

**SOAH DOCKET NO. 473-19-6677
DOCKET NO. 49831**

**APPLICATION OF SOUTHWESTERN § BEFORE THE STATE OFFICE
PUBLIC SERVICE COMPANY FOR § OF
AUTHORITY TO CHANGE RATES § ADMINISTRATIVE HEARINGS**

**UPDATE TESTIMONY
of
MARK LYTAL**

on behalf of

SOUTHWESTERN PUBLIC SERVICE COMPANY

(Filename: LytalRRUpdate.docx; Total Pages: 30)

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GLOSSARY OF ACRONYMS AND DEFINED TERMS

<u>Acronym/Defined Term</u>	<u>Meaning</u>
SPS	Southwestern Public Service Company, a New Mexico corporation
RFP	Rate Filing Package
Update Period	April 1, 2019 through June 30, 2019
Updated Test Year	July 1, 2018 through June 30, 2019

LIST OF ATTACHMENTS

<u>Attachment</u>	<u>Description</u>
ML-RR-U2 (Updated Test Year)	Energy Supply Capital Additions April through June 2019 (Filename: ML-RR-U2.xlsx)

1 **I. WITNESS IDENTIFICATION**

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

3 A. My name is Mark Lytal. My business address is 790 South Buchanan Street,

4 Amarillo, Texas 79101.

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

6 A. I am employed by Xcel Energy Services Inc. as Director, Regional Capital

7 Projects in the Engineering and Construction Department of Energy Supply.

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

9 A. I am filing testimony on behalf of Southwestern Public Service Company, a New

10 Mexico corporation (“SPS”).

11 **Q. Are you the same Mark Lytal who filed direct testimony on behalf of SPS in**

12 **this docket?**

13 A. Yes.

1 were prudently incurred. Please refer to Attachment ML-RR-U2, which provides
2 actual information to replace estimates in SPS's direct case for the period April 1,
3 2019 through June 30, 2019.

4 **Q. Was Attachment ML-RR-U2 prepared by you or under your direct**
5 **supervision and control?**

6 A. Yes, as to the project descriptions in Attachment ML-RR-U2. The cost
7 information contained in Attachment ML-RR-U2 was prepared by SPS witness
8 Mark P. Moeller and his staff. My staff and I have reviewed this attachment and
9 believe it is accurate and includes only Energy Supply-related projects.

10 **Q. Was the updated RFP schedule you sponsor prepared by you or under your**
11 **direct supervision and control?**

12 A. Yes.

13 **Q. Do you incorporate the portions of the updated RFP schedule sponsored by**
14 **you into this testimony?**

15 A. Yes.

1 **III. ENERGY SUPPLY CAPITAL PROJECTS PLACED IN SERVICE**
2 **BETWEEN APRIL 1, 2019 AND JUNE 30, 2019**

3 **Q. Has SPS updated the Energy Supply-related capital costs for projects placed**
4 **in service between the end of the Test Year and June 30, 2019?**

5 A. Yes. SPS seeks to include in rate base the cost of capital additions placed in
6 service during the Update Period. As part of my direct testimony, I included
7 estimated costs for the capital additions expected to be placed in service during
8 the Update Period. Attachment ML-RR-U2 provides SPS's actual total company
9 costs closed to plant in service for the Energy Supply-related capital projects,
10 including affiliate costs. For the reasons provided in my direct testimony, the
11 costs included in Attachment ML-RR-U2 are reasonable, necessary, and
12 prudently incurred.

1 **IV. HALE WIND PROJECT CAPITAL COSTS**

2 **Q. What amount is SPS seeking to include in rate base for the Hale Wind**
3 **Project?**

4 A. The overall amount SPS is requesting to include in rate base for the Hale Wind
5 Project at this time is \$700,268,426.¹

6 **Q. Did SPS's total investment closed to plant in service through June 30, 2019**
7 **for the Hale Wind Project come in below SPS's estimated construction costs**
8 **at the time it was certificated?**

9 A. Yes. SPS's actual investment closed to plant in service for the Hale Wind Project
10 through June 30, 2019 came in well below its estimated costs for construction.
11 There will inevitably be some trailing charges that will increase the total
12 investment ultimately closed to plant in service, but SPS does not expect those
13 charges to materially increase the overall amount. SPS expects all trailing
14 charges to be closed to plant in service by the end of October 2019. The
15 estimated costs from Docket No. 46936, the investment closed to plant in service
16 for the Hale Wind Project through June 30, 2019, and the remaining projected
17 investment are shown in the following table.

18 **TABLE ML-RR-U1**

	Docket No. 46936 Estimated Cost	Investment Closed to Plant in Service through June 30, 2019	Remaining Projected Investment	Total Planned Investment
Excluding AFUDC	\$ 734,537,610	\$ 669,339,666	\$ 5,806,817	\$ 675,146,483
Including AFUDC	\$ 769,000,000	\$ 700,268,426	\$ 5,806,817	\$ 706,075,243

¹ This amount includes capital costs for land, generation, transmission, substation, and business systems.

1 **Q.** **Does this conclude your pre-filed update testimony?**

2 **A.** Yes.

AFFIDAVIT

STATE OF TEXAS)
)
COUNTY OF POTTER)

MARK LYTAL, first being sworn on his oath, states:

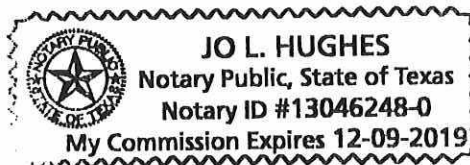
I am the witness identified in the preceding Update Testimony. I have read the Update Testimony and the accompanying attachment(s) and am familiar with the contents. Based upon my personal knowledge, the facts stated in the testimony are true. In addition, in my judgment and based upon my professional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

Mark Lytal
MARK LYTAL

Subscribed and sworn to before me this 10 day of September, 2019 by MARK LYTAL.

Jo L Hughes
Notary Public, State of Texas

My Commission Expires: 12-9-19



CERTIFICATE OF SERVICE

I certify that on the 20th day of September 2019, a true and correct copy of the foregoing update testimony was served on all parties of record by electronic service, hand delivery, Federal Express, regular first class mail, certified mail, or facsimile transmission.



Southwestern Public Service Company

Energy Supply Capital Additions - Actual
April 1, 2019 through June 30, 2019

(A)	(B)	(C)	(D)	(E-i)	(E-ii)	(E-iii)	(F)
Line No.	Asset Class	Witness	Project Category	Additions to Plant-in-Service (April 2019-June 2019)	XES Charges (Included in Column D)	Other Affiliate Charges (Included in Column D)	Total Affiliate Charges (Included in Column D)
1	Electric Transmission	Lyal	Reliability and Performance Enhancement	\$ 12,708,779.20	\$ 3,943.61	-	\$ 3,943.61
2	Electric Transmission	Lyal	Reliability and Performance Enhancement	14,820,698.75	-	-	-
3	Electric Transmission	Lyal	Reliability and Performance Enhancement	63,075.36	-	-	-
4	Total Electric Transmission			\$ 27,592,553.31	\$ 3,943.61	\$ -	\$ 3,943.61
5	Electric Production	Lyal	Reliability and Performance Enhancement	\$ 22,921.29	\$ -	\$ -	-
6	Electric Production	Lyal	Reliability and Performance Enhancement	9,451.22	6,504.00	-	6,504.00
7	Electric Production	Lyal	Reliability and Performance Enhancement	140.50	-	-	-

Hale Wind Project - Transmission Serving Generation - This portion of the Hale Wind Project is for the purchase and installation of the materials and equipment related to the 230kV transmission line to support the Hale Wind Project.

Hale Wind Project - Sub Serving Generation - This portion of the Hale Wind Project is for the purchase and installation of the materials and equipment related to the Sub Station supporting the Hale Wind Project.

Hale Wind Project - Land Purchase - This portion of the Hale Wind Project contains the funding for the Land purchase for the Substation Building.

Cunningham - Small Routines - This expenditure represents a group of projects that consist of replacement or refurbishment of plant equipment needed to maintain the continued reliable operation and performance of the Cunningham (CHC) natural gas generating station.

Quay County Unit 1 - Replace Starting Diesel Radiator - This project includes the replacement of the original radiator installed on the starting diesel package. A larger capacity radiator and fan assembly will be installed onto the current radiator stand. Fan controls will remain unchanged. On April 12, 2018, the town of Tucumcari, including Quay County Station, went black. The plant operated as designed and the combustion turbine was in the startup process until the unit tripped. The cause of the trip was due to the starting diesel overheating on high jacket water temperature. Historical data revealed that the jacket water temperature reached 215F. Ambient temperature during this event was 91F. Design maximum coolant temperature at the top tank of the radiator is 200F. The manufacturer recommended coolant temperature range is 160F to 195F. Water sprays were installed on the radiator to help with cooling, but this system is active only during the summer and cannot be considered a permanent solution. The water supply was shut off to prevent freezing in the line. There were freezing temperatures present during the days leading up to and after April 12th. The use of the water sprays has detrimental effects on the fan motor and may eventually lead to fouling of the radiator core; lowering the radiator's overall heat transfer coefficient. The radiator is also located on the west side of the building in a dead air space. The turbine exhaust stack is to the South, main building to the East, and the EDG room to the North. The radiator and fan assembly needs to be replaced to ensure that the plant is able to operate reliably when called upon or during a black plant situation. Not replacing the radiator can lead to engine damage and another unit trip.

Jones - Small Routines - This expenditure represents a group of projects that consist of replacement or refurbishment of plant equipment needed to maintain the continued reliable operation and performance of the Jones (JON) natural gas generating station.

Southwestern Public Service Company

Energy Supply Capital Additions - Actual
April 1, 2019 through June 30, 2019

Line No.	Asset Class	Witness	Project Category	Additions to Plant-in-Service (April 2019-June 2019)	XES Charges (Included in Column D)	Other Affiliate Charges (Included in Column D)	Total Affiliate Charges (Included in Column D)	Project Description
8	Electric Production	Lyal	Reliability and Performance Enhancement	(139,37)	-	-	-	Gaines County - This project was to build a new Generation to service the Southeast New Mexico Oil Patch. The project was put on hold. This charge was a correcting entry.
9	Electric Production	Lyal	Reliability and Performance Enhancement	66,164.55	-	-	-	Maddox - Small Routines - This expenditure represents a group of projects that consist of replacement or refurbishment of plant equipment needed to maintain the continued reliable operation and performance of the Maddox (MAD) natural gas generating station.
10	Electric Production	Lyal	Reliability and Performance Enhancement	(5,914.56)	-	-	-	Plant X - Small Routines - This expenditure represents a group of projects that consist of replacement or refurbishment of plant equipment needed to maintain the continued reliable operation and performance of the Plant X (PLX) natural gas generating station.
11	Electric Production	Lyal	Reliability and Performance Enhancement	21,375.85	-	-	-	Plant X - Small Routines - This expenditure represents a group of projects that consist of replacement or refurbishment of plant equipment needed to maintain the continued reliable operation and performance of the Plant X (PLX) natural gas generating station.
12	Electric Production	Lyal	Reliability and Performance Enhancement	209,096.56	-	-	-	Cunningham Unit 0 - Refurbish Plant Bathroom - This project is to refurbish the 1st Floor Men's & Women's restrooms and the 2nd Floor Men's restroom. This work will include: retile floor, tile and paint walls, replace toilet and stall, replace urinal, install hand dryer, replace vanity, install new lighting, install ventilation fans and fixtures and fittings. Remove first aid room on 1st floor and extend the womens restroom into a womens locker room adding an extra toilet, sink, and a shower. These restrooms have not been updated or equipment replaced in over 30 years. Every major fixture requires repair on a regular basis due to aging components and the partitions, tiles, and grout are failing.
13	Electric Production	Lyal	Reliability and Performance Enhancement	63,212.49	780.77	-	780.77	Cunningham Unit 0 - Replace Waterwell Pump Motor - This project will replace 2-3 water well pumps and motors on the water gathering system, depending on amount of discovery work. Wells will be determined by level of importance and need for repairs. This work may include some or all of the following, depending on condition: replace pump ; replace motor ; replace casing ; bail well till clean; refill gravel pack after bailing. The water well pumps and motors have been in service for many years, the shafts have been machined multiple times and the motors have been exposed to pump vibration which has caused some irreparable damage to the motors. Cunningham is also seeing a growing problem with sand erosion on pump systems due to casing damage on some wells. These pump systems will be replaced with like turbine style systems due to the high probability of failure due to lightning strikes experienced with previous submersible systems.
14	Electric Production	Lyal	Reliability and Performance Enhancement	128,507.58	-	-	-	

Southwestern Public Service Company

Energy Supply Capital Additions - Actual
April 1, 2019 through June 30, 2019

Line No.	Asset Class	Witness	Project Category	Additions to Plant-in-Service (April 2019-June 2019)	XES Charges (Included in Column D)	Other Affiliate Charges (Included in Column D)	Total Affiliate Charges (Included in Column D)	Project Description
15	Electric Production	Lyal	Reliability and Performance Enhancement	9,459.68	245.11	-	245.11	Cunningham - Small Routines - This expenditure represents a group of projects that consist of replacement or refurbishment of plant equipment needed to maintain the continued reliable operation and performance of the Cunningham (CHC) natural gas generating station.
16	Electric Production	Lyal	Environmental Compliance	(596.94)	-	-	-	Harrington Unit 3 - Rebag Partial - This project is to rebag 5 compartments of the baghouse. Harrington's filter bags have lasted between 6 to 7 years. Filter bags become more difficult to clean as they age resulting in higher baghouse pressure drop, more ID fan horsepower, boiler load limits, bag failures and opacity problems. Compartments also fill up with up to 10 to 12 inches of fly-ash due to bleed-through from pin-holes on filter bags. With increased bag failures, higher baghouse pressure drops become more prevalent when Unit is at full load. When multiple compartments have reached this point, a forced derate occurs to protect the fans and boiler and this affects unit's reliability.
17	Electric Production	Lyal	Reliability and Performance Enhancement	19,766.45	7,590.42	-	7,590.42	Harrington - Small Routines - This expenditure represents a group of projects that consist of replacement or refurbishment of plant equipment needed to maintain the continued reliable operation and performance of the Harrington (HAR) coal generating station.
18	Electric Production	Lyal	Reliability and Performance Enhancement	4.95	-	-	-	Harrington - Small Routines - This expenditure represents a group of projects that consist of replacement or refurbishment of plant equipment needed to maintain the continued reliable operation and performance of the Harrington (HAR) coal generating station.
19	Electric Production	Lyal	Reliability and Performance Enhancement	3,914.58	-	-	-	Harrington - Small Routines - This expenditure represents a group of projects that consist of replacement or refurbishment of plant equipment needed to maintain the continued reliable operation and performance of the Harrington (HAR) coal generating station.
20	Electric Production	Lyal	Reliability and Performance Enhancement	13,230.21	-	-	-	Harrington - Small Routines - This expenditure represents a group of projects that consist of replacement or refurbishment of plant equipment needed to maintain the continued reliable operation and performance of the Harrington (HAR) coal generating station.
21	Electric Production	Lyal	Reliability and Performance Enhancement	71.98	71.00	-	71.00	Harrington - Small Routines - This expenditure represents a group of projects that consist of replacement or refurbishment of plant equipment needed to maintain the continued reliable operation and performance of the Harrington (HAR) coal generating station.
22	Electric Production	Lyal	Reliability and Performance Enhancement	88,924.21	-	-	-	Harrington - Small Routines - This expenditure represents a group of projects that consist of replacement or refurbishment of plant equipment needed to maintain the continued reliable operation and performance of the Harrington (HAR) coal generating station.
23	Electric Production	Lyal	Reliability and Performance Enhancement	376,054.05	17,200.39	-	17,200.39	Harrington - Small Routines - This expenditure represents a group of projects that consist of replacement or refurbishment of plant equipment needed to maintain the continued reliable operation and performance of the Harrington (HAR) coal generating station.

Southwestern Public Service Company

Energy Supply Capital Additions - Actual
April 1, 2019 through June 30, 2019

Line No.	Asset Class	Witness	Project Category	Additions to Plant-in-Service (April 2019-June 2019)	XES Charges (Included in Column D)	Other Affiliate Charges (Included in Column D)	Total Affiliate Charges (Included in Column D)	Project Description
	Electric Production	Lyal	Reliability and Performance Enhancement	282,082.47	8,361.16			Harrington Unit 1 - Replace Generator Breaker FK10 - This project is the complete replacement of the 230kV generator breaker FK10. The replacement is a SF6 breaker (or equivalent) containing a reduced number of interrupting chambers per pole, which will result in considerable simplification of circuit breaker maintenance design. This design reduces the number of parts and seals required, allowing longer operational periods without reconditioning. The breaker being replaced was manufactured in 1973, the General Electric Oil Blast Circuit Breaker is original equipment and has been in operation for more than 40 years. Historically, this breaker cycled on average of 10-15 times per year. However, since the entrance into the SPP market, it experienced forty one cycles in 2014, eighteen in 2015, and twenty six cycles in 2016. This operational change significantly increases the wear on the breaker. The large quantity of oil (3 tanks of 1875 gallons per tank) requires adequate monitoring that leads to higher maintenance costs. Also, pneumatic and hydraulic issues that may lead to failure on the breaker has a higher potential for environmental and safety hazards.
	Electric Production	Lyal	Reliability and Performance Enhancement	203,687.04				Harrington Unit 3 - Rewind West Induced Draft (ID) Fan Motor - This project is to rewind the Harrington Unit 3 West ID Fan Motor. On 4/23/2019 the H3 West ID Fan Motor experienced an electrical short to ground which caused 6900 volt "B" bus to trip. Plant electricians Meggered the motor, which meggered bad. The stator windings were visually inspected which confirmed the stator winding insulation is compromised. The extent of damage is beyond the repair capabilities of the plant, and the motor will need to be sent to a regional motor repair shop to be rewound in order to guarantee the repair. Currently the Unit is de-rated to half the load capacity due to only having one fan operational.
24	Electric Production	Lyal	Reliability and Performance Enhancement	31.38	-	-	-	Tolk - Small Routines - This expenditure represents a group of projects that consist of replacement or refurbishment of plant equipment needed to maintain the continued reliable operation and performance of the Tolk (TOL) coal generating station.
25	Electric Production	Lyal	Reliability and Performance Enhancement	(1,964.16)	-	-	-	Tolk - Small Routines - This expenditure represents a group of projects that consist of replacement or refurbishment of plant equipment needed to maintain the continued reliable operation and performance of the Tolk (TOL) coal generating station.
26	Electric Production	Lyal	Reliability and Performance Enhancement	418.83	798.65	-	798.65	Tolk - Small Routines - This expenditure represents a group of projects that consist of replacement or refurbishment of plant equipment needed to maintain the continued reliable operation and performance of the Tolk (TOL) coal generating station.
27	Electric Production	Lyal	Reliability and Performance Enhancement	232.62	-	-	-	Tolk - Small Routines - This expenditure represents a group of projects that consist of replacement or refurbishment of plant equipment needed to maintain the continued reliable operation and performance of the Tolk (TOL) coal generating station.

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Energy Supply Capital Additions - Actual
April 1, 2019 through June 30, 2019

Line No.	Asset Class	Witness	Project Category	Additions to Plant-in-Service (April 2019-June 2019)	XES Charges (Included in Column D)	Other Affiliate Charges (Included in Column D)	Total Affiliate Charges (Included in Column D)	Project Description
28	Electric Production	Lyal	Reliability and Performance Enhancement	(14.34)	-	-	-	Tolk - Small Routines - This expenditure represents a group of projects that consist of replacement or refurbishment of plant equipment needed to maintain the continued reliable operation and performance of the Tolk (TOL) coal generating station.
29	Electric Production	Lyal	Reliability and Performance Enhancement	214,115.34	8,393.07	-	8,393.07	Tolk - Small Routines - This expenditure represents a group of projects that consist of replacement or refurbishment of plant equipment needed to maintain the continued reliable operation and performance of the Tolk (TOL) coal generating station.
30	Electric Production	Lyal	Reliability and Performance Enhancement	2,565.03	-	-	-	Nichols - Small Routines - This expenditure represents a group of projects that consist of replacement or refurbishment of plant equipment needed to maintain the continued reliable operation and performance of the Nichols (NIC) natural gas generating station.
31	Electric Production	Lyal	Reliability and Performance Enhancement	177,908.40	8,489.94	-	8,489.94	Nichols Unit 1 - Replace Station Battery - This project includes removal of the existing 1331 Amp-hr at 8 hr rate 60 cell Lead Calcium Station Battery and the installation of a new equivalent Calcium Flat Plate battery with copper inserted posts and all necessary install accessories. This is necessary due to the latest battery inspection by TR&C revealed a strong decline in the health of the Station Battery. Declining condition includes post pop, positive plate growth/discoloration & cracking, sediment buildup, and extreme sulfation. The battery is using a lot of water and has extremely high float charging current, which heats the battery beyond what it can dissipate which leads to thermal runaway, a very dangerous and damaging phenomenon. The battery is unsuitable for service, and presents a hazard if kept on charge.
32	Electric Production	Lyal	Reliability and Performance Enhancement	100,124.22	3,518.08	-	3,518.08	Jones - Small Routines - This expenditure represents a group of projects that consist of replacement or refurbishment of plant equipment needed to maintain the continued reliable operation and performance of the Jones (JON) natural gas generating station.
33	Electric Production	Lyal	Reliability and Performance Enhancement	(554.30)	-	-	-	Jones - Small Routines - This expenditure represents a group of projects that consist of replacement or refurbishment of plant equipment needed to maintain the continued reliable operation and performance of the Jones (JON) natural gas generating station.
		Lyal	Reliability and Performance Enhancement	314,933.49	12,101.02	-	12,101.02	Jones Unit 2 - Rewind Normal Source Transformer - The current normal source transformer has failed due to an internal fault. Due to costs and long lead times, rewinding the existing transformer is the best option. The transformer is needed to provide auxiliary power to Jones 2 when it is on-line. Currently the unit is operating on the startup transformer. This results in operational issues when Jones Unit 1 is cycled, since the startup transformer does not have sufficient load capacity to run both Jones 1 & 2. This results in having to load derate Jones 2 during cycling operations.
	Electric Production	Lyal	Reliability and Performance Enhancement	487,200.74	14,117.80	-	14,117.80	

Southwestern Public Service Company

Energy Supply Capital Additions - Actual
April 1, 2019 through June 30, 2019

Line No.	Asset Class	Witness	Project Category	Additions to Plant-in-Service (April 2019-June 2019)	XES Charges (Included in Column D)	Other Affiliate Charges (Included in Column D)	Total Affiliate Charges (Included in Column D)	Project Description
34	Electric Production	Lyal	Reliability and Performance Enhancement	54.93	-	-	-	Harrington - Small Routines - This expenditure represents a group of projects that consist of replacement or refurbishment of plant equipment needed to maintain the continued reliable operation and performance of the Harrington (HAR) coal generating station.
35	Electric Production	Lyal	Reliability and Performance Enhancement	430.19	-	-	-	Harrington - Small Routines - This expenditure represents a group of projects that consist of replacement or refurbishment of plant equipment needed to maintain the continued reliable operation and performance of the Harrington (HAR) coal generating station.
36	Electric Production	Lyal	Reliability and Performance Enhancement	10,105.36	490.20	-	490.20	Maddox - Small Routines - This expenditure represents a group of projects that consist of replacement or refurbishment of plant equipment needed to maintain the continued reliable operation and performance of the Maddox (MAD) natural gas generating station.
37	Electric Production	Lyal	Reliability and Performance Enhancement	783.90	720.96	-	720.96	Jones - Small Routines - This expenditure represents a group of projects that consist of replacement or refurbishment of plant equipment needed to maintain the continued reliable operation and performance of the Jones (JON) natural gas generating station.
38	Electric Production	Lyal	Reliability and Performance Enhancement	13,603.10	-	-	-	Tolk - Small Routines - This expenditure represents a group of projects that consist of replacement or refurbishment of plant equipment needed to maintain the continued reliable operation and performance of the Tolk (TOL) coal generating station.
39	Electric Production	Lyal	Reliability and Performance Enhancement	1,025.65	720.96	-	720.96	Jones - Small Routines - This expenditure represents a group of projects that consist of replacement or refurbishment of plant equipment needed to maintain the continued reliable operation and performance of the Jones (JON) natural gas generating station.
40	Electric Production	Lyal	Reliability and Performance Enhancement	4,958,719.88	22,760.46	-	22,760.46	Cunningham Unit 3 - Rewind Generator - This project is to rewind the generator stator including stator coils, end winding blocking and bracing support systems, stator slot wedges and filler and perform generator hi pot test with successful results after Stator rewind as per recommendation from Technical Resources and Compliance (TRaC) on the 13.8 KV, 141 MVA rated generator. When the rotor is out SPS will install new generator cooling high flow blower blades on the rotor. Replacement of the blower requires new blower hub, stationary blower shroud, assembly, rotating blower blades as well as modifications to the generator end box. High voltage corona damage was found and repaired during November-December 2017. The existing generator has a known history of failures.

Southwestern Public Service Company

Energy Supply Capital Additions - Actual
April 1, 2019 through June 30, 2019

Line No.	(A) Asset Class	(B) Witness	(C) Project Category	(D) Additions to Plant-in-Service (April 2019-June 2019)	(E-i) XES Charges (Included in Column D)	(E-ii) Other Affiliate Charges (Included in Column D)	(E-iii) Total Affiliate Charges (Included in Column D)	(F) Project Description
41	Electric Production	Lytal	Reliability and Performance Enhancement	1,792,491.55	48,716.49	-	48,716.49	Cunningham Unit 3 - Replace Compressor - This project is to replace the Cunningham Unit 3 rotating and stationary blades (diaphragms) and inlet guide vanes (ICVs) with new parts. The turbine rotor will be shipped to a rotor shop to have new blades installed, non destruction testing inspections, and a low speed balance will be performed before returning to Cunningham. Reassembly will include machine assembly, machine train alignment, high speed balance, and performance testing. A thorough inspection of the compressor inlet revealed a missing piece of metal from the inlet expansion joint backer bar at the top left of the inlet plenum. Siemens was brought in to borescope the entire machine. They discovered all 19 rotating and 19 stationary rows of compressor blades have significant damage. The turbine and combustor section do not have significant damage.
42	Electric Production	Lytal	Reliability and Performance Enhancement	29,608.49	1,995.78	-	1,995.78	Cunningham - Small Routines - This expenditure represents a group of projects that consist of replacement or refurbishment of plant equipment needed to maintain the continued reliable operation and performance of the Cunningham (CHC) natural gas generating station.
43	Electric Production	Lytal	Reliability and Performance Enhancement	672,111,268.86	662,330.71	-	662,330.71	Hale Wind Project - Electric Production - This portion of the Hale Wind Project contains the funding for the purchase of the wind turbines and all costs associated with the installation/erection of these turbines
44	Electric Production	Lytal	Reliability and Performance Enhancement	557,458.75	19,107.53	-	19,107.53	Maddox Unit 1 - Replace Cooling Tower Fans & Gearboxes - This project is to replace all 5 Cooling tower mechanicals including motors, motor support frames, fans, fan blades, gearboxes, and drive shafts as well as associated hardware. Also, replace the fan shrouds for the two most southern cells. These motors are all exhibiting signs of degradation, most noticeably excessive heat and vibration issues. Maintaining adequate cooling tower draft is essential in minimizing back pressure losses and supplying adequate cooling water to the auxiliary equipment. The gearbox supports have some deterioration, due to corrosion, to the point where replacement is justifiable. The fan blades have begun to delaminate at the tip which allows water to penetrate the fans and cause them to become unbalanced.
45	Electric Production	Lytal	Reliability and Performance Enhancement	33,644.48	1,015.35	-	1,015.35	Maddox - Small Routines - This expenditure represents a group of projects that consist of replacement or refurbishment of plant equipment needed to maintain the continued reliable operation and performance of the Maddox (MAD) natural gas generating station.
46	Electric Production	Lytal	Reliability and Performance Enhancement	375,337.67	9,762.69	-	9,762.69	Maddox - Small Routines - This expenditure represents a group of projects that consist of replacement or refurbishment of plant equipment needed to maintain the continued reliable operation and performance of the Maddox (MAD) natural gas generating station.
47	Electric Production	Lytal	Reliability and Performance Enhancement	0.16	-	-	-	Plant X - Small Routines - This expenditure represents a group of projects that consist of replacement or refurbishment of plant equipment needed to maintain the continued reliable operation and performance of the Plant X (PLX) natural gas generating station.

Southwestern Public Service Company

Energy Supply Capital Additions - Actual
April 1, 2019 through June 30, 2019

(A)	(B)	(C)	(D)	(E-i)	(E-ii)	(E-iii)	(F)
Line No.	Asset Class	Witness	Project Category	Additions to Plant-in-Service (April 2019-June 2019)	XES Charges (Included in Column D)	Other Affiliate Charges (Included in Column D)	Total Affiliate Charges (Included in Column D)
48	Electric Production	Lytal	Reliability and Performance Enhancement	231,346.03	43,019.74	-	43,019.74
Plant X Unit 4 - Replace Economizer Header - This project is to replace the economizer inlet header including the terminal tubes in the boiler for Unit 4. The new economizer should be designed to accommodate cycling operation. Numerous economizer tube failures and leaks have caused unplanned outages. Leaks can be expected to increase in occurrence because of unit cycling. An inspection of the economizer header was completed in October of 2017. This inspection found thinning on the grid closest to the bore holes. Flow accelerated corrosion (FAC) was also noted during this inspection. Technical Resources and Compliance (TRaC) recommends that the header be replaced during the next major overhaul. Plant X Unit 4 - Replace Hot-Reheat Seamed Piping - This project is to replace the hot reheat (HRH) high energy (HE) seamed piping on Plant X Unit 4. This will require asbestos abatement of the line, the removal of all seamed pipe and installation of new seamless pipe including a full piping analysis and possible replacement of hangers. The HRH line has been verified to be seamed pipe. This project is part of a corporate initiative to replace HE seamed piping. An analysis done by Reliability Services and Overhaul Management (BSOM) in 2015, concluded that all HE seamed piping in the region should be replaced due to the probability of failure. The reheat steam line was originally built with seamed pipe. Acoustic emissions (AE) testing has been performed on this pipe and has not shown any evidence of cracking. However, this type of failure could be catastrophic resulting in significant property damage, outage time and danger to personnel. Plant X - Small Routines - This expenditure represents a group of projects that consist of replacement or refurbishment of plant equipment needed to maintain the continued reliable operation and performance of the Plant X (PLX) natural gas generating station.							
49	Electric Production	Lytal	Reliability and Performance Enhancement	2,111,648.41	105,839.37	-	105,839.37
50	Electric Production	Lytal	Reliability and Performance Enhancement	54.05	248.90	-	248.90

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Line No.	(A) Asset Class	(B) Witness	(C) Project Category	(D) Additions to Plant-in-Service (April 2019-June 2019)	(E-i) XES Charges (Included in Column D)	(E-ii) Other Affiliate Charges (Included in Column D)	(E-iii) Total Affiliate Charges (Included in Column D)	(F) Project Description
51	Electric Production	Lyal	Reliability and Performance Enhancement	517,582.43	15,318.57	-	15,318.57	Plant X Unit 4 - Upgrade Distributed Control System (DCS) Operator Station and CP - This project is to upgrade two Application Workstations, three Workstation Processors, two domain servers, three remote operator stations, a historian server and a repository server as well as upgrade the software version and licensing to the latest Foxboro version. A DCS Upgrade committee composed of Technical Resources and Compliance (TRaC), Engineering and Construction (E&C) and Plant Engineers (PETS) have developed a fleet-wide DCS Lifecycle Management plan to replace the DCS hardware and software. The hardware and software are obsolete. The committee is tracking the lifecycle of the DCS software and hardware components throughout the fleet and coordinating the upgrade schedule with the current plant outage schedules. The schedule reflects the realistic occurrence of a major failure that could create unit trips and extended down time. Xcel's Plant Process Network Security Policy EPR 4.200 Rev 2, Section 4.13 states that hardware and software systems should be current to allow patches for antivirus, and malware updates that are required to maintain cyber security protection as defined by the latest NERC Critical Infrastructure Protection (CIP) standard. Plant X - Small Routines - This expenditure represents a group of projects that consist of replacement or refurbishment of plant equipment needed to maintain the continued reliable operation and performance of the Plant X (PLX) natural gas generating station. Plant X - Small Routines - This expenditure represents a group of projects that consist of replacement or refurbishment of plant equipment needed to maintain the continued reliable operation and performance of the Plant X (PLX) natural gas generating station. Plant X - Small Routines - This expenditure represents a group of projects that consist of replacement or refurbishment of plant equipment needed to maintain the continued reliable operation and performance of the Plant X (PLX) natural gas generating station. Plant X - Small Routines - This expenditure represents a group of projects that consist of replacement or refurbishment of plant equipment needed to maintain the continued reliable operation and performance of the Plant X (PLX) natural gas generating station.
52	Electric Production	Lyal	Reliability and Performance Enhancement	86,253.72	12,130.91	-	12,130.91	
53	Electric Production	Lyal	Reliability and Performance Enhancement	111,685.12	5,661.03	-	5,661.03	
54	Electric Production	Lyal	Reliability and Performance Enhancement	45,216.10	9,218.34	-	9,218.34	
55	Electric Production	Lyal	Reliability and Performance Enhancement	76,196.66	7,503.36	-	7,503.36	

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56	Electric Production	Lytal	Reliability and Performance Enhancement	1,351,127.85	33,363.73	-	33,363.73	Harrington Unit 1 - Replace Foxboro Field Bus Modules (FBMs) - This project is to replace Foxboro 100 series FBMs with 200 series FBMs. In addition to the FBMs all Foxcom smart transmitters will be replaced with Hart Protocol smart transmitters and new smart positioners will be installed on boiler air dampers. A Distributed Control System (DCS) Upgrade committee composed of Technical Resources and Compliance (TRaC), Engineering and Construction (E&C) and Plant Engineers (PETS) have developed a fleet-wide DCS Lifecycle Management plan to replace the DCS hardware and software. The hardware and software are well beyond the obsolete state. The committee is tracking the lifecycle of the DCS software and hardware components throughout the fleet and coordinating the upgrade schedule with the current plant outage schedules. The schedule reflects the realistic occurrence of a major failure that could create unit trips and extended down time.
57	Electric Production	Lytal	Environmental Compliance	206,007.17	-	-	-	Harrington Unit 2 - Rebag Partial - This project will remove and replace the filter bags in 7 compartments. Over the last 30+ years, Harrington's filter bags have lasted between 6 and 7 years.
58	Electric Production	Lytal	Reliability and Performance Enhancement	344,370.54	3,540.52	-	3,540.52	Harrington Unit 1 - Replace Cooling Tower Mechanicals Phase 3 - This project will replace the cooling tower mechanical components including the fan blades, gear boxes, shafts, and structural skids. The scope also includes replacing the control boxes and motor lead boxes. This cooling tower has begun to experience many failures to the mechanicals within the last couple of years including showing signs of rusted skid structures, poor fan blade condition, leaking gear boxes with rusted outer shells, and rusted hub assemblies. The control boxes are deteriorating and becoming damaged by the wind. Many of the latches do not work, and the doors do not close properly allowing mist/water to enter, which is corroding the electrical components. Harrington Unit 1 - Replace Drag Chain - The scope of this project includes complete Replacement of the 22 mm Chain for the Drag Chain Conveyor, light bars and conveying wear strips as well as also replacing the carbon steel dry side conveyor pan. The conveyor chain wears out in three years of constant use. As the chain wears it reduces the layer of case hardening which protects the chain from the harsh environment in the conveyor. The dry side structure is corroded and leaks are making a wet environment in the coal mill room, which can cause a slipping hazard.
59	Electric Production	Lytal	Reliability and Performance Enhancement	168,280.18	9,279.48	-	9,279.48	

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60	Electric Production	Lytal	Reliability and Performance Enhancement	436,435.88	75.49	-	75.49	Harrington Unit 3 - Replace Cooling Tower Mechanicals Phase 2 - This project will replace the cooling tower mechanical components including the fan blades, gear boxes, shafts, and structural skids, control boxes and motor lead boxes. This cooling tower has begun to experience many failures to the mechanicals within the last couple of years and is showing signs of rusted skid structures, poor fan blade condition, leaking gear boxes with rusted outer shells, and rusted hub assemblies. The control boxes are deteriorating and becoming damaged by the wind. Many of the latches do not work, and the doors do not close properly allowing mist/water to enter, which is corroding the electrical components.
61	Electric Production	Lytal	Reliability and Performance Enhancement	446,018.39	4,021.09	-	4,021.09	Harrington Unit 1 - Upgrade Distributed Control System (DCS) Operator Station - This project will upgrade two Application Workstations, five Workstation Processors, two domain servers, a historian & repository server and three remote operator stations as well as upgrade the software version and licensing to the latest Foxboro version. A DCS Upgrade committee composed of Technical Resources and Compliance (TRaC), Engineering and Construction (E&C) and Plant Engineers (PETS) have developed a fleet-wide DCS Lifecycle Management plan to replace the DCS hardware and software. The hardware and software are well beyond the obsolete state. The committee is tracking the lifecycle of the DCS software and hardware components throughout the fleet and coordinating the upgrade schedule with the current plant outage schedules. The schedule reflects the realistic occurrence of a major failure that could create unit trips and extended down time. Xcel Energy's Plant Process Network Security Policy EPR 4.200 Rev 2, Section 4.13 states that hardware and software systems should be current to allow patches for antivirus, and malware updates that are required to maintain cyber security protection as defined by the latest NERC Critical Infrastructure Protection (CIP) standard.
62	Electric Production	Lytal	Reliability and Performance Enhancement	23,767.01	4,530.42	-	4,530.42	Harrington - Small Routines - This expenditure represents a group of projects that consist of replacement or refurbishment of plant equipment needed to maintain the continued reliable operation and performance of the Harrington (HAR) coal generating station. Harrington Unit 1 - Deaerator (DA) Heater Vessel - This project is to replace the Heater Portion of the Deaerator. The heater vessel on top of the storage tank is a 48" diameter vessel that mixes heater drain water with extraction steam. The project will include Abatement, removal of old vessel and piping attachments, new pressure vessel, new nozzles, and installation labor cost. The current DA Heater has severe erosion on the pressure vessel wall. This erosion has created several areas of the vessel that are well below minimum wall thickness. The DA Heater is located within the boiler building which poses a safety risk for those inside.
63	Electric Production	Lytal	Reliability and Performance Enhancement	630,955.56	9,726.12	-	9,726.12	Harrington - Small Routines - This expenditure represents a group of projects that consist of replacement or refurbishment of plant equipment needed to maintain the continued reliable operation and performance of the Harrington (HAR) coal generating station.
64	Electric Production	Lytal	Reliability and Performance Enhancement	12,869.60	1,240.29	-	1,240.29	

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Line No.	Asset Class	Witness	Project Category	Additions to Plant-in-Service (April 2019-June 2019)	XES Charges (Included in Column D)	Other Affiliate Charges (Included in Column D)	Total Affiliate Charges (Included in Column D)
65	Electric Production	Lyal	Reliability and Performance Enhancement	8,412.85	2,480.57	-	2,480.57
Harrington - Small Routines - This expenditure represents a group of projects that consist of replacement or refurbishment of plant equipment needed to maintain the continued reliable operation and performance of the Harrington (HAR) coal generating station. Harrington Unit 3 - Replace Cooling Tower Pumphouse Roof - This project is to remove and replace the current roof. The scope of work for the project includes: Mechanically fasten Premium Glasbase into lightweight concrete per manufacturer wind uplift guidelines, install new wood nailers on parapet wall, install wood nailers on exhaust fans, adhere 1/2" gypsum Securock to deck, install one ply of 80 mil base sheet in cold-processed adhesive, install 115 mil smooth StressPly EUV smooth membrane in cold-processed adhesive. For wall flashing, install Flexbase 80 and StressPly EUV Mineral sheets with flashing adhesive and a minimum of 8" above the cant strip where necessary and terminate utilizing aluminum termination bar mechanically fastened on 8" centers, flood the entire field with hot asphalt and immediately embed 3/8" pea gravel surfacing conforming to ASTM-186 and install new metal coping cap around entire perimeter. The Harrington Cooling Tower Pumphouse building roof was inspected in Spring 2017 by plant engineer due to water leaks into the pumphouse. Perimeter flashings were badly deteriorated with holes and splits evident. Membrane blisters were scattered over the roof area and with areas of surfacing deterioration. Vent curb flashings were badly deteriorated. Drainage was fair to poor with a moderate area of ponding water evident. The water leakage into the building caused a safety concern since the area of leakage is over the electrical panels inside the building. Harrington - Small Routines - This expenditure represents a group of projects that consist of replacement or refurbishment of plant equipment needed to maintain the continued reliable operation and performance of the Harrington (HAR) coal generating station.							
66	Electric Production	Lyal	Reliability and Performance Enhancement	86,602.05	4,731.78	-	4,731.78
67	Electric Production	Lyal	Reliability and Performance Enhancement	51,833.10	-	-	-

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(A)	(B)	(C)	(D)	(E-i)	(E-ii)	(E-iii)	(F)
Line No.	Asset Class	Witness	Project Category	Additions to Plant-in-Service (April 2019-June 2019)	XES Charges (Included in Column D)	Other Affiliate Charges (Included in Column D)	Total Affiliate Charges (Included in Column D)
							Project Description
68	Electric Production	Lytal	Reliability and Performance Enhancement	151,190.06	11,579.18	-	11,579.18
Harrington Unit 1 - Replace Generator Hydrogen Purity Monitor - This project is to install a Generator Hydrogen Purity Control System. This includes the Hydrogen Monitor and the associated piping to the Generator. The Hydrogen Monitor will be retrofitted to the Turbine Generator Hydrogen sample line without disturbing existing Hydrogen piping and instrumentation. The Hydrogen Monitor will automatically control Hydrogen Pressure, Purity and Dew-point simultaneously, by controlling the 'vent rate' and new Hydrogen feed flow. It will maintain all three parameters, within very close limits of the set points for Pressure, Purity and Dew-point. Unit 1 still uses the original hydrogen purity monitor installed in the 1970s, that is now obsolete and maintains a passive response to Hydrogen purity management. The new Hydrogen Monitor will actively and continuously monitor hydrogen purity level by measuring and automatically controlling hydrogen purity, dew point and hydrogen pressure to OEM specifications. The Hydrogen Monitor will display output signals to monitor Hydrogen pressure, purity, dew point and bleed valve position.							
69	Electric Production	Lytal	Reliability and Performance Enhancement	267,454.24	3,014.75	-	3,014.75
Harrington Unit 1 - ESP Re-build 10 TR-Sets - This project is to overhaul 10 conventional TR-sets. The overhaul includes complete 100% replacement of the following major parts: Transformer-Core/Coil, 2-Rectifier Assemblies, 3 Insulating Boards, Pressure Relief and Drain Systems, HV and LV Bushings, Temperature, Liquid Level and Pressure Gauges, 4-Metering Bushings, Surge Arresters, Insulating Oil, Gaskets, Wiring and only re-use the Tank/Housing. The overhaul also includes running all the standard electrical tests as part of QA/QC including: resistance measurements of all coil windings, ratio tests on rated-voltage connections, exciting current at rated voltage etc. These TR-sets have been operational since 1975. All conventional TR-sets have reached their end of life and the coils and internal parts need to be replaced. All TR-sets on the precipitator are required to work reliably since the unit cannot maintain full-load with any TR-set out of service.							
70	Electric Production	Lytal	Environmental Compliance	396,389.04	3,099.59	-	3,099.59
Harrington Unit 1 - Replace ESP Wires Phase 1 of 2 - This is to replace all the discharge wires in the west precipitator. The discharge wires in Harrington 1 Precipitator have been in service for over 20 years and are starting to fail due to wear and tear. During the last inspection of Precipitator in 2016, all wires were found to be extremely brittle. Manufacturers recommend 20 years as the typical time between changing wires to prevent fatigue failures due to wear and tear. These are long-weighted wires and as a result will tend to oscillate with air-flow, causing increased sparking and wear. SPS has had unscheduled shut-downs previously to replace failed wires that had failed as a result of over-sparking.							

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Line No.	Asset Class	Witness	Project Category	Additions to Plant-in-Service (April 2019-June 2019)	XES Charges (Included in Column D)	Other Affiliate Charges (Included in Column D)	Total Affiliate Charges (Included in Column D)
							Project Description
71	Electric Production	Lyal	Reliability and Performance Enhancement	866,607.62	4,186.76	-	4,186.76
Harrington Unit 3 - Replace Cooling Tower Fan Deck - This project is to remove existing top deck sheeting including the underlying structure and install new underlying structure and fiberglass deck materials. This includes replacement of the fan deck, fan deck joists, and joist supports with fiberglass reinforced plastic material. During the 2017 cooling tower cursory inspection it was noted that some of the fan stacks were beginning to sag due to the underlying supports. If the structure fails at this location, the fan stack(s) could come into contact with the rotating fan assembly and result in the destruction of both. Most of the boards that make up the deck are showing significant wear and deterioration. The report noted that 40-50% of the boards need to be replaced in order to keep the structural integrity of the deck. The boards are uneven creating a tripping hazard for personnel. Safety is also a major concern for personnel working and making daily inspections on the tower. A significant amount of the overlay pieces were missing due to high winds as the underlying structure can't hold the fasteners in place.							
72	Electric Production	Lyal	Reliability and Performance Enhancement	1,622,241.65	910.20	-	910.20
Harrington Unit 3 - Replace Cooling Tower Hot Water Deck - This project is the replacement of the current hot water deck on Harrington Unit 3 cooling tower with a new deck consisting of hot water deck, nozzles, cell partition dams, distribution valves catwalks and appropriate decking supports for the new deck. During the October 2015 cooling tower outage inspection it was noticed the current deck is becoming soft and unstable with several places where it has sagged and does not distribute the water properly. There are multiple broken boards that are causing unequal distribution of the water.							
Harrington Unit 1 - Replace Elector-Hydraulic Control (EHC) Pump System - This project is to replace the current turbine EHC pump system with a constant pressure pump system which includes a filter manifold. The filter manifold installation incorporates isolation valves, bypass valve, relief valves, air bleeds and high performance filters. The manifold also includes flow meters for each pump to monitor pump discharge flow rates. The existing EHC system has been problematic with erratic pump pressures and issues with the unloader valves. This replacement will incorporate pumps that vary their output capacity to meet the given flow demands of the system, thereby maintaining nearly constant pressure as set by their own pressure compensator. This project would replace the unloader valve and the potential for instable valve operation associated with this component is eliminated.							
73	Electric Production	Lyal	Reliability and Performance Enhancement	375,205.38	9,825.01	-	9,825.01

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74	Electric Production	Lyal	Reliability and Performance Enhancement	523,512.56	8,502.52	-	8,502.52	Harrington Unit 1 - Replace High Voltage (HV) Generator Bushings - This project is to replace the Harrington Unit 1 HV Generator Main Lead Bushing. This scope includes: removal of the existing Main Lead Bushings and replacement installation with new Main Lead Bushings. The scope of work shall also include inspections of the generator bushings, end windings and other electrical testing upon Technical Resources and Compliance (TRaC) recommendation as well as Bushing Air Flow Test and Measure final generator winding resistance. The existing main lead generator bushings have developed major greasing due to wear and excess oil in the generator. Significant greasing in the generator bushings can cause hydrogen gas leaks and is high safety risk. The existing main lead generator bushings are original plant equipment (30 + years old).
75	Electric Production	Lyal	Reliability and Performance Enhancement	59,931.38	3,345.74	-	3,345.74	Tolk - Small Routines - This expenditure represents a group of projects that consist of replacement or refurbishment of plant equipment needed to maintain the continued reliable operation and performance of the Tolk (TOL) coal generating station.
76	Electric Production	Lyal	Reliability and Performance Enhancement	4,580,873.05	63,982.34	-	63,982.34	Tolk Unit 0 - Water Well Phase 8 - This project is to design and construct approximately 4.5 miles of water transmission pipeline, overhead power, and access roads for additional well sites as well as drill and develop 6 new wells on this pipeline. Wells need to be instrumented with flow meters, level transducers, and radios to provide for control from Tolk. Decline of SPS's current well field production puts Tolk at risk for a water shortage. Tolk Unit 0 - West Soot Blower Air Compressor (SBAC) Overhaul - This project is to restore the West Soot Blower Air Compressor to design operating parameters. The scope of this overhaul is to replace all 5 impellers, replace coolers, and rebuild valves. This project also includes the purchase and installation of a new tube bundle for the after-cooler. This compressor is a critical component of the plant and the plant operational history has shown that the soot blower air compressors need to be overhauled every three to four years. The plant has experienced compressor failures due to worn components after a compressor has been in service for four years. This compressor was last overhauled in 2015.
77	Electric Production	Lyal	Reliability and Performance Enhancement	458,608.91	10,816.10	-	10,816.10	Tolk - Small Routines - This expenditure represents a group of projects that consist of replacement or refurbishment of plant equipment needed to maintain the continued reliable operation and performance of the Tolk (TOL) coal generating station.
78	Electric Production	Lyal	Reliability and Performance Enhancement	67,069.38	5,498.30	-	5,498.30	Tolk Unit 1 - Replace Baghouse Bags - This project is to remove and replace the filter bags in 6 compartments and clean the baghouse compartments. Tolk's filter bags have a useful life of 6 to 8 years and the bags in these compartments have been in service for 8 years. Inspections during the 2015 overhaul confirmed these compartments are showing signs of deterioration and will be ready for replacement based on life expectancy.
79	Electric Production	Lyal	Environmental Compliance	534,657.51	7,820.73	-	7,820.73	

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80	Electric Production	Lyal	Reliability and Performance Enhancement	45,266.01	-	-	-	Tolk - Small Routines - This expenditure represents a group of projects that consist of replacement or refurbishment of plant equipment needed to maintain the continued reliable operation and performance of the Tolk (TOL) coal generating station.
81	Electric Production	Lyal	Reliability and Performance Enhancement	683,587.31	33,724.98	-	33,724.98	Nichols Unit 2 - Replace Blowdown Piping - This project includes abandoning the original pipe and installing new pipe in a run parallel to the old pipe from the service tunnel to the tie-in point outside of the west fence line near the fly-ash road. The current pipeline has been repaired multiple times. Visual inspection of the pipe revealed heavy corrosion on both the interior and exterior. The original coating was observed to have disintegrated.
82	Electric Production	Lyal	Reliability and Performance Enhancement	88,301.90	3,432.21	-	3,432.21	Nichols - Small Routines - This expenditure represents a group of projects that consist of replacement or refurbishment of plant equipment needed to maintain the continued reliable operation and performance of the Nichols (NIC) natural gas generating station.
83	Electric Production	Lyal	Reliability and Performance Enhancement	633,027.16	3,734.63	-	3,734.63	Jones Unit 2 - Upgrade Foxboro Field Bus Modules (FBMs) - This project is to replace Foxboro 100 series FBMs with 200 series FBMs. A database of all the points and FBMs will be generated. A Distributed Control System (DCS) Upgrade committee composed of Technical Resources and Compliance (TRaC), Engineering and Construction (E&C) and Plant Engineers (PETS) have developed a fleet-wide DCS Lifecycle Management plan to replace the DCS hardware and software. The committee is tracking the lifecycle of the DCS software and hardware components throughout the fleet and coordinating the upgrade schedule with the current plant outage schedules. The schedule reflects the realistic occurrence of a major failure that could create unit trips and extended down time.
84	Electric Production	Lyal	Reliability and Performance Enhancement	1,556,626.45	988.08	-	988.08	Jones Unit 2 - Replace Seamed Hot Reheat (HRH) piping - This project consists of replacing all the hot reheat piping from the turbine to the boiler. This would require the abatement of both lines, the removal of all seamed piping and installation of new seamless pipe with appropriate pipe hanger analysis and possible hanger replacement. The reheat lines were originally built with seamed pipe. This project is part of a corporate initiative to replace high-energy seamed piping. An analysis done by Reliability Services and Overhaul Management in 2015, concluded that all HE-seamed piping in the region should be replaced due to the probability of failure. This type of failure could be catastrophic resulting in significant property damage, outage time, and danger to personnel.

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85	Electric Production	Lyal	Reliability and Performance Enhancement	674,381.15	22,454.23	-	22,454.23	Jones Unit 2 - Rewind Exciter Rotor - This project is to Rewind and Refurbish the existing rotating armature of Jones Unit 2 Westinghouse Brushless Exciter. This scope includes replacement of all Outboard/Inboard Diode Wheel Fuses, Diode Module strap-Components, Capacitors, Capacitor Fuses, Heat sinks, Armature Core and Rim repair/replacement, FME barrier Screens, Field Poles, Bearing Rebabbing / Oil Seal fin replacement. Upon the inspection and review by Technical Resources and Compliance (TRaC) during the last overhaul, several banding issues were observed and documented on this specific exciter rotor. Based on the age of the unit, past history with the exciters at Harrington, and the fact that we are already seeing issues with the banding on this unit, TRaC recommends this project.
86	Electric Production	Lyal	Reliability and Performance Enhancement	568,832.82	7,933.78	-	7,933.78	Jones Unit 2 - Transmitter Replacement Phase 2 - This project is for the complete replacement of all model 3051 Rosemount transmitters on Unit 2. This will consist of replacing thirty-five 3051s and include a Hart Communicator and Tough book configuration tool. New manifolds will also be required. The current transmitters have developed an "S-curve" characteristic that cannot be calibrated out, additionally the calibration "pots" are worn and do not maintain zero and span. The current transmitters are obsolete and no longer supported by Rosemount and no spare parts are available from the manufacturer. Jones Unit 2 - Superheat (SH) Header Sealbox Replacement - This project will require the removal of old refractory located at the seal box where the SH tubes penetrate the furnace wall and replaced with high temperature refractory on the furnace side. This will necessitate the replacement of the seal box around the SH headers including all metal and refractory. During the 2013 outage the SH tubes and sealboxes were replaced with new metal sealboxes and high temperature mineral wool. It has been determined that this may not have been the best design as we continue to have hot spots on the boiler around the superheat outlet header and doors, as such a complete replacement will be required.
87	Electric Production	Lyal	Reliability and Performance Enhancement	664,607.91	14,790.03	-	14,790.03	Jones Unit 2 - Replace Oil Circuit Breaker JK45 - This project will be the complete replacement of the 230kV generator breaker JK45. The current JK45 breaker has a date of manufacture of 1973. Manufactured in 1973, the General Electric Oil Blast Circuit Breaker is original equipment and has been in operation for more than 40 years. This breaker has now become obsolete and replacement parts are no longer supported by the manufacturer. The substation manager will no longer continue to support the maintenance on these breakers due to the unavailability of replacement parts.
88	Electric Production	Lyal	Reliability and Performance Enhancement	286,775.20	10,728.20	-	10,728.20	

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							Project Description
89	Electric Production	Lyal	Reliability and Performance Enhancement	137,765.58	1,576.95	-	1,576.95
Jones Unit 2 - Replace Control Processors (CPs) - This project is to upgrade the current CPs with the most current version of CPs. The project will include base plates for the CPs and the necessary switches and fiber jumpers to incorporate a functioning system. Software updates may be necessary to accommodate the new CPs. A Distributed Control System (DCS) Upgrade committee composed of Technical Resources and Compliance (TRaC), Engineering and Construction (E&C) and Plant Engineers (PETS) have developed a fleet-wide DCS Lifecycle Management plan to replace the DCS hardware and software. The hardware and software are well beyond the obsolete state. The committee is tracking the lifecycle of the DCS software and hardware components throughout the fleet and coordinating the upgrade schedule with the current plant outage schedules. The schedule reflects the realistic occurrence of a major failure that could create unit trips and extended down time. Jones Unit 1 - Replace Cooling Tower (CT) Makeup Piping - This project includes the replacement of the CT makeup line from the underground makeup header to the discharge into the cold water basin using HDPE. There are two valves and a flow meter that will be salvaged and reused. The flanges, gaskets, reducers, and the transition tee from the header will be replaced. The CT make up lines have been in service since 1970. There have been multiple leaks on the pipe that have been patched. The current pipe is thinning due to corrosion and service life, a failure of the piping could cause the unit to come offline during the Summer months. Jones - Small Routines - This expenditure represents a group of projects that consist of replacement or refurbishment of plant equipment needed to maintain the continued reliable operation and performance of the Jones (JON) natural gas generating station.							
90	Electric Production	Lyal	Reliability and Performance Enhancement	332,350.62	720.96	-	720.96
91	Electric Production	Lyal	Reliability and Performance Enhancement	39,290.12	2,038.65	-	2,038.65
Jones Unit 2 - Replace L-1 Generator End Turbine Blades - This project is to replace one complete row of rotating blades on the Jones Unit 2 low pressure turbine. This Unit has a history of blade cracking occurring within the L-1 rows. The current L-1 generator row is original and has been in service since 1974. The OEM (Siemens) was consulted and is recommending original Jones Unit 2 L-1 generator row be replaced during the next outage. Siemens indicated that it is not uncommon for these blades to wear out in 20-30 years and were surprised that the Jones blades had obtained such a high service life.							
92	Electric Production	Lyal	Reliability and Performance Enhancement	617,408.56	5,830.69	-	5,830.69
93	Total Electric Production			\$ 705,869,569.28	\$ 1,368,256.86	\$ -	\$ 1,368,256.86
RATA Testing Trailer - This expenditure is due to adjustments made to the RATA Testing Trailer project (placed in-service in 2017) by Capital Asset Accounting. The RATA Testing Trailer project was a replacement of the Relative Accuracy Test Audit (RATA) Emissions Testing Trailer.							
94	Electric General	Lyal	Reliability and Performance Enhancement	(92.14)	\$ -	\$ -	\$ -
95	Electric General	Lyal	Reliability and Performance Enhancement	127,370.60	930.52	-	930.52
Purchase Vehicles - This expenditure is to purchase vehicles to replace aging vehicles used to travel within and to the various plants. However, the forecast and responsibility for purchasing the vehicles has been moved to Xcel Energy Fleet.							

Southwestern Public Service Company

Energy Supply Capital Additions - Actual
April 1, 2019 through June 30, 2019

Line No.	(A) Asset Class	(B) Witness	(C) Project Category	(D) Additions to Plant-in-Service (April 2019-June 2019)	(E-i) XES Charges (Included in Column D)	(E-ii) Other Affiliate Charges (Included in Column D)	(E-iii) Total Affiliate Charges (Included in Column D)	(F) Project Description
96	Total Electric General			\$ 127,278.46	\$ 930.52	\$ -	\$ 930.52	
97	Grand Total			\$ 733,589,401.05	\$ 1,373,130.99	\$ -	\$ 1,373,130.99	