DOCKET NO. ________

APPLICATION OF SOUTHWESTERN PUBLIC SERVICE COMPANY FOR AUTHORITY TO CHANGE RATES	**§ § §**	**PUBLIC UTILITY COMMISSION OF TEXAS**

DIRECT TESTIMONY
of
MARK LYTAL

on behalf of

SOUTHWESTERN PUBLIC SERVICE COMPANY

(*Filename:* LytalRRDirect.doc)

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GLOSSARY OF ACRONYMS AND DEFINED TERMS

Acronym/Defined Term	**Meaning**
AFUDC	Allowance for Funds Used During Construction
APH	Air Pre-heater
BOP	Balance of Plant
Capital Services	Capital Services, LLC, an affiliate of Xcel Energy
Commission	Public Utility Commission of Texas
EPC	engineering, procurement, and construction
gpm	gallons per minute
HPWD	High Plains Water District
IFC	issue for construction
kW	kilowatt
MSA	Master Supply Agreement
MW	megawatts
NERC	North American Electric Reliability Corporation
NSPM	Northern States Power Company, a Minnesota corporation
OAA	Omnibus Appropriations Act
O&M	operation and maintenance
Operating Companies	Northern States Power Company, a Minnesota corporation; Northern States Power Company, a Wisconsin corporation; Public Service Company of Colorado, a Colorado corporation; and SPS
PM	Project Manager
PSA	Purchase and Sale Agreement

Acronym/Defined Term	**Meaning**
PTC	Production Tax Credit
RFP	rate filing package
RPC	Regional Planning Committee
SPP	Southwest Power Pool
SPS	Southwestern Public Service Company, a New Mexico corporation
Test Year	April 1, 2018 through March 31, 2019
Tolk	Tolk Generating Station
Total Company or total company	Total SPS (before jurisdictional allocation)
TSA	Turbine Supply Agreement
TWDB	Texas Water Development Board
Update Period	April 1, 2019 through June 30, 2019
Updated Test Year	July 1, 2018 through June 30, 2019
USGS	United States Geological Survey
Vestas	Vestas-American Wind Technology, Inc.
VFD	variable frequency drive
WBS	Work Breakdown Structure
Xcel Energy	Xcel Energy Inc.
XES	Xcel Energy Services Inc.

LIST OF ATTACHMENTS

Attachment	Description
ML-RR-1	Energy Supply Capital Additions for July 1, 2017 through March 31, 2019 (*Filename:* ML-RR-1.xlsx)
ML-RR-2	Energy Supply Capital Additions for April 1, 2019 through June 30, 2019 (*Filename:* ML-RR-2.xlsx)
ML-RR-3(CD)	Tolk Scenarios – Water Model Depletion Ranges and Energy Supply Cost Inputs to Strategist Tolk Analysis (*Filename:* ML-RR-3.xlsx)
ML-RR-4	Hale Wind Project Commercial Operation Notice Letter (*Non-native format*)
ML-RR-5(V)(HS)	Master Supply Agreement between Capital Services, LLC and Vestas-American Wind Technology, Inc., dated as of September 15, 2016
ML-RR-6(V)(HS)	Turbine Supply Agreement between Southwestern Public Service Company and Vestas-American Wind Technology, Inc., dated as of June 15, 2018
ML-RR-7	Sale of Components Agreement by and between Capital Services, LLC and Southwestern Public Service Company, dated as of March 17, 2017 (*Non-native format*)
ML-RR-8(V)	Purchase and Sale Agreement between ESI Energy, LLC, and Southwestern Public Service Company, dated as of March 6, 2017
ML-RR-9(V)(HS)	Engineering, Procurement, and Construction Agreement by and between Southwestern Public Service Company, and Wanzek Construction, Inc., dated as of October 13, 2017
ML-RR-10(CD)	Workpapers (*Provided in Non-native format on CD*)

DIRECT TESTIMONY
OF
MARK LYTAL

I. WITNESS IDENTIFICATION AND QUALIFICATIONS

Q. Please state your name and business address.

A. My name is Mark Lytal. My business address is 790 South Buchanan Street, Amarillo, Texas 79101.

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

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

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

A. I am employed by Xcel Energy Services Inc. ("XES"), the service company subsidiary of Xcel Energy, as Director, Regional Capital Projects in the Engineering and Construction Department of Energy Supply, which is the generation operation and maintenance ("O&M") business unit of Xcel Energy.

Q. Please briefly outline your responsibilities as Director, Regional Capital Projects in the Engineering and Construction Department of Energy Supply.

A. I am responsible for managing the capital budget process and projects for the SPS region within the Energy Supply business unit. Thus, I am responsible for the regional capital budget, schedules, development, and construction for all of SPS's electric generating projects. I directly manage the major projects for SPS and supervise other managers handling smaller projects. My management duties include safety, technical design selection, engineering and contractor oversight, managing the bidding process, and negotiating major equipment supply agreements. I work with the Environmental, Regulatory, Engineering and Technical Resources, and Resource Planning departments to assist with scoping and planning of new generation and major generation retrofit projects.

Q. Please describe your educational background.

A. I have a Bachelor of Science in Mechanical Engineering from Texas Tech University and a Masters of Engineering in Engineering Management from the University of Colorado.

Q. Please describe your professional experience.

A. I have 30 years of experience in the utility industry in the design, construction, O&M of power generation plants including coal, combustion turbine/combined cycle facilities, and wind generation. I have worked with Xcel Energy and SPS in engineering management and production, supervisory, project, and plant engineering positions. I have served as Director, Technical Resources and Compliance. In that position, I had oversight of a multi-state, multi-jurisdiction technical team of over fifty engineers, technical specialists, and compliance specialists. In that role, I developed, monitored, and adjusted the policies, procedures, and standards needed to apply comprehensive, effective, and efficient technical knowledge and support of power plant engineering, operations, and maintenance. I have also provided strategic direction and leadership of Energy Supply's internal reliability standard compliance program and its implementation.

Q. Have you attended or taken any special courses or seminars relating to public utilities?

A. Yes. Over my career, I have taken numerous courses and seminars related specifically to the construction and operation of power plants. I have given technical presentations on high energy piping, general project management, power plant operations, and maintenance.

Q. Do you hold a professional license?

A. Yes. I am a registered profesional engineer in the state of Texas.

Q. Are you a member of any professional organizations?

A. Yes. I am a member of the American Society of Mechanical Engineers.

Q. Have you testified before any regulatory authorities?

A. I have served as an expert witness during North American Electric Reliability Corporation ("NERC") Standards audit engagements in both engineering and leadership capacities.

II. ASSIGNMENT AND SUMMARY OF TESTIMONY AND RECOMMENDATIONS

Q. What is your assignment in this proceeding?

A. I have several assignments in this proceeding. I will explain and provide cost data for the Energy Supply-related capital improvements and projects that SPS placed in service during the period of July 1, 2017, which is the first day after the end of the period for which capital additions were approved in Docket No. 47527, through June 30, 2019, which is the end of the Updated Test Year (July 1, 2018 through June 30, 2019)[1] in this case, including the Hale Wind Project. I will provide the *actual* dollar amount of the capital additions for this 24-month period in two steps. First, in my direct testimony, I present the *actual* dollar amount of Energy Supply-related capital additions that closed to plant-in-service through March 31, 2019, the end of the Test Year in this case, and *estimated* dollar amounts of Energy Supply-related capital additions that SPS expects to close to plant-in-service during the Update Period. Second, as part of SPS's 45-day case update filing, I will provide the *actual* dollar amount of Energy Supply-related capital additions that closed to plant-in-service during the Update Period. Together, these two pieces of testimony will provide the actual dollar amount of Energy Supply-related capital additions closed to plant-in-service during the period of July 1, 2017 through June 30, 2019.

I also discuss SPS's proposed changes to the useful lives of SPS's Tolk Generating Station ("Tolk") Units 1 and 2. As part of that discussion, I explain that

[1] As explained by SPS witness William A. Grant, SPS is using a historical test year of April 1, 2018 through March 31, 2019 ("Test Year"), updated to include information for the period from April 1, 2019 through June 30, 2019 ("Update Period"). This effectively creates an Updated Test Year consisting of the period July 1, 2018 through June 30, 2019.

this change is needed based on the continuing and irreversible decline of the Ogallala Aquifer, which will soon make Tolk uneconomic to operate. I also discuss the Energy Supply-provided cost inputs to SPS's economic analysis of the retirement scenarios for Tolk. SPS's economic analysis, which was conducted using the Strategist model, is discussed in the direct testimony of SPS witness Bennie F. Weeks. SPS witness Mark P. Moeller discusses how the proposed changes to the retirement dates for the Tolk generating units affect SPS's depreciation rates.

I also provide the justification for SPS's proposed reduction in the useful life of Plant X Unit 2 by one year. And I support SPS's proposed useful life of the Hale Wind Project of 25 years. The proposed useful lives of SPS's plants are presented in the depreciation study sponsored by SPS witness Dane A. Watson.

In addition, I sponsor Schedules H-5.2b and H-5.3b of SPS's rate filing package ("RFP"). Schedule H-5.2b presents Energy Supply-related capital additions, by generating station, being requested in this filing. Schedule H-5.3b presents similar data for a five-year historical period, the present year, and projected for the next three years. SPS will file an updated Schedule H-5.2b in SPS's 45-day case update filing to provide the information requested in this schedule through the Update Period.

Q. Please summarize your testimony and recommendations.

A. The costs of the Energy Supply-related capital additions placed in service between July 1, 2017 and March 31, 2019 of $62,344,848 (total SPS before jurisdictional allocation, "Total Company" or "total company") are reasonable and necessary and were prudently incurred. These capital projects are necessary to maintain and enhance the environmental, safety, performance, and reliability characteristics of SPS's existing generation units. In addition, SPS incurred Energy Supply-related capital costs for projects placed in service between April 1, 2019 and June 30, 2019, as shown on Attachment ML-RR-2. These costs are also reasonable and necessary to maintain and enhance the environmental, safety, performance, and reliability characteristics of SPS's existing generation units, and were prudently incurred.

The affiliate charges of $4,815,840 that are included in the July 1, 2017 through March 31, 2019 capital projects, and the estimated affiliate charges shown on Attachment ML-RR-2 that are included in the Update Period capital projects, reflect reasonable and necessary costs and services; the charge from SPS's affiliate for a particular service is no higher than the charge by that affiliate to any other entity for the same or similar service; and the costs are provided at cost. I recommend the Public Utility Commission of Texas ("Commission") approve these costs.

I also recommend the Commission approve SPS's proposal to change the useful lives of SPS's Tolk units to end-of-year 2032 for generating purposes. This request is reasonable and necessary in light of the water limitations affecting the Tolk wellfield. As part of this proposal, it would be necessary for SPS to install a synchronous condenser on each Tolk unit, which will benefit customers by providing needed voltage stability. SPS has identified the existing assets at Tolk that will remain to support operation of the synchronous condensers, and SPS is proposing a depreciable life for those assets ending in 2055.

SPS is also proposing to change the useful life of Plant X Unit 2 to 2019 so the useful lives will be consistent across SPS's jurisdictions for planning purposes. And SPS is proposing the Commission adopt a 25-year useful life for the Hale Wind Project based on an estimate provided by Vestas-American Wind Technology, Inc. ("Vestas"), the turbine manufacturer, of the average service life of a Vestas turbine. These proposals are reasonable, and I recommend the Commission approve them.

Q. Were Attachments ML-RR-1 through ML-RR-3, ML-RR-10(CD), and the RFP schedules that you sponsor or co-sponsor prepared by you or under your direct supervision and control?

A. Yes, as to Attachments ML-RR-3 and the project descriptions in Attachment ML-RR-2. Attachment ML-RR-1, the cost information contained in Attachment ML-RR-2, and the RFP Schedules H-5.2b and H-5.3b were prepared by Mr. Moeller and his staff. My staff and I have reviewed these attachments and schedules, believe them to be accurate, and confirmed the projects are Energy Supply-related projects. Although the information I have described is presented in Mr. Moeller's Attachments MPM-RR-5 and MPM-RR-6, I have presented this information in the attachments to my testimony for the convenience of those reviewing my testimony. The workpapers contained in Attachment ML-RR-10(CD) contain true and correct copies of the documents that I described them to be.

Q. Are Attachments ML-RR-4 through ML-RR-9 true and correct copies of the documents that you represent them to be?

A. Yes.

Q. Do you incorporate into your testimony the RFP schedules and the portions of the Executive Summary that you sponsor?

A. Yes.

III. ENERGY SUPPLY-RELATED CAPITAL ADDITIONS

A. Selection and Management of Energy Supply Capital Projects

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

A. The Energy Supply Business Unit is a multi-regional organization of Xcel Energy. Its primary purpose is the production of electricity and its delivery to the transmission system of the Xcel Energy Operating Companies, including SPS.[2] Energy Supply consists of an Operations unit that operates and maintains power plants in the SPS region, an Environmental Services organization that supports the environmental functions of the power plants, an Engineering and Construction unit that provides project and engineering services for capital additions, as well as engineering and technical support for O&M issues. The Energy Supply organization is rounded out by a Business Operations organization, which performs asset analysis, budgeting, reporting, and compliance.

Q. What are the primary business drivers affecting Energy Supply's capital expenditures?

A. Multiple factors are driving Energy Supply capital requirements. The most significant factors on existing facilities include the age of SPS's units, increased unit cycling due to the Southwest Power Pool ("SPP") Integrated Marketplace, and unit operation condition. Energy Supply has specific evaluation and ranking criteria that it uses in the development, ranking, and planning of capital projects. Another major

[2] Xcel Energy is the parent company of four utility operating companies: Northern States Power Company, a Minnesota corporation ("NSPM"); Northern States Power Company, a Wisconsin corporation;

driver of capital expenditures is the development of new energy resources and the construction of such facilities.

Q. Please describe the process for ranking and funding Energy Supply capital projects.

A. As each new fiscal year approaches, plant personnel review their systems and identify and submit projects they expect to implement over a five- to ten-year period. As the plant personnel identify and develop capital projects, they have operational and other data available that allows them to identify and quantify how the project meets specific drivers and criteria. The plant personnel specify the identified information on the project document they submit as part of the project evaluation and budgeting process.

Each proposed capital project is reviewed and prioritized using multiple criteria, including financial merit (such as Net Present Value or Present Value of Revenue Requirements) and operational factors such as impact on unplanned outage rate, equipment condition, and environmental compliance laws and regulations, efficiency, reliability, capacity, and safety. Projects that are evaluated include those that may be completed in a single year, such as replacing the bags in a fabric filter dust collector, as well as those that will require multiple years to execute and complete, such as constructing a cooling tower internal structure.

Plant personnel then submit their proposed projects to a review committee of engineers and subject matter experts that reviews and validates the need for the projects and the cost estimates. If approved, a proposed project is passed on to the

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Public Service Company of Colorado, a Colorado corporation; and SPS (collectively, "Operating Companies").

Regional Planning Committee ("RPC"). The RPC reviews and validates the list of projects, the ranking attributes, timing for the expenditures, the project drivers, supporting information, and the necessity of the projects.

As part of this process, each project has numerical points assigned based on the way the attributes were chosen that creates a project total number. The RPC utilizes this numerical ranking to create a prioritized list of projects to evaluate against the available budget for the next year, as well as the planned unit outage schedule for the next several years and known regulatory factors, such as new environmental regulations. The RPC makes adjustments to schedules and budgets as required to account for evolving conditions and factors, and proposes a final list of projects that meets the planned budget targets for the next five years. This process allows SPS to submit a five-year projection of capital expenditures with estimated in-service dates to the corporate capital budget process. The most recent five years of planning information, capital additions, and estimated in-service dates are recorded in the corporate budgeting system. In addition, the RPC meets throughout the year to review emergent projects, described in more detail below, make adjustments to projects currently under way and recommend those emergent projects that must be undertaken to meet operational or business requirements.

Q. Please generally describe how the Energy Supply business area develops cost estimates for proposed capital additions.

A. Initial cost estimates are prepared by plant personnel and included in the project request that is submitted to the Director, Regional Capital Projects. The project is reviewed for clarity, soundness of engineering, regional priorities, consistency of approach, and cost. If acceptable, the project is passed to the regional engineering manager who then assigns it to a Project Manager ("PM") for detailed engineering and development. During this development stage, the project is engineered at a level to provide enough information for a cost to be developed. This engineering can be performed by internal engineers or by an external engineering organization depending on the complexity. The use of budgetary quotes is utilized during this process for delivery and cost estimates.

Q. How does SPS manage its Energy Supply-related capital addition projects to ensure its final, actual costs, are reasonable and prudent?

A. SPS witness Adam R. Dietenberger describes the capital budgeting process in his direct testimony. After a capital project has been approved for execution, it is assigned to a PM, typically three to six months in advance of the first planned activity required to commence the project. The PM is responsible for working with plant engineering and technical services personnel as well as subject matter experts to review and more fully develop the final scope, schedule, and monthly cash flow requirements for the assigned project.

Typically, the PM will competitively bid the project work utilizing the Supply Chain organization to firm up cost and schedule data during the engineering and purchasing activities. If the PM identifies specific information related to significant potential cost or schedule variance from the original approved budget, the PM advises management and recommends options for consideration. Management then responds as appropriate depending on the specifics of the information provided. As the PM works through the project details, the PM develops a final scope of work, detailed cash flow, and schedules for the project. The PM submits the updated project details to management as a funding plan, which once approved, allows the project manager to start creating work orders that will collect the project charges at the Work Breakdown Structure ("WBS") 4 Level. The WBS 4 level in the project management system indicates the actual work being completed as part of an overall project, which is defined at the WBS 2 level.

If the updates result in significant changes to the original approved budget, the funding plan is considered the first change order for the project. These updated schedules and expected cash flows are entered into corporate accounting and project management systems when the WBS Level 4 orders are assigned.

After a project is funded and begins, the PM receives weekly or monthly reports that track actual expenditures and compares such expenditures to the capital budget for the project. On a monthly basis, significant budget variances are noted and reviewed to ascertain the cause for the variance and what corrective actions can be taken if budget limits have been exceeded or were greatly overstated. If corrective action is necessary and feasible, it is implemented. Sometimes the variance is simply a timing issue and no corrective action is necessary.

In other cases, the budget may need to be amended because the project is more or less costly than originally contemplated. In such situations, a scope or budget change order is developed that revises the project to align with the current needs. As the Director, Regional Capital Projects, I have reviewed and approved these requests. On a monthly basis, all of the changes are reviewed by the PM and then the RPC to re-rank these projects along with new emergent projects to align with the year-end budget target. Adjustments are made to the regional portfolio so as not to exceed the year-end budget target for the SPS region. If meeting the target is not in the best interest of operations, the Director, Regional Capital Projects will submit a regional target adjustment request to executive management for review and approval.

SPS also budgets for unexpected Energy Supply capital needs. Typically, during the year, outage inspections will discover equipment that needs significant repair or replacement to maintain unit reliability. In other situations, equipment will fail. To address these situations, when Energy Supply submits its budget information, it includes an "Emergent Fund" project for each generating plant. During the year following the budget submission, if equipment fails or an inspection indicates that equipment needs significant repair or replacement, an "emergent project" will be submitted by the plant director to fund the project.

Actual costs of a project funded via an "Emergent Fund," are recorded to a WBS 4 level project number. All such lower level project numbers funded via the "Emergent Fund" budget will roll up to the WBS 2 level Emergent Fund project number in the accounting records to track what the Emergent Fund monies were actually used for.

These projects are assigned to a project lead or PM and the scope and cost reviewed. Depending on the time sensitivity of the project, the Regional Capital Director will fund the project if deemed critical to be completed in the current year. If time permits, the project will be reviewed by the RPC. To meet year-end regional targets, the project is funded out of the Emergent Fund. If funds are not available, other projects will be cut or delayed or a target adjustment will be requested from executive management.

Q. Is a capital WBS Level 4 order closed as soon as the equipment subject to that order is placed in service?

A. No. Frequently, minor work continues after the equipment is placed in service and charges can continue for a short period after the in-service date is recognized on a WBS Level 4 order. These charges can include recognition of the final bills from vendors, testing of the equipment, and settlement of any disputes.

B. Energy Supply Capital Additions Placed In Service During the Period of July 1, 2017 through March 31, 2019

Q. As part of this rate case, is SPS asking to include Energy Supply-related capital additions in its rate base?

A. Yes. SPS is asking to include in rate base the Energy Supply-related capital additions that closed to plant-in-service during the 24-month period of July 1, 2017 through June 30, 2019. SPS has included these capital additions in its Updated Test Year rate base. In this subsection, I address the capital additions that closed to plant-in-service during the period of July 1, 2017 (the first day after the end of the period for which capital additions were approved in Docket No. 47527) through March 31, 2019 (the end of the Test Year). In the next subsection, I discuss the set of capital additions that have closed to plant-in-service or that are expected to close to plant-in-service during the period April 1, 2019 through June 30, 2019.

Q. Do the Energy Supply capital additions include any significant new projects?

A. Yes. The Hale Wind Project began commercial operation in June 2019. I provide more details about the Hale Wind Project capital additions in this subsection and in the following subsection, as well as in Section IV of my testimony.

Q. What is the dollar amount of the Energy Supply-related capital additions placed in service for July 1, 2017 through March 31, 2019 that SPS is requesting in this docket?

A. The total dollar amount of Energy Supply-related capital additions closed to plant-in-service during the period of July 1, 2017 through March 31, 2019 is $62,344,848 (total company). Attachment ML-RR-1 provides a list of all the Energy Supply-related capital additions closed to plant during this period. SPS witness Arthur P. Freitas allocates the total company dollar amount among SPS's jurisdictions (Texas retail; New Mexico retail; and wholesale) in the cost of service study he presents.

Q. Please briefly describe the Energy Supply-related capital additions placed in service for July 1, 2017 through March 31, 2019.

A. All of the Energy Supply-related capital additions placed in service between July 1, 2017 through March 31, 2019 support SPS's ability to provide safe and reliable electric service to its customers. These additions maintain the environmental, safety, performance, and reliability characteristics of SPS's existing generation fleet. In various instances, these projects also improve or enhance these same attributes. The major projects placed in service during this period are described in more detail later in my testimony.

Q. Please describe the information in Attachment ML-RR-1, which provides the details about the dollar amounts closed to plant-in-service for these Energy Supply-related capital additions and the associated affiliate component.

A. Attachment ML-RR-1 provides the following information:

Column A —	WBS Level 4 Number	Provides the WBS Level 4 number for the project.
Column B —	WBS Level 4 Description	Provides a short title for the WBS Level 4 number for the project.
Column C —	Asset Class	Identifies the type of asset.
Column D —	Witness	Identifies the witness supporting the project.
Column E —	Project Category	Provides the project category that is descriptive of the project's type.
Column F —	WBS Level 2 Number	Provides the WBS Level 2 number for the project.
Column G —	WBS Level 2 Description	Provides a short title for the WBS Level 2 number for the project.
Column H —	In-Service Date	The month and year the project was placed in-service.
Column I —	Addition to Plant-in-service (July 2017 – March 2019)	The total company dollar amount of the addition to plant-in-service for the project.
Column J —	XES Charges (Included in Column I)	The amount of charges from XES that are included in the total company dollar amount of addition to plant-in-service for the project in Column I.
Column K —	Other Affiliate Charges (Included in Column I)	The amount of charges from affiliates other than XES that are included in the total company dollar amount of addition to plant-in-service for the project in Column I.

Column L —	Total Affiliate Charges (Included in Column I)	Total of Columns J and K associated with new plant-in-service shown in Column I.
Column M —	Total Native Charges (Column I less L) Within the Total Additions to Plant-in-service Shown in Column I	The total native charges associated with new plant-in-service shown in Column I.

Q. Attachment ML-RR-1 includes capitalized affiliate costs. Were those affiliate costs necessary to complete the projects listed in Attachment ML-RR-1?

A. Yes. These affiliate charges are for engineering, construction, technical direction, management, safety, and other related work to develop, procure, and install capital additions at SPS generation facilities. In addition, the capital projects include overhead charges that reflect labor and other costs as discussed by Mr. Moeller. When those projects are complete, the costs, including the labor charges, are recorded as new assets. Affiliate charges included in Attachment ML-RR-1 are $4,815,840, which is approximately 8% of SPS's total Energy Supply-related capital costs for projects placed in service during the period July 1, 2017 through March 31, 2019.

Q. Are the costs of these capitalized affiliate charges reasonable?

A. Yes. SPS witness David A. Low addresses the reasonableness of affiliate charges to SPS during the Updated Test Year (July 1, 2018 through June 30, 2019) for the Energy Supply business area, which includes the affiliate classes into which all of these costs are collected. That discussion also applies to the capitalized affiliate costs for the entire 24-month capital additions period. Thus, that discussion supports the reasonableness and necessity of such affiliate costs for the period of July 1, 2017 through March 31, 2019. In addition, SPS witness Melissa L. Schmidt explains that charges for labor and goods received by SPS from the Operating Companies and XES are reasonable and necessary.

Q. What is the difference between the affiliate charges for the Energy Supply affiliate classes of service supported by Mr. Low and the affiliate charges included in your Attachment ML-RR-1?

A. The Energy Supply affiliate charges supported by Mr. Low reflect only affiliate O&M expenses incurred during the Updated Test Year. In contrast, the affiliate charges supported by my testimony refer to the affiliate charges that were closed to plant-in-service during the period of July 1, 2017 through March 31, 2019. That is, I support affiliate charges that were capitalized over a 21-month period and Mr. Low supports affiliate charges that were expensed in the Updated Test Year.

Q. Are the Energy Supply-related capital additions listed on Attachment ML-RR-1, that were closed to plant-in-service during the period July 1, 2017 through March 31, 2019, including the capitalized affiliate charges, reasonable and necessary?

A. Yes. The capital projects listed in Attachment ML-RR-1 were necessary to maintain the reliability, operational, safety, and environmental requirements of SPS's plants. Equipment replacements (e.g., boiler tubes, burner ignitors, and condenser tubes) reduce the occurrence of unplanned outages and help to maintain a high reliability factor, which reduces the need for higher cost replacement energy and ensure continued environmental compliance. Safety projects ensure a safe workplace for employees and enable SPS to meet the safety standards established by regulatory agencies. The process for developing costs and managing projects is discussed in Section III. A. above.

Q. Please describe the Energy Supply-related capital additions closed to plant-in-service during the period of July 1, 2017 through March 31, 2019, and listed on Attachment ML-RR-1 in more detail.

A. As shown in Table ML-RR-1, the capital additions for this period fall within the following categories: Reliability and Performance Enhancement, Environmental Compliance, and New Generation.

Table ML-RR-1

Energy Supply Capital Investment
for the period of June 1, 2017 through March 31, 2019
(Total Company)

Project Category	Capital Additions
Reliability and Performance Enhancement	$58,920,307
Environmental Compliance	$3,369,513
New Generation	$55,028
Total	**$62,344,848**

1. Reliability and Performance Enhancement Capital Additions

Q. Please describe the types of projects included in the "Reliability and Performance Enhancement" category.

A. This category of investment contains the capital additions for maintaining and enhancing the safety, performance, and reliability characteristics of SPS's existing production plant. For example, the replacement of equipment reduces the occurrence of unplanned outages and helps to maintain a high reliability factor, which reduces the need for higher cost replacement energy. Additionally, safety projects ensure a safe workplace for employees and enable SPS to meet the safety standards established by regulatory agencies. The total investment in this category amounts to approximately $58.9 million during the period. Combined, the projects described below account for approximately 64% of the total capital additions in this category. The remaining 36% of the projects are similar in nature in that they maintain or enhance the operational performance and safety of SPS's generating facilities, which is integral to SPS's ability to provide reliable electric service to its customers, and are presented on Attachment ML-RR-1. For example, several of the remaining projects relate to major parts replacement or refurbishment to existing unit components.

- **Harrington Unit 3 - Replace Boiler Economizer -** $4,189,537.54 (Level 4 WBS A.0001550.035.001.002) This project replaced the economizer tube panels and the soot blowers in the economizer region of the boiler. This project was necessary to address the tube thinning and several economizer panels that fell because the hanger steel overheated and failed. When the panels failed, tube leaks resulted.

- **Jones Unit 1 - Circulating Water Structural Liner -** $2,366,077.77 (Level 4 WBS A.0001550.035.001.002) This project was to line the existing steel circulating inlet and outlet piping for Unit 1. A structural FRP liner was installed on the existing steel circulating water piping from the cooling tower basin suction hood to the suction block valves, located just before the circ pumps and from the discharge valve out of the waterboxes to the first vertical section of the return line at the cooling tower. The existing piping will have been in service for approximately 43 years. Historical SPS fleet data has revealed that circulating water piping failures have begun with as little as 25 years of service. This type of liner has been successfully used at other SPS plants and has proved to be economical and durable.

- **Tolk Unit 2 - Rewind Generator Rotor** - $2,175,648.37 (Level 4 WBS A.0001555.500.001.022) This project was to Rewind the Tolk 2 generator rotor and replace the retaining rings with 18Mn-18Cr material including the long-ring modification. This included disassembly/reassembly of the generator, shipping of the rotor, purchase of new retaining rings, initial condition inspection, contract labor to perform the rewind using existing rotor coils, high speed balancing, and final testing and QA/QC inspections. After several discussions on the issues with SPS's subject matter experts, the recommendation was to rewind the rotor.

- **Jones Unit 1 & Harrington Unit 2** - Replace Seamed Hot Reheat (HRH) Piping - $2,384,758.65 (Level 4 WBS A.0001586.081.001.001 & A.0001550.454.001.001) These projects were to replace the HRH piping. This included abatement, the removal of all seamed piping and installation of new seamless pipe including a full piping analysis and replacement of Pipe hangers where necessary. 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 this 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.

- **Harrington Unit 3 & Jones Unit 1** - Replace Air Pre-heater ("APH") baskets - $2,292,557.85 (Level 4 WBS A.0001550.283.001.002 & A.0001586.049.001.001) These projects replaced both the Cold and Hot end baskets on Harrington Unit 3 and the Cold end baskets, the radial and circumferential seals, the pinion gear and the entire pin rack assembly on Jones Unit 1 of the APH. Over time APH Baskets experience erosion due to fly ash. The breakdown of the heat transfer surface reduces efficiency and increases back end temperatures affecting environmental control equipment. The Harrington APH baskets plug with fly ash and the differential pressure increases which can cause a unit to derate. The Harrington Unit 3 baskets have been in service since 2006. The Jones Unit 1 baskets were found to have been 35 - 50% eroded and the Pin rack and gear were over 30 years old at the time of replacement.

- **Tolk Unit 2 - Replace Main Power Transformer** - $1,603,155.12 (Level 4 WBS A.0001555.296.001.002) The purpose of this project was to replace the Unit 2 Generator Step Up (GSU) (Main Power Transformer) and a portion of the Isolated Phase Bus. The GSU and a large portion of the Isolated Phase Bus were destroyed in an explosion and subsequent fire on February 5, 2018 due to a main power transformer fault, despite being current on inspections and oil testing.

- **Tolk Unit 1 - Replace Mill F Main Vertical Shaft** - $1,374,614.12 (Level 4 WBS A.0001555.500.001.023) This project performed an emergency rebuild on the Tolk Unit 1 F Mill. The vertical shaft assembly, including shaft, radial, and thrust bearings were replaced. In addition to the regular rebuild, SPS conducted a failure analysis of the mill. This included laser alignment of the shaft bores, a thorough check of the mill foundations for soft foot, and a check of spring tension and journal trunnion alignment. The main vertical shaft in this mill was broken, rendering the mill inoperable, which drove the need for the rebuild. Tolk is designed so that under normal operating conditions five mills run and one mill remains in standby. In addition, Mill F feeds the lowest elevation of coal nozzles, which is the most important elevation from an emissions standpoint, due to improvements in NOx and CO emissions.

- **Harrington Unit 3 - Replace Cooling Tower Bottom Structure** - $1,227,169.90 (Level 4 WBS A.0001550.475.001.002) This project replaced the entire bottom structure (the bottom column and all associated tie-lines) on Harrington's Unit 3 cooling tower. The tower is an original SPS design built in 1979 made of treated redwood. In late 2015, the cooling tower was inspected. The inspection found rotten fan decking, damaged fan deck supports, damaged fan deck cross members, wood rot in wetted area (over 50%), damaged wood supports in fill area, and missing splash fill.

- **Tolk Units 1 & 2 - Replace Mill Gearbox and Journals** - $3,439,659.07 (Level 4 WBS A.0001555.226.001.002, A.0001555.223.001.002, A.0001555.219.001.002 & A.0001555.222.001.002) These projects rebuilt the gearboxes and journals on Unit 2, Mill C & Mill E and Unit 1, Mill B & Mill C. Components replaced included items such as the vertical shaft assembly; worm shaft assembly; journal pressure spring assembly, grinding rolls, vertical shaft and worm shaft bearings, vertical shaft assembly, worm shaft assembly, worm drive, worm gear, and the journals. These projects were necessary due to the age of the mills, failure rates on gearbox components, and wear on the journal parts. The major parts of this mill have been in service since 1985 (Unit 2 – Mill E) and 1983 (Unit 1 – Mill's B & C and Unit 2 Mill C). The last inspection showed the gears were wearing and had teeth with spalled material, some to the point of questionable structural integrity. Mercury and Air Toxics Standards require combustion equipment to be maintained at optimal levels. Mercury and Air Toxics Standards require combustion equipment to be maintained at optimal levels.

- **Tolk Unit 0 - Replace Railroad Ties Phases 3 & 4** - $2,160,147.20 (Level 4 WBS A.0001555.113.001.001 & A.0001555.093.001.002) These projects replaced two miles of existing wooden railroad ties with concrete ties and new ballast on the 4.5 miles of track from the main line to the plant entrance. Concrete ties reduce the maintenance costs of deteriorating wooden ties. Prior to the start of the replacement of railroad ties at Tolk in 2012, monthly repairs and tie replacements were barely maintaining the standards required to maintain rail gauge. The condition of the rail ties is critical to the reliability of the rail. Failure to replace ties when necessary can result in train derailments and cause detrimental impacts to the fuel supply for the plant. These projects were recommended by the fuel operations consultant with the Xcel Energy Coal Supply Department.

- **Tolk Unit 1, Harrington Unit 3 & Cunningham Unit 2 - Upgrade DCS Operator Stations and Control Processors** - $2,309,630.55 (Level 4 WBS A.0001555.257.001.002, A.0001550.309.001.002 & A.0001545.122.001.002) These projects upgraded the Application Workstations, Workstation Processor, domain servers, remote operator stations, redundant control processors, and the software version and licensing to the latest Foxboro version. These projects were undertaken due to a Distributed Control System (DCS) Upgrade committee composed of Technical Resources and Compliance, Engineering and Construction, and Plant Engineers developed a fleet-wide DCS Lifecycle Management plan to replace the DCS hardware and software. This 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 standard.

- **Tolk Unit 0 - Drill Horizontal Water Well** - $972,807.32 (Level 4 WBS A.0001555.278.001.002) This project was to drill the Horizontal Water Well as well as install the electrical infrastructure to the well, pipeline gathering system, pumps, fencing, consulting, engineering and other minor items. Decline of the current wellfield production puts Tolk at risk for a water shortage. Static levels for the wells in this area have dropped significantly. Some of the areas have depleted to about 50 feet. This causes the existing wells to pump less and less each year.

- **Plant X Unit 4 - Replace Cooling Tower (CT) Fill & Drift Eliminators (DEs) Phase 3** - $782,044.30 (Level 4 WBS A.0001534.099.001.002) This project replaced the fill, DEs, and partition walls in five cells on the X4 cooling tower. The scope of work included replacing 100% of the fill, replacing 100% of drift eliminators (DE), replacing 100% of Longitudinal and Transverse Walls. The fill in this cooling tower has been damaged from water distribution lines that had come loose and washed out sections of fill along with damage from ice and years of service. The performance of the cooling tower has been negatively affected by damaged and missing fill.

- **Tolk Unit 1 - Replace Coal Pipe and Elbows** - $776,483.21 (Level 4 WBS A.0001555.597.001.002) This project installed 31 new coal piping sections, comprised of a 90-degree elbow and a straight section of piping on Tolk Unit 1. Coal piping elbows naturally wear due to the abrasive nature of coal. The new elbows have an internal liner to resist internal wear. The sections replaced were the most worn. Replacement was necessary to maintain mill availability and reduce explosive dust hazards.

- **Jones Unit 1 - Replace Rosemount 1151 Transmitters** - $759,209.45 (Level 4 WBS A.0001586.129.001.002) This project was a complete replacement of all pressure transmitters on unit 1. New valve manifolds were required. The wiring for the old transmitters was not replaced but reutilized. The old transmitters had developed an "S-curve" characteristic that cannot be calibrated out. The calibration potentiometers were worn and did not maintain zero and span. The old transmitters are obsolete and no longer supported by the manufacturer. No spare parts are available from the manufacturer. Most transmitters were installed in the early 1990's. The few that were newer are still not supported and have obsolete amplifier cards.

- **Jones Unit 1 - Upgrade Foxboro Field Bus Modules (FBMs)** - $678,466.30 (Level 4 WBS A.0001586.008.001.001) This project was to replace the Foxboro 100 series FBMs with 200 series FBMs. In addition to the FBM upgrade the current to pressure transducers were also replaced on the 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. This 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.

- **Plant X Unit 0 - Replace 50 Ton Turbine Crane** - $668,392.98 (Level 4 WBS A.0001534.157.001.002) This project replaced the top running hoist and trolley package, which was installed in 1950. The following parts were replaced: the main hook, the bridge drive motor/brake system, control wiring, control cabinet, obsolete main hoist 60hp variable frequency drive ("VFD") and obsolete auxiliary hoist 30hp VFD, obsolete trolley 3hp VFD, obsolete remote radio system, obsolete bridge drive motor/ brake with dual bridge drive gear motors, integrated brake and the rails for the trolley. A 5-ton hook was replaced with a 20-ton hook for enhanced utility. This project also installed digital weighing system with remote display panel and updated the engineering drawings and documentation. The Hoist System replaced was over 60 years old, obsolete, with parts that were no longer available. During a recent inspection, significant wear and damage that prohibited continued safe operation was noted.

- **Maddox Unit 1 - Replace Hot Reheat Terminal Tubes** - $601,878.16 (Level 4 WBS A.0001529.500.001.010) This project replaced all the terminal tubes coming from the Reheat outlet header. The terminal tubes were replaced just above the Crown Seal all the way to the header. The replaced assemblies were original to the plant installed in 1967. The tubes in question had significant long-term over-heating damage. A recent mapping and inspection found that 40% of all the tubes were close to end of life.

- **Tolk Unit 1 - Replace Burner Assemblies** - $581,360.07 (Level 4 WBS A.0001555.043.001.002) This project replaced two elevations of the Tolk #1 burner assemblies, including coal nozzles and tips, one elevation of air tips, one elevation of close coupled overfired air tips and all four elevations of Separated Overfired Air Nozzle tips. If not replaced, the risks included increased O&M costs related to the decreased efficiency of worn burner assemblies, replacement of damaged components, reduced unit availability, increased equivalent forced outage rate, and reduced market revenue. This unit was inspected during the 2015 outage, and replacement of these parts was warranted at this time.

- **Harrington Unit 2 - Install Ash Silo Elevator** - $565,909.49 (Level 4 WBS A.0001550.006.001.002) This project installed an elevator to augment access to the ash storage silo. Along with the elevator, this project required pouring a concrete foundation for the elevator and some structural modification to the silo to accommodate the elevator landing and platforms. This Ash Silo is the only one at the plant which did not have an elevator. Due to the amount of work, which included carrying tools and parts up the stairs at the Ash Silo, adding an elevator tremendously reduces the risk for injuries and facilitates a more rapid response to reach injured employees.

- **Tolk Unit 1 - Replace Mill F Main Vertical Shaft** - $564,291.64 (Level 4 WBS A.0001555.500.001.001) This project performed an emergency rebuild on the Tolk Unit 1 F Mill. The vertical shaft assembly, including shaft, radial, and thrust bearings were replaced. In addition to the regular rebuild, SPS conducted a failure analysis of the mill. This included laser alignment of the shaft bores, a thorough check of the mill foundations for soft foot, and a check of spring tension and journal trunnion alignment. The main vertical shaft in this mill was broken, rendering the mill inoperable, which drove the need for the rebuild. Tolk is designed so that under normal operating conditions five mills run and one mill remains in standby. In addition, Mill F feeds the lowest elevation of coal nozzles, which is the most important elevation from an emissions standpoint, due to improvements in NOx and CO emissions.

- **Cunningham Unit 2 - Hot Reheat Abatement and Re-insulation** - $530,069.82 (Level 4 WBS A.0001545.500.001.009) This project was to abate asbestos and thermal insulation from hot reheat piping and re-insulate with non-asbestos containing material (ACM) in order to perform inspections of the piping. The Cunningham 2 hot reheat piping had been identified as having known seamed piping. In order to manage the risk of piping failures, Reliability Services and Overhaul Management recommended inspection of portions of the hot reheat piping in the past and more recently recommended 100% inspection of the remainder of the hot reheat piping.

- **Maddox Unit 1 - Replace #1 High Pressure Feed Water Heater** - $529,642.98 (Level 4 WBS A.0001529.067.001.002) This project replaced the High Pressure #1 Feed Water Heater. The scope of work for this project included: removing the existing High Pressure. This project was needed due to degradation, increased vibration, and increased damage to non-degraded tubes.

- **Nichols Unit 0 - Replace High Turbine Roof** - $523,645.24 (Level 4 WBS A.0001560.117.001.002) This project included removal of the existing built-up roof down to the lightweight concrete deck and installing a new built-up roof. The new roof included new base sheets, hot asphalt, wall panels at parapets, cold-process coal tar pitch flood coat, and gravel. The turbine high and low roofs were leaking in several places causing degradation of the roof, including the lightweight concrete decking. This degradation created safety hazards for personnel and posed harm to plant equipment.

- **Harrington Unit 1 - Soot Blower Air Compressor (SBAC) 1B Major Rebuild** - $516,725.07 (Level 4 WBS A.0001550.262.001.002) This project was a complete disassembly, inspection, and rebuild the SBAC. This included inspecting and replacing, restoring or rebuilding the compressor rotors and diffusers, bearings, oil and air seals, air and oil coolers, oil pumps and oil filters. The motor was sent off for disassembly, inspection and clean-up. This compressor was designed to operate reliably with six years between overhauls and was last overhauled in April 2010. Recently reported issues include: 3rd Stage Coupling leaking air, reservoir oil heater out of service, oil leak from 3rd stage, increased 1st stage vibration, air leak on 4th stage of bullgear.

- **Harrington Unit 0 - Replace Soot Blower Air Compressor (SBAC) Controls** - $486,621.99 (Level 4 WBS A.0001550.244.001.002) This project replaced the 3+ Compressor Control Corp controllers in all four compressors. This included installing: four Series 3++ Load Sharing controllers, four Antisurge controllers and one Master controller. This also included installing TrainTools and Trainview Software. The replaced controllers were obsolete with no spare parts and are no longer supported by the manufacturer.

- **Jones Unit 0 - Smart Pig Test** - $472,479.61 (Level 4 WBS A.0001586.500.001.011) This project performed a Smart Pig Test on the Red River gas line to Jones Station. This project included installation of 2 pig launchers and receivers and associated equipment, as well as the first pig test and required cut-outs. Xcel Energy has a requirement that gas lines need to have smart pigs run to assure full integrity of the line.

- **Jones Unit 1 - Boiler Feed Pump (BFP) Element Complete Replacement** - $470,322.49 (Level 4 WBS Element A.0001586.253.001.002) This project was a complete replacement of the rotating and the stationary assembly of the Jones Unit 1 east BFP element. The performance of this pump has steadily declined in recent years. In 2014, the performance declined to 5.9% degradation from design.

- **Harrington Unit 1 & 2 - Replace Cooling Tower Fan Stacks** - $932,807.67 (Level 4 WBS A.0001550.446.001.002 & A.0001550.450.001.002) These projects replaced cooling tower exhaust stacks (14 on Unit 1 and 18 on Unit 2) with new fiberglass exhaust stacks. A detailed inspection report showed multiple locations of fan stack deterioration/holes. Weather and UV have damaged the stacks, exposing the fiberglass strands that make up the strength of the fiberglass. The stacks had lost their rigidity, so there was a possibility they could destroy the fan blade if shifted enough.

- **Nichols Unit 3 - Replace Cooling Tower Mechanicals Phase 1 -** $461,611.43 (Level 4 WBS A.0001560.123.001.002) This project replaced the torque tubes, gear boxes, and driveshafts on the Nichols Unit 3 Cooling Tower. The combined age and harsh operating environment of the Cooling Tower had severely corroded the gear boxes and galvanized the torque tubes that support the powertrain. This degradation was revealed when a fan blade collided with the fiberglass stack and destroyed the torque tube, fan blade, driveshaft, and shroud section. The corrosion could also have allowed oil to leak from the gearbox causing it to seize and creating an environmental spill.

- **Plant X Unit 4 - Replace Cooling Tower (CT) Mechanicals Phase 3 -** $405,155.19 (Level 4 WBS Element A.0001534.100.001.002) This project replaced the mechanicals on 4 cells on the Plant X Unit 4 cooling tower. This scope included replacing the gearbox, gearbox oil line with sight glass, mechanical skid/frame, fan assembly, drive shaft, drive shaft covers and 40 horse power motors. The existing mechanical skids on this cooling tower were moderately to severely corroded. The last performance test was conducted in 2012 and showed the cooling tower was operating at about 85% of its design capability.

2. Environmental Compliance Capital Additions

Q. Please describe the types of projects included in the "Environmental Compliance" category.

A. This category of investment contains the capital additions necessary for ensuring SPS's compliance with existing federal and state environmental regulations, including permits. For example, necessary refurbishment or replacement of equipment such as wastewater recovery systems, evaporation ponds, landfill, and pollution control equipment needed to ensure continuing compliance are included in this category. The total investment in this category amounts to approximately $3.4 million during the period. Combined, the projects described below account for approximately 81% of the total capital additions in this category. The remaining 19% of the projects are similar in nature in that they ensure SPS's compliance with existing environmental regulations and permit requirements, which is essential to maintaining the operational viability of SPS's generating facilities. For example, several of the remaining projects include replacement or installation of necessary pollution control equipment.

- **Tolk Station Unit 1 - Replace Baghouse Bags** - $1,331,500.37 (Level 4 WBS A.0001555.088.001.002) This project is to remove and replace the filter bags and clean the compartments in 16 compartments of the unit 1 baghouse. Compartments 2, 5, 7, 9 - 14, 19, 20, 21, 24, 26, 27, 28 have been in service for 8 years and are scheduled for replacement. This will require 7680 bags and their respective hardware and door gaskets. Tolk's filter bags have a useful life of 6 to 8 years. Filter bags are more difficult to clean as they age, resulting in higher baghouse pressure drop, higher ID fan workloads, bag failures and opacity problems. As a usual standard, the plant changes bags after the compartment has been in service for 8 years or earlier if 10% of the original bags have failed. These compartments have been in service for 8 years.

- **Tolk Station Unit 1 - Replace Baghouse Bags** - $551,080.14 (Level 4 WBS A.0001555.090.001.002) This project is to remove and replace the filter bags and clean the compartments in 6 compartments of the unit 1 baghouse. Compartments 1, 4, 8, 15, 22, 23 will have been in service for 8 years and are scheduled to be replaced. This will require 2880 bags and thimbles. Tolk's filter bags have a useful life of 6 to 8 years. Filter bags are more difficult to clean as they age, resulting in higher baghouse pressure drop, higher ID fan workloads, bag failures and opacity problems. As a usual standard, the plant changes bags after the compartment has been in service for 8 years or earlier if 10% of the original bags have failed. These compartments will have been in service for 8 years.

- **Tolk Station Unit 2 - Replace Baghouse Bags -** $475,735.38 (Level 4 WBS A.0001555.089.001.002) This project is to remove and replace the filter bags and clean the compartments in 6 compartments of the unit 2 baghouse. Compartments 6, 8, 9, 16, 20, 22 will have been in service for 8 years and are scheduled to be replaced. This will require 2880 bags and their related hardware and door gaskets. Tolk's filter bags have a useful life of 6 to 8 years. Filter bags are more difficult to clean as they age, resulting in higher baghouse pressure drop, higher ID fan workloads, bag failures and opacity problems. As a usual standard, the plant changes bags after the compartment has been in service for 8 years or earlier if 10% of the original bags have failed. These compartments will have been in service for 8 years. Inspections during the 2014 outage show an increasing amount of wear and pin holes which indicates the bags should be replaced.

- **Harrington Station Unit 3 - Replace Baghouse Doors** - $364,027.14 (Level 4 WBS A.0001550.458.001.002) This project is to replace the two 24” x 60” entry doors in each compartment, for a total of 64 doors and frames for all 32 compartments. The interior surface of the doors on Unit 3 baghouse had deteriorated due to acid attack and moisture infiltration. Moisture causes sulfuric acid to form within the compartments resulting in damage to the structure and walls within the baghouse compartments. New doors provide a positive seal by adding a channel across the door at the top, middle, and bottom to improve sealing.

3. New Generation Capital Additions

Q. Please describe the types of projects included in the New Generation category.

A. This category of investment includes the capital additions necessary for constructing the Hale Wind Project. The total investment in this category amounts to $55,028 (total company). The project described below accounts for 100% of the dollars of the total capital additions in this category.

- **Hale Wind Project – Land Purchase** - $55,028 (Level 4 WBS A.0001577.002.001.002) This project contains the purchase of land for the Operation and Maintenance Building for the Hale Wind Project. Further description of the Hale Wind Project can be found in Section IIV of this testimony.

C. Energy Supply Capital Projects Placed in Service Between April 1, 2019 and June 30, 2019

Q. What is the dollar amount of the Energy Supply-related capital additions placed in service during the Update Period?

A. The total dollar amount of Energy Supply-related capital additions closed to plant-in-service during the Update Period is $745,618,626 (total company). The total company costs are reflected on Attachment ML-RR-2. Mr. Freitas allocates the total company dollar amount among SPS's three rate jurisdictions (Texas retail; New Mexico retail; and wholesale) in the cost of service study he presents.

As initially filed, the costs reflected in Attachment ML-RR-2 are estimated amounts. Mr. Moeller explains the basis for the estimated amounts. As discussed by Mr. Grant, SPS will file actual costs for the Update Period, including an updated version of Attachment ML-RR-2, no later than the 45th day after the date of the initial filing of this rate case, as required by 16 TAC § 25.246.

Q. Are capitalized affiliate costs included in the total costs?

A. Yes, the costs include capitalized affiliate costs similar to those included for projects placed in service during the previous 21 months. As initially filed, Attachment ML-RR-2 includes a total estimated amount of affiliate charges, which is based on historical percentages for the different assets. This is explained in more detail by Mr. Moeller. The updated version of Attachment ML-RR-2 will reflect actual affiliate charges for each project in the period.

Q. Are those affiliate costs necessary to complete the Energy Supply-related capital projects?

A. Yes. Affiliate costs were incurred for the same reasons they were incurred on the projects placed in service between July 1, 2017 and March 31, 2019 discussed earlier in my testimony.

Q. Are these capitalized affiliate charges reasonable?

A. Yes. These costs satisfy the standards for inclusion of affiliate costs in rates for the reasons presented in the testimony of Mr. Low, Ms. Schmidt, and Mr. Moeller regarding the reasonableness of affiliate charges.

Q. Please describe the information in Attachment ML-RR-2, which provides the dollar amounts for projects placed in service during the Update Period.

A. Attachment ML-RR-2 provides the following information:

Column A —	Asset Class	Identifies the type of asset.
Column B —	Witness	Identifies the witness supporting the project.
Column C —	Project Category	Provides the project category that is descriptive of the project's type.
Column D —	Addition to Plant-in-service (Apr. 2019 – Jun. 2019)	The total company dollar amount of the addition to plant-in-service.
Column E —	Total Affiliate Charges (Included in Column D)	The total XES charges and other affiliate charges associated with new plant-in-service shown in Column D.
Column F —	Project Description	Provides a description of the project and its major components.

Q. Please describe the projects placed in service during the Update Period.

A. The projects placed in service during the Update Period are similar to the projects that were closed during the prior 21-month period, which are discussed in the previous section of my testimony. As shown in Attachment ML-RR-2, all of the capital additions for the Update Period fall within the following categories: Reliability and Performance Enhancement, Environmental Compliance, and New Generation. These categories are described in Section III.B of my testimony.

The projects placed in service during the Update Period support SPS's ability to provide electric service to its customers and are necessary to maintain the environmental, safety, performance, and reliability characteristics of SPS's existing generation fleet. Descriptions of the specific projects placed in service during the

Update Period, and the reasons the specific projects are necessary, are provided on my Attachment ML-RR-2.

Q. Has SPS managed its Update Period Energy Supply-related capital addition projects to ensure the final, actual costs are reasonable and prudent?

A. Yes. The same budgeting and project management process that I describe in Section III.A of my testimony applies to the projects for the Update Period.

IV. HALE WIND PROJECT CAPITAL COSTS

Q. Please describe the Hale generating facility.

A. The Hale Wind Project is a 478 megawatt ("MW") facility located in Hale County, Texas. To develop the Hale Wind Project, SPS installed a combination of Vestas model 2.0 MW V110 and V116 wind turbines. The output of Hale ties into the SPP transmission system through a 230- kV transmission line.

Q. When did Hale begin commercial operation?

A. Hale began commercial operation in June 2019. A copy of the letter SPS sent to SPP specifying the date Hale began commercial operation is provided as Attachment ML-RR-4 to my testimony.

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

A. The overall amount SPS is requesting to include in rate base is $712,478,660 (total company).

Q. Does SPS's total planned investment for the Hale Wind Project come in below SPS's estimated construction costs at the time it was certificated?

A. Yes. SPS expects final costs to come in well below its estimated costs for construction for the Hale Wind Project. The estimated costs from Docket No. 46936 and the total planned investment for the Hale Wind Project are shown in the following table:

TABLE ML-RR-2

	Docket No. 46936 Estimated Cost	Total Planned Investment
Excluding AFUDC	$ 734,537,610	$ 681,132,758
Including AFUDC	$ 769,000,000	$ 712,478,660

Q. Does SPS expect to come in under the cost cap that it agreed to as part of the settlement resolving Docket No. 46936?

A. Yes. SPS agreed to impose a cap on capital costs such that, for the initial Hale rate case, the gross plant-in-service amount would not exceed $1,675 per kilowatt ("kW") installed (total company), including the Allowance for Funds Used During Construction ("AFUDC"), all SPP-assigned generation interconnection costs, and all necessary new transmission and distribution equipment and upgrades to existing transmission and distribution equipment. The Hale Wind Project capital costs based on the total planned investment is $1,491 per kW installed (total company).

Q. Please describe what is involved in building a wind generation project, including the major construction components of the Hale Wind Project.

A. Constructing a wind generation project such as the Hale Wind Project, generally involves the following components: construction of turbine access roads; construction of turbine foundations; tower erection; trenching the collector system; constructing the collector substation; constructing a high voltage generation tie line; and constructing an O&M building. In addition, it requires obtaining various permits. SPS obtained all the necessary permits for the Hale Wind Project.

Q. What major contracts did SPS or its affiliates enter into associated with the capital costs of the Hale Wind Projects?

A. There are several major contracts associated with the capital costs of the Hale Wind Project. Each of these contracts was introduced as part of Docket No. 46936.

1. Capital Services, LLC, an affiliate of Xcel Energy, ("Capital Services") entered into a Master Supply Agreement ("MSA") with Vestas for Vestas wind turbines. The MSA ensured that sufficient turbines were purchased to comply with the safe harbor requirements under the Omnibus Appropriations Act ("OAA") for Production Tax Credit ("PTC") benefits.

2. Under the scope of the MSA, SPS executed a Turbine Supply Agreement ("TSA") with Vestas to purchase the additional turbines needed to complete the development of the SPS Projects and deliver the turbines to the Hale Wind Project site.

3. SPS entered into a Sale of Components Agreement with Capital Services to purchase the wind turbines that were purchased to comply with the safe harbor requirements under the OAA.

4. SPS entered into a Purchase and Sale Agreement ("PSA") to acquire the wind development rights from NextEra for the Hale Wind Project. Under the PSA, the developer was required to provide a site ready for SPS to begin construction.

5. SPS entered into fixed price Balance of Plant ("BOP") construction contract for the installation of the wind turbines and construction of the site's infrastructure.

Q. Please describe the MSA.

A. On September 15, 2016, Capital Services entered into the fixed price MSA with Vestas, a leading international wind turbine supplier with manufacturing operations in Colorado. The MSA governs the purchase of turbines, the delivery, inspection, storage, and maintenance of the turbines, as well as the timelines for completion of the turbines.

The MSA was entered into with Vestas after Xcel Energy obtained pricing from both Vestas and other major international wind turbine manufacturers, as part of an analysis for potential wind projects for the Xcel Energy Operating Companies. Xcel Energy determined the Vestas proposal offered more favorable pricing and conditions, and the MSA is the result of comprehensive negotiations between Xcel Energy and Vestas. A copy of the MSA is provided as Attachment ML-RR-5(V)(HS) to my testimony.

Q. Why did Capital Services enter into the MSA with Vestas?

A. To receive 100% of the PTC benefits, SPS or its affiliates must have made expenditures of 5% of the total cost of the project by December 31, 2016. At that time, SPS had not completed negotiations for the PSA and had not received regulatory approvals for the project, and therefore did not know how many turbines it would need to purchase. Because SPS was not in a position to purchase the turbines and other assets from Vestas in 2016, Capital Services made those purchases for the benefit of SPS and its customers. Thus, it was reasonable and necessary for Capital Services to incur the costs so that SPS would be in the position to take advantage of the PTCs.

Q. Please describe the TSA in more detail.

A. SPS entered into the TSA with Vestas on June 15, 2018. The TSA enabled the purchase of the additional turbines and related equipment and delivery needed to complete the Hale Wind Project. The TSA also: (1) incorporates typical turbine performance terms; (2) requires timely manufacturing, production, delivery, and commissioning; (3) includes standard industry warranties and a supplier parent guaranty; and (4) incorporates liquidated damages clauses for failure to achieve the contractual milestones. A copy of the TSA is provided as Attachment ML-RR-6(V)(HS) to my testimony.

Q. The Sale of Components Agreement with Capital Services is an affiliate agreement. What types of costs did SPS incur under the Capital Services Agreement?

A. SPS paid a "Confirmation Price" and a carrying charge. The "Confirmation Price" consists of:

1. the price paid by Capital Services to Vestas for the turbines; and
2. the estimated "Incremental Costs," which included:
    a. storage and maintenance fees for the period from the date Capital Services took delivery of the turbines to the date on which it delivered the turbines to SPS; and
    b. the cost of insuring the turbines for the period from the date Capital Services took delivery of the turbines to the date on which it delivered the turbines to SPS.

The carrying charge was calculated by applying SPS's AFUDC rate to the purchase price of the turbines for each month or partial month in the "Carrying Period." The Carrying Period is defined as the period from the date on which Capital Services purchased the turbines until the date on which title to the turbines passes from Capital Services to SPS.[3] A copy of the Sale of Components Agreement is provided as Attachment ML-RR-7 to my testimony.

Q. Were the costs that SPS paid to Capital Services reasonable?

A. Yes. SPS paid $46,119,182 (total company) to Capital Services, broken down as follows.

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[3] Under the Sale of Components Agreement, AFUDC is prorated for partial months.

Table ML-RR-3

Description	Amount (total company)
Turbines and Towers	$ 40,592,700
Storage Fees	$ 874,973
Insurance	$ 15,528
Carrying Costs	$ 4,635,981
Total	**$ 46,119,182**

Those amounts are reasonable because:

- Capital Services sold the turbines and towers to SPS for the same amount that Capital Services paid Vestas for those turbines. The amount paid by Capital Services to Vestas for the assets was a negotiated price agreed to by independent parties in an arm's length transaction.
- Capital Services charged only the out-of-pocket costs that it incurred for storage of the turbines and towers and insurance on those turbines and towers. It is reasonable for SPS to reimburse Capital Services for those out-of-pocket costs.
- Capital Services advanced the money to purchase turbines and towers on behalf of SPS and its customers, and should be compensated for having expended funds to make a purchase that enables SPS and its customers to take advantage of 100% of the PTCs available from the Hale Wind Project. The AFUDC rate is a reasonable basis for the Carrying Cost because it reasonably approximates SPS's own carrying costs for purchasing components to be installed at generating facilities.

Q. Is the charge by Capital Services to SPS no higher than the charge by Capital Services to any other entity for the same or similar service?

A. Yes. Capital Services has a similar sale of components agreement with NSPM, which is a subsidiary of Xcel Energy and an affiliate of SPS. The pricing terms for that agreement are the same as the terms for the Sale of Components Agreement between SPS and Capital Services, other than the carrying charge is NSPM's AFUDC rate rather than SPS's AFUDC rate.

Q. Please describe the PSA in more detail.

A. On March 6, 2017, SPS entered into a PSA with NextEra for the acquisition of the Hale Wind Project site. Under the PSA, NextEra was responsible for making the site "construction ready," while SPS was responsible for construction, including roads and procurement of turbines or other equipment under the MSA or future TSAs. The purchase price under the PSA was a fixed amount that was not subject to price increases. A copy of the PSA is provided as Attachment ML-RR-8(V) to my testimony.

Q. Please describe the BOP.

A. On October 13, 2017, SPS entered into a full wrap, fixed-price engineering, procurement, and construction ("EPC") agreement for the installation of the wind turbines and construction of the site's infrastructure. The BOP contract bids were solicited based on the layout and size of the Hale Wind Project. The scope of work for the BOP contractor includes five different areas: civil, substation, generation tie line, collection system, and turbine erection. Civil work consisted of constructing the new roads to each turbine location, upgrading existing roads (both private and state- or county- owned), and maintaining the roads throughout the construction process. Civil work also included the construction of wind turbine foundations. Substation work included substation design and construction. Collection system work included the underground power and control wiring from each turbine to the substation. The generation tie line is the high voltage transmission line from the collector substation to the point of interconnection to the Transmission System. Tower erection included the setting of the tower sections, installation of the nacelle, blades and hub, and the installation of the auxiliary equipment associated with the turbine. A copy of the EPC agreement is provided as Attachment ML-RR-9(V)(HS) to my testimony.

Q. What was the process used for selecting the BOP contractor?

A. The BOP contractor selection process for the Hale Wind Project followed Xcel Energy's corporate policy for the procurement of services of this type. A Request for Proposal was issued to three nationally recognized wind farm construction firms that were known to have BOP engineering and constructing experience for projects similar to the size and complexity to the Hale Wind Project.

The RFP was originally issued by SPS's affiliate, NSPM in February 2017 for BOP engineering and construction efforts supporting four wind projects located in Minnesota and North Dakota. An addendum to the RFP was subsequently issued to bidders in July 2017 to also include the SPS Hale and Sagamore Wind Projects in order to leverage economies of scale, provide for construction efficiencies between the winter and summer construction seasons, and reduce BOP costs.

Considering engineering design was approximately 30% complete and not fully defined at the time the bids were sought during the RFP process, pricing from bidders was obtained based on open book pricing with firm unit rates with anticipated quantities for items such as collector system, roads, and foundation. Bid evaluation considerations included safety, pricing, technical experience, execution plan, and commercial criteria such as warranties, project schedule adherence, performance guarantees, financial strength of the bidders, payment schedules, and insurance.

The commercial agreement was designed to "close" with pricing becoming firm upon the completion of design, final quantities known, and issue for construction ("IFC") drawings completed. Commercial risks were mitigated during the open book agreement process through the issuance to the contractor of periodic limited notices to proceed; the contractor was not fully released to perform all BOP work until the all quantities were known, IFC drawings issued, and final pricing was established to the satisfaction of SPS.

Q. Did SPS work with any other contractors to assist with the process of constructing the Hale Wind Project?

A. Yes. SPS worked with AWS Truepower to complete a detailed energy analysis to support siting activities for the turbines. SPS worked with Siemens Energy to engineer, construct, and install main power transformers for the site. SPS also worked with a third-party inspector, Ethos Distributed Solutions, to assist with SPS's onsite inspection of the wind turbine generators prior to mechanical completion. Each of these contractors was hired due to their recognized expertise in their respective areas and because they provided services at reasonable costs.

Q. Please generally explain how the construction process was managed.

A. For the Hale Wind Project, XES and SPS personnel assumed overall project management responsibility. In addition to internal personnel, both Vestas and the selected BOP contractor, Wanzek Construction, had project management and engineering personnel on site. Resources (both personnel and equipment) were managed by the entire Hale Wind Project team to advance the project. The use of night crews were also used to take advantage of low wind times for tower erection.

Q. Through project completion, was construction performed and executed as planned?

A. Yes. SPS utilized schedule flexibility and personnel flexibility to have productive work performed to accommodate poor weather days throughout the project. With this flexibility, SPS was able to avoid significant change orders and acceleration costs. In addition, SPS authorized the BOP contractor to lock in materials needed for construction as needed, which allowed for the risk associated with these costs to be mitigated.

V. CHANGES IN USEFUL LIVES OF TOLK GENERATING UNITS

Q. What changes is SPS proposing to the service lives of the Tolk units?

A. Based on the continued decline of the Ogallala Aquifer, which will soon make Tolk uneconomic to operate, SPS is proposing to change the service lives for both of the Tolk Units as generation assets to end-of-year 2032. In order to conserve the economically recoverable water from the aquifer, SPS also proposes to reduce operations at Tolk. More specifically, SPS proposes to economically dispatch Tolk during the summer months, and reduce the output from Tolk during the off-peak months through end-of-year 2020. Beginning in 2021, SPS proposes to economically dispatch both Tolk units during the summer months and take both units offline during the off-peak months until water becomes uneconomic for the continued operation of the plant. After that point, Tolk would cease to be used for generating energy. Please refer to the testimony of Ms. Weeks for more detail regarding the operational scenarios that SPS considered and ultimately proposes for resource planning purposes.

To support voltage stability for the transmission system during periods when Tolk is not being used to generate energy, SPS will install synchronous condensers. The Tolk units would be used for voltage stability purposes through 2055. When the units operate in synchronous condenser mode, minimal ground water will be used for cooling. SPS has identified the existing assets at Tolk that will remain to support operation of the synchronous condensers, and SPS is proposing a depreciable life for those assets ending in 2055, which are reflected in SPS's depreciation study, presented by Mr. Watson.

Q. Are you the only SPS witness supporting SPS's request to change Tolk's service lives?

A. No. I address the background of Tolk and explain the considerations supporting SPS's request to change the useful lives of the units. Mr. Grant and Ms. Weeks also support SPS's request to change the service lives of Tolk.

A. <u>Tolk Generating Station</u>

Q. Please briefly describe Tolk.

A. Tolk consists of two coal-powered steam turbine units, located in Lamb County, Texas. Tolk Unit 1 has a net capacity of 540 MW and Tolk Unit 2 has a net capacity of 542 MW, for a total net capacity of 1,082 MW.

Q. When did the Tolk Units begin commercial operation?

A. Tolk Unit 1 began commercial operation in 1982. Tolk Unit 2 began commercial operation in 1985.

Q. What are the current Commission-approved estimated useful lives for the Tolk units?

A. In Texas, the assets at Tolk currently have a calculated depreciation retirement date of 2037 pursuant to the Stipulation in Docket No. 47527, which represent service lives of over 50 years.

Q. Have those dates always been the estimated useful lives for the Tolk units?

A. No. The Tolk Units originally had 35-year service lives. If the Commission changes the retirement dates to 2032, Tolk Unit 1 will have been in service for 50 years, and Tolk Unit 2 will have been in service for 47 years when retired.

B. Tolk Water Limitations

Q. What is the primary driver for SPS's proposed changes in the useful lives for the Tolk generating units in this case?

A. Over time, environmental compliance and water limitations have been the major drivers for modifying the useful lives of the Tolk units. Over the last few years, however, water limitations have emerged as the primary driver of SPS's need to revise the estimated useful lives of the Tolk units.

Q. Please generally describe the water limitations affecting Tolk's remaining useful lives.

A. Tolk relies exclusively on groundwater from the Ogallala Aquifer for generation cooling, and the Ogallala Aquifer is in an irreversible decline. The Ogallala aquifer is a large, connected body of groundwater that underlies most of the central United States. The part of the aquifer underlying the Texas Panhandle is thin relative to other areas of the aquifer, and it is being depleted to support overlying agricultural, municipal, and industrial uses. In addition, since 2010, the depletion of the aquifer has been accelerated by significant regional drought. Because groundwater production exceeds the aquifer recharge rate, the aquifer has declined by over 300 feet in some areas of the Texas panhandle. These factors are causing the saturated thickness of the aquifer to decline to a point where the water will no longer be economically recoverable.

Q. At what point does water become uneconomic to recover?

A. Water below 40 feet of saturated thickness is generally recognized as the level at which it becomes uneconomic to recover water using high-capacity wells.

Q. What is the saturated thickness of the Tolk wellfield?

A. In the late 1940s, before the start of irrigated agriculture in the area, there was approximately 170 feet of economically recoverable saturated thickness in the Tolk wellfield. By 2018, the economically recoverable saturated thickness had been reduced to approximately 10 feet. In other words, approximately 6% of the economically recoverable water remains in the aquifer today.

Q. Please describe how the water limitations will affect Tolk's operations.

A. The aquifer decline creates two main issues for the Tolk units – peak wellfield production declines and diminished aquifer longevity. The declining saturated thickness of the aquifer reduces the aggregate wellfield productivity, diminishing the ability for the aquifer to supply sufficient water to support peak generation demands. The rate of flow into a well is primarily affected by the aquifer transmissivity (i.e., the rate of water flow to the wells given the makeup and density of the sand and gravel in the water bearing formation, and the aquifer saturated thickness) and well screen length in contact with the saturated thickness. As the saturated thickness level declines, each well becomes less productive, making it difficult to support the peak water demand of the plant for generation. As a result, it becomes difficult to maintain peak electric generation.

Peak wellfield productivity challenges are occurring in the wellfield today. Since 2007, the Tolk wellfield acreage has increased and the number of wells on the wellfield has grown by over 50%, while peak water production capacity has declined by 11%. New wells are drilled annually to maintain wellfield production rates to support peak generation demands.

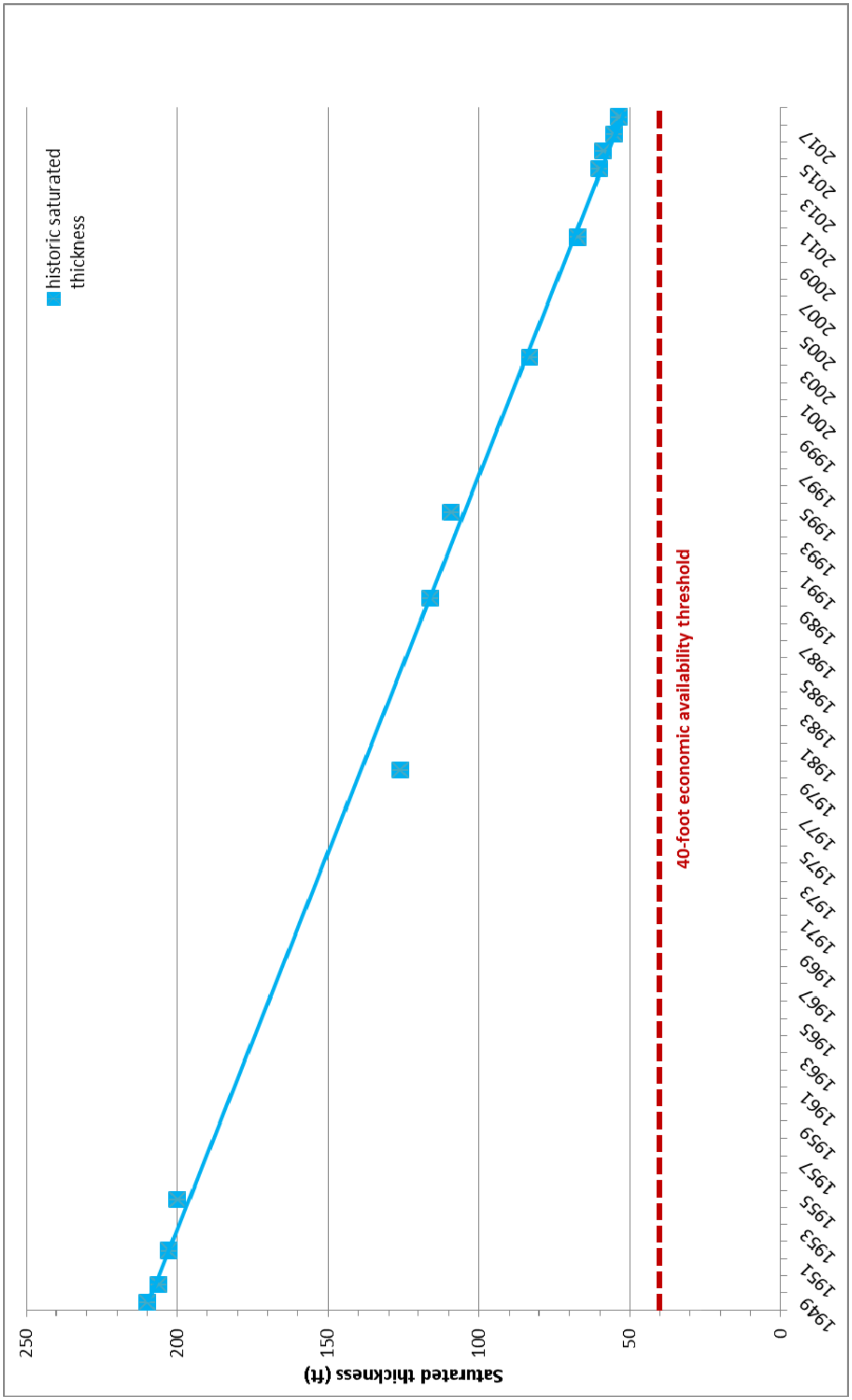
When the saturated thickness level of the aquifer declines below 40 feet, aquifer productivity collapses causing rapid declines in wellfield production. High-capacity well production is no longer supported even though there is still water in the aquifer formation. Losing the ability to support high-capacity wells means that multiple new lower-capacity wells are required to offset lost productivity from each high-capacity well, increasing the cost and complexity of wellfield operations. For example, a 200 gallon per minute well may need to be replaced by four 50 gallon per minute wells, just to maintain equivalent wellfield production.

Consequently, significant investment in drilling a sufficient number of smaller capacity replacement wells for each existing higher capacity well would be required to maintain the necessary volume of water required for Tolk's current generation cooling needs. Below this level, it becomes economically infeasible to provide adequate water supply to operate the Tolk units due to the number of additional wells required and the associated O&M expense. Therefore, this 40-foot threshold is considered the limit of the economically recoverable water in the aquifer.

Q. Is the Ogallala Aquifer approaching the 40-foot saturated thickness threshold you describe above?

A. Yes. As I noted earlier, in 2018, the economically recoverable saturated thickness had been reduced to 10 feet, as documented in the annual saturated thickness survey prepared by the High Plains Water District ("HPWD"). SPS has spent considerable time and effort in monitoring and analyzing the Ogallala Aquifer and how it behaves over time. Figure ML-RR-1 below shows the historical, actual decline in the aquifer's saturated thickness, dating back to widespread development of irrigated agriculture in the area.

Figure ML-RR-1: Saturated Thickness History of Tolk Wellfield Through



Despite the substantial growth in the number of wells to supply Tolk station, due to the overall decline of the aquifer, wellfield productivity will not be able to keep pace with Tolk's needs in the future. The number of wells will continue to dramatically increase into the future and productivity will continue to decline until plant operations can no longer be maintained.

Absent operational changes at Tolk, SPS's water modeling shows the economic depletion range of the aquifer (expressed in years of service of Tolk) would be 2024 – 2026. I describe SPS's modeling in more detail in Subsection C below.

Q. What evidence does SPS have to demonstrate the aquifer decline?

A. Data from groundwater districts, the federal government, and SPS and its groundwater consultant document the aquifer decline on scales ranging from local to an aquifer-wide basis. More specifically, SPS has data from the following sources, which all document the aquifer water levels are declining:

- 3D modeling prepared by the HPWD in 2011 and updated in 2013;
- public data from HPWD monitoring the Ogallala aquifer static water elevation on an annual, county-by-by basis;
- the United States Geological Survey ("USGS");
- semi-annual wellfield productivity tests beginning in 2016; and
- groundwater modeling results prepared by WSP since 2007, including studies completed in 2016, 2017, and 2018.[4]

[4] In 2017 WSP acquired LBG-Guyton Associates, the entity with which SPS previously had consulted on groundwater modeling at Tolk. For ease of reference, I will refer to both of those entities as WSP throughout my testimony.

Q. Please explain what the 3-D modeling prepared for the HPWD in 2011 demonstrates with regard to the water volume in the Ogallala Aquifer.

A. In 2011, Daniel B. Stephens & Associates created a 3-D hydrostratiagraphic model and conducted a volumetric analysis of the Ogallala Aquifer within a five-county study area which included Bailey, Castro, Deaf Smith, Parmer, and Lamb Counties, for HPWD, in cooperation with the City of Lubbock, Deaf Smith County Electric Cooperative, Lamb County Electric Cooperative, Golden Spread Electric Cooperative, Inc., and Xcel Energy.

The 2011 project included evaluating the stratigraphy and structure of the Ogallala Aquifer in the study area by using data obtained from high-graded existing driller's reports. A total of 2,753 wells were used to help delineate the subsurface of the geology in the study area. The results of the 2011 modeling effort estimated water volume in storage in the Tolk wellfield (shown as "Xcel Energy" on Table ML-RR-4) had decreased from 1.4 million acre-feet prior to 1950 to 0.52 million acre-feet in 2010.

Table ML-RR-4: Estimated Water in Storage for Individual Stakeholders

Year	Estimated Water in Storage (million acre-feet)				
	LCEC	DSEC	BCWF	Xcel Energy	5-County Area
1950	9.8	59.5	2.5	1.4	101
1960	8.5	51.2	2.25	1.3	88.6
1970	7.4	41.5	2.2	1.2	74.3
1980	6.5	34.7	2.0	1.1	63.4
1990	5.9	31.0	1.9	1.0	56.9
2000	4.8	26.2	1.8	0.8	47.5
2010	3.6	22.4	1.64	0.52	39.2

It is important to note tthe water volumes provided in the table includes the total amount of water in the aquifer – including water that is stored below 40-feet, which is uneconomic to recover. Thus, the amount of economically recoverable water is less than what is shown in the table. As the table shows, there is a clear trend of declining water volume in the aquifer for all study participants, and the decline for Xcel Energy's area is not unique.

Q. What were the results of the 2013 update to the 2011 study?

A. In the 2013 update, water level surfaces were created for the years including 2011, 2012, and 2013. The 2013 update estimated that water in storage in the five-county area had further decreased from 39.2 million acre-feet to approximately 36.8 million acre-feet in 2013. The decrease from 1950 through 2013 represents a more than 60% reduction in total aquifer volume. However, the economically recoverable portion of that total volume would be lower than reported in these results.

Q. What does the public data from HPWD monitoring the Ogallala aquifer static water elevation on an annual, county-by-county basis demonstrate?

A. SPS tracks the HPWD data for Lamb County, the county in which Tolk is located. That data shows that, on average in Lamb County, the aquifer has declined 15.25 feet between 2007 and 2017. It also shows that, in early 2019, the aquifer had an estimated, average saturated thickness of just 50 feet for Lamb County. SPS uses the HPWD data to generally validate the results of modeling completed internally and by external consultants.

Q. What does the USGS demonstrate about the water levels in the Ogallala Aquifer?

A. The USGS documents significant groundwater declines throughout the Texas Panhandle, and generally corroborates the data collected by HPWD, though not at the level of granularity of the HPWD data.

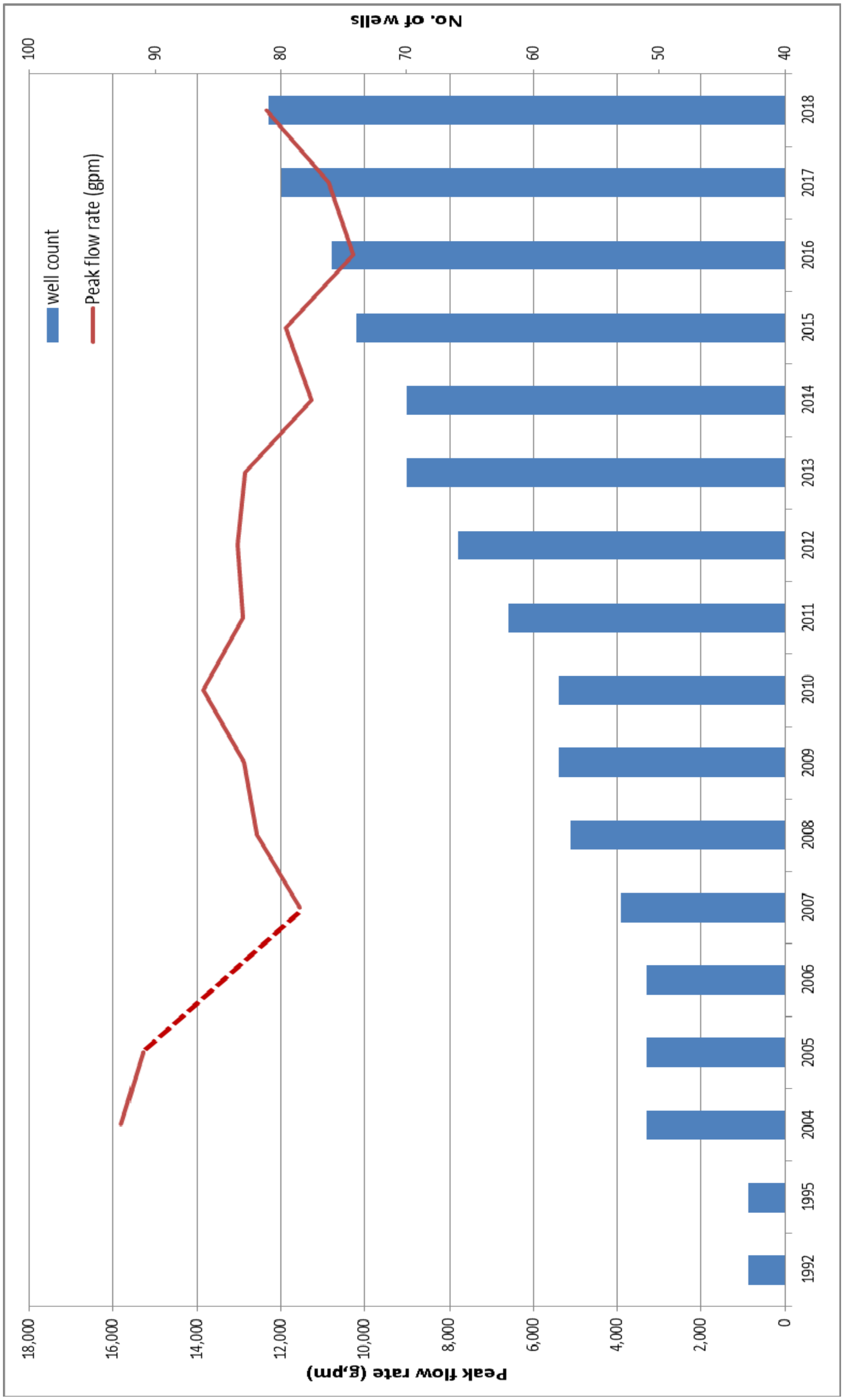
Q. Does SPS have measures of individual well production and aquifer characteristics?

A. Yes. SPS's groundwater consultant, WSP, measures well production and aquifer characteristics for a representative selection of wells on an annual basis. These measurements are used as a quality control and to calibrate WSP's groundwater model.

Q. Earlier you mentioned that Tolk Station has undergone semi-annual wellfield productivity tests. Please explain what those are and their results.

A. Beginning in 2016, Tolk Station has undergone semi-annual wellfield productivity tests to monitor instantaneous total wellfield productivity and to compare to previous results. Wellfield productivity assessments since 1992 show a decline in overall wellfield productivity along with a dramatic expansion in wellfield size (Figure ML-RR-2). Results since 2016 show that SPS has been maintaining minimum wellfield productivity though the addition of new wells. The testing confirms that it has become increasingly critical to add additional wells to the wellfield to offset the annual productivity loss and maintain peak flows to support generation at the Tolk units.

Figure ML-RR-2: Tolk Wellfield Productivity Decline since 1992



Q. Please elaborate on productivity loss of the Tolk wellfield.

A. At the time Tolk was built on the wellfield, the average flow was approximately 700 gallons per minute ("gpm") per well. Today a new well's productivity is approximately 200 gpm. This fact demonstrates the peak production challenge discussed earlier, and is a phenomenon that SPS has observed first-hand in the Tolk wellfield. It is not speculation. As the saturated thickness of the well declines toward 40 feet, well productivity will likely be in the 50-80 gpm range. In fact, many of the original wells in or near the wellfield are no longer producing, and some of the remaining wells are producing well under 100 gpm.

The overall Tolk wellfield averages just over 50 feet of saturated thickness over the existing 50,000 acre wellfield, ranging from 25-30 feet in the western portion of the wellfield to approximately 70 feet in the eastern portion. This is a 70-80% drop in the overall saturated thickness (i.e., including thickness below 40 feet, which is not economically recoverable) from predevelopment thickness. Only 5-6% of the recoverable saturated thickness remains.

As the hydraulic pressure drops from the decline in saturated thickness, the water flow into the wells decreases. Therefore, the production from each well drops accordingly. As shown by Figure ML-RR-2 above, although SPS has increased the well count by approximately 207% since 1992, the total wellfield production has declined by over 25%. Therefore, SPS continues to add new wells nearly every year to maintain the water flows necessary to operate the Tolk units. This effort is becoming increasingly expensive with diminishing returns and is not sustainable long-term.

Q. Earlier you mentioned that SPS uses the services of WSP, a third-party groundwater consultant. Who is WSP and how long has SPS been consulting with them?

A. WSP is a globally recognized professional services firm with expertise in sustainability and water issues. The WSP consultants with whom SPS has worked are experts in groundwater modeling, particularly in the region in which Tolk is located.

SPS has used the services of WSP to model the aquifer decline, and estimated future performance of the wellfield since 2007. Initially, groundwater modeling was conducted every few years and was primarily focused on the overall water stored in the Tolk wellfield, under the assumption that neighboring activities (e.g., agricultural and municipal use of water from the aquifer) could be safely ignored, given the wellfield's large size. Modeling then became more frequent because SPS was considering a number of options for Tolk and wanted to use the most recent and best available information to make those decisions. In addition, SPS realized that, in fact, surrounding agricultural and municipal use of the aquifer was having an effect, so SPS changed the model to encompass a larger area around the plant to be able to better gauge that impact. Further, the model coding continued to be improved by the USGS such that more accurate results could be computed in later model generations. Most recently, SPS has completed groundwater studies in 2016, 2017, and 2018 using the same general model with some updated inputs. The 2016 WSP groundwater model was peer-reviewed by another local hydrogeology consultant, DBS&A, who found the analysis methodology used by WSP yielded reasonable results.

Q Please describe generally the methodology used by WSP.

A. WSP conducted groundwater modeling using MODFLOW, the industry standard groundwater modeling software. It is a finite-difference model developed by the USGS. The WSP model uses the same base information (i.e., base of the aquifer, values for various aquifer parameters, and monitoring well calibration observations) as the regional groundwater planning models prepared by the Texas Water Development Board ("TWDB") and has been revised as the data underlying the regional models have been updated. In addition, the model calibration uses local data collected from the Tolk wellfield (water level measurements and pumping estimates) to improve the model calibration on and near the wellfield.

One of the most significant variables in the WSP model relates to the amount of agricultural water use in the model domain outside of the SPS wellfield, which drives overall water usage in the area. The values used in the model are based on estimates used by TWDB in other regional planning models. Agricultural water use in the model domain is not metered, per HPWD rules, so approximations of agricultural water use represent the best-available estimate. Estimated water use in recent years is similar to the long-term target (but unmeasured) 18-inch per acre per year water production rate allowed for groundwater users in the HPWD. The model is calibrated annually based on real well observations, so this assumption is verified annually.

Q. Please describe the 2018 study and its conclusions.

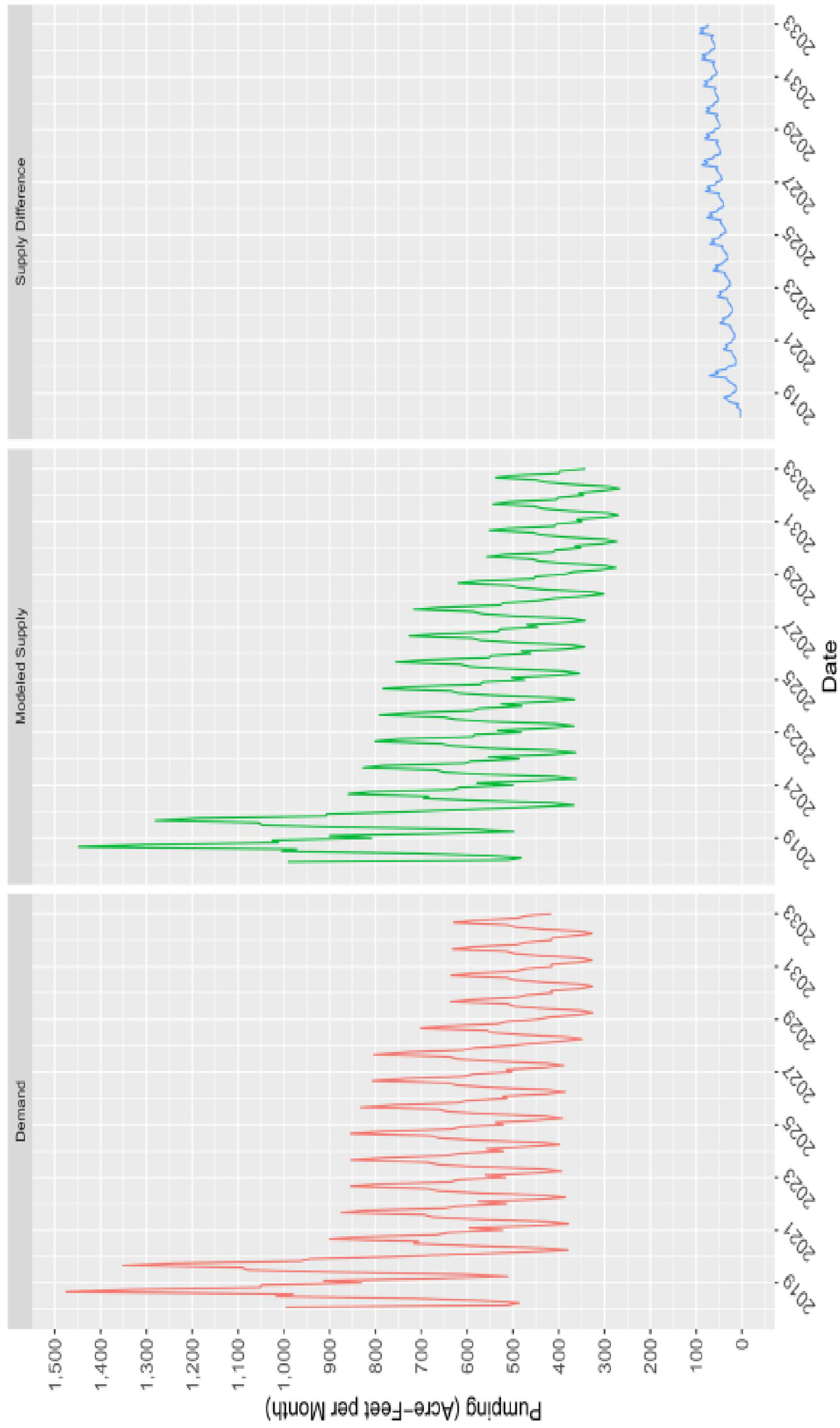
A. The 2018 WSP report further confirms the overall decline of the Ogallala Aquifer. It also projects how the aquifer would respond to two different Tolk operational scenarios: a "typical" demand scenario and an "optimized" demand scenario. The results from the predictive runs indicate that SPS will likely have challenges meeting the average annual groundwater demands throughout both scenarios, with the challenges accelerating in the year 2024. The 2018 report further concludes that meeting peak demands in the summer will also likely be a challenge for the wellfields starting in 2019. However, Tolk added 8 new wells between 2018 and 2019, so those wells will help offset the predicted production deficits.

Figure 3-2 from the 2018 report (reproduced below) shows the difference between the required production to support traditional generation demands and modeled wellfield production based on the groundwater model results. The blue line in the referenced chart shows the deficit between required and actual wellfield production will increase exponentially between 2019 and 2024, demonstrating once again that Tolk will be unable to operate in the years after this period under traditional operations.

Figure 3-2 from 2018 WSP Report: Typical Demand Run

The 2018 WSP report also modeled the impact of optimized operations on the wellfield and demonstrated that this is a viable approach to maintaining Tolk Station's ability to generate until 2030 – 2032, which is the modeled economic depletion range. Figure 3-1 from the report (reproduced below) shows the difference between the required production to support generation and the modeled wellfield production. The blue line in the referenced chart shows the deficit between the required and modeled results is sufficient to cause plant derating even during the reduced operation period.

Figure 3-1 from 2018 WSP Report: Optimized Demand Run



The 2018 groundwater study results helped to determine SPS's overall strategy for the operation of the Tolk generating units. The results confirm that insufficient water and wellfield capacity will remain to support Tolk operations beyond 2025 under economic dispatch. As a result, SPS has determined that reducing operations at Tolk in order to extend Tolk's life and maintain its capacity value on the system until 2031, and to install synchronous condensers to stabilize voltage on the transmission system during periods that Tolk is not generating is reasonable and prudent. The 2018 groundwater study results also confirm that, with reasonable mitigation efforts, sufficient water should be able to be produced to support SPS's proposed operations.

C. SPS's Water Modeling of Tolk Retirement Scenarios

Q. Has SPS modeled how alternative Tolk generation scenarios would affect water availability in the Tolk wellfield?

A. Yes. SPS developed a spreadsheet-model to evaluate Tolk long-term water supply under various operating scenarios. The model allows for variation of key input variables to produce an estimate of the longevity of the Tolk wellfield. The model has been updated numerous times as new data becomes available or assumptions are improved. The model produces results for various future operations scenarios and its output enables follow-on modeling of capital costs and evaluation of potential cost impacts on SPS customers.

Q. What are some of the key variables used in SPS's water modeling?

A. There are several key variables that are utilized in the model. The variables can be modified as needed to assess the impact of potential future plant operations on wellfield longevity. Some of the variables are:

- generating unit capacity factors and monthly/seasonal variability;
- auxiliary water demand;
- available reservoir storage;
- wellfield capacity, outage rate, rate of productivity decline, and starting capacity of new wells;
- water demand for potential environmental controls;
- variables to account for other variation in water use by each unit; and
- estimate of starting recoverable groundwater volume (derived from MODFLOW modeling).

Q. How are the results of SPS's water modeling used to estimate retirement dates for Tolk?

A. SPS's water model results yield a "water depletion window." The water depletion window is the range of years in which SPS predicts the water level will become insufficient to economically provide for Tolk's generation cooling needs. The start of the depletion window begins when the model indicated 50,000 acre-feet of recoverable water remaining in storage and ends when the model indicated less than 20,000 acre-feet of recoverable water.

Q. Please describe how SPS's water model was used to determine depletion ranges associated with alternative operating scenarios for the Tolk units.

A. The development of alternative operating scenarios for the Tolk units was an iterative process between Energy Supply and Resource Planning. Working in collaboration, Energy Supply and Resource Planning selected different operational scenarios for Tolk with sensitivities that would help give a more detailed analysis of potential costs or savings to SPS's customers. SPS then ran water modeling based on the capacity factors for Tolk included in these scenarios to determine a depletion range for each scenario. Attachment ML-RR-3(CD) shows the results of the various scenarios the water model predicts when the combination of total water availability in the wellfield aquifer and the ability to extract it would become uneconomic. That result would determine the Tolk retirement dates for that particular alternative. For example, assuming economic dispatch at Tolk (i.e., without reduced operations), the economic depletion range of the aquifer (expressed in years of service of Tolk) would be 2024 – 2026. (This is shown as Scenario 1 on the Summary Tab of Attachment ML-RR-3(CD)). Because SPS's predictive groundwater modeling provides a range for when the depletion of economically recoverable water would occur, Energy Supply selected the mid-point (or Year 2 of a 3-year range) of each given range to provide its cost estimates to Resource Planning for use in Strategist. Then, Energy Supply and Resource Planning determined which scenarios should be selected for economic modeling. Ms. Weeks discusses how these scenarios were run by the Strategist model and the final present value revenue requirement of each scenario.

Q. Does SPS's water modeling present a reasonable estimate of the potential depletion of the aquifer relative to Tolk operations?

A. Yes. SPS's water modeling provides a reasonable estimate of aquifer depletion that affects Tolk Station operations. SPS's water modeling results are consistent with all the water modeling, water reports, and water studies that SPS has reviewed from third parties (such as WSP, HPWD, and the TWDB). Put simply, every source confirms the Ogallala aquifer is in a state of persistent and irreversible decline, and WSP's modeling, described in the previous section, confirms that reduced operations can extend the useful lives of the Tolk units until 2030 – 2032 range relative to typical operations.

Given the known direction of aquifer depletion, the drop in the per well production, the prohibitive cost of new water well infrastructure, and the continued agriculture, municipal, and domestic use of water from the aquifer, which use is beyond SPS's control, it is reasonable to conclude the useful lives of the Tolk generating units have changed. Although SPS cannot predict down to the day when water depletion will make water recovery uneconomic, SPS must make changes in the direction of operations (i.e., limiting production to maintain generation capacity) to prepare Tolk for when it will retire. For the reasons I discussed in my testimony and the output of the Strategist modeling, as discussed by Ms. Weeks, SPS's proposed retirement date of 2032 is reasonable.

D. Cost Inputs to SPS's Strategist Analysis for Tolk Retirement

Q. What are the cost inputs that Energy Supply provided to Resource Planning for use in its Strategist modeling?

A. The cost inputs that Energy Supply developed for use in SPS's Strategist modeling fall into one of five categories: (1) on-going capital expenditures; (2) on-going capital expenditures associated with additional water wells; (3) the cost associated with synchronous condensers; (4) fixed O&M; (5) and costs associated with TUCO fuel handling. The cost inputs provided by Energy Supply to Resource Planning are included in my Attachment ML-RR-3(CD).

Q. Please explain the process that Energy Supply used to develop the cost inputs for the various Tolk operational scenarios and sensitivities.

A. The cost inputs were developed through a spreadsheet model that accounted for the various operational scenarios selected and the water depletion range.

Costs for ongoing capital expenditures were based on the historical and five-year capital budget. The historical spend considered the average spend over a ten-year period, including outages. The current forward-looking five-year budget was used as a baseline from which to modify that budget based on the operational scenarios. For each scenario, the capital estimate would be limited by lowering the average spend starting several years before the shutdown of a unit to manage the spend-down as a managed decline rather than a step change. When a scenario contemplated the unit running in a reduced operations state, the capital would be limited as well.

Capital expenditures were estimated to take care of smaller needs to get the Tolk units to the desired shutdown date. No major upgrade or large component replacements were contemplated. Thus, it would be a judgment call on what level of capital spends would justify the shutdown of the unit. For example, a motor failure that would require a rewind would still be less cost to the customer than shutting down the unit. Costs for ongoing capital expenditures associated with additional water wells were based on the predicted well production of the existing wells and of new wells. There is documented loss of productivity numbers for the existing wellfield that were used as a reference for future wellfield production. The production of new wells were mapped out over time with lower and lower production values that align with existing well field predictions.

To allow for peak generation during the year, additional water wells were proposed throughout the remaining life of each scenario. The number of additional wells was calculated so that peak productivity of the generators could be maintained. On-going water well capital consists of the cost bringing new wells into production as well as the replacement cost of existing well field equipment that has failed.

Costs associated for synchronous condensers were based on detailed engineering project costs associated with the engineering, procurement, and installation of the equipment needed to operate the Tolk generators in synchronous condenser mode.

Costs for fixed O&M were based on the historical O&M expense expected based on current operations and then modified according to the assumptions in a particular scenario. For example, if a unit was to be taken offline and run only for voltage stability purposes, the O&M was adjusted for a lower headcount and materials starting prior to the change. In some cases, there would be fewer Full Time Equivalents, but the cost for contractors might be increased to cover the peak needs. Overhauls were reviewed and were discounted for scope and timing with the change in operation of the unit. If the unit was nearing retirement, the overhaul would be cancelled.

Costs associated with the TUCO Fuel handling were based on the 2019 – 2023 budget. These costs were then escalated until the modeled retirement dates of the applicable scenario. Because the majority of the total costs are fixed costs, very little changed between scenarios.

Q. Earlier you mentioned one of the cost inputs is for synchronous condensers. What is a synchronous condenser?

A. A synchronous condenser utilizes the existing generator (uncoupled from the turbine), existing cooling and oil systems, and voltage regulator to run as a motor on the system with appropriate reactive power controls to regulate transmission voltage. By removing the mechanical load, the generator can be used to compensate the power line with either a leading or lagging power factor on the system by absorbing or supplying reactive power to the line. This power factor can be adjusted by varying the field excitation with the voltage regulator. This is done by over-exciting the field of the synchronous motor.

Q. Why is a synchronous condenser needed?

A. As explained in more detail in the testimony of SPS witness Jarred J. Cooley, when Tolk is taken offline as a generating unit, synchronous condensers are needed to address voltage stability issues that will arise.

VI. USEFUL LIVES OF OTHER GENERATING UNITS

Q. Is SPS proposing to change the useful lives of any generating units besides the Tolk generating units?

A. Yes. SPS is proposing the useful life of Plant X Unit 2 be reduced by one year, from 2020 to 2019, so that its approved useful life in Texas is consistent with the useful life already approved by the New Mexico Regulation Commission, which provides consistency for planning purposes. SPS is also proposing the Commission adopt a 25-year useful life for the Hale Wind Project.

Q. Why is SPS requesting a 25-year useful life for the Hale Wind Project?

A. SPS is proposing a 25-year service life based on an estimate of the average service life of a turbine provided by Vestas, the turbine manufacturer. That is also the service life that other Xcel Energy affiliates have used for Vestas turbines in other wind projects.

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

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 testimony. I have read the 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 testimony are true, valid, and accurate.

Mark Lytal
MARK LYTAL

Subscribed and sworn to before me this 29 day of July, 2019 by MARK LYTAL

JO L. HUGHES
Notary Public, State of Texas
Notary ID #13046248-0
My Commission Expires 12-09-2019

Jo L Hughes
Notary Public, State of Texas

My Commission Expires: 12-9-19

Southwestern Public Service Company

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	(A)	(B)	(C)	(D)	(E)
Line No.	WBS Level 4 Number	WBS Level 4 Description	Asset Class	Witness	Project Category
1	A.0001529.501.001.003	MAD2C-Xfrmr Rewind and Wire	Electric Production	Lytal	Reliability & Performance Enhancement
2	A.0001529.501.001.004	MAD2C-Rpl Fuel Cntrl Vlv	Electric Production	Lytal	Reliability & Performance Enhancement
3	A.0001529.501.001.005	MAD2C-Rpl Crane Pwr Supply	Electric Production	Lytal	Reliability & Performance Enhancement
4	A.0001529.501.001.006	MAD2C-Rpl AC Units Elec Pkg	Electric Production	Lytal	Reliability & Performance Enhancement
5					
6	A.0001545.070.001.002	CHC3C-Vibration Upgrade	Electric Production	Lytal	Reliability & Performance Enhancement
7					
8	A.0001545.501.001.004	CHC3C-Rpl Battery Charger	Electric Production	Lytal	Reliability & Performance Enhancement
9	A.0001545.501.001.005	CHC3C-Rpl GT Inlet Air Filters	Electric Production	Lytal	Reliability & Performance Enhancement
10	A.0001545.501.001.008	CHC3C-Rpl Generator Prot Relays	Electric Production	Lytal	Reliability & Performance Enhancement
11	A.0001545.501.001.006	CHC4C-Rpl GT Inlet Air Filters	Electric Production	Lytal	Reliability & Performance Enhancement
12	A.0001545.501.001.007	CHC3C-Rpl Submersible Pump	Electric Production	Lytal	Reliability & Performance Enhancement
13	A.0001545.501.001.009	CHC4C-Rpl Generator Prot Relays	Electric Production	Lytal	Reliability & Performance Enhancement
14					
15	A.0001554.003.001.002	QUA2C-Rpl Emergency Diesel Generato	Electric Production	Lytal	Reliability & Performance Enhancement
16					
17	A.0001554.501.001.002	QUA1C-Rpl Starting Diesel Rad	Electric Production	Lytal	Reliability & Performance Enhancement
18					
19	A.0001586.294.001.002	JON4C-Rpl Exh Expansion Joint	Electric Production	Lytal	Reliability & Performance Enhancement
20					
21	A.0001586.501.001.004	JON4C-Rpl Turning Gear Gearbox	Electric Production	Lytal	Reliability & Performance Enhancement
22	A.0001586.501.001.003	JON3C-Rpl Gen Cooler Bypass Act	Electric Production	Lytal	Reliability & Performance Enhancement
23					
24	A.0001621.001.001.003	GMS0C-Gaines Co Engineering	Electric Production	Lytal	Reliability & Performance Enhancement
25					
26	A.0001639.001.001.002	CHC3C-Major-Upg all hot path	Electric Production	Lytal	Reliability & Performance Enhancement
27					
28	A.0001529.080.001.002	MAD3C-Rpl Exhaust Stack	Electric Production	Lytal	Reliability & Performance Enhancement
29					
30	A.0001586.291.001.002	JON3C-Rpl Exh Expansion Joint	Electric Production	Lytal	Reliability & Performance Enhancement
31					
32	A.0001577.002.001.002	Hale-O&M Site Land Parcel	Electric Production	Lytal	New Generation
33					
34	A.0001529.004.001.001	MAD1C-E Rpl Sprheat and HRH	Electric Production	Lytal	Reliability & Performance Enhancement
35					

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Line No.	(F) WBS Level 2 Number	(G) WBS Level 2 Description	(H) In-Service Date	(I) Additions to Plant-In-Service (July 1, 2017 - March 31, 2019)	(J) XES Charges (Included in Column I)	(K) Other Affiliate Charges (Included in Column I)	(L) Total Affiliate Charges (Included in Column I)	(M) Total Native Charges (Columns I less L) Within the Total Additions to Plant-in-Service Shown in Column (I)
1	A.0001529.501	MAD Emergent Fund -Other prod	201807	$ 82,853.43	$ -	$ -	$ -	$ 82,853.43
2	A.0001529.501	MAD Emergent Fund -Other prod	201812	48,540.72	2,511.43	-	2,511.43	46,029.29
3	A.0001529.501	MAD Emergent Fund -Other prod	201811	19,100.68	-	-	-	19,100.68
4	A.0001529.501	MAD Emergent Fund -Other prod	201812	9,834.32	924.09	-	924.09	8,910.23
5	A.0001529.501 Total			160,329.15	3,435.52	-	3,435.52	156,893.63
6	A.0001545.070	CHC3C-Vibration Upgrade	201709	80,333.60	29,122.29	-	29,122.29	51,211.31
7	A.0001545.070 Total			80,333.60	29,122.29	-	29,122.29	51,211.31
8	A.0001545.501	CHC Emergent Fund -Other prod	201709	30,122.06	5,169.57	-	5,169.57	24,952.49
9	A.0001545.501	CHC Emergent Fund -Other prod	201808	76,209.11	866.35	-	866.35	75,342.76
10	A.0001545.501	CHC Emergent Fund -Other prod	201812	25,356.88	12,159.91	-	12,159.91	13,196.97
11	A.0001545.501	CHC Emergent Fund -Other prod	201808	76,406.02	474.48	-	474.48	75,931.54
12	A.0001545.501	CHC Emergent Fund -Other prod	201811	9,320.28	-	-	-	9,320.28
13	A.0001545.501	CHC Emergent Fund -Other prod	201812	26,137.86	12,284.75	-	12,284.75	13,853.11
14	A.0001545.501 Total			243,552.21	30,955.06	-	30,955.06	212,597.15
15	A.0001554.003	QUA2C-Rpl Emergency Diesel Generato	201712	194,281.57	21,805.12	-	21,805.12	172,476.45
16	A.0001554.003 Total			194,281.57	21,805.12	-	21,805.12	172,476.45
17	A.0001554.501	QUA Emergent Fund - Other Prod	201812	22,986.99	6,420.31	-	6,420.31	16,566.68
18	A.0001554.501 Total			22,986.99	6,420.31	-	6,420.31	16,566.68
19	A.0001586.294	JON4C-Rpl Exh Expansion Joint	201805	209,393.94	23,448.21	-	23,448.21	185,945.73
20	A.0001586.294 Total			209,393.94	23,448.21	-	23,448.21	185,945.73
21	A.0001586.501	JON Emergent Fund -Other prod	201812	142,393.31	-	-	-	142,393.31
22	A.0001586.501	JON Emergent Fund -Other prod	201901	9,972.77	-	-	-	9,972.77
23	A.0001586.501 Total			152,366.08	-	-	-	152,366.08
24	A.0001621.001	GMS0C-Gaines Cty Gen Project	201804	139.37	-	-	-	139.37
25	A.0001621.001 Total			139.37	-	-	-	139.37
26	A.0001639.001	CHC3C-Major-Upg all hot path	201705	200,043.45	-	5.69	5.69	200,037.76
27	A.0001639.001 Total			200,043.45	-	5.69	5.69	200,037.76
28	A.0001529.080	MAD3C-Rpl Exhaust Stack	201811	152,633.51	29,774.77	-	29,774.77	122,858.74
29	A.0001529.080 Total			152,633.51	29,774.77	-	29,774.77	122,858.74
30	A.0001586.291	JON3C-Rpl Exh Expansion Joint	201806	230,299.73	28,426.89	-	28,426.89	201,872.84
31	A.0001586.291 Total			230,299.73	28,426.89	-	28,426.89	201,872.84
32	A.0001577.002	Hale-Land & Land Rights	201812	55,028.38	-	-	-	55,028.38
33	A.0001577.002 Total			55,028.38	-	-	-	55,028.38
34	A.0001529.004	MAD1C-E Rpl Sprheat and HRH	201611	(1.27)	50.17	-	50.17	(51.44)
35	A.0001529.004 Total			(1.27)	50.17	-	50.17	(51.44)

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	(A)	(B)	(C)	(D)	(E)
Line No.	**WBS Level 4 Number**	**WBS Level 4 Description**	**Asset Class**	**Witness**	**Project Category**
36	A.0001529.024.001.002	MAD1C-Rpl CS APH Basket&Seals	Electric Production	Lytal	Reliability & Performance Enhancement
37					
38	A.0001529.031.001.001	MAD0C-E Rpl Lab HVAC System	Electric Production	Lytal	Reliability & Performance Enhancement
39					
40	A.0001529.036.001.002	MAD1C-Rpl Turbine Oil Centrifu	Electric Production	Lytal	Reliability & Performance Enhancement
41					
42	A.0001529.038.001.001	MAD1C-Rpl Lab HACH Analyzers	Electric Production	Lytal	Reliability & Performance Enhancement
43					
44	A.0001529.052.001.002	MAD0C-Tornado Shelter	Electric Production	Lytal	Reliability & Performance Enhancement
45					
46	A.0001529.057.001.002	MAD1C-Rpl Air Prehtr Exp Joint	Electric Production	Lytal	Reliability & Performance Enhancement
47					
48	A.0001529.065.001.002	MAD1C-Rpl Lab Analyzers	Electric Production	Lytal	Reliability & Performance Enhancement
49					
50	A.0001529.067.001.002	MAD1C-Rpl #1 HP FWH-20820	Electric Production	Lytal	Reliability & Performance Enhancement
51					
52	A.0001529.500.001.003	MAD1C-Rpl Blr O2 Probes	Electric Production	Lytal	Reliability & Performance Enhancement
53	A.0001529.500.001.004	MAD1C-Rpl Main Stm SealReg Vlv	Electric Production	Lytal	Reliability & Performance Enhancement
54	A.0001529.500.001.005	MAD2C-Rwnd DC Lube Oil Motor	Electric Production	Lytal	Reliability & Performance Enhancement
55	A.0001529.500.001.006	MAD1C-Rpl Basement Heater	Electric Production	Lytal	Reliability & Performance Enhancement
56	A.0001529.500.001.009	MAD0C-Inst Ladder Swing Gates	Electric Production	Lytal	Reliability & Performance Enhancement
57	A.0001529.500.001.010	MAD1C-Rpl HRH Terminal Tubes	Electric Production	Lytal	Reliability & Performance Enhancement
58	A.0001529.500.001.007	MAD0C-Rpl Main Pinnacle Gas Vlv	Electric Production	Lytal	Reliability & Performance Enhancement
59					
60	A.0001534.081.001.001	PLX1C-Rpl Stm Seal Regulator	Electric Production	Lytal	Reliability & Performance Enhancement
61					
62	A.0001534.086.001.001	PLX0C-Rpl CT Fill	Electric Production	Lytal	Reliability & Performance Enhancement
63					
64	A.0001534.088.001.001	PLX0C-Rpl Used Oil Containment	Electric Production	Lytal	Environmental Compliance
65					
66	A.0001534.095.001.001	PLX0C-Rpl CT 4 Cell Mech PH1	Electric Production	Lytal	Reliability & Performance Enhancement
67					
68	A.0001534.099.001.002	PLX4C-Rpl CT Fill & DE PH3	Electric Production	Lytal	Reliability & Performance Enhancement
69					
70	A.0001534.100.001.002	PLX4C-Rpl CT Mech PH3	Electric Production	Lytal	Reliability & Performance Enhancement
71					

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Line No.	(F) WBS Level 2 Number	(G) WBS Level 2 Description	(H) In-Service Date	(I) Additions to Plant-In-Service (July 1, 2017 - March 31, 2019)	(J) XES Charges (Included in Column I)	(K) Other Affiliate Charges (Included in Column I)	(L) Total Affiliate Charges (Included in Column I)	(M) Total Native Charges (Columns I less L) Within the Total Additions to Plant-in-Service Shown in Column (I)
36	A.0001529.024	MAD1C-Rpl CS APH Basket&Seals	201811	397,843.48	45,597.97	-	45,597.97	352,245.51
37	A.0001529.024 Total			397,843.48	45,597.97	-	45,597.97	352,245.51
38	A.0001529.031	MAD0C-E Rpl Lab HVAC System	201607	5,575.26	-	-	-	5,575.26
39	A.0001529.031 Total			5,575.26	-	-	-	5,575.26
40	A.0001529.036	MAD1C-Rpl Turbine Oil Centrifu	201804	46,675.77	16,838.76	-	16,838.76	29,837.01
41	A.0001529.036 Total			46,675.77	16,838.76	-	16,838.76	29,837.01
42	A.0001529.038	MAD1C-Rpl Lab HACH Analyzers	201608	(1.81)	59.55	-	59.55	(61.36)
43	A.0001529.038 Total			(1.81)	59.55	-	59.55	(61.36)
44	A.0001529.052	MAD0C-Tornado Shelter	201806	28,874.15	9,274.15	-	9,274.15	19,600.00
45	A.0001529.052 Total			28,874.15	9,274.15	-	9,274.15	19,600.00
46	A.0001529.057	MAD1C-Rpl Air Prehtr Exp Joint	201812	243,216.87	20,473.07	-	20,473.07	222,743.80
47	A.0001529.057 Total			243,216.87	20,473.07	-	20,473.07	222,743.80
48	A.0001529.065	MAD1C-Rpl Lab Analyzers-21292	201712	61,394.59	11,976.92	-	11,976.92	49,417.67
49	A.0001529.065 Total			61,394.59	11,976.92	-	11,976.92	49,417.67
50	A.0001529.067	MAD1C-Rpl #1 HP FWH-20820	201812	529,642.98	80,568.85	-	80,568.85	449,074.13
51	A.0001529.067 Total			529,642.98	80,568.85	-	80,568.85	449,074.13
52	A.0001529.500	MAD Emergent Fund -Steam prod	201705	203.88	-	-	-	203.88
53	A.0001529.500	MAD Emergent Fund -Steam prod	201812	26,340.64	2,099.37	-	2,099.37	24,241.27
54	A.0001529.500	MAD Emergent Fund -Steam prod	201803	47,421.92	14,704.21	-	14,704.21	32,717.71
55	A.0001529.500	MAD Emergent Fund -Steam prod	201712	10,453.08	-	-	-	10,453.08
56	A.0001529.500	MAD Emergent Fund -Steam prod	201812	24,324.06	4,104.42	-	4,104.42	20,219.64
57	A.0001529.500	MAD Emergent Fund -Steam prod	201812	601,878.16	25,739.34	-	25,739.34	576,138.82
58	A.0001529.500	MAD Emergent Fund -Steam prod	201812	27,801.74	2,511.43	-	2,511.43	25,290.31
59	A.0001529.500 Total			738,423.48	49,158.77	-	49,158.77	689,264.71
60	A.0001534.081	PLX1C-Rpl Stm Seal Regulator	201708	(46.93)	-	-	-	(46.93)
61	A.0001534.081 Total			(46.93)	-	-	-	(46.93)
62	A.0001534.086	PLX0C-Rpl CT Fill	201703	587.63	1,026.77	-	1,026.77	(439.14)
63	A.0001534.086 Total			587.63	1,026.77	-	1,026.77	(439.14)
64	A.0001534.088	PLX0C-Rpl Used Oil Containment	201612	370.27	-	-	-	370.27
65	A.0001534.088 Total			370.27	-	-	-	370.27
66	A.0001534.095	PLX0C-Rpl CT 4 Cell Mech PH1	201708	(137.51)	(633.76)	-	(633.76)	496.25
67	A.0001534.095 Total			(137.51)	(633.76)	-	(633.76)	496.25
68	A.0001534.099	PLX4C-Rpl CT Fill & DE Phase 3	201712	782,044.30	71,883.14	-	71,883.14	710,161.16
69	A.0001534.099 Total			782,044.30	71,883.14	-	71,883.14	710,161.16
70	A.0001534.100	PLX4C-Rpl CT Mech PH3	201712	405,155.19	8,861.08	-	8,861.08	396,294.11
71	A.0001534.100 Total			405,155.19	8,861.08	-	8,861.08	396,294.11

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	(A)	(B)	(C)	(D)	(E)
Line No.	**WBS Level 4 Number**	**WBS Level 4 Description**	**Asset Class**	**Witness**	**Project Category**
72	A.0001534.157.001.002	PLX0C-Rpl 50T-5T Turb Crane-20816	Electric Production	Lytal	Reliability & Performance Enhancement
73					
74	A.0001534.170.001.002	PLX0C-Rpl Relay & ComptrRmFloors	Electric Production	Lytal	Reliability & Performance Enhancement
75					
76	A.0001534.171.001.002	PLX0C-Roof Drains Header	Electric Production	Lytal	Reliability & Performance Enhancement
77					
78	A.0001534.172.001.002	PLX0C-Rpl Lab Analyzers	Electric Production	Lytal	Reliability & Performance Enhancement
79					
80	A.0001534.174.001.002	PLX1C-Rpl Boiler PH Analyzers	Electric Production	Lytal	Reliability & Performance Enhancement
81					
82	A.0001534.178.001.002	PLX2C-Rpl Boiler pH Analyzers	Electric Production	Lytal	Reliability & Performance Enhancement
83					
84	A.0001534.184.001.002	PLX3C-Rpl Feedwater Analyzers	Electric Production	Lytal	Reliability & Performance Enhancement
85					
86	A.0001534.185.001.002	PLX3C-Condensate Suction Pipe	Electric Production	Lytal	Reliability & Performance Enhancement
87					
88	A.0001534.190.001.002	PLX4C-Rpl Feedwater Analyzers	Electric Production	Lytal	Reliability & Performance Enhancement
89					
90	A.0001534.500.001.003	PLX3C-Rpl X3 Blr SumpPmp-22569	Electric Production	Lytal	Reliability & Performance Enhancement
91	A.0001534.500.001.004	PLX0C-Rpl Well 15 Pump	Electric Production	Lytal	Reliability & Performance Enhancement
92	A.0001534.500.001.005	PLX2C-Rpl X2 Blowdown Vlv	Electric Production	Lytal	Reliability & Performance Enhancement
93	A.0001534.500.001.006	PLX1C-Rpl DA Pressure Rel Vlv	Electric Production	Lytal	Reliability & Performance Enhancement
94	A.0001534.500.001.007	PLX2C-Rpl Yarway DrumLvl Xmtr	Electric Production	Lytal	Reliability & Performance Enhancement
95	A.0001534.500.001.009	PLX3C-Rpl SH/RH Spray block Vlv	Electric Production	Lytal	Reliability & Performance Enhancement
96	A.0001534.500.001.012	PLX0C-Inst SwingGates&LadderProt	Electric Production	Lytal	Reliability & Performance Enhancement
97	A.0001534.500.001.013	PLX4C-Rpl SH/RH SpayAuto BlkVLV	Electric Production	Lytal	Reliability & Performance Enhancement
98	A.0001534.500.001.015	PLX4C-Rpl HP Heater Safeties	Electric Production	Lytal	Reliability & Performance Enhancement
99	A.0001534.500.001.016	PLX0C-Replace Water Wells	Electric Production	Lytal	Reliability & Performance Enhancement
100	A.0001534.500.001.011	PLX4C-Rpl Inst Air Comp	Electric Production	Lytal	Reliability & Performance Enhancement
101	A.0001534.500.001.010	PLX4C-Rpl Bldn Throttling Vlv	Electric Production	Lytal	Reliability & Performance Enhancement
102	A.0001534.500.001.008	PLX2C-Rpl West Blowdown Vlv	Electric Production	Lytal	Reliability & Performance Enhancement
103	A.0001534.500.001.018	PLX3C-E FD Fan Motor Rwd	Electric Production	Lytal	Reliability & Performance Enhancement
104					
105	A.0001545.014.001.001	CHC4C-E Rpl Battery Charger	Electric Production	Lytal	Reliability & Performance Enhancement
106					
107	A.0001545.031.001.002	CHC2C-Rpl BFP Fluid Drives	Electric Production	Lytal	Reliability & Performance Enhancement

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	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Line No.	WBS Level 2 Number	WBS Level 2 Description	In-Service Date	Additions to Plant-In-Service (July 1, 2017 - March 31, 2019)	XES Charges (Included in Column I)	Other Affiliate Charges (Included in Column I)	Total Affiliate Charges (Included in Column I)	Total Native Charges (Columns I less L) Within the Total Additions to Plant-in-Service Shown in Column (I)
72	A.0001534.157	PLX0C-Rpl 50T-5T Turb Crane-20816	201812	668,392.98	13,795.46	-	13,795.46	654,597.52
73	A.0001534.157 Total			668,392.98	13,795.46	-	13,795.46	654,597.52
74	A.0001534.170	PLX0C-Rpl Relay & ComptrRmFloors	201811	26,704.12	4,536.33	-	4,536.33	22,167.79
75	A.0001534.170 Total			26,704.12	4,536.33	-	4,536.33	22,167.79
76	A.0001534.171	PLX0C-Roof Drains Header	201812	73,699.04	14,716.29	-	14,716.29	58,982.75
77	A.0001534.171 Total			73,699.04	14,716.29	-	14,716.29	58,982.75
78	A.0001534.172	PLX0C-Rpl Lab Analyzers	201812	140,631.39	6,725.94	-	6,725.94	133,905.45
79	A.0001534.172 Total			140,631.39	6,725.94	-	6,725.94	133,905.45
80	A.0001534.174	PLX1C-Rpl Boiler PH Analyzers	201812	11,588.99	4,477.74	-	4,477.74	7,111.25
81	A.0001534.174 Total			11,588.99	4,477.74	-	4,477.74	7,111.25
82	A.0001534.178	PLX2C-Rpl Boiler pH Analyzers	201812	8,442.34	3,187.82	-	3,187.82	5,254.52
83	A.0001534.178 Total			8,442.34	3,187.82	-	3,187.82	5,254.52
84	A.0001534.184	PLX3C-Rpl Feedwater Analyzers	201812	40,504.62	3,429.65	-	3,429.65	37,074.97
85	A.0001534.184 Total			40,504.62	3,429.65	-	3,429.65	37,074.97
86	A.0001534.185	PLX3C-Condensate Suction Pipe	201812	53,483.02	16,000.75	-	16,000.75	37,482.27
87	A.0001534.185 Total			53,483.02	16,000.75	-	16,000.75	37,482.27
88	A.0001534.190	PLX4C-Rpl Feedwater Analyzers	201812	51,240.54	4,198.32	-	4,198.32	47,042.22
89	A.0001534.190 Total			51,240.54	4,198.32	-	4,198.32	47,042.22
90	A.0001534.500	PLX Emergent Fund -Steam prod	201708	24,746.51	-	-	-	24,746.51
91	A.0001534.500	PLX Emergent Fund -Steam prod	201711	8,786.46	-	-	-	8,786.46
92	A.0001534.500	PLX Emergent Fund -Steam prod	201711	13,581.28	-	-	-	13,581.28
93	A.0001534.500	PLX Emergent Fund -Steam prod	201802	10,957.74	-	-	-	10,957.74
94	A.0001534.500	PLX Emergent Fund -Steam prod	201812	24,922.35	9,935.04	-	9,935.04	14,987.31
95	A.0001534.500	PLX Emergent Fund -Steam prod	201808	5,790.67	-	-	-	5,790.67
96	A.0001534.500	PLX Emergent Fund -Steam prod	201812	23,690.38	3,521.29	-	3,521.29	20,169.09
97	A.0001534.500	PLX Emergent Fund -Steam prod	201810	29,903.82	-	-	-	29,903.82
98	A.0001534.500	PLX Emergent Fund -Steam prod	201812	14,537.13	-	-	-	14,537.13
99	A.0001534.500	PLX Emergent Fund -Steam prod	201812	30,780.17	-	-	-	30,780.17
100	A.0001534.500	PLX Emergent Fund -Steam prod	201811	81,210.52	-	-	-	81,210.52
101	A.0001534.500	PLX Emergent Fund -Steam prod	201810	6,490.98	-	-	-	6,490.98
102	A.0001534.500	PLX Emergent Fund -Steam prod	201812	10,031.03	-	-	-	10,031.03
103	A.0001534.500	PLX Emergent Fund -Steam prod	201903	51,768.45	-	-	-	51,768.45
104	A.0001534.500 Total			337,197.49	13,456.33	-	13,456.33	323,741.16
105	A.0001545.014	CHC4C-E Rpl Battery Charger	201706	221.62	-	-	-	221.62
106	A.0001545.014 Total			221.62	-	-	-	221.62
107	A.0001545.031	CHC2C-Rpl BFP Fluid Drives	201806	270,951.38	28,776.12	-	28,776.12	242,175.26

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	(A)	(B)	(C)	(D)	(E)
Line No.	**WBS Level 4 Number**	**WBS Level 4 Description**	**Asset Class**	**Witness**	**Project Category**
108					
109	A.0001545.046.001.002	CHC0C-Refurb Plant Bathroom	Electric Production	Lytal	Reliability & Performance Enhancement
110					
111	A.0001545.073.001.002	CHC0C-Rpr Water Well 8	Electric Production	Lytal	Reliability & Performance Enhancement
112	A.0001545.073.001.003	CHC0C-Rpr Water Well 14	Electric Production	Lytal	Reliability & Performance Enhancement
113	A.0001545.073.001.004	CHC0C-Rpr Water Well 24	Electric Production	Lytal	Reliability & Performance Enhancement
114					
115	A.0001545.083.001.002	CHC0C-Rpr Water Well 22	Electric Production	Lytal	Reliability & Performance Enhancement
116	A.0001545.083.001.003	CHC0C-Rpr Water Well 6	Electric Production	Lytal	Reliability & Performance Enhancement
117					
118	A.0001545.118.001.001	CHC2C-E Rbld Turb Cntrl Vlv	Electric Production	Lytal	Reliability & Performance Enhancement
119					
120	A.0001545.119.001.001	CHC1C-E Rpl Xfrmr Relays	Electric Production	Lytal	Reliability & Performance Enhancement
121					
122	A.0001545.122.001.002	CHC2C-Upg DCS Hardware	Electric Production	Lytal	Reliability & Performance Enhancement
123					
124	A.0001545.253.001.002	CHC0C-Rpl WW Line 14-15	Electric Production	Lytal	Reliability & Performance Enhancement
125					
126	A.0001545.254.001.002	CHC2C-Rpl Burner Tilts	Electric Production	Lytal	Reliability & Performance Enhancement
127					
128	A.0001545.257.001.002	CHC0C-Rpl TUCO Roof-21291	Electric Production	Lytal	Reliability & Performance Enhancement
129					
130	A.0001545.300.001.002	CHC0C-Rpl Lab Analyzers	Electric Production	Lytal	Reliability & Performance Enhancement
131					
132	A.0001545.303.001.002	CHC1C-Rpl Lab Analyzers	Electric Production	Lytal	Reliability & Performance Enhancement
133					
134	A.0001545.305.001.002	CHC2C-Rpl Lab Analyzers	Electric Production	Lytal	Reliability & Performance Enhancement
135					
136	A.0001545.500.001.003	CHC2C-CT CW Bypass Vlv	Electric Production	Lytal	Reliability & Performance Enhancement
137	A.0001545.500.001.005	CHC2C-Sprht Spray Blck Vlv	Electric Production	Lytal	Reliability & Performance Enhancement
138	A.0001545.500.001.006	CHC0C-Rpl Gas Sys SRV	Electric Production	Lytal	Reliability & Performance Enhancement
139	A.0001545.500.001.007	CHC2C-Anodamine CF System	Electric Production	Lytal	Reliability & Performance Enhancement
140	A.0001545.500.001.011	CHC2C-Rpl Elevator Gearbox	Electric Production	Lytal	Reliability & Performance Enhancement
141	A.0001545.500.001.013	CHC0C-inst Ladder Swing Gates	Electric Production	Lytal	Reliability & Performance Enhancement
142	A.0001545.500.001.010	CHC2C-Rpl Firing Valve	Electric Production	Lytal	Reliability & Performance Enhancement
143	A.0001545.500.001.009	CHC2C-HRH Piping Abate&Reins	Electric Production	Lytal	Reliability & Performance Enhancement

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	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Line No.	WBS Level 2 Number	WBS Level 2 Description	In-Service Date	Additions to Plant-In-Service (July 1, 2017 - March 31, 2019)	XES Charges (Included in Column I)	Other Affiliate Charges (Included in Column I)	Total Affiliate Charges (Included in Column I)	Total Native Charges (Columns I less L) Within the Total Additions to Plant-in-Service Shown in Column (I)
108	A.0001545.031 Total			270,951.38	28,776.12	-	28,776.12	242,175.26
109	A.0001545.046	CHC0C-Refurb Plant Bathroom	201812	60,165.79	11,771.57	-	11,771.57	48,394.22
110	A.0001545.046 Total			60,165.79	11,771.57	-	11,771.57	48,394.22
111	A.0001545.073	CHC0C-Rpl Waterwell Pmp Mtr	201809	24,068.92	928.55	-	928.55	23,140.37
112	A.0001545.073	CHC0C-Rpl Waterwell Pmp Mtr	201809	32,658.34	1,602.60	-	1,602.60	31,055.74
113	A.0001545.073	CHC0C-Rpl Waterwell Pmp Mtr	201809	23,448.49	1,465.76	-	1,465.76	21,982.73
114	A.0001545.073 Total			80,175.75	3,996.91	-	3,996.91	76,178.84
115	A.0001545.083	CHC0C-Rpr Water Well Mtr 2017	201806	44,746.77	-	-	-	44,746.77
116	A.0001545.083	CHC0C-Rpr Water Well Mtr 2017	201812	26,517.00	12,563.72	-	12,563.72	13,953.28
117	A.0001545.083 Total			71,263.77	12,563.72	-	12,563.72	58,700.05
118	A.0001545.118	CHC2C-E Rbld Turb Cntrl Vlv	201706	4,787.61	-	-	-	4,787.61
119	A.0001545.118 Total			4,787.61	-	-	-	4,787.61
120	A.0001545.119	CHC1C-E Rpl Xfrmr Relays	201704	43.98	2,024.15	-	2,024.15	(1,980.17)
121	A.0001545.119 Total			43.98	2,024.15	-	2,024.15	(1,980.17)
122	A.0001545.122	CHC2C-Upg DCS Hardware	201806	427,631.99	57,304.10	-	57,304.10	370,327.89
123	A.0001545.122 Total			427,631.99	57,304.10	-	57,304.10	370,327.89
124	A.0001545.253	CHC0C-Rpl WW Line 14-15-21352	201710	171,685.09	35,576.89	-	35,576.89	136,108.20
125	A.0001545.253 Total			171,685.09	35,576.89	-	35,576.89	136,108.20
126	A.0001545.254	CHC2C-Rpl Burner Titls-21235	201805	104,421.38	16,189.03	-	16,189.03	88,232.35
127	A.0001545.254 Total			104,421.38	16,189.03	-	16,189.03	88,232.35
128	A.0001545.257	CHC0C-Rpl TUCO Roof-21291	201808	56,709.17	14,476.81	-	14,476.81	42,232.36
129	A.0001545.257 Total			56,709.17	14,476.81	-	14,476.81	42,232.36
130	A.0001545.300	CHC0C-Rpl Lab Analyzers	201808	73,778.54	6,064.97	-	6,064.97	67,713.57
131	A.0001545.300 Total			73,778.54	6,064.97	-	6,064.97	67,713.57
132	A.0001545.303	CHC1C-Rpl Lab Analyzers	201808	13,664.17	2,260.80	-	2,260.80	11,403.37
133	A.0001545.303 Total			13,664.17	2,260.80	-	2,260.80	11,403.37
134	A.0001545.305	CHC2C-Rpl Lab Analyzers	201811	65,132.40	3,715.81	-	3,715.81	61,416.59
135	A.0001545.305 Total			65,132.40	3,715.81	-	3,715.81	61,416.59
136	A.0001545.500	CHC Emergent Fund -Steam prod	201711	5,751.90	-	-	-	5,751.90
137	A.0001545.500	CHC Emergent Fund -Steam prod	201806	26,817.28	11,441.57	-	11,441.57	15,375.71
138	A.0001545.500	CHC Emergent Fund -Steam prod	201804	37,148.90	-	-	-	37,148.90
139	A.0001545.500	CHC Emergent Fund -Steam prod	201803	28,002.80	1,066.44	-	1,066.44	26,936.36
140	A.0001545.500	CHC Emergent Fund -Steam prod	201811	63,841.52	481.66	-	481.66	63,359.86
141	A.0001545.500	CHC Emergent Fund -Steam prod	201812	53,990.28	3,317.73	-	3,317.73	50,672.55
142	A.0001545.500	CHC Emergent Fund -Steam prod	201805	13,137.93	3,888.02	-	3,888.02	9,249.91
143	A.0001545.500	CHC Emergent Fund -Steam prod	201806	530,069.82	73,024.83	-	73,024.83	457,044.99

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	(A)	(B)	(C)	(D)	(E)
Line No.	WBS Level 4 Number	WBS Level 4 Description	Asset Class	Witness	Project Category
144	A.0001545.500.001.004	CHC0C-Waste Water Pond Pump	Electric Production	Lytal	Reliability & Performance Enhancement
145	A.0001545.500.001.008	CHC0C-MaxiVolt Equipment	Electric Production	Lytal	Reliability & Performance Enhancement
146					
147	A.0001550.006.001.002	HAR2C-H2 Install Ash Silo Elev	Electric Production	Lytal	Reliability & Performance Enhancement
148					
149	A.0001550.019.001.001	HAR2C-Rpl Turbine Cont Sys&Sof	Electric Production	Lytal	Reliability & Performance Enhancement
150					
151	A.0001550.021.001.002	HAR0C-Rpl Paving Phase 5/6	Electric Production	Lytal	Reliability & Performance Enhancement
152					
153	A.0001550.028.001.002	HAR2C-Replace Cooling Tower Acid Ta	Electric Production	Lytal	Reliability & Performance Enhancement
154					
155	A.0001550.034.001.002	HAR0C-Rpl Paving Phase 6/6	Electric Production	Lytal	Reliability & Performance Enhancement
156					
157	A.0001550.035.001.002	HAR3C-Rpl Boiler Economizer	Electric Production	Lytal	Reliability & Performance Enhancement
158					
159	A.0001550.036.001.001	HAR1C-Rpl Turb Cont Sys&Soft	Electric Production	Lytal	Reliability & Performance Enhancement
160					
161	A.0001550.083.001.002	HAR3C-Rpl Lab Analyzers 2018	Electric Production	Lytal	Reliability & Performance Enhancement
162					
163	A.0001550.137.001.001	HAR2C-H2 Rpl Lab Analyzers 201	Electric Production	Lytal	Reliability & Performance Enhancement
164					
165	A.0001550.142.001.001	HAR1C-H1 Rpl CT Phase5	Electric Production	Lytal	Reliability & Performance Enhancement
166	A.0001550.142.001.004	HAR1C-H1 Rpl CT Phase3	Electric Production	Lytal	Reliability & Performance Enhancement
167	A.0001550.142.001.005	HAR1C-H1 Rpl CT Phase1	Electric Production	Lytal	Reliability & Performance Enhancement
168					
169	A.0001550.151.001.002	HAR3C-Rebag Partial 2018	Electric Production	Lytal	Environmental Compliance
170					
171	A.0001550.185.001.001	HAR2C-H2 Rpl #3 HP FWH	Electric Production	Lytal	Reliability & Performance Enhancement
172					
173	A.0001550.194.001.002	HAR2C-Rpl H2 Mill E Exhauster	Electric Production	Lytal	Reliability & Performance Enhancement
174					
175	A.0001550.219.001.001	HAR2C-Replace APH Baskets	Electric Production	Lytal	Reliability & Performance Enhancement
176					
177	A.0001550.232.001.002	HAR0C-Vibration Mntr Sys	Electric Production	Lytal	Reliability & Performance Enhancement
178					
179	A.0001550.243.001.002	HAROC-Rpl Control Sys Sim NEW	Electric Production	Lytal	Reliability & Performance Enhancement

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	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Line No.	WBS Level 2 Number	WBS Level 2 Description	In-Service Date	Additions to Plant-In-Service (July 1, 2017 - March 31, 2019)	XES Charges (Included in Column I)	Other Affiliate Charges (Included in Column I)	Total Affiliate Charges (Included in Column I)	Total Native Charges (Columns I less L) Within the Total Additions to Plant-in-Service Shown in Column (I)
144	A.0001545.500	CHC Emergent Fund -Steam prod	201712	24,265.39	-	-	-	24,265.39
145	A.0001545.500	CHC Emergent Fund -Steam prod	201801	92,283.79	9,385.75	-	9,385.75	82,898.04
146	A.0001545.500 Total			875,309.61	102,606.00	-	102,606.00	772,703.61
147	A.0001550.006	HAR2C-H2 Install Ash Silo Elev	201809	565,909.49	60,875.01	-	60,875.01	505,034.48
148	A.0001550.006 Total			565,909.49	60,875.01	-	60,875.01	505,034.48
149	A.0001550.019	HAR2C-Rpl Turbine Cont Sys&Sof	201706	5,883.73	3,758.63	-	3,758.63	2,125.10
150	A.0001550.019 Total			5,883.73	3,758.63	-	3,758.63	2,125.10
151	A.0001550.021	HAR0C-Rpl Paving Phase 5/6	201806	252,259.54	22,451.07	-	22,451.07	229,808.47
152	A.0001550.021 Total			252,259.54	22,451.07	-	22,451.07	229,808.47
153	A.0001550.028	HAR2C-Rpl CT Acid Tank	201811	210,340.28	22,510.16	-	22,510.16	187,830.12
154	A.0001550.028 Total			210,340.28	22,510.16	-	22,510.16	187,830.12
155	A.0001550.034	HAR0C-Rpl Paving Phase 6/6	201806	180,040.36	11,876.79	-	11,876.79	168,163.57
156	A.0001550.034 Total			180,040.36	11,876.79	-	11,876.79	168,163.57
157	A.0001550.035	HAR3C-Rpl Boiler Economizer	201811	4,189,537.54	86,650.61	-	86,650.61	4,102,886.93
158	A.0001550.035 Total			4,189,537.54	86,650.61	-	86,650.61	4,102,886.93
159	A.0001550.036	HAR1C-Rpl Turb Cont Sys&Soft	201611	(272.73)	(147.29)	-	(147.29)	(125.44)
160	A.0001550.036 Total			(272.73)	(147.29)	-	(147.29)	(125.44)
161	A.0001550.083	HAR3C-H3 Rpl Lab Analyzers 201	201811	151,767.17	5,403.54	-	5,403.54	146,363.63
162	A.0001550.083 Total			151,767.17	5,403.54	-	5,403.54	146,363.63
163	A.0001550.137	HAR2C-H2 Rpl Lab Analyzers 201	201704	1,687.39	596.61	-	596.61	1,090.78
164	A.0001550.137 Total			1,687.39	596.61	-	596.61	1,090.78
165	A.0001550.142	HAR1C-Cooling Tower Structure	201705	163,898.56	26,304.66	-	26,304.66	137,593.90
166	A.0001550.142	HAR1C-Cooling Tower Structure	201606	982.62	-	5.60	5.60	977.02
167	A.0001550.142	HAR1C-Cooling Tower Structure	201508	10.89	-	-	-	10.89
168	A.0001550.142 Total			164,892.07	26,304.66	5.60	26,310.26	138,581.81
169	A.0001550.151	HAR3C-H3 Rebag Partial 2018	201811	132,477.90	3,796.81	-	3,796.81	128,681.09
170	A.0001550.151 Total			132,477.90	3,796.81	-	3,796.81	128,681.09
171	A.0001550.185	HAR2C-H2 Rpl #3 HP FWH	201705	(95,499.96)	3,145.65	0.34	3,145.99	(98,645.95)
172	A.0001550.185 Total			(95,499.96)	3,145.65	0.34	3,145.99	(98,645.95)
173	A.0001550.194	HAR2C-Rpl H2 Mill E Exhauster	201712	83,375.06	19,379.11	-	19,379.11	63,995.95
174	A.0001550.194 Total			83,375.06	19,379.11	-	19,379.11	63,995.95
175	A.0001550.219	HAR2C-Replace APH Baskets	201705	272,998.51	4,464.87	-	4,464.87	268,533.64
176	A.0001550.219 Total			272,998.51	4,464.87	-	4,464.87	268,533.64
177	A.0001550.232	HAR0C-H0 ODR SKF Base System	201707	(3.74)	-	-	-	(3.74)
178	A.0001550.232 Total			(3.74)	-	-	-	(3.74)
179	A.0001550.243	HAR0C-Rpl Control Sys Simultr	201705	85,822.95	18,585.80	-	18,585.80	67,237.15

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Line No.	(A) WBS Level 4 Number	(B) WBS Level 4 Description	(C) Asset Class	(D) Witness	(E) Project Category
180					
181	A.0001550.244.001.002	HAR0C-Rpl SBAC Controls	Electric Production	Lytal	Reliability & Performance Enhancement
182					
183	A.0001550.258.001.002	HAR1C-Rpl SBAC 1B Vib Mon Sys	Electric Production	Lytal	Reliability & Performance Enhancement
184					
185	A.0001550.262.001.002	HAR1C-SBAC 1B Mjr Rebld 2017	Electric Production	Lytal	Reliability & Performance Enhancement
186					
187	A.0001550.269.001.001	HAR2C-Rpl Circ Pump Suction Ho	Electric Production	Lytal	Reliability & Performance Enhancement
188					
189	A.0001550.273.001.001	HAR2C-Rpl Inverter	Electric Production	Lytal	Reliability & Performance Enhancement
190					
191	A.0001550.275.001.001	HAR2C-Rpl SH Spray Valves	Electric Production	Lytal	Reliability & Performance Enhancement
192					
193	A.0001550.283.001.002	HAR3C-Rpl APH Baskets	Electric Production	Lytal	Reliability & Performance Enhancement
194					
195	A.0001550.299.001.001	HAR3C-SBAC Joy Mjr Rebld 2016	Electric Production	Lytal	Reliability & Performance Enhancement
196					
197	A.0001550.304.001.002	HAR3C-Rpl SBAC JoyVibMonSys	Electric Production	Lytal	Reliability & Performance Enhancement
198					
199	A.0001550.308.001.001	HAR2C-H2 Upgrd DCS Opr stn	Electric Production	Lytal	Reliability & Performance Enhancement
200					
201	A.0001550.309.001.002	HAR3C-H3 Upgrd DCS Opr stn	Electric Production	Lytal	Reliability & Performance Enhancement
202					
203	A.0001550.340.001.001	HAR0C-E Rpl Inj Well Div Vlvs	Electric Production	Lytal	Reliability & Performance Enhancement
204					
205	A.0001550.342.001.001	HAR0C-E Rpl Inst Air Compr	Electric Production	Lytal	Reliability & Performance Enhancement
206					
207	A.0001550.442.001.002	HAR1C-ESP Re-build TR-sets Ph1	Electric Production	Lytal	Reliability & Performance Enhancement
208					
209	A.0001550.446.001.002	HAR1C-CT Fan Stacks 20850	Electric Production	Lytal	Reliability & Performance Enhancement
210					
211	A.0001550.448.001.002	HAR1C-Rpl MBFP Recirc Vlv	Electric Production	Lytal	Reliability & Performance Enhancement
212					
213	A.0001550.449.001.001	HAR2C-RPL Boiler Corner Tubes -2134	Electric Production	Lytal	Reliability & Performance Enhancement
214					
215	A.0001550.450.001.002	HAR2C- Rpl CT Fan Stacks -21027	Electric Production	Lytal	Reliability & Performance Enhancement

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	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Line No.	WBS Level 2 Number	WBS Level 2 Description	In-Service Date	Additions to Plant-In-Service (July 1, 2017 - March 31, 2019)	XES Charges (Included in Column I)	Other Affiliate Charges (Included in Column I)	Total Affiliate Charges (Included in Column I)	Total Native Charges (Columns I less L) Within the Total Additions to Plant-in-Service Shown in Column (I)
180	A.0001550.243 Total			85,822.95	18,585.80	-	18,585.80	67,237.15
181	A.0001550.244	HAR0C-Rpl SBAC Controls	201812	486,621.99	44,179.14	-	44,179.14	442,442.85
182	A.0001550.244 Total			486,621.99	44,179.14	-	44,179.14	442,442.85
183	A.0001550.258	HAR1C-Rpl SBAC 1B Vib Mon Sys	201712	23,420.62	12,061.94	-	12,061.94	11,358.68
184	A.0001550.258 Total			23,420.62	12,061.94	-	12,061.94	11,358.68
185	A.0001550.262	HAR1C-SBAC 1B Mjr Rebld 2017	201712	516,725.07	16,449.17	-	16,449.17	500,275.90
186	A.0001550.262 Total			516,725.07	16,449.17	-	16,449.17	500,275.90
187	A.0001550.269	HAR2C-Rpl Circ Pump Suction Ho	201705	(23,656.19)	776.53	-	776.53	(24,432.72)
188	A.0001550.269 Total			(23,656.19)	776.53	-	776.53	(24,432.72)
189	A.0001550.273	HAR2C-Rpl Inverter	201705	11,479.02	210.84	-	210.84	11,268.18
190	A.0001550.273 Total			11,479.02	210.84	-	210.84	11,268.18
191	A.0001550.275	HAR2C-Rpl SH Spray Valves	201706	5,577.37	1,389.76	-	1,389.76	4,187.61
192	A.0001550.275 Total			5,577.37	1,389.76	-	1,389.76	4,187.61
193	A.0001550.283	HAR3C-Rpl APH Baskets	201811	1,623,841.33	28,484.94	-	28,484.94	1,595,356.39
194	A.0001550.283 Total			1,623,841.33	28,484.94	-	28,484.94	1,595,356.39
195	A.0001550.299	HAR3C-SBAC Joy Mjr Rebld 2016	201707	(25,852.18)	2,318.40	-	2,318.40	(28,170.58)
196	A.0001550.299 Total			(25,852.18)	2,318.40	-	2,318.40	(28,170.58)
197	A.0001550.304	HAR3C-Rpl SBAC JoyVibMonSys	201705	6,147.05	-	-	-	6,147.05
198	A.0001550.304 Total			6,147.05	-	-	-	6,147.05
199	A.0001550.308	HAR2C-H2 Upgrd DCS Opr stn	201706	(11,914.71)	962.81	(259.31)	703.50	(12,618.21)
200	A.0001550.308 Total			(11,914.71)	962.81	(259.31)	703.50	(12,618.21)
201	A.0001550.309	HAR3C-H3 Upgrd DCS Opr stn	201811	776,877.28	61,559.66	-	61,559.66	715,317.62
202	A.0001550.309 Total			776,877.28	61,559.66	-	61,559.66	715,317.62
203	A.0001550.340	HAR0C-E Rpl Inj Well Div Vlvs	201703	21,428.89	-	-	-	21,428.89
204	A.0001550.340 Total			21,428.89	-	-	-	21,428.89
205	A.0001550.342	HAR0C-E Rpl Inst Air Compr	201705	2,566.69	22.50	-	22.50	2,544.19
206	A.0001550.342 Total			2,566.69	22.50	-	22.50	2,544.19
207	A.0001550.442	HAR1C-ESP Re-build TR-sets Ph1	201707	91,657.75	6,191.53	-	6,191.53	85,466.22
208	A.0001550.442 Total			91,657.75	6,191.53	-	6,191.53	85,466.22
209	A.0001550.446	HAR1C- CT Fan Stacks	201901	468,675.39	34,329.74	-	34,329.74	434,345.65
210	A.0001550.446 Total			468,675.39	34,329.74	-	34,329.74	434,345.65
211	A.0001550.448	HAR1C- Rpl MBFP Recirc. Vlv.	201711	76,466.90	6,854.55	-	6,854.55	69,612.35
212	A.0001550.448 Total			76,466.90	6,854.55	-	6,854.55	69,612.35
213	A.0001550.449	HAR2C-RPL Boiler Corner Tubes	201706	399,132.69	(3,477.41)	0.85	(3,476.56)	402,609.25
214	A.0001550.449 Total			399,132.69	(3,477.41)	0.85	(3,476.56)	402,609.25
215	A.0001550.450	HAR2C- Rpl CT Fan Stacks	201901	464,132.28	25,691.13	-	25,691.13	438,441.15

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	(A)	(B)	(C)	(D)	(E)
Line No.	**WBS Level 4 Number**	**WBS Level 4 Description**	**Asset Class**	**Witness**	**Project Category**
216					
217	A.0001550.452.001.001	HAR2C- Rpl Bghse Inlet Exp Jnts -20	Electric Production	Lytal	Reliability & Performance Enhancement
218					
219	A.0001550.453.001.001	HAR2C- Rpl Bghse Doors -20587	Electric Production	Lytal	Environmental Compliance
220					
221	A.0001550.454.001.001	HAR2C-Rpl HRH Piping & Hangers -205	Electric Production	Lytal	Reliability & Performance Enhancement
222					
223	A.0001550.455.001.002	HAR3C- ACW Heat Exchangers	Electric Production	Lytal	Reliability & Performance Enhancement
224					
225	A.0001550.458.001.002	HAR3C- Rpl Bghse Doors -20582	Electric Production	Lytal	Environmental Compliance
226					
227	A.0001550.461.001.002	HAR0C-Inst Above Grade Fuel Tanks	Electric Production	Lytal	Environmental Compliance
228					
229	A.0001550.473.001.002	HAR3C-Inst Online Vib Mntr Sys	Electric Production	Lytal	Reliability & Performance Enhancement
230					
231	A.0001550.479.001.002	HAR3C-Rpl EHC Pump Sys	Electric Production	Lytal	Reliability & Performance Enhancement
232					
233	A.0001550.500.001.004	HAR3C-Rpl cell 7 & 11 CT Mech	Electric Production	Lytal	Reliability & Performance Enhancement
234	A.0001550.500.001.005	HAR0C-Rpl Main Fire Alm Pnl	Electric Production	Lytal	Reliability & Performance Enhancement
235	A.0001550.500.001.006	HAR3C-Rpl 2C Heater Drains Vlv	Electric Production	Lytal	Reliability & Performance Enhancement
236	A.0001550.500.001.007	HAR1C-CT Fan Motor #7 Rewind	Electric Production	Lytal	Reliability & Performance Enhancement
237	A.0001550.500.001.008	HAR2C-N Cond pump mtr rewind	Electric Production	Lytal	Reliability & Performance Enhancement
238	A.0001550.500.001.009	HAR2C-Rpl S Cond Pump Element	Electric Production	Lytal	Reliability & Performance Enhancement
239	A.0001550.500.001.010	HAR3C-CT Mkup Pmp Mtr Rewind	Electric Production	Lytal	Reliability & Performance Enhancement
240	A.0001550.500.001.011	HAR3C-Rpl CT Cell #2 Mechanicals	Electric Production	Lytal	Reliability & Performance Enhancement
241	A.0001550.500.001.012	HAR1C-Rpl W #2 O2 Probe	Electric Production	Lytal	Reliability & Performance Enhancement
242	A.0001550.500.001.013	HAR3C-N Cond Motor Rewind	Electric Production	Lytal	Reliability & Performance Enhancement
243	A.0001550.500.001.014	HAR3C-Rpl W CT MakeUp Pmp Asb	Electric Production	Lytal	Reliability & Performance Enhancement
244	A.0001550.500.001.015	HAR1C-W Circ Pmp Wire Replaced	Electric Production	Lytal	Reliability & Performance Enhancement
245	A.0001550.500.001.016	HAR3C-Install Eye Wash Station	Electric Production	Lytal	Reliability & Performance Enhancement
246	A.0001550.500.001.017	HAR3C-CT N Circ Pump Mtr Rewind	Electric Production	Lytal	Reliability & Performance Enhancement
247	A.0001550.500.001.018	HAR2C-Rpl O2 Probes	Electric Production	Lytal	Reliability & Performance Enhancement
248	A.0001550.500.001.019	HAR1C-CTMU Pump Rpl Rotating Assy	Electric Production	Lytal	Reliability & Performance Enhancement
249	A.0001550.500.001.020	HAR2C-Rpl W FD Fn Oil Clr Tubes	Electric Production	Lytal	Reliability & Performance Enhancement
250	A.0001550.500.001.023	HAR1C-SUBFP Motor Rewind	Electric Production	Lytal	Reliability & Performance Enhancement
251	A.0001550.500.001.024	HAR0C-CESP BFP Element	Electric Production	Lytal	Reliability & Performance Enhancement

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	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Line No.	WBS Level 2 Number	WBS Level 2 Description	In-Service Date	Additions to Plant-In-Service (July 1, 2017 - March 31, 2019)	XES Charges (Included in Column I)	Other Affiliate Charges (Included in Column I)	Total Affiliate Charges (Included in Column I)	Total Native Charges (Columns I less L) Within the Total Additions to Plant-in-Service Shown in Column (I)
216	A.0001550.450 Total			464,132.28	25,691.13	-	25,691.13	438,441.15
217	A.0001550.452	HAR2C- Rpl Bghse Inlet Exp Jnts	201705	(40,825.15)	-	0.34	0.34	(40,825.49)
218	A.0001550.452 Total			(40,825.15)	-	0.34	0.34	(40,825.49)
219	A.0001550.453	HAR2C- Rpl Bghse Doors	201705	(31,737.56)	776.53	0.17	776.70	(32,514.26)
220	A.0001550.453 Total			(31,737.56)	776.53	0.17	776.70	(32,514.26)
221	A.0001550.454	HAR2C-Rpl HRH Piping & Hangers	201706	602,529.19	9,196.79	0.85	9,197.64	593,331.55
222	A.0001550.454 Total			602,529.19	9,196.79	0.85	9,197.64	593,331.55
223	A.0001550.455	HAR3C- ACW Heat Exchangers	201811	234,268.30	25,879.57	-	25,879.57	208,388.73
224	A.0001550.455 Total			234,268.30	25,879.57	-	25,879.57	208,388.73
225	A.0001550.458	HAR3C- Rpl Bghse Doors	201811	364,027.14	32,415.18	-	32,415.18	331,611.96
226	A.0001550.458 Total			364,027.14	32,415.18	-	32,415.18	331,611.96
227	A.0001550.461	HAR0C-Inst Above Grade Fuel Tanks	201804	31,467.94	3,587.29	-	3,587.29	27,880.65
228	A.0001550.461 Total			31,467.94	3,587.29	-	3,587.29	27,880.65
229	A.0001550.473	HAR3C-Inst Online Vib Mntr Sys	201811	88,415.61	30,836.04	-	30,836.04	57,579.57
230	A.0001550.473 Total			88,415.61	30,836.04	-	30,836.04	57,579.57
231	A.0001550.479	HAR3C-Rpl EHC Pump Sys	201811	261,740.84	16,519.88	-	16,519.88	245,220.96
232	A.0001550.479 Total			261,740.84	16,519.88	-	16,519.88	245,220.96
233	A.0001550.500	HAR Emergent Fund -Steam prod	201706	(80,688.49)	-	-	-	(80,688.49)
234	A.0001550.500	HAR Emergent Fund -Steam prod	201706	4,244.59	-	-	-	4,244.59
235	A.0001550.500	HAR Emergent Fund -Steam prod	201708	10,833.42	-	-	-	10,833.42
236	A.0001550.500	HAR Emergent Fund -Steam prod	201708	7,812.36	-	-	-	7,812.36
237	A.0001550.500	HAR Emergent Fund -Steam prod	201708	7,400.18	-	-	-	7,400.18
238	A.0001550.500	HAR Emergent Fund -Steam prod	201806	80,736.44	-	-	-	80,736.44
239	A.0001550.500	HAR Emergent Fund -Steam prod	201711	7,354.77	-	-	-	7,354.77
240	A.0001550.500	HAR Emergent Fund -Steam prod	201710	98,358.42	4,103.18	-	4,103.18	94,255.24
241	A.0001550.500	HAR Emergent Fund -Steam prod	201712	16,507.38	498.13	-	498.13	16,009.25
242	A.0001550.500	HAR Emergent Fund -Steam prod	201712	11,936.86	-	-	-	11,936.86
243	A.0001550.500	HAR Emergent Fund -Steam prod	201712	22,402.72	-	-	-	22,402.72
244	A.0001550.500	HAR Emergent Fund -Steam prod	201806	73,551.66	3,784.52	-	3,784.52	69,767.14
245	A.0001550.500	HAR Emergent Fund -Steam prod	201808	23,337.48	8,904.82	-	8,904.82	14,432.66
246	A.0001550.500	HAR Emergent Fund -Steam prod	201806	136,535.03	220.72	-	220.72	136,314.31
247	A.0001550.500	HAR Emergent Fund -Steam prod	201806	21,630.75	-	-	-	21,630.75
248	A.0001550.500	HAR Emergent Fund -Steam prod	201806	19,677.70	-	-	-	19,677.70
249	A.0001550.500	HAR Emergent Fund -Steam prod	201808	22,246.02	-	-	-	22,246.02
250	A.0001550.500	HAR Emergent Fund -Steam prod	201806	211,705.61	1,929.06	-	1,929.06	209,776.55
251	A.0001550.500	HAR Emergent Fund -Steam prod	201806	168,304.01	-	-	-	168,304.01

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	(A)	(B)	(C)	(D)	(E)
Line No.	WBS Level 4 Number	WBS Level 4 Description	Asset Class	Witness	Project Category
252	A.0001550.500.001.025	HAR3C-Rpl Bghse Inlet Duct Exp Jnts	Electric Production	Lytal	Reliability & Performance Enhancement
253	A.0001550.500.001.026	HAR2C-Rpl Deflation Fan Motors	Electric Production	Lytal	Reliability & Performance Enhancement
254	A.0001550.500.001.027	HAR3C-Rpl #2 FWH 2B Valve	Electric Production	Lytal	Reliability & Performance Enhancement
255	A.0001550.500.001.029	HAR1C-Rpl #2 Corner Tilt Drives	Electric Production	Lytal	Reliability & Performance Enhancement
256	A.0001550.500.001.030	HAR3C-Rpl N CT Circ Pump cable	Electric Production	Lytal	Reliability & Performance Enhancement
257	A.0001550.500.001.031	HAR0C-Swing gates and ladder	Electric Production	Lytal	Reliability & Performance Enhancement
258	A.0001550.500.001.034	HAR0C-Inst Vlv on BD Recovery	Electric Production	Lytal	Reliability & Performance Enhancement
259	A.0001550.500.001.035	HAR3C-Rpl FWH2 Steam Separator	Electric Production	Lytal	Reliability & Performance Enhancement
260	A.0001550.500.001.036	HAR3C-Rpl FWH3 Steam Separator	Electric Production	Lytal	Reliability & Performance Enhancement
261	A.0001550.500.001.038	HAR3C-Rpl W#4 O2 Probe	Electric Production	Lytal	Reliability & Performance Enhancement
262	A.0001550.500.001.040	HAR3C-C BCP Mtr Rwnd	Electric Production	Lytal	Reliability & Performance Enhancement
263	A.0001550.500.001.043	HAR3C-Rpl FWH3 Shell relief vlv	Electric Production	Lytal	Reliability & Performance Enhancement
264	A.0001550.500.001.045	HAR2C-W Seal Trough Wtr Pump Rpl	Electric Production	Lytal	Reliability & Performance Enhancement
265	A.0001550.500.001.022	HAR0C-Rpl ACI Diverter Valves	Electric Production	Lytal	Reliability & Performance Enhancement
266	A.0001550.500.001.042	HAR1C-Rpl Dust Spprssn Pump Cable	Electric Production	Lytal	Reliability & Performance Enhancement
267	A.0001550.500.001.039	HAR3C-N ACW Pump Mtr Rwnd	Electric Production	Lytal	Reliability & Performance Enhancement
268	A.0001550.500.001.021	HAR0C-Rpl Pond 7 Floating Pump	Electric Production	Lytal	Reliability & Performance Enhancement
269	A.0001550.500.001.028	HAR3C-3D SBAC Motor Rewind	Electric Production	Lytal	Reliability & Performance Enhancement
270	A.0001550.500.001.041	HAR3C-Rpl N Cond Bstr Pump Cable	Electric Production	Lytal	Reliability & Performance Enhancement
271	A.0001550.500.001.032	HAR2C-Inst CT Cable tray	Electric Production	Lytal	Reliability & Performance Enhancement
272	A.0001550.500.001.033	HAR3C-Aux Clg Wtr Pmp Mtr Rwd	Electric Production	Lytal	Reliability & Performance Enhancement
273					
274	A.0001553.002.001.001	NIC0C U0 Lime Pond Constructio	Electric Production	Lytal	Environmental Compliance
275					
276	A.0001555.021.001.001	TOL2C - Repl Cold APH Bskts	Electric Production	Lytal	Reliability & Performance Enhancement
277					
278	A.0001555.030.001.001	TOL0C-TolkX Water Well Ph 7	Electric Production	Lytal	Reliability & Performance Enhancement
279					
280	A.0001555.057.001.002	TOL0C-Rpl Water Well 19 Pump	Electric Production	Lytal	Reliability & Performance Enhancement
281	A.0001555.057.001.003	TOL0C-Rpl Water Well 28 Pump	Electric Production	Lytal	Reliability & Performance Enhancement
282	A.0001555.057.001.004	TOL0C-Rpl Water Well 82 Pump	Electric Production	Lytal	Reliability & Performance Enhancement
283	A.0001555.057.001.005	TOL0C-Rpl Water Well 21 Pump	Electric Production	Lytal	Reliability & Performance Enhancement
284	A.0001555.057.001.006	TOL0C-Rpl Water Well #38 Pump	Electric Production	Lytal	Reliability & Performance Enhancement
285					
286	A.0001555.060.001.003	TOL0C-Rpl Well 38 Pump	Electric Production	Lytal	Reliability & Performance Enhancement
287	A.0001555.060.001.004	TOL0C-Rpl Well 44 Pump	Electric Production	Lytal	Reliability & Performance Enhancement

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Line No.	(F) WBS Level 2 Number	(G) WBS Level 2 Description	(H) In-Service Date	(I) Additions to Plant-In-Service (July 1, 2017 - March 31, 2019)	(J) XES Charges (Included in Column I)	(K) Other Affiliate Charges (Included in Column I)	(L) Total Affiliate Charges (Included in Column I)	(M) Total Native Charges (Columns I less L) Within the Total Additions to Plant-in-Service Shown in Column (I)
252	A.0001550.500	HAR Emergent Fund -Steam prod	201811	131,949.25	14,078.73	-	14,078.73	117,870.52
253	A.0001550.500	HAR Emergent Fund -Steam prod	201806	17,716.35	-	-	-	17,716.35
254	A.0001550.500	HAR Emergent Fund -Steam prod	201810	40,365.47	-	-	-	40,365.47
255	A.0001550.500	HAR Emergent Fund -Steam prod	201901	48,276.19	5,102.64	-	5,102.64	43,173.55
256	A.0001550.500	HAR Emergent Fund -Steam prod	201812	56,955.25	7,270.76	-	7,270.76	49,684.49
257	A.0001550.500	HAR Emergent Fund -Steam prod	201812	118,168.03	14,032.14	-	14,032.14	104,135.89
258	A.0001550.500	HAR Emergent Fund -Steam prod	201812	80,571.39	2,990.70	83.80	3,074.50	77,496.89
259	A.0001550.500	HAR Emergent Fund -Steam prod	201901	10,058.47	-	-	-	10,058.47
260	A.0001550.500	HAR Emergent Fund -Steam prod	201811	10,672.90	-	-	-	10,672.90
261	A.0001550.500	HAR Emergent Fund -Steam prod	201812	11,002.31	-	-	-	11,002.31
262	A.0001550.500	HAR Emergent Fund -Steam prod	201812	46,209.55	-	-	-	46,209.55
263	A.0001550.500	HAR Emergent Fund -Steam prod	201811	8,757.66	-	-	-	8,757.66
264	A.0001550.500	HAR Emergent Fund -Steam prod	201812	5,484.92	-	-	-	5,484.92
265	A.0001550.500	HAR Emergent Fund -Steam prod	201809	12,891.00	-	-	-	12,891.00
266	A.0001550.500	HAR Emergent Fund -Steam prod	201812	25,697.36	1,564.94	-	1,564.94	24,132.42
267	A.0001550.500	HAR Emergent Fund -Steam prod	201811	17,393.32	-	-	-	17,393.32
268	A.0001550.500	HAR Emergent Fund -Steam prod	201809	14,866.22	-	-	-	14,866.22
269	A.0001550.500	HAR Emergent Fund -Steam prod	201812	170,101.26	-	-	-	170,101.26
270	A.0001550.500	HAR Emergent Fund -Steam prod	201812	20,253.10	1,989.50	-	1,989.50	18,263.60
271	A.0001550.500	HAR Emergent Fund -Steam prod	201811	59,588.75	5,663.48	-	5,663.48	53,925.27
272	A.0001550.500	HAR Emergent Fund -Steam prod	201811	60,012.28	-	-	-	60,012.28
273	A.0001550.500 Total			1,830,877.94	72,133.32	83.80	72,217.12	1,758,660.82
274	A.0001553.002	NIC0C-N0 Lime Pond Constructio	201611	(17,046.46)	-	-	-	(17,046.46)
275	A.0001553.002 Total			(17,046.46)	-	-	-	(17,046.46)
276	A.0001555.021	TOL2C - Repl Cold APH Bskts	201703	535.72	696.27	-	696.27	(160.55)
277	A.0001555.021 Total			535.72	696.27	-	696.27	(160.55)
278	A.0001555.030	TOL0C-TolkX Water Well Ph 7	201705	75,397.69	14,693.35	-	14,693.35	60,704.34
279	A.0001555.030 Total			75,397.69	14,693.35	-	14,693.35	60,704.34
280	A.0001555.057	TOL0C-Rpl Water Well Pmp 2017	201710	18,823.72	-	-	-	18,823.72
281	A.0001555.057	TOL0C-Rpl Water Well Pmp 2017	201709	18,910.46	-	-	-	18,910.46
282	A.0001555.057	TOL0C-Rpl Water Well Pmp 2017	201712	11,614.59	-	-	-	11,614.59
283	A.0001555.057	TOL0C-Rpl Water Well Pmp 2017	201712	38,388.36	-	-	-	38,388.36
284	A.0001555.057	TOL0C-Rpl Water Well Pmp 2017	201712	20,400.68	-	-	-	20,400.68
285	A.0001555.057 Total			108,137.81	-	-	-	108,137.81
286	A.0001555.060	TOL0C-Rpl Water Well Pmp 2018	201805	6,402.80	-	-	-	6,402.80
287	A.0001555.060	TOL0C-Rpl Water Well Pmp 2018	201805	6,260.56	-	-	-	6,260.56

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Line No.	(A) WBS Level 4 Number	(B) WBS Level 4 Description	(C) Asset Class	(D) Witness	(E) Project Category
288	A.0001555.060.001.008	TOL0C-Rpl WW #8 Pump	Electric Production	Lytal	Reliability & Performance Enhancement
289	A.0001555.060.001.009	TOL0C-Rpl WW #44 Pump	Electric Production	Lytal	Reliability & Performance Enhancement
290	A.0001555.060.001.010	TOL0C-Rpl Well #39 Pump	Electric Production	Lytal	Reliability & Performance Enhancement
291	A.0001555.060.001.007	TOL0C-Rpl WW #5 Pump	Electric Production	Lytal	Reliability & Performance Enhancement
292	A.0001555.060.001.006	TOL0C-Rpl WW #83 Pump	Electric Production	Lytal	Reliability & Performance Enhancement
293	A.0001555.060.001.002	TOL0C-Rpl Water Well #7 Pmp	Electric Production	Lytal	Reliability & Performance Enhancement
294					
295	A.0001555.088.001.002	TOL1C-Rpl Baghouse Bags 2018	Electric Production	Lytal	Environmental Compliance
296					
297	A.0001555.089.001.002	TOL2C-Rpl Baghouse Bags 2018	Electric Production	Lytal	Environmental Compliance
298					
299	A.0001555.090.001.002	TOL1C-Rpl Baghouse Bags 2017	Electric Production	Lytal	Environmental Compliance
300					
301	A.0001555.091.001.001	TOL2C-Rpl Baghouse Bags 2017	Electric Production	Lytal	Environmental Compliance
302					
303	A.0001555.113.001.001	TOL0C-Rpl RR Ties PH 3 of 5	Electric Production	Lytal	Reliability & Performance Enhancement
304					
305	A.0001555.120.001.002	TOL0C-Inst Perimet FencePonds	Electric Production	Lytal	Reliability & Performance Enhancement
306					
307	A.0001555.219.001.002	TOL1C-Rpr MillB GearBx & Jrnl	Electric Production	Lytal	Reliability & Performance Enhancement
308					
309	A.0001555.222.001.001	TOL2C-Rpl MillC GearBx & Journ	Electric Production	Lytal	Reliability & Performance Enhancement
310					
311	A.0001555.223.001.002	TOL1C-Rpr MillC GearBx & Jrnls	Electric Production	Lytal	Reliability & Performance Enhancement
312					
313	A.0001555.226.001.002	TOL2C-Rpl Mill E Gearbx & Jour	Electric Production	Lytal	Reliability & Performance Enhancement
314					
315	A.0001555.232.001.001	TOL2C-Rpl W. HPBP Pump	Electric Production	Lytal	Reliability & Performance Enhancement
316					
317	A.0001555.238.001.001	TOL2C-Rpl W HPBFPBsterPmpCkVlv	Electric Production	Lytal	Reliability & Performance Enhancement
318					
319	A.0001555.252.001.002	TOL0C-Rpl Receiving WH Roof	Electric Production	Lytal	Reliability & Performance Enhancement
320					
321	A.0001555.254.001.002	TOL1C-Rpl SSC Chain 2018	Electric Production	Lytal	Reliability & Performance Enhancement
322					
323	A.0001555.257.001.002	TOL1C-UpgDCSOprStn&CntrlProc	Electric Production	Lytal	Reliability & Performance Enhancement

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Line No.	(F) WBS Level 2 Number	(G) WBS Level 2 Description	(H) In-Service Date	(I) Additions to Plant-In-Service (July 1, 2017 - March 31, 2019)	(J) XES Charges (Included in Column I)	(K) Other Affiliate Charges (Included in Column I)	(L) Total Affiliate Charges (Included in Column I)	(M) Total Native Charges (Columns I less L) Within the Total Additions to Plant-in-Service Shown in Column (I)
288	A.0001555.060	TOL0C-Rpl Water Well Pmp 2018	201809	17,224.86	-	-	-	17,224.86
289	A.0001555.060	TOL0C-Rpl Water Well Pmp 2018	201809	34,044.41	-	-	-	34,044.41
290	A.0001555.060	TOL0C-Rpl Water Well Pmp 2018	201810	20,862.64	-	-	-	20,862.64
291	A.0001555.060	TOL0C-Rpl Water Well Pmp 2018	201808	16,936.10	-	-	-	16,936.10
292	A.0001555.060	TOL0C-Rpl Water Well Pmp 2018	201806	15,611.10	-	-	-	15,611.10
293	A.0001555.060	TOL0C-Rpl Water Well Pmp 2018	201802	17,237.92	-	-	-	17,237.92
294	A.0001555.060 Total			134,580.39	-	-	-	134,580.39
295	A.0001555.088	TOL1C-Rpl Baghouse Bags 2018	201803	1,331,500.37	55,239.51	-	55,239.51	1,276,260.86
296	A.0001555.088 Total			1,331,500.37	55,239.51	-	55,239.51	1,276,260.86
297	A.0001555.089	TOL2C-Rpl Baghouse Bags 2018	201806	475,735.38	21,515.73	-	21,515.73	454,219.65
298	A.0001555.089 Total			475,735.38	21,515.73	-	21,515.73	454,219.65
299	A.0001555.090	TOL1C-Rpl Baghouse Bags 2017	201803	551,080.14	30,742.30	-	30,742.30	520,337.84
300	A.0001555.090 Total			551,080.14	30,742.30	-	30,742.30	520,337.84
301	A.0001555.091	TOL2C-Rpl Baghouse Bags 2017	201705	14,339.82	4,328.47	28.97	4,357.44	9,982.38
302	A.0001555.091 Total			14,339.82	4,328.47	28.97	4,357.44	9,982.38
303	A.0001555.113	TOL0C-Rpl RR Ties PH 3 of 5	201804	1,123,730.15	59,348.61	-	59,348.61	1,064,381.54
304	A.0001555.113 Total			1,123,730.15	59,348.61	-	59,348.61	1,064,381.54
305	A.0001555.120	TOL0C-Inst Perimet FencePonds	201809	232,148.49	49,528.28	-	49,528.28	182,620.21
306	A.0001555.120 Total			232,148.49	49,528.28	-	49,528.28	182,620.21
307	A.0001555.219	TOL1C-Rpr MillB GearBx & Jrnl	201712	761,231.41	43,901.66	-	43,901.66	717,329.75
308	A.0001555.219 Total			761,231.41	43,901.66	-	43,901.66	717,329.75
309	A.0001555.222	TOL2C-Rpl MillC GearBx & Journ	201708	645,978.26	7,193.28	-	7,193.28	638,784.98
310	A.0001555.222 Total			645,978.26	7,193.28	-	7,193.28	638,784.98
311	A.0001555.223	TOL1C-Rpr MillC GearBx & Jrnls	201804	856,916.28	17,052.79	-	17,052.79	839,863.49
312	A.0001555.223 Total			856,916.28	17,052.79	-	17,052.79	839,863.49
313	A.0001555.226	TOL2C-Rpl Mill E Gearbx & Jour	201812	1,175,533.12	16,949.14	-	16,949.14	1,158,583.98
314	A.0001555.226 Total			1,175,533.12	16,949.14	-	16,949.14	1,158,583.98
315	A.0001555.232	TOL2C-Rpl W. HPBP Pump	201704	34,520.07	4,159.36	-	4,159.36	30,360.71
316	A.0001555.232 Total			34,520.07	4,159.36	-	4,159.36	30,360.71
317	A.0001555.238	TOL2C-Rpl W HPBFPBsterPmpCkVlv	201711	36,112.63	-	-	-	36,112.63
318	A.0001555.238 Total			36,112.63	-	-	-	36,112.63
319	A.0001555.252	TOL0C-Rpl Receiving WH Roof	201806	273,848.64	11,536.97	-	11,536.97	262,311.67
320	A.0001555.252 Total			273,848.64	11,536.97	-	11,536.97	262,311.67
321	A.0001555.254	TOL1C-Rpl SSC Chain 2018	201811	165,792.60	8,033.56	-	8,033.56	157,759.04
322	A.0001555.254 Total			165,792.60	8,033.56	-	8,033.56	157,759.04
323	A.0001555.257	TOL1C-UpgDCSOprStn& CntrlProc	201811	1,105,121.28	64,044.89	-	64,044.89	1,041,076.39

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Line No.	(A) WBS Level 4 Number	(B) WBS Level 4 Description	(C) Asset Class	(D) Witness	(E) Project Category
324					
325	A.0001555.260.001.001	TOL2C-Rpl SSC Chain 2017	Electric Production	Lytal	Reliability & Performance Enhancement
326					
327	A.0001555.261.001.001	TOL2C-UpgDCSOprStn& CntrlProc	Electric Production	Lytal	Reliability & Performance Enhancement
328					
329	A.0001555.269.001.001	TOL2C-Rp RHOutletTerminalTbs	Electric Production	Lytal	Reliability & Performance Enhancement
330					
331	A.0001555.278.001.001	TOL0C-Drill HorizonWW Loc Permit	Electric Production	Lytal	Reliability & Performance Enhancement
332	A.0001555.278.001.002	TOL0C-Drill HorizontalWW Constuct	Electric Production	Lytal	Reliability & Performance Enhancement
333					
334	A.0001555.292.001.001	TOL1C-E-T1FMill Rpl Main VerSft	Electric Production	Lytal	Reliability & Performance Enhancement
335					
336	A.0001555.294.001.001	TOL2C-E-Rpl MDBFP Disch Vlv	Electric Production	Lytal	Reliability & Performance Enhancement
337					
338	A.0001555.296.001.002	TOL2C-Rpl Main Pwr Transformer	Electric Production	Lytal	Reliability & Performance Enhancement
339					
340	A.0001555.307.001.002	TOL2C-CEMS Upgrade 20745	Electric Production	Lytal	Environmental Compliance
341					
342	A.0001555.350.001.002	TOL0C-Rpl roof on lime slaker bldg-	Electric Production	Lytal	Reliability & Performance Enhancement
343					
344	A.0001555.351.001.002	TOL0C-Rpl control room bldg roof -2	Electric Production	Lytal	Reliability & Performance Enhancement
345					
346	A.0001555.358.001.002	TOL1C-RPL Boiler Sump Line -20583	Electric Production	Lytal	Reliability & Performance Enhancement
347					
348	A.0001555.363.001.002	TOL1C- Rpl rev gas expansion joints	Electric Production	Lytal	Reliability & Performance Enhancement
349					
350	A.0001555.364.001.002	TOL1C-Rpl east rev gas fan damper	Electric Production	Lytal	Reliability & Performance Enhancement
351					
352	A.0001555.368.001.001	TOL2C-Rpl cntrl stg blades -20318	Electric Production	Lytal	Reliability & Performance Enhancement
353					
354	A.0001555.370.001.002	TOL2C-RPL Boiler Sump Line T2 -2058	Electric Production	Lytal	Reliability & Performance Enhancement
355					
356	A.0001555.371.001.001	TOL2C-BFP duplex filter -20842	Electric Production	Lytal	Reliability & Performance Enhancement
357					
358	A.0001555.372.001.001	TOL2C-T2 Burners 2017 -20846	Electric Production	Lytal	Reliability & Performance Enhancement
359					

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Line No.	(F) WBS Level 2 Number	(G) WBS Level 2 Description	(H) In-Service Date	(I) Additions to Plant-In-Service (July 1, 2017 - March 31, 2019)	(J) XES Charges (Included in Column I)	(K) Other Affiliate Charges (Included in Column I)	(L) Total Affiliate Charges (Included in Column I)	(M) Total Native Charges (Columns I less L) Within the Total Additions to Plant-in-Service Shown in Column (I)
324	A.0001555.257 Total			1,105,121.28	64,044.89	-	64,044.89	1,041,076.39
325	A.0001555.260	TOL2C-Rpl SSC Chain 2017	201705	(3,935.94)	-	-	-	(3,935.94)
326	A.0001555.260 Total			(3,935.94)	-	-	-	(3,935.94)
327	A.0001555.261	TOL2C-UpgDCSOprStn& CntrlProc	201704	20,339.81	3,132.15	(38.54)	3,093.61	17,246.20
328	A.0001555.261 Total			20,339.81	3,132.15	(38.54)	3,093.61	17,246.20
329	A.0001555.269	TOL2C-Rp RHOutletTerminalTbs	201704	11,848.95	-	-	-	11,848.95
330	A.0001555.269 Total			11,848.95	-	-	-	11,848.95
331	A.0001555.278	TOL0C-Drill Horizontal WaterWell	201704	21,339.74	19,941.80	-	19,941.80	1,397.94
332	A.0001555.278	TOL0C-Drill Horizontal WaterWell	201706	972,807.32	98,114.28	-	98,114.28	874,693.04
333	A.0001555.278 Total			994,147.06	118,056.08	-	118,056.08	876,090.98
334	A.0001555.292	TOL1C-E-T1FMill Rpl Main VerSft	201710	564,291.64	8,783.04	-	8,783.04	555,508.60
335	A.0001555.292 Total			564,291.64	8,783.04	-	8,783.04	555,508.60
336	A.0001555.294	TOL2C-E-Rpl MDBFP Disch Vlv	201704	(13.35)	-	-	-	(13.35)
337	A.0001555.294 Total			(13.35)	-	-	-	(13.35)
338	A.0001555.296	TOL2C-Rpl Main Pwr Transformer	201806	1,603,155.12	434,781.27	-	434,781.27	1,168,373.85
339	A.0001555.296 Total			1,603,155.12	434,781.27	-	434,781.27	1,168,373.85
340	A.0001555.307	TOL2C-CEMS Upgrade	201705	671.24	568.60	-	568.60	102.64
341	A.0001555.307 Total			671.24	568.60	-	568.60	102.64
342	A.0001555.350	TOL0C-Rpl roof on lime slaker build	201706	918.95	776.53	-	776.53	142.42
343	A.0001555.350 Total			918.95	776.53	-	776.53	142.42
344	A.0001555.351	TOL0C-Rpl control room bldg roof	201706	15,051.42	1,671.82	-	1,671.82	13,379.60
345	A.0001555.351 Total			15,051.42	1,671.82	-	1,671.82	13,379.60
346	A.0001555.358	TOL1C-RPL Boiler Sump Line	201804	107,985.03	31,721.14	-	31,721.14	76,263.89
347	A.0001555.358 Total			107,985.03	31,721.14	-	31,721.14	76,263.89
348	A.0001555.363	TOL1C- Rpl rev gas expansion joints	201811	69,635.64	6,952.17	-	6,952.17	62,683.47
349	A.0001555.363 Total			69,635.64	6,952.17	-	6,952.17	62,683.47
350	A.0001555.364	TOL1C-Rpl east rev gas fan damper	201811	23,338.29	7,598.60	-	7,598.60	15,739.69
351	A.0001555.364 Total			23,338.29	7,598.60	-	7,598.60	15,739.69
352	A.0001555.368	TOL2C-Rpl cntrl stg blades	201704	1,423.74	2,027.24	-	2,027.24	(603.50)
353	A.0001555.368 Total			1,423.74	2,027.24	-	2,027.24	(603.50)
354	A.0001555.370	TOL2C-RPL Boiler Sump Line T2	201805	203,909.81	49,398.25	-	49,398.25	154,511.56
355	A.0001555.370 Total			203,909.81	49,398.25	-	49,398.25	154,511.56
356	A.0001555.371	TOL2C-BFP duplex filter	201703	1,592.32	-	-	-	1,592.32
357	A.0001555.371 Total			1,592.32	-	-	-	1,592.32
358	A.0001555.372	TOL2C-T2 Burners 2017	201704	7,153.76	276.76	-	276.76	6,877.00
359	A.0001555.372 Total			7,153.76	276.76	-	276.76	6,877.00

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	(A)	(B)	(C)	(D)	(E)
Line No.	**WBS Level 4 Number**	**WBS Level 4 Description**	**Asset Class**	**Witness**	**Project Category**
360	A.0001555.373.001.001	TOL2C-Rpl coal elbows mill E n F-21	Electric Production	Lytal	Reliability & Performance Enhancement
361					
362	A.0001555.376.001.001	TOL2C-Rpl lab sample system-21246	Electric Production	Lytal	Reliability & Performance Enhancement
363					
364	A.0001555.500.001.004	TOL2C-CT Bypass	Electric Production	Lytal	Reliability & Performance Enhancement
365	A.0001555.500.001.005	TOL2C-Rewind W CircPmp Mtr-22512	Electric Production	Lytal	Reliability & Performance Enhancement
366	A.0001555.500.001.006	TOL2C-Rewind C CircPmp Mtr-22511	Electric Production	Lytal	Reliability & Performance Enhancement
367	A.0001555.500.001.007	TOL2C-Rpl MainStmCntrVlv-22563	Electric Production	Lytal	Reliability & Performance Enhancement
368	A.0001555.500.001.009	TOL0C-S SBAC OVH 2017-22573	Electric Production	Lytal	Reliability & Performance Enhancement
369	A.0001555.500.001.010	TOL0C-Rpl Potable H2O Line	Electric Production	Lytal	Reliability & Performance Enhancement
370	A.0001555.500.001.012	TOL1C-Rpl MDBFP DischargeVlv	Electric Production	Lytal	Reliability & Performance Enhancement
371	A.0001555.500.001.014	TOL1C-W Rev Gas Mtr Rwnd	Electric Production	Lytal	Reliability & Performance Enhancement
372	A.0001555.500.001.015	TOL1C-A Vcm Pmp Motor Rewind	Electric Production	Lytal	Reliability & Performance Enhancement
373	A.0001555.500.001.018	TOL0C-HydrogenGen Power Sys	Electric Production	Lytal	Reliability & Performance Enhancement
374	A.0001555.500.001.020	TOL1C-Rpl CT Partition Walls	Electric Production	Lytal	Reliability & Performance Enhancement
375	A.0001555.500.001.021	TOL0C-Rpl Reactor 1 Inlet Pipe	Electric Production	Lytal	Reliability & Performance Enhancement
376	A.0001555.500.001.023	TOL1C-Rpl MillF MainVrt Shaft	Electric Production	Lytal	Reliability & Performance Enhancement
377	A.0001555.500.001.024	TOL2C-Gen Stator Rewedge	Electric Production	Lytal	Reliability & Performance Enhancement
378	A.0001555.500.001.025	TOL2C-Inst RealTmXfmr DisGasAnly	Electric Production	Lytal	Reliability & Performance Enhancement
379	A.0001555.500.001.026	TOL2C-Rpl Bull Ring Assmbly	Electric Production	Lytal	Reliability & Performance Enhancement
380	A.0001555.500.001.028	TOL1C-Rewind CT Cell #6 Motor	Electric Production	Lytal	Reliability & Performance Enhancement
381	A.0001555.500.001.029	TOL1C-Rewind CT Cell #14 Motor	Electric Production	Lytal	Reliability & Performance Enhancement
382	A.0001555.500.001.030	TOL1C-Rewind CT Cell #18 Motor	Electric Production	Lytal	Reliability & Performance Enhancement
383	A.0001555.500.001.031	TOL0C-Inst SwingGates&LadderProt	Electric Production	Lytal	Reliability & Performance Enhancement
384	A.0001555.500.001.033	TOL2C-Rpl Center AuxCirc Dis Vlv	Electric Production	Lytal	Reliability & Performance Enhancement
385	A.0001555.500.001.035	TOL0C-Rpl Horz Well 99E Pump	Electric Production	Lytal	Reliability & Performance Enhancement
386	A.0001555.500.001.013	TOL1C-Rpl Boiler Frt Elevator	Electric Production	Lytal	Reliability & Performance Enhancement
387	A.0001555.500.001.011	TOL1C-Rewind #3 CT Mtr	Electric Production	Lytal	Reliability & Performance Enhancement
388	A.0001555.500.001.032	TOL0C-Rpl SSBAC Oil Cooler	Electric Production	Lytal	Reliability & Performance Enhancement
389	A.0001555.500.001.016	TOL1C-Rpl BlrDrm E Center Sfty	Electric Production	Lytal	Reliability & Performance Enhancement
390	A.0001555.500.001.027	TOL0C-Inst Rectifier RMU	Electric Production	Lytal	Reliability & Performance Enhancement
391	A.0001555.500.001.017	TOL1C- Rpl West Main Stm Sfty	Electric Production	Lytal	Reliability & Performance Enhancement
392	A.0001555.500.001.019	TOL1C-Rwd W Blr Circ Pmp Mtr	Electric Production	Lytal	Reliability & Performance Enhancement
393	A.0001555.500.001.034	TOL2C-Rpl Bull Ring Assmby 2C	Electric Production	Lytal	Reliability & Performance Enhancement
394	A.0001555.500.001.022	TOL2C- Rewind Generator Rotor	Electric Production	Lytal	Reliability & Performance Enhancement
395					

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	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Line No.	WBS Level 2 Number	WBS Level 2 Description	In-Service Date	Additions to Plant-In-Service (July 1, 2017 - March 31, 2019)	XES Charges (Included in Column I)	Other Affiliate Charges (Included in Column I)	Total Affiliate Charges (Included in Column I)	Total Native Charges (Columns I less L) Within the Total Additions to Plant-in-Service Shown in Column (I)
360	A.0001555.373	TOL2C-Rpl coal elbows mill E n F	201704	4,170.34	-	-	-	4,170.34
361	A.0001555.373 Total			4,170.34	-	-	-	4,170.34
362	A.0001555.376	TOL2C-Rpl lab sample system	201706	4,169.99	1,297.62	-	1,297.62	2,872.37
363	A.0001555.376 Total			4,169.99	1,297.62	-	1,297.62	2,872.37
364	A.0001555.500	TOL Emergent Fund -Steam prod	201706	5,463.54	-	-	-	5,463.54
365	A.0001555.500	TOL Emergent Fund -Steam prod	201706	632.93	-	-	-	632.93
366	A.0001555.500	TOL Emergent Fund -Steam prod	201706	808.25	-	7.50	7.50	800.75
367	A.0001555.500	TOL Emergent Fund -Steam prod	201706	4,858.95	-	-	-	4,858.95
368	A.0001555.500	TOL Emergent Fund -Steam prod	201706	(5,565.04)	8,099.28	-	8,099.28	(13,664.32)
369	A.0001555.500	TOL Emergent Fund -Steam prod	201711	55,019.15	16,608.59	-	16,608.59	38,410.56
370	A.0001555.500	TOL Emergent Fund -Steam prod	201811	178,333.92	19,247.55	-	19,247.55	159,086.37
371	A.0001555.500	TOL Emergent Fund -Steam prod	201710	23,100.87	-	-	-	23,100.87
372	A.0001555.500	TOL Emergent Fund -Steam prod	201711	10,743.06	-	-	-	10,743.06
373	A.0001555.500	TOL Emergent Fund -Steam prod	201806	49,176.42	-	-	-	49,176.42
374	A.0001555.500	TOL Emergent Fund -Steam prod	201811	238,004.91	20,421.54	-	20,421.54	217,583.37
375	A.0001555.500	TOL Emergent Fund -Steam prod	201805	23,985.85	399.38	-	399.38	23,586.47
376	A.0001555.500	TOL Emergent Fund -Steam prod	201812	1,374,614.12	105,775.91	-	105,775.91	1,268,838.21
377	A.0001555.500	TOL Emergent Fund -Steam prod	201809	271,793.48	524.21	-	524.21	271,269.27
378	A.0001555.500	TOL Emergent Fund -Steam prod	201807	46,281.82	5,557.52	-	5,557.52	40,724.30
379	A.0001555.500	TOL Emergent Fund -Steam prod	201807	23,363.06	134.64	-	134.64	23,228.42
380	A.0001555.500	TOL Emergent Fund -Steam prod	201807	7,819.87	-	-	-	7,819.87
381	A.0001555.500	TOL Emergent Fund -Steam prod	201810	7,417.99	-	-	-	7,417.99
382	A.0001555.500	TOL Emergent Fund -Steam prod	201809	7,558.17	-	-	-	7,558.17
383	A.0001555.500	TOL Emergent Fund -Steam prod	201812	208,916.57	28,336.55	-	28,336.55	180,580.02
384	A.0001555.500	TOL Emergent Fund -Steam prod	201812	16,949.31	-	-	-	16,949.31
385	A.0001555.500	TOL Emergent Fund -Steam prod	201812	83,439.99	-	-	-	83,439.99
386	A.0001555.500	TOL Emergent Fund -Steam prod	201801	155,502.68	15,927.92	-	15,927.92	139,574.76
387	A.0001555.500	TOL Emergent Fund -Steam prod	201709	9,126.59	-	-	-	9,126.59
388	A.0001555.500	TOL Emergent Fund -Steam prod	201812	8,863.95	-	-	-	8,863.95
389	A.0001555.500	TOL Emergent Fund -Steam prod	201801	73,908.25	357.54	-	357.54	73,550.71
390	A.0001555.500	TOL Emergent Fund -Steam prod	201812	2,665.59	-	-	-	2,665.59
391	A.0001555.500	TOL Emergent Fund -Steam prod	201801	90,618.10	236.44	-	236.44	90,381.66
392	A.0001555.500	TOL Emergent Fund -Steam prod	201811	100,489.05	-	-	-	100,489.05
393	A.0001555.500	TOL Emergent Fund -Steam prod	201811	20,244.50	-	-	-	20,244.50
394	A.0001555.500	TOL Emergent Fund -Steam prod	201809	2,175,648.37	39,905.37	-	39,905.37	2,135,743.00
395	A.0001555.500 Total			5,269,784.27	261,532.44	7.50	261,539.94	5,008,244.33

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	(A)	(B)	(C)	(D)	(E)
Line No.	**WBS Level 4 Number**	**WBS Level 4 Description**	**Asset Class**	**Witness**	**Project Category**
396	A.0001555.594.001.002	TOL1C-Int Online Vib Mntr Sys	Electric Production	Lytal	Reliability & Performance Enhancement
397					
398	A.0001555.596.001.002	TOL1C-Rpl Lab Sample System	Electric Production	Lytal	Reliability & Performance Enhancement
399					
400	A.0001555.597.001.002	TOL1C-Rpl Coal Pipe & Elbows	Electric Production	Lytal	Reliability & Performance Enhancement
401					
402	A.0001560.035.001.002	NIC2C-Rpl CT Acid Tank	Electric Production	Lytal	Reliability & Performance Enhancement
403					
404	A.0001560.055.001.001	NIC3C-E Rpl CT Drain Pipe	Electric Production	Lytal	Reliability & Performance Enhancement
405					
406	A.0001560.115.001.002	NIC0C-Install Demin Wtr Supply	Electric Production	Lytal	Reliability & Performance Enhancement
407					
408	A.0001560.116.001.002	NIC0C-Rpl Roof-Maint Shop	Electric Production	Lytal	Reliability & Performance Enhancement
409					
410	A.0001560.118.001.002	NIC0C-Rpl Roof-Turb Low	Electric Production	Lytal	Reliability & Performance Enhancement
411					
412	A.0001560.500.001.003	NIC1C-Rpl 1&2 N Bsmnt Sump Pumps	Electric Production	Lytal	Reliability & Performance Enhancement
413	A.0001560.500.001.004	NIC2C-BFP Element Refurb	Electric Production	Lytal	Reliability & Performance Enhancement
414	A.0001560.500.001.005	NIC2C-Rpl APH Drain Line	Electric Production	Lytal	Reliability & Performance Enhancement
415	A.0001560.500.001.006	NIC3C-Rpl CT Cell 2 Mechanicals	Electric Production	Lytal	Reliability & Performance Enhancement
416	A.0001560.500.001.007	NIC3C-Rpl Condensate Supply	Electric Production	Lytal	Reliability & Performance Enhancement
417	A.0001560.500.001.008	NIC0C-Replace Aux Boiler	Electric Production	Lytal	Reliability & Performance Enhancement
418	A.0001560.500.001.009	NIC1C-Rpl APH Hot Gas Exp Jnts	Electric Production	Lytal	Reliability & Performance Enhancement
419	A.0001560.500.001.010	NIC0C-Rpl E Gate Operators	Electric Production	Lytal	Reliability & Performance Enhancement
420	A.0001560.500.001.011	NIC0C-Inst #6 Slaker RR Supply	Electric Production	Lytal	Reliability & Performance Enhancement
421	A.0001560.500.001.012	NIC1C-Rpl CT Makeup Cntrl Vlv	Electric Production	Lytal	Reliability & Performance Enhancement
422	A.0001560.500.001.014	NIC2C-Rpl Boiler Sump Pipe	Electric Production	Lytal	Reliability & Performance Enhancement
423	A.0001560.500.001.017	NIC3C-Rpl Reverse Power Relays RP1-	Electric Production	Lytal	Reliability & Performance Enhancement
424	A.0001560.500.001.020	NIC2C-Rpl Hogging Jet Valves	Electric Production	Lytal	Reliability & Performance Enhancement
425	A.0001560.500.001.021	NIC0C-Swing gates and ladders	Electric Production	Lytal	Reliability & Performance Enhancement
426	A.0001560.500.001.022	NIC0C-Rpl Demin Sump Drain Line	Electric Production	Lytal	Reliability & Performance Enhancement
427	A.0001560.500.001.023	NIC0C-Pond 18 Motor Rpl	Electric Production	Lytal	Reliability & Performance Enhancement
428	A.0001560.500.001.024	NIC0C-House Air Comp Mtr	Electric Production	Lytal	Reliability & Performance Enhancement
429	A.0001560.500.001.013	NIC3C-Rpl SJAE Throttle Valve	Electric Production	Lytal	Reliability & Performance Enhancement
430	A.0001560.500.001.018	NIC1C-Rewind N FD Motor *Corrected*	Electric Production	Lytal	Reliability & Performance Enhancement
431	A.0001560.500.001.016	NIC3C-Rpl SSR Bypass Actuator	Electric Production	Lytal	Reliability & Performance Enhancement

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Line No.	(F) WBS Level 2 Number	(G) WBS Level 2 Description	(H) In-Service Date	(I) Additions to Plant-In-Service (July 1, 2017 - March 31, 2019)	(J) XES Charges (Included in Column I)	(K) Other Affiliate Charges (Included in Column I)	(L) Total Affiliate Charges (Included in Column I)	(M) Total Native Charges (Columns I less L) Within the Total Additions to Plant-in-Service Shown in Column (I)
396	A.0001555.594	TOL1C-Int Online Vib Mntr Sys	201811	140,413.80	61,322.83	-	61,322.83	79,090.97
397	A.0001555.594 Total			140,413.80	61,322.83	-	61,322.83	79,090.97
398	A.0001555.596	TOL1C-Rpl Lab Sample System	201712	111,895.26	14,143.99	-	14,143.99	97,751.27
399	A.0001555.596 Total			111,895.26	14,143.99	-	14,143.99	97,751.27
400	A.0001555.597	TOL1C-Rpl Coal Pipe & Elbows	201811	776,483.21	63,112.19	-	63,112.19	713,371.02
401	A.0001555.597 Total			776,483.21	63,112.19	-	63,112.19	713,371.02
402	A.0001560.035	NIC2C-Rpl CT Acid Tank	201712	192,879.28	36,236.63	-	36,236.63	156,642.65
403	A.0001560.035 Total			192,879.28	36,236.63	-	36,236.63	156,642.65
404	A.0001560.055	NIC3C-E Rpl CT Drain Pipe	201707	77.13	-	-	-	77.13
405	A.0001560.055 Total			77.13	-	-	-	77.13
406	A.0001560.115	NIC0C-Install Demin Wtr Supply	201901	260,254.59	67,516.18	-	67,516.18	192,738.41
407	A.0001560.115 Total			260,254.59	67,516.18	-	67,516.18	192,738.41
408	A.0001560.116	NIC0C-Rpl Roof-Maint Shop	201807	82,782.25	11,938.21	-	11,938.21	70,844.04
409	A.0001560.116 Total			82,782.25	11,938.21	-	11,938.21	70,844.04
410	A.0001560.118	NIC0C-Rpl Roof-Turb Low	201807	364,669.16	12,916.21	-	12,916.21	351,752.95
411	A.0001560.118 Total			364,669.16	12,916.21	-	12,916.21	351,752.95
412	A.0001560.500	NIC Emergent Fund -Steam prod	201706	20,654.68	(215.39)	-	(215.39)	20,870.07
413	A.0001560.500	NIC Emergent Fund -Steam prod	201710	273,236.05	2,318.23	-	2,318.23	270,917.82
414	A.0001560.500	NIC Emergent Fund -Steam prod	201709	51,054.99	8,923.86	-	8,923.86	42,131.13
415	A.0001560.500	NIC Emergent Fund -Steam prod	201709	167,357.02	19,602.27	-	19,602.27	147,754.75
416	A.0001560.500	NIC Emergent Fund -Steam prod	201708	60,755.55	4,298.31	-	4,298.31	56,457.24
417	A.0001560.500	NIC Emergent Fund -Steam prod	201711	324,409.35	50,645.40	-	50,645.40	273,763.95
418	A.0001560.500	NIC Emergent Fund -Steam prod	201711	103,496.62	18,745.17	-	18,745.17	84,751.45
419	A.0001560.500	NIC Emergent Fund -Steam prod	201709	15,363.21	-	-	-	15,363.21
420	A.0001560.500	NIC Emergent Fund -Steam prod	201712	44,595.93	8,404.57	-	8,404.57	36,191.36
421	A.0001560.500	NIC Emergent Fund -Steam prod	201711	17,707.32	7,306.79	-	7,306.79	10,400.53
422	A.0001560.500	NIC Emergent Fund -Steam prod	201712	46,099.17	5,090.87	-	5,090.87	41,008.30
423	A.0001560.500	NIC Emergent Fund -Steam prod	201808	14,204.42	6,950.12	-	6,950.12	7,254.30
424	A.0001560.500	NIC Emergent Fund -Steam prod	201806	16,787.87	-	-	-	16,787.87
425	A.0001560.500	NIC Emergent Fund -Steam prod	201812	76,462.52	9,671.36	-	9,671.36	66,791.16
426	A.0001560.500	NIC Emergent Fund -Steam prod	201809	21,058.79	11,167.42	-	11,167.42	9,891.37
427	A.0001560.500	NIC Emergent Fund -Steam prod	201812	15,300.13	-	-	-	15,300.13
428	A.0001560.500	NIC Emergent Fund -Steam prod	201812	6,168.57	-	-	-	6,168.57
429	A.0001560.500	NIC Emergent Fund -Steam prod	201712	12,879.34	-	-	-	12,879.34
430	A.0001560.500	NIC Emergent Fund -Steam prod	201806	46,343.30	-	-	-	46,343.30
431	A.0001560.500	NIC Emergent Fund -Steam prod	201806	21,990.00	-	-	-	21,990.00

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	(A)	(B)	(C)	(D)	(E)
Line No.	WBS Level 4 Number	WBS Level 4 Description	Asset Class	Witness	Project Category
432	A.0001560.500.001.019	NIC0C-Rpl Aux Boiler Feed Pump	Electric Production	Lytal	Reliability & Performance Enhancement
433	A.0001560.500.001.030	NIC0C-Rpl System Lab HVAC	Electric Production	Lytal	Reliability & Performance Enhancement
434					
435	A.0001586.006.001.001	JON2C-E CT Rebuild	Electric Production	Lytal	Reliability & Performance Enhancement
436					
437	A.0001586.008.001.001	JON1C-Upg Foxboro FBMs	Electric Production	Lytal	Reliability & Performance Enhancement
438					
439	A.0001586.013.001.001	JON1C-Repl L&N 10260 Drives	Electric Production	Lytal	Reliability & Performance Enhancement
440					
441	A.0001586.014.001.001	JON2C-E Rpl Mech Draft 3&8	Electric Production	Lytal	Reliability & Performance Enhancement
442					
443	A.0001586.049.001.001	JON1C-Rpl Cold Side APH Basket	Electric Production	Lytal	Reliability & Performance Enhancement
444					
445	A.0001586.055.001.002	JON1C-Abate & Reinsulate DA	Electric Production	Lytal	Reliability & Performance Enhancement
446					
447	A.0001586.073.001.002	JON0C-Inst Backflow Prvt on HT	Electric Production	Lytal	Reliability & Performance Enhancement
448					
449	A.0001586.129.001.002	JON1C-Rpl Rosemount 1151 XMTRS	Electric Production	Lytal	Reliability & Performance Enhancement
450					
451	A.0001586.133.001.002	JON0C-Rpl HACH 5000 Analyzers	Electric Production	Lytal	Reliability & Performance Enhancement
452					
453	A.0001586.134.001.002	JON2C-Rpl HACH 5000 Analyzers	Electric Production	Lytal	Reliability & Performance Enhancement
454					
455	A.0001586.135.001.002	JON1C-Rpl HACH 5000 Analyzers	Electric Production	Lytal	Reliability & Performance Enhancement
456					
457	A.0001586.138.001.001	JON2C-Rpl IPs with DVC	Electric Production	Lytal	Reliability & Performance Enhancement
458					
459	A.0001586.141.001.002	JON1C-Rpl IPs with DVC	Electric Production	Lytal	Reliability & Performance Enhancement
460					
461	A.0001586.142.001.002	JON1C-Rpl Oil Circ Brkr JK0	Electric Production	Lytal	Reliability & Performance Enhancement
462					
463	A.0001586.156.001.001	JON1C-CT Rbld Cells 1,2,3	Electric Production	Lytal	Reliability & Performance Enhancement
464	A.0001586.156.001.002	JON1C-CT Rbld Cells 4-9	Electric Production	Lytal	Reliability & Performance Enhancement
465					
466	A.0001586.253.001.002	JON1C-BP Elem Comp Rpl	Electric Production	Lytal	Reliability & Performance Enhancement
467					

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Line No.	(F) WBS Level 2 Number	(G) WBS Level 2 Description	(H) In-Service Date	(I) Additions to Plant-In-Service (July 1, 2017 - March 31, 2019)	(J) XES Charges (Included in Column I)	(K) Other Affiliate Charges (Included in Column I)	(L) Total Affiliate Charges (Included in Column I)	(M) Total Native Charges (Columns I less L) Within the Total Additions to Plant-in-Service Shown in Column (I)
432	A.0001560.500	NIC Emergent Fund -Steam prod	201901	58,500.76	5,469.02	-	5,469.02	53,031.74
433	A.0001560.500	NIC Emergent Fund -Steam prod	201903	9,398.12	-	-	-	9,398.12
434	A.0001560.500 Total			1,423,823.71	158,378.00	-	158,378.00	1,265,445.71
435	A.0001586.006	JON2C-E CT Rebuild	201703	28,765.08	-	-	-	28,765.08
436	A.0001586.006 Total			28,765.08	-	-	-	28,765.08
437	A.0001586.008	JON1C-Upg Foxboro FBMs	201711	678,466.30	69,168.63	-	69,168.63	609,297.67
438	A.0001586.008 Total			678,466.30	69,168.63	-	69,168.63	609,297.67
439	A.0001586.013	JON1C-Repl L&N 10260 Drives	201612	9.81	-	-	-	9.81
440	A.0001586.013 Total			9.81	-	-	-	9.81
441	A.0001586.014	JON2C-E Rpl Mech Draft 3&8	201702	28.31	27.10	-	27.10	1.21
442	A.0001586.014 Total			28.31	27.10	-	27.10	1.21
443	A.0001586.049	JON1C-Rpl Cold Side APH Basket	201711	668,716.52	47,797.75	0.02	47,797.77	620,918.75
444	A.0001586.049 Total			668,716.52	47,797.75	0.02	47,797.77	620,918.75
445	A.0001586.055	JON1C-Abate & Reinsulate DA	201712	112,031.18	12,393.91	-	12,393.91	99,637.27
446	A.0001586.055 Total			112,031.18	12,393.91	-	12,393.91	99,637.27
447	A.0001586.073	JON0C-Inst Backflow Prvt on HT	201811	193,922.87	18,990.33	-	18,990.33	174,932.54
448	A.0001586.073 Total			193,922.87	18,990.33	-	18,990.33	174,932.54
449	A.0001586.129	JON1C-Rpl Rosemount 1151 XMTRS	201711	759,209.45	150,690.52	-	150,690.52	608,518.93
450	A.0001586.129 Total			759,209.45	150,690.52	-	150,690.52	608,518.93
451	A.0001586.133	JON0C-Rpl HACH 5000 Analyzers	201708	52,570.31	6,559.44	-	6,559.44	46,010.87
452	A.0001586.133 Total			52,570.31	6,559.44	-	6,559.44	46,010.87
453	A.0001586.134	JON2C-Rpl HACH 5000 Analyzers	201708	47,085.43	6,934.93	-	6,934.93	40,150.50
454	A.0001586.134 Total			47,085.43	6,934.93	-	6,934.93	40,150.50
455	A.0001586.135	JON1C-Rpl HACH 5000 Analyzers	201708	49,100.68	5,995.83	-	5,995.83	43,104.85
456	A.0001586.135 Total			49,100.68	5,995.83	-	5,995.83	43,104.85
457	A.0001586.138	JON2C-Rpl IPs with DVC	201704	1,048.05	2,545.44	-	2,545.44	(1,497.39)
458	A.0001586.138 Total			1,048.05	2,545.44	-	2,545.44	(1,497.39)
459	A.0001586.141	JON1C-Rpl IPs with DVC	201711	132,761.30	27,526.53	-	27,526.53	105,234.77
460	A.0001586.141 Total			132,761.30	27,526.53	-	27,526.53	105,234.77
461	A.0001586.142	JON1C-Rpl Oil Circ Brkr JK00	201712	350,506.39	100,044.80	-	100,044.80	250,461.59
462	A.0001586.142 Total			350,506.39	100,044.80	-	100,044.80	250,461.59
463	A.0001586.156	JON1C-CT Rbld Cells 1,2,3	201606	28.74	-	-	-	28.74
464	A.0001586.156	JON1C-CT Rbld Cells 1,2,3	201703	17,828.95	855.49	5.25	860.74	16,968.21
465	A.0001586.156 Total			17,857.69	855.49	5.25	860.74	16,996.95
466	A.0001586.253	JON1C-BFP Elem Comp Rpl-21019	201711	470,322.49	36,847.80	-	36,847.80	433,474.69
467	A.0001586.253 Total			470,322.49	36,847.80	-	36,847.80	433,474.69

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	(A)	(B)	(C)	(D)	(E)
Line No.	**WBS Level 4 Number**	**WBS Level 4 Description**	**Asset Class**	**Witness**	**Project Category**
468	A.0001586.260.001.002	JON1C-CT Sec pH Probe	Electric Production	Lytal	Reliability & Performance Enhancement
469					
470	A.0001586.261.001.002	JON1C-Replace CP's-19974	Electric Production	Lytal	Reliability & Performance Enhancement
471					
472	A.0001586.262.001.002	JON1C-Circ Water Struct Liner-19992	Electric Production	Lytal	Reliability & Performance Enhancement
473					
474	A.0001586.264.001.002	JON1C-CEM's Upgrade 19976	Electric Production	Lytal	Environmental Compliance
475					
476	A.0001586.265.001.002	JON2C-CEM's Upgrade-19975	Electric Production	Lytal	Environmental Compliance
477					
478	A.0001586.283.001.002	JON1C-Rpl CT Bypass Vlv	Electric Production	Lytal	Reliability & Performance Enhancement
479					
480	A.0001586.295.001.002	JON0C-Portable Vibration DAS	Electric Production	Lytal	Reliability & Performance Enhancement
481					
482	A.0001586.500.001.003	JON2C-E Rpl CT Bypass Vlv	Electric Production	Lytal	Reliability & Performance Enhancement
483	A.0001586.500.001.004	JON0C-Rpl AC 2nd Fl Office	Electric Production	Lytal	Reliability & Performance Enhancement
484	A.0001586.500.001.005	JON0C-Rpl Trb Deck Crane Cntrlr	Electric Production	Lytal	Reliability & Performance Enhancement
485	A.0001586.500.001.008	JON0C-Rpl UF Modules	Electric Production	Lytal	Reliability & Performance Enhancement
486	A.0001586.500.001.011	JON0C-Smart Pig Test	Electric Production	Lytal	Reliability & Performance Enhancement
487	A.0001586.500.001.012	JON1C-Rpl HP FWH #1 & #2	Electric Production	Lytal	Reliability & Performance Enhancement
488	A.0001586.500.001.014	JON2C-Rpl CT Motor Cell #3	Electric Production	Lytal	Reliability & Performance Enhancement
489	A.0001586.500.001.016	JON0C-Inst Ladder Swing Gates	Electric Production	Lytal	Reliability & Performance Enhancement
490	A.0001586.500.001.020	JON2C-Rpl Aux Blr Wtr Vlv	Electric Production	Lytal	Reliability & Performance Enhancement
491	A.0001586.500.001.021	JON0C-Rpl Fire Sys Chk Vlv	Electric Production	Lytal	Reliability & Performance Enhancement
492	A.0001586.500.001.022	JON2C-Rpl Gas Density Anlyzr	Electric Production	Lytal	Reliability & Performance Enhancement
493	A.0001586.500.001.010	JON0C-Install Rectifier RMU	Electric Production	Lytal	Reliability & Performance Enhancement
494	A.0001586.500.001.006	JON2C-Rpl Economizer Exp Jnts	Electric Production	Lytal	Reliability & Performance Enhancement
495	A.0001586.500.001.015	JON2C-Rpl CT Motors	Electric Production	Lytal	Reliability & Performance Enhancement
496	A.0001586.500.001.013	JON2C-Rpl HP FWH #2	Electric Production	Lytal	Reliability & Performance Enhancement
497	A.0001586.500.001.009	JON0C-Rpl Diesel Fire Pmp Vlv	Electric Production	Lytal	Reliability & Performance Enhancement
498	A.0001586.500.001.007	JON0C-Fire System Iso Vlvs	Electric Production	Lytal	Reliability & Performance Enhancement
499					
500	A.0001550.250.001.002	HAR1C-Rpl CT Mechanicals Ph2	Electric Production	Lytal	Reliability & Performance Enhancement
501					
502	A.0001586.259.001.002	JON2C-CT Sec pH Probe	Electric Production	Lytal	Reliability & Performance Enhancement
503					

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Line No.	(F) WBS Level 2 Number	(G) WBS Level 2 Description	(H) In-Service Date	(I) Additions to Plant-In-Service (July 1, 2017 - March 31, 2019)	(J) XES Charges (Included in Column I)	(K) Other Affiliate Charges (Included in Column I)	(L) Total Affiliate Charges (Included in Column I)	(M) Total Native Charges (Columns I less L) Within the Total Additions to Plant-in-Service Shown in Column (I)
468	A.0001586.260	JON1C-CT Sec pH Probe-21239	201804	27,971.07	12,040.03	-	12,040.03	15,931.04
469	A.0001586.260 Total			27,971.07	12,040.03	-	12,040.03	15,931.04
470	A.0001586.261	JON1C-Replace CP's-19974	201711	100,639.55	16,886.26	-	16,886.26	83,753.29
471	A.0001586.261 Total			100,639.55	16,886.26	-	16,886.26	83,753.29
472	A.0001586.262	JON1C-Circ Water Struct Liner-19992	201711	2,366,077.77	194,331.06	-	194,331.06	2,171,746.71
473	A.0001586.262 Total			2,366,077.77	194,331.06	-	194,331.06	2,171,746.71
474	A.0001586.264	JON1C-CEM's Upgrade-19976	201807	208,087.36	40,082.83	-	40,082.83	168,004.53
475	A.0001586.264 Total			208,087.36	40,082.83	-	40,082.83	168,004.53
476	A.0001586.265	JON2C-CEM's Upgrade-19975	201811	216,485.94	51,421.56	-	51,421.56	165,064.38
477	A.0001586.265 Total			216,485.94	51,421.56	-	51,421.56	165,064.38
478	A.0001586.283	JON1C-Rpl CT Bypass Vlv	201711	30,754.50	6,634.76	-	6,634.76	24,119.74
479	A.0001586.283 Total			30,754.50	6,634.76	-	6,634.76	24,119.74
480	A.0001586.295	JON0C-Portable Vibration DAS	201712	19,966.06	786.45	-	786.45	19,179.61
481	A.0001586.295 Total			19,966.06	786.45	-	786.45	19,179.61
482	A.0001586.500	JON Emergent Fund -Steam prod	201704	1,602.91	-	-	-	1,602.91
483	A.0001586.500	JON Emergent Fund -Steam prod	201709	8,339.66	-	-	-	8,339.66
484	A.0001586.500	JON Emergent Fund -Steam prod	201710	19,940.18	-	-	-	19,940.18
485	A.0001586.500	JON Emergent Fund -Steam prod	201805	40,559.29	-	-	-	40,559.29
486	A.0001586.500	JON Emergent Fund -Steam prod	201811	472,479.61	7,546.24	18,062.47	25,608.71	446,870.90
487	A.0001586.500	JON Emergent Fund -Steam prod	201810	27,941.14	1,301.07	-	1,301.07	26,640.07
488	A.0001586.500	JON Emergent Fund -Steam prod	201811	12,939.31	-	-	-	12,939.31
489	A.0001586.500	JON Emergent Fund -Steam prod	201812	34,173.92	2,350.92	-	2,350.92	31,823.00
490	A.0001586.500	JON Emergent Fund -Steam prod	201812	11,186.87	-	-	-	11,186.87
491	A.0001586.500	JON Emergent Fund -Steam prod	201812	10,657.99	-	-	-	10,657.99
492	A.0001586.500	JON Emergent Fund -Steam prod	201812	5,394.17	-	-	-	5,394.17
493	A.0001586.500	JON Emergent Fund -Steam prod	201811	3,774.44	-	763.63	763.63	3,010.81
494	A.0001586.500	JON Emergent Fund -Steam prod	201710	117,183.33	16,172.98	-	16,172.98	101,010.35
495	A.0001586.500	JON Emergent Fund -Steam prod	201811	23,786.29	-	-	-	23,786.29
496	A.0001586.500	JON Emergent Fund -Steam prod	201810	27,485.48	1,301.07	-	1,301.07	26,184.41
497	A.0001586.500	JON Emergent Fund -Steam prod	201805	13,539.72	-	-	-	13,539.72
498	A.0001586.500	JON Emergent Fund -Steam prod	201801	23,524.69	236.44	-	236.44	23,288.25
499	A.0001586.500 Total			854,509.00	28,908.72	18,826.10	47,734.82	806,774.18
500	A.0001550.250	HAR1C-Rpl CT Mechanicals Ph2	201806	387,718.83	23,696.15	-	23,696.15	364,022.68
501	A.0001550.250 Total			387,718.83	23,696.15	-	23,696.15	364,022.68
502	A.0001586.259	JON2C-CT Sec pH Probe-21238	201804	26,343.16	12,889.75	-	12,889.75	13,453.41
503	A.0001586.259 Total			26,343.16	12,889.75	-	12,889.75	13,453.41

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	(A)	(B)	(C)	(D)	(E)
Line No.	**WBS Level 4 Number**	**WBS Level 4 Description**	**Asset Class**	**Witness**	**Project Category**
504	A.0001550.475.001.002	HAR3C-Rpl CT Bottom Structure	Electric Production	Lytal	Reliability & Performance Enhancement
505					
506	A.0001555.369.001.001	TOL2C-Nozzleblock Modification-2041	Electric Production	Lytal	Reliability & Performance Enhancement
507					
508	A.0001560.012.001.002	NIC0C-Rpl 1&2 React Sump Pmps	Electric Production	Lytal	Reliability & Performance Enhancement
509					
510	A.0001555.043.001.002	TOL1C-Rpl Burner Assemblies	Electric Production	Lytal	Reliability & Performance Enhancement
511					
512	A.0001550.109.001.001	BUDG-HAR1C U1 Rpl Condenser Circ Pi	Electric Production	Lytal	Reliability & Performance Enhancement
513					
514	A.0001560.117.001.002	NIC0C-Rpl Roof-Turb High	Electric Production	Lytal	Reliability & Performance Enhancement
515					
516	A.0001555.366.001.002	TOL1C-#1 FWH Valves	Electric Production	Lytal	Reliability & Performance Enhancement
517					
518	A.0001586.103.001.002	JON0C-Pur 1st pass RO Membra	Electric Production	Lytal	Reliability & Performance Enhancement
519					
520	A.0001545.255.001.002	CHC2C-Rpl CT Suction Screens	Electric Production	Lytal	Reliability & Performance Enhancement
521					
522	A.0001550.462.001.002	HAR0C-Remove UG Fuel Tanks	Electric Production	Lytal	Environmental Compliance
523					
524	A.0001550.294.001.001	HAR3C-Rpl Inverter	Electric Production	Lytal	Reliability & Performance Enhancement
525					
526	A.0001550.097.001.002	HAR2C-H2 Rpl Drag Chain 2017	Electric Production	Lytal	Reliability & Performance Enhancement
527					
528	A.0001550.190.001.001	HAR2C-H2 Mill B Major Major OH	Electric Production	Lytal	Reliability & Performance Enhancement
529					
530	A.0001586.081.001.001	JON1C-Rpl Seamed HRH Piping	Electric Production	Lytal	Reliability & Performance Enhancement
531					
532	A.0001550.481.001.002	HAR0C-Trng Cntr Fire Detection	Electric Production	Lytal	Reliability & Performance Enhancement
533					
534	A.0001586.072.001.004	JON2C-Rpl Gas Firing Valve	Electric Production	Lytal	Reliability & Performance Enhancement
535					
536	A.0001586.252.001.002	JON1C-Rpl Elv Shaft Roof-20417	Electric Production	Lytal	Reliability & Performance Enhancement
537					
538	A.0001560.123.001.002	NIC3C-CT Mechanicals Phase 1	Electric Production	Lytal	Reliability & Performance Enhancement
539					

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	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Line No.	WBS Level 2 Number	WBS Level 2 Description	In-Service Date	Additions to Plant-In-Service (July 1, 2017 - March 31, 2019)	XES Charges (Included in Column I)	Other Affiliate Charges (Included in Column I)	Total Affiliate Charges (Included in Column I)	Total Native Charges (Columns I less L) Within the Total Additions to Plant-in-Service Shown in Column (I)
504	A.0001550.475	HAR3C-Rpl CT Bottom Structure	201812	1,227,169.90	28,825.23	-	28,825.23	1,198,344.67
505	A.0001550.475 Total			1,227,169.90	28,825.23	-	28,825.23	1,198,344.67
506	A.0001555.369	TOL2C-Nozzleblock Modification	201704	1,039.46	723.63	-	723.63	315.83
507	A.0001555.369 Total			1,039.46	723.63	-	723.63	315.83
508	A.0001560.012	NIC0C-Rpl 1&2 React Sump Pmps	201612	2,328.52	(27.44)	-	(27.44)	2,355.96
509	A.0001560.012 Total			2,328.52	(27.44)	-	(27.44)	2,355.96
510	A.0001555.043	TOL1C-Rpl Burner Assemblies	201811	581,360.07	37,697.36	-	37,697.36	543,662.71
511	A.0001555.043 Total			581,360.07	37,697.36	-	37,697.36	543,662.71
512	A.0001550.109	HAR1C-H1 Rpl Condenser Circ Pi	201707	(327.04)	-	-	-	(327.04)
513	A.0001550.109 Total			(327.04)	-	-	-	(327.04)
514	A.0001560.117	NIC0C-Rpl Roof-Turb High	201807	523,645.24	14,465.05	-	14,465.05	509,180.19
515	A.0001560.117 Total			523,645.24	14,465.05	-	14,465.05	509,180.19
516	A.0001555.366	TOL1C-T1 #1FWH valves	201811	317,076.27	40,342.12	-	40,342.12	276,734.15
517	A.0001555.366 Total			317,076.27	40,342.12	-	40,342.12	276,734.15
518	A.0001586.103	JON0C-Pur 1st pass RO Membra	201706	690.00	6,909.07	-	6,909.07	(6,219.07)
519	A.0001586.103 Total			690.00	6,909.07	-	6,909.07	(6,219.07)
520	A.0001545.255	CHC2C-Rpl CT Suction Screens-21237	201807	100,688.64	12,353.92	-	12,353.92	88,334.72
521	A.0001545.255 Total			100,688.64	12,353.92	-	12,353.92	88,334.72
522	A.0001550.462	HAR0C-Remove UG Fuel Tanks	201804	185.66	(36,523.55)	-	(36,523.55)	36,709.21
523	A.0001550.462 Total			185.66	(36,523.55)	-	(36,523.55)	36,709.21
524	A.0001550.294	HAR3C-Rpl Inverter	201701	(41.11)	(8.66)	-	(8.66)	(32.45)
525	A.0001550.294 Total			(41.11)	(8.66)	-	(8.66)	(32.45)
526	A.0001550.097	HAR2C-H2 Rpl Drag Chain 2017	201705	2,738.36	11.46	-	11.46	2,726.90
527	A.0001550.097 Total			2,738.36	11.46	-	11.46	2,726.90
528	A.0001550.190	HAR2C-H2 Mill B Major Major OH	201705	45,004.37	10,932.92	-	10,932.92	34,071.45
529	A.0001550.190 Total			45,004.37	10,932.92	-	10,932.92	34,071.45
530	A.0001586.081	JON1C-Rpl Seamed HRH Piping	201711	1,782,229.46	95,289.95	0.05	95,290.00	1,686,939.46
531	A.0001586.081 Total			1,782,229.46	95,289.95	0.05	95,290.00	1,686,939.46
532	A.0001550.481	HAR0C-Trng Cntr Fire Detection	201806	42,398.89	10,768.89	-	10,768.89	31,630.00
533	A.0001550.481 Total			42,398.89	10,768.89	-	10,768.89	31,630.00
534	A.0001586.072	JON2C-Rpl Gas Firing Valve	201808	37,199.49	8,895.73	-	8,895.73	28,303.76
535	A.0001586.072 Total			37,199.49	8,895.73	-	8,895.73	28,303.76
536	A.0001586.252	JON1C-Rpl Elv Shaft Roof-20417	201705	6,052.13	-	-	-	6,052.13
537	A.0001586.252 Total			6,052.13	-	-	-	6,052.13
538	A.0001560.123	NIC3C-CT Mechanicals Phase 1	201806	461,611.43	17,312.04	-	17,312.04	444,299.39
539	A.0001560.123 Total			461,611.43	17,312.04	-	17,312.04	444,299.39

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	(A)	(B)	(C)	(D)	(E)
Line No.	WBS Level 4 Number	WBS Level 4 Description	Asset Class	Witness	Project Category
540	A.0001555.599.001.002	TOL2C-Inst Online Vib Mntr Sys	Electric Production	Lytal	Reliability & Performance Enhancement
541					
542	A.0001545.308.001.002	CHC0C-Portable Vibration DAS	Electric Production	Lytal	Reliability & Performance Enhancement
543					
544	A.0001555.093.001.002	TOL0C-Rpl RR Ties PH 4 of 5	Electric Production	Lytal	Reliability & Performance Enhancement
545					
546	A.0001560.109.001.002	NIC1C-Rpl CT Suction Vault Roof	Electric Production	Lytal	Reliability & Performance Enhancement
547					
548	A.0001545.035.001.002	CHC2C-Rpl BFP Discharge vlvs	Electric Production	Lytal	Reliability & Performance Enhancement
549					
550	A.0001560.009.001.001	NIC2C- E Rpl BFR for B964 -21500	Electric Production	Lytal	Reliability & Performance Enhancement
551					
552	A.0001560.079.001.002	NIC3C-Rpl Lab Analyzers	Electric Production	Lytal	Reliability & Performance Enhancement
553					
554	A.0001560.010.001.001	NIC0C-Rpl Demineralizer	Electric Production	Lytal	Reliability & Performance Enhancement
555					
556	A.0001550.093.001.001	HAR2C-H2 Rpl Distribution Valv	Electric Production	Lytal	Reliability & Performance Enhancement
557					
558	A.0001555.264.001.002	TOL1C-RbldMill FGearBx&Jrnls	Electric Production	Lytal	Reliability & Performance Enhancement
559					
560	A.0001586.254.001.002	JON2C-Rpl Elv Shaft Roof-20416	Electric Production	Lytal	Reliability & Performance Enhancement
561					
562	A.0001550.443.001.002	HAR1C-ESP Rebuild TR-sets PH2	Electric Production	Lytal	Environmental Compliance
563					
564	A.0001545.304.001.002	CHC2C-Inst Onln Vib Mntr Sys	Electric Production	Lytal	Reliability & Performance Enhancement
565					
566	A.0001550.082.001.002	HAR3C-Rpl Drag Chain 2018	Electric Production	Lytal	Reliability & Performance Enhancement
567					
568	A.0001529.032.001.002	MAD1C-Rpl M1 Elevator	Electric Production	Lytal	Reliability & Performance Enhancement
569					
570	A.0001555.595.001.002	TOL1C-Cooling Tower Bypass	Electric Production	Lytal	Reliability & Performance Enhancement
571					
572	A.0001586.287.001.002	JON2C-Rpl CT Makeup Piping	Electric Production	Lytal	Reliability & Performance Enhancement
573					
574	A.0001555.212.001.002	TOL0C-Rpl WW Pmp 2019 Well 60	Electric Production	Lytal	Reliability & Performance Enhancement
575					

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Line No.	(F) WBS Level 2 Number	(G) WBS Level 2 Description	(H) In-Service Date	(I) Additions to Plant-In-Service (July 1, 2017 - March 31, 2019)	(J) XES Charges (Included in Column I)	(K) Other Affiliate Charges (Included in Column I)	(L) Total Affiliate Charges (Included in Column I)	(M) Total Native Charges (Columns I less L) Within the Total Additions to Plant-in-Service Shown in Column (I)
540	A.0001555.599	TOL2C-Inst Online Vib Mntr Sys	201806	120,957.20	26,994.50	-	26,994.50	93,962.70
541	A.0001555.599 Total			120,957.20	26,994.50	-	26,994.50	93,962.70
542	A.0001545.308	CHC0C-Portable Vibration DAS	201712	29,845.02	584.78	-	584.78	29,260.24
543	A.0001545.308 Total			29,845.02	584.78	-	584.78	29,260.24
544	A.0001555.093	TOL0C-Rpl RR Ties PH 4 of 5	201804	1,036,417.05	39,921.80	-	39,921.80	996,495.25
545	A.0001555.093 Total			1,036,417.05	39,921.80	-	39,921.80	996,495.25
546	A.0001560.109	NIC1C-Rpl CT Suction Vault Roof	201711	199,616.67	42,418.54	-	42,418.54	157,198.13
547	A.0001560.109 Total			199,616.67	42,418.54	-	42,418.54	157,198.13
548	A.0001545.035	CHC2C-Rpl BFP Discharge vlvs	201806	342,703.43	31,861.27	-	31,861.27	310,842.16
549	A.0001545.035 Total			342,703.43	31,861.27	-	31,861.27	310,842.16
550	A.0001560.009	NIC2C- E Rpl BFR for B964 -21500	201707	(0.03)	-	-	-	(0.03)
551	A.0001560.009 Total			(0.03)	-	-	-	(0.03)
552	A.0001560.079	NIC3C-Rpl Lab Analyzers	201811	111,611.71	2,816.42	-	2,816.42	108,795.29
553	A.0001560.079 Total			111,611.71	2,816.42	-	2,816.42	108,795.29
554	A.0001560.010	NIC0C-Rpl Demineralizer	201612	(229.76)	10,974.51	-	10,974.51	(11,204.27)
555	A.0001560.010 Total			(229.76)	10,974.51	-	10,974.51	(11,204.27)
556	A.0001550.093	HAR2C-H2 Rpl Distribution Valv	201707	41,220.95	3,631.69	-	3,631.69	37,589.26
557	A.0001550.093 Total			41,220.95	3,631.69	-	3,631.69	37,589.26
558	A.0001555.264	TOL1C-RbldMill FGearBx&Jrnls	201606	(0.01)	-	-	-	(0.01)
559	A.0001555.264 Total			(0.01)	-	-	-	(0.01)
560	A.0001586.254	JON2C-Rpl Elv Shaft Roof-20416	201705	3,088.21	-	-	-	3,088.21
561	A.0001586.254 Total			3,088.21	-	-	-	3,088.21
562	A.0001550.443	HAR1C- ESP Re-build TR-sets PH2	201805	91,867.95	15,355.85	-	15,355.85	76,512.10
563	A.0001550.443 Total			91,867.95	15,355.85	-	15,355.85	76,512.10
564	A.0001545.304	CHC2C-Inst Onln Vib Mntr Sys	201805	37,598.88	17,657.76	-	17,657.76	19,941.12
565	A.0001545.304 Total			37,598.88	17,657.76	-	17,657.76	19,941.12
566	A.0001550.082	HAR3C-H3 Rpl Drag Chain 2018	201811	71,343.67	3,224.22	-	3,224.22	68,119.45
567	A.0001550.082 Total			71,343.67	3,224.22	-	3,224.22	68,119.45
568	A.0001529.032	MAD1C-Rpl M1 Elevator	201810	381,965.84	72,384.12	-	72,384.12	309,581.72
569	A.0001529.032 Total			381,965.84	72,384.12	-	72,384.12	309,581.72
570	A.0001555.595	TOL1C-Cooling Tower Bypass	201812	173,448.32	20,353.61	-	20,353.61	153,094.71
571	A.0001555.595 Total			173,448.32	20,353.61	-	20,353.61	153,094.71
572	A.0001586.287	JON2C-Rpl CT Makeup Piping	201903	332,686.81	7,633.00	-	7,633.00	325,053.81
573	A.0001586.287 Total			332,686.81	7,633.00	-	7,633.00	325,053.81
574	A.0001555.212	TOL0C-Rpl Water Well Pmp 2019	201903	7,084.57	-	-	-	7,084.57
575	A.0001555.212 Total			7,084.57	-	-	-	7,084.57

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	(A)	(B)	(C)	(D)	(E)
Line No.	**WBS Level 4 Number**	**WBS Level 4 Description**	**Asset Class**	**Witness**	**Project Category**
576	A.0001586.285.001.002	JON2C-Rpl Circ Pump Suc Hood	Electric Production	Lytal	Reliability & Performance Enhancement
577					
578			Total Electric Productio		
579	A.0001550.460.001.002	HAR0C-Purchase PMI Analyzer	Electric General	Lytal	Reliability & Performance Enhancement
580					
581	A.0003000.337.001.004	GMS0C-Sys Lab Instrument Trailer	Electric General	Lytal	Reliability & Performance Enhancement
582					
583	A.0003000.429.001.002	JON0C-Rpl Milling Machine	Electric General	Lytal	Reliability & Performance Enhancement
584					
585	A.0003000.430.001.002	GMC0C-Manta Relay Test Set	Electric General	Lytal	Reliability & Performance Enhancement
586					
587	A.0003000.637.001.001	GMS0C-SPS RATA Testing Trailer	Electric General	Lytal	Reliability & Performance Enhancement
588					
589	A.0003000.663.001.001	CHC0C-Cunningham Tools	Electric General	Lytal	Reliability & Performance Enhancement
590					
591	A.0003000.668.001.001	HAR0C-Purchase Plant Tools	Electric General	Lytal	Reliability & Performance Enhancement
592					
593	A.0003000.673.001.001	JON0C-Capital Tools	Electric General	Lytal	Reliability & Performance Enhancement
594					
595	A.0003000.674.001.001	MAD0C-Maddox Tools	Electric General	Lytal	Reliability & Performance Enhancement
596					
597	A.0003000.675.001.001	NIC0C-Purchase Plant Tools	Electric General	Lytal	Reliability & Performance Enhancement
598					
599	A.0003000.684.001.002	TOL0C- Tolk Tool Blanket	Electric General	Lytal	Reliability & Performance Enhancement
600	A.0003000.684.001.001	TOL0C - Purch Misc Tools	Electric General	Lytal	Reliability & Performance Enhancement
601					
602	A.0003000.689.001.001	GMS0C-TX Lab Instruments	Electric General	Lytal	Reliability & Performance Enhancement
603					
604	A.0003000.690.001.001	GMS0C-E&C Tools	Electric General	Lytal	Reliability & Performance Enhancement
605					
606	A.0003000.691.001.001	GMS0C-TRaC Tools	Electric General	Lytal	Reliability & Performance Enhancement
607					
608	A.0003000.692.001.001	GMS0C-MMR Instruments	Electric General	Lytal	Reliability & Performance Enhancement
609					
610	A.0003000.693.001.001	GMS0C-PMO Equipment	Electric General	Lytal	Reliability & Performance Enhancement
611					

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July 1, 2017 through March 31, 2019

Line No.	(F) WBS Level 2 Number	(G) WBS Level 2 Description	(H) In-Service Date	(I) Additions to Plant-In-Service (July 1, 2017 - March 31, 2019)	(J) XES Charges (Included in Column I)	(K) Other Affiliate Charges (Included in Column I)	(L) Total Affiliate Charges (Included in Column I)	(M) Total Native Charges (Columns I less L) Within the Total Additions to Plant-in-Service Shown in Column (I)
576	A.0001586.285	JON2C-Rpl Circ Pump Suc Hood	201903	170,658.89	15,163.42	-	15,163.42	155,495.47
577	A.0001586.285 Total			170,658.89	15,163.42	-	15,163.42	155,495.47
578				**$ 60,506,138.74**	**$ 4,785,478.38**	**$ 18,667.68**	**$ 4,804,146.06**	**$ 55,701,992.68**
579	A.0001550.460	HAR0C-Purchase PMI Analyzer	201805	$ 39,628.41	$ 5,992.23	$ -	$ 5,992.23	$ 33,636.18
580	A.0001550.460 Total			39,628.41	5,992.23	-	5,992.23	33,636.18
581	A.0003000.337	GMS0C-TX Lab Instruments 2015	201506	111.05	-	-	-	111.05
582	A.0003000.337 Total			111.05	-	-	-	111.05
583	A.0003000.429	JON0C-Rpl Milling Machine	201812	48,275.79	591.28	-	591.28	47,684.51
584	A.0003000.429 Total			48,275.79	591.28	-	591.28	47,684.51
585	A.0003000.430	GMS0C-Manta Relay Test Set		61,864.89	-	-	-	61,864.89
586	A.0003000.430 Total			61,864.89	-	-	-	61,864.89
587	A.0003000.637	GMS0C-SPS RATA Testing Trailer		69,953.11	-	-	-	69,953.11
588	A.0003000.637 Total			69,953.11	-	-	-	69,953.11
589	A.0003000.663	CHC0C-Cunningham Tools		40,019.87	-	-	-	40,019.87
590	A.0003000.663 Total			40,019.87	-	-	-	40,019.87
591	A.0003000.668	HAR0C-Purch Plant Tools		280,585.25	-	-	-	280,585.25
592	A.0003000.668 Total			280,585.25	-	-	-	280,585.25
593	A.0003000.673	JON0C-Capital Tools		68,918.20	-	-	-	68,918.20
594	A.0003000.673 Total			68,918.20	-	-	-	68,918.20
595	A.0003000.674	MAD0C-Purchase Cap Tools		88,527.32	-	-	-	88,527.32
596	A.0003000.674 Total			88,527.32	-	-	-	88,527.32
597	A.0003000.675	NIC0C-Purch Plant Tools		50,076.02	-	-	-	50,076.02
598	A.0003000.675 Total			50,076.02	-	-	-	50,076.02
599	A.0003000.684	TOL0C - Purch Misc Tools		119,146.73	-	-	-	119,146.73
600	A.0003000.684	TOL0C - Purch Misc Tools	201612	7,638.05	-	-	-	7,638.05
601	A.0003000.684 Total			126,784.78	-	-	-	126,784.78
602	A.0003000.689	GMS0C-TX Lab Instruments		266,419.66	968.63	-	968.63	265,451.03
603	A.0003000.689 Total			266,419.66	968.63	-	968.63	265,451.03
604	A.0003000.690	GMS0C-E&C Tools		26,319.48	-	-	-	26,319.48
605	A.0003000.690 Total			26,319.48	-	-	-	26,319.48
606	A.0003000.691	GMS0C-TRaC Tools		137,761.53	-	-	-	137,761.53
607	A.0003000.691 Total			137,761.53	-	-	-	137,761.53
608	A.0003000.692	GMS0C-MMR Instruments		56,117.94	-	-	-	56,117.94
609	A.0003000.692 Total			56,117.94	-	-	-	56,117.94
610	A.0003000.693	GMS0C-PMO Equipment		34,481.89	-	-	-	34,481.89
611	A.0003000.693 Total			34,481.89	-	-	-	34,481.89

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	(A)	(B)	(C)	(D)	(E)
Line No.	**WBS Level 4 Number**	**WBS Level 4 Description**	**Asset Class**	**Witness**	**Project Category**
612	A.0006056.227.001.001	GMS0C-Purchase Vehicles SPS 2016	Electric General	Lytal	Reliability & Performance Enhancement
613	A.0006056.227.001.002	GMS0C-Pur Vehicles SPS 2017	Electric General	Lytal	Reliability & Performance Enhancement
614	A.0006056.227.001.003	GMS0C-Pur Vehicles SPS 2018	Electric General	Lytal	Reliability & Performance Enhancement
615					
616	A.0003000.688.001.001	GMS0C-Training Tools for	Electric General	Lytal	Reliability & Performance Enhancement
617					
618	A.0003000.152.001.002	HAR0C-Tube Bender	Electric General	Lytal	Reliability & Performance Enhancement
619					
620	A.0003000.677.001.001	PLX0C-Purchase Misc Plant Tool	Electric General	Lytal	Reliability & Performance Enhancement
621					
622			**Total Electric General**		
623			**Grand Total**		

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July 1, 2017 through March 31, 2019

Line No.	(F) WBS Level 2 Number	(G) WBS Level 2 Description	(H) In-Service Date	(I) Additions to Plant-In-Service (July 1, 2017 - March 31, 2019)	(J) XES Charges (Included in Column I)	(K) Other Affiliate Charges (Included in Column I)	(L) Total Affiliate Charges (Included in Column I)	(M) Total Native Charges (Columns I less L) Within the Total Additions to Plant-in-Service Shown in Column (I)
612	A.0006056.227	GSMOC Purchase Vehicles		(32,118.75)	-	-	-	(32,118.75)
613	A.0006056.227	GSMOC Purchase Vehicles		175,650.54	-	-	-	175,650.54
614	A.0006056.227	GSMOC Purchase Vehicles	201805	173,295.79	4,141.81	-	4,141.81	169,153.98
615	A.0006056.227 Total			316,827.58	4,141.81	-	4,141.81	312,685.77
616	A.0003000.688	GMS0C-Training Tools		13,165.09	-	-	-	13,165.09
617	A.0003000.688 Total			13,165.09	-	-	-	13,165.09
618	A.0003000.152	HAR0C-Tube Bender		60,865.18	-	-	-	60,865.18
619	A.0003000.152 Total			60,865.18	-	-	-	60,865.18
620	A.0003000.677	PLX0C-Purch Misc Plant Tool		52,006.36	-	-	-	52,006.36
621	A.0003000.677 Total			52,006.36	-	-	-	52,006.36
622				**$ 1,838,709.40**	**$ 11,693.95**	**$ -**	**$ 11,693.95**	**$ 1,827,015.45**
623				**$ 62,344,848.14**	**$ 4,797,172.33**	**$ 18,667.68**	**$ 4,815,840.01**	**$ 57,529,008.13**

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

Line No.	(A) Asset Class	(B) Witness	(C) Project Category	(D) Additions to Plant-in-Service (Apr. 2019 - Jun. 2019)	(E) Total Affiliate Charges (Included in Column D)	(F) Project Description
				April-June 2019 Budget Amounts		
1	Electric Production	Lytal	Reliability and Performance Enhancement	483,395.88		**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, and to 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.
2	Electric Production	Lytal	Reliability and Performance Enhancement	195,051.12		**Maddox Unit 3 -Replace Maddox Unit 3 Fire Suppression** - This project is to replace the dry chem fire protection system in generator section. This includes: 1 - Fenwal net 8000 control panel, 2 r-Nac cards, mounting box, display; 1 - Smoke detector; 8 - Modules; 2 - EOL Releasing devices; 1 - 1000' of 4 conductor high temp wire, Nema cans and conduit as needed; 2 - 50# IND tanks and suppression agent; 2 - electric actuator kits; Piping as needed for rework of tanks; Programming and testing. The current dry chem tanks have faulty actuators and seals, and will steadily drain the tank pressure empty, leaving the unit without generator fire protection. The tanks are obsolete and repair parts are not obtainable for the actuators. The dry chem suppression agent is not available in town. SPS had previously been shipping the tanks off to Lubbock for a refill, however the vendor is no longer supplying that agent type.
3	Electric Production	Lytal	Reliability and Performance Enhancement	80,167.77		**Maddox - Small Routines** - This expenditure respresents a group of minor projects that cosist of replacement or refurbishment of plant equipment needed to maintain the continued reliable operation and performance of the Maddox (MAD) natural gas generating station.

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

	(A)	(B)	(C)	(D)	(E)	(F)
Line No.	**Asset Class**	**Witness**	**Project Category**	**Additions to Plant-in-Service (Apr. 2019 - Jun. 2019)**	**Total Affiliate Charges (Included in Column D)**	**Project Description**
4	Electric Production	Lytal	Reliability and Performance Enhancement	357,813.56		**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.
5	Electric Production	Lytal	Reliability and Performance Enhancement	299,370.46		**Plant X - Small Routines** - This expenditure respresents 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.
6	Electric Production	Lytal	Reliability and Performance Enhancement	2,049,234.19		**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 (RSOM) 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.

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

	(A)	(B)	(C)	(D)	(E)	(F)
Line No.	**Asset Class**	**Witness**	**Project Category**	**Additions to Plant-in-Service (Apr. 2019 - Jun. 2019)**	**Total Affiliate Charges (Included in Column D)**	**Project Description**
7	Electric Production	Lytal	Reliability and Performance Enhancement	509,053.81		**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.
8	Electric Production	Lytal	Reliability and Performance Enhancement	352,727.65		**Plant X Unit 4 - Generator Rewedge** - This project is to rewedge the X4 generator. The scope of work includes all necessary pre-testing, removal and disposal of old wedges, installation of new wedges, cleaning of the stator core and winding, final testing, visual inspection on the stator core/end windings/blocking supports, inspect series connections and perform electrical testing. This also includes Bore-scope inspection beneath rotor coil retaining rings to inspect end windings and blocking supports as accessibility allows. A generator inspection was conducted during the last major overhaul. At that time, the final recommendation from Toshiba was to rewedge the stator. This was based on the test depth readings on the wedges. These readings indicated approximately 50% of the wedges were moderately or extremely loose.
9	Electric Production	Lytal	Reliability and Performance Enhancement	112,468.00		**Cunningham Unit 0 - Refurbish Plant Bathroom** - This project is to refurbish the 1st Floor Mens & Womens restrooms and the 2nd Floor Mens 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 regualar basis due to aging components and the partitions, tiles and grout are failing.

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	(A)	(B)	(C)	(D)	(E)	(F)
Line No.	**Asset Class**	**Witness**	**Project Category**	**Additions to Plant-in-Service (Apr. 2019 - Jun. 2019)**	**Total Affiliate Charges (Included in Column D)**	**Project Description**
10	Electric Production	Lytal	Reliability and Performance Enhancement	131,847.40		**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.
11	Electric Production	Lytal	Reliability and Performance Enhancement	109,615.93		**Cunningham - Small Routines** - This expenditure respresents a group of minor projects that cosist of replacement or refurbishment of plant equipment needed to maintain the continued reliable operation and performance of the Cunningham (CHC) natural gas generating station.
12	Electric Production	Lytal	Reliability and Performance Enhancement	5,602,995.48		**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.

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	(A)	(B)	(C)	(D)	(E)	(F)
Line No.	**Asset Class**	**Witness**	**Project Category**	**Additions to Plant-in-Service (Apr. 2019 - Jun. 2019)**	**Total Affiliate Charges (Included in Column D)**	**Project Description**
13	Electric Production	Lytal	Reliability and Performance Enhancement	2,768,220.99		**Cunningham Unit 3 - Replace Compressor** - This project is to replace the Cunningham Unit 3 rotating and stationary blades (diaphragms) and inlet guide vanes (IGVs) 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.
14	Electric Production	Lytal	Reliability and Performance Enhancement	165,320.93		**GMS0C - Small Routines** - This expenditure respresents a group of minor projects that cosist of replacement of equipment, tools, lab instruments and training materials needed for general (i.e. non-plant specific) operational support.
15	Electric Production	Lytal	Reliability and Performance Enhancement	1,617,342.32		**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.
16	Electric Production	Lytal	Environmental Compliance	228,660.36		**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.
17	Electric Production	Lytal	Reliability and Performance Enhancement	417,230.91		**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.

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	(A)	(B)	(C)	(D)	(E)	(F)
Line No.	**Asset Class**	**Witness**	**Project Category**	**Additions to Plant-in-Service (Apr. 2019 - Jun. 2019)**	**Total Affiliate Charges (Included in Column D)**	**Project Description**
18	Electric Production	Lytal	Reliability and Performance Enhancement	379,563.54		**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 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.
19	Electric Production	Lytal	Reliability and Performance Enhancement	103,713.10		**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.
20	Electric Production	Lytal	Reliability and Performance Enhancement	406,278.90		**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.

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	(A)	(B)	(C)	(D)	(E)	(F)
Line No.	**Asset Class**	**Witness**	**Project Category**	**Additions to Plant-in-Service (Apr. 2019 - Jun. 2019)**	**Total Affiliate Charges (Included in Column D)**	**Project Description**
21	Electric Production	Lytal	Reliability and Performance Enhancement	467,555.38		**Harrington Unit 1 - Uprade 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.
22	Electric Production	Lytal	Reliability and Performance Enhancement	1,019,735.30		**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 posses a safety risk for those inside.

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Line No.	(A) Asset Class	(B) Witness	(C) Project Category	(D) Additions to Plant-in-Service (Apr. 2019 - Jun. 2019)	(E) Total Affiliate Charges (Included in Column D)	(F) Project Description
23	Electric Production	Lytal	Reliability and Performance Enhancement	149,690.80		**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 are badly deteriorated with holes and splits evident. Membrane blisters are scattered over the roof area and with areas of surfacing deterioration. Vent curb flashings are badly deteriorated. Drainage is fair to poor with a moderate area of ponding water evident. The water leakage into the building has caused a safety concern since the area of leakage is over the electrical panels inside the building.
24	Electric Production	Lytal	Reliability and Performance Enhancement	172,664.24		**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.

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	(A)	(B)	(C)	(D)	(E)	(F)
Line No.	**Asset Class**	**Witness**	**Project Category**	**Additions to Plant-in-Service (Apr. 2019 - Jun. 2019)**	**Total Affiliate Charges (Included in Column D)**	**Project Description**
25	Electric Production	Lytal	Environmental Compliance	345,434.63		**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 Precitator 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.
26	Electric Production	Lytal	Reliability and Performance Enhancement	896,685.16		**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 reinforce 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.
27	Electric Production	Lytal	Reliability and Performance Enhancement	1,806,076.30		**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.

Southwestern Public Service Company

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

	(A)	(B)	(C)	(D)	(E)	(F)
Line No.	**Asset Class**	**Witness**	**Project Category**	**Additions to Plant-in-Service (Apr. 2019 - Jun. 2019)**	**Total Affiliate Charges (Included in Column D)**	**Project Description**
28	Electric Production	Lytal	Reliability and Performance Enhancement	105,773.86		**Harrington Unit 1 - Replace Cooling Tower Acid Tank** - This project is to replace the existing sulfuric acid tank on the number 1 Cooling Tower and cut up and dispose of the old tank. The existing tank was installed in 1979 and is approaching the end of its useful life based on wall thickness. As the wall continues to thin-out, the acid could eat through the wall and pose a major safety hazard and environmental issue in the event of an acid spill. This project is required for Employee Safety and Environmental protection to reduce the risk of an acid leak.
29	Electric Production	Lytal	Reliability and Performance Enhancement	231,590.77		**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.
30	Electric Production	Lytal	Reliability and Performance Enhancement	541,452.25		**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).
31	Electric Production	Lytal	Reliability and Performance Enhancement	525,687.80		**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.

Southwestern Public Service Company

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

	(A)	(B)	(C)	(D)	(E)	(F)
Line No.	**Asset Class**	**Witness**	**Project Category**	**Additions to Plant-in-Service (Apr. 2019 - Jun. 2019)**	**Total Affiliate Charges (Included in Column D)**	**Project Description**
32	Electric Production	Lytal	Reliability and Performance Enhancement	4,728,254.49		**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.
33	Electric Production	Lytal	Reliability and Performance Enhancement	508,141.77		**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 2015.
34	Electric Production	Lytal	Environmental Compliance	684,850.62		**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.
35	Electric Production	Lytal	Environmental Compliance	201,979.66		**Nichols Unit 3 - Continuous Emissions Monitoring (CEMs) Upgrade** - This project is to upgrade the CEMs Foxboro System.The Application Workstations (AWs) provide CEMs data management and system status monitoring for plant operation and regulatory reporting. These devices are now obsolete and are unreliable.Due to lack of parts and constant failures it is becoming difficult to maintain these systems. A lightning strike has further exacerbated the need for the upgrade. The strike caused the unit to go offline and damaged the power supplies for the CEMs equipment.
36	Electric Production	Lytal	Reliability and Performance Enhancement	154,215.18		**Nichols - Small Routines** - This expenditure respresents 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.

Southwestern Public Service Company

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

Line No.	(A) Asset Class	(B) Witness	(C) Project Category	(D) Additions to Plant-in-Service (Apr. 2019 - Jun. 2019)	(E) Total Affiliate Charges (Included in Column D)	(F) Project Description
37	Electric Production	Lytal	Reliability and Performance Enhancement	751,347.04		**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.
38	Electric Production	Lytal	Reliability and Performance Enhancement	681,773,668.26		**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 associcated with the installation/erection of these turbines
39	Electric Production	Lytal	Reliability and Performance Enhancement	(75.36)		**Hale Wind Project - Land Purchase** - This portion of the Hale Wind Project contains the funding for the Land purchase for the Operations and Maintenance Building.
40	Electric Production	Lytal	Reliability and Performance Enhancement	491,752.44		**Jones - Small Routines** - This expenditure respresents 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 natural gas generating station.
41	Electric Production	Lytal	Reliability and Performance Enhancement	653,122.53		**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 FBM's 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.
42	Electric Production	Lytal	Reliability and Performance Enhancement	1,997,088.70		**Jones Unit 2 - Replace Seamed Hot Reheat (HRH) piping** - This project consist 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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Energy Supply Capital Additions
April 1, 2019 through June 30, 2019

Line No.	(A) Asset Class	(B) Witness	(C) Project Category	(D) Additions to Plant-in-Service (Apr. 2019 - Jun. 2019)	(E) Total Affiliate Charges (Included in Column D)	(F) Project Description
43	Electric Production	Lytal	Reliability and Performance Enhancement	694,160.36		**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 Rebabbiting / Oil Seal fin replacement. Upon the inspection and review byTechnical 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.
44	Electric Production	Lytal	Reliability and Performance Enhancement	599,203.61		**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.
45	Electric Production	Lytal	Reliability and Performance Enhancement	786,792.21		**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. Because there are hot spots on the boiler around the superheat outlet header and doors, a complete replacement will be required.
46	Electric Production	Lytal	Reliability and Performance Enhancement	276,190.44		**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.

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

Line No.	(A) Asset Class	(B) Witness	(C) Project Category	(D) Additions to Plant-in-Service (Apr. 2019 - Jun. 2019)	(E) Total Affiliate Charges (Included in Column D)	(F) Project Description
47	Electric Production	Lytal	Reliability and Performance Enhancement	138,593.27		**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 Disbributed 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.

Southwestern Public Service Company

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

Line No.	(A) Asset Class	(B) Witness	(C) Project Category	(D) Additions to Plant-in-Service (Apr. 2019 - Jun. 2019)	(E) Total Affiliate Charges (Included in Column D)	(F) Project Description
48	Electric Production	Lytal	Reliability and Performance Enhancement	338,969.23		**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 which 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.
49	Electric Production	Lytal	Reliability and Performance Enhancement	614,942.39		**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.
50	**Total Electric Production**			**$ 718,025,615.63**	**$ 57,010,743.11**	
51						
52				**April-June 2019 Budget Amounts**		
53	Electric Transmission	Lytal	Reliability and Performance Enhancement	$ 12,433,800.69		**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.
54	Electric Transmission	Lytal	Reliability and Performance Enhancement	14,716,834.35		**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.
55	Electric Transmission	Lytal	Reliability and Performance Enhancement	63,075.36		**Hale Wind Project - Land Purchase** - This portion of the Hale Wind Project contains the funding or true-up for the Land purchase for the Substation Building
56	**Total Electric Transmission Plant**			**$ 27,213,710.40**	**$ 471,231.75**	

Southwestern Public Service Company

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

Line No.	(A) Asset Class	(B) Witness	(C) Project Category	(D) Additions to Plant-in-Service (Apr. 2019 - Jun. 2019)	(E) Total Affiliate Charges (Included in Column D)	(F) Project Description
57						
58				**April-June 2019 Budget Amounts**		
59	Electric General Plant	Lytal	Reliability and Performance Enhancement	$ 60,286.32		**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.
60	Electric General Plant	Lytal	Reliability and Performance Enhancement	8,632.92		**Cunningham - Small Routines** - This expenditure respresents 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.
61	Electric General Plant	Lytal	Reliability and Performance Enhancement	29,739.53		**Jones - Small Routines** - This expenditure respresents 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.
62	Electric General Plant	Lytal	Reliability and Performance Enhancement	9,625.15		**Maddox - Small Routines** - This expenditure respresents 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.
63	Electric General Plant	Lytal	Reliability and Performance Enhancement	32,820.56		**Nichols - Small Routines** - This expenditure respresents 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.
64	Electric General Plant	Lytal	Reliability and Performance Enhancement	(232.27)		**Plant X - Small Routines** - This expenditure respresents 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.
65	Electric General Plant	Lytal	Reliability and Performance Enhancement	12,061.55		**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.
66	Electric General Plant	Lytal	Reliability and Performance Enhancement	61,158.90		**GMS0C - Small Routines** - This expenditure respresents a group of projects that consist of replacement of equipment, tools, lab instruments and training materials needed for general (i.e. non-plant specific) operational support.
67	Electric General Plant	Lytal	Reliability and Performance Enhancement	165,207.43		**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.
68	**Total Electric General Plant**			**$ 379,300.09**	**$ 17,726.74**	
69						
70	**Grand Total**			**$ 745,618,626.12**	**$ 57,499,701.60**	

Southwestern Public Service Company

Tolk Scenarios - Water Model Depletion Ranges

and Energy Supply Cost Inputs to Strategist Tolk

Analysis

Mark Lytal

2019 TX Rate Case

**APPLICATION OF
SOUTHWESTERN PUBLIC SERVICE COMPANY
FOR AUTHORITY TO CHANGE RATES**

ML-RR-3(CD)

Xcel Energy®
RESPONSIBLE BY NATURE™

1800 Larimer Denver, CO 80202

APPENDIX E TO GIA

Commercial Operation Date

June 27, 2019

Tessie Kentner
Managing Attorney
Southwest Power Pool, Inc.
201 Worthen Drive
Little Rock, AR 72223-4936

Mark Moeller
Manager, Transmission Business Relations
Xcel Energy Services Inc.
414 Nicollet Mall
Minneapolis, MN 55401

Re: Hale Petersburg Wind Generating Facility (GEN-2012-020)

Dear Ms. Kentner and Mr. Moeller:

On **June 27, 2019** Hale Petersburg Wind, LLC ("Hale Petersburg Wind") completed Trial Operation. This letter confirms that Hale Petersburg Wind commenced Commercial Operation of all turbines at the Generating Facility, effective as of **June 28, 2019**.

Sincerely,

Joe Taylor
Manager, Transmission Access
Hale Petersburg Wind, LLC
c/o Xcel Energy Services Inc.
1800 Larimer Street, Suite 1000
Denver, CO 80202
Phone: (303) 571-7462
Email: joseph.c.taylor@xcelenergy.com

Attachment ML-RR-5(V)(HS)

Pages 1 through 1
of
Attachment ML-RR-5(V)(HS)
Master Supply Agreement between Capital Services LLC and Vestas-American Wind Technology, Inc., dated as of September 15, 2016

is
Highly-Sensitive Protected Information

HIGHLY-SENSITIVE PROTECTED MATERIALS PROVIDED PURSUANT TO PROTECTIVE ORDER

Attachment ML-RR-6(V)(HS)

Pages 1 through 1
of
Attachment ML-RR-6(V)(HS)
Turbine Supply Agreement between
Southwestern Public Service Company and
Vestas-American Wind Technology, Inc.,
dated as of June 15, 2018

is
Highly-Sensitive Protected
Information

HIGHLY-SENSITIVE PROTECTED MATERIALS
PROVIDED PURSUANT TO PROTECTIVE ORDER

SALE OF COMPONENTS AGREEMENT

This SALE OF COMPONENTS AGREEMENT, including Annexes attached hereto and made a part hereof, is made and entered into as of March 17, 2017, by and between CAPITAL SERVICES, LLC, a Delaware limited liability company (hereinafter "Seller") and SOUTHWESTERN PUBLIC SERVICE COMPANY, a New Mexico Corporation (hereinafter "Buyer"); sometimes collectively referred to as the "Parties" or singularly as a "Party" (the "Agreement").

RECITALS

A. Seller has acquired, on behalf of its Affiliates (including Buyer), certain wind turbine components (the "PTC Components") from Vestas American Wind Technology, Inc. (hereinafter "Supplier") pursuant to that certain Master Supply Agreement between Seller and Supplier, dated as September 15, 2016 (the "MSA");

B. Buyer intends to develop, from time to time, wind turbine electric generating facilities (each, a "Project") and, in connection with each particular Project, to enter into a Wind Turbine Supply Agreement with Supplier (the "Project TSA") substantially in the form attached to the MSA as Exhibit F;

C. Buyer desires to acquire from Seller, from time to time, such portion of the PTC Components as will be required for a particular Project (the "Project PTC Components"); and

D. The Parties desire to enter into this Agreement to provide for the terms of sale by Seller and purchase by Buyer of the Project PTC Components.

NOW, THEREFORE, in consideration of the covenants, promises, and representations set forth herein and the Agreement and for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties hereby agree as follows:

1. Capitalized Terms. Unless the context hereof shall otherwise require, capitalized terms used in this Agreement and not otherwise defined herein shall have the meanings set forth in MSA.

2. Purchase Order. Buyer shall have the right to provide to Seller a purchase demand notice (the "Purchase Order") substantially in the form of Annex 1 hereto, specifying the Project PTC Components which Buyer is prepared to acquire in connection with a Project, the Delivery Point and the indicative Delivery date (the "Delivery Date").

3. Confirmation. Seller shall respond to such Purchase Order by issuing a "Confirmation" in the form of Annex 2 hereto (a) confirming Seller's obligation to sell to Buyer the Project PTC Components specified in the Purchase Order on the terms of this Agreement and (b) providing, with respect to each particular component of the Project PTC Components to be sold pursuant to such Purchase Order: (i) the serial number, (ii) the date of Seller's payment to Supplier, (iii) the PTC Transfer date under the MSA, (iv) price paid by Seller to Supplier for such equipment pursuant to the MSA (as reflected in Exhibit A or Exhibit B, as applicable, to the MSA) and (v) the allocable portion of the

estimated Incremental Costs (based on the indicative Delivery Date indicated in the Purchase Order) (the sum of items (iv) and (v), the "Confirmation Price"). The "Incremental Costs" of the Project PTC Components shall mean: (1) the Storage and Maintenance Fee for the period from the date of the PTC Transfer of such Project PTC Components through the Delivery Date, (2) the cost of insuring such Project PTC Components for the period from the date of the PTC Transfer of such equipment through the Delivery Date, and (3) any other reasonable documented costs incurred by Seller in connection with the acquisition of such Project PTC Components from Supplier and ownership thereof.

4. Purchase Price. The purchase price with respect to each component of the Project PTC Components sold pursuant to this Agreement (the "Purchase Price") shall equal: (a) the Confirmation Price (as adjusted for the actual Delivery Date pursuant to the Bill of Sale), subject to any adjustment required by an applicable federal or state governmental authority in order to comply with the Applicable Laws; and (b) a "Carrying Charge," which shall be calculated by (i) applying Buyer's allowance for funds used during construction ("AFUDC") rate(s) in effect during the period between the time Seller made payments to Supplier for the Project PTC Components that Seller is selling to Buyer under this Agreement and the time those Project PTC Components are redelivered to Buyer under this Agreement (the "Carrying Period") to (ii) the Purchase Price for (iii) each month or partial month in the Carrying Period, provided that the Purchase Price used in the calculation for a particular month shall be adjusted to reflect the Incremental Costs and the portion of the Carrying Charge incurred through that month.

5. Delivery and Payment. The risk of loss and care, custody and control of each particular component of the Project PTC Components shall pass to Buyer upon Delivery of such component to the Delivery point. Upon Delivery of all of the Project PTC Components identified in the Confirmation to the Delivery Point, (a) Seller shall sell, and Buyer shall purchase, the Project PTC Components and (b) the Parties shall execute and deliver a Bill of Sale therefor in the form of Annex 3 hereto, and (c) the title to the Project PTC Components shall pass to Buyer. The Purchase Price shall be due and payable in a lump sum payment within 5 Business Days following execution of the Bill of Sale.

6. Conditions Precedent. The obligation of Seller to Deliver and sell to Buyer, and of Buyer to accept Delivery and purchase, the Project PTC Components shall be subject to the following conditions precedent: (a) the Purchase Price has been agreed (subject only to adjustment for the actual Anticipated Delivery Date, if the Purchase Price is based on the Confirmation Price); (b) Buyer has entered into the Project TSA for the Project; (c) and the latest PTC Transfer date under the MSA for the Project PTC Components has occurred prior to April 12, 2017, and Supplier has otherwise fully complied with its PTC Obligations with respect to the Project PTC Components under the MSA, and (d) Seller has not incurred, and has not claimed from Supplier, any PTC Damages in connection with the Project PTC Components.

7. Responsibility for Taxes. Buyer shall be responsible for all taxes payable in connection with the purchase of the Project PTC Components pursuant to Applicable Law. The Purchase Price shall not be adjusted by any such taxes.

8. Further Assurances. Each of the Parties shall use its commercially reasonable efforts to take, or cause to be taken, all appropriate action, do or cause to be done all things necessary, proper or advisable under Applicable Laws, and execute and deliver such documents and other papers, as may be required to carry out the provisions of this Agreement.

9. Representations and Warranties. Each Party hereby represents and warrants as follows:

(a) Such Party has full power and authority to enter into and perform its obligations under this Agreement, and has taken all necessary action to authorize its execution and delivery of this Agreement and the performance of its obligations under this Agreement.

(b) This Agreement has been duly executed and delivered by such Party and constitutes the legal, valid and binding obligation of such Party, enforceable against it in accordance with the terms hereof, subject to applicable bankruptcy, insolvency and other similar laws affecting creditors' rights generally and subject to general equitable principles.

(c) All governmental authorizations and actions necessary in connection with the execution and delivery by such Party of this Agreement and the performance of its obligations hereunder have been obtained or performed and remain valid and in full force and effect.

(d) Execution, delivery and performance of this Agreement by such Party (i) do not and will not contravene any provisions of such Party's organizational documents, or any law, rule, regulation, order, judgment or decree applicable to or binding on such Party or any of its properties, (ii) do not and will not contravene, or result in any breach of or constitute any default under, any agreement or instrument to which such Party is a party or by which such Party or any of its properties may be bound or affected, and (iii) do not and will not require the consent of any Person under any existing law or agreement which has not already been obtained (other than the Parties hereto).

10. Disclaimer. THE PARTIES ACKNOWLEDGE AND AGREE THAT THE PROJECT PTC COMPONENTS WILL BE SOLD "AS IS" IN ALL RESPECTS, AND SELLER EXPRESSLY DISCLAIMS ANY REPRESENTATIONS OR WARRANTIES OF ANY KIND OR NATURE, WRITTEN OR ORAL, STATUTORY, EXPRESS OR IMPLIED, CONCERNING THE PROJECT PTC COMPONENTS (INCLUDING, WITHOUT LIMITATION, ANY RELATING TO THE CONDITION, VALUE OR SUFFICIENCY OF THE PROJECT PTC COMPONENTS). WITHOUT LIMITING THE GENERALITY OF THE FOREGOING, SELLER SPECIFICALLY DISCLAIMS ANY REPRESENTATION OR WARRANTY OF MERCHANTABILITY, USAGE, SUITABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF, OR AS TO THE ABSENCE OF ANY DEFECTS IN, THE PROJECT PTC COMPONENTS.

11. Assignment. This Agreement shall bind and shall inure to the benefit of the respective Parties and their assigns, transferees and successors.

12. Governing Law. This Agreement shall be construed and enforced in accordance with the laws of the State of Texas.

13. Counterparts. This Agreement may be executed in one or more counterparts, each of which shall be deemed an original but all of which together shall constitute one and the same instrument.

[Remainder of Page Intentionally Left Blank]

IN WITNESS WHEREOF, this Sale of Components Agreement has been duly executed and delivered by a duly authorized representative of each of the Parties as of the date first above written.

CAPITAL SERVICES, LLC, a Delaware limited liability company

By: ______________________
Name: Gary J. O'Hara
Title: President & Manager

SOUTHWESTERN PUBLIC SERVICE COMPANY, a New Mexico corporation

By: ______________________
Name: David T. Hudson
Title: President

ANNEX 1

FORM OF PURCHASE ORDER

PURCHASE ORDER TO SALE OF COMPONENTS AGREEMENT

[Date]

Re: Sale of Components Agreement (the "Agreement") dated as of [________], between Capital Services, LLC ("Seller") and [_Xcel Entity____] ("Buyer"). Capitalized terms used herein and not otherwise defined herein shall have the meanings set forth in the Agreement.

Purchase Order No. ______________

1. Buyer requests Delivery and sale of the following PTC Components for the [*identify Project*]:

PTC Component	**Quantity**	**Indicative Delivery Date**	**Delivery Point**
Turbine Nacelles (V[____], [__]MW)			
Towers ([__]m)			

2. Buyer designates the following Person to be responsible for the correspondence and communication regarding this Purchase Order: [*Name, contact information*].

SOUTHWESTERN PUBLIC SERVICE COMPANY, a New Mexico corporation

By:________________________________

Name:
Title:

ANNEX 2

FORM OF CONFIRMATION

CONFIRMATION TO PURCHASE ORDER NO. ________________

[Date]

Re: Purchase Order No. [____________] dated [__________], to Sale of Components Agreement (the "Agreement") dated as of [________], between Capital Services, LLC ("Seller") and [__Xcel Entity____] ("Buyer"). Capitalized terms used herein and not otherwise defined herein shall have the meanings set forth in the Agreement.

1. Seller confirms its obligation to sell and arrange for Delivery of the following PTC Components for the [*identify Project*]:

PTC Component	**Quantity**	**Serial Number for Each Separate Component**	**Date of Payment to Supplier**	**PTC Transfer Date**	**Indicative Delivery Date**	**Delivery Point**
Turbine Nacelles (V[____], [__]MW)						
Towers ([__]m)						

2. Confirmation Price.

PTC Component	Serial #	PTC Component Price under MSA	Allocable Portion (%)	Storage and Maintenance Fee	Insurance Cost	Other Costs of Acquisition and Ownership	Total (Confirmation Price)
Turbine Nacelles (V[____], [__]MW)							
Towers ([__]m)							

3. Contact: Seller designates the following Person to be responsible for the correspondence and communication regarding this Purchase Order: [*Name, contact information*].

SOUTHWESTERN PUBLIC SERVICE COMPANY, a New Mexico corporation

By:________________________________

Name:
Title:

PURCHASE PRICE ENDORSEMENT:

[DATE]

The parties agree that the Purchase Price for each PTC Component shall be as follows:

PTC Component	Serial #	Purchase Price

CAPITAL SERVICES, LLC

By:________________________________

Name:
Title:

SOUTHWESTERN PUBLIC SERVICE COMPANY, a New Mexico corporation

By:________________________________

Name:
Title:

ANNEX 3

FORM OF BILL OF SALE

BILL OF SALE AND ASSIGNMENT

This BILL OF SALE AND ASSIGNMENT is made and entered into as of [______ __], 201[__], by and between CAPITAL SERVICES, LLC, a Delaware limited liability company (hereinafter "Seller"), and [XCEL ENTITY], a [__________] (hereinafter "Buyer"); sometimes collectively referred to as the "Parties" or singularly as a "Party". All defined terms not otherwise defined herein shall have the meaning set forth in the Sale of Components Agreement dated as of [______ __] by and between Buyer and Supplier.

RECITALS

1. Pursuant to the Agreement, Seller agreed to sell, and Buyer agreed to purchase, the PTC Components identified in Attachment 1 hereto (the "Subject Components").

2. It is the Parties' intention to evidence the transfer of the Subject Components purchased by Buyer from Seller pursuant to the Agreement by the execution and delivery of this Bill of Sale and Assignment.

3. The Parties now desire to carry out the intent and purpose of the Agreement by Seller's execution and delivery to Buyer of this Bill of Sale and Assignment as evidence of the sale, conveyance, assignment, transfer and delivery to Buyer of the Subject Components.

NOW, THEREFORE, in consideration of the covenants, promises and representations set forth herein and the Agreement and for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties hereby agree as follows:

1. Seller does hereby, effective from and after the date hereof, sell, convey, assign, transfer and deliver unto Buyer, Seller's entire right, title and interest in, to and under the Subject Components, and Buyer hereby purchases and assumes all of Seller's right, title, interest in and to each Subject Component all as consistent with the Agreement.

2. Each of the Parties shall use its commercially reasonable efforts to take, or cause to be taken, all appropriate action, do or cause to be done all things necessary, proper or advisable under Applicable Laws, and execute and deliver such documents and other papers, as may be required to carry out the provisions of this Bill of Sale and Assignment.

3. THE PARTIES ACKNOWLEDGE AND AGREE THAT THE SUBJECT COMPONENTS ARE SOLD "AS IS" IN ALL RESPECTS, AND SELLER EXPRESSLY DISCLAIMS ANY REPRESENTATIONS OR WARRANTIES OF ANY KIND OR NATURE, WRITTEN OR ORAL, STATUTORY, EXPRESS OR IMPLIED, CONCERNING THE SUBJECT COMPONENTS (INCLUDING, WITHOUT LIMITATION, ANY RELATING TO THE CONDITION, VALUE OR SUFFICIENCY OF THE SUBJECT COMPONENTS). WITHOUT LIMITING THE GENERALITY OF THE FOREGOING, SELLER SPECIFICALLY DISCLAIMS ANY REPRESENTATION OR WARRANTY OF

MERCHANTABILITY, USAGE, SUITABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF, OR AS TO THE ABSENCE OF ANY DEFECTS IN, THE SUBJECT COMPONENTS.

4. Each of the Parties acknowledges and agrees that neither the representations and warranties nor the rights and remedies of the Parties under the Agreement shall be deemed to be enlarged, modified or altered in any way by this Bill of Sale and Assignment, and, to the extent there shall arise a conflict between this Bill of Sale and Assignment and the Agreement, the Agreement shall control.

5. This Bill of Sale and Assignment shall bind and shall inure to the benefit of the respective Parties and their assigns, transferees and successors.

6. This Bill of Sale and Assignment shall be construed and enforced in accordance with the laws of the State of [*insert the State where the relevant Project is located*].

7. This Bill of Sale and Assignment may be executed in one or more counterparts, each of which shall be deemed an original but all of which together shall constitute one and the same instrument.

[Remainder of Page Intentionally Left Blank]

IN WITNESS WHEREOF, this Bill of Sale and Assignment has been duly executed and delivered by a duly authorized representative of each of the Parties as of the date first above written.

CAPITAL SERVICES, LLC

By:________________________________
Name:
Title:

SOUTHWESTERN PUBLIC SERVICE COMPANY, a New Mexico corporation

By:________________________________
Name:
Title:

ATTACHMENT 1

SUBJECT COMPONENTS

PTC Component	Serial Number

Southwestern Public Service Company

Purchase and Sale Agreement between

ESI Energy, LLC, and SPS, dated

March 6, 2017

2019 TX Rate Case

**APPLICATION OF
SOUTHWESTERN PUBLIC SERVICE COMPANY
FOR AUTHORITY TO CHANGE RATES**

ML-RR-8(V)

Attachment ML-RR-9(V)(HS)

Pages 1 through 1
of
Attachment ML-RR-9(V)(HS)
Engineering, Procurement, and
Construction Agreement by and between
Southwestern Public Service Company, and
Wanzek Construction, Inc., dated as of
October 13, 2017

is
Highly-Sensitive Protected
Information

HIGHLY-SENSITIVE PROTECTED MATERIALS
PROVIDED PURSUANT TO PROTECTIVE ORDER

Southwestern Public Service Company

Workpapers of Mark Lytal

2019 TX Rate Case

APPLICATION OF
SOUTHWESTERN PUBLIC SERVICE COMPANY
FOR AUTHORITY TO CHANGE RATES

ML-RR-10(CD)