,155
74	Cooley	Reliability ("RE")	40	10	\$ 136,916,798	Dollars	(1)	(1)	\$ 28,094,652
75	Cooley	Ink Basin Substation	40	16	\$ 12,794,482	Dollars	(1)	(1)	\$ 2,639,137
76	Cooley	Mustang-Shell CO2 115kV Line	40	1	\$ 18,286,622	Dollars	(1)	(1)	\$ 3,761,501
77	Cooley	OPIE TUCO-Hobbs 345kV PID 30376	41	7	\$ 83,778,297	Dollars	(1)	(1)	\$ 17,133,610
78	Cooley	System Refurbishment ("SR")	41	26	\$ 16,158,498	Dollars	(1)	(1)	\$ 3,339,325
79	Cooley	ELR - Relay - SPS	42	4	\$ 1,852,878	Dollars	(1)	(1)	\$ 388,126
80	Cooley	Line ELR SPS	42	9	\$ 4,013,726	Dollars	12CP-TRAN	20.45%	\$ 820,775
81	Cooley	S&E - SPS Line	42	18	\$ 7,043,855	Dollars	12CP-TRAN	20.45%	\$ 1,440,412
82	Cooley	Transmission Interconnection ("TI")	42	26	\$ (5,172)	Dollars	(1)	(1)	\$ (1,057)
83	Cooley	TUCO Moreland (Woodward)	43	7	\$ 466	Dollars	12CP-TRAN	20.45%	\$ 95
84	Cooley	TUCO Moreland (Woodward) - TI portion	43	11	\$ 233	Dollars	12CP-TRAN	20.45%	\$ 47
85	Cooley	Other ("OT")	43	23	\$ 3,447,912	Dollars	(1)	(1)	\$ 903,854
86	Cooley	Fault Recorders - SPS	44	5	\$ 351,389	Dollars	12CP-TRAN	20.45%	\$ 71,856
87	Cooley	Physical Security	44	8	\$ 809,816	Dollars	(1)	(1)	\$ 199,843
88	Cooley	Security Access Control System	44	15	\$ 497,399	Dollars	LABXAG	27.76%	\$ 138,085
89	Cooley	Tools COM Substation	44	20	\$ 321,569	Dollars	LABXAG	27.76%	\$ 89,272
90	Cooley	Transportation - SPS	44	23	\$ 991,872	Dollars	LABXAG	27.76%	\$ 275,358

(1) Transmission plant allocated based on 12CP-TRAN (20.45%). Ending Transmission Plant Balances Assigned According to Radial Line Study. General and Intangible plant allocated based on LABXAG (27.76%).

Southwestern Public Service Company
Transmission Capital Additions
April 1, 2018 through March 31, 2019

(A)	(B)	(C)	(D)	(E)	(F)	(G)
Line No.	Asset Class	Witness	Project Category	WBS Level 2 (WBS Level 2 Description)	Additions to Plant-in-Service (April 1, 2018 - March 31, 2019) Total Company	Additions to Plant-in-Service (April 1, 2018 - March 31, 2019) NM Retail
1	Electric Transmission	Cooley	RE	A.0000424.085 Kiowa-North Loving 345kV Line_	\$ 22,495,220	\$ 4,600,091
2	Electric Transmission	Cooley	RE	A.0000424.087 N Loving-China Draw 345kV Line	18,636,556	3,811,025
3	Electric Transmission	Cooley	RE	A.0000540.001 Atoka-Eagle Creek 115 kV Line	14,045,213	2,872,133
4	Electric Transmission	Cooley	RE	A.0001310.003 Walkeneyer 345/115 Sub	11,791,330	2,411,232
5	Electric Transmission	Cooley	SR	A.0000499.013 SPS ELR 115kV TX 2016	10,999,197	2,249,247
6	Electric Transmission	Cooley	RE	A.0000519.001 Roosevelt County Substation	9,502,265	1,943,137
7	Electric Transmission	Cooley	RE	A.0000511.003 Carlisle to Wofforth Carlisle	8,172,345	1,671,179
8	Electric Transmission	Cooley	RE	A.0000424.165 N Loving Sub Xfmr 345kV/115kV_	1,392,450	1,392,450
9	Electric Transmission	Cooley	RE	A.0000424.095 Road Runner Sub Xfmr 345kV_UID	6,809,314	1,389,208
10	Electric Transmission	Cooley	RE	A.0000424.167 C Draw 345kV Sub N Loving Term	6,154,882	1,258,624
11	Electric Transmission	Cooley	RE	A.0000424.091 Kiowa Sub Xfmr Bus/Potash Ter	6,133,566	1,254,265
12	Electric Transmission	Cooley	RE	A.0000673.022 TUCO-Yoakum 345kV ROW_UID 5044	5,720,536	1,169,803
13	Electric Transmission	Cooley	RE	A.0000424.169 C Draw Sub Xfmr 345kV/115kV_UID	5,434,106	1,111,231
14	Electric Transmission	Cooley	SR	A.0000499.011 SPS ELR 115kV NM 2016	5,430,058	1,110,403
15	Electric Transmission	Cooley	RE	A.0000424.163 N Loving Sub Kiowa/C Draw Term	5,426,930	1,109,763
16	Electric Transmission	Cooley	RE	A.0000296.005 NE Hereford to New Center St.	928,605	928,605
17	Electric Transmission	Cooley	LI	A.0001008.002 Inst 230kV Sw Station XcelPortion	4,112,432	840,959
18	Electric Transmission	Cooley	RE	A.0000424.144 OPIE Potash-Livingston Ridge	3,869,519	791,286
19	Electric Transmission	Cooley	RE	A.0000199.001 Custer Mountain-Ochoa Reconstructor	3,761,552	769,207
20	Electric Transmission	Cooley	SR	A.0000303.007 SPS 2016 S&E B 230kV Line	3,660,266	748,495
21	Electric Transmission	Cooley	RE	A.0000296.008 NE Hereford Sub	3,649,792	746,353
22	Electric Transmission	Cooley	SR	A.0000303.045 SPS S&E 115kV Line TX 2016	3,609,270	738,067
23	Electric Transmission	Cooley	RE	A.0000463.008 South Portales-Market Street L	3,333,790	681,733
24	Electric Transmission	Cooley	SR	A.0001267.001 345/115kV 448MVA XimspareSub	3,252,815	665,174
25	Electric Transmission	Cooley	RE	A.0001319.006 W40 Rebuild Dawn to Panda Tap	3,135,356	641,155
26	Electric Transmission	Cooley	RE	A.0000494.001 Seminole Xfmr 1	3,024,673	618,521
27	Electric Transmission	Cooley	OT	SPS Physical Security Sub Infrastru	2,880,609	589,061
28	Electric Transmission	Cooley	RE	A.0000860.003 Curry Co Dist Xfmr Conversion	2,819,976	576,662
29	Electric Transmission	Cooley	RE	A.0000194.001 Cochran 115 Cap Bank	2,631,416	538,103
30	Electric Transmission	Cooley	RE	A.0000424.093 Road Runner Sub 345kV Conv_UID	2,611,864	534,105
31	Electric Transmission	Cooley	RE	A.0000424.143 IMC1-Intrepid West 115kV Recd	2,467,078	504,498
32	Electric Transmission	Cooley	RE	A.0000424.136 Monument-Byrd 115kV Recond Line	2,442,386	499,448
33	Electric Transmission	Cooley	RE	A.0001326.001 Yoakum 230/115 Xfmr 1 Upgrade	2,325,506	475,547
34	Electric Transmission	Cooley	RE	A.0002049.001 Potash Sub 115 kV Terminal Sub	2,173,554	444,474
35	Electric Transmission	Cooley	RE	A.0001300.014 Wreckout Rebuild 115kV LineT24	2,064,695	422,214
36	Electric Transmission	Cooley	SR	A.0000640.023 AMOCO Breaker Rplmt	2,049,755	419,158
37	Electric Transmission	Cooley	RE	A.0000424.160 Kiowa 345kV Sub N Loving Term_	1,916,371	391,882
38	Electric Transmission	Cooley	RE	A.0000481.012 New 230/115kV Transformer	1,910,284	390,638
39	Electric Transmission	Cooley	SR	A.0000499.015 SPS 230kV ELR TX 2016	1,848,868	378,079
40	Electric Transmission	Cooley	RE	A.0000424.037 OPIE 3, Hobbs-Kiowa 345kV Line_	1,826,818	373,570
41	Electric Transmission	Cooley	RE	A.0001272.001 Cargill 14.4 Mvar Cap Bank	1,784,111	364,836
42	Electric Transmission	Cooley	RE	A.0001319.005 W40 Rebl Panda Tap Deaf Smith	1,758,973	359,696
43	Electric Transmission	Cooley	RE	A.0000424.089 Kiowa 345kV Sub Road Runner Ter	1,737,417	355,288
44	Electric Transmission	Cooley	SR	A.0000469.015 SPS Major Line Refurb 69kV TX 2016	1,692,109	346,023
45	Electric Transmission	Cooley	RE	A.0001283.001 Lea Co. Plains Sw. Cap Bank	1,683,000	344,160
46	Electric Transmission	Cooley	RE	A.0000194.008 Cochran Whiteface Z26 Rebuild	1,628,544	333,024
47	Electric Transmission	Cooley	RE	A.0000846.001 Denver City 115 kV Breaker Add	1,609,843	329,200
48	Electric Transmission	Cooley	SR	A.0000220.006 SPS 2016 S&E Sub	1,585,100	324,140
49	Electric Transmission	Cooley	RE	A.0000424.145 Potash-Intrepid West 115kV Recd	1,572,678	321,600

Southwestern Public Service Company
Transmission Capital Additions
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Line No.	Asset Class	(B) Witness	(C) Project Category	(D) WBS Level 2	(E) Project Description (WBS Level 2 Description)	(F) Additions to Plant-in-Service (April 1, 2018 - March 31, 2019)		(G) Additions to Plant-in-Service (April 1, 2018 - March 31, 2019) NM Retail
						Total Company	NM Retail	
50	Electric Transmission	Cooley	SR	A.0000303.044	SPS S&E 69kV Line TX 2016	1,458,291	298,209	
51	Electric Transmission	Cooley	RE	A.0000781.012	Outpost Highside	1,436,966	293,848	
52	Electric Transmission	Cooley	SR	A.0000640.020	Texas Co Rpl Breakers 800, 804	1,382,769	282,765	
53	Electric Transmission	Cooley	RE	A.0001300.013	Roswell Inng 115KVBr One Half	1,309,966	267,877	
54	Electric Transmission	Cooley	RE	A.0000424.040	Kiowa 345kV Sub H Term/Reactor	1,255,718	256,784	
55	Electric Transmission	Cooley	RE	A.0000616.001	Soncy Dist. Transformer Conv.	1,143,366	233,809	
56	Electric Transmission	Cooley	RE	A.0000424.137	Monument-Byrd ROW	976,827	199,753	
57	Electric Transmission	Cooley	RE	A.0001285.001	NEF-Targa Reconnector	968,907	198,134	
58	Electric Transmission	Cooley	RE	A.0000616.002	115kV Line Tap to Soncy Line	962,879	196,901	
59	Electric Transmission	Cooley	SR	A.0000303.050	SPS S&E 345kV Line KS 2016	962,702	196,865	
60	Electric Transmission	Cooley	RE	A.0000296.006	New Centre St 115kV Sub	890,170	182,033	
61	Electric Transmission	Cooley	RE	A.0000522.009	Z09 69kV Line Removal Trans	861,651	176,201	
62	Electric Transmission	Cooley	SR	A.0000893.001	Finney Holcomb Relay Upgrade	840,491	171,874	
63	Electric Transmission	Cooley	RE	A.0001310.002	Reterm 345KV Line Old J7	747,384	152,834	
64	Electric Transmission	Cooley	RE	A.0001310.001	Reterm 345KV Line J7	746,883	152,732	
65	Electric Transmission	Cooley	SR	A.0001273.020	Roosevelt Breaker 4K65 Replacement	740,745	151,476	
66	Electric Transmission	Cooley	RE	A.0000290.005	Cunningham Inng, Upgrade Eddy 230kV	735,193	150,341	
67	Electric Transmission	Cooley	GI	A.0000736.005	Tolk Needmore Retermination	690,440	141,189	
68	Electric Transmission	Cooley	RE	A.0002049.002	Potash Kiowa 115kV Line	651,515	133,230	
69	Electric Transmission	Cooley	RE	A.0000424.120	N Loving-S Loving 115 kVROW	647,472	132,403	
70	Electric Transmission	Cooley	OT	A.0000795.001	SPS Sub Comm Network Group 1 L	629,734	128,775	
71	Electric Transmission	Cooley	GI	A.0000105.007	Plant X Terminal Upgrades TX	629,421	128,711	
72	Electric Transmission	Cooley	RE	A.0000424.088	Kiowa-Road Runner 345kV Line_U	617,448	126,263	
73	Electric Transmission	Cooley	SR	A.0000499.018	Line ELR SPS OK 115k V	601,494	123,001	
74	Electric Transmission	Cooley	SR	A.0000286.005	Horz Cap and Pin Replacement TX	593,242	121,313	
75	Electric Transmission	Cooley	RE	A.0000513.005	Denver City Breaker W900 Replacement	567,130	115,973	
76	Electric Transmission	Cooley	OT	A.0000710.001	NM Physical Security Sub Infrastruc	554,950	113,483	
77	Electric Transmission	Cooley	GI	A.0000183.006	RO6 NEEDMORE TO YOAKUM 230KV LINE	549,752	112,420	
78	Electric Transmission	Cooley	RE	A.0001319.007	W40 Recond Canyon WDeaf Smith	509,341	104,156	
79	Electric Transmission	Cooley	RE	A.0000511.021	Carl-Wolf Sundown Relay at Wo	502,881	102,835	
80	Electric Transmission	Cooley	RE	A.0000916.010	Plant X 230kV LRU to Deaf Smith	496,684	101,568	
81	Electric Transmission	Cooley	RE	A.0000513.004	Denver City Breaker W970 Replacement	484,085	98,991	
82	Electric Transmission	Cooley	RE	A.0000916.007	Remote End Upgrade for ring bus add	471,351	96,388	
83	Electric Transmission	Cooley	SR	A.0000499.012	SPS ELR 69kV TX 2016	431,058	88,148	
84	Electric Transmission	Cooley	RE	A.0000519.004	Oasis Relay Upgrade Sub	418,996	85,681	
85	Electric Transmission	Cooley	RE	A.0000424.055	Custer Mt 115kV Sub Ponderosa	403,189	82,449	
86	Electric Transmission	Cooley	LI	A.0001008.009	R11 230kV BRU Mahoney TLINE	400,415	81,882	
87	Electric Transmission	Cooley	SR	A.0001067.001	Lubbock East K57 Relay Upgrade	382,017	78,119	
88	Electric Transmission	Cooley	RE	A.0000511.001	Carlisle to Wolforth 230 kVLI	364,982	74,636	
89	Electric Transmission	Cooley	RE	A.0000463.002	Portales Interchange Sub	359,947	73,606	
90	Electric Transmission	Cooley	GI	A.0000736.006	Yoakum Needmore Retermination	359,027	73,418	
91	Electric Transmission	Cooley	RE	A.0000126.004	Artesia City Club Switch	350,231	71,619	
92	Electric Transmission	Cooley	GI	A.0000736.001	Needmore Substation TOIF	349,078	71,384	
93	Electric Transmission	Cooley	SR	A.0000220.018	SPS 2016 NM S&E Sub	344,910	70,531	
94	Electric Transmission	Cooley	LI	A.0001008.010	R12 230kV AW/OR Mahoney TLINE	343,735	70,291	
95	Electric Transmission	Cooley	RE	A.0001319.011	Deaf Smith W40 Term Upgr	338,211	69,161	
96	Electric Transmission	Cooley	RE	A.0000658.001	Yoakum	335,589	68,625	
97	Electric Transmission	Cooley	RE	A.0000511.004	Carlisle to Wolforth Wolforth	333,755	68,250	
98	Electric Transmission	Cooley	RE	A.0000513.002	Castro Co Breaker 8829 Replacement	333,142	68,125	

Southwestern Public Service Company
Transmission Capital Additions
April 1, 2018 through March 31, 2019

(A)		(B)	(C)		(D)	(E)	(F)	(G)
Line No.	Asset Class	Witness	Project Category	WBS Level 2	Project Description (WBS Level 2 Description)	Total Company 2019	Additions to Plant-in- Service (April 1, 2018 - March 31, 2019)	NM Retail
99	Electric Transmission	Cooley	RE	A.0000424.150	OPIE PTJ/U Intrepid Term Sub	333,124		68,121
100	Electric Transmission	Cooley	SR	A.0000153.006	V02 Switch 2915 Replacement	313,476		64,103
101	Electric Transmission	Cooley	SR	A.0000153.008	V77 Switch 4963 Replacement NM	304,985		62,367
102	Electric Transmission	Cooley	SR	A.0001067.004	Lubbock South K64 Relay Upgrade	304,349		62,237
103	Electric Transmission	Cooley	RE	A.0000290.006	Seven Rivers Ing, Upgrade Eddy 230	301,696		61,694
104	Electric Transmission	Cooley	RE	A.0000540.016	Atoka to Eagle Creek 115kV ROW	299,680		61,282
105	Electric Transmission	Cooley	SR	A.0000427.016	W14 Y98 Clearance Violations	296,067		60,543
106	Electric Transmission	Cooley	SR	A.0000153.005	NM Trans Switch Replace Line 69kV	290,042		59,311
107	Electric Transmission	Cooley	RE	A.0000488.009	Ochoa Terminal Work	271,959		55,613
108	Electric Transmission	Cooley	RE	A.0001300.022	Relay Upgr Roswell City Rosw Ing	266,550		54,507
109	Electric Transmission	Cooley	GI	A.0000350.005	Lost Draw to Cochran Retermination	263,538		53,891
110	Electric Transmission	Cooley	LI	A.0001126.002	Inst 3 1 Way 115kV Switch	252,239		51,581
111	Electric Transmission	Cooley	RE	A.0000424.099	China Draw-Wood Draw 115kV Lin	250,317		51,188
112	Electric Transmission	Cooley	SR	A.0000640.021	W07 Tx Cty SS Fr DCB to DCUB Rpl SE	249,194		50,958
113	Electric Transmission	Cooley	RE	A.0000658.003	Terry Co	246,342		50,375
114	Electric Transmission	Cooley	RE	A.0000663.001	Sundown Sub, Amoco Terminal	245,645		50,232
115	Electric Transmission	Cooley	GI	A.0000350.006	Lost Draw to Lea Co Plains Retermin	242,304		49,549
116	Electric Transmission	Cooley	SR	A.0000427.014	K21 Clearance Violations	236,935		48,451
117	Electric Transmission	Cooley	RE	A.0001310.013	Hitchland J26 Terminal UPLC	235,592		48,177
118	Electric Transmission	Cooley	RE	A.0001319.010	Dawn Sub Terminal Upgrades	231,429		47,325
119	Electric Transmission	Cooley	RE	A.0000424.044	Hobbs Sub Xfmr 345k V/230kV UID	223,515		45,707
120	Electric Transmission	Cooley	LI	A.0001008.001	Inst 230kV Sw Station TOIFPortion	210,708		43,088
121	Electric Transmission	Cooley	RE	A.0000658.002	Seagraves	207,192		42,369
122	Electric Transmission	Cooley	RE	A.0000194.005	Cochran Z26 Terminal	205,865		42,098
123	Electric Transmission	Cooley	SR	A.0001273.015	Deaf Smith Breaker 2K20 Replacement	203,986		41,713
124	Electric Transmission	Cooley	RE	A.0000767.003	Osage Substation	203,983		41,713
125	Electric Transmission	Cooley	SR	A.0000220.007	SPS 2017 S&E Sub	191,951		39,253
126	Electric Transmission	Cooley	RE	A.0001310.012	Finney J25 Terminal UPLC	184,926		37,816
127	Electric Transmission	Cooley	RE	A.0000463.015	Market St.-South Portales ROW	182,693		37,359
128	Electric Transmission	Cooley	RE	A.0000979.004	115 ROW ROW Portion ROW	180,749		36,962
129	Electric Transmission	Cooley	RE	A.0001300.009	Reterm 115kV Roswell City	177,640		36,326
130	Electric Transmission	Cooley	LI	A.0001008.005	AWOR Relay Upgrade Sub	176,958		36,186
131	Electric Transmission	Cooley	RE	A.0000979.011	K56 Structure Raise	174,471		35,678
132	Electric Transmission	Cooley	RE	A.0000489.003	Install Capacitor Bank at Kiser Sub	173,970		35,575
133	Electric Transmission	Cooley	SR	A.0001078.001	Yoakum UPLC Upgrade	165,180		33,778
134	Electric Transmission	Cooley	RE	A.0000290.003	K23 Retermination, Eddy Co Sub	163,239		33,381
135	Electric Transmission	Cooley	GI	A.0001183.001	Cochran Terminal Upgrade Sub	156,433		31,989
136	Electric Transmission	Cooley	RE	A.0000663.002	Amoco Sub, Sundown Terminal	151,731		31,028
137	Electric Transmission	Cooley	SR	A.0000640.034	COCO 115kV Brkr 9910 Replacement	149,864		30,646
138	Electric Transmission	Cooley	RE	A.0001271.004	Cardinal-Teague Recond 115kV	144,758		29,602
139	Electric Transmission	Cooley	GI	A.0001183.004	U19 Plains to LTIDW Line Side	139,621		28,551
140	Electric Transmission	Cooley	RE	A.0000488.004	RDRN 115kV Line Terminal Upgrade	133,258		27,250
141	Electric Transmission	Cooley	RE	A.0001300.025	Wreckout Rebuild Z09 Dble Ckt	127,913		26,157
142	Electric Transmission	Cooley	RE	A.0001300.023	T24 ROW	123,925		25,342
143	Electric Transmission	Cooley	LI	A.0001008.006	BRU Relay Upgrade Sub	122,515		25,053
144	Electric Transmission	Cooley	SR	A.0001000.001	Hutchinson LTC Replacement	121,866		24,921
145	Electric Transmission	Cooley	RE	A.0001319.008	W40 Rebuild ROW	109,876		22,469
146	Electric Transmission	Cooley	SR	A.0000286.014	LNCO Rplc 69kV Bypass Switches	107,435		21,970
147	Electric Transmission	Cooley	SR	A.0001273.017	Jones Transformer Pad	101,886		20,835

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Line No.	Asset Class	(B) Witness	(C) Project Category	(D) WBS Level 2	(E) Project Description (WBS Level 2 Description)	(F) Additions to Plant-in-Service (April 1, 2018 - March 31, 2019)		(G) Additions to Plant-in-Service (April 1, 2018 - March 31, 2019) NM Retail
						Total Company		
148	Electric Transmission	Cooley	RE	A.0001198.002	Amoco Oxy UP Relay	93,599		19,140
149	Electric Transmission	Cooley	SR	A.0001078.002	Tolk UPLC Upgrade	88,685		18,135
150	Electric Transmission	Cooley	RE	A.0000126.003	Artesia City Club Line ROW	83,836		17,144
151	Electric Transmission	Cooley	GI	A.0001183.005	U20 LTDW to Cochran Line Side	80,559		16,474
152	Electric Transmission	Cooley	SR	A.0000401.049	Seven Rivers BPRO Upgrade	79,161		16,188
153	Electric Transmission	Cooley	SR	A.0000303.041	SPS S&E 115kV Line NM 2016	78,777		16,109
154	Electric Transmission	Cooley	RE	A.0000663.005	K03 Structure Upgrade	78,006		15,952
155	Electric Transmission	Cooley	RE	A.0000511.020	Carl-Wolf Lubbock S Relay at	77,986		15,948
156	Electric Transmission	Cooley	SR	A.0000303.040	SPS S&E 69kV Line NM 2016	77,767		15,903
157	Electric Transmission	Cooley	RE	A.0000781.016	U16 Bushland to Outpost	75,471		15,433
158	Electric Transmission	Cooley	RE	A.0000781.017	U17 Coulter to Outpost	74,085		15,150
159	Electric Transmission	Cooley	SR	A.0000303.047	SPS S&E 115kV Line OK 2016	71,040		14,527
160	Electric Transmission	Cooley	RE	A.0000424.068	L Ridge Sub 115kV Conv/S Brush	65,806		13,457
161	Electric Transmission	Cooley	SR	A.0000401.025	Carlshad 115kV (C900)Sub	64,126		13,113
162	Electric Transmission	Cooley	SR	A.0000153.004	SPS Trans Switch Rplmnt 115kV	63,304		12,945
163	Electric Transmission	Cooley	GI	A.0000105.008	K45 Reconnector Transmission Portio	62,682		12,818
164	Electric Transmission	Cooley	SR	A.0000220.024	SPS 2015 KS SE Sub	61,270		12,529
165	Electric Transmission	Cooley	RE	A.0000424.157	Whitten Sub Terminal Upgrades	60,690		12,411
166	Electric Transmission	Cooley	SR	A.0001273.012	Amoco Switch Replacement	60,116		12,293
167	Electric Transmission	Cooley	OT	10695269	E&S Elec Trans Lines, SPS	59,099		12,085
168	Electric Transmission	Cooley	RE	A.0000424.155	Custer-Mc-Whitten Rebuild Line	56,590		11,572
169	Electric Transmission	Cooley	RE	A.0000673.041	Yoakum 345 kV Land	53,024		10,843
170	Electric Transmission	Cooley	RE	A.0001051.001	Hale V72 Treminal Upgrade	50,372		10,301
171	Electric Transmission	Cooley	RE	A.0000424.045	Hobbs 345kV Sub Reactor/Kiowa_	47,419		9,697
172	Electric Transmission	Cooley	RE	A.0002033.002	Market St Sub Greyhound 50565	47,290		9,670
173	Electric Transmission	Cooley	GI	A.0000706.001	Hitchland-New 345kV Terminal -	46,918		9,594
174	Electric Transmission	Cooley	RE	A.0000511.022	Carl-Wolf Turo Relay at Carl	46,285		9,465
175	Electric Transmission	Cooley	SR	A.0000220.026	SPS 2015 OK SE Sub	45,306		9,265
176	Electric Transmission	Cooley	RE	A.0001325.004	ROW W77/T75	45,183		9,240
177	Electric Transmission	Cooley	OT	A.0001003.001	Lighthouse Switch Install Transmiss	42,247		8,639
178	Electric Transmission	Cooley	GI	A.0000902.001	Hale Co Wind 230kV Terminal at	41,968		8,582
179	Electric Transmission	Cooley	SR	A.0000401.024	Bushland 230kV (2K05)Sub	41,285		8,443
180	Electric Transmission	Cooley	SR	A.0001273.005	Facil UpgSub Ancillary Eq2016	39,461		8,069
181	Electric Transmission	Cooley	TI	A.0000974.012	Optima Land	32,699		6,687
182	Electric Transmission	Cooley	RE	A.0000522.005	Chaves-Price-Captian 115 kV C	31,178		6,376
183	Electric Transmission	Cooley	GI	A.0000768.006	Floyd Relay Upgrade for Blanco	31,096		6,359
184	Electric Transmission	Cooley	RE	A.0000463.010	Market St.-Portales Line	30,360		6,208
185	Electric Transmission	Cooley	RE	A.0000511.015	Carl-Wolf K-24 Reterm at Carl	29,536		6,040
186	Electric Transmission	Cooley	RE	A.0001283.004	Lea Plains Metering	27,459		5,615
187	Electric Transmission	Cooley	SR	A.0001078.003	Needmore UPLC Upgrade	26,428		5,403
188	Electric Transmission	Cooley	GI	A.0000350.007	Cochran 115kV Sub Term Upg	26,371		5,393
189	Electric Transmission	Cooley	RE	A.0000424.060	L Ridge-Sage Brush 115kV Line_	26,369		5,392
190	Electric Transmission	Cooley	SR	A.0000401.039	Wipp Cap Bank Volt Diff NM	25,931		5,303
191	Electric Transmission	Cooley	RE	A.0000424.070	Potash Sub Rly Mods Livingston	25,125		5,138
192	Electric Transmission	Cooley	GI	A.0000350.002	Lost Draw TOIF	24,251		4,959
193	Electric Transmission	Cooley	RE	A.0000511.026	K39 LPL Line Reterm at Carlisle	23,636		4,833
194	Electric Transmission	Cooley	RE	A.0000424.104	China Draw-Wood Draw 115kV ROW	21,947		4,488
195	Electric Transmission	Cooley	RE	A.0000424.232	S Brush 115kV Sub Liv Line Terminal	20,315		4,154
196	Electric Transmission	Cooley	RE	A.0000463.009	Kilgore-Portales Reterm Line	19,918		4,073

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(A) Line No.	(B) Asset Class	(C) Witness	(D) Project Category	(E) WBS Level 2	(F) Project Description (WBS Level 2 Description)	(G) Additions to Plant-in-Service (April 1, 2018 - March 31, 2019) Total Company	(H) Additions to Plant-in-Service (April 1, 2018 - March 31, 2019) NM Retail
197	Electric Transmission	Cooley	RE	A.0000673.026	TX-NM Border-Hobbs 345kV ROW_U	19,836	4,056
198	Electric Transmission	Cooley	RE	A.0000424.071	WIPP Sub Relay Mods Livingston	14,481	2,961
199	Electric Transmission	Cooley	SR	A.0001068.001	T97 Structure Relocate	14,155	2,895
200	Electric Transmission	Cooley	RE	A.0000463.006	Oasis T-32 Relay Upgrade Sub	13,685	2,799
201	Electric Transmission	Cooley	EC/TI	A.0000665.005	TUCO Mooreland Woodward TX RO	13,267	2,713
202	Electric Transmission	Cooley	RE	A.0000424.102	W Draw 115kV Sub /C Draw Term_	12,952	2,649
203	Electric Transmission	Cooley	RE	A.0001319.009	Canyon West Sub W40 Term Upgr	12,863	2,630
204	Electric Transmission	Cooley	RE	A.0000424.226	OPIE Potash Livingston Ridge ROW	11,346	2,320
205	Electric Transmission	Cooley	RE	A.0000463.007	Oasis-Portales T-32 Reterm Lin	10,285	2,103
206	Electric Transmission	Cooley	RE	A.0000424.063	S Brush-Cardinal 115 ROW_UID 5	10,277	2,102
207	Electric Transmission	Cooley	GI	A.0000768.005	Crosby Relay Upgrade for Blanc	10,271	2,100
208	Electric Transmission	Cooley	SR	A.0001273.013	Mustang Switch Replacement	10,219	2,090
209	Electric Transmission	Cooley	RE	A.0000424.058	T38 Potash Re-Term_UID 50924	10,116	2,069
210	Electric Transmission	Cooley	RE	A.0000767.005	South Georgia Substation	10,108	2,067
211	Electric Transmission	Cooley	RE	A.0001312.003	Targa Cardinal Sub	8,753	1,790
212	Electric Transmission	Cooley	SR	A.0000220.005	SPS 2015 S&E Sub	7,825	1,600
213	Electric Transmission	Cooley	RE	A.0000522.013	Roswell Interchange W49 Relay	7,442	1,522
214	Electric Transmission	Cooley	RE	A.0000767.004	Randall County Interchange Sub	6,699	1,370
215	Electric Transmission	Cooley	RE	A.0000223.001	Carlisle 230/115kV Xfmr Upgrade	6,135	1,254
216	Electric Transmission	Cooley	RE	A.0000511.016	Carl-Wolf K-02 Reterm at Wolf	5,803	1,187
217	Electric Transmission	Cooley	RE	A.0001310.004	Walkemeyer 345/115 Sub Land	5,428	1,110
218	Electric Transmission	Cooley	LI	A.0001270.001	Bensing 115/12.47KV Dist(TAM)	5,183	1,060
219	Electric Transmission	Cooley	RE	A.0000424.062	S Brush-Cardinal 115kV L_UID 5	4,851	992
220	Electric Transmission	Cooley	SR	A.0000427.007	W20 Line Capacity Work	4,849	984
221	Electric Transmission	Cooley	RE	A.0000224.005	Zodiac Substation sub	4,814	984
222	Electric Transmission	Cooley	RE	A.0000424.105	W-39 Reterm at Wood Draw_UID 5	4,765	974
223	Electric Transmission	Cooley	RE	A.0000087.001	Roosevelt T33 Terminal Upgrade	4,601	941
224	Electric Transmission	Cooley	RE	A.0000424.049	Ponderosa-Custer Mt 115kV Line	4,438	907
225	Electric Transmission	Cooley	SR	A.0000220.031	SPS OK S&E Sub	4,376	895
226	Electric Transmission	Cooley	RE	A.0000866.033	Lamb County Land	4,076	834
227	Electric Transmission	Cooley	RE	A.0000424.183	Intercont Potash Conn 230kV Li	3,894	796
228	Electric Transmission	Cooley	RE	A.0000540.018	W-92 ROW	3,692	755
229	Electric Transmission	Cooley	RE	A.0000157.003	Eagle Creek Project(Artesia Tw	3,501	716
230	Electric Transmission	Cooley	RE	A.0000616.006	69kV Line Tap to Soncy Line	3,343	684
231	Electric Transmission	Cooley	RE	A.0000511.008	Carlisle to Wofforth ROW	3,239	662
232	Electric Transmission	Cooley	RE	A.0000296.013	NE Hereford- New Centre St 115	2,372	485
233	Electric Transmission	Cooley	RE	A.0000424.107	Potash Junction 230/115 Auto U	2,069	423
234	Electric Transmission	Cooley	RE	A.0000421.013	Newhart to Lanton ROW	1,690	346
235	Electric Transmission	Cooley	GI	A.0000105.005	Tolk Terminal Upgrades	1,656	339
236	Electric Transmission	Cooley	RE	A.0000463.005	Roosevelt T-33 Relay Upgrade S	1,584	324
237	Electric Transmission	Cooley	RE	A.0000424.086	Kiowa-North Loving 345kV ROW_U	1,420	290
238	Electric Transmission	Cooley	SR	A.0000401.034	Potter 230kV K59 Sub	1,285	263
239	Electric Transmission	Cooley	RE	A.0000424.225	Roadrunner Kiowa J23 ROW	1,263	258
240	Electric Transmission	Cooley	RE	A.0000511.009	Carl-Wolf K-10 Reterm at Wolf	1,187	243
241	Electric Transmission	Cooley	RE	A.0000424.219	Hopi to Copano Hopi Substation	1,162	238
242	Electric Transmission	Cooley	RE	A.0000916.002	Deaf Smith Reterm K21 Line	690	141
243	Electric Transmission	Cooley	RE	A.0000424.032	China Draw-Yeso Hills 115kV RO	670	137
244	Electric Transmission	Cooley	LI	A.0000622.002	Z86 New Tap to Oxy Cedar Lake ROW	476	97
245	Electric Transmission	Cooley	RE	A.0000673.024	Yoakum-TX/NM Border 345kV ROW_	458	94

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(A)	(B)	(C)	(D)	(E)	(F)	(G)
Line No.	Asset Class	Witness	Project Category	WBS Level 2	Project Description (WBS Level 2 Description)	Additions to Plant-in-Service (April 1, 2018 - March 31, 2019) Total Company NM Retail
246	Electric Transmission	Cooley	RE	A.0000463.013	Market St.-Portales ROW	412 84
247	Electric Transmission	Cooley	SR	A.0000258.049	Plant X Rpl SPW 111 PT	357 73
248	Electric Transmission	Cooley	RE	A.0000616.008	Soncy ROW	266 54
249	Electric Transmission	Cooley	RE	A.0000424.185	West Jal Sub	257 53
250	Electric Transmission	Cooley	RE	A.0000610.004	Curry to Bailey 115kV - Curry	253 52
251	Electric Transmission	Cooley	RE	A.0000424.131	N. Loving 115kV terminal -Chin	185 38
252	Electric Transmission	Cooley	RE	A.0000646.001	Wade SubstationSub	177 36
253	Electric Transmission	Cooley	LI	A.0000675.001	Pringle Dist Transformer Sub	177 36
254	Electric Transmission	Cooley	SR	A.0000499.004	Line ELR SPS 2016 Line	156 32
255	Electric Transmission	Cooley	RE	A.0000767.011	T-66 ReTerm Line	89 18
256	Electric Transmission	Cooley	SR	A.0000303.028	SPS 2015 S&E TX B 69kV Line	78 16
257	Electric Transmission	Cooley	OT	A.0000820.006	SPS Physical Security	75 15
258	Electric Transmission	Cooley	SR	A.0000514.003	Rocky Point Switch Replmnt	69 14
259	Electric Transmission	Cooley	RE	A.0000424.100	China Draw 115kV Sub WDraw Ter	50 10
260	Electric Transmission	Cooley	RE	A.0000424.010	Potash Junction 115/69 Xfmr Up	25 5
261	Electric Transmission	Cooley	RE	A.0000424.187	Potash to West Jal 230kV ROW	25 5
262	Electric Transmission	Cooley	SR	A.0000427.003	Lidar Oklahoma SPS Line	20 4
263	Electric Transmission	Cooley	RE	A.0000481.011	New Ink Basin 230/115kV Substation	19 4
264	Electric Transmission	Cooley	RE	A.0000853.001	Hereford High Side Sub	18 4
265	Electric Transmission	Cooley	GI	11495216	Campbell St. Bus Modification,Sub	18 4
266	Electric Transmission	Cooley	RE	A.0000224.006	Kilgore Sub Highside Sub	11 2
267	Electric Transmission	Cooley	RE	A.0000424.076	Cardinal 115kV Sub Sage Brush	(2) (0)
268	Electric Transmission	Cooley	LI	A.0000936.003	South Springlake-T28 Tap&Switc	(5) (1)
269	Electric Transmission	Cooley	RE	A.0001310.006	Finney Relay Settings	(6) (1)
270	Electric Transmission	Cooley	RE	A.0000424.016	Wreckout of 722.2 Structures	(10) (2)
271	Electric Transmission	Cooley	RE	A.0001310.007	Hitchland Relay Settings Texas	(10) (2)
272	Electric Transmission	Cooley	RE	A.0000540.004	Seven Rivers Relay Sub	(27) (5)
273	Electric Transmission	Cooley	RE	A.0000574.005	Inst Arms at Puckett W Tap T37	(40) (8)
274	Electric Transmission	Cooley	SR	A.0000427.001	SPS Line Capacity Line	(213) (44)
275	Electric Transmission	Cooley	RE	A.0000224.007	Zodiac Substation NM Line	(254) (52)
276	Electric Transmission	Cooley	SR	A.0000298.001	Eddy County SVC ControlsSub	(274) (56)
277	Electric Transmission	Cooley	RE	A.0000540.003	Atoka Substation	(301) (61)
278	Electric Transmission	Cooley	RE	A.0000610.007	Curry to Bailey 115kV NM ROW	(390) (80)
279	Electric Transmission	Cooley	RE	A.0000773.001	Andrews County Substation	(613) (125)
280	Electric Transmission	Cooley	RE	A.0000463.016	Roosevelt-Portales T-33 ReTerm	(1,300) (266)
281	Electric Transmission	Cooley	RE	A.0000080.001	Oasis T32 Terminal Upgrade	(1,672) (342)
282	Electric Transmission	Cooley	RE/SR	A.0000488.008	Opie Roadrunner Agave Ochoa Pre Con	(1,700) (348)
283	Electric Transmission	Cooley	RE	A.0000522.002	Price-Chaves 115 kV Line Line	(2,137) (437)
284	Electric Transmission	Cooley	RE	A.0000707.002	Graham Inng-Add 115/69 Transfo	(2,595) (531)
285	Electric Transmission	Cooley	LI	A.0000858.001	T38 Bopco 3Way Sw Inst Str#41	(3,021) (618)
286	Electric Transmission	Cooley	GI	A.0000537.001	Novus Wind IV - Hitchland Sub	(4,044) (827)
287	Electric Transmission	Cooley	RE	A.0000610.002	Curry to Bailey 115kV New Line	(4,536) (928)
288	Electric Transmission	Cooley	RE	A.0000610.027	Curry to Bailey 115kV NM Line	(4,545) (929)
289	Electric Transmission	Cooley	RE	A.0000463.003	Market St. Substation	(5,055) (1,034)
290	Electric Transmission	Cooley	RE	A.0000767.014	V-04 Circuit Removal	(5,549) (1,135)
291	Electric Transmission	Cooley	SR	A.0000287.035	Potash 4920 Breaker Rplmnt	(6,108) (1,249)
292	Electric Transmission	Cooley	RE	A.0000533.002	Nichols 115kV BFR - Dumas 19th	(7,652) (1,565)
293	Electric Transmission	Cooley	GI	A.0000768.003	Floyd-Blanco Retermination-115	(7,789) (1,593)
294	Electric Transmission	Cooley	RE	A.0000424.059	T38 WIPP Re-Term_UID 50624	(7,884) (1,612)

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(A)	(B)	(C)	(D)	(E)	(F)	(G)
Line No.	Asset Class	Witness	Project Category	WBS Level 2	Project Description (WBS Level 2 Description)	Additions to Plant-in-Service (April 1, 2018 - March 31, 2019) Total Company NM Retail
295	Electric Transmission	Cooley	SR	A.0000287.036	Carlsbad C900 Breaker Rplmnt	(1,897)
296	Electric Transmission	Cooley	LI	A.0001076.001	Xcel Install 3 Way Switch	(9,390)
297	Electric Transmission	Cooley	RE	A.0000424.073	S Brush 115kV Sub Liv Cardinal	(9,857)
298	Electric Transmission	Cooley	RE	A.0000463.001	Portales 115kV Loop Line	(17,463)
299	Electric Transmission	Cooley	RE	A.0000533.006	Nichols 115kV BFR - East Plant	(18,145)
300	Electric Transmission	Cooley	RE	A.0000919.001	Happy Ing. auto upgrades Sub	(19,053)
301	Electric Transmission	Cooley	OT	10695288	E&S Elec Trans Subs. SPS	(25,595)
302	Electric Transmission	Cooley	SR/LI	A.0000851.001	Pringle Substation Sub	(26,327)
303	Electric Transmission	Cooley	LI	A.0001156.001	Int 1 Way 115kV Switch Tap	(5,384)
304	Electric Transmission	Cooley	LI	A.0001097.002	Inst Z77 60kV Switch Reimb TOIF	(5,407)
305	Electric Transmission	Cooley	SR	A.0001312.004	TargaCardinal Recond115kV Line	(5,412)
306	Electric Transmission	Cooley	RE	A.0000220.017	SPS 2015 NM S&E Sub	(5,998)
307	Electric Transmission	Cooley	RE	A.0000354.001	Grobey Co. 115kV Cap Bank Sub	(31,196)
308	Electric Transmission	Cooley	LI	A.0000711.002	LOA U06 Slack Spans Cust Portion	(33,106)
309	Electric Transmission	Cooley	RE	A.0000767.008	East Plant Relay Sub	(39,132)
310	Electric Transmission	Cooley	RE	A.0000215.012	Pleasant Hill to Roosevelt Co.	(39,483)
311	Electric Transmission	Cooley	LI	A.0000424.194	Pecos Dist Add/115kV Breaker a	(45,306)
312	Electric Transmission	Cooley	LI	A.0000553.001	Diamondback Lyntegar TerminalS	(48,546)
313	Electric Transmission	Cooley	RE	A.0000367.002	Bowers 2nd Auto Sub	(50,429)
314	Electric Transmission	Cooley	RE	A.0000361.004	KC Substation Sub	(51,121)
315	Electric Transmission	Cooley	RE	A.0000603.001	Crosby County Transformer #1Su	(52,037)
316	Electric Transmission	Cooley	RE	A.0000424.177	Hopi Breaker Install Pecos Ter	(58,784)
317	Electric Transmission	Cooley	RE	A.0000463.011	Kilgore-South Portales ROW	(59,865)
318	Electric Transmission	Cooley	RE	A.0000361.001	KC Sub-Sulphur Springs 115kV T	(12,242)
319	Electric Transmission	Cooley	RE	A.0000407.004	Howard Substation	(12,426)
320	Electric Transmission	Cooley	LI	A.0001002.002	115kV N loving Sub Ter Upg Xcel Por	(12,811)
321	Electric Transmission	Cooley	OT	A.0001106.001	WIPP W38 Structure Relocate	(14,346)
322	Electric Transmission	Cooley	RE	A.0000407.002	Bowers Substation sub	(70,153)
323	Electric Transmission	Cooley	LI	A.0000634.001	Higg East igh Side/Sub Portion	(72,600)
324	Electric Transmission	Cooley	RE	A.0000424.174	North Loving 115kV Bkr Ring Su	(72,878)
325	Electric Transmission	Cooley	SR	A.0000401.033	Potash Junction 115kV 4920	(76,302)
326	Electric Transmission	Cooley	RE	A.0000522.004	Chaves-Price-Captian 115 kV Ca	(80,057)
327	Electric Transmission	Cooley	RE	A.0000522.001	Captian-Price 115 kV Line, Li	(82,511)
328	Electric Transmission	Cooley	RE	A.0000424.028	PCA Terminal Upgrade Sub	(87,662)
329	Electric Transmission	Cooley	RE	A.0000215.002	Pleasant Hill 345/230kV NM Sub	(87,971)
330	Electric Transmission	Cooley	RE	A.0000357.001	Grassland XFMR Sub	(91,059)
331	Electric Transmission	Cooley	RE	A.0000409.004	Cherry St Ing Hastings-E.Plt	(103,247)
332	Electric Transmission	Cooley	RE	A.0000424.015	China Draw High Side Substatio	(111,148)
333	Electric Transmission	Cooley	SR	A.0000645.001	115/69 kV Mobile Sub. Sub	(118,701)
334	Electric Transmission	Cooley	RE	A.0000646.004	Ochiltree - BookerROW	(124,356)
335	Electric Transmission	Cooley	RE	A.0000426.004	Plainview City Exp. Cox. Sub	(125,536)
336	Electric Transmission	Cooley	RE	A.0000302.002	Dallam Co. 230/115 kV sub	(144,380)
337	Electric Transmission	Cooley	RE	A.0000914.001	Drinkard 115 Cap Bank Sub	(149,002)
338	Electric Transmission	Cooley	SR	A.0000153.001	SPS Trans Switch Replmnt Line	(171,541)
339	Electric Transmission	Cooley	EC/TI	A.0000417.003	Tuco to Moreland (Woodward) R	(176,484)
340	Electric Transmission	Cooley	EC/TI	A.0000417.015	TUCO-Moreland Woodward TX ROW 2017	(179,497)
341	Electric Transmission	Cooley	RE	A.0000407.001	Bowers - Howard ROW	(197,508)
342	Electric Transmission	Cooley	RE	A.0000301.002	Lynn Co. Dist. Load Conversion	(209,175)
343	Electric Transmission	Cooley	EC/TI	A.0000244.002	Hitchland to Woodward 345 kV S	(229,301)

Line No.	(A)		(B)	(C)		(D)	(E)	(F)		(G)
	Asset Class	Witness	Project Category	WBS Level 2	Project Description (WBS Level 2 Description)		Additions to Plant-in Service (April 1, 2018 - March 31, 2019)	Total Company	Additions to Plant-in Service (April 1, 2018 - March 31, 2019)	
344	Electric Transmission	Cooley	RE	A.0000421.006	Newhart Inng Hart Ind-Lamton11		(285,397)		(58,361)	
345	Electric Transmission	Cooley	LI	A.0001126.001	Inst Temp Switch Reimb TOIF		(320,517)		(65,543)	
346	Electric Transmission	Cooley	GI	A.0000768.002	Crosby-Blanco Retermination-11		(330,204)		(67,524)	
347	Electric Transmission	Cooley	LI	A.00001002.001	115kV N loving Sub TOIF Lucid Portl		(471,792)		(96,478)	
348	Electric Transmission	Cooley	SR	A.0000303.046	SPS S&E 345kV Line TX 2016		(552,009)		(112,881)	
349	Electric Transmission	Cooley	GI	A.0000768.001	GEN-2011-025 Fiber Wind Blanco		(704,828)		(144,132)	
350	Electric Transmission	Cooley	GI	A.0000105.001	R27 Reconductor		(991,467)		(202,747)	
351	Electric Transmission	Cooley	RE	A.0000424.029	V21 Quahada 115kV Reconductor		(1,046,782)		(214,059)	
352	Electric Transmission	Cooley	RE	A.0000890.001	Eddy Co. 230/115 Xfmr #1 Upgra		(1,064,791)		(217,741)	
353	Electric Transmission	Cooley	SR	A.0000427.011	K83_Line Capacity Work		(1,092,475)		(223,402)	
354	Electric Transmission	Cooley	GI	A.0000350.001	Lost Draw Substation		(1,606,213)		(328,458)	
355	Electric Transmission	Cooley	SR	A.0000776.002	Security Resilience Spare TR		(1,786,008)		(365,224)	
356	Electric Transmission	Cooley	GI	A.0000564.002	Tuco 345 Trsf Rplmnt Sub Portion		(2,203,625)		(450,624)	
357	Electric Transmission	Cooley	GI	A.0000736.002	Needmore Substation		(2,282,270)		(466,706)	
358	Electric Transmission Total						\$	\$ 256,772,854	\$	\$ 52,507,979
359	Electric Intangible	Cooley	OT	A.0002062.001	GIST-IV Computer Software SPS		\$	\$ 56	\$	16
360	Electric Intangible Total						\$	\$	\$ 56	\$ 16
361	Electric General	Cooley	OT	A.0006056.224	Fleet New Unit El Trans TX		\$	2,556,508	\$	709,723
362	Electric General	Cooley	OT	A.0001118.006	Lock and Key System TX			1,418,821		393,885
363	Electric General	Cooley	OT	A.0000710.008	SPS Physical Security Comm			951,084		264,035
364	Electric General	Cooley	OT	A.0000588.011	Moore Co 115kV RTU Rplmnt			766,987		212,927
365	Electric General	Cooley	RE	A.0000424.164	N Loving 345kV Sub Comms_UID 5			567,117		157,440
366	Electric General	Cooley	OT	A.0001118.007	Lock and Key System NM			481,955		133,797
367	Electric General	Cooley	SR	A.0000220.030	Amoco RTU Replacement			456,110		126,623
368	Electric General	Cooley	RE	A.0000424.168	China Draw 345kV Sub Comms_UID			381,692		105,963
369	Electric General	Cooley	OT	A.0006059.063	SPS Sub Comm Tool Blanket			377,140		104,700
370	Electric General	Cooley	RE	A.0000511.017	Carl-Wolf Carlisle Comm			366,956		101,872
371	Electric General	Cooley	RE	A.0000296.009	NE Hereford Comm			312,659		86,799
372	Electric General	Cooley	OT	A.0000948.004	TX Frame Relay Comm			302,571		83,998
373	Electric General	Cooley	OT	A.0000948.003	NM Frame Relay Comm			297,380		82,557
374	Electric General	Cooley	RE	A.0001300.020	Roswell Inng New 115kV Terminal Com			252,009		69,961
375	Electric General	Cooley	GI	A.0000736.003	Needmore Communication			244,912		67,991
376	Electric General	Cooley	RE	A.0000194.006	Cochran RTU, Comm			228,136		63,334
377	Electric General	Cooley	RE	A.0001310.008	Walkemeyer 345/115 Sub Comm			217,960		60,509
378	Electric General	Cooley	RE	A.0000296.007	New Centre St Comm			212,859		59,093
379	Electric General	Cooley	OT	A.0006059.500	EPZ Mats NM			190,062		52,764
380	Electric General	Cooley	OT	A.0006059.499	EPZ Mats TX			185,713		51,557
381	Electric General	Cooley	RE	A.0000540.017	Atoka Comm Sub Portion Comm			181,320		50,337
382	Electric General	Cooley	SR	A.0000499.017	PS ELR 115kV NM Comm			169,242		46,994
383	Electric General	Cooley	OT	A.0000795.003	SPS Sub Comm Network Group 1 C			163,179		45,301
384	Electric General	Cooley	GI	A.0001351.003	Roswell Comm			160,460		44,546
385	Electric General	Cooley	RE	A.0000658.007	Seagraves Comm			147,339		40,904
386	Electric General	Cooley	GI	A.0000350.004	Lost Draw Comm			143,270		39,774
387	Electric General	Cooley	RE	A.0001353.001	Roosevelt Comm			140,839		39,099
388	Electric General	Cooley	GI	A.0000902.002	TUCO RTU Addition Comm			135,542		37,629
389	Electric General	Cooley	OT	A.0000710.007	NM Physical Security Comm			132,175		36,694

Southwestern Public Service Company
Transmission Capital Additions
April 1, 2018 through March 31, 2019

(A)	(B)	(C)	(D)	(E)	(F)	(G)
Line No.	Asset Class	Witness	Project Category	WBS Level 2	Project Description (WBS Level 2 Description)	Additions to Plant-in-Service (April 1, 2018 - March 31, 2019) Total Company NM Retail
390	Electric General	Cooley	RE	A.0000658.006	Terry Co Comm	114,109
391	Electric General	Cooley	LI	A.0001008.004	Inst 230kV Sw Station Comm	111,870
392	Electric General	Cooley	OT	A.0006059.432	Tool Blanket TX Line	31,057
393	Electric General	Cooley	SR	A.0001067.002	Lubbock South Communication	108,292
394	Electric General	Cooley	SR	A.0001067.003	Lubbock East Communication	103,192
395	Electric General	Cooley	RE	A.0000488.005	OCHOA Comm	28,647
396	Electric General	Cooley	SR	A.0000499.016	Line ELR SPS 2016 Comm	97,429
397	Electric General	Cooley	SR	A.0000153.003	SPS Trans Switch Comm	92,896
398	Electric General	Cooley	LI	A.0000854.003	Install Switch and Tap Comm	25,789
399	Electric General	Cooley	RE	A.0000494.003	Seminole Xfmr East Comm	91,691
400	Electric General	Cooley	LI	A.0000424.173	W39 Inst Switch for Enterprise	83,308
401	Electric General	Cooley	RE	A.0001283.003	Business System Equip for Eng Acces	23,127
402	Electric General	Cooley	RE	A.0001272.002	Cargill 14.4 Mvar Cap Bank Comm	22,458
403	Electric General	Cooley	RE	A.0000424.043	OPIE 3, Hobbs 345kV Sub Comms_U	79,541
404	Electric General	Cooley	OT	A.0006059.436	SPS Ops Engineering Tools	80,896
405	Electric General	Cooley	RE	A.0000511.018	Carl-Wolf Wolfthorn Comm	59,245
406	Electric General	Cooley	OT	A.0000588.001	SPS RTU EMS Upgrade	54,102
407	Electric General	Cooley	RE	A.0000290.008	Cummingham Ing Upgr Eddy Term Comm	53,801
408	Electric General	Cooley	RE	A.0000194.007	Cochran Comm Equip	49,254
409	Electric General	Cooley	RE	A.0000424.222	Quahada Communication	13,674
410	Electric General	Cooley	OT	A.0006056.223	Fleet New Units El Trans NM	12,591
411	Electric General	Cooley	OT	A.0006059.437	SPS COM Tools (BU 8371)	10,125
412	Electric General	Cooley	RE	A.0000424.221	PCA Communication	34,545
413	Electric General	Cooley	SR/LI	A.0000851.002	Pringle Substation Comm	33,396
414	Electric General	Cooley	LI	A.0000905.002	Install Switch and Tap Comm	25,223
415	Electric General	Cooley	RE	A.0002033.001	Portales Interchange Sub Comm	6,136
416	Electric General	Cooley	OT	A.0000924.011	SPS CIP 5 RooseveltCo NM Comm	21,825
417	Electric General	Cooley	RE	A.0000424.233	Hopi Bkr Inst pecos Term Sub Comm	21,412
418	Electric General	Cooley	OT	A.0006059.434	SPS Training Center Tools	5,932
419	Electric General	Cooley	OT	A.0001118.009	Lock and Key System OK	18,804
420	Electric General	Cooley	RE	A.0000424.069	L Ridge 115kV Sub Comms_UID 50	17,284
421	Electric General	Cooley	OT	A.0000924.010	SPS CIP 5 Potter Co Comm	13,979
422	Electric General	Cooley	OT	A.0000924.009	SPS CIP 5 Plant X Sia Comm	13,796
423	Electric General	Cooley	OT	A.0000588.010	Grassland RTU Replacement	13,595
424	Electric General	Cooley	OT	A.0006059.081	Tools Sys Protection Comm Eng	11,139
425	Electric General	Cooley	OT	A.0005014.109	Gen Plt Ofc Furn TX	9,332
426	Electric General	Cooley	SR	A.0000589.009	Tuco 115 House RTU Replacement Comm	7,594
427	Electric General	Cooley	RE	A.0000890.002	Eddy Co. Xfmr #1 Communication	6,509
428	Electric General	Cooley	RE	A.0000846.002	Denver City RTU Comm	5,939
429	Electric General	Cooley	OT	A.0005014.084	New Mexico Substation Furnitur	5,171
430	Electric General	Cooley	LI	A.0000907.002	Kiser Distribution Add Comm	4,364
431	Electric General	Cooley	GI	A.0000768.004	Blanco Comm	3,605
432	Electric General	Cooley	RE	A.0000424.229	OPIE POTASH LIVINGSTON RIDGE RECOND	2,316
433	Electric General	Cooley	SR	A.0000220.029	SPS NM SE Comm	2,055
434	Electric General	Cooley	OT	A.0000924.014	SPS CIP 5 Yoakum Co Comm	1,731
435	Electric General	Cooley	RE	A.0000424.223	Hopi Comm	1,646
436	Electric General	Cooley	OT	A.0002048.003	Higg Inst New SCADA Radio Comm	1,312
437	Electric General	Cooley	RE	A.0000574.007	Coulter Relay Mod, Sub, COMM	969
438	Electric General	Cooley	RE	A.0000906.001	Lynn Co RTU Replacement Comm	923
						815

Southwestern Public Service Company
Transmission Capital Additions
April 1, 2018 through March 31, 2019

Line No.	(A) Asset Class	(B) Witness	(C) Project Category	(D) WBS Level 2	(E) Project Description (WBS Level 2 Description)	(F) Additions to Plant-in- Service (April 1, 2018 - March 31, 2019) Total Company	(G) Additions to Plant-in- Service (April 1, 2018 - March 31, 2019) NM Retail
439	Electric General	Cooley	RE	A.0000424.129	China Draw Sub Comm	737	205
440	Electric General	Cooley	RE	A.0000424.074	Sage Brush 115kV Sub Comms_UID	600	167
441	Electric General	Cooley	RE	A.0000532.003	TPL BFR V31 Riverview Comm	119	33
442	Electric General	Cooley	RE	A.0000424.018	Potash Junct 115/69 Xfmr UpgrC	76	21
443	Electric General	Cooley	RE	A.0000424.130	North Loving RTU - comm	76	21
444	Electric General	Cooley	OT	11302945	Fleet New Units 2011 El Tran, SPS	65	18
445	Electric General	Cooley	OT	A.0005014.069	AC Unit 2015 for Subs	(24)	(7)
446	Electric General	Cooley	GI	A.0000706.002	Hitchland Firewheel Comm	(6,987)	(1,940)
447	Electric General	Cooley	RE	A.0000421.052	Swisher Sub. Communications	(22,846)	(6,342)
448	Electric General	Cooley	RE	A.0000352.016	Yoakum 230 kV Bus Reblld, Commu	(313,944)	(87,155)
449	Electric General	Cooley	RE	A.0000424.041	OPIE 2_Kiowa 345kV Sub Comms_U	(820,831)	(227,875)
450	Electric General Total					\$ 12,879,556	\$ 3,575,548
451	Grand Total					\$ 269,652,466	\$ 56,083,543

Line No.	(A) Asset Class	(B) WBS Level 1 Project Group	(C) WBS Level 2 Number	(D) WBS Level 2 Description	(E) Additions to Plant-in Service (April 1, 2018 - March 31, 2019) Total Company	(F) Additions to Plant-in Service (April 1, 2018 - March 31, 2019) NM Retail	(G) WBS Level 1 Project Group Description	(H) Cost Recovery	(I) Project Category
1	Electric Transmission	345 115kV 448MVA Xlmr spare Sub	A.0001267.001	345 115kV 448MVA Xlmr spare Sub	3,252,815	665,174	This project purchased a spare 345/115-kV, 448 MVA transformer to provide a reserve unit in the event of a failure of one of the numerous similar transformers in service in the SPS service area.	SPS Zonal	SR
2		345 115kV 448MVA Xlmr spare Sub Total			3,252,815	665,174			
3	Electric Transmission	Agave-Red Hills	A.0000711.002	LOA U06 Slack Spans Curt Portion	(39,132)	(8,002)	This project installed a new 115-kV line from the Roadrunner Substation to a customer-owned substation. The line is near Jol, New Mexico.	SPS Zonal/Customer Funded	L1
4		Agave-Red Hills Total			(39,132)	(8,002)			
5	Electric Transmission	Agreement Lighthouse Bill of Sale	A.0001003.001	Lighthouse Switch Install Transmiss	42,247	8,639	This project installed a single transmission line switch on line Y-96 to provide an isolation point between SPS and Lighthouse Electric Cooperative's South Plains Substation per an agreement with Lighthouse Electric as a condition for SPS to purchase a 69-kV line segment from Lighthouse Electric.	SPS Zonal	OT
6		Agreement Lighthouse Bill of Sale Total			42,247	8,639			
7	Electric Transmission	Amarillo West Upgrade	A.0000781.012	Outpost Highside	1,436,966	293,848			
8	Electric Transmission	Amarillo West Upgrade	A.0000781.016	U16 Bushland to Outpost	75,471	15,433			
9	Electric Transmission	Amarillo West Upgrade	A.0000781.017	U17 Coulter to Outpost	74,085	15,150			
10		Amarillo West Upgrade Total			1,586,522	324,431	This project provided for new infrastructure to provide service for Amarillo's expansion to the west.	SPS Zonal	RE
11	Electric Transmission	Andrews County Substation	A.0000773.001	Andrews County Substation	(613)	(125)	This project constructed the new Andrews County Substation in Texas and a new 115-kV transmission line between the new Andrews County Substation and NEF Substation located southeast of Hobbs, New Mexico. The project was identified by SPP in their High Priority Incremental Line Study ("HPILS"). SPP issued SPS a NTC for this project.	SPP Base Plan	RE
12		Andrews County Substation Total			(613)	(125)			
13	Electric Transmission	APT SPS	A.0000258.049	Plant X Rpt SPW 111 PT	357	73	This project provided for replacement of Westinghouse's model APT potential transformers at various substations where the transformers have demonstrated high failure rates.	SPS Zonal	SR
14		APT SPS Total			357	73			
15	Electric Transmission	Artesia Country Club 115kV conversion	A.0000126.003	Artesia City Club Line ROW	838,36	17,144			
16	Electric Transmission	Artesia Country Club 115kV conversion	A.0000126.004	Artesia City Club Switch	350,231	71,619	This project tapped the W92 line and built approximately three miles of new 115-kV line to the Artesia Country Club Substation. It also converted two SPS distribution substations from 69-kV to 115-kV operation. SPP issued SPS a NTC for this project.	SPP Base Plan	RE
17		Artesia Country Club 115kV conversion Total			434,067	88,763			
18	Electric Transmission	Atoka-Eagle Creek	A.0000540.001	Atoka-Eagle Creek 115 kV Line	14,045,213	2,872,132			
19	Electric Transmission	Atoka-Eagle Creek	A.0000540.003	Atoka Substation	(501)	(61)			
20	Electric Transmission	Atoka-Eagle Creek	A.0000540.004	Seven Rivers Relay Sub	(27)	(3)			
21	Electric Transmission	Atoka-Eagle Creek	A.0000540.016	Atoka to Eagle Creek 115kV ROW	295,680	61,282			
22	Electric Transmission	Atoka-Eagle Creek	A.0000540.018	W-92 ROW	3,692	755			
23		Atoka-Eagle Creek Total			14,346,257	2,934,032	This project constructed a 115-kV transmission line between the Atoka and Eagle Creek Substations near Artesia, New Mexico. The project is needed to address low voltages in the area. SPP issued SPS a NTC for this project.	SPP Base Plan	RE
24	Electric Transmission	Bailey City-New Amherst-Lamb City	A.0000086.033	Lamb County Land	4,076	834			
25		Bailey City-New Amherst-Lamb City Total			4,076	834	This project constructs a new 115-kV line between the Bailey County Substation, the New Amherst Substation, and the Lamb County Substation, and also converts 69-kV SPS distribution substations to 115-kV, and constructs the New Amherst 115/69-kV substation. This project is needed for reliability reasons. SPP issued SPS a NTC for this project.	SPP Base Plan	RE
26	Electric Transmission	Bowers 2nd 115-69 kV Auto	A.0000367.002	Bowers 2nd Auto Sub	(51,121)	(10,454)	This project installed a new 84 MVA transformer at the existing Bowers Substation. SPP issued SPS a NTC for this project.	SPS Base Plan	RE
27		Bowers 2nd 115-69 kV Auto Total			(51,121)	(10,454)			

Line No.	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)
	Asset Class	WBS Level 1 Project Group	WBS Level 2 Number	WBS Level 2 Description	Additions to Plant-in Service (April 1, 2018 - March 31, 2019) Total Company	Additions to Plant-in Service (April 1, 2018 - March 31, 2019) NM Retail	WBS Level 1 Project Group Description	Cost Recovery	Project Category
28	Electric Transmission	Bowers-Howard 115kv	A.000407.001	Bowers - Howard ROW	(230,393)	(47,114)			
29	Electric Transmission	Bowers-Howard 115kv	A.000407.002	Bowers Substation sub	(76,302)	(15,603)			
30	Electric Transmission	Bowers-Howard 115kv	A.000407.004	Howard Substation	(70,153)	(14,349)			
31		Bowers-Howard 115kv Total			(376,846)	(77,062)	This project connected the Bowers Substation to the Howard Substation via 115-kV transmission line and installed a second 115/69-kV transformer at the Bowers Substation. The need for the project was based on studies of Golden Spread Electric Cooperative's request for Greenbelt Electric Cooperative's load increase in the eastern Texas panhandle area. This project was identified by SPP in the Delivery Point Network Study. SPP issued SPS a NTC for this project.	SPP Base Plan	RE
32	Electric Transmission	Campbell St. Bus Modification	11495216	Campbell St. Bus Modification, Sub	18	4			
33		Campbell St. Bus Modification Total			18	4	This project provided the transmission equipment needed for the relocate of the gas turbine from the Riverview Substation to Tucuman, New Mexico. The 115-kV bus at Campbell Street substation was modified from a straight bus configuration to three ring terminal configuration to allow for the connection of 115-kV line from the new Tucuman generation station.	Customer Funded	CI
34	Electric Transmission	Cardinal Togue Record 115kV Line	A.0001271.004	Cardinal-Togue Record 115kV	144,758	29,402			
35		Cardinal Togue Record 115kV Line Total			144,758	29,402	This project installed taller transmission line structures where identified to provide the necessary ground clearance to allow the existing conductors to be loaded to their full ampereage rating. SPP issued SPS a NTC for this project.	SPP Base Plan	RE
36	Electric Transmission	Cargill 14.4 Mvar Cap Bank	A.0001272.001	Cargill 14.4 Mvar Cap Bank	1,784,111	364,836			
37		Cargill 14.4 Mvar Cap Bank Total			1,784,111	364,836	This project installed a 14.4 MV Ar capacitor bank on the 115-kV bus at Cargill Substation. The new capacitor bank will provide voltage support in the south central part of the Texas panhandle and the eastern part of New Mexico. SPP issued SPS a NTC for this project.	SPP Base Plan	RE
38	Electric Transmission	Carlisle 230/115kV Xlmr Upgrade	A.0000223.001	Carlisle 230/115kV Xlmr Upgrade	6,135	1,254			
39		Carlisle 230/115kV Xlmr Upgrade Total			6,135	1,254	This project replaced the 150 MVA, 230/115-kV autotransformer at Carlisle with a new 250 MVA unit to provide the needed capacity to the transmission system. SPP issued SPS a NTC for this project.	SPP Base Plan	RE
40	Electric Transmission	Carlisle to Wolforth	A.0000511.001	Carlisle to Wolforth 230 kVLI	364,982	74,636			
41	Electric Transmission	Carlisle to Wolforth	A.0000511.003	Carlisle to Wolforth Carlisle	8,172,345	1,671,179			
42	Electric Transmission	Carlisle to Wolforth	A.0000511.004	Carlisle to Wolforth Wolforth	333,755	68,250			
43	Electric Transmission	Carlisle to Wolforth	A.0000511.006	Carlisle to Wolforth ROW	3,239	662			
44	Electric Transmission	Carlisle to Wolforth	A.0000511.009	Carl Wolf K-10 Return at Wolf	1,187	243			
45	Electric Transmission	Carlisle to Wolforth	A.0000511.015	Carl Wolf K-24 Return at Carl	26,536	6,400			
46	Electric Transmission	Carlisle to Wolforth	A.0000511.016	Carl Wolf K-22 Return at Wolf	5,003	1,187			
47	Electric Transmission	Carlisle to Wolforth	A.0000511.020	Carl Wolf Lubbock S Relay at Wolf	77,998	15,946			
48	Electric Transmission	Carlisle to Wolforth	A.0000511.021	Carl Wolf Sundown Relay at Wo	502,881	102,835			
49	Electric Transmission	Carlisle to Wolforth	A.0000511.022	Carl Wolf Tucco Relay at Carl	46,285	9,465			
50	Electric Transmission	Carlisle to Wolforth	A.0000511.026	K39 LPL Line Return at Carlisle	23,636	4,633			
51		Carlisle to Wolforth Total			9,561,635	1,955,277	This project constructed a new 230-kV line between the Carlisle and Wolforth substations and substation line terminals to accommodate the new transmission line. This project was needed for reliability and load growth in the surrounding area. SPP issued SPS a NTC for the project.	SPP Base Plan	RE
52	Electric Transmission	Cherry Street Interchange	A.0000409.004	Cherry St Ing Hastings-E-Plt	(124,356)	(25,430)			
53		Cherry Street Interchange Total			(124,356)	(25,430)	This project constructed a new 230/115-kV interchange and substation in north Amarillo to increase the reliability of the transmission network. SPP issued SPS a NTC for this project.	SPP Base Plan	RE
54	Electric Transmission	Cochran Co - Whiteface 115kv	A.0000194.001	Cochran 115 Cap Bank	2,631,416	538,103			
55	Electric Transmission	Cochran Co - Whiteface 115kv	A.0000194.005	Cochran 226 Terminal	205,865	42,098			
56	Electric Transmission	Cochran Co - Whiteface 115kv	A.0000194.008	Cochran Whiteface 226 Rebuild	1,628,544	333,024			
57		Cochran Co - Whiteface 115kv Total			4,465,825	913,225	This project reconstructed the 4.4 mile segment of the 69-kV transmission line from Cochran County Substation to structure number 55 at Whiteface Tap. SPP issued SPS a NTC for this project.	SPP Base Plan	RE

(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)
Line No.	Asset Class	WBS Level 1 Project Group	WBS Level 2 Description	WBS Level 2 Number	WBS Level 2 Description	WBS Level 2 Description	WBS Level 1 Project Group Description	Project Category
58	Electric Transmission	Cochran Plains Line Ratings	Cochran Terminal Upgrade Sub	156,433	31,889			
59	Electric Transmission	Cochran Plains Line Ratings	U19 Plains to LTOW Line Side	139,621	28,351			
60	Electric Transmission	Cochran Plains Line Ratings	U20 LTOW to Cochran Line Side	80,559	16,474			
61	Electric Transmission	Cochran Plains Line Ratings	RO6 NEEDMORE TO YOAKUM 230KV LINE	549,752	112,420			
62	Electric Transmission	Cochran Plains Line Ratings Total		926,365	189,434		This project increased the line and substation terminal ratings of the 115-kV lines U-19 and U-20 between Cochran Co. Interchange and Lea County Plains Switching Station. This project was needed to provide the capacity to accommodate the new 350 MW Wildcat Ranch wind farm generation connected at Lost Draw Switching Station.	GI
63	Electric Transmission	Crosby Co. 115 Cap Bank	Crosby Co. 115KV Cap Bank Sub	(33,106)	(6,770)			
64	Electric Transmission	Crosby Co. 115 Cap Bank Total		(33,106)	(6,770)		This project installed a 14.4 MV Ar 115-kV capacitor bank in the Crosby County Substation. SPP issued SPS a NTC for this project.	RE
65	Electric Transmission	Crosby County Transformer	Crosby County Transformer #1Su	(58,794)	(12,021)			
66	Electric Transmission	Crosby County Transformer Total		(58,794)	(12,021)		This project replaced the existing 115/69-kV, 40 MVA transformers with 84 MVA transformers. SPP issued SPS a NTC for this project.	RE
67	Electric Transmission	Curry Co. Dist. Xlmr Conversion	Curry Co Dist Xlmr Conversion	2,819,976	576,662			
68	Electric Transmission	Curry Co. Dist. Xlmr Conversion Total		2,819,976	576,662		This project replaced the existing 69/25-kV distribution transformer with a 115/23-kV distribution transformer. This conversion from 69-kV to 115-kV was needed to prevent the overloading of the 115/69-kV transformers located at Curry Co. Interchange. SPP issued SPS a NTC for this project.	RE
69	Electric Transmission	Curry to Bailey 115KV	Curry to Bailey 115KV New Line	(4,536)	(928)			
70	Electric Transmission	Curry to Bailey 115KV	Curry to Bailey 115KV - Curry	253	52			
71	Electric Transmission	Curry to Bailey 115KV	Curry to Bailey 115KV NM ROW	(390)	(80)			
72	Electric Transmission	Curry to Bailey 115KV	Curry to Bailey 115KV NM Line	(4,545)	(929)			
73	Electric Transmission	Curry to Bailey 115KV Total		(9,218)	(1,887)		This project constructed a new 115-kV line from the Curry County Substation near Clovis, New Mexico to the Bailey County Substation near Muleshoe, Texas. The project was needed to address low voltage at the Bailey County Substation. SPP issued SPS a NTC for this project.	RE
74	Electric Transmission	Custer Mountain-Ochoa Reconnector	Custer Mountain-Ochoa Reconnector	3,761,552	769,207			
75	Electric Transmission	Custer Mountain-Ochoa Reconnector Total		3,761,552	769,207		This project rebuilt 11 miles of 115-kV line between Custer Mountain and Ochoa substations. SPP issued SPS a NTC for this project.	RE
76	Electric Transmission	CVA Mitigation	Herz Cap and Pin Replacement TX	593,242	121,313			
77	Electric Transmission	CVA Mitigation	LNCO Rpt 69KV Bypass Switches	107,435	21,970			
78	Electric Transmission	CVA Mitigation Total		700,677	143,283		This project replaced various pieces of equipment that were identified by the Common Vulnerability Assessment (CVA) program. The CVA program identifies specific pieces of equipment that have a history of failing across all of the Xcel Energy transmission systems and works to proactively replace the remaining pieces of equipment still in service before they fail.	SR
79	Electric Transmission	Deaf Smith 230KV Breaker Add	Deaf Smith Return K21 Line	690	141			
80	Electric Transmission	Deaf Smith 230KV Breaker Add	Remove End Upgrade for ring bus add	471,251	96,380			
81	Electric Transmission	Deaf Smith 230KV Breaker Add	Plant X 230KV LRG to Deaf Smith	496,684	101,568			
82	Electric Transmission	Deaf Smith 230KV Breaker Add Total		968,526	198,089		This project created a ring bus on the 230-kV side of the Deaf Smith Substation.	RE
83	Electric Transmission	Denver City In-Line 115 KV Bkr	Denver City 115KV Breaker Add	1,609,843	329,200			
84	Electric Transmission	Denver City In-Line 115 KV Bkr Total		1,609,843	329,200		This project installed breaker failure relays on all 115-kV breakers at Denver City Interchange.	RE
85	Electric Transmission	Diamondback Lyneggar Terminal	Diamondback Lyneggar Terminals	(50,429)	(10,312)			
86	Electric Transmission	Diamondback Lyneggar Terminal Total		(50,429)	(10,312)		This project connected a new line built by Lyneggar Rural Electric Cooperative to the new Diamondback Substation for service to their customers in the southeast part of the SPS transmission system.	LI
87	Electric Transmission	Drinkard 115 Cap Bank	Drinkard 115 Cap Bank Sub	(179,497)	(36,706)			
88	Electric Transmission	Drinkard 115 Cap Bank Total		(179,497)	(36,706)		This project installed a 14.4 MV Ar capacitor bank at the Drinkard Substation. SPP issued SPS a NTC for this project.	RE

Line No.	(A) Asset Class	(B) WBS Level 1 Project Group	(C) WBS Level 2 Number	(D) WBS Level 2 Description	(E) Additions to Plant-in Service (April 1, 2018 - March 31, 2019) Total Company	(F) Additions to Plant-in Service (April 1, 2018 - March 31, 2019) NM Retail	(G) WBS Level 1 Project Group Description	(H) Cost Recovery	(I) Project Category
89	Electric Transmission	Eagle Creek	A.0000157.003	Eagle Creek Project/Atresia Tw	3,501	716	This project constructed a new 115/69-kV substation and re-routed 69-kV lines in the Navajo refinery area into the new Eagle Creek Substation. SPP issued SPS a NTC for this project.	SPP Base Plan	RE
90		Eagle Creek Total			3,501				
91	Electric Transmission	Eddy Co. Xfmr	A.0000890.001	Eddy Co. 230/115 Xfmr #1 Uppr a	(1,064,791)	(217,741)	This project upgraded the existing 230/115-kV transformer at the Eddy County Substation to a higher capacity unit. SPP issued SPS a NTC for this project.	SPP Base Plan	RE
92		Eddy Co. Xfmr Total							
93	Electric Transmission	Eddy County Dhl Bus Dhl Brkr 230kV	A.0000290.003	K23 Retermination, Eddy Co Sub	163,239	33,381			
94	Electric Transmission	Eddy County Dhl Bus Dhl Brkr 230kV	A.0000290.005	Gunningburn Intg. Upgrade Eddy 230kV	735,193	150,341			
95	Electric Transmission	Eddy County Dhl Bus Dhl Brkr 230kV	A.0000290.006	Seven Rivers Intg. Upgrade Eddy 230	30,696	61,694			
96		Eddy County Dhl Bus Dhl Brkr 230kV Total			1,200,129	245,417	This project reconfigured the existing Eddy County Interchange 230kV bus from a main and transfer bus design to a double bus-double breaker arrangement. This project was required to meet long-term firm transmission service requests in the SPP Aggregate Facility Study SPP-2013-AG3-AFS-6 SPP issued SPS a NTC for this project.	SPP Base Plan	RE
97	Electric Transmission	Eddy County SVC Control Upgrade	A.0000298.001	Eddy County SVC ControlsSub	(274)	(56)	This project replaced the Eddy County Substation Static VAr Compensator ("SVC") control system. The control system had become operationally limited due to failure of parts and was not repairable. This project replaced the computer control system and other parts that were difficult to maintain.	SPS Zonal	SR
98		Eddy County SVC Control Upgrade Total			(274)	(56)			
99	Electric Transmission	ELR - Breakers - SPS	A.0000640.020	Texas Co Rpl Breakers 800, 804	1,382,769	282,765			
100	Electric Transmission	ELR - Breakers - SPS	A.0000640.021	W07 Tx Cpy SS Fr DCR to DCUB Rpl SE	249,194	50,958			
101	Electric Transmission	ELR - Breakers - SPS	A.0000640.023	AMOCO Breaker Rplmt	2,049,755	419,158			
102	Electric Transmission	ELR - Breakers - SPS	A.0000640.034	COCO 115kV Brkr 9910 Replacement	149,864	30,646			
103		ELR - Breakers - SPS Total			3,831,582	783,228	The term "ELR" stands for End of Life Replacement. This project replaced circuit breakers that had reached the end of their useful life. This work was done at multiple substations as part of a multi-year program to replace breakers that are obsolete, for which parts are no longer available and require significant operations and maintenance spend to keep them in service.	SPS Zonal	SR
104	Electric Transmission	ELR - Relay - SPS	A.0000401.024	Bushbed 230kV / 2605Sub	41,285	8,443			
105	Electric Transmission	ELR - Relay - SPS	A.0000401.025	Grishbed 115kV C900 Sub	641,26	13,113			
106	Electric Transmission	ELR - Relay - SPS	A.0000401.033	Parash Junction 115kV 4920	(87,662)	(17,026)			
107	Electric Transmission	ELR - Relay - SPS	A.0000401.034	Power 230kV K59 Sub	1,285	262			
108	Electric Transmission	ELR - Relay - SPS	A.0000401.039	Wppt Cap Bank Volt Diff NM	25,931	5,303			
109	Electric Transmission	ELR - Relay - SPS	A.0000401.049	Seven Rivers BFRD Upgrade	73,101	16,088			
110		ELR - Relay - SPS Total			124,127	25,383	The term "ELR" stands for End of Life Replacement. This project replaced protective relays that had reached the end of their useful life.	SPS Zonal	SR
111	Electric Transmission	Facility Upgrade Ancillary Equip	A.0001273.005	Facil UpgSub Ancillary Eq2016	39,461	8,969			
112	Electric Transmission	Facility Upgrade Ancillary Equip	A.0001273.012	Amoco Switch Replacement	60,116	12,293			
113	Electric Transmission	Facility Upgrade Ancillary Equip	A.0001273.013	Mustang Switch Replacement	10,219	2,090			
114	Electric Transmission	Facility Upgrade Ancillary Equip	A.0001273.015	Deaf Smith Breaker 2K20 Replacement	203,996	41,713			
115	Electric Transmission	Facility Upgrade Ancillary Equip	A.0001273.017	Jones Transformer Pad	101,896	20,835			
116	Electric Transmission	Facility Upgrade Ancillary Equip	A.0001273.020	Roosevelt Breaker 4K65 Replacement	740,745	151,476			
117		Facility Upgrade Ancillary Equip Total			1,156,414	236,477	This project provided for the replacement of failing switches, jumpers and other ancillary equipment.	SPS Zonal	SR
118	Electric Transmission	Finney Holcomb Relay Upgrade	A.0000893.001	Finney Holcomb Relay Upgrade	840,491	171,874	This project replaced the existing transmission line protection relaying at SPS's Finney Switching Station on the existing 345-kV transmission line from Finney to Sunflower Electric's Holcomb Substation. Sunflower Electric is upgrading the relays on their Holcomb line terminal which necessitates the upgrade of the associated relays on the Finney line terminal.	SPS Zonal	SR
119		Finney Holcomb Relay Upgrade Total			840,491	171,874			
120	Electric Transmission	GEN 2010-14 Novus Wind IV, 358.8 MW	A.0000537.001	Novus Wind IV - Hightland Sub	(4,044)	(827)	This project added a 345-kV terminal to the 345-kV bus at Hightland Interchange to provide an interconnection point for the Novus Wind IV wind farm transmission line. The wind farm has a net capacity of 358.8 MW.	Customer Funded	GI
121		GEN 2010-14 Novus Wind IV, 358.8 MW Total			(4,044)	(827)			

Line No.	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)
	Asset Class	WBS Level 1 Project Group	WBS Level 2 Number	WBS Level 2 Description	Additions to Plant-in Service (April 1, 2018 - March 31, 2019)	Additions to Plant-in Service (April 1, 2018 - March 31, 2019)	WBS Level 1 Project Group Description	Cost Recovery	Project Category
122	Electric Transmission	GEN 2011-022 (Firewheel)	A.0000706.001	Hitchland-New 345kV Terminal -	46,918	9,394	This project constructed a new 345-kV terminal at Hitchland Interchange to provide an interconnection point for a new wind farm.	Customer Funded	GI
123		GEN 2011-022 (Firewheel) Total			46,918	9,394			
124	Electric Transmission	GEN 2012-020 Hale Co Wind, 478MW	A.0000902.001	Hale Co Wind 230kV Terminal at	41,968	8,392	This project constructed a new 230-kV terminal at TUCO Interchange for the interconnection of the Hale County wind farm.	Customer Funded	GI
125		GEN 2012-020 Hale Co Wind, 478MW Total			41,968	8,392			
126	Electric Transmission	GEN 2013-027 Blue Cloud Wind	A.0000736.001	Needmore Substation TOIF	343,078	71,384			
127	Electric Transmission	GEN 2013-027 Blue Cloud Wind	A.0000736.002	Needmore Substation	(2,282,270)	(466,709)			
128	Electric Transmission	GEN 2013-027 Blue Cloud Wind	A.0000736.005	Tolk Needmore Reconnection	600,440	141,189			
129	Electric Transmission	GEN 2013-027 Blue Cloud Wind	A.0000736.006	Yaskum Needmore Reconnection	350,037	73,118			
130		GEN 2013-027 Blue Cloud Wind Total			(883,724)	(180,710)	This project constructed the new 230-kV Needmore Switching Station to accommodate the new wind generation from Blue Cloud Wind.	Customer Funded	GI
131	Electric Transmission	Gen Upgrade Tolk X Reconnector	A.0000105.001	R27 Reconnector	(891,467)	(202,747)			
132	Electric Transmission	Gen Upgrade Tolk X Reconnector	A.0000105.005	Tolk Terminal Upgrades	1,638	339			
133	Electric Transmission	Gen Upgrade Tolk X Reconnector	A.0000105.007	Plant X Terminal Upgrades TX	629,421	128,711			
134	Electric Transmission	Gen Upgrade Tolk X Reconnector	A.0000105.008	R45 Reconnector Transmission Portfolio	62,682	12,818			
135		Gen Upgrade Tolk X Reconnector Total			(297,048)	(60,679)	This project upgraded the two 230-kV lines K-27 and K-45 and the associated line terminals at Tolk Substation and Plant X Substation. These upgrades were shared network upgrade projects identified in SPP's DISIS 2014-002 study to accommodate new generation being added.	Customer Funded	GI
136	Electric Transmission	GEN-2011-025 Fiber Wind	A.0000768.001	GEN-2011-025 Fiber Wind Blanco	(704,828)	(144,132)			
137	Electric Transmission	GEN-2011-025 Fiber Wind	A.0000768.002	Crosby-Blanco Reconnection-11	(330,204)	(67,524)			
138	Electric Transmission	GEN-2011-025 Fiber Wind	A.0000768.003	Floyd-Blanco Reconnection-115	(7,789)	(1,593)			
139	Electric Transmission	GEN-2011-025 Fiber Wind	A.0000768.005	Crosby Relay Upgrade for Blanc	10,271	2,100			
140	Electric Transmission	GEN-2011-025 Fiber Wind	A.0000768.006	Floyd Relay Upgrade for Blanco	31,096	6,359			
141		GEN-2011-025 Fiber Wind Total			(1,001,434)	(204,789)	This project provided a 115-kV interconnection for Fiber Wind LLC's 80 MW wind energy facility located in Crosby County, Texas.	Customer Funded	GI
142	Electric Transmission	GEN-2015-014 Lost Draw Substation	A.0000350.001	Lost Draw Substation	(1,606,213)	(338,458)			
143	Electric Transmission	GEN-2015-014 Lost Draw Substation	A.0000350.002	Lost Draw TOIF	24,251	4,959			
144	Electric Transmission	GEN-2015-014 Lost Draw Substation	A.0000350.005	Lost Draw to Cochran Reconnection	263,538	53,891			
145	Electric Transmission	GEN-2015-014 Lost Draw Substation	A.0000350.006	Lost Draw to Lea Co. Plains Reconnection	242,304	49,549			
146	Electric Transmission	GEN-2015-014 Lost Draw Substation	A.0000350.007	Cochran 115kV Sub-Term Upg	26,371	5,383			
147		GEN-2015-014 Lost Draw Substation Total			(1,049,759)	(214,865)	This project constructed the new Lost Draw Switching Station to provide a 115-kV interconnection point for the Wilkett Ranch wind farm.	Customer Funded	GI
148	Electric Transmission	Graham Ing-Add 2nd 11569 Xnfr	A.0000707.002	Graham Ing-Add 11569 Transfo	(2,585)	(531)			
149		Graham Ing-Add 2nd 11569 Xnfr Total			(2,585)	(531)	This project installed a second 64 MVA (mega-Volt-Ampere) transformer at Graham Substation. This project increased the reliability of Graham Interchange and the surrounding area by providing a second source of 69-kV power to serve the area substations.	SPS Zonal	RE
150	Electric Transmission	Grassland Transformer Upgrade	A.0000357.001	Grassland XFMR Sub	(118,701)	(24,273)			
151		Grassland Transformer Upgrade Total			(118,701)	(24,273)	This project upgraded the existing 100 MVA 230/115-kV transformer to a 250 MVA transformer at Grassland Interchange located east of Tabole, Texas. The project was needed to address overloads in the area. SPP issued SPS a NTC for this project.	SPP Base Plan	RE
152	Electric Transmission	Happy Interchange	A.0000919.001	Happy Ing. auto upgrades Sub	(19,053)	(3,896)			
153		Happy Interchange Total			(19,053)	(3,896)	This project replaced the two 40 MVA 115/69-kV transformers with larger 84 MVA transformers to provide additional 69-kV capacity. The Happy Substation is located south of Amarillo, TX. SPP issued SPS a NTC for this project.	SPP Base Plan	RE
154	Electric Transmission	Hereford Ing. Dist. Xnfr Conversion	A.0000853.001	Hereford High Side Sub	18	4			
155		Hereford Ing. Dist. Xnfr Conversion Total			18	4	This project installed the necessary transmission equipment to install a new 115-kV distribution transformer at Hereford Interchange. SPP issued SPS a NTC for this project.	SPP Base Plan	RE
156	Electric Transmission	Higg East XTO Russell	A.0000634.001	Higg East 1ph Side/Sub Portion	(80,057)	(16,371)			
157		Higg East XTO Russell Total			(80,057)	(16,371)	This project installed a three-way, 115-kV switch to serve the Higg East XTO distribution substation.	SPS Zonal	LI

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153	Electric Transmission	Hitchland II (Optima)	A.0000974.012	Optima Land	32,689	6,687	This project installed a new 345-kV interchange in Texas County, Oklahoma, north of the existing SPS Hitchland Interchange. The 345-kV bus at Hitchland Interchange cannot be feasibly expanded so the new Optima Switching Station will provide additional interconnection capability to the 345-kV system in that area.	Customer Funded	TI
159		Hitchland II (Optima) Total			32,689	6,687			
160	Electric Transmission	Hitchland to Woodward	A.000244.002	Hitchland to Woodward 345 kV S	(266,848)	(54,276)	This project constructed a double-circuit 345-kV transmission line between the Hitchland Substation, near Guymon, Oklahoma, and OG&E's Woodward Substation, near Woodward, Oklahoma. SPS constructed approximately 30 miles of the line from the Hitchland Substation to OG&E's Beaver County Substation near Beaver, Oklahoma. OG&E constructed the line from the Beaver County Substation to its Woodward Substation. The Project was identified in the SPP's Priority Project Studies. SPP issued SPS a NTC for this project.	SPS Base Plan	EC/TI
161		Hitchland to Woodward Total			(266,848)	(54,276)			
162	Electric Transmission	Hobbs CORE Structure Relocate	A.0001068.001	T97 Structure Relocate	14,155	2,895	The projects installs a new structure on line T97 and removes the old structure to clear the public right of way in downtown Hobbs.	SPS Zonal	SR
163		Hobbs CORE Structure Relocate Total			14,155	2,895			
164	Electric Transmission	Hutchinson LTC Replacement	A.0001000.001	Hutchinson LTC Replacement	24,321	24,321	This project upgraded the existing Hutchinson County autotransformer Load Tap Changer (LTC) control to be compatible with the new Orion Remote Terminal Unit (RTU), allowing for remote control of the LTC.	SPS Zonal	SR
165		Hutchinson LTC Replacement Total			24,321	24,321			
166	Electric Transmission	Ink Basin Substation	A.000481.011	New Ink Basin 230/115kV Substation	19	4	This project constructed a new 230/115-kV three breaker ring bus interchange in the south-central part of Yukon County, Texas. Existing transmission circuits 115-kV V80 and 230-kV K83 were routed in to and out of the new interchange. A new 230/115-kV, 250 MVA transformer provides a new source of power for the 115-kV. SPP issued SPS a NTC for this project.	SPS Base Plan	RE
167	Electric Transmission	Ink Basin Substation	A.000481.012	New 230/115kV Transformer	1,910,284	390,642			
168		Ink Basin Substation Total			1,910,303	390,642			
169	Electric Transmission	Interconnection Lucid RR Plant	A.0001002.001	115kV Moving Sub TOIF Lucid Port	(471,792)	(96,478)	This project constructed a new 115-kV terminal at North Loving Substation to provide an interconnection point for a new customer-owned line to serve their 40 MW load.	SPS Zonal/Customer Funded	L1
170	Electric Transmission	Interconnection Lucid RR Plant	A.0001002.002	115kV Moving Sub Ter Upg Xcel Por	(72,600)	(14,946)			
171		Interconnection Lucid RR Plant Total			(544,392)	(111,424)			
172	Electric Transmission	Interconnection Matador	A.0001156.001	Int 1 Way 115kV Switch Tap	(26,443)	(5,407)	This project provided a 115-kV service point to the Matador natural gas processing plant located near Loving, New Mexico.	SPS Zonal	L1
173		Interconnection Matador Total			(26,443)	(5,407)			
174	Electric Transmission	Interconnection Sendero	A.0001076.001	Xcel Install 3 Way Switch	(9,390)	(1,920)	This project provided a 115-kV service point to the Sendero natural gas processing plant located near Loving, New Mexico.	SPS Zonal	L1
175		Interconnection Sendero Total			(9,390)	(1,920)			
176	Electric Transmission	Interconnection WIPP	A.0001106.001	WIPP W-38 Structure Relocate	(72,878)	(14,903)	This project reconfigured the 115-kV lines coming into the WIPP Substation serving the Waste Isolation Pilot Project (WIPP) facility located east of Carlsbad, New Mexico. The customer paid to reconfigure these lines to allow for an expansion of the WIPP facility.	Customer Funded	OT
177		Interconnection WIPP Total			(72,878)	(14,903)			
178	Electric Transmission	Interconnection XTO D1#9	A.0001126.001	Inst Temp Switch Ramb TOIF	(320,517)	(65,543)			
179	Electric Transmission	Interconnection XTO D1#9	A.0001126.002	Inst 3 1 Way 115kV Switch	252,239	51,381	This project installed a one-way switch to provide a 115-kV service point to XTO Energy located east of Loving, New Mexico.	SPS Zonal	L1
180		Interconnection XTO D1#9 Total			(66,278)	(13,962)			
181	Electric Transmission	Interconnection XTO Mahoney	A.0001008.001	Int 230kV Sw Station TOIF/Portion	210,708	43,868			
182	Electric Transmission	Interconnection XTO Mahoney	A.0001008.002	Int 230kV Sw Station Xcel/Portion	4,112,432	840,559			
183	Electric Transmission	Interconnection XTO Mahoney	A.0001008.005	AWOR Relay Upgrade Sub	176,938	36,166			
184	Electric Transmission	Interconnection XTO Mahoney	A.0001008.006	BRU Relay Upgrade Sub	122,513	25,053			
185	Electric Transmission	Interconnection XTO Mahoney	A.0001008.009	R11 230kV BRU Mahoney TLINE	400,413	81,882			
186	Electric Transmission	Interconnection XTO Mahoney	A.0001008.010	R12 230kV AWOR Mahoney TLINE	341,735	70,291			
187		Interconnection XTO Mahoney Total			5,366,762	1,097,460	This project installed the new Mahoney Switching Station to provide a new 230-kV service point to XTO.	SPS Zonal/Customer Funded	L1

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Electric Transmission	Interconnection XTO Robertson	A.0001097.002	Inst 277 60kV Switch Reimb TOIF	(26,467)	(5,412)	This project installed a one-way switch to provide a 69-kV service point to XTO Energy located southwest of Seminole, Texas.	SPS Zonal	LI
	Interconnection XTO Robertson Total							
Electric Transmission	KC Substation - Diamondback	A.0000361.001	KC Sub-Supplier Springs 115kV T	(62,647)	(12,811)			
Electric Transmission	KC Substation - Diamondback	A.0000361.004	KC Substation Sub	(52,037)	(10,641)			
	KC Substation - Diamondback Total			(114,685)	(23,452)	This project constructed a ring bus expansion at the 115/69-kV Diamondback Substation. SPP issued SPS a NTC for this project.	SPP Base Plan	RE
Electric Transmission	Lea Co Plains Sw Cap Bank	A.0001263.001	Lea Co Plains Sw. Cap Bank	1,683,000	344,160			
Electric Transmission	Lea Co Plains Sw Cap Bank	A.0001263.004	Lea Plains Metering	27,459	5,615			
	Lea Co Plains Sw Cap Bank Total			1,710,459	349,775	This project installed a 14.4 MV Ar capacitor bank. SPP issued SPS a NTC for this project.	SPP Base Plan	RE
Electric Transmission	Line ELR SPS	A.0000499.004	Line ELR SPS 2016 Line	156	32			
Electric Transmission	Line ELR SPS	A.0000499.011	SPS ELR 115kV NM 2016	5,430,058	1,110,403			
Electric Transmission	Line ELR SPS	A.0000499.012	SPS ELR 69kV TX 2016	431,058	88,148			
Electric Transmission	Line ELR SPS	A.0000499.013	SPS ELR 115kV TX 2016	10,999,197	2,249,247			
Electric Transmission	Line ELR SPS	A.0000499.015	SPS 230kV ELR TX 2016	1,848,868	378,079			
Electric Transmission	Line ELR SPS	A.0000499.018	Line ELR SPS OK 115kV	601,494	123,001			
	Line ELR SPS Total			19,310,831	3,948,969	The term "ELR" stands for End of Life Replacement. This project provided for improvement work on transmission lines to address high priority capital defects, such as defective wood poles and cross arms, that were discovered through line inspections. Work in the ELR group included emergent work, planned usually 12 to 18 months in advance of the work being performed. Typically this work replaced capital property units on a like-for-like basis and returned the transmission line to overall good health.	SPS Zonal	SR
Electric Transmission	LP L Relay Upgrades	A.0001067.001	Lubbock East K57 Relay Upgrade	382,017	78,119			
Electric Transmission	LP L Relay Upgrades	A.0001067.004	Lubbock South K64 Relay Upgrade	304,349	62,237			
	LP L Relay Upgrades Total			686,367	140,356	This project upgraded the line protection relays, breaker controls and communication architecture at SPS's Lubbock East and Lubbock South Interchanges on the terminals providing 230-kV service to Lubbock Power and Light (LP&L).	SPS Zonal	SR
Electric Transmission	Lynn Co. Dist. Load Conversion	A.0000301.002	Lynn Co. Dist. Load Conversion	(231,421)	(47,324)	This project converted a 69-kV distribution transformer to 11.5-kV to prevent overloading of the 115/69-kV transformers at Lynn Co. Substation. SPP issued SPS a NTC for this project.	SPP Base Plan	RE
	Lynn Co. Dist. Load Conversion Total			(231,421)	(47,324)			
Electric Transmission	Mustang-Shell CO2 115kV Line	A.0000979.004	11.5 ROW ROW Portion ROW	180,749	36,962			
Electric Transmission	Mustang-Shell CO2 115kV Line	A.0000979.011	K56 Structure Raise	174,471	35,578			
	Mustang-Shell CO2 115kV Line Total			355,219	72,639	This project constructed a new 115-kV transmission line between the Mustang and Shell CO2 substations. The project was needed to address overloads in the area. SPP issued SPS a NTC for this project.	SPP Base Plan	RE
Electric Transmission	NE Hereford to New Center St. 115 kV Line	A.0000296.005	NE Hereford to New Center St.	4,541,034	928,695			
Electric Transmission	NE Hereford to New Center St. 115 kV Line	A.0000296.006	New Centre St 115kV Sub	890,170	182,033			
Electric Transmission	NE Hereford to New Center St. 115 kV Line	A.0000296.008	NE Hereford Sub	3,649,792	746,353			
Electric Transmission	NE Hereford to New Center St. 115 kV Line	A.0000296.013	NE Hereford- New Centre St 115	2,372	485			
	NE Hereford to New Center St. 115 kV Line Total			9,083,368	1,857,476	This project constructed a new 115-kV line from Northeast Hereford Interchange to a new distribution substation named New Center St. (La Plata) to allow the 69-kV substation to be removed from the 69-kV Hereford Loop. This allowed the Hereford Interchange and the Northeast Hereford Interchange 115/69-kV transformers to stay under their ratings. This project was needed for system reliability. SPP issued SPS a NTC for this project.	SPP Base Plan	RE
Electric Transmission	Needmore UPLC Upgrades	A.0001078.001	Yoakum UPLC Upgrade	165,180	33,778			
Electric Transmission	Needmore UPLC Upgrades	A.0001078.002	Talk UPLC Upgrade	88,665	18,135			
Electric Transmission	Needmore UPLC Upgrades	A.0001078.003	Needmore UPLC Upgrade	26,428	5,404			
	Needmore UPLC Upgrades Total			280,293	57,218	This project replaced the Under frequency Protective Line Carrier (UPLC) systems at Needmore, Yoakum, and Talk substations to the current standard for this relay communication system.	SPS Zonal	SR

Line No.	(A) Asset Class	(B) WBS Level 1 Project Group	(C) WBS Level 2 Number	(D) WBS Level 2 Description	(E) Additions to Plant-in Service (April 1, 2018 - March 31, 2019) Total Company	(F) Additions to Plant-in Service (April 1, 2018 - March 31, 2019) NM Retail	(G) WBS Level 1 Project Group Description	(H) Cost Recovery	(I) Project Category
220	Electric Transmission	NEF Targa Reconnector	A.0001285.001	NEF Targa Reconnector	964,907	138,134	This project re-constructed the 6.6-mile, 115-kV transmission circuit running from NEF Substation to the Targa Substation tap. This project was needed to eliminate the overloading of this segment during certain system conditions. SPP issued SPS a NTC for this project.	SPP Base Plan	RE
221		NEF Targa Reconnector Total			964,907	138,134			
222	Electric Transmission	Nichols 115kV BFR	A.0000533.002	Nichols 115kV BFR - Damas 19th	(7,652)	(1,565)			
223	Electric Transmission	Nichols 115kV BFR	A.0000533.006	Nichols 115kV BFR - Ease Plant	(18,145)	(3,711)			
224		Nichols 115kV BFR Total			(25,797)	(5,275)	This project added breaker failure relaying to the 115-kV bus at the Nichols Substation near Amarillo, Texas. This project was needed to address North American Electric Reliability Corporation ("NERC") compliance requirements as well as stability and reliability issues on the system.	SPS Zonal	RE
225	Electric Transmission	Oasis T22 Terminal Upgrade	A.0000080.001	Oasis T22 Terminal Upgrade	(1,672)	(342)			
226		Oasis T32 Terminal Upgrade Total			(1,672)	(342)	This project upgraded the Oasis T-32 line terminal and relay package to make it compatible with the new T-32 line terminal at Porales Interchange. These upgrades were a part of the larger project to install a 115 kV loop in the Porales area to provide more reliable service.	SPS Zonal	RESR
227	Electric Transmission	OPIE 1 North Loving (Hopli to Capano)	A.0000424.131	N. Loving 115kV terminal -China	185	38			
228	Electric Transmission	OPIE 1 North Loving (Hopli to Capano)	A.0000424.219	Hopli to Capano Hopli Substation	1,162	238			
229		OPIE 1 North Loving (Hopli to Capano) Total			1,347	275	This project constructed a 115-kV line from the Hopli Substation to the new North Loving Substation to serve additional loads and to provide increased network reliability. SPP issued SPS a NTC for this project.	SPP Base Plan	RE
230	Electric Transmission	OPIE 1 Potash Junction	A.0000424.010	Potash Junction 115/69 Xlmr Up	25	5			
231		OPIE 1 Potash Junction Total			25	5	This project replaced the 40 MVA 115/69-kV transformers at Potash Junction with 84 MVA transformers. SPP issued SPS a NTC for this project.	SPP Base Plan	RE
232	Electric Transmission	OPIE 1 Road Runner (Inter: Potash Com)	A.0000424.183	Intercom Potash Conn 230kV Li	3,894	796			
233	Electric Transmission	OPIE 1 Road Runner (Inter: Potash Com)	A.0000424.185	West Jal Sub	257	53			
234	Electric Transmission	OPIE 1 Road Runner (Inter: Potash Com)	A.0000424.187	Potash to West Jal 230kV ROW	25	5			
235		OPIE 1 Road Runner (Inter: Potash Com) Total			4,176	854	This project constructed the Roadrunner Substation to connect a new potash mine, Intercontinental Potash, to the 115-kV transmission system in southeast New Mexico. SPP issued SPS a NTC for this project.	SPP Base Plan	RE
236	Electric Transmission	OPIE 2 China Draw	A.0000424.015	China Draw High Side Substation	(125,536)	(25,671)			
237		OPIE 2 China Draw Total			(125,536)	(25,671)	This project constructed the 115-kV transmission line from North Loving Substation to the China Draw Substation and the transmission substation facilities at China Draw. SPP issued SPS a NTC for this project.	SPP Base Plan	RE
238	Electric Transmission	OPIE 2 China Draw-Wood Draw 115kV_PID 30825	A.0000424.099	China Draw-Wood Draw 115kV Lin	250,317	51,188			
239	Electric Transmission	OPIE 2 China Draw-Wood Draw 115kV_PID 30825	A.0000424.100	China Draw 115kV Sub W Draw Ter	90	10			
240	Electric Transmission	OPIE 2 China Draw-Wood Draw 115kV_PID 30825	A.0000424.102	W Draw 115kV Sub C Draw Term.	12,952	2,649			
241	Electric Transmission	OPIE 2 China Draw-Wood Draw 115kV_PID 30825	A.0000424.104	China Draw-Wood Draw 115kV ROW	21,947	4,488			
242	Electric Transmission	OPIE 2 China Draw-Wood Draw 115kV_PID 30825	A.0000424.105	W-39 Return at Wood Draw_UID 5	4,765	974			
243	Electric Transmission	OPIE 2 China Draw-Wood Draw 115kV_PID 30825	A.0000424.174	North Loving 115kV Bkr Ring Su	(82,511)	(16,873)			
244	Electric Transmission	OPIE 2 China Draw-Wood Draw 115kV_PID 30825	A.0000424.177	Hopli Breaker Install Pecos Ter	(59,865)	(12,242)			
245		OPIE 2 China Draw-Wood Draw 115kV_PID 30825 Total			147,655	30,194	This project constructed a 115-kV line between China Draw and Wood Draw to loop the 115-kV transmission system. This line is south of Carlsbad, New Mexico. This project was needed for system reliability and SPP issued SPS a NTC for this project.	SPP Base Plan	RE
246	Electric Transmission	OPIE 2 China Draw-Yeso Hills 115kV_PID 30675	A.0000424.032	China Draw-Yeso Hills 115kV RO	670	137			
247		OPIE 2 China Draw-Yeso Hills 115kV_PID 30675 Total			670	137	This project constructed a radial 115-kV line from China Draw sub to the new Yeso Hills substation east of China Draw for service to developing loads. The Yeso Hills substation is southwest of Carlsbad, NM. This project was needed for to provide increased reliability in the area.	SPP Base Plan	RE

(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)
Line No.	Asset Class	WBS Level 1 Project Group	WBS Level 2 Description	Additions to Plant-in Service (April 1, 2018 - March 31, 2019)	Additions to Plant-in Service (April 1, 2018 - March 31, 2019)	WBS Level 1 Project Group Description	Cost Recovery	Project Category
248	Electric Transmission	WBS Level 1 Project Group	WBS Level 2 Description					
249	Electric Transmission	WBS Level 1 Project Group	WBS Level 2 Description					
250	Electric Transmission	WBS Level 1 Project Group	WBS Level 2 Description					
251	Electric Transmission	WBS Level 1 Project Group	WBS Level 2 Description					
252	Electric Transmission	WBS Level 1 Project Group	WBS Level 2 Description					
253	Electric Transmission	WBS Level 1 Project Group	WBS Level 2 Description					
254	Electric Transmission	WBS Level 1 Project Group	WBS Level 2 Description					
255	Electric Transmission	WBS Level 1 Project Group	WBS Level 2 Description					
256	Electric Transmission	WBS Level 1 Project Group	WBS Level 2 Description					
257	Electric Transmission	WBS Level 1 Project Group	WBS Level 2 Description					
258	Electric Transmission	WBS Level 1 Project Group	WBS Level 2 Description					
259	Electric Transmission	WBS Level 1 Project Group	WBS Level 2 Description					
260	Electric Transmission	WBS Level 1 Project Group	WBS Level 2 Description					
261	Electric Transmission	WBS Level 1 Project Group	WBS Level 2 Description					
262	Electric Transmission	WBS Level 1 Project Group	WBS Level 2 Description					
263	Electric Transmission	WBS Level 1 Project Group	WBS Level 2 Description					
264	Electric Transmission	WBS Level 1 Project Group	WBS Level 2 Description					
265	Electric Transmission	WBS Level 1 Project Group	WBS Level 2 Description					
266	Electric Transmission	WBS Level 1 Project Group	WBS Level 2 Description					
267	Electric Transmission	WBS Level 1 Project Group	WBS Level 2 Description					
268	Electric Transmission	WBS Level 1 Project Group	WBS Level 2 Description					
269	Electric Transmission	WBS Level 1 Project Group	WBS Level 2 Description					
270	Electric Transmission	WBS Level 1 Project Group	WBS Level 2 Description					
271	Electric Transmission	WBS Level 1 Project Group	WBS Level 2 Description					
272	Electric Transmission	WBS Level 1 Project Group	WBS Level 2 Description					
273	Electric Transmission	WBS Level 1 Project Group	WBS Level 2 Description					
274	Electric Transmission	WBS Level 1 Project Group	WBS Level 2 Description					
275	Electric Transmission	WBS Level 1 Project Group	WBS Level 2 Description					
276	Electric Transmission	WBS Level 1 Project Group	WBS Level 2 Description					
277	Electric Transmission	WBS Level 1 Project Group	WBS Level 2 Description					
278	Electric Transmission	WBS Level 1 Project Group	WBS Level 2 Description					
279	Electric Transmission	WBS Level 1 Project Group	WBS Level 2 Description					
280	Electric Transmission	WBS Level 1 Project Group	WBS Level 2 Description					
281	Electric Transmission	WBS Level 1 Project Group	WBS Level 2 Description					
282	Electric Transmission	WBS Level 1 Project Group	WBS Level 2 Description					
283	Electric Transmission	WBS Level 1 Project Group	WBS Level 2 Description					
284	Electric Transmission	WBS Level 1 Project Group	WBS Level 2 Description					
285	Electric Transmission	WBS Level 1 Project Group	WBS Level 2 Description					

Southwestern Public Service Company
Transmission Capital Additions
April 1, 2018 through March 31, 2019

(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)
Line No.	Asset Class	WBS Level 1 Project Group	WBS Level 2 Description	Additions to Plant-in Service (April 1, 2018 - March 31, 2019)	Additions to Plant-in Service (April 1, 2018 - March 31, 2019)	WBS Level 1 Project Group Description	Cost Recovery	Project Category
319	Electric Transmission	Osage Re-termination Project	Osage Substation	203,983	41,713	NM Retail		
320	Electric Transmission	Osage Re-termination Project	Randall County Interchange Sub	6,659	1,370			
321	Electric Transmission	Osage Re-termination Project	South Georgia Substation	10,108	2,667			
322	Electric Transmission	Osage Re-termination Project	East Plant Relay Sub	(39,453)	(8,074)			
323	Electric Transmission	Osage Re-termination Project	T-66 Return Line	89	18			
324	Electric Transmission	Osage Re-termination Project	V-04 Circuit Removal	(5,549)	(1,135)			
325	Electric Transmission	Osage Re-termination Project Total		175,848	35,559	This project upgraded the 115-kV bus at the Randall County Substation. The project was needed to address overloads at the Osage Substation. SPP issued SPS a NTC for this project.	SPP Base Plan	RE
326	Electric Transmission	Oxy Levelland Amoco Sub UFR	Ameco Oxy UFR Relay	93,559	19,140			
327	Electric Transmission	Oxy Levelland Amoco Sub UFR Total		93,559	19,140	This project installed under frequency relays at the Levelland Amoco Substation to meet compliance requirements.	SPS Zonal	RE
328	Electric Transmission	Physical Security	NM Physical Security Sub Infrastructure	554,950	113,483			
329	Electric Transmission	Physical Security	SPS Physical Security Sub Infrastructure	2,880,609	589,061			
330	Electric Transmission	Physical Security Total		3,435,559	702,544	This project installed Physical Security Upgrades affecting SPS substation protection with specific work varying by substation location, current layout, and threat history. Typical security measures included the installation of equipment such as cameras and motion sensors at substations.	SPS Zonal	OT
331	Electric Transmission	Plainview City Sub Removal	Install Capacitor Bank at Kiser Sub	173,970	35,275			
332	Electric Transmission	Plainview City Sub Removal Total		173,970	35,275	This project removed the 69-kV bus and associated equipment at Plainview City Substation and removed the 69-kV transmission line Z-84 that connected Kiser Substation to Plainview City Substation. The Kiser Substation replaced the Plainview City Substation. SPP issued SPS a NTC for this project.	SPP Base Plan	RE
333	Electric Transmission	Portales 115 kV Loop	Portales 115kV Loop Line	(17,463)	(3,571)			
334	Electric Transmission	Portales 115 kV Loop	Portales Interchange Sub	359,947	73,606			
335	Electric Transmission	Portales 115 kV Loop	Market St. Substation	(1,034)	(5,055)			
336	Electric Transmission	Portales 115 kV Loop	Roosevelt T-33 Relay Upgrade S	1,584	324			
337	Electric Transmission	Portales 115 kV Loop	Oasis T-32 Relay Upgrade Sub	13,685	2,799			
338	Electric Transmission	Portales 115 kV Loop	Oasis Portales T-32 Return Lin	10,285	2,103			
339	Electric Transmission	Portales 115 kV Loop	South Portales-Market Street L	3,333,790	681,733			
340	Electric Transmission	Portales 115 kV Loop	Kilgore-Portales Return Line	4,073	6,208			
341	Electric Transmission	Portales 115 kV Loop	Market St-Portales Line	30,360	(12,426)			
342	Electric Transmission	Portales 115 kV Loop	Kilgore-South Portales ROW	412	84			
343	Electric Transmission	Portales 115 kV Loop	Market St-Portales ROW	182,693	37,359			
344	Electric Transmission	Portales 115 kV Loop	Market St-Portales ROW	(1,306)	(656)			
345	Electric Transmission	Portales 115 kV Loop	Roosevelt-Portales T-33 Return	47,230	9,670			
346	Electric Transmission	Portales 115 kV Loop	Market St Sub Greyhound 50565	3,915,301	800,664	This project constructed a 115-kV loop around the City of Portales, New Mexico and converted the South Portales and Market Street substations to 115-kV to provide additional load serving capability and eliminate the overloads of the 115/69-kV transformers at Portales Interchange. SPP issued SPS a NTC for this project.	SPP Base Plan	RE
347	Electric Transmission	Portales 115 kV Loop Total						
348	Electric Transmission	Porter-Channing Dallam	Dallam Co. 230/115 kV sub	(176,484)	(36,090)			
349	Electric Transmission	Porter-Channing Dallam Total		(176,484)	(36,090)	This project converted the new Porter to Channing to Dallam 115-kV line (built for 230-kV operation) to 230-kV operation and reconnected the substations to 230-kV facilities. In addition, the project installed the XIT 230/115-kV substation. SPP issued SPS a NTC for this project.	SPP Base Plan	RE
350	Electric Transmission	Pringle 115 kV Breaker & One-Half	Pringle Substation Sub	(26,327)	(5,384)			
351	Electric Transmission	Pringle 115 kV Breaker & One-Half Total		(26,327)	(5,384)	This project installed a new 115-kV bus and a new 115/34.5-kV transformer at the Pringle Substation. This work was needed to serve increased load in the area and to increase reliability. Pringle Substation is located north of Amarillo, TX.	SPS Zonal	SR/LI
352	Electric Transmission	Pringle Dist Transformer	Pringle Dist Transformer Sub	177	36			
353	Electric Transmission	Pringle Dist Transformer Total		177	36	This project installed the transmission equipment needed for the installation of a distribution transformer at the Pringle Substation.	SPS Zonal	LI
354	Electric Transmission	Puckett West Breaker Addition	Inst Arms at Puckett W Tap/737	(40)	(8)			
355	Electric Transmission	Puckett West Breaker Addition Total		(40)	(8)	This project installed two new 115-kV terminals and a new 300' transmission line tap at Puckett West Substation. This project increased the reliability of Puckett West Substation by making two transmission sources available to it. SPP issued SPS a NTC for this project.	SPP Base Plan/SPS Zonal	RE

Line No.	(A) Asset Class	(B) WBS Level 1 Project Group	(C) WBS Level 2 Number	(D) WBS Level 2 Description	(E) Additions to Plant-in Service (April 1, 2018 - March 31, 2019) Total Company	(F) Additions to Plant-in Service (April 1, 2018 - March 31, 2019) NM Retail	(G) WBS Level 1 Project Group Description	(H) Cost Recovery	(I) Project Category
335	Electric Transmission	Rosevelt City 230 Bkr 1/2	A.0000519.001	Rosevelt County Substation	9,502,265	1,943,137			
337	Electric Transmission	Rosevelt City 220 Bkr 1/2	A.0000519.004	Oasis Relay Upgrade Sub	415,996	85,681			
338		Rosevelt City 230 Bkr 1/2 Total			9,918,261	2,028,818	The project re-configured the Roosevelt County Substation 230-kV bus to a double-bus, double breaker configuration to accommodate the addition of the Pleasant Hill 230-kV line terminal. The upgraded configuration improves reliability and mitigates long-term outages in the event of a breaker that fails to open.	SPS Zonal	RE
339	Electric Transmission	Rosevelt T33 Terminal Upgrade	A.0000087.001	Rosevelt T33 Terminal Upgrade	4,601	941			
340		Rosevelt T33 Terminal Upgrade Total			4,601	941	This project replaces the wave trap, capacitance-coupled voltage transformer ("CCVT") and switches at the Roosevelt Substation.	SPP Base Plan	RE
341	Electric Transmission	Rosevelt Loop	A.0000522.001	Capitan-Price 115 kV Line, LI	(91,059)	(18,621)			
342	Electric Transmission	Rosevelt Loop	A.0000522.002	Price-Claves 115 kV Line Line	(21,127)	(6,672)			
343	Electric Transmission	Rosevelt Loop	A.0000522.004	Claves-Price-Capitan 115 kV Ca	(67,297)	(17,969)			
344	Electric Transmission	Rosevelt Loop	A.0000522.005	Claves-Price-Capitan 115 kV C	31,178	6,576			
345	Electric Transmission	Rosevelt Loop	A.0000522.009	Z09 69kV Line Removal Trans	861,651	176,201			
346	Electric Transmission	Rosevelt Loop	A.0000522.013	Rosevelt Interchange W49 Relay	7,442	1,522			
347		Rosevelt Loop Total			719,104	147,851	This project constructed a new 115-kV line between the Claves County, Price and Capitan substations along with the conversion of the Price 69-kV substation to 115-kV. This project is on the north side of Roswell, New Mexico. SPP issued SPS a NTC for this project.	SPP Base Plan	RE
348	Electric Transmission	S&E - SPS Line	A.0000303.007	SPS 2016 S&E TX B 69kV Line	3,660,266	748,495			
349	Electric Transmission	S&E - SPS Line	A.0000303.028	SPS 2015 S&E TX B 69kV Line	78	16			
350	Electric Transmission	S&E - SPS Line	A.0000303.040	SPS S&E 69kV Line NM 2016	77,767	15,903			
351	Electric Transmission	S&E - SPS Line	A.0000303.041	SPS S&E 115kV Line NM 2016	78,777	16,099			
352	Electric Transmission	S&E - SPS Line	A.0000303.044	SPS S&E 69kV Line TX 2016	1,458,291	298,209			
353	Electric Transmission	S&E - SPS Line	A.0000303.045	SPS S&E 115kV Line TX 2016	3,602,270	738,667			
354	Electric Transmission	S&E - SPS Line	A.0000303.046	SPS S&E 345kV Line TX 2016	(552,009)	(112,881)			
355	Electric Transmission	S&E - SPS Line	A.0000303.047	SPS S&E 115kV Line OK 2016	71,040	14,527			
356	Electric Transmission	S&E - SPS Line	A.0000303.050	SPS S&E 345kV Line KS 2016	962,702	196,865			
357		S&E - SPS Line Total			9,366,181	1,915,309	These projects provided for the storm and emergency work orders for the replacement or capital repair of transmission line facilities damaged by inclement weather or natural disasters. For example, one such project replaced tornado damaged poles, cross arms, and/or cross arm braces on 44 structures of a 230-kV line from Plant X to Deaf Smith County Interchange.	SPS Zonal	SR
378	Electric Transmission	S&E - SPS Sub	A.0000220.005	SPS 2015 S&E Sub	7,825	1,600			
379	Electric Transmission	S&E - SPS Sub	A.0000220.006	SPS 2016 S&E Sub	1,585,100	334,140			
380	Electric Transmission	S&E - SPS Sub	A.0000220.007	SPS 2017 S&E Sub	191,591	39,253			
381	Electric Transmission	S&E - SPS Sub	A.0000220.017	SPS 2015 NM S&E Sub	(31,196)	(6,279)			
382	Electric Transmission	S&E - SPS Sub	A.0000220.018	SPS 2016 NM S&E Sub	344,910	70,531			
383	Electric Transmission	S&E - SPS Sub	A.0000220.024	SPS 2015 KS SE Sub	61,270	12,529			
384	Electric Transmission	S&E - SPS Sub	A.0000220.026	SPS 2015 OK SE Sub	45,306	9,265			
385	Electric Transmission	S&E - SPS Sub	A.0000220.031	SPS OK S&E Sub	4,376	895			
386		S&E - SPS Sub Total			2,205,543	451,834	These projects provided for the storm and emergency work orders that repaired substation facilities damaged by inclement weather and natural disasters.	SPS Zonal	SR
387	Electric Transmission	seminole lng 230/115kV Xfmr #1 & #2 upgrades	A.0000494.001	Seminole Xfmr 1	3,024,673	618,521			
388		seminole lng 230/115kV Xfmr #1 & #2 upgrades Total			3,024,673	618,521	This project replaced the two 230/115-kV transformers at Seminole Interchange with two 246/283 MVA units. This project was needed for regional reliability to address the overload of the Seminole 230/115-kV transformers for the outage of the parallel Seminole 230/115-kV transformer SPP issued SPS a NTC for this project.	SPP Base Plan	RE
389	Electric Transmission	Short Circuit Interrupting Duty 2016	A.0000513.002	Castro Co Breaker 8829 Replacement	333,142	68,125			
390	Electric Transmission	Short Circuit Interrupting Duty 2016	A.0000513.004	Denver City Breaker W970 Replacement	484,085	98,991			
391	Electric Transmission	Short Circuit Interrupting Duty 2016	A.0000513.005	Denver City Breaker W900 Replacement	567,130	115,973			
392		Short Circuit Interrupting Duty 2016 Total			1,384,356	263,090	This project replaced various transmission circuit breakers where the transmission system had a higher available fault current than the interrupting rating of these particular circuit breakers.	SPS Zonal	RE

(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)
Line No.	Asset Class	WBS Level 1 Project Group	WBS Level 2 Description	Additions to Plant-in Service (April 1, 2018 - March 31, 2019)	Additions to Plant-in Service (April 1, 2018 - March 31, 2019)	WBS Level 1 Project Group Description	Cost Recovery	Project Category
393	Electric Transmission	Sierra Substation (RIAC Conversion)	Reform 115KV Roswell City	177,640	36,326			
394	Electric Transmission	Sierra Substation (RIAC Conversion)	Roswell Ing 115KV Bkr One Half	1,305,966	267,877			
395	Electric Transmission	Sierra Substation (RIAC Conversion)	Wreckout Rebuild 115KV Line T24	2,064,695	422,214			
396	Electric Transmission	Sierra Substation (RIAC Conversion)	Relay Updr Roswell City Row Ing	266,550	54,507			
397	Electric Transmission	Sierra Substation (RIAC Conversion)	T24 ROW	123,925	25,342			
398	Electric Transmission	Sierra Substation (RIAC Conversion)	Wreckout Rebuild Z09 Dhle Ckt	127,913	26,157			
399	Electric Transmission	Sierra Substation (RIAC Conversion) Total		4,070,689	832,423	This project constructed a new 115-KV distribution substation and the conversion of a 2 mile 69-KV transmission line to 115-KV operation. SPP issued SPS a NTC for this project.	SPP Base Plan	RE
400	Electric Transmission	Soney Dist. Transformer Conv.	Soney Dist. Transformer Conv.	1,143,366	233,899			
401	Electric Transmission	Soney Dist. Transformer Conv.	115KV Line Tap to Soney Line	962,879	196,901			
402	Electric Transmission	Soney Dist. Transformer Conv.	69KV Line Tap to Soney Line	3,243	684			
403	Electric Transmission	Soney Dist. Transformer Conv.	Soney ROW	266	54			
404	Electric Transmission	Soney Dist. Transformer Conv. Total		2,109,553	431,446	This project converted the 69-KV Soney Substation and transmission line to 115-KV operation. SPP issued SPS a NTC for this project.	SPP Base Plan	RE
405	Electric Transmission	Springlake Sub. Conversion & T28 Tap	South Springlake T28 Tap&Switc	(5)	(1)			
406	Electric Transmission	Springlake Sub. Conversion & T28 Tap Total		(5)	(1)	(1) This project constructed a new four-mile, 115-KV line from transmission line T-28 to Springlake Substation and converted the transmission service voltage to this substation from 69-KV to 115-KV. This project is needed to provide additional service for a new customer load.	SPS Directly Assigned	LI
407	Electric Transmission	SPS Group 1 Switch Replacements	SPS Trans Switch Replmt Line	(197,508)	(40,389)			
408	Electric Transmission	SPS Group 1 Switch Replacements	SPS Trans Switch Replmt 115kV	63,304	12,945			
409	Electric Transmission	SPS Group 1 Switch Replacements	NM Trans Switch Replace Line 69KV	290,042	59,311			
410	Electric Transmission	SPS Group 1 Switch Replacements	V02 Switch 2015 Replacement	31,3476	64,103			
411	Electric Transmission	SPS Group 1 Switch Replacements	V77 Switch 4963 Replacement NM	304,985	62,367			
412	Electric Transmission	SPS Group 1 Switch Replacements Total		774,289	138,338	These projects replaced old high-maintenance or broken switches with new switches.	SPS Zonal	SR
413	Electric Transmission	SPS Line Capacity	SPS Line Capacity Line	(213)	(44)			
414	Electric Transmission	SPS Line Capacity	Ldr Oklahoma SPS Line	20	4			
415	Electric Transmission	SPS Line Capacity	W20 Line Capacity Work	4,849	992			
416	Electric Transmission	SPS Line Capacity	K83 Line Capacity Work	(1,092,475)	(223,402)			
417	Electric Transmission	SPS Line Capacity	K21 Clearance Violations	226,935	48,151			
418	Electric Transmission	SPS Line Capacity	W14 Y98 Clearance Violations	296,067	69,243			
419	Electric Transmission	SPS Line Capacity Total		(534,617)	(113,459)	This project surveyed and verified the line ratings of the SPS transmission system for lines above 100-KV. This project is a required response to a North American Electric Reliability Corporation ("NERC") Facility Ratings Alert, issued October 7, 2010 and updated on November 30, 2010, requiring transmission owners to verify that transmission line ratings are based on actual field conditions and, if not, perform necessary activities to base rating on actual field conditions. The survey was done using Light Detection And Ranging ("LIDAR") technology that uses a laser to make highly accurate distance measurements. This project provided for the survey work and any mitigations that were needed to raise the facility capacity ratings if the field results were less than expected.	SPS Zonal	SR
420	Electric Transmission	SPS Major Line Refurbishment	SPS Major Line Refurb 69KV TX 2016	1,692,109	346,023			
421	Electric Transmission	SPS Major Line Refurbishment Total		1,692,109	346,023	This project refurbished various 230-KV lines in the SPS system.	SPS Zonal	SR
422	Electric Transmission	SPS Physical Security	SPS Physical Security	75	15			
423	Electric Transmission	SPS Physical Security Total		75	15	This project provided for substation security and monitoring improvements and security measures required by the North American Electric Reliability Corporation ("NERC") standard CIP-014.	SPS Zonal	OT
424	Electric Transmission	SPS Sub Communication Network Group 1	SPS Sub Comm Network Group 1 L	629,734	128,775			
425	Electric Transmission	SPS Sub Communication Network Group 1 Total		629,734	128,775	These projects provided for the construction of a fiber optics communication infrastructure within the SPS region. The first leg of a multi-year effort will start in the Anarillo area by installing Optical Ground Wire ("OPGW") in the static position on selected transmission lines to create a redundant fiber optic communication ring with access to the Anarillo Transmission Operations Center. This ring provides redundant protection paths for the line sections on which the OPGW is installed as well as provides redundant paths for the Supervisory Control And Data Acquisition ("SCADA") system	SPS Zonal	OT

Line No.	(A) Asset Class	(B) WBS Level 1 Project Group	(C) WBS Level 2 Number	(D) WBS Level 2 Description	(E) Additions to Plant-in Service (April 1, 2018 - March 31, 2019) Total Company	(F) Additions to Plant-in Service (April 1, 2018 - March 31, 2019) NM Retail	(G) WBS Level 1 Project Group Description	(H) Cost Recovery	(I) Project Category
426	Electric Transmission	SPS Switch Replace	A.0000514.003	Rocky Point Switch Replmt	69	14	This project replaced switches with cap and pin insulators. The cap and pin insulators have a history of high failure rates.	SPS Zonal	SR
427		SPS Switch Replace Total			69	14			
428	Electric Transmission	SPS Walkemeyer 345 115 280 MVA SUB	A.0001310.001	Reterm 345KV Line J7	746,883	152,732			
429	Electric Transmission	SPS Walkemeyer 345 115 280 MVA SUB	A.0001310.002	Reterm 345KV Line Old J7	747,384	152,834			
430	Electric Transmission	SPS Walkemeyer 345 115 280 MVA SUB	A.0001310.003	Walkemeyer 345/115 Sub	11,791,330	2,411,232			
431	Electric Transmission	SPS Walkemeyer 345 115 280 MVA SUB	A.0001310.004	Walkemeyer 345/115 Sub Land	5,428	1,110			
432	Electric Transmission	SPS Walkemeyer 345 115 280 MVA SUB	A.0001310.006	Finney Relay Settings	(6)	(1)			
433	Electric Transmission	SPS Walkemeyer 345 115 280 MVA SUB	A.0001310.007	Hitchland Relay Settings Texas	(10)	(2)			
434	Electric Transmission	SPS Walkemeyer 345 115 280 MVA SUB	A.0001310.012	Finney P5 Terminal UPLC	184,926	37,816			
435	Electric Transmission	SPS Walkemeyer 345 115 280 MVA SUB	A.0001310.013	Hitchland J26 Terminal UPLC	235,592	48,177			
436		SPS Walkemeyer 345 115 280 MVA SUB Total			13,711,527	2,803,897	This project constructed the new Carpenter Switching Station (formerly Stevens County) which is located on the 345-kV line from Hitchland Interchange to Finney Switching Station. This project was needed to address low voltages in the area. SPP issued SPS a NTC for this project.	SPS Base Plan	RE
437	Electric Transmission	SPS Ximr - Mobile/Spare	A.0000645.001	11 5/69 KV Mobile Sub	(144,388)	(29,525)	This project replaced the 115/69-kV mobile substation and purchased two spare 115/69-kV transformers and a spare 230/115-kV transformer. Mobile substations are used for facility restoration after equipment failures, to facilitate construction projects and to avoid long-term disruptions of service.	SPS Zonal	SR
438		SPS Ximr - Mobile/Spare Total			(144,388)	(29,525)			
439	Electric Transmission	STEP Newhart Interchange	A.0000421.006	Newhart Ing Hart Int-Lamont11	(285,397)	(59,361)			
440	Electric Transmission	STEP Newhart Interchange	A.0000421.013	Newhart to Lamont ROW	1,690	346			
441		STEP Newhart Interchange Total			(283,707)	(59,016)	This project constructed a new 230/115-kV interchange and substation with associated 115-kV transmission lines near Hart, Texas. The project upgraded the transmission system in this area and relieved high transmission loadings on the central part of the SPS transmission system in Castro, Palmer, Swisher, Bailey, Lamb and Hale counties. SPP issued SPS a NTC for this project.	SPS Base Plan	RE
442	Electric Transmission	STEP Plainview City Expansion	A.0000426.004	Plainview City Exp. Cox, Sub	(171,541)	(35,079)			
443		STEP Plainview City Expansion Total			(171,541)	(35,079)	This project constructed a new 115/69-kV substation near Plainview, TX and several 115-kV lines and converted 69-kV distribution substations to 115-kV. The purpose was to relieve loading of the 69-kV system in that area. SPP issued SPS a NTC for this project.	SPS Base Plan	RE
444	Electric Transmission	STEP Pleasant Hill	A.0000215.002	Pleasant Hill 345/230KV NM Sub	(111,148)	(22,729)			
445	Electric Transmission	STEP Pleasant Hill	A.0000215.012	Pleasant Hill to Roosevelt Co.	(45,206)	(9,365)			
446		STEP Pleasant Hill Total			(156,444)	(31,294)	This project constructed a new 230/115-kV interchange and substation with associated 230-kV and 115-kV transmission lines near the Clovis, New Mexico. The project provided additional voltage and capacity support for the eastern New Mexico area. SPP issued SPS a NTC for this project.	SPS Base Plan	RE
447	Electric Transmission	sundown-amoco switch 230KV terminals	A.0000663.001	Sundown Sub, Amoco Terminal	245,645	50,232			
448	Electric Transmission	sundown-amoco switch 230KV terminals	A.0000663.002	Amoco Sub, Sundown Terminal	151,731	31,028			
449	Electric Transmission	sundown-amoco switch 230KV terminals	A.0000663.005	K03 Structure Upgrade	78,006	15,952			
450		sundown-amoco switch 230KV terminals Total			475,382	97,212	This project upgraded the 230-kV Sundown and Amoco station line terminals and increased the transmission line clearance of the 230-kV line from Amoco to Sundown to provide a summer emergency rating of 547 MVA for this line segment. The system limitation caused by this line was identified in SPPs 2016 Near Term study. SPP issued SPS a NTC for this project.	SPS Base Plan	RE
451	Electric Transmission	T38 Taps-BOPCo Sub Capitan 9 & DI #9	A.0000858.001	T38 Bopco 3Way Sw Inst Str#41	(3,021)	(618)	This project installed 2 three-way switches on 115-kV transmission line T38 to provide 115-kV service to two new customer-owned substations. SPP issued SPS a NTC for this project.	SPS Zonal/Customer Funded	L.I
452		T38 Taps-BOPCo Sub Capitan 9 & DI #9 Total			(3,021)	(618)			
453	Electric Transmission	Targa Cardinal Reconnector 115KV Line	A.0001312.003	Targa Cardinal Sub	8,753	1,790			
454	Electric Transmission	Targa Cardinal Reconnector 115KV Line	A.0001312.004	TargaCardinal Recond115KV Line	(29,330)	(5,998)			
455		Targa Cardinal Reconnector 115KV Line Total			(20,577)	(4,208)	This project re-constructed the 2.6-mile, 115-kV transmission circuit running from Targa Substation to the Cardinal Switching Station. This project was needed to eliminate the overloading of this segment during certain system conditions. SPP issued SPS a NTC for this project.	SPS Base Plan	RE

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456	Electric Transmission	Trans E&S Accts	10695269	E&S Elec Trans Lines, SPS	59,099	12,083			
457	Electric Transmission	Trans E&S Accts	10695288	E&S Elec Trans Subs, SPS	(25,595)	(5,234)			
458		Trans E&S Accts Total			33,504	6,851	This project captured the Engineering and Supervision ("E&S") overhead costs for transmission projects. The E&S overhead is the method of allocating costs that are incurred in normal business but cannot be directly assigned to a particular function or activity without excessive cost for the benefit received by the five utility subsidiaries.	SPS Zonal	OT
459	Electric Transmission	Tuco Ing 345/230kV Auto #1 upgrade			(2,203,625)	(450,624)			
460		Tuco Ing 345/230kV Auto #1 upgrade Total			(2,203,625)	(450,624)	This project upgraded the 345/230-kV transformer at TUCO Interchange. This project was one of the shared network upgrades required for the connection of generation projects approved by SPP in their DISIS 2014-002 study.	Customer Funded	GI
461	Electric Transmission	TUCO Moorland (Woodward)	A.0000417.003	Tuco to Moorland (Woodward) R	609,175	(42,735)			
462	Electric Transmission	TUCO Moorland (Woodward)	A.0000417.015	TUCO Moorland Woodward TX ROW 2017	(225,301)	(46,890)			
463	Electric Transmission	TUCO Moorland (Woodward)	A.0000665.005	TUCO Moorland Woodward TX RO	13,267	2,713			
464		TUCO Moorland (Woodward) Total			(425,209)	(86,952)	This project constructed a single-circuit 345-kV transmission line between the TUCO Substation, near Lubbock, Texas, and Oklahoma Gas & Electric ("OG&E") Woodward Substation near Woodward, Oklahoma. SPS constructed the line between the TUCO Substation and OG&E's Border Substation near the Texas and Oklahoma border and OG&E constructed the line from the Border Substation to the Woodward Substation. The Project was identified in the SPP's Balanced Portfolio Economic Studies. SPP issued SPS a NTC for this project.	SPS Balanced Portfolio	EG/II
465	Electric Transmission	Unserviceable - Breakers - SPS	A.0000287.035	Poasah-4920 Breaker Rplmt	(6,108)	(1,249)			
466	Electric Transmission	Unserviceable - Breakers - SPS	A.0000287.036	Carlsbad C900 Breaker Rplmt	(9,276)	(3,146)			
467		Unserviceable - Breakers - SPS Total			(15,384)	(3,146)	This project replaced circuit breakers that failed tests and were not performing correctly. It also replaced breakers which had become under-rated due to transmission or generation additions.	SPS Zonal	SR
468	Electric Transmission	V72 Terminal Upgrades at Hale	A.0001051.001	Hale V72 Terminal Upgrade	50,372	10,301			
469		V72 Terminal Upgrades at Hale Total			50,372	10,301	This project upgraded the transmission line V-72 115-kV terminal at Hale Co. Interchange and transmission line V-72 to provide a minimum of 159 MVA for the Summer Normal rating and 175 MVA for the Summer Emergency rating. This project was needed to increase the current carrying capacity of this key transmission line in the SPS region. SPP issued SPS a NTC for this project.	SPS Base Plan	RE
470	Electric Transmission	W40 Reconnector Canyon West-Deaf Smith	A.0001319.005	W40 Rebid Panda Tap Deaf Smith	1,754,973	359,696			
471	Electric Transmission	W40 Reconnector Canyon West-Deaf Smith	A.0001319.006	W40 Rebuild Down to Panda Tap	3,135,336	641,155			
472	Electric Transmission	W40 Reconnector Canyon West-Deaf Smith	A.0001319.007	W40 Reconnect Canyon W/Deaf Smith	505,341	104,156			
473	Electric Transmission	W40 Reconnector Canyon West-Deaf Smith	A.0001319.008	W40 Rebuild ROW	109,676	22,469			
474	Electric Transmission	W40 Reconnector Canyon West-Deaf Smith	A.0001319.009	Canyon West Sub W40 Term Upgr	12,863	2,630			
475	Electric Transmission	W40 Reconnector Canyon West-Deaf Smith	A.0001319.010	Dawn Sub Terminal Upgrades	231,429	47,325			
476	Electric Transmission	W40 Reconnector Canyon West-Deaf Smith	A.0001319.011	Deaf Smith W40 Term Upgr	338,211	69,161			
477		W40 Reconnector Canyon West-Deaf Smith Total			6,096,030	1,246,293	This project wrecked out and rebuilt 26 miles of 115-kV transmission line running from Canyon West Substation to Deaf Smith Interchange. This project was needed to eliminate the overloading of this segment during certain system conditions. SPP issued SPS a NTC for this project.	SPS Base Plan	RE
478	Electric Transmission	W77 T75 Reconnector Arrowhead to Randall			45,183	9,240			
479		W77 T75 Reconnector Arrowhead to Randall Total			45,183	9,240	This project rebuilt approximately 3.5 miles of double-circuit 115-kV transmission line W77 (Canyon-West to Randall) and T-75 (Osage to Amarillo South) with phase conductors with a minimum of 240 MVA Summer Emergency rating. This project mitigates the overload of the Randall-Canyon East 115-kV line for various outages like the Bushland Interchange to Deaf Smith County Interchange 230-kV. SPP issued SPS a NTC for this project.	SPS Base Plan	RE
480	Electric Transmission	Xfmr Spare Security SPS	A.0000776.002	Security Resilience Spare TR	(1,786,008)	(365,224)			
481		Xfmr Spare Security SPS Total			(1,786,008)	(365,224)	This project purchased spare transmission-voltage transformers to provide reserve units in the event of a failure of one of the numerous similar transformers in service in the SPS service area.	SPS Zonal	SR

(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)
Asset Class	WBS Level 1 Project Group	WBS Level 2 Number	WBS Level 2 Description	Additions to Plant in Service (April 1, 2018 - March 31, 2019)	Additions to Plant in Service (April 1, 2018 - March 31, 2019)	WBS Level 1 Project Group Description	Cost Recovery	Project Category
Electric Transmission	Yokum 115kV BFR	A.000058.001	Yokum	335,569	68,025	This project installed Breaker Failure Relay (BFR) protection on all the 115-kV breakers at Yokum Co. Interchange. Installing BFR protection reduces the clearing time of the fault during a stick breaker event, which has been determined to cause major generation and transmission system impacts for certain breaker failure events.	SPS Zonal	RE
Electric Transmission	Yokum 115kV BFR	A.000058.002	Segraves	207,192	42,369			
Electric Transmission	Yokum 115kV BFR	A.000058.003	Terry Co	246,342	50,275			
	Yokum 115kV BFR Total			789,122	161,369			
Electric Transmission	Yokum Intg. 230/115 Transformer Upgrades							
	Yokum Intg. 230/115 Transformer Upgrades Total	A.000126.001	Yokum 230/115 Xlrm 1 Upgrade	2,325,506	475,547	This project replaced the two existing 230/115-kV, 150 MVA autotransformers at Yokum County Interchange with two new 250 MVA transformers. This project was needed to prevent the overloading of one of the 150 MVA transformers for the contingency of the other 150 MVA transformer being unavailable. SPP issued SPS a NTC for this project.	SPP Base Plan	RE
				2,325,506	475,547			
Electric Transmission	Z66 Booker/Wade Conversion	A.000046.001	Wade Substation Sub	177	36	This project removed the existing 69-kV line Z-66 (Perryton to Booker) and replaced it with a new 115-kV transmission line. It also converted the existing Wade and Booker substations to 115-kV operation. The new source for these substations is the Ochiltree Substation 115-kV bus.	SPS Zonal	RE
Electric Transmission	Z66 Booker/Wade Conversion	A.000046.004	Ochiltree - Booker ROW	(149,002)	(30,433)			
	Z66 Booker/Wade Conversion Total			(148,825)	(30,433)			
Electric Transmission	Z86 New Tap to Oxy Cedar Lake	A.000062.002	Z86 New Tap to Oxy Cedar Lake ROW	476	97	This project installed a tap structure and a slack-span for the new Oxy Substation adjacent to Oxy's existing Cedar Lake Substation.	SPS Zonal/Customer Funded	LI
	Z86 New Tap to Oxy Cedar Lake Total			476	97			
Electric Transmission	Zodiak Substation	A.000024.005	Zodiak Substation sub	984		This project constructed approximately three miles of 115-kV line from Portales Interchange to Zodiak Substation, and then converted the Zodiak Substation to 115-kV service. SPP issued SPS a NTC for this project.	SPP Base Plan	RE
Electric Transmission	Zodiak Substation	A.000024.006	Kilgore Sub Highside Sub	11	2			
Electric Transmission	Zodiak Substation	A.000024.007	Zodiak Substation NM Line	(52)				
	Zodiak Substation Total			4,571	935			
	Electric Transmission Asset Class Total			\$ 256,772,854	\$ 52,507,579			
Electric Intangible	Land/Works	A.000282.001	GIST-IV Computer Software SPS	56	16	This project provided for land management software and GIS solutions to manage SPS's documents associated with land rights. The project provided for the gathering hard copies of deeds, easements, permits, leases, licenses and other land rights documents, and scanning these hard copies of the documents into an automated data warehouse system provided by LandWorks Inc. These documents are referenced to existing transmission assets using geographic coordinates.	SPS Zonal	OT
	Land/Works Total			56	16			
	Electric Intangible Asset Class Total			\$	\$			
Electric General	Atoka-Eagle Creek	A.000054.017	Atoka Comm Sub Portion Comm	181,320	50,337	This project constructed a 115-kV transmission line between the Atoka and Eagle Creek Substations near Artesia, New Mexico. The project is needed to address low voltages in the area. SPP issued SPS a NTC for this project.	SPP Base Plan	RE
	Atoka-Eagle Creek Total			181,320	50,337			
Electric General	Cargill 14.4 Mvar Cap Bank	A.000127.002	Cargill 14.4 Mvar Cap Bank Comm	63,180	17,540	This project installed a 14.4 Mvar capacitor bank on the 115-kV bus at Cargill Substation. The new capacitor bank will provide voltage support in the south central part of the Texas panhandle and the eastern part of New Mexico. SPP issued SPS a NTC for this project.	SPP Base Plan	RE
	Cargill 14.4 Mvar Cap Bank Total			63,180	17,540			
Electric General	Carlisle to Wolfnorth	A.000031.017	Carl-Wolf Carlisle Comm	366,956	101,872	This project constructed a new 230-kV line between the Carlisle and Wolfnorth substations and substation line terminals to accommodate the new transmission line. This project was needed for reliability and load growth in the surrounding area. SPP issued SPS a NTC for the project.	SPP Base Plan	RE
Electric General	Carlisle to Wolfnorth	A.000031.018	Carl-Wolf Wolfnorth Comm	54,102	15,020			
	Carlisle to Wolfnorth Total			421,058	116,892			

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508	Electric General	Cochran Co - Whiteface 115kV	A.0000194.006	Cochran RTU Comm	228,136	63,334			
509	Electric General	Cochran Co - Whiteface 115kV	A.0000194.007	Cochran Comm Equip	49,254	13,674			
510		Cochran Co - Whiteface 115kV Total			277,390	77,007	This project reconducted the 4.4 mile segment of the 69-kV transmission line from Cochran County Substation to structure number 55 at Whiteface Top. SPP issued SPS a NTC for this project.	SPP Base Plan	RE
511	Electric General	Denver City In-Line 115kV Bkr	A.0000846.002	Denver City RTU Comm	5,171	1,436			
512		Denver City In-Line 115kV Bkr Total			5,171	1,436	This project installed breaker failure relays on all 115-kV breakers at Denver City Interchange.	SPS Zonal	RE
513	Electric General	Eddy Co. Xmmr	A.0000890.002	Eddy Co. Xmmr #1 Communication	5,939	1,649			
514		Eddy Co. Xmmr Total			5,939	1,649	This project upgraded the existing 230/115-kV transformer at the Eddy County Substation to a higher capacity unit. SPP issued SPS a NTC for this project.	SPP Base Plan	RE
515	Electric General	Eddy County DBI Bus DBI Breaker 230kV	A.0000290.008	Cummingham Ing Upgr Eddy Term Comm	53,801	14,936			
516		Eddy County DBI Bus DBI Breaker 230kV Total			53,801	14,936	This project reconfigured the existing Eddy County Interchange 230-kV bus from a main and transfer bus design to a double bus-double breaker arrangement. This project was required to meet long-term firm transmission service requests in the SPP Aggregate Facility Study SPP-2013-AG3-AFS-6 SPP issued SPS a NTC for this project.	SPP Base Plan	RE
517	Electric General	GEN 2011-022 (Firewheel)	A.0000706.002	Hitchland Firewheel Comm	(6,987)	(1,940)			
518		GEN 2011-022 (Firewheel) Total			(6,987)	(1,940)	This project constructed a new 345-kV terminal at Hitchland Interchange to provide an interconnection point for a new wind farm.	Customer Funded	GI
519	Electric General	GEN 2012-020 Hale Co Wind, 478MW	A.0000902.002	TUCO RTU Addition Comm	135,542	37,629			
520		GEN 2012-020 Hale Co Wind, 478MW Total			135,542	37,629	This project constructed a new 230-kV terminal at TUCO Interchange for the interconnection of the Hale County wind farm.	Customer Funded	GI
521	Electric General	GEN 2013-027 Blue Cloud Wind	A.0000736.003	Needmore Communication	244,912	67,991			
522		GEN 2013-027 Blue Cloud Wind Total			244,912	67,991	This project constructed the new 230-kV Needmore Switching Station to accommodate the new wind generation from Blue Cloud Wind.	Customer Funded	GI
523	Electric General	GEN 2014-033 Roswell Solar	A.0001351.003	Roswell Comm	160,460	44,546			
524		GEN 2014-033 Roswell Solar Total			160,460	44,546	This project added new 115-kV terminals for a solar farm interconnection and a capacitor bank.	Customer Funded	GI
525	Electric General	GEN-2011-025 Fiber Wind	A.0000768.004	Blanco Comm	2,316	643			
526		GEN-2011-025 Fiber Wind Total			2,316	643	This project provided a 115-kV interconnection for Fiber Wind LLC's 80 MW wind energy facility located in Crosby County, Texas.	Customer Funded	GI
527	Electric General	GEN-2015-014 Lost Draw Substation	A.0000350.004	Lost Draw Comm	143,270	39,774			
528		GEN-2015-014 Lost Draw Substation Total			143,270	39,774	This project constructed the new Lost Draw Switching Station to provide a 115-kV interconnection point for the Wildcat Ranch wind farm.	Customer Funded	GI
529	Electric General	General Furniture	A.0005014.009	AC Unit 2015 for Subs	(24)	(7)			
530	Electric General	General Furniture	A.0005014.004	New Mexico Substation Furnitur	4,364	1,211			
531	Electric General	General Furniture	A.0005014.109	Gen Pft Ofc Furn TX	7,594	2,108			
532		General Furniture Total			11,933	3,413	This project is for purchasing furniture, typically a desk and chairs, for control houses located in substations.	SPS Zonal	OT
533	Electric General	Interconnection XTO Mahoney	A.0001008.004	Inst 230kV Sw Station Comm	111,870	31,057			
534		Interconnection XTO Mahoney Total			111,870	31,057	This project installed the new Mahoney Switching Station to provide a new 230-kV service point to XTO.	SPS Zonal/Custom Funded	LI
535	Electric General	Kiser Distribution Addition	A.0000907.002	Kiser Distribution Add Comm	3,605	1,001			
536		Kiser Distribution Addition Total			3,605	1,001	This project constructed a new 115/12.5-kV distribution substation near Plainview, Texas. The project was needed to address overloads in the area.	SPS Zonal	LI
537	Electric General	Lea Co Plains Sw Cap Bank	A.0001283.003	Business System Equip for Eng Acces	18,140	18,140			
538		Lea Co Plains Sw Cap Bank Total			65,343	18,140	This project installed a 14.4 MVA capacitor bank. SPP issued SPS a NTC for this project.	SPP Base Plan	RE
539	Electric General	Line ELR SPS	A.0000499.016	Line ELR SPS 2016 Comm	91,691	25,455			
540	Electric General	Line ELR SPS	A.0000499.017	PS ELR 115kV NM Comm	102,242	46,384			
541		Line ELR SPS Total			200,933	72,439	The term "ELR" stands for End of Life Replacement. This project provided for improvement work on transmission lines to address high priority capital defects, such as defective wood poles and cross arms, that were discovered through line inspections. Work in the ELR group included emergent work, planned usually 12 to 18 months in advance of the work being performed. Typically this work replaced capital property units on a like-for-like basis and returned the transmission line to overall good health.	SPS Zonal	SR

(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)
Line No.	Asset Class	WBS Level 1 Project Group	WBS Level 2 Description	Additions to Plant-in Service (April 1, 2018 - March 31, 2019)	Additions to Plant-in Service (April 1, 2018 - March 31, 2019)	WBS Level 1 Project Group Description	Cost Recovery	Project Category
542	Electric General	LP 1 Relay Upgrades	LP 1 Relay Upgrades	103,192	28,647			
543	Electric General	LP 1 Relay Upgrades	Lubbock South Communication	97,429	27,048			
544	Electric General	LP 1 Relay Upgrades	Lubbock East Communication	204,621	55,095	This project upgraded the line protection relays, breaker controls and communication architecture at SPS's Lubbock East and Lubbock South Interchanges on the terminals providing 230-kV service to Lubbock Power and Light (LP&L).	SPS Zonal	SR
545	Electric General	Lynn County RTU Replacement	Lynn Co RTU Replacement Comm	815	226	This project replaced the outdated Remote Terminal Unit (RTU) at Lynn County Interchange.	SPP Base Plan	RE
546	Electric General	Lynn County RTU Replacement		815	226			
547	Electric General	NE Hereford to New Center St. 115 kV Line	New Center St Comm	212,859	59,093			
548	Electric General	NE Hereford to New Center St. 115 kV Line	NE Hereford Comm	312,659	86,790			
549	Electric General	NE Hereford to New Center St. 115 kV Line Total		525,518	145,883	This project constructed a new 115-kV line from Northeast Hereford Interchange to a new distribution substation named New Center St. (La Plata) to allow the 69-kV substation to be removed from the 65-kV Hereford Loop. This allowed the Hereford Interchange and the Northeast Hereford Interchange 115/69-kV transformers to stay under their ratings. This project was needed for system reliability. SPP issued SPS a NTC for this project.	SPP Base Plan	RE
550	Electric General	OPIE 1 North Loving (Hopi to Capano)	North Loving RTU - comm	76	21			
551	Electric General	OPIE 1 North Loving (Hopi to Capano)	Hopi Comm	1,312	364			
552	Electric General	OPIE 1 North Loving (Hopi to Capano) Total		1,388	385	This project constructed a 115-kV line from the Hopi Substation to the new North Loving Substation to serve additional loads and to provide increased network reliability. SPP issued SPS a NTC for this project.	SPP Base Plan	RE
553	Electric General	OPIE 1 Potash Junction	Potash Junct 115/69 Xfmr UpgrC	76	21			
554	Electric General	OPIE 1 Potash Junction Total		76	21	This project replaced the 40 MVA 115/69-kV transformers at Potash Junction with 84 MVA transformers. SPP issued SPS a NTC for this project.	SPP Base Plan	RE
555	Electric General	OPIE 2 China Draw-Wood Draw 115kV_PID 30825	Hopi Bkr Inst pecos Term Sub Comm	21,368	5,932			
556	Electric General	OPIE 2 China Draw-Wood Draw 115kV_PID 30825 Total		21,368	5,932	This project constructed a 115-kV line between China Draw and Wood Draw to loop the 115-kV transmission system. This line is south of Carlsbad, New Mexico. This project was needed for system reliability and SPP issued SPS a NTC for this project.	SPP Base Plan	RE
557	Electric General	OPIE 2 Livingston Ridge-Cardinal 115kV_PID 30695	L Ridge 115kV Sub Comm. UID 50	13,979	3,881			
558	Electric General	OPIE 2 Livingston Ridge-Cardinal 115kV_PID 30695	Sage Brush 115kV Sub Comm. UID	600	167			
559	Electric General	OPIE 2 Livingston Ridge-Cardinal 115kV_PID 30695	OPIE POTASH LIVINGSTON RIDGE RECOND	2,055	571			
560	Electric General	OPIE 2 Livingston Ridge-Cardinal 115kV_PID 30695 Total		16,634	4,618	This project upgraded the 69-kV bus to 115-kV at the Livingston Ridge Substation near Carlsbad, New Mexico, constructed the new Sage Brush Substation near Hobbs, New Mexico, constructed the new Cardinal Substation near Hobbs, New Mexico, and constructed a new 115-kV transmission line between the Livingston Ridge-Sage Brush, and Cardinal Substations. The project was identified by SPP in the High Priority Incremental Load Study (HPILS). SPP issued SPS a NTC for this project.	SPP Base Plan	RE
561	Electric General	OPIE 3 China Draw SVC	China Draw Sub Comm	737	205			
562	Electric General	OPIE 3 China Draw SVC Total		737	205	This project installed a 115-kV static VAR compensator (SVC) at the China Draw Substation near Carlsbad, New Mexico. The project was needed to address overloads and low voltage in the area. SPP issued SPS a NTC for this project.	SPP Base Plan	RE
563	Electric General	OPIE 3 Kiowa-China Draw 345kV_PID 30638	N Loving 345kV Sub Comm. UID 5	567,117	157,440			
564	Electric General	OPIE 3 Kiowa-China Draw 345kV_PID 30638	China Draw 345kV Sub Comm. UID	38,1692	105,963			
565	Electric General	OPIE 3 Kiowa-China Draw 345kV_PID 30638 Total		948,809	263,403	This project installed new 345/115-kV transformers at North Loving and China Draw substations. It also constructed a new 345-kV transmission line from Kiowa to North Loving to China Draw substation. The project was needed for reliability and SPP issued SPS a NTC for this project.	SPP Base Plan	RE
566	Electric General	OPIE Enterprise S Eddy Tap	W39 Inst Switch for Enterprise	71,768	19,924			
567	Electric General	OPIE Enterprise S Eddy Tap Total		71,768	19,924	This project connected a new 25 MW gas processing load on the Red Bluff to Wood Draw 115-kV line. This line is southeast of Carlsbad, New Mexico.	SPS Zonal	LI

Line No.	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)
	Asset Class	WBS Level 1 Project Group	WBS Level 2 Number	WBS Level 2 Description	Additions to Plant-in Service (April 1, 2018 - March 31, 2019)	Additions to Plant-in Service (April 1, 2018 - March 31, 2019)	WBS Level 1 Project Group Description	Cost Recovery	Project Category
568	Electric General	OPIE Hobbs-Kiowa 345kV_PID 30637	A.0000424.041	OPIE 2_Kiowa 345kV Sub Comms, U	62,076	227,879			
569	Electric General	OPIE Hobbs-Kiowa 345kV_PID 30637	A.0000424.041	OPIE 2_Kiowa 345kV Sub Comms, U	62,076	227,879			
570	Electric General	OPIE Hobbs-Kiowa 345kV_PID 30637 Total			(758,755)	(210,641)	This project installed new 345/115-kV transformers at the Hobbs Generating Plant and Kiowa interchanges. It also constructed a new 345-kV transmission line between Hobbs Generating Plant and Kiowa substations. The project was needed for reliability and SPP issued SPS a NTC for this project.	SPP Base Plan	RE
571	Electric General	OPIE Reconductor_PCA-Qualaba	A.0000424.221	PCA Communication	33,396	9,271			
572	Electric General	OPIE Reconductor_PCA-Qualaba	A.0000424.222	Qualaba Communication	45,354	12,591			
573	Electric General	OPIE Reconductor_PCA-Qualaba Total			78,750	21,862	This project wrecked out and rebuilt the 115-kV line between the PCA and Qualaba substations near Carlsbad, New Mexico. This project was needed to address overloads in the area. SPP issued SPS a NTC for this project.	SPP Base Plan	RE
574	Electric General	OPIE Roadrunner to Agave Ochoa 115 Lines	A.0000488.005	OCHOA Comm	92,896	25,789			
575	Electric General	OPIE Roadrunner to Agave Ochoa 115 Lines Total			92,896	25,789	This project constructed a new 115-kV line from Roadrunner substation to Agave #2 (customer-owned substation). SPP issued SPS a NTC for this project.	SPP Base Plan	RE
576	Electric General	Physical Security	A.0000710.007	NM Physical Security Comm	132,175	36,694			
577	Electric General	Physical Security	A.0000710.008	SPS Physical Security Comm	951,094	264,035			
578	Electric General	Physical Security Total			1,083,269	300,729	This project installed Physical Security Upgrades affecting SPS substation protection with specific work varying by substation location, current layout, and threat history. Typical security measures included the installation of equipment such as cameras and motion sensors at substations.	SPS Zonal	OT
579	Electric General	Portales 115 kV Loop	A.0000203.001	Portales Interchange Sub. Comm	21,825	6,659			
580	Electric General	Portales 115 kV Loop Total			21,825	6,659	This project constructed a 115-kV loop around the City of Portales, New Mexico and converted the South Portales and Market Street substations to 115-kV to provide additional load serving capability and eliminate the overloads of the 115/69-kV transformers at Portales Interchange. SPP issues SPS a NTC for this project.	SPP Base Plan	RE
581	Electric General	Pringle 115 kV Breaker & One-Half	A.0000851.002	Pringle Substation Comm	25,223	7,002			
582	Electric General	Pringle 115 kV Breaker & One-Half Total			25,223	7,002	This project installed a new 115-kV bus and a new 115/34.5-kV transformer at the Pringle Substation. This work was needed to serve increased load in the area and to increase reliability. Pringle Substation is located north of Amarillo, TX.	SPS Zonal	SR/LI
583	Electric General	Puckett West Breaker Addition	A.0000574.007	Coulter Relay Mod. Sub. COMM	923	256			
584	Electric General	Puckett West Breaker Addition Total			923	256	This project installed two new 115-kV terminals and a new 500' transmission line tap at Puckett West Substation. This project increased the reliability of Puckett West Substation by making two transmission sources available to it. SPP issued SPS a NTC for this project.	SPP Base Plan/SPS Zonal	RE
585	Electric General	Roosevelt City 230 Bkr 1/2	A.0001353.001	Roosevelt Comm	140,839	39,699			
586	Electric General	Roosevelt City 230 Bkr 1/2 Total			140,839	39,699	The project re-configured the Roosevelt County Substation 230-kV bus to a double-bus, double breaker configuration to accommodate the addition of the Pleasant Hill 230-kV line terminal. The upgraded configuration improves reliability and mitigates long-term outages in the event of a breaker that fails to open.	SPS Zonal	RE
587	Electric General	RTU - EMS Upgrade - SPS	A.0000588.001	SPS RTU EMS Upgrade	53,949	14,977			
588	Electric General	RTU - EMS Upgrade - SPS	A.0000588.010	Grassland RTU Replacement	11,139	3,692			
589	Electric General	RTU - EMS Upgrade - SPS	A.0000588.011	Moore Co 115kV RTU Rplmt	766,987	212,927			
590	Electric General	RTU - EMS Upgrade - SPS Total			832,076	230,596	This project replaced remote terminal units ("RTUs") that were at the end of their useful service life.	SPS Zonal	OT
591	Electric General	S&E - SPS Sub	A.0000220.029	SPS NM SE Comm	1,731	481			
592	Electric General	S&E - SPS Sub	A.0000220.030	Amoco RTU Replacement	456,110	126,623			
593	Electric General	S&E - SPS Sub Total			457,841	127,103	These projects provided for the storm and emergency work orders that repaired substation facilities damaged by inclement weather and natural disasters.	SPS Zonal	SR
594	Electric General	Security Access Control System	A.0001118.006	Lock and Key System TX	1,418,821	393,885			
595	Electric General	Security Access Control System	A.0001118.007	Lock and Key System NM	481,955	133,297			
596	Electric General	Security Access Control System	A.0001118.009	Lock and Key System OK	17,284	4,798			
597	Electric General	Security Access Control System Total			1,916,039	532,481	This project replaced the existing standard locks on substation entry gates with locks that use an electronic key to restrict substation access to authorized personnel and to meet compliance requirements.	SPS Zonal	OT

Line No.	(A) Asset Class	(B) WBS Level 1 Project Group	(C) WBS Level 2 Number	(D) WBS Level 2 Description	(E) Additions to Plant-in Service (April 1, 2018 - March 31, 2019) Total Company	(F) Additions to Plant-in Service (April 1, 2018 - March 31, 2019) NM Retail	(G) WBS Level 1 Project Group Description	(H) Cost Recovery	(I) Project Category
598	Electric General	seminole ing 230/115kV xfmr #1 & #2 upgrades			79,541	22,082			
599		seminole ing 230/115kV xfmr #1 & #2 upgrades Total			79,541	22,082	This project replaced the two 230/115-kV transformers at Seminole Interchange with two 246/283 MVA units. This project was needed for regional reliability to address the overload of the Seminole 230/115-kV transformers for the outage of the parallel Seminole 230/115-kV transformer SPP issued SPS a NTC for this project.	SPS Base Plan	RE
600	Electric General	Sierra Substation (RIAC Conversion)			252,009	69,361			
601		Sierra Substation (RIAC Conversion) Total			252,009	69,361	This project constructed a new 115-kV distribution substation and the conversion of a 2 mile 69-kV transmission line to 115-kV operation. SPP issued SPS a NTC for this project.	SPS Base Plan	RE
602	Electric General	SPS CIP 5 Sub Networking	A.0000924.009	SPS CIP 5 Plant X Sta Comm	3,724				
603	Electric General	SPS CIP 5 Sub Networking	A.0000924.010	SPS CIP 5 Porter Co Comm	3,600				
604	Electric General	SPS CIP 5 Sub Networking	A.0000924.011	SPS CIP 5 RooseveltCoNM Comm	21,412	5,842			
605	Electric General	SPS CIP 5 Sub Networking	A.0000924.014	SPS CIP 5 Youkum Co Comm	1,646	457			
606		SPS CIP 5 Sub Networking Total			50,449	14,005	This project purchased and installed security and network equipment to meet the compliance requirements of NERC Standard CIP-005.	SPS Zonal	OT
607	Electric General	SPS Frame Relay	A.0000948.003	NM Frame Relay Comm	297,388	82,557			
608	Electric General	SPS Frame Relay	A.0000948.004	TX Frame Relay Comm	302,571	83,998			
609		SPS Frame Relay Total			599,951	166,555	These projects installed communications equipment for control and monitoring of the various substations upgraded with this project.	SPS Zonal	OT
610	Electric General	SPS Group 1 Switch Replacements	A.0000153.003	SPS Trans Switch Comm	83,308	23,127			
611		SPS Group 1 Switch Replacements Total			83,308	23,127	These projects replaced old high-maintenance or broken switches with new switches.	SPS Zonal	SR
612	Electric General	SPS Sub Communication Network Group 1	A.0000795.003	SPS Sub Comm Network Group 1 C	163,179	45,301			
613		SPS Sub Communication Network Group 1 Total			163,179	45,301	These projects provided for the construction of a fiber optics communication infrastructure within the SPS region. The first leg of a multi-year effort will start in the Amarillo area by installing Optical Ground Wire ("OPGW") in the state position on selected transmission lines to create a redundant fiber optic communication ring with access to the Amarillo Transmission Operations Center. This ring provides redundant protection paths for the line sections on which the OPGW is installed as well as provides redundant paths for the Supervisory Control And Data Acquisition ("SCADA") system for this project.	SPS Zonal	OT
614	Electric General	SPS Walkemeyer 345 115 280 MVA SUB	A.0001310.008	Walkemeyer 345/115 Sub Comm	217,960	60,509			
615		SPS Walkemeyer 345 115 280 MVA SUB Total			217,960	60,509	This project constructed the new Carpenter Switching Station (formerly Stevens County) which is located on the 345-kV line from Hitchland Interchange to Finney Switching Station. This project was needed to address low voltages in the area. SPP issued SPS a NTC for this project.	SPS Base Plan	RE
616	Electric General	STEP Newhart Interchange	A.0000421.052	Swisher Sub. Communications	(22,846)	(6,342)			
617		STEP Newhart Interchange Total			(22,846)	(6,342)	This project constructed a new 230/115-kV interchange and substation with associated 115-kV transmission lines near Hart, Texas. The project upgraded the transmission system in this area and relieved high transmission loadings on the central part of the SPS transmission system in Castro, Panmer, Swisher, Bailey, Lamb and Hale counties. SPP issued SPS a NTC for this project.	SPS Base Plan	RE
618	Electric General	T01 Tap TCEC Unit Petroleum	A.0000854.003	Install Switch and Tap Comm	80,896	22,458			
619		T01 Tap TCEC Unit Petroleum Total			80,896	22,458	This project connected a new distribution substation for Tri-County Electric Cooperative on the 115-kV line between the Texas County Substation and the Cole Substation.	SPS Zonal	LI
620	Electric General	Tools - Engineering	A.0006059.436	SPS Ops Engineering Tools	59,245	16,417			
621		Tools - Engineering Total			59,245	16,417	This project purchased capital tools for engineering purposes, such as relays and test equipment for commissioning laboratories.	SPS Zonal	OT
622	Electric General	Tools COM Substation	A.0006059.063	SPS Sub Comm Tool Blanket	377,140	104,700			
623	Electric General	Tools COM Substation	A.0006059.437	SPS COM Tools (BU 8371)	34,545	9,500			
624		Tools COM Substation Total			411,685	114,200	These projects purchased capital tools for construction and maintenance activities.	SPS Zonal	OT
625	Electric General	Tools Line Field Ops	A.0006059.432	Tool Blanket TX Line	108,292	30,063			
626	Electric General	Tools Line Field Ops	A.0006059.499	EPZ Mats TX	185,713	51,557			
627	Electric General	Tools Line Field Ops	A.0006059.500	EPZ Mats NM	190,062	52,764			
628		Tools Line Field Ops Total			484,067	134,384	This project purchased capital tools for the construction of capital projects.	SPS Zonal	OT

Southwestern Public Service Company
Transmission Capital Additions
April 1, 2018 through March 31, 2019

Line No.	(A) Asset Class	(B) WBS Level 1 Project Group	(C) WBS Level 2 Number	(D) WBS Level 2 Description	(E) Additions to Plant-in Service (April 1, 2018 - March 31, 2019) Total Company	(F) Additions to Plant-in Service (April 1, 2018 - March 31, 2019) NM Retail	(G) WBS Level 1 Project Group Description	(H) Cost Recovery	(I) Project Category
629	Electric General	Tools System Protection Comm Eng	A.0006059.081	Tools Sys Protection Comm Eng	9,332	2,391	This project purchased the equipment panels for the Substation Design, Substation Communications, and System Protection Engineering Lab. These equipment panels have been used to mount the protective relaying, communication relaying, power supplies, and metering equipment used in the lab. These panels and equipment are being used for research and development of advanced communication and protection relaying schemes as well as for event analysis and troubleshooting of field situations that require engineering support.	SPS Zonal	OT
630		Tools System Protection Comm Eng Total			9,332	2,391			
631	Electric General	Tools, Training Center	A.0006059.434	SPS Training Center Tools	18,804	5,220	This project purchased capital tools to construct capital projects and capital tools to be used in the training center.	SPS Zonal	OT
632		Tools, Training Center Total			18,804	5,220			
633	Electric General	TPL BFR V31 Hutchinson to Riverview	A.0000552.003	TPL BFR V31 Riverview Comm	119	33	This project installed breaker failure relays on the terminals of line V31 which runs between Hutchinson and Riverview substations.	SPS Zonal	RE
634		TPL BFR V31 Hutchinson to Riverview Total			119	33			
635	Electric General	Transportation - SPS	11302945	Fleet New Units 2011 El Tran, SPS	65	18			
636	Electric General	Transportation - SPS	A.0006056.223	Fleet New Units El Trans NM	36,470	10,125			
637	Electric General	Transportation - SPS	A.0006056.224	Fleet New Unit El Trans TX	2,556,508	709,723			
638		Transportation - SPS Total			2,593,044	719,866	These projects purchased fleet vehicles for operation in the SPS area. The vehicles included automobiles, trucks, heavy vehicles such as bucket trucks, high-reach bucket trucks, hole-diggers, and trailers. Without these vehicles, crews would not have access to a predictable and reliable method of transport nor have the necessary equipment to perform needed transmission construction work.	SPS Zonal	OT
639	Electric General	Unserviceable - Breakers - SPS	A.0000589.009	Taco 115 House RTU Replacement Comm	6,509	1,807	This project replaced circuit breakers that failed tests and were not performing correctly. It also replaced breakers which had become under-rated due to transmission or generation additions.	SPS Zonal	SR
640		Unserviceable - Breakers - SPS Total			6,509	1,807			
641	Electric General	Waits Higg Comm Upgrade	A.0002048.003	Higg Inst New SCADA Radio Comm	969	269	This project installed Supervisory Control And Data Acquisition ("SCADA") radios for communications with the respective remote terminal units ("RTUs") in the substations. The RTUs provide data to the system control center for transmission operations.	SPS Zonal	OT
642		Waits Higg Comm Upgrade Total			969	269			
643	Electric General	Yokum 115kV BFR	A.0000658.006	Terry Co Comm	114,109	31,578			
644	Electric General	Yokum 115kV BFR	A.0000658.007	Seagraves Comm	147,238	40,904			
645		Yokum 115kV BFR Total			261,347	72,482	This project installed Breaker Failure Relay (BFR) protection on all the 115-kV breakers at Yokum Co. Interchange. Installing BFR protection reduces the clearing time of the fault during a stuck breaker event, which has been determined to cause major generation and transmission system impacts for certain breaker failure events.	SPS Zonal	RE
646	Electric General	Yokum 230kv Bus Rebuild	A.0000352.016	Yokum 230kV Bus Rebuild, Commu	(31,394)	(87,155)	This project converted the 230-kV bus at Yokum County Interchange from a straight configuration to a breaker and one-half configuration to satisfy reliability standards. SPP issued SPS a NTC for this project.	SPS Zonal	RE
647		Yokum 230kv Bus Rebuild Total			(31,394)	(87,155)			
648	Electric General	Z26 Bailey Co South Switch 69kV	A.0000905.002	Install Switch and Tap Comm	22,101	6,136	This project installed a new 69-kV three-way switch adjacent to Bailey County Electric Cooperative's South Bailey Metering Station to provide service as a delivery point. This delivery point location is near Muleshoe, Texas.	SPS Zonal	L.I
649		Z26 Bailey Co South Switch 69kV Total			22,101	6,136			
650		Electric General Asset Class Total			\$ 12,879,556	\$ 3,575,548			
651		Grand Total Asset Class Total			\$ 289,652,406	\$ 56,083,543			

Southwestern Public Service Company
Risk Assessment Categories

Risk Assessment Categories

Risk Level*	Category	Non-Discretionary, Pending Contractual, or Prioritized
1	DD – Distribution Driven projects high risk	Prioritized
1	DDL – Distribution Driven projects low risk	Prioritized
1	DDM – Distribution Driven projects medium risk	Prioritized
2	RT – Reliability Transmission projects not involving load shed	Prioritized
2	RTE 1 – Phase 1 Regional Transmission Expansion	Prioritized
3	LS - Reliability projects that require Load Shed	Prioritized
4	TRS - Transmission projects with high Regulatory Scrutiny	Prioritized
5	RC - Reliability projects that are over 60% Complete	Non-Discretionary
6	DDH - Distribution Driven projects Highly likely to be funded	Pending Contractual
7	IA – Interconnection Agreement Tariff Funding	Pending Contractual
7	PL – Pending Legal Agreements (IA, T-T or T-D) ¹	Pending Contractual
7	RTE 2 – Phase 2 Regional Transmission	Pending Contractual
8	RM – Regulatory Mandated, legislative order, CON filed or Granted, ERO Compliance Requirements ²	Non-Discretionary
8	RTE 3 – Phase 3 Regional Transmission Expansion	Non-Discretionary
9	LIA – Executed Load Interconnection Agreements	Non-Discretionary
9	NUGIA – Executed Non-Utility Generator Interconnection Agreements	Non-Discretionary
9	MC – Mandatory Compliance	Non-Discretionary
9	TS – Executed Transmission Service requests	Non-Discretionary
10	Outage – Broken or imminent failure	Non-Discretionary

*Risk Level (1= minimal risk; 10= high risk)

¹ T-T: transmission to transmission, T-D: transmission to distribution

² CON: certificate of need, ERO: Electric Reliability Organization

Southwestern Public Service Company

Cost Estimate Summary

Estimate Name	Scoping Estimate	Appropriation Estimate	Engineering Estimate	Cost at Completion
Accuracy Target	± 30%	± 20%	± 10%	± 0%
Permitting & Field Siting	0% to 5% complete	60% to 80% complete	80% to 100% complete	100% complete
Land Acquisition	0% to 5% complete	5% to 25% complete	80% to 100% complete	100% complete
Engineering	0% to 5% complete	5% to 25% complete	75% to 100% complete	100% complete
Remaining Unknowns	- Commission final need / route permit order specifics - Acquisition of land rights - Project design specifications & scope - Material costs & lead times - Construction schedule & cost	- Acquisition of land rights cost - Material costs & lead times - Construction schedule & cost	Construction cost (weather, access, field conditions, etc.)	

Southwestern Public Service Company
Transmission Capital Additions
April 1, 2019 through August 31, 2019

(A)		(B)	(C)	(D)	(E)	(F)
Line No.	Asset Class	Witness	Project Category	WBS Level 1 Project Group	Additions to Plant-in-Service (April 1, 2019 - August 31, 2019) Total Company	Additions to Plant-in-Service (April 1, 2019 - August 31, 2019) NM Retail
1	Electric Transmission	Cooley	RE	OPIE TUCO-Hobbs 345kV_PID 30376	\$ 83,756,102	\$ 17,127,448
2	Electric Transmission	Cooley	RE	Mustang-Shell CO2 115kV Line	17,985,296	3,677,848
3	Electric Transmission	Cooley	RE	Ink Basin Substation	12,483,101	2,552,694
4	Electric Transmission	Cooley	LI	Interconnection Milwaukee	8,338,507	1,705,157
5	Electric Transmission	Cooley	RE	Yoakum Intg. 230/115 Transformer Upgrades	3,290,948	672,972
6	Electric Transmission	Cooley	RE	W77 T75 Reconnector Arrowhead to Randall	3,870,272	791,439
7	Electric Transmission	Cooley	RE	seminole intg 230/115kV xfmr #1 & #2 upgrades	2,539,746	519,358
8	Electric Transmission	Cooley	GI	Tuco Intg 345/230kV Auto #1 upgrade	2,203,625	450,624
9	Electric Transmission	Cooley	RE	OPIE 2 China Draw-Yeso Hills 115kV_PID 30675	3,401,174	695,513
10	Electric Transmission	Cooley	RE	Lynn Co. 115/69 Xfmr #1 Upgrade	2,474,529	506,021
11	Electric Transmission	Cooley	SR	S&E - SPS Line	7,043,855	1,440,412
12	Electric Transmission	Cooley	SR	Line ELR SPS	4,013,726	820,775
13	Electric Transmission	Cooley	SR	SPS Line Capacity	1,377,988	281,788
14	Electric Transmission	Cooley	LI	Hillside - 2nd DCP 28MVA XFMR	1,379,217	282,039
15	Electric Transmission	Cooley	GI	Gen 2014 047 New 345kV Term at Crossroads	1,620	331
16	Electric Transmission	Cooley	RE	Eddy County Dbl Bus Dbl Brkr 230kV	688,975	140,890
17	Electric Transmission	Cooley	GI	GEN 2013 027 Blue Cloud Wind	668,313	136,665
18	Electric Transmission	Cooley	GI/LI	IA Tariff Fund	612,321	125,215
19	Electric Transmission	Cooley	SR	ELR - Relay - SPS	1,726,692	353,095
20	Electric Transmission	Cooley	RE	NERC TPL Relay Improvements	548,367	112,137
21	Electric Transmission	Cooley	SR	S&E - SPS Sub	875,145	178,960
22	Electric Transmission	Cooley	GI	Cochran Plains Line Ratings	513,659	105,039
23	Electric Transmission	Cooley	RE	K32 Terminal Upgrades Potter & Harrington	885,965	181,173
24	Electric Transmission	Cooley	RE	OPIE 2 Kiowa-Eddy Co 345kV	892,887	182,588
25	Electric Transmission	Cooley	GI	GEN-2015-014 Lost Draw Substation	380,088	77,725
26	Electric Transmission	Cooley	GI	Gen Upgrade Tolk X Reconnector	380,458	77,801
27	Electric Transmission	Cooley	OT	Fault Recorders - SPS	351,389	71,856
28	Electric Transmission	Cooley	LI	Chevron South Eddy Fields Load Addition	344,327	70,412
29	Electric Transmission	Cooley	OT	Physical Security	341,529	69,840
30	Electric Transmission	Cooley	RE	SPS Facility Rating Mitigation	469,332	95,975
31	Electric Transmission	Cooley	RE	Z66 Booker/Wade Conversion	354,660	72,525
32	Electric Transmission	Cooley	RE	TUCO S 230 115 Xfmr Upgrade	209,737	42,889
33	Electric Transmission	Cooley	SR	Unserviceable - Relays - SPS	206,434	42,214
34	Electric Transmission	Cooley	RE/LI	OPIE 3 Roadrunner-China Draw 345kV	387,000	79,138
35	Electric Transmission	Cooley	SR	SPS Major Line Refurbishment	191,509	39,162
36	Electric Transmission	Cooley	RE	Mustang - Seminole 115kV Ckt1 New Line	194,071	39,686
37	Electric Transmission	Cooley	RE	OPIE Potash-Livingston Ridge Recond	220,722	45,136

**Southwestern Public Service Company
Transmission Capital Additions
April 1, 2019 through August 31, 2019**

(A)		(B)	(C)	(D)	(E)	(F)
Line No.	Asset Class	Witness	Project Category	WBS Level 1 Project Group	Additions to Plant-in-Service (April 1, 2019 - August 31, 2019) Total Company	Additions to Plant-in-Service (April 1, 2019 - August 31, 2019) NM Retail
38	Electric Transmission	Cooley	LI	Interconnection XTO Mahoney	274,474	56,128
39	Electric Transmission	Cooley	RE	Sierra Substation (RIAC Conversion)	126,296	25,826
40	Electric Transmission	Cooley	RE	Lubbock S.-Allen Terminal Upgrades	233,494	47,748
41	Electric Transmission	Cooley	RE	Tierra Blanca 115kV Substation	118,000	24,130
42	Electric Transmission	Cooley	RE	NEF Targa Reconductor	175,149	35,817
43	Electric Transmission	Cooley	RE	W26 Reconductor Cunningham-Monument Tap	100,000	20,449
44	Electric Transmission	Cooley	LI	OPIE 3 Malaga Bend	163,574	33,449
45	Electric Transmission	Cooley	SR	SPS Group 1 Switch Replacements	95,101	19,447
46	Electric Transmission	Cooley	RE	W77 Canyon East Tap to Arrowhead	91,834	18,779
47	Electric Transmission	Cooley	RE	Deaf Smith 230kV Breaker Add	75,853	15,511
48	Electric Transmission	Cooley	LI	Interconnection Kemp GSEC RBEC	64,220	13,132
49	Electric Transmission	Cooley	RE	Soncy Dist. Transformer Conv.	64,194	13,127
50	Electric Transmission	Cooley	SR	ELR - Breakers - SPS	59,365	12,140
51	Electric Transmission	Cooley	RE	Roswell Loop	56,162	11,485
52	Electric Transmission	Cooley	LI	DCP - White Deer Sub	49,684	10,160
53	Electric Transmission	Cooley	SR	Facility Upgrade Ancillary Equip	89,449	18,292
54	Electric Transmission	Cooley	RE	Plainview City Sub Removal	42,047	8,598
55	Electric Transmission	Cooley	LI	Western St Sub (TAM)	35,000	7,157
56	Electric Transmission	Cooley	RE	OPIE 2 Kiowa-Road Runner 345kV Conv_PID 30639	29,141	5,959
57	Electric Transmission	Cooley	OT	SPS Sub Communication Network Group 2	22,733	4,649
58	Electric Transmission	Cooley	RE	W40 Reconductor Canyon West-Deaf Smith	19,973	4,084
59	Electric Transmission	Cooley	GI	GEN 2010-14 Novus Wind IV, 358.8 MW	18,000	3,681
60	Electric Transmission	Cooley	RE	Carlisle to Wolforth	20,492	4,190
61	Electric Transmission	Cooley	RE	Atoka-Eagle Creek	16,219	3,317
62	Electric Transmission	Cooley	OT	Agreement Lighthouse Bill of Sale	13,953	2,853
63	Electric Transmission	Cooley	GI	GEN 2012-020 Hale Co Wind. 478MW	11,000	2,249
64	Electric Transmission	Cooley	RE	sundown-amoco switch 230kV terminals	6,690	1,368
65	Electric Transmission	Cooley	RE	NE Hereford to New Center St. 115 kV Line	5,636	1,152
66	Electric Transmission	Cooley	RE/LI	OPIE 2 DCP Zia 2 Quahada Project	4,151	849
67	Electric Transmission	Cooley	OT	SPS Asset Sales	2,217	453
68	Electric Transmission	Cooley	RE	W26 Byrd Tap-Cooper Reconductor	2,000	409
69	Electric Transmission	Cooley	RE	W-26 Cooper Ranch-Oil Ctr wreck out rebuild	2,000	409
70	Electric Transmission	Cooley	RE	Osage Re-termination Project	1,601	327
71	Electric Transmission	Cooley	RE	OPIE 3 Kiowa-China Draw 345kV_PID 30638	(18,410)	(3,765)
72	Electric Transmission	Cooley	RE	OPIE Reconductor_PCA-Quahada	891	182
73	Electric Transmission	Cooley	RE	OPIE 3 Ponderosa-Custer Mt115kV_PID 30694	564	115
74	Electric Transmission	Cooley	RE	W27 Oil Center-Lea Road Reconductor	500	102

Southwestern Public Service Company
Transmission Capital Additions
April 1, 2019 through August 31, 2019

(A)		(B)	(C)	(D)	(E)	(F)
Line No.	Asset Class	Witness	Project Category	WBS Level 1 Project Group	Additions to Plant-in-Service (April 1, 2019 - August 31, 2019) Total Company	Additions to Plant-in-Service (April 1, 2019 - August 31, 2019) NM Retail
75	Electric Transmission	Cooley	EC/TI	TUCO Mooreland (Woodward)	466	95
76	Electric Transmission	Cooley	RE	OPIE 1 Road Runner (Interc Potash Conn)	76	16
77	Electric Transmission	Cooley	RE	STEP Newhart Interchange	51	10
78	Electric Transmission	Cooley	RE	Curry to Bailey 115kV	31	6
79	Electric Transmission	Cooley	RE	OPIE 2 Livingston Ridge-Cardinal 115kV_PID 30695	26	5
80	Electric Transmission	Cooley	GI	GEN 2011-022 (Firewheel)	20	4
81	Electric Transmission	Cooley	SR	CVA Mitigation	10	2
82	Electric Transmission	Cooley	RE	Eddy Co Breakers	(232)	(47)
83	Electric Transmission	Cooley	OT	SPS Sub Communication Network Group 1	(2,415)	(494)
84	Electric Transmission	Cooley	LI	Interconnection XTO Poker Cowboy Phase 1	(2,593)	(530)
85	Electric Transmission	Cooley	RE	OPIE 2 China Draw	(3,503)	(716)
86	Electric Transmission	Cooley	EC/TI	Hitchland to Woodward	(10,811)	(2,211)
87	Electric Transmission	Cooley	RE	OPIE Hobbs-Kiowa 345kV_PID 30637	(13,933)	(2,849)
88	Electric Transmission	Cooley	RE	Amarillo West Upgrade	(14,080)	(2,879)
89	Electric Transmission	Cooley	LI	RB - Purnell Sub	(140,065)	(28,642)
90	Electric Transmission	Cooley	LI	OPIE 3 Roadrunner 115/25kV Expansion	2,812,804	575,196
91	Electric Transmission Total				\$ 170,302,386	\$ 34,825,466
92	Electric General	Cooley	LI	RB - Purnell Sub	\$ 1,789,523	\$ 496,797
93	Electric General	Cooley	OT	Transportation - SPS	991,872	275,358
94	Electric General	Cooley	OT	Physical Security	468,287	130,003
95	Electric General	Cooley	OT	Security Access Control System	497,399	138,085
96	Electric General	Cooley	RE	Ink Basin Substation	311,381	86,444
97	Electric General	Cooley	SR	Facility Upgrade Ancillary Equip	283,006	78,566
98	Electric General	Cooley	RE	Mustang-Shell CO2 115kV Line	301,326	83,652
99	Electric General	Cooley	LI	Interconnection Milwaukee	406,057	112,727
100	Electric General	Cooley	OT	Tools COM Substation	321,569	89,272
101	Electric General	Cooley	RE	Deaf Smith 230kV Breaker Add	282,621	78,460
102	Electric General	Cooley	SR	ELR - Relay - SPS	126,186	35,031
103	Electric General	Cooley	RE	Eddy County Dbl Bus Dbl Brkr 230kV	99,108	27,514
104	Electric General	Cooley	RE	Lynn Co. 115/69 Xfmr #1 Upgrade	93,103	25,847
105	Electric General	Cooley	RE	GSEC GB NP Howard-Miami	91,200	25,318
106	Electric General	Cooley	RE	SPS Walkemeyer 345 115 280 MVA SUB	72,740	20,194
107	Electric General	Cooley	LI	Interconnection XTO Mahoney	50,000	13,881
108	Electric General	Cooley	SR	SPS Group 1 Switch Replacements	45,588	12,656
109	Electric General	Cooley	OT	Tools, Training Center	97,571	27,087
110	Electric General	Cooley	RE	OPIE 2 Kiowa-Road Runner 345kV Conv_PID 30639	38,870	10,791

Southwestern Public Service Company
Transmission Capital Additions
April 1, 2019 through August 31, 2019

(A)	(B)	(C)	(D)	(E)	(F)
Line No.	Asset Class	Witness	Project Category	Additions to Plant-in-Service (April 1, 2019 - August 31, 2019) Total Company	Additions to Plant-in-Service (April 1, 2019 - August 31, 2019) NM Retail
111	Electric General	Cooley	OT	Tools Line Field Ops	64,163
112	Electric General	Cooley	OT	SPS Checkpoint Firewalls	199,186
113	Electric General	Cooley	OT	RTU - EMS Upgrade - SPS	30,000
114	Electric General	Cooley	OT	Tools - Engineering	29,832
115	Electric General	Cooley	SR	S&E - SPS Sub	24,445
116	Electric General	Cooley	RE	OPIE TUCO-Hobbs 345kV_PID 30376	22,195
117	Electric General	Cooley	LI	Chevron South Eddy Fields Load Addition	17,320
118	Electric General	Cooley	OT	Tools System Protection Comm Eng	15,710
119	Electric General	Cooley	RE	seminole intg 230/115kV xfmr #1 & #2 upgrades	4,006
120	Electric General	Cooley	OT	Tools STAC	2,858
121	Electric General	Cooley	OT	General Furniture	58
122	Electric General	Cooley	RE	OPIE 3 Kiowa-China Draw 345kV_PID 30638	23
123	Electric General Total			\$ 6,777,203	\$ 1,881,448
124	Grand Total			\$ 177,079,589	\$ 36,706,914

Southwestern Public Service Company

Total Company SPS Operation and Maintenance Expenses

Line No.	FERC Acct	Account Description	SPS Total Company O&M Expense - Adjusted Test Year Period	SPS NM Retail O&M Expense - Adjusted Test Year Period
Production				
1	500	Operation Supervision and Engineering	\$ 2,268,554	\$ 627,965
2	501.35	Coal Non-Mine; Non-Freight	36,822,078	10,563,515
3	507.70	Coal Ash Sales	(638,126)	(183,066)
4	502	Steam Expenses	10,999,173	3,044,713
5	505	Electric Expenses	9,804,750	2,714,081
6	506	Miscellaneous Steam Power Expenses	12,308,638	3,407,190
7	507	Rents	6,346,153	1,756,697
8	509	Steam Operation SO2 Allowance Expense	159,720	69,444
9	510	Maintenance Supervision and Engineering	1,487,576	411,780
10	511	Maintenance of Structures	5,165,862	1,429,977
11	512	Maintenance of Boiler Plant	17,498,911	5,020,086
12	513	Maintenance of Electric Plant	12,292,355	3,526,430
13	514	Maintenance of Miscellaneous Steam Plant	11,085,594	3,068,636
14	546	Operation Supervision and Engineering	20,803	5,759
15	548	Generation Expenses	607,534	168,173
16	549	Misc Other Power Generation Expenses	4,229,813	1,209,556
17	550	Rents	509,638	141,074
18	551	Maintenance Supervision and Engineering	215,299	59,598
19	552	Maintenance of Structures	396,710	109,815
20	553	Maintenance of Generating and Electric Equipment	5,156,506	1,466,076
21	554	Maintenance of Misc Other Power Generation Plant	303,609	84,043
22	556.0	System Control and Load Dispatching	1,086,063	300,636
23	557	Purchased Power Other	1,649,520	476,935
24	Total Production O&M Expense		\$ 139,776,736	\$ 39,479,115

Southwestern Public Service Company

Total Company SPS Operation and Maintenance Expenses

Line No.	FERC Acct	Account Description	SPS Total Company O&M Expense - Adjusted Test Year Period	SPS NM Retail O&M Expense - Adjusted Test Year Period
Transmission				
25	560	Operation Supervision and Engineering	\$ 9,782,898	\$ 2,049,023
26	561.1	Load Dispatch - Reliability	231,641	47,369
27	561.2	Load Dispatch - Monitor and Operate Trans. System	3,248,302	664,252
28	561.4	Scheduling, System Control and Dispatching Services	4,043,263	989,084
29	561.5	Reliability, Planning and Standards Development	31	6
30	561.6	Transmission Service Studies	66,498	13,598
31	561.7	Generation Interconnection Studies	(55,916)	(11,434)
32	561.8	Reliability Planning and Standards Development Services	3,190,183	875,170
33	562	Station Expenses	1,936,338	405,565
34	563	Overhead Line Expenses	834,686	174,825
35	564	Underground Line Expenses	-	-
36	565	Wheeling Lamar DC Tie	(420)	(116)
37	565	Wheeling Meter Charges	912,309	-
38	565	Wheeling Miscellaneous	31,117	6,363
39	565	Wheeling Schedule 12	1,833,497	588,980
40	565	Wheeling Schedule 12 - Wholesale	493,218	-
41	565	Wheeling Schedule 1 - Wholesale	762,783	-
42	565	Wheeling Schedule 2	4,678	1,503
43	565	W-Wheeling Schedule 2 - Wholesale	1,115	-
44	565	Wheeling Schedule 7&8	-	-
45	565	Wheeling Schedule 9	6,062,371	1,239,706
46	565	Wheeling Schedule 9 - Wholesale	25,175,406	-
47	565	565000S11T-Wheeling Schedule 11 - Total	135,171,319	33,009,456
48	565	565Z2DAUC - Z2 Direct Assigned Upgrade Charge	81,490	26,180
49	565	565Z2DAUCW - Z2 Direct Assigned Upgrade Charge - Wholesale	16,962	-
50	565	565Z2Sch11 - Z2 Schedule 11 Charges	(182,512)	(58,629)
51	565	565Z2Sch11W - Z2 Schedule 11 Charges - Wholesale	(4,093)	-
52	566	Misc Transmission Expenses	3,050,286	638,881
53	567	Rents	1,966,505	411,884
54	568	Maintenance Supervision and Engineering	8,520	1,784
55	570	Maintenance of Station Equipment	1,742,671	365,002
56	571	Maintenance of Overhead Lines	1,288,468	269,869
57	Sub-Total Total Transmission O&M Expenses		\$ 201,693,613	\$ 41,708,320
Regional Market Expenses				
58	575.1	Operation Supervision	\$ 158,137	\$ 45,366
59	575.2	Day-Ahead and Real-Time Market Administration	306,568	87,948
60	575.5	Ancillary Services Market Administration	24,516	7,033
61	575.6	Market Monitoring and Compliance	41,429	11,885
62	575.7	Market Admin, Monitoring, and Compliance Services	8,199,872	2,005,954
63	575.8	Regional Market Rents	51,609	14,806
64	Total Regional Market Expenses		\$ 8,782,132	\$ 2,172,993
65	Total Transmission O&M Expenses		\$ 210,475,744	\$ 43,881,313

Southwestern Public Service Company

Total Company SPS Operation and Maintenance Expenses

Line No.	FERC Acct	Account Description	SPS Total Company O&M Expense - Adjusted Test Year Period	SPS NM Retail O&M Expense - Adjusted Test Year Period
Distribution				
66	580	Operation Supervision and Engineering	\$ 3,163,274	\$ 1,111,790
67	581	Load Dispatching	313,310	111,864
68	582	Station Expenses	1,595,635	569,703
69	583	Overhead Line Expenses	3,666,655	1,454,447
70	584	Underground Line Expenses	145,869	50,477
71	585	Street Lighting and Signal Systems Expenses	154,975	55,332
72	586	Meter Expenses	3,381,132	1,205,442
73	587	Customer Installations Expenses	918,200	327,833
74	588	Misc Distribution Expense	13,631,759	3,709,454
75	589	Rents	2,595,221	799,926
76	590	Maintenance Supervision and Engineering	19,407	6,929
77	591	Maintenance of Structures	4,271	(2,928)
78	592	Maintenance of Station Equipment	789,883	282,019
79	593	Maintenance of Overhead Lines	7,027,707	2,463,915
80	594	Maintenance of Underground Lines	407,483	130,209
81	595	Maintenance of Line Transformers	346	346
82	596	Maintenance of Street Lighting and Signal Systems	637,197	242,783
83	597	Maintenance of Meters	13,267	4,737
84	598	Maintenance of Misc Distribution Plant	(240,996)	(158,415)
85	Total Distribution O&M Expenses		\$ 38,224,594	\$ 12,365,862
Customer Accounts				
86	901	Supervision	\$ 29,486	\$ 9,165
87	902	Meter Reading Expenses	4,784,352	1,487,047
88	903	Customer Records and Collection Expenses	6,947,307	2,159,325
89	904	Uncollectible Expenses	4,380,461	1,361,536
90	904	Uncollectible Expenses Misc	1,058,042	328,861
91	905	Customer Acct - Misc	-	-
92	DEPINT	Customer Deposit Interest Expense	151,110	34,508
93	Total Customer Accounts Expense		\$ 17,350,759	\$ 5,380,441
Customer Service				
94	908.00	Customer Asst Expense	\$ 2,113,147	\$ 656,797
95	908.00	Historical EE Amortization	388,237	-
96	908.04	SaversSwitch	855,119	-
97	909	Informational and Instructional Advertising Expense	600,478	186,641
98	910.00	Miscellaneous Customer Service Expense	17,088	5,311
99	Total Customer Service Expense		\$ 3,974,069	\$ 848,749

Southwestern Public Service Company

Total Company SPS Operation and Maintenance Expenses

Line No.	FERC Acct	Account Description	SPS Total Company O&M Expense - Adjusted Test Year Period	SPS NM Retail O&M Expense - Adjusted Test Year Period
Sales				
100	912.00	Demonstration and Selling Expense-Economic Development	\$ 260,978	\$ 81,116
101	Total Sales Expense		\$ 260,978	\$ 81,116
Administrative and General Expenses				
102	920	Administrative and General Salaries	\$ 28,862,730	\$ 8,012,705
103	921	Office Supplies and Expenses	19,880,024	5,518,978
104	922	Administrative Expenses Transferred-Credit	(17,541,474)	(4,869,763)
105	923	Outside Services Employed	10,024,264	2,782,878
106	924	Property Insurance	3,263,374	866,236
107	925	Injuries and Damages	6,582,771	1,827,471
108	926.00	Employee Pensions and Benefits	34,553,810	9,592,630
109	926.03	Deferred Pension Expense	(2,798,525)	-
110	928.01	Regulatory Commission Expense - NM	6,452,462	6,452,462
111	928.04	Regulatory Commission Expense - Misc	5,528,868	30,507
112	929	Duplicate Charges-Credit	(1,390,153)	(367,516)
113	930.2	Misc General Expenses	1,192,983	315,390
114	931	A&G Rents	12,941,448	3,752,019
115	935	Maintenance of General Plant	185,735	51,677
116		Recoverable Contributions, Dues, and Donations	228,213	228,213
117	Total Administrative and General Expenses		\$ 107,966,529	\$ 34,193,886
118	Total Operations and Maintenance Expense		\$ 518,029,409	\$ 136,230,481

Note: All amounts included in this attachment are included in the cost of service study provided as Attachment APF-6.



**TOLK GENERATORS
CHANGE OF OPERATION STUDY**

Transmission Planning South
Xcel Energy Services, Inc.

August 11, 2017

Executive Summary

Transmission Planning South has performed a system impact study for the limited operations of the Tolk 1 and 2 units only during the summer months. The purpose of this study is

- To determine the system impacts of not operating Tolk units during non-summer months i.e., light load (high wind) and winter peak scenario.
- To determine the benefits of converting existing units to synchronous condenser operation during the winter and spring periods.

The Tolk generators operating assumptions considered for this study are

- Between October, 2018 to May, 2019 operate both Tolk units at a partial capacity of 175MW
- Between October, 2019 to May, 2020 operate one Tolk unit at partial capacity of 175MW and other unit is shutdown
- Starting June 2020 operate both Tolk units only during the summer months

Both steady state and stability analysis were performed to study the system impact. Power flow analysis was performed on the 2012 and 2026 Light Load and Winter peak scenario 0 and 5 models representing the 2017 Southwest Power Pool (SPP) ITPNT Model Series. The stability analysis was performed on 2021 Light Load and Winter peak model representing the 2016 Southwest Power Pool (SPP) MDWG reduced Model Series. Also, to study the impact of high wind scenario a 2021 Light Load scenario 5 model was created with 100% firm wind output and no non-firm wind in the model.

NERC Planning Standard TPL-001-4 P1 single contingency (N-1) events and P3 multiple contingency (loss of generator followed by N-1 345kV and above transmission outage) events for facilities in SPS area were chosen for steady state contingency analysis and the NERC TPL-001-4 P1 events and P2 to P5 EHV events for facilities in SPS area were chosen for stability contingency analysis. NERC TPL-001-4 P1 and P2 to P5 EHV events were primarily chosen since non-consequential load loss or interruption of firm transmission service is not allowed. SPP analyzes the SPS system using many of the same disturbances.

The stability results showed unstable system conditions in 2021 Light Load Scenario 5 model for NERC TPL-001-4 P3 multiple contingency (loss of generator followed by N-1 transmission outage) events due to the high wind penetration and less fossil generation. Refer to [Section 4](#) for the stability analysis results.

The power flow results case showed voltage collapse issues in 2021 Light Load Scenario 5 and 2026 winter peak scenario 5 models for NERC TPL-001-4 P1 single contingency (N-1) and P3 multiple contingency (loss of generator followed by N-1 transmission outage) events due to their high wind penetration and less fossil generation. Refer to [Section 4](#) for the steady state analysis results.

This system impact study performed showed the need to convert one of the Tolk units to synchronous condenser operation immediately and later it is required to convert both the Tolk units to synchronous condenser operation by the mid-2020s to mitigate TPL-001-4 P3 multiple contingency (loss of generator followed by N-1) event issues.

It is also observed that there is a huge real power deficiency in the SPS area by mid 2020s causing severe steady state issues. Conversion of both the Tolk units to synchronous condenser operation alone cannot mitigate all the transmission system performance issues in later years. New generation installation will greatly improve system performance with real and reactive power capability with the changed operation of the Tolk units.

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1. Introduction

Transmission Planning South has performed a system impact study for the limited operations of the Tolk 1 and 2 units only during the summer months.

The generator operating assumptions considered for this study are

- Between October, 2018 to May, 2019 operate both Tolk units at a partial capacity of 175MW
- Between October, 2019 to May, 2020 operate one Tolk unit at partial capacity of 175MW and other unit is shutdown
- Starting June 2020 operate both Tolk units only during the summer months

The purpose of this study is

- To determine the system impacts of not operating Tolk units during non-summer months i.e., light load (high wind) and winter peak scenario.
- To determine the benefits of converting existing units to synchronous condenser operation during the winter and spring periods.

2. Study Methodology

This study was performed using the Power Technologies, Inc. ("PTI") Power System Simulator for Engineering (PSS/E) program version 33.7.0 and contains a steady-state analysis using AC Contingency Checking (ACCC) with a Fixed Slope Decoupled Newton–Raphson (FDNS) solution. The study was conducted to ensure that current NERC Planning Standards¹ are fulfilled. As an example, for system intact conditions, bus voltages must be maintained between 0.95 – 1.05 per unit of their nominal value and thermal system intact conditions must not exceed their designated A-rating. For contingencies, the voltages are allowed to deviate between 0.90 – 1.05 per-unit of their nominal value. Additionally, the loading on transmission system equipment cannot exceed 100% of the emergency B-rating.

The existing generators in the SPS area were re-dispatched and no additional or new generators were turned on to compensate for the generation deficiency in the system. The remaining generation was imported from the neighboring area into SPS area.

3. Study Assumptions²

Both steady state and stability analysis were performed to study the system impact. Power flow analysis was performed on the 2012 and 2026 Light Load and Winter peak scenario 0 and 5 models representing the 2017 Southwest Power Pool (SPP) ITPNT Model Series. The stability analysis was performed on 2021 Light Load and Winter peak model representing the 2016 Southwest Power Pool (SPP) MDWG reduced Model Series. Also, to study the impact of high wind scenario a 2021 Light Load scenario 5 model was created with 100% firm wind output and no non-firm wind in the model.

The Tolk generator's operating assumptions considered for this study are

- Between October, 2018 to May, 2019 operate both Tolk units at a partial capacity of 175MW
- Between October, 2019 to May, 2020 operate one Tolk unit at partial capacity of 175MW and other unit is shutdown

¹ Requirement for NERC TPL-001-4

² Requirement for FAC 002-R1.5

- Starting June 2020 operate both Tolk units only during the summer months

4. Results

NERC Planning Standard TPL-001-4 P1 single contingency (N-1) events and P3 multiple contingency (loss of generator followed by N-1 345kV and above transmission outage) events for facilities in SPS area were chosen for steady state contingency analysis and all the NERC TPL-001-4 P1 events and P2 to P5 EHV events for facilities in SPS area were chosen for stability contingency analysis. NERC TPL-001-4 P1 and P2 to P5 EHV events were primarily chosen since non-consequential load loss or interruption of firm transmission service is not allowed. SPP analyses the SPS system using many of the same disturbances.

Stability Analysis:

2021 Light Load scenario 5 case showed system instability for NERC TPL-001-4 P3 multiple contingency (loss of generator followed by N-1 345kV and above transmission outage) events due to the high wind penetration and less fossil generation. Below Table 1 shows the stability analysis results.

Table 1: Stability Analysis Results

Year	NERC TPL-001-4 event	Contingency 1	Contingency 2	Stability Analysis Results		Comments
				Tolk Unit1 and 2 OFF	Tolk unit 1 converted to Synchronous Condenser; Tolk unit 2 OFF	
2021L5	P3	Hobbs unit 1&3	Tuco to OKU 345kV (J01)	Unstable (Figure 1)	Stable	Loss of Hobbs 1 causes Hobbs 3 a steam unit to turn off (Hobbs 2 is already off in model)
2021L5	P3	Hobbs unit 1&3	Tuco to Border 345kV (J11)	Unstable (Figure 2)	Stable	
2021L5	P3	Hobbs unit 1&3	Crossroads to Eddy 345kV (J02)	Un-damped oscillations observed	Stable	
2021L5	P3	Hobbs unit 1&3	Tuco to Yoakum 345kV (J17)	Un-damped oscillations observed	Stable	
2021L5	P3	Hobbs unit 1&3	HOBBS to KIOWA (J20)	Un-damped oscillations observed	Stable	
2021L5	P3	Hobbs unit 1&3	HOBBS to YOAKUM (J18)	Un-damped oscillations observed	Stable	
2021L5	P3	Hobbs unit 3	Tuco to OKU 345kV (J01)	Un-damped oscillations observed	Stable	

Figures 1 and 2 to below show the stability plots for unstable events listed in the above Table 1. The plots show angular instability and system collapse for the loss of Hobbs unit 1 and 3 followed by Tuco to OKU 345kV (J01) line and Tuco to Border 345kV (J11) line respectively. Refer to [Appendix A](#) for the stability analysis result plots.

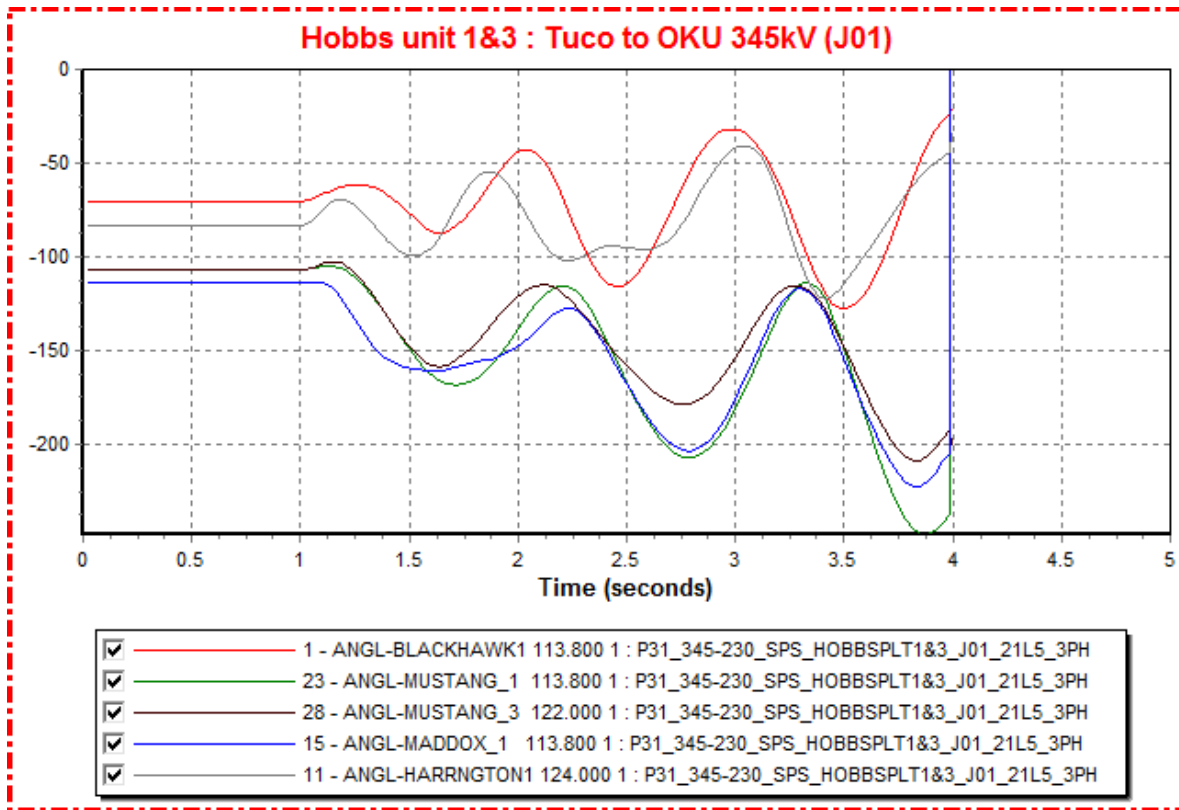


Figure 1: Angular plots for TPL-001-4 P3 event (Hobbs 1&3 followed by J01)

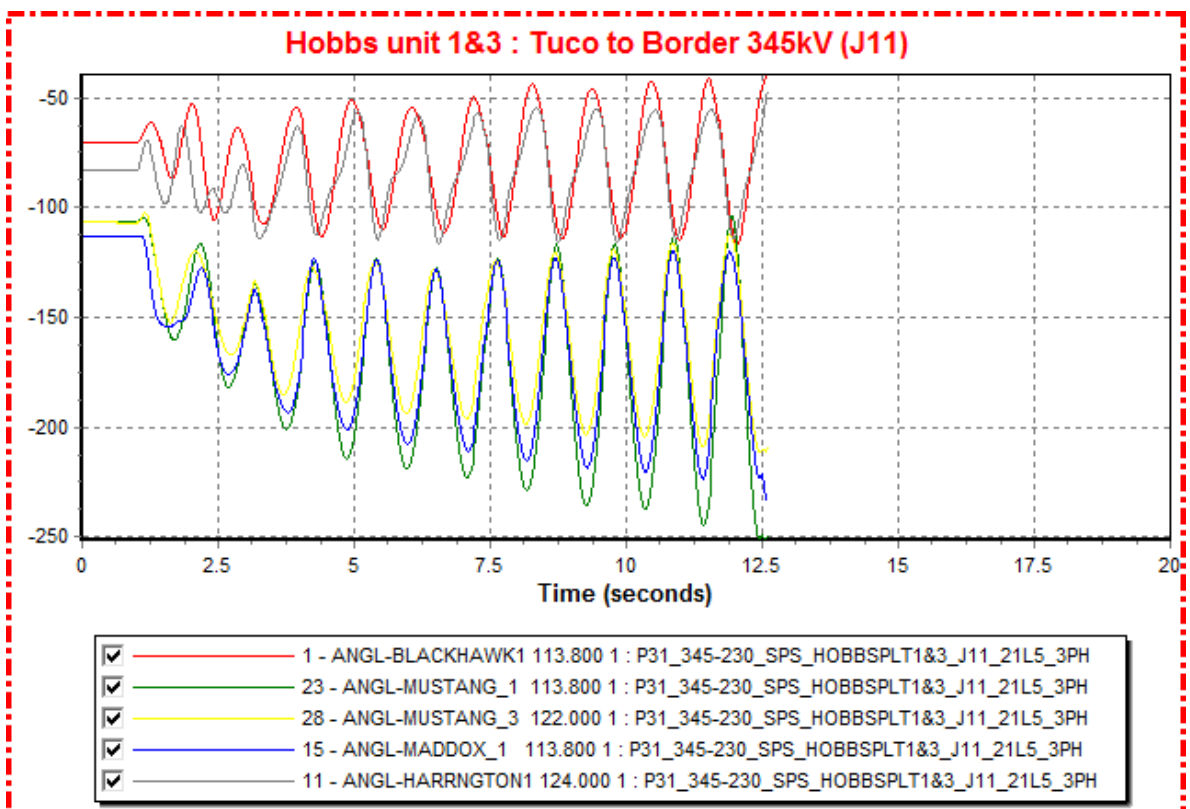


Figure 2: : Angular plots for TPL-001-4 P3 event (Hobbs 1&3 followed by J11)

Steady-State Analysis:

2021 Light Load scenario 5 case showed voltage collapse for NERC TPL-001-4 P3 multiple contingency (loss of generator followed by N-1) events due to the high wind penetration and less fossil generation. Below Table 2 shows the steady state analysis results for 2021 Light Load scenario 5 model.

Table 2: Steady state analysis results for 2021 Light Load scenario 5 model

Year	NERC TPL-001-4 event	Contingency 1	Contingency 2	Stability Analysis Results	
				Tolk Unit1 and 2 OFF	Tolk unit 1 converted to Synchronous Condenser; Tolk unit 2 OFF
2021L5	P3	Hobbs unit 3	Tuco to OKU 345kV (J01)	Solution diverges; voltage collapse	No voltage issues observed
2021L5	P3	Mustang unit 1	Tuco to Yoakum 345kV (J17)	Solution diverges; voltage collapse	No voltage issues observed

2026 winter peak scenario 5 cases showed voltage for NERC TPL-001-4 P1 single contingency (N-1) and P3 multiple contingency (loss of generator followed by N-1) events due to the high wind penetration and less fossil generation.

Below Table 3 shows the steady state analysis results for 2026 winter peak scenario 5 model.

Table 3: Steady state analysis results for 2026 Winter Peak scenario 5 model

Year	NERC TPL-001-4 event	Contingency 1	Contingency 2	Stability Analysis Results		
				Tolk Unit1 and 2 OFF	Tolk unit 1 converted to Synchronous Condenser; Tolk unit 2 OFF	Tolk unit 1 and 2 converted to Synchronous Condenser
2026W5	P3	523461 [BLACKHAWK1 113.800]	526331 [JONES_1 122.000]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	523461 [BLACKHAWK1 113.800]	526332 [JONES_2 122.000]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	523461 [BLACKHAWK1 113.800]	527903 [HOBBS_PLT3 118.000]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	523461 [BLACKHAWK1 113.800]	527655 [RSVLT_CC_E 7345.00]-527656 [CROSSROADS 7345.00] CKT 1	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	523461 [BLACKHAWK1 113.800]	525832 [TUCO_INT 7345.00]-511456 [O.K.U.-7 345.00] CKT 1	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	523462 [BLACKHAWK2 113.800]	526331 [JONES_1 122.000]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	523462 [BLACKHAWK2 113.800]	526332 [JONES_2 122.000]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	523462 [BLACKHAWK2 113.800]	527903 [HOBBS_PLT3 118.000]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	523462 [BLACKHAWK2 113.800]	527655 [RSVLT_CC_E 7345.00]-527656 [CROSSROADS 7345.00] CKT 1	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	523462 [BLACKHAWK2 113.800]	525832 [TUCO_INT 7345.00]-511456 [O.K.U.-7 345.00] CKT 1	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed

Year	NERC TPL-001-4 event	Contingency 1	Contingency 2	Stability Analysis Results		
				Tolk Unit1 and 2 OFF	Tolk unit 1 converted to Synchronous Condenser; Tolk unit 2 OFF	Tolk unit 1 and 2 converted to Synchronous Condenser
2026W5	P3	523971 [HARRNGTON1 124.000]	526331 [JONES_1 122.000]	Solution diverges; voltage collapse	Solution diverges; voltage collapse	No voltage issues observed
2026W5	P3	523971 [HARRNGTON1 124.000]	526332 [JONES_2 122.000]	Solution diverges; voltage collapse	Solution diverges; voltage collapse	No voltage issues observed
2026W5	P3	523971 [HARRNGTON1 124.000]	527163 [MUSTANG_3 122.000]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	523971 [HARRNGTON1 124.000]	527903 [HOBBS_PLT3 118.000]	Solution diverges; voltage collapse	Solution diverges; voltage collapse	No voltage issues observed
2026W5	P3	523971 [HARRNGTON1 124.000]	527654 [RSVLT_CC_W 7345.00]-527655 [RSVLT_CC_E 7345.00] CKT 1	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	523971 [HARRNGTON1 124.000]	527655 [RSVLT_CC_E 7345.00]-527656 [CROSSROADS 7345.00] CKT 1	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	523971 [HARRNGTON1 124.000]	525832 [TUCO_INT 7345.00]-511456 [O.K.U.-7 345.00] CKT 1	Solution diverges; voltage collapse	Solution diverges; voltage collapse	Solution diverges; voltage collapse
2026W5	P3	523971 [HARRNGTON1 124.000]	525832 [TUCO_INT 7345.00]-515458 [BORDER 7345.00] CKT 1	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	523972 [HARRNGTON2 124.000]	526331 [JONES_1 122.000]	Solution diverges; voltage collapse	Solution diverges; voltage collapse	No voltage issues observed
2026W5	P3	523972 [HARRNGTON2 124.000]	526332 [JONES_2 122.000]	Solution diverges; voltage collapse	Solution diverges; voltage collapse	No voltage issues observed
2026W5	P3	523972 [HARRNGTON2 124.000]	527161 [MUSTANG_1 113.800]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	523972 [HARRNGTON2 124.000]	527162 [MUSTANG_2 113.800]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	523972 [HARRNGTON2 124.000]	527163 [MUSTANG_3 122.000]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	523972 [HARRNGTON2 124.000]	527901 [HOBBS_PLT1 118.000]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	523972 [HARRNGTON2 124.000]	527902 [HOBBS_PLT2 118.000]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	523972 [HARRNGTON2 124.000]	527903 [HOBBS_PLT3 118.000]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	523972 [HARRNGTON2 124.000]	527655 [RSVLT_CC_E 7345.00]-527656 [CROSSROADS 7345.00] CKT 1	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	523972 [HARRNGTON2 124.000]	525832 [TUCO_INT 7345.00]-511456 [O.K.U.-7 345.00] CKT 1	Solution diverges; voltage collapse	Solution diverges; voltage collapse	Solution diverges; voltage collapse
2026W5	P3	523972 [HARRNGTON2 124.000]	525832 [TUCO_INT 7345.00]-515458 [BORDER 7345.00] CKT 1	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	523973 [HARRNGTON3 124.000]	526331 [JONES_1 122.000]	Solution diverges; voltage collapse	Solution diverges; voltage collapse	No voltage issues observed

Year	NERC TPL- 001-4 event	Contingency 1	Contingency 2	Stability Analysis Results		
				Tolk Unit1 and 2 OFF	Tolk unit 1 converted to Synchronous Condenser; Tolk unit 2 OFF	Tolk unit 1 and 2 converted to Synchronous Condenser
		124.000]				observed
2026W5	P3	523973 [HARRNGTON3 124.000]	526332 [JONES_2 122.000]	Solution diverges; voltage collapse	Solution diverges; voltage collapse	No voltage issues observed
2026W5	P3	523973 [HARRNGTON3 124.000]	527161 [MUSTANG_1 113.800]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	523973 [HARRNGTON3 124.000]	527162 [MUSTANG_2 113.800]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	523973 [HARRNGTON3 124.000]	527163 [MUSTANG_3 122.000]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	523973 [HARRNGTON3 124.000]	527901 [HOBBS_PLT1 118.000]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	523973 [HARRNGTON3 124.000]	527902 [HOBBS_PLT2 118.000]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	523973 [HARRNGTON3 124.000]	527903 [HOBBS_PLT3 118.000]	Solution diverges; voltage collapse	Solution diverges; voltage collapse	No voltage issues observed
2026W5	P3	523973 [HARRNGTON3 124.000]	527655 [RSVLT_CC_E 7345.00]- 527656 [CROSSROADS 7345.00] CKT 1	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	523973 [HARRNGTON3 124.000]	525832 [TUCO_INT 7345.00]- 511456 [O.K.U.-7 345.00] CKT 1	Solution diverges; voltage collapse	Solution diverges; voltage collapse	Solution diverges; voltage collapse
2026W5	P3	523973 [HARRNGTON3 124.000]	525832 [TUCO_INT 7345.00]- 515458 [BORDER 7345.00] CKT 1	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	524021 [NICHOLS_1 113.800]	526331 [JONES_1 122.000]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	524021 [NICHOLS_1 113.800]	526332 [JONES_2 122.000]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	524021 [NICHOLS_1 113.800]	527903 [HOBBS_PLT3 118.000]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	524021 [NICHOLS_1 113.800]	525832 [TUCO_INT 7345.00]- 511456 [O.K.U.-7 345.00] CKT 1	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	524021 [NICHOLS_1 113.800]	525832 [TUCO_INT 7345.00]- 515458 [BORDER 7345.00] CKT 1	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	524022 [NICHOLS_2 113.800]	526331 [JONES_1 122.000]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	524022 [NICHOLS_2 113.800]	526332 [JONES_2 122.000]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	524022 [NICHOLS_2 113.800]	527903 [HOBBS_PLT3 118.000]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	524022 [NICHOLS_2 113.800]	525832 [TUCO_INT 7345.00]- 511456 [O.K.U.-7 345.00] CKT 1	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	524022 [NICHOLS_2 113.800]	525832 [TUCO_INT 7345.00]-	Solution diverges;	No voltage issues	No voltage

Year	NERC TPL-001-4 event	Contingency 1	Contingency 2	Stability Analysis Results		
				Tolk Unit1 and 2 OFF	Tolk unit 1 converted to Synchronous Condenser; Tolk unit 2 OFF	Tolk unit 1 and 2 converted to Synchronous Condenser
		113.800]	515458 [BORDER 7345.00] CKT 1	voltage collapse	observed	issues observed
2026W5	P3	524023 [NICHOLS_3 122.000]	526331 [JONES_1 122.000]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	524023 [NICHOLS_3 122.000]	526332 [JONES_2 122.000]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	524023 [NICHOLS_3 122.000]	527903 [HOBBS_PLT3 118.000]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	524023 [NICHOLS_3 122.000]	527655 [RSVLT_CC_E 7345.00]-527656 [CROSSROADS 7345.00] CKT 1	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	524023 [NICHOLS_3 122.000]	525832 [TUCO_INT 7345.00]-511456 [O.K.U.-7 345.00] CKT 1	Solution diverges; voltage collapse	Solution diverges; voltage collapse	No voltage issues observed
2026W5	P3	524023 [NICHOLS_3 122.000]	525832 [TUCO_INT 7345.00]-515458 [BORDER 7345.00] CKT 1	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P1	UNIT 1 BUS 526331 [JONES_1 122.000]		Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P1	UNIT 1 BUS 526332 [JONES_2 122.000]		Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	527161 [MUSTANG_1 113.800]	526331 [JONES_1 122.000]	Solution diverges; voltage collapse	Solution diverges; voltage collapse	Solution diverges; voltage collapse
2026W5	P3	527161 [MUSTANG_1 113.800]	526332 [JONES_2 122.000]	Solution diverges; voltage collapse	Solution diverges; voltage collapse	Solution diverges; voltage collapse
2026W5	P3	527161 [MUSTANG_1 113.800]	527162 [MUSTANG_2 113.800]	Solution diverges; voltage collapse	Solution diverges; voltage collapse	No voltage issues observed
2026W5	P3	527161 [MUSTANG_1 113.800]	527163 [MUSTANG_3 122.000]	Solution diverges; voltage collapse	Solution diverges; voltage collapse	No voltage issues observed
2026W5	P3	527161 [MUSTANG_1 113.800]	527884 [CUNINGHAM4 113.800]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	527161 [MUSTANG_1 113.800]	527901 [HOBBS_PLT1 118.000]	Solution diverges; voltage collapse	Solution diverges; voltage collapse	No voltage issues observed
2026W5	P3	527161 [MUSTANG_1 113.800]	527902 [HOBBS_PLT2 118.000]	Solution diverges; voltage collapse	Solution diverges; voltage collapse	No voltage issues observed
2026W5	P3	527161 [MUSTANG_1 113.800]	527903 [HOBBS_PLT3 118.000]	Solution diverges; voltage collapse	Solution diverges; voltage collapse	Solution diverges; voltage collapse
2026W5	P3	527161 [MUSTANG_1 113.800]	528361 [MADDOX_1 113.800]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	527161 [MUSTANG_1 113.800]	526936 [YOAKUM_345 345.00]-527896 [HOBBS_INT 7345.00] CKT 1	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	527161 [MUSTANG_1 113.800]	527655 [RSVLT_CC_E 7345.00]-527656 [CROSSROADS 7345.00] CKT 1	Solution diverges; voltage collapse	Solution diverges; voltage collapse	No voltage issues

Year	NERC TPL- 001-4 event	Contingency 1	Contingency 2	Stability Analysis Results		
				Tolk Unit1 and 2 OFF	Tolk unit 1 converted to Synchronous Condenser; Tolk unit 2 OFF	Tolk unit 1 and 2 converted to Synchronous Condenser
						observed
2026W5	P3	527161 [MUSTANG_1 113.800]	527656 [CROSSROADS 7345.00]- 527802 [EDDY_CNTY 7345.00] CKT 1	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	527161 [MUSTANG_1 113.800]	527896 [HOBBS_INT 7345.00]- 527965 [KIOWA 7345.00] CKT 1	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	527161 [MUSTANG_1 113.800]	525832 [TUCO_INT 7345.00]- 511456 [O.K.U.-7 345.00] CKT 1	Solution diverges; voltage collapse	Solution diverges; voltage collapse	Solution diverges; voltage collapse
2026W5	P3	527161 [MUSTANG_1 113.800]	525832 [TUCO_INT 7345.00]- 515458 [BORDER 7345.00] CKT 1	Solution diverges; voltage collapse	Solution diverges; voltage collapse	No voltage issues observed
2026W5	P3	527162 [MUSTANG_2 113.800]	526331 [JONES_1 122.000]	Solution diverges; voltage collapse	Solution diverges; voltage collapse	Solution diverges; voltage collapse
2026W5	P3	527162 [MUSTANG_2 113.800]	526332 [JONES_2 122.000]	Solution diverges; voltage collapse	Solution diverges; voltage collapse	Solution diverges; voltage collapse
2026W5	P3	527162 [MUSTANG_2 113.800]	527161 [MUSTANG_1 113.800]	Solution diverges; voltage collapse	Solution diverges; voltage collapse	No voltage issues observed
2026W5	P3	527162 [MUSTANG_2 113.800]	527163 [MUSTANG_3 122.000]	Solution diverges; voltage collapse	Solution diverges; voltage collapse	No voltage issues observed
2026W5	P3	527162 [MUSTANG_2 113.800]	527884 [CUNINGHAM4 113.800]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	527162 [MUSTANG_2 113.800]	527901 [HOBBS_PLT1 118.000]	Solution diverges; voltage collapse	Solution diverges; voltage collapse	No voltage issues observed
2026W5	P3	527162 [MUSTANG_2 113.800]	527902 [HOBBS_PLT2 118.000]	Solution diverges; voltage collapse	Solution diverges; voltage collapse	No voltage issues observed
2026W5	P3	527162 [MUSTANG_2 113.800]	527903 [HOBBS_PLT3 118.000]	Solution diverges; voltage collapse	Solution diverges; voltage collapse	Solution diverges; voltage collapse
2026W5	P3	527162 [MUSTANG_2 113.800]	528361 [MADDOX_1 113.800]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	527162 [MUSTANG_2 113.800]	526936 [YOAKUM_345 345.00]- 527896 [HOBBS_INT 7345.00] CKT 1	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	527162 [MUSTANG_2 113.800]	527655 [RSVLT_CC_E 7345.00]- 527656 [CROSSROADS 7345.00] CKT 1	Solution diverges; voltage collapse	Solution diverges; voltage collapse	No voltage issues observed
2026W5	P3	527162 [MUSTANG_2 113.800]	527656 [CROSSROADS 7345.00]- 527802 [EDDY_CNTY 7345.00] CKT 1	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	527162 [MUSTANG_2 113.800]	527896 [HOBBS_INT 7345.00]- 527965 [KIOWA 7345.00] CKT 1	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	527162 [MUSTANG_2 113.800]	525832 [TUCO_INT 7345.00]- 511456 [O.K.U.-7 345.00] CKT 1	Solution diverges; voltage collapse	Solution diverges; voltage collapse	Solution diverges; voltage collapse

Year	NERC TPL- 001-4 event	Contingency 1	Contingency 2	Stability Analysis Results		
				Tolk Unit1 and 2 OFF	Tolk unit 1 converted to Synchronous Condenser; Tolk unit 2 OFF	Tolk unit 1 and 2 converted to Synchronous Condenser
2026W5	P3	527162 [MUSTANG_2 113.800]	525832 [TUCO_INT 7345.00]- 515458 [BORDER 7345.00] CKT 1	Solution diverges; voltage collapse	Solution diverges; voltage collapse	No voltage issues observed
2026W5	P3	527163 [MUSTANG_3 122.000]	523972 [HARRNGTON2 124.000]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	527163 [MUSTANG_3 122.000]	526331 [JONES_1 122.000]	Solution diverges; voltage collapse	Solution diverges; voltage collapse	Solution diverges; voltage collapse
2026W5	P3	527163 [MUSTANG_3 122.000]	526332 [JONES_2 122.000]	Solution diverges; voltage collapse	Solution diverges; voltage collapse	Solution diverges; voltage collapse
2026W5	P3	527163 [MUSTANG_3 122.000]	527161 [MUSTANG_1 113.800]	Solution diverges; voltage collapse	Solution diverges; voltage collapse	No voltage issues observed
2026W5	P3	527163 [MUSTANG_3 122.000]	527162 [MUSTANG_2 113.800]	Solution diverges; voltage collapse	Solution diverges; voltage collapse	No voltage issues observed
2026W5	P3	527163 [MUSTANG_3 122.000]	527884 [CUNINGHAM4 113.800]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	527163 [MUSTANG_3 122.000]	527901 [HOBBS_PLT1 118.000]	Solution diverges; voltage collapse	Solution diverges; voltage collapse	No voltage issues observed
2026W5	P3	527163 [MUSTANG_3 122.000]	527902 [HOBBS_PLT2 118.000]	Solution diverges; voltage collapse	Solution diverges; voltage collapse	No voltage issues observed
2026W5	P3	527163 [MUSTANG_3 122.000]	527903 [HOBBS_PLT3 118.000]	Solution diverges; voltage collapse	Solution diverges; voltage collapse	Solution diverges; voltage collapse
2026W5	P3	527163 [MUSTANG_3 122.000]	528361 [MADDOX_1 113.800]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	527163 [MUSTANG_3 122.000]	525549 [TOLK 7345.00]-527656 [CROSSROADS 7345.00] CKT 1	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	527163 [MUSTANG_3 122.000]	525832 [TUCO_INT 7345.00]- 526936 [YOAKUM_345 345.00] CKT 1	Solution diverges; voltage collapse	Solution diverges; voltage collapse	No voltage issues observed
2026W5	P3	527163 [MUSTANG_3 122.000]	526936 [YOAKUM_345 345.00]- 527896 [HOBBS_INT 7345.00] CKT 1	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	527163 [MUSTANG_3 122.000]	527655 [RSVLT_CC_E 7345.00]- 527656 [CROSSROADS 7345.00] CKT 1	Solution diverges; voltage collapse	Solution diverges; voltage collapse	No voltage issues observed
2026W5	P3	527163 [MUSTANG_3 122.000]	527656 [CROSSROADS 7345.00]- 527802 [EDDY_CNTY 7345.00] CKT 1	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	527163 [MUSTANG_3 122.000]	527896 [HOBBS_INT 7345.00]- 527965 [KIOWA 7345.00] CKT 1	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	527163 [MUSTANG_3 122.000]	525832 [TUCO_INT 7345.00]- 511456 [O.K.U.-7 345.00] CKT 1	Solution diverges; voltage collapse	Solution diverges; voltage collapse	Solution diverges; voltage collapse
2026W5	P3	527163 [MUSTANG_3 122.000]	525832 [TUCO_INT 7345.00]- 515458 [BORDER 7345.00] CKT 1	Solution diverges; voltage collapse	Solution diverges; voltage collapse	Solution diverges; voltage

Year	NERC TPL- 001-4 event	Contingency 1	Contingency 2	Stability Analysis Results		
				Tolk Unit1 and 2 OFF	Tolk unit 1 converted to Synchronous Condenser; Tolk unit 2 OFF	Tolk unit 1 and 2 converted to Synchronous Condenser
						collapse
2026W5	P3	527884 [CUNINGHAM4 113.800]	526331 [JONES_1 122.000]	Solution diverges; voltage collapse	Solution diverges; voltage collapse	No voltage issues observed
2026W5	P3	527884 [CUNINGHAM4 113.800]	526332 [JONES_2 122.000]	Solution diverges; voltage collapse	Solution diverges; voltage collapse	No voltage issues observed
2026W5	P3	527884 [CUNINGHAM4 113.800]	527161 [MUSTANG_1 113.800]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	527884 [CUNINGHAM4 113.800]	527162 [MUSTANG_2 113.800]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	527884 [CUNINGHAM4 113.800]	527163 [MUSTANG_3 122.000]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	527884 [CUNINGHAM4 113.800]	527901 [HOBBS_PLT1 118.000]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	527884 [CUNINGHAM4 113.800]	527902 [HOBBS_PLT2 118.000]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	527884 [CUNINGHAM4 113.800]	527903 [HOBBS_PLT3 118.000]	Solution diverges; voltage collapse	Solution diverges; voltage collapse	No voltage issues observed
2026W5	P3	527884 [CUNINGHAM4 113.800]	528361 [MADDOX_1 113.800]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	527884 [CUNINGHAM4 113.800]	527655 [RSVLT_CC_E 7345.00]- 527656 [CROSSROADS 7345.00] CKT 1	Solution diverges; voltage collapse	Solution diverges; voltage collapse	No voltage issues observed
2026W5	P3	527884 [CUNINGHAM4 113.800]	527656 [CROSSROADS 7345.00]- 527802 [EDDY_CNTY 7345.00] CKT 1	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	527884 [CUNINGHAM4 113.800]	525832 [TUCO_INT 7345.00]- 511456 [O.K.U.-7 345.00] CKT 1	Solution diverges; voltage collapse	Solution diverges; voltage collapse	Solution diverges; voltage collapse
2026W5	P3	527884 [CUNINGHAM4 113.800]	525832 [TUCO_INT 7345.00]- 515458 [BORDER 7345.00] CKT 1	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	527901 [HOBBS_PLT1 118.000]	526331 [JONES_1 122.000]	Solution diverges; voltage collapse	Solution diverges; voltage collapse	Solution diverges; voltage collapse
2026W5	P3	527901 [HOBBS_PLT1 118.000]	526332 [JONES_2 122.000]	Solution diverges; voltage collapse	Solution diverges; voltage collapse	Solution diverges; voltage collapse
2026W5	P3	527901 [HOBBS_PLT1 118.000]	527161 [MUSTANG_1 113.800]	Solution diverges; voltage collapse	Solution diverges; voltage collapse	No voltage issues observed
2026W5	P3	527901 [HOBBS_PLT1 118.000]	527162 [MUSTANG_2 113.800]	Solution diverges; voltage collapse	Solution diverges; voltage collapse	No voltage issues observed
2026W5	P3	527901 [HOBBS_PLT1 118.000]	527163 [MUSTANG_3 122.000]	Solution diverges; voltage collapse	Solution diverges; voltage collapse	No voltage issues observed
2026W5	P3	527901 [HOBBS_PLT1 118.000]	527884 [CUNINGHAM4 113.800]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues

Year	NERC TPL- 001-4 event	Contingency 1	Contingency 2	Stability Analysis Results		
				Tolk Unit1 and 2 OFF	Tolk unit 1 converted to Synchronous Condenser; Tolk unit 2 OFF	Tolk unit 1 and 2 converted to Synchronous Condenser
						observed
2026W5	P3	527901 [HOBBS_PLT1 118.000]	527902 [HOBBS_PLT2 118.000]	Solution diverges; voltage collapse	Solution diverges; voltage collapse	No voltage issues observed
2026W5	P3	527901 [HOBBS_PLT1 118.000]	527903 [HOBBS_PLT3 118.000]	Solution diverges; voltage collapse	Solution diverges; voltage collapse	Solution diverges; voltage collapse
2026W5	P3	527901 [HOBBS_PLT1 118.000]	528361 [MADDOX_1 113.800]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	527901 [HOBBS_PLT1 118.000]	525832 [TUCO_INT 7345.00]- 526936 [YOAKUM_345 345.00] CKT 1	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	527901 [HOBBS_PLT1 118.000]	526936 [YOAKUM_345 345.00]- 527896 [HOBBS_INT 7345.00] CKT 1	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	527901 [HOBBS_PLT1 118.000]	527655 [RSVLT_CC_E 7345.00]- 527656 [CROSSROADS 7345.00] CKT 1	Solution diverges; voltage collapse	Solution diverges; voltage collapse	No voltage issues observed
2026W5	P3	527901 [HOBBS_PLT1 118.000]	527656 [CROSSROADS 7345.00]- 527802 [EDDY_CNTY 7345.00] CKT 1	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	527901 [HOBBS_PLT1 118.000]	527896 [HOBBS_INT 7345.00]- 527965 [KIOWA 7345.00] CKT 1	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	527901 [HOBBS_PLT1 118.000]	525832 [TUCO_INT 7345.00]- 511456 [O.K.U.-7 345.00] CKT 1	Solution diverges; voltage collapse	Solution diverges; voltage collapse	Solution diverges; voltage collapse
2026W5	P3	527901 [HOBBS_PLT1 118.000]	525832 [TUCO_INT 7345.00]- 515458 [BORDER 7345.00] CKT 1	Solution diverges; voltage collapse	Solution diverges; voltage collapse	No voltage issues observed
2026W5	P3	527902 [HOBBS_PLT2 118.000]	526331 [JONES_1 122.000]	Solution diverges; voltage collapse	Solution diverges; voltage collapse	Solution diverges; voltage collapse
2026W5	P3	527902 [HOBBS_PLT2 118.000]	526332 [JONES_2 122.000]	Solution diverges; voltage collapse	Solution diverges; voltage collapse	Solution diverges; voltage collapse
2026W5	P3	527902 [HOBBS_PLT2 118.000]	527161 [MUSTANG_1 113.800]	Solution diverges; voltage collapse	Solution diverges; voltage collapse	No voltage issues observed
2026W5	P3	527902 [HOBBS_PLT2 118.000]	527162 [MUSTANG_2 113.800]	Solution diverges; voltage collapse	Solution diverges; voltage collapse	No voltage issues observed
2026W5	P3	527902 [HOBBS_PLT2 118.000]	527163 [MUSTANG_3 122.000]	Solution diverges; voltage collapse	Solution diverges; voltage collapse	No voltage issues observed
2026W5	P3	527902 [HOBBS_PLT2 118.000]	527884 [CUNINGHAM4 113.800]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	527902 [HOBBS_PLT2 118.000]	527901 [HOBBS_PLT1 118.000]	Solution diverges; voltage collapse	Solution diverges; voltage collapse	No voltage issues observed
2026W5	P3	527902 [HOBBS_PLT2 118.000]	527903 [HOBBS_PLT3 118.000]	Solution diverges; voltage collapse	Solution diverges; voltage collapse	Solution diverges; voltage collapse

Year	NERC TPL-001-4 event	Contingency 1	Contingency 2	Stability Analysis Results		
				Tolk Unit1 and 2 OFF	Tolk unit 1 converted to Synchronous Condenser; Tolk unit 2 OFF	Tolk unit 1 and 2 converted to Synchronous Condenser
2026W5	P3	527902 [HOBBS_PLT2 118.000]	528361 [MADDOX_1 113.800]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	527902 [HOBBS_PLT2 118.000]	525832 [TUCO_INT 7345.00]-526936 [YOAKUM_345 345.00] CKT 1	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	527902 [HOBBS_PLT2 118.000]	526936 [YOAKUM_345 345.00]-527896 [HOBBS_INT 7345.00] CKT 1	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	527902 [HOBBS_PLT2 118.000]	527655 [RSVLT_CC_E 7345.00]-527656 [CROSSROADS 7345.00] CKT 1	Solution diverges; voltage collapse	Solution diverges; voltage collapse	No voltage issues observed
2026W5	P3	527902 [HOBBS_PLT2 118.000]	527656 [CROSSROADS 7345.00]-527802 [EDDY_CNTY 7345.00] CKT 1	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	527902 [HOBBS_PLT2 118.000]	527896 [HOBBS_INT 7345.00]-527965 [KIOWA 7345.00] CKT 1	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	527902 [HOBBS_PLT2 118.000]	525832 [TUCO_INT 7345.00]-511456 [O.K.U.-7 345.00] CKT 1	Solution diverges; voltage collapse	Solution diverges; voltage collapse	Solution diverges; voltage collapse
2026W5	P3	527902 [HOBBS_PLT2 118.000]	525832 [TUCO_INT 7345.00]-515458 [BORDER 7345.00] CKT 1	Solution diverges; voltage collapse	Solution diverges; voltage collapse	No voltage issues observed
2026W5	P1	UNIT 1 BUS 527903 [HOBBS_PLT3 118.000]		Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	528331 [ASG10-010 113.800]	526331 [JONES_1 122.000]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	528331 [ASG10-010 113.800]	526332 [JONES_2 122.000]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	528331 [ASG10-010 113.800]	527903 [HOBBS_PLT3 118.000]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	528331 [ASG10-010 113.800]	527655 [RSVLT_CC_E 7345.00]-527656 [CROSSROADS 7345.00] CKT 1	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	528331 [ASG10-010 113.800]	525832 [TUCO_INT 7345.00]-511456 [O.K.U.-7 345.00] CKT 1	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	528361 [MADDOX_1 113.800]	526331 [JONES_1 122.000]	Solution diverges; voltage collapse	Solution diverges; voltage collapse	No voltage issues observed
2026W5	P3	528361 [MADDOX_1 113.800]	526332 [JONES_2 122.000]	Solution diverges; voltage collapse	Solution diverges; voltage collapse	No voltage issues observed
2026W5	P3	528361 [MADDOX_1 113.800]	527161 [MUSTANG_1 113.800]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	528361 [MADDOX_1 113.800]	527162 [MUSTANG_2 113.800]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	528361 [MADDOX_1 113.800]	527163 [MUSTANG_3 122.000]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	528361 [MADDOX_1 113.800]	527884 [CUNINGHAM4 113.800]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed

Year	NERC TPL- 001-4 event	Contingency 1	Contingency 2	Stability Analysis Results		
				Tolk Unit1 and 2 OFF	Tolk unit 1 converted to Synchronous Condenser; Tolk unit 2 OFF	Tolk unit 1 and 2 converted to Synchronous Condenser
2026W5	P3	528361 [MADDOX_1 113.800]	527901 [HOBBS_PLT1 118.000]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	528361 [MADDOX_1 113.800]	527902 [HOBBS_PLT2 118.000]	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	528361 [MADDOX_1 113.800]	527903 [HOBBS_PLT3 118.000]	Solution diverges; voltage collapse	Solution diverges; voltage collapse	No voltage issues observed
2026W5	P3	528361 [MADDOX_1 113.800]	525832 [TUCO_INT 7345.00]- 526936 [YOAKUM_345 345.00] CKT 1	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	528361 [MADDOX_1 113.800]	527655 [RSVLT_CC_E 7345.00]- 527656 [CROSSROADS 7345.00] CKT 1	Solution diverges; voltage collapse	Solution diverges; voltage collapse	No voltage issues observed
2026W5	P3	528361 [MADDOX_1 113.800]	527656 [CROSSROADS 7345.00]- 527802 [EDDY_CNTY 7345.00] CKT 1	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P3	528361 [MADDOX_1 113.800]	525832 [TUCO_INT 7345.00]- 511456 [O.K.U.-7 345.00] CKT 1	Solution diverges; voltage collapse	Solution diverges; voltage collapse	No voltage issues observed
2026W5	P3	528361 [MADDOX_1 113.800]	525832 [TUCO_INT 7345.00]- 515458 [BORDER 7345.00] CKT 1	Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed
2026W5	P1	Tuco to OKU 345kV (J01)		Solution diverges; voltage collapse	No voltage issues observed	No voltage issues observed

5. Conclusion

This system impact study performed showed the need to convert one of the Tolk units to synchronous condenser operation immediately and to convert both the Tolk units to synchronous condensers by mid 2020s to mitigate TPL-001-4 P3 multiple contingency (loss of generator followed by N-1 transmission outage) event issues.

It is also observed that there is a huge real power deficiency in SPS area by mid 2020s causing severe steady state issues. Conversion of both the Tolk units to synchronous condenser operation alone cannot mitigate all the transmission system performance issues in later years. New generation installation will greatly improve system performance with real and reactive power capability with the changed operation of the Tolk units.

Appendix A

