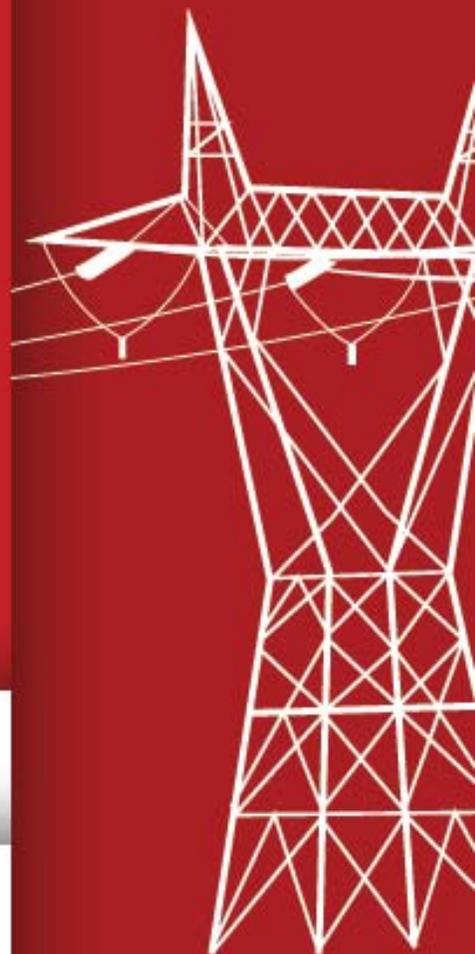




# 2019 BUDGET

# PRELIMINARY DRAFT

Prepared by Accounting Department  
10/8/2018



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# I. BUDGET OVERVIEW

## BUDGET GUIDANCE AND ASSUMPTIONS

Planning meetings that began in May 2018 provided guidance in developing the 2019 budget. SPP utilized an incremental-based budget approach at the department level for operating expenses. Incremental-based budgeting also was used during the 2018 budget process.

Justifications for significant changes from the current 2018 forecast were required and reviewed by management. Material changes are discussed in detail in the Resource Utilization section of this document.

The combined efforts of identifying required operating expenses and planning for capital projects and associated funding resulted in the recommended Net Revenue Requirement (NRR).

*The SPP 2019 Operating Plan was used as a guide for development of the budget, with the strategic plan serving as the foundation for the operating plan.*

Many significant assumptions were required to create the 2019 budget including, but are not limited to, the following.

- Salaries and benefits: Existing salaries are expected to increase by 3.75 percent per the 2019 merit and promotion funding recommendation approved by the SPP Human Resources Committee on August 27, 2018. SPP's fully employed headcount per the budget is 605, though compensation expense has been reduced by 2.5 percent to account for staff turnover expected to occur during the year. The estimate for vacancy is based on the 2018 average of 2.6 percent. Pension expense was calculated assuming an annual rate of return on the pension assets of 7 percent (consistent with the assumed rate of return in SPP's investment policy statement). The trailing 12 month return on pension plan assets was 13.8 percent as of Aug. 31, 2018.
- 2018 True-up of Schedule 1A: Lower than expected 2018 operating expense coupled with higher than expected revenue resulted in a projected over-recovery of SPP's costs in 2018. The estimated over-recovery of \$10.7 million is included in the 2019 budget as an offset to the 2019 Net Revenue Requirement.
- Communication and maintenance: Communications infrastructure includes all expenditures related to SPP's internal and external networks and telecommunications. Two projects (associated with cloud storage implementation and PMU data exchange) were budgeted in 2018 but delayed into 2019. These projects require additional and more secure bandwidth,

which drives communications expense. Maintenance costs are driven by support agreements to sustain the health and operation of SPP's existing systems, as well as new corporate projects that require support agreements.

- **Outside services:** Consulting services are engaged for needed staff augmentation or for specific skill sets not possessed on staff. The increase from the 2018 forecast is driven primarily by various IT initiatives (mostly associated with cybersecurity) and consultants for engineering studies (which is recovered from the study participants). New initiatives in the 2019 budget also include a resiliency for resource integration and market study (RRIMS) which will identify potential modifications to reliability and market tools based on changing technical characteristics of the grid. In addition, the human resources committee requested funds for a compensation study to be conducted in 2019.

The engagement of outside services remains relatively comparable to the 2018 forecast in areas such as legal counsel, board of director fees, and annual audits, with only slight increases in areas such as corporate security and wind integration studies.

***This budget document provides an overview and outlines details of the cost of services and components of the net revenue requirement, which consists of the following:***

- Capital projects (discussed in section II)
- Operating expenses (discussed in section III)
- Debt service (discussed in section IV)

Capital projects are investments in long-term assets required by SPP to meet its strategic goals and operational requirements. These capital expenditures represent costs incurred to enhance or expand current systems and services and/or to maintain existing capabilities.

SPP budgets for ongoing foundation expenditures and for specific planned capital projects. The foundation budget captures hardware and software to support SPP's business applications. This includes ongoing upgrades and replacements of SPP's aged hardware infrastructure as well as expenditures for new enterprise technologies driven by security requirements, application and architectural enhancements and legacy growth.

Expenditures related to nine capital projects are included in addition to the foundation budget. Four of the projects are either underway and/or are expected to begin and be completed in 2019.

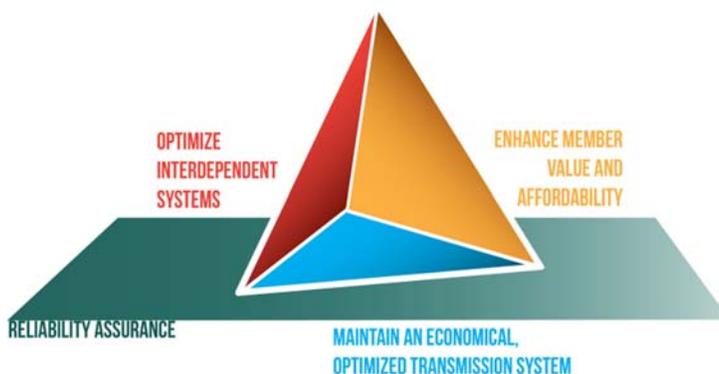
Operating expenses represent the largest component of SPP's NRR and consist of budgeted costs for ongoing operation. Operating expenses are generally fixed relative to SPP's cost recovery structure.

Debt service costs are principal payments and interest expense related to various borrowings obtained to fund SPP's capital expenditures. The debt issuances have terms relatively consistent with the expected useful life of the assets developed or acquired, which is consistent with SPP's longstanding policy. This policy is designed to best recover the cost of the assets from the customers benefiting from the assets.

## **ALIGNMENT OF 2019 BUDGET WITH SPP'S STRATEGIC PLAN**

*The Finance Committee (FC) and the Strategic Planning Committee (SPC) endorsed the 2019 Operating Plan as consistent with the alignment with SPP's strategic plan.*

The four foundational strategies of SPP's strategic plan are 1) ensuring reliability in planning and operation of the electric power grid, 2) optimizing interdependent systems, 3) enhancing member value and affordability, and 4) maintaining an economical, optimized transmission system.



The focus of these foundational strategies is to create the capabilities and operational processes necessary to fulfill SPP's mission and to maintain or improve its value propositions in the face of a rapidly changing environment. These four strategies are interdependent, with reliability assurance as the basis and the enhancement of member value and affordability as the discipline to drive all SPP strategies.

The SPC meets annually to consider signposts that may require adjustments to the way the organization strategizes and tactically addresses industry trends affecting SPP and its members. During its May 2018 annual retreat, the SPC reviewed a host of trends including: reduced demand for energy, electric vehicle penetration rates, declining marginal energy prices, wind and solar generation penetration rates, distributed energy, demand response, energy efficiency (batteries), energy storage, resilience and member-company retail rate considerations.

The committee also discussed other pressing concerns affecting the market and transmission planning services that SPP provides on behalf of its membership. With all these items identified,

the SPC again maintained that the four foundational strategies inherent in the most recent strategic plan remain relevant to the organization, with only minor prioritization changes.

More information on the relationship between these foundational strategies and major projects investments in 2019 can be found in the 2019 Operating Plan document in the Supplementary Schedules section.

## NET REVENUE REQUIREMENT

*Operating expenses (excluding depreciation and FERC fees) and debt payments are the main components of the NRR.*

In addition to operating expenses related to day-to-day operations, the income statement includes tariff administration service income (which is equal to the NRR), contract service revenues, miscellaneous income (primarily related to engineering studies), and various other income/expense items that are excluded from the NRR calculation (including depreciation and income/expense related to FERC fees and assessments).

| <b>Income Statement</b>       |                    |                      |                    |                   |
|-------------------------------|--------------------|----------------------|--------------------|-------------------|
| <u>\$ millions</u>            | <u>2018 Budget</u> | <u>2018 Forecast</u> | <u>2019 Budget</u> | <u>2019 Prior</u> |
| <b>Income</b>                 |                    |                      |                    |                   |
| Tariff Administration Service | \$164.0            | \$164.9              | \$157.5            | \$178.8           |
| Fees & Assessments            | 26.1               | 26.6                 | 31.8               | 21.4              |
| Contract Services Revenue     | 0.2                | 0.8                  | 0.2                | 0.0               |
| Miscellaneous Income          | 4.0                | 5.2                  | 5.2                | 4.0               |
| <b>Total Income</b>           | <b>\$194.2</b>     | <b>\$197.6</b>       | <b>\$194.7</b>     | <b>\$204.2</b>    |
| <b>Expense</b>                |                    |                      |                    |                   |
| Salary & Benefits             | \$96.1             | \$95.4               | \$96.1             | \$101.6           |
| Depreciation                  | 19.4               | 18.2                 | 19.4               | 22.0              |
| Communications & Maintenance  | 22.8               | 21.6                 | 23.1               | 24.3              |
| Outside Services              | 14.6               | 12.2                 | 14.2               | 13.7              |
| Administrative / Other        | 14.5               | 12.2                 | 14.0               | 14.2              |
| Assessments & Fees            | 20.3               | 21.1                 | 23.1               | 20.3              |
| Travel & Meetings             | 3.1                | 2.9                  | 3.0                | 2.9               |
| <b>Total Expense</b>          | <b>\$190.8</b>     | <b>\$183.5</b>       | <b>\$193.0</b>     | <b>\$198.9</b>    |
| <b>Net Income (Loss)</b>      | <b>\$3.5</b>       | <b>\$14.1</b>        | <b>\$1.7</b>       | <b>\$5.3</b>      |
| Debt Repayment                | \$23.4             | \$23.4               | \$24.2             | \$26.6            |
| Net Revenue Requirement       | \$164.0            | \$154.3              | \$157.4            | \$178.8           |

As a result of the dissolution of the Regional Entity (RE) in August 2018, expenses for the 2018 budget and forecast include a partial year of data associated with the RE that is not reflected in the 2019 budget.

*For analysis purposes, RE expenses are excluded from the 2018 data in the following discussion of comparing expense changes from 2018 to 2019.*

| <b>Operating Expense Excluding 2018 Regional Entity</b> |                           |                             |                           |                          |
|---|---------------------------|-----------------------------|---------------------------|--------------------------|
| <b><u>\$ millions</u></b>                               | <b><u>2018 Budget</u></b> | <b><u>2018 Forecast</u></b> | <b><u>2019 Budget</u></b> | <b><u>2019 Prior</u></b> |
| Salary & Benefits                                       | \$93.6                    | \$92.7                      | \$96.1                    | \$101.6                  |
| Communications & Maintenance                            | 22.8                      | 21.6                        | 23.1                      | 24.3                     |
| Outside Services  | 13.9                      | 11.8                        | 14.2                      | 13.7                     |
| Administrative / Other                                  | 14.5                      | 13.8                        | 14.0                      | 14.2                     |
| Travel & Meetings                                       | 2.8                       | 2.8                         | 3.0                       | 2.9                      |
| <b>Total</b>  | <b>\$147.7</b>            | <b>\$142.6</b>              | <b>\$150.5</b>            | <b>\$156.6</b>           |
| Depreciation  | 19.4                      | 18.2                        | 19.4                      | 22.0                     |
| Assessments & Fees                                      | 20.3                      | 21.1                        | 23.1                      | 20.3                     |
| <b>Total Expense Excluding RE</b>                       | <b>\$187.3</b>            | <b>\$181.9</b>              | <b>\$193.0</b>            | <b>\$198.9</b>           |

*\* Total Administrative / Other expense for 2018 excludes non-cash items such as swap valuation adjustments and realized/unrealized gains on investments*

Operating expenses (excluding RE, depreciation and FERC assessments) are expected to be \$150.5 million in 2019, an increase of \$7.9 million compared to the 2018 forecast. Growth in operating expenses results primarily from compensation due to merit increases; enterprise technology maintenance and communication infrastructure increases; and outside services for staff augmentation in IT and engineering.

The salary and benefits budget assumes a merit increase of 3 percent, a promotion increase of 0.75 percent and a vacancy factor of 2.5 percent (which is comparable to 2018 expected vacancy).

Communications and maintenance expenses are expected to increase in 2019 by \$1.5 million over the 2018 forecast, as SPP continues to expand the quality and quantity of its services through investments in SPP's IT infrastructure and IT-intensive capital projects. The increase is primarily due to year-over-year inflationary increases (2 percent) related to agreements required to sustain the health and operation of the system, plus additional increases related to

maintenance and communication infrastructure costs associated with new projects and/or purchases.

Growth of \$2.4 million in outside services expense over the 2018 forecast is primarily related to staff augmentation associated with an increase in IT initiatives centered on security, critical infrastructure protection standards, automation and infrastructure consolidation activities; and staff augmentation related to engineering studies work, which is recovered from study participants.

***Components of the NRR calculation and analysis of historical peak demand are illustrated in the following tables. The 2018 RE data is included in the NRR calculation.***

| <b>Net Revenue Requirement (NRR) &amp; Administrative Fee (\$ millions)</b> |                        |   |                        |   |
|---|------------------------|---|------------------------|---|
|   | <b>2018<br/>Budget</b> | <b>2018<br/>Forecast <sup>(1)</sup></b> | <b>2019<br/>Budget</b> | <b>2019 Prior<br/>Estimate <sup>(2)</sup></b> |
| <b>Total expense (excluding deprec., FERC and interest exp.)</b>            | <b>\$141.7</b>         | <b>\$136.8</b>                          | <b>\$141.4</b>         | <b>\$147.5</b>                                |
| Debt service - principal payments   | 23.4                   | 23.4                                    | 24.2                   | 26.6  |
| Debt service - interest expense   | 9.3                    | 9.3                                     | 8.9                    | 9.0   |
| Capital expenditure reserve   | 3.6                    | 3.6                                     | 3.0                    | 3.3   |
| <b>Gross revenue requirement</b>  | <b>\$177.9</b>         | <b>\$173.0</b>                          | <b>\$177.6</b>         | <b>\$186.5</b>                                |
| Less:   |                        |   |                        |   |
| NERC revenue  | (\$4.7)                | (\$5.1)                                 | \$0.0                  | \$0.0   |
| Other revenues  | (4.7)                  | (6.8)                                   | (6.1)                  | (4.7)   |
| NRR adjustments <sup>(3)</sup>  | (4.5)                  | (6.8)                                   | (14.1)                 | (3.0)   |
| <b>Net revenue requirement</b>  | <b>\$164.0</b>         | <b>\$154.3</b>                          | <b>\$157.4</b>         | <b>\$178.8</b>                                |
| Billing determinants (MWh millions) <sup>(4)</sup>                          | 382.1                  | 384.0                                   | 399.6                  | 382.1   |
| Calculated admin fee / MWh  | \$0.429                | \$0.402                                 | \$0.394                | \$0.468                                       |
| <b>Proposed admin fee / MWh</b>   | <b>\$0.429</b>         | <b>\$0.429</b>                          | <b>\$0.394</b>         | <b>\$0.468</b>                                |
| Admin fee tariff cap  | \$0.430                | \$0.430                                 | \$0.430                | \$0.430                                       |

*(1) Total expense for 2018 also excludes non-cash items such as swap valuation adjustments and realized/unrealized gains on investments*

*(2) 2019 Prior Year Estimate refers to the 2019 estimate made during the 2018 budget presentation.*

*(3) Refer to section below.*

*(4) Defined as prior-year average monthly coincident peak for network service and capacity for point-to-point service in MWh.*

Following operating expenses as previously discussed, debt service comprises the second largest component of NRR. The increase over the 2018 NRR forecast is primarily due to higher principal repayments on existing debt.

| <b>NRR Adjustments (\$ millions)</b>    |                        |                          |                        |                                |
|---|------------------------|--------------------------|------------------------|--------------------------------|
| <b>NRR Adjustments (\$ millions)</b>    | <b>2018<br/>Budget</b> | <b>2018<br/>Forecast</b> | <b>2019<br/>Budget</b> | <b>2019 Prior<br/>Estimate</b> |
| Pension & retiree healthcare (non-cash) | (\$2.6)                | (\$3.1)                  | (\$3.0)                | (\$2.6)                        |
| Capital lease maintenance (non-cash)    | (0.4)                  | (0.4)                    | (0.4)                  | (0.4)                          |
| 2017 Over-recovery                      | (1.5)                  | (3.3)                    |                        |                                |
| 2018 Projected over-recovery            |                        |                          | (10.7)                 |                                |
| <b>Total NRR adjustments</b>            | <b>(\$4.5)</b>         | <b>(\$6.8)</b>           | <b>(\$14.1)</b>        | <b>(\$3.0)</b>                 |

The 2018 projected over-recovery of \$10.7 million is associated with various revenue and expense variances throughout 2018 as well as a \$1.8 million change in the projected over-recovery from 2017 (as compared to the 2017 forecast during the 2018 budget cycle, 2 percent change).

Lower expenses throughout 2018 (\$5.5 million) are primarily the result of various delays/reassessments of maintenance and/or service engagements in IT, compliance, engineering, and operations.

Increases in 2018 revenues (\$3.5 million) that contribute to the over-recovery are associated with additional staff time for engineering studies, increase in billing determinants as compared to original projections and new/extended contract service fees.

| <b>2018 Projected over-recovery</b>                               |               |
|---|---------------|
| 2018 lower expense forecast (services, maintenance, etc)          | \$5.5         |
| 2018 higher revenue (engineering studies, contract services, etc) | 3.5           |
| 2017 Over-recovery change (2% difference from 2018 budget)        | 1.8           |
| <b>2018 Projected over-recovery</b>                               | <b>\$10.7</b> |

***SPP recovers its NRR from transmission customers based on their purchase of point-to-point transmission service (PtP) and/or network integrated transmission service (NITS) and from monthly member assessments.***

Customers purchasing PtP represent approximately 8 percent of total annual billing determinants while NITS customers represent approximately 90 percent of total annual billing determinants. PtP service is billed based on reserved hourly transmission capacity. NITS is billed based on the prior year's 12-month average monthly peak demand (12CP) for each customer. Monthly assessments act as a true-up to cover any unreported load not covered by PtP or NITS and represents approximately 2 percent of the annual billing determinants.

The information listed below represents the monthly peak demand data SPP collected from its membership for the months of January through July 2018 that is compared the data from the demand in the two previous years.

***Based on further analysis of this data, the determination of the appropriate megawatt-hour (MWh) billing determinants to be used for calculating the 2019 administrative fee will be recommended at the October 2018 Finance Committee meeting.***

|     | Peak Demand (GW) |             |             | Percent Change Year over Year |                      |                      |
|-----|------------------|-------------|-------------|-------------------------------|----------------------|----------------------|
|     | <u>2016</u>      | <u>2017</u> | <u>2018</u> | <u>2017 vs. 2016</u>          | <u>2018 vs. 2017</u> | <u>2018 vs. 2016</u> |
| Jan | 38.2             | 40.4        | 43.9        | 5.79%                         | 8.64%                | 14.93%               |
| Feb | 36.1             | 35.4        | 39.6        | -1.89%                        | 11.69%               | 9.58%                |
| Mar | 32.9             | 34.9        | 34.0        | 6.23%                         | -2.50%               | 3.58%                |
| Apr | 32.6             | 33.1        | 34.4        | 1.43%                         | 3.97%                | 5.46%                |
| May | 36.9             | 39.7        | 45.2        | 7.62%                         | 13.85%               | 22.52%               |
| Jun | 48.7             | 46.9        | 49.9        | -3.57%                        | 6.21%                | 2.42%                |
| Jul | 51.0             | 51.1        | 52.3        | 0.12%                         | 2.44%                | 2.56%                |
| Aug | 50.9             | 45.9        |             | -9.91%                        |                      |                      |
| Sep | 44.8             | 45.7        |             | 2.02%                         |                      |                      |
| Oct | 37.8             | 37.9        |             | 0.30%                         |                      |                      |
| Nov | 34.2             | 33.2        |             | -2.87%                        |                      |                      |
| Dec | 41.0             | 39.5        |             | -3.76%                        |                      |                      |

## II. CAPITAL PROJECTS

*SPP expects 2019-2021 capital expenditures to be approximately \$45.6 million.*

Beginning in early 2018, a comprehensive list of new and ongoing projects was compiled in consideration for the 2019-2021 budget under the direction of SPP's project review and prioritization committee (PRPC) and in collaboration with staff from the project management office (PMO), accounting and IT departments. These projects are in addition to the foundation capital expenditures for IT, operations, settlements and facilities for routine refresh and upkeep.

The PRPC worked closely with project managers, IT directors, business owners and vendor managers to create scope requirements and to estimate anticipated workload associated with the implementation of the projects.

The PRPC reviewed 13 new project requests for the 2019-2021 budget cycle and ultimately submitted its recommendation to the SPP officers in August 2018 for the approval of seven new enterprise projects. There were four project submissions that were not deemed to be enterprise projects and would therefore be included within the scope of normal foundation work. Although no projects were declined, three of the seven recommended projects were delayed beyond 2019 due to uncertainty concerning requirements and timelines. Two of the project submissions were categorized as PRPC action items for 2018-2019 as they have the potential to increase efficiency, although the costs and benefits are not yet known.

All of the proposed projects are anticipated to be feasible with current approved staffing levels. Therefore, there were no incremental headcount requests for any of the projects evaluated.

### CAPITAL PROJECTS AND THE STRATEGIC PLAN

*The capital budget was designed to support foundational strategies within the SPP Strategic Plan, with the capital initiatives acting as guidelines for the tactical implementation.*

Following is a table with budgeted amounts for each of the seven new and two carryover projects organized by foundational strategy.

### 2019 - 2021 Capital Expenditures (\$ millions)

|  | Prior<br>Year(s) | 2019<br>Budget | 2020<br>Forecast | 2021<br>Forecast | Total<br>Capital |
|--|------------------|----------------|------------------|------------------|------------------|
| <b>Reliability Assurance</b>                             |                  |                |                  |                  |                  |
| EMS Upgrade  | \$ -             | \$ -           | \$ -             | \$ 2.8           | \$ 2.8           |
| DTS Upgrade Phase 2B                                     | -                | 0.8            | 1.3              | -                | 2.2              |
| Online SSAT  | -                | -              | -                | 1.2              | 1.2              |
| <b>Total Reliability Assurance</b>                       | <b>\$ -</b>      | <b>\$ 0.8</b>  | <b>\$ 1.3</b>    | <b>\$ 3.9</b>    | <b>\$ 6.1</b>    |
| <b>Enhance Member Value and Affordability</b>            |                  |                |                  |                  |                  |
| Settlement Systems Replacement                           | \$ 5.1           | \$ 0.2         | \$ -             | \$ -             | \$ 5.3           |
| PMO Tool Upgrade/Replacement                             | -                | 0.5            | -                | -                | 0.5              |
| <b>Total Enhance Member Value and Affordability</b>      | <b>\$ 5.1</b>    | <b>\$ 0.7</b>  | <b>\$ -</b>      | <b>\$ -</b>      | <b>\$ 5.8</b>    |
| <b>Enhance and Optimize Interdependent Systems</b>       |                  |                |                  |                  |                  |
| Data Lake Phase 3  | \$ 0.3           | \$ 0.1         | \$ -             | \$ -             | \$ 0.4           |
| FERC Order 841: Electric Storage                         | -                | 0.4            | -                | -                | 0.4              |
| Freeze Data Replacement                                  | -                | -              | 0.2              | -                | 0.2              |
| Interface Pricing  | -                | -              | 0.3              | -                | 0.3              |
| <b>Total Enhance and Optimize Interdependent Systems</b> | <b>\$ 0.3</b>    | <b>\$ 0.5</b>  | <b>\$ 0.5</b>    | <b>\$ -</b>      | <b>\$ 1.3</b>    |
| <b>Total Foundation Projects *</b>                       | <b>\$ -</b>      | <b>\$ 12.8</b> | <b>\$ 12.7</b>   | <b>\$ 12.2</b>   | <b>\$ 37.7</b>   |
| <b>Total Capital Budget</b>                              | <b>\$ 5.4</b>    | <b>\$ 14.9</b> | <b>\$ 14.5</b>   | <b>\$ 16.2</b>   | <b>\$ 50.9</b>   |

### 2019 - 2021 Capital Budget

**\$ 45.6**

\* Foundation projects are reforecast during each budget cycle and do not include any carry-over funds.

The following narrative provides a brief explanation of how major initiatives are designed to support the strategies. Capital expenditures for IT foundation include expenditures for both improving and maintaining SPP's technology infrastructure. Such expenditures support services across all areas of the company and are not specifically tied to any specific foundational strategy. The IT foundation initiatives are discussed in greater detail in the Foundation Capital Expenditures section following the discussion on capital projects and the strategic plan.

## RELIABILITY ASSURANCE

*The reliability assurance foundation strategy seeks a proactive approach to the changing dynamics of the transmission system to maintain and enhance the reliable transmission of energy over member facilities.*

|                                    | Prior<br>Year(s) | 2019<br>Budget | 2020<br>Forecast | 2021<br>Forecast | Total<br>Capital |
|------------------------------------|------------------|----------------|------------------|------------------|------------------|
| <b>Reliability Assurance</b>       |                  |                |                  |                  |                  |
| EMS Upgrade                        | \$ -             | \$ -           | \$ -             | \$ 2.8           | \$ 2.8           |
| DTS Upgrade Phase 2B               | -                | 0.8            | 1.3              | -                | 2.2              |
| Online SSAT                        | -                | -              | -                | 1.2              | 1.2              |
| <b>Total Reliability Assurance</b> | <b>\$ -</b>      | <b>\$ 0.8</b>  | <b>\$ 1.3</b>    | <b>\$ 3.9</b>    | <b>\$ 6.1</b>    |

- Energy Management System (EMS) Upgrade: EMS is critical to providing reliability and market functions. Vendor support for this system expires in 2023. Work on upgrading the system will need to begin in 2021 to maintain uninterrupted support.
- Dispatcher Training Simulator (DTS) Upgrade Phase 2B: In recent years, SPP has incrementally added capabilities to help train operations staff in a realistic environment. Despite these efforts, current processes still require significant manual intervention to support the market simulations. The upgrade project proposes to engage an external vendor to develop a more integrated solution.
- Online Small Signal Analysis Tool (SSAT): This tool is an evolution upon SPP’s efforts to include stability analysis in its operations reliability analyses. Online SSAT can help operations staff predict and take actions to prevent oscillations within the bulk electric system.

## ENHANCE MEMBER VALUE AND AFFORDABILITY

*This strategy seeks to improve the value SPP provides to its members through efficiency and effectiveness of processes and deliverables.*

|   | Prior Year(s) | 2019 Budget   | 2020 Forecast | 2021 Forecast | Total Capital |
|---|---------------|---------------|---------------|---------------|---------------|
| <b>Enhance Member Value and Affordability</b>       |               |               |               |               |               |
| Settlement Systems Replacement                      | \$ 5.1        | \$ 0.2        | \$ -          | \$ -          | \$ 5.3        |
| PMO Tool Upgrade/Replacement                        | -             | 0.5           | -             | -             | 0.5           |
| <b>Total Enhance Member Value and Affordability</b> | <b>\$ 5.1</b> | <b>\$ 0.7</b> | <b>\$ -</b>   | <b>\$ -</b>   | <b>\$ 5.8</b> |

- Settlement Systems Replacement: Development of a new settlement system will provide SPP settlement analysts with greater flexibility to respond to SPP and member-driven initiatives with respect to transmission and market transactions. The system will be wholly supported by SPP staff resulting in significant long-term savings. The replacement project is currently projected to be delivered on-time and on-budget.
- Project Management Office (PMO) Tool Upgrade/Replacement: A robust management tool contributes to a disciplined approach for the selection, prioritization and implementation of projects that deliver value to members and all other stakeholders. Utilizing an efficient, effective and standardized methodology will help ensure all SPP projects deliver on the benefits identified, within the approved budget and on schedule.

## ENHANCE AND OPTIMIZE INTERDEPENDENT SYSTEMS

*This foundational strategy seeks to both enhance and protect the interdependency of critical energy systems within the region and along regional seams and includes the further optimization of SPP's Integrated Marketplace.*

|   | Prior<br>Year(s) | 2019<br>Budget | 2020<br>Forecast | 2021<br>Forecast | Total<br>Capital |
|---|------------------|----------------|------------------|------------------|------------------|
| <b><u>Enhance and Optimize Interdependent Systems</u></b> |                  |                |                  |                  |                  |
| Data Lake Phase 3   | \$ 0.3           | \$ 0.1         | \$ -             | \$ -             | \$ 0.4           |
| FERC Order 841: Electric Storage                          | -                | 0.4            | -                | -                | 0.4              |
| Freeze Data Replacement                                   | -                | -              | 0.2              | -                | 0.2              |
| Interface Pricing   | -                | -              | 0.3              | -                | 0.3              |
| <b>Total Enhance and Optimize Interdependent Systems</b>  | <b>\$ 0.3</b>    | <b>\$ 0.5</b>  | <b>\$ 0.5</b>    | <b>\$ -</b>      | <b>\$ 1.3</b>    |

- **Data Lake Phase 3:** The Integrated Marketplace has created massive amounts of stored data, which can encumber server and database efficiency. The Data Lake initiative continues SPP's efforts to offload less frequently used data onto more cost-effective storage devices, resulting in increased performance and cost effectiveness for critical data access.
- **FERC Order 841 Electric Storage:** The benefit of this project is to increase reliability and economic efficiencies within SPP's marketplace. This is done by removing barriers of entry for energy storage type devices such that they may easily participate as a standalone market storage resource (MSR) registration type. Order 841 must be implemented into production by December 2019.
- **Freeze Data Replacement:** SPP participates in a congestion-management process with certain other entities along its seams using a baseline set in 2004. The objective of this project is to implement a new method to assign firm rights among the parties, which will impact transmission service, schedule curtailments and market-to-market settlements.
- **Interface Pricing:** The goal of this project is to implement a methodology (to be agreed upon) in both the SPP and MISO markets to change Locational Marginal Pricing (LMP) calculations on the seam to address the overlap that occurs when both markets are re-dispatching to relieve the same constraint. The overlap between markets was confirmed in a previously conducted joint study.

The following section describes noteworthy projects in greater detail. A complete list of initiatives and associated capital budgets appears in the Supplementary Schedules Section VI.

## **MAJOR CAPITAL PROJECTS**

### **Settlement Systems Replacement**

The objective of this project was to replace the current market and transmission settlement systems with a custom designed, single, high-performance and scalable system solution that will provide greater flexibility to respond to SPP initiatives and member requests. System capabilities will expand automation of existing manual processes enhancing accuracy, timeliness and auditability of settlements results.

The system was architected to facilitate in-house changes to respond to requirements needed to implement approved SPP revision requests. SPP will own the code to the system and be able to maintain and upgrade the system using dedicated in-house IT resources. This project kicked off in 2016 and is expected to be completed on-time and within budget with a May 2019 go-live date.

### **DTS Upgrade Phase 2B**

The current Dispatcher Training Simulator (DTS) does not allow for production-like training due to the lack of an integrated market system and does not meet the current needs of SPP operators with the addition of balancing authority (BA), reliability unit commitment (RUC) and real-time balancing market (RTBM) functions. Since the implementation of the Integrated Marketplace and consolidated balancing authority, market systems have become almost as critical to reliability and balancing as the Energy Management System (EMS). Realistic simulation training using market systems is imperative to SPP operator readiness and ultimately increased reliability for the SPP footprint.

SPP has had a multiyear project to upgrade its dispatcher training simulator to increase availability to real-time operations staff, configure simulation displays to match those used on the operations floor and to incorporate market functionality to provide a more realistic simulation experience. Market functionality remains the most significant component not addressed. SPP plans to focus its effort on this component in the second half of 2019 and complete the work in 2020.

### **FERC Order 841**

The order requires each RTO and ISO to revise its tariff to establish a participation model consisting of market rules that while recognizing the physical and operational characteristics of electric storage resources facilitates their participation in the RTO/ISO markets.

The participation model must (1) ensure that a resource using the participation model is eligible to provide all capacity, energy and ancillary services that the resource is technically capable of providing in the RTO/ISO markets; (2) ensure that a resource using the participation model can be dispatched and can set the wholesale market clearing price as both a wholesale seller and wholesale buyer consistent with existing market rules that govern when a resource can set the wholesale price; (3) account for the physical and operational characteristics of electric storage resources through bidding parameters or other means; and (4) establish a minimum size requirement for participation in the RTO/ISO markets that does not exceed 100 kilowatts (kW).

Additionally, each RTO/ISO must specify that the sale of electric energy from the RTO/ISO markets to an electric storage resource that the resource then resells back to those markets must be at the wholesale locational marginal price.

A high-level timeline for implementation of the order is as follows:

- October 2018 – Market Working Group (MWG) recommendation to the Markets and Operations Policy Committee (MOPC) and board
- December 2018 – Compliance filing due to FERC
- December 2019 – Implementation

## **Project Management Tool Upgrade/Replacement**

The current project management tool is utilized for project and program management as well as for resource management in the IT applications and engineering departments. Mainstream support for the tool expires in 2018 and hardware reaches end of life in 2020. The project is scheduled to be completed in two phases. Phase one occurs in 2018 and would include discovery, analysis, and solution selection. Phase two follows in 2019 with the implementation of the identified solution.

The upgraded or new system shall support the current Project Management Institute's best practices for waterfall and agile methodologies. This includes sub-disciplines such as program management, portfolio management and resource management (allocation and forecasting). The new system shall provide dashboards and metrics that convey project health, the project pipeline, resource availability and the ability to track an individual's time against tasks in the project schedule. The new system shall also provide a mechanism for tracking budget-level expenditures along with the ability to provide billing data (number of hours) reported against tasks and associated bill rates. Lastly, the new system shall provide a mechanism to track

projects throughout the project pipeline from the initial project request through the closeout phase of the project.

## FOUNDATION CAPITAL EXPENDITURES

The following section describes the various categories of foundation capital expenditures in greater detail.

|                           | 2019    | 2020     | 2021     | Total   |
|---------------------------|---------|----------|----------|---------|
|                           | Budget  | Forecast | Forecast | Capital |
| <b>Foundation</b>         |         |          |          |         |
| IT Infrastructure         | \$ 8.2  | \$ 8.4   | \$ 8.9   | \$ 25.5 |
| Miscellaneous Departments | 0.8     | 1.7      | 0.8      | 3.4     |
| Total IT                  | \$ 9.0  | \$ 10.1  | \$ 9.7   | \$ 28.9 |
| Operations                | 2.6     | 2.3      | 2.2      | 7.1     |
| Facilities                | 1.0     | 0.3      | 0.3      | 1.6     |
| Settlements               | 0.2     | -        | -        | 0.2     |
| Total Foundation *        | \$ 12.8 | \$ 12.7  | \$ 12.2  | \$ 37.7 |

*\* Foundation projects are reforecast during each budget cycle and do not include any carry-over funds.*

### IT Foundation

Historically, the IT budget was subdivided into departmental budgets (systems administration, network, applications, service management, cybersecurity, IT architecture) with each group managing and prioritizing its respective budget independently. A new approach was employed in the current year to consolidate the categorical structure into two general categories – refresh and new initiatives. The intended benefits of this realignment include stronger inter-departmental prioritization, collaboration and teamwork, elimination of excess and/or redundant initiatives (and the associated budget), and better oversight and capturing of solutions that are supported and owned by multiple teams.

IT will continue to coordinate the capital budget requirements for a variety of additional departments outside of IT, the goal being to increase awareness of new capital spending and its relationship to the enterprise maintenance budget for which IT is responsible.

The budget is reflected in the following classifications.

|   | 2019<br>Budget | 2020<br>Forecast | 2021<br>Forecast | Total<br>Capital |
|---|----------------|------------------|------------------|------------------|
| <b>IT Foundation</b>                    |                |                  |                  |                  |
| IT Infrastructure Refresh               | \$ 7.3         | \$ 7.4           | \$ 7.8           | \$ 22.6          |
| New Initiatives                         | 0.9            | 1.0              | 1.1              | 2.9              |
| Miscellaneous Departments               |                |                  |                  |                  |
| Engineering                             | \$ 0.7         | \$ 1.6           | \$ 0.6           | \$ 3.0           |
| Human Resources and Training            | 0.1            | 0.1              | 0.1              | 0.2              |
| Corporate Communications and Regulatory | 0.1            | 0.1              | 0.1              | 0.2              |
| Total Miscellaneous Departments         | \$ 0.8         | \$ 1.7           | \$ 0.8           | \$ 3.4           |
| Total IT Foundation                     | \$ 9.0         | \$ 10.1          | \$ 9.7           | \$ 28.9          |

### ***IT Foundation – IT Infrastructure Refresh***

This category includes upgrades and replacements of aged technology and software to support existing systems and services (markets, reliability, settlements, etc.). This category can also be considered the ongoing infrastructure to “keep the lights on”.

The major initiatives in the 2019 budget include the following:

|                                 | 2019<br>Budget | 2020<br>Forecast | 2021<br>Forecast | Total<br>Capital |
|---------------------------------|----------------|------------------|------------------|------------------|
| <b>IT Foundation</b>            |                |                  |                  |                  |
| IT Infrastructure Refresh       |                |                  |                  |                  |
| Servers                         | \$ 3.1         | \$ 3.1           | \$ 3.3           | \$ 9.6           |
| Storage                         | 2.2            | 2.2              | 2.4              | 6.8              |
| Network                         | 1.8            | 1.8              | 1.9              | 5.6              |
| Software licenses and upgrades  | 0.2            | 0.2              | 0.2              | 0.6              |
| Total IT Infrastructure Refresh | \$ 7.3         | \$ 7.4           | \$ 7.8           | \$ 22.6          |

- **Servers:** It is the policy of IT to replace physical server hardware after a five or six year useful life based on many factors such as withdrawn support from the vendor, high failure rates, increased performance requirements, incompatibility with other technology and performance/economic considerations.

SPP has approximately 130 servers that are targeted for replacement during 2019. The cost per server ranges from \$10,000 to \$45,000 (capital expense portion), contributing to roughly 43 percent of the infrastructure-refresh budget. This activity is anticipated to be relatively aggressive as compared to previous years due to the extended use of eligible aged servers that were not replaced in previous years. Of these 130 devices,

there are 14 “ESX Hosts” (to continue SPP’s virtualization efforts) and 116 devices serving as dedicated application servers.

Storage: Due to the significance of the data growth experienced over the past several years, starting in 2018 there has been concentrated focus on “data governance” to ensure optimal management and retention of corporate application data, with a desired outcome that would curtail the rampant growth rate and minimize the need for additional storage capacity going forward. This effort will continue throughout 2019 and beyond to ensure adequate storage management processes are being implemented. Based on the high utilization levels and the need to accommodate space for a second copy of archived data, there are plans to upgrade the existing backup/recovery equipment (known as “Data Domain” equipment) during 2019 at the Chenal, Maumelle and leased data centers.

There also exists the need to replace the existing storage directories at Chenal and Maumelle. SPP currently has a total of eight storage directories within the electronic security perimeter (ESP) and non-ESP environments. These have been installed and operating for five-six years and are experiencing throughput and bandwidth limitations, as well as approaching the end-of-support from the vendor in April 2019. This replacement project will commence during the fourth quarter of 2018, with the implementation continuing through late 2019.

Finally, it is expected that a nominal amount of incremental storage capacity (roughly 120 terabytes) will be needed to accommodate data growth.

- Network: SPP has an extensive corporate voice and data network that is required to provide high throughput, high availability, protective security and ample communications across business locations and members. With over 550 hardware network appliances in operation, SPP remains in a continuous state of implementing software maintenance and infrastructure upgrades/replacements to remain current and/or stay ahead of dynamic communication demands. The following key areas are planned to be addressed in 2019:
  - ESP Firewall refresh: SPP utilizes firewall technology to monitor, control, and protect systems. The existing production ESP firewalls, located in both Chenal and Maumelle, are reaching end-of-vendor support. The plan is to replace the current firewall technology with features that include intrusion prevention system (IPS) and uniform resource locator (URL) filtering to better control access

from the ESP. This also will provide improved monitoring, logging and evidence gathering for audit purposes.

- VoIP refresh: SPP currently utilizes Voice over Internet Protocol (VoIP) technology to deliver voice communications over SPP's network. As part of this technology, the SPP Service Desk utilizes Cisco Contact Center Express (CCX) for inbound calls and customer call queuing. The existing CCX hardware has reached end-of-support and needs to be refreshed. IT plans to replace the current system with hardware that is compatible with the latest software release of CCX.
- IPS expansions: The corporate IPS appliances inspect all traffic entering and exiting the SPP network. These appliances are becoming more saturated with high volumes of traffic that overrun the IPS inspection engine and flow into the SPP network without inspection, causing network latency to current applications. IT anticipates either a technology refresh or module expansion in 2019 to satisfy performance levels and traffic volumes.
- Access Management: SPP's ongoing continuous improvement program identified an opportunity to eliminate a stand-alone application providing authentication and authorization for applications. This stand-alone application will be replaced by utilizing functionality of another application currently utilized by SPP. The change will require SPP to obtain additional licenses to deploy the application for authentication and authorization purposes but will result in a lower overall cost.
- Infrastructure cabinets: SPP utilizes network infrastructure cabinets in both the Chenal and Maumelle data centers to house SPP servers. The existing cabinets are reaching capacity with the growth in servers over the past few years. The plan is to deploy additional cabinets in both locations to address the server growth.
- Software Licenses and Upgrades: SPP performs routine software upgrades and installations each year to maintain product currency, as well as to accommodate growth of user and/or server requirements. IT plans to perform upgrades to several applications in 2019, as well as acquire incremental licenses for a number of existing products including the following:

- Data Management: SPP utilizes a data-management tool to develop, manage and transform the flow of data within the data warehouse environment. IT anticipates additional licenses will be needed in 2019 to support an increase in product usage.
- Security Access: Security access tools are utilized to secure and protect all privileged account passwords and SSH keys in a highly secure central repository to prevent the loss, theft or unauthorized sharing of credentials. Additional licenses are anticipated during 2019 based on growth.
- Security Data Logging: SPP utilizes a software platform that provides logging of security data including network, endpoint, access, malware, vulnerability and identity information. It is anticipated that more assets and data will be added during 2019, resulting in additional software licenses.
- Access Management: Additional software licenses for tools providing centralized access and management control to SPP servers will be needed to align with SPP's anticipated server growth.
- Monitoring and baseline management: Additional licenses for software utilized to ensure usage and change activity is properly captured will be needed for incremental servers implemented into the IT production/ESP environment.
- Risk Management: SPP utilizes certain software for vulnerability assessments and security risk management. Based on the North American Electric Reliability Corporation (NERC)/Critical Infrastructure Protection (CIP) standards, SPP is required to perform cyber vulnerability assessments of the ESP and all cyber assets. Additional licenses will likely be required as qualifying assets grow in these environments.
- Data Visualization: SPP utilizes software to collect, integrate, analyze and provide data visualizations to support better SPP business decision making. An expanded user base across multiple departments is expected during 2019, resulting in additional server and viewer licenses.

### ***IT Foundation - New Initiatives***

The new initiatives category consists of both software purchases related to new technology /functionality as well as incremental hardware and software associated with capital projects.

|                                      | 2019          | 2020          | 2021          | Total         |
|--------------------------------------|---------------|---------------|---------------|---------------|
|                                      | Budget        | Forecast      | Forecast      | Capital       |
| <b>IT Foundation</b>                 |               |               |               |               |
| New Initiatives                      |               |               |               |               |
| Software enhancements and consulting | \$ 0.8        | \$ 0.9        | \$ 0.8        | \$ 2.5        |
| Enterprise PRPC projects *           | 0.1           | 0.1           | 0.2           | 0.4           |
| <b>Total New Initiatives</b>         | <b>\$ 0.9</b> | <b>\$ 1.0</b> | <b>\$ 1.1</b> | <b>\$ 2.9</b> |

\* PRPC projects: 2019 PMO Replacement Tool , 2020 Freeze Date, 2020 Online SSAT

### Software enhancements and consulting

- **Identity and Access Management (IAM)**: IAM is the security discipline that ensures appropriate access to resources across diverse technology environments, allowing SPP to meet increasingly stringent compliance requirements. There are plans to continue enhancing the current IAM software in order to keep up with the growing demands of cyber security. .
- **User behavior analytics**: Sophisticated cyberattacks can be hidden and difficult to find, yet addressing these threats is critical to protecting SPP and its information assets. A user behavior analytics (UBA) solution is planned for implementation in 2019. This will help identify known, unknown and hidden threats by using multi-dimensional behavior baselines, dynamic peer group analysis and unsupervised machine learning to detect compromised or misused accounts or devices, which can lead to data exfiltration or IP theft.
- **Risk management**: SPP utilizes a vulnerability and security risk management system to measure and manage potential risk to network security. There are several enhancements/customizations needed during 2019 that will require implementation services from the associated vendor.
- **Application whitelisting software**: Traditional malware prevention methods such as anti-virus software, firewalls and intrusion-prevention systems often do not provide the necessary level of defense needed to protect endpoints such as application servers, operator consoles, and desktops. As a result, there are plans to implement a software solution known as “application whitelisting” that will only permit pre-identified, authorized programs to be accessed and/or executed. Essentially, whitelisting flips the traditional antivirus model from a “default allow” to a “default deny” approach for all executable files. This model is a considerably more effective defense mechanism.

- Public key infrastructure (PKI): PKI entails hardware, software and processes for the creation and management of encryption keys to encrypt sensitive data. Member data currently exists within file systems (e.g., member invoices) without any encryption. Encryption of this sensitive data will improve SPP's security posture and protect against unintended exposure and access by unauthorized users.
- Enterprise PRPC projects: The PRPC approved a relatively small number of new projects in July 2018 that will begin over the next three years. While each project carries a dedicated capital project budget, several projects will also require incremental hardware and software that impacts the IT Foundation budgets. The only project affecting the 2019 IT Foundation budget is the PMO replacement tool project, which will require 12 virtual servers and associated software.

### ***IT Foundation - Miscellaneous Departments***

Items included in this foundation budget encompass all other software and hardware needs for departments outside of IT.

|   | <b>2019</b>   | <b>2020</b>     | <b>2021</b>     | <b>Total</b>   |
|---|---------------|-----------------|-----------------|----------------|
|   | <b>Budget</b> | <b>Forecast</b> | <b>Forecast</b> | <b>Capital</b> |
| Miscellaneous Departments               |               |                 |                 |                |
| Engineering                             | \$ 0.7        | \$ 1.6          | \$ 0.6          | \$ 3.0         |
| Human Resources and Training            | 0.1           | 0.1             | 0.1             | 0.2            |
| Corporate Communications and Regulatory | 0.1           | 0.1             | 0.1             | 0.2            |
| <b>Total Miscellaneous Departments</b>  | <b>\$ 0.8</b> | <b>\$ 1.7</b>   | <b>\$ 0.8</b>   | <b>\$ 3.4</b>  |

Engineering: The majority of this budget is planned for new enhancements to the congestion hedging system as well as modifications to the existing functionality. The following enhancements to engineering systems/tools are also planned for 2019:

- Additional processing capacity and licenses will allow economic planning engineers to meet shorter study deadlines and address changing Integrated Transmission Planning (ITP) processes.
- Enhancements to the transmission and generation implementation tracking (TAGIT) and standardized cost estimation reporting tool (SCERT) systems will allow for better tracking and management of transmission projects and notifications to construct (NTCs).
- Enhancements to the engineering hub will improve and enable straightforward data transfer between the modeling team and SPP members.

HR training and professional development: Various enhancements to the HR system planned for 2019 including preparing for new IT compliance training, along with assorted upgrades to the recruiting software.

Corporate communications: For 2019 and beyond, the corporate communications department anticipates ongoing enhancements to the “Circuit” as well as a possible replacement of the existing Message 911 system.

## Operations Marketplace and Other System Enhancements

The operations foundation budget primarily consists of planned enhancements to the market operations system (MOS). This includes modifications to the market operator interface (MOI), market user interface (MUI) and market clearing engine (MCE) applications as well as the market database (MDB). MOS enhancements represent approximately 75 percent of the operations foundation budget. The remaining 25 percent includes budgeted enhancements for numerous other systems and tools as summarized in the table below.

|   | 2019<br>Budget | 2020<br>Forecast | 2021<br>Forecast | Total<br>Capital |
|---|----------------|------------------|------------------|------------------|
| <b>Operations Marketplace and Other System Enhancements</b>       |                |                  |                  |                  |
| Market Operation System (MOS)                                     | \$ 2.0         | \$ 2.0           | \$ 2.0           | \$ 6.0           |
| Open Access Same-Time Information System (OASIS)                  | 0.2            | 0.0              | 0.0              | 0.2              |
| Dispatch Training Simulator (DTS)                                 | 0.1            | 0.1              | 0.1              | 0.2              |
| DSA Tools (PSAT, VSAT, TSAT)                                      | 0.1            | 0.1              | 0.1              | 0.2              |
| Control Room Operations Window (CROW)                             | 0.1            | 0.0              | 0.0              | 0.1              |
| Interchange Distribution Calculator (IDC)                         | 0.0            | 0.0              | 0.0              | 0.1              |
| Miscellaneous Other *   | 0.2            | 0.1              | 0.0              | 0.3              |
| <b>Total Operations Marketplace and Other System Enhancements</b> | <b>\$ 2.6</b>  | <b>\$ 2.3</b>    | <b>\$ 2.2</b>    | <b>\$ 7.1</b>    |

\* Includes Energy Management System (EMS), Open Access Technology Int'l/Native Network Limit (OATI/NNL), Centralized Modeling Tool (CMT), Phaser Measurement Unit (PMU) and PI.

As in past years, the foundation budget includes funding for system enhancements that do not rise to the level of enterprise projects. This includes enhancements, some of which are requested by members and market participants that are small enough to be covered by the foundation budget and included with future software releases. During the capital project review process, the PRPC determined the following project submissions to be more appropriately considered within the scope of normal foundation work:

- Fast start resource logic: This initiative is to enhance the market from a FERC proceeding to investigate price formation in the market. This is aimed to ensure that pricing rules would satisfy four objectives: 1) maximize market surplus for consumers and suppliers; 2) provide correct incentives for market participants to follow

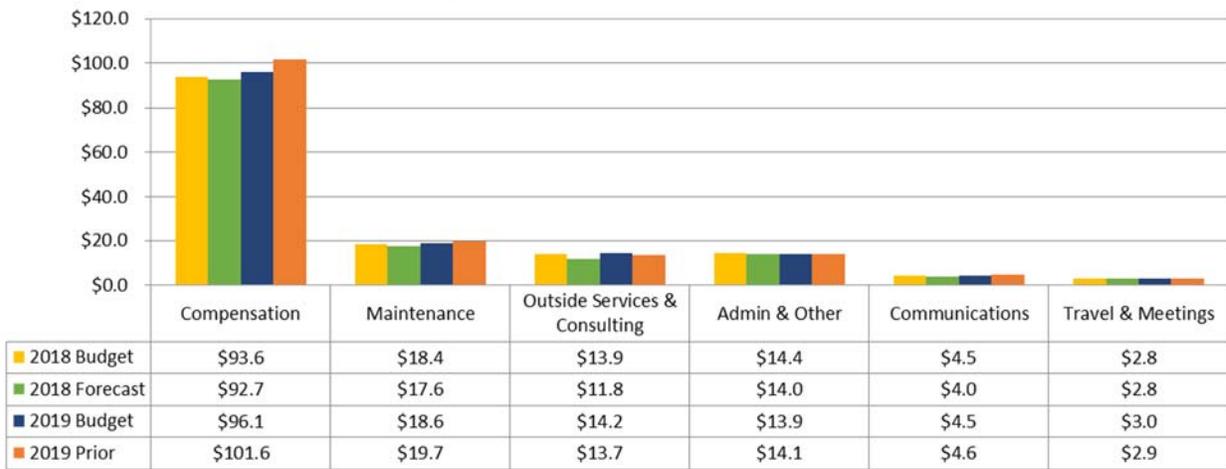
commitment and dispatch instructions, make efficient investments in facilities and equipment and maintain reliability; 3) provide transparency so that market participants understand how prices reflect the actual marginal cost of serving load and the operational constraints of reliably operating the system; and 4) ensure that all suppliers have an opportunity to recover their costs. There is a risk that the actual effort required may be higher than anticipated depending on how FERC directs SPP to respond.

- Multi-day unit commitment: SPP will be providing a non-financially binding forecast as an initial step towards the full implementation of a financially binding multi-day unit commitment process. This will help market participants make better decisions with respect to offering resources into the market and making associated fuel procurement decisions. The impacts of implementing the initial step are small. Subsequent steps have not yet been determined, and the associated impacts are not yet known.
- Ramping product: By designing methods to better anticipate the need for responsive resources in the market, this initiative will address the impact that resource ramp shortages in the market cause with respect to short-term spikes in market prices. The work associated with implementing these methods is relatively small and will be integrated with a market release that contains other enhancements and fixes.

### III. RESOURCE UTILIZATION

SPP’s 2019 budget incorporates the funds necessary for SPP to provide day-to-day operations while pursuing the strategic goals and organizational objectives. The chart below shows the various resource components and the corresponding 2019 budget amounts in comparison to 2018 budget and forecast, as well as a comparison to amounts forecast for 2019 during the 2018 budget cycle. The following section discusses each component in detail.

**Operating Expenses by Resource (\$ millions)**



**Operating Expenses by Resource (\$ millions)**

|                                  | 2018 Budget    | 2018 Forecast  | 2019 Budget    | 2019 Prior     |
|----------------------------------|----------------|----------------|----------------|----------------|
| Compensation                     | \$96.1         | \$95.4         | \$96.1         | \$101.6        |
| Maintenance                      | 18.4           | 17.6           | 18.6           | 19.7           |
| Outside Services & Consulting    | 14.6           | 12.2           | 14.2           | 13.7           |
| Admin & Other                    | 14.4           | 13.8           | 13.9           | 14.1           |
| Communications                   | 4.5            | 4.0            | 4.5            | 4.6            |
| Travel & Meetings                | 3.1            | 2.9            | 3.0            | 2.9            |
| <b>Total Operating Expense *</b> | <b>\$151.0</b> | <b>\$145.8</b> | <b>\$150.4</b> | <b>\$156.5</b> |

\* Excludes depreciation & FERC fees. Other expense in 2018 Forecast also excludes non-cash items.

## STAFFING

### Valuing Resources

*The employees of SPP are the most valuable asset, and keeping employees engaged and challenged is a key focus of SPP management.*

SPP employs various initiatives to foster retention and build bench strength, which ultimately enhances the ability to provide the highest level of service and value for members and customers. Employees are encouraged to seek opportunities that match their career goals and to expand their knowledge base through career development initiatives such as rotation programs, job shadowing and career planning tools.

The SPP Human Resources Committee is responsible for the review and approval of employee and executive benefit plans, organizational structure and compensation programs. Each of these components are crucial to attracting and retaining career employees that are well suited to the SPP corporate culture.



SPP employs various initiatives to help foster retention and build bench strength in order to provide the highest level of service and value for its members.

The committee benchmarks SPP compensation and benefit programs every three years and reviews these plans on an annual basis to ensure competitiveness in the marketplace while adhering to a cost-effective budget. Compensation elements are developed using benchmarks of the peer group as determined by the SPP Human Resources committee. SPP establishes compensation elements that competitively target the 50th percentile.

Continuous improvement is one of SPP's culture drivers and inspires creative approaches to employee-centric initiatives from recruiting to training and development. Recruiting initiatives focus on qualifications, culture and diversity. The budget includes funds for employee training and tuition reimbursement. Employees are offered various learning opportunities, including an annual leadership conference, supervisor-approved outside training and access to multiple online and in-person training classes through the SPP corporate training and professional development department. SPP administers an in-house Engineer-in-Rotation program, which seeks the most talented engineering graduates for an expansive training program. The rotating staff of engineers gain experience through on-the-job training and are placed in permanent roles at the completion of their rotation assignments.

Successfully keeping employees engaged and challenged helps promote lower turnover. SPP management reviews staffing levels as vacancies occur and looks for opportunities to manage headcount through attrition. These efforts are evident and described in detail in the following discussion on staffing levels.

## Staffing Levels

### 2018 Staffing Changes

Staffing levels throughout the organization are frequently assessed while resource needs continually evolve as the organization matures. As a result of the continued assessments, various changes were made throughout 2018.

#### 2018 staff reductions

Regional Entity (four reductions): The Amended and Restated Delegation Agreement between NERC and SPP was terminated as of Aug. 31, 2018, resulting in the dissolution of the SPP Regional Entity (RE) division. The 2018 budget assumed SPP would retain 11 of the 23 staff members (i.e. the other 12 would either resign or retire). This assumption was for budgeting purposes only and did not negate the possibility of retaining all 23 staff members if necessary, as SPP committed to the continued employment for all remaining RE staff. By the termination date, seven RE staff had filled open positions within the RTO and nine terminated employment with SPP, resulting in reductions in overall SPP staff of 16.

| Headcount       | 2018 Budget | 2018 Forecast |
|-----------------|-------------|---------------|
| RTO Total       | 598         | 606           |
| Regional Entity | 11          | 0             |
| SPP Total       | 609         | 606           |

The total number of RE staff absorbed by the RTO was seven, which was four less than the budget assumption of 11. Of the seven positions transferring to the RTO, five new positions were added to augment compliance and interregional affairs functions, and the remaining two were placed in human resources and corporate communications.

| <u>2018 Staffing Changes</u>           |            |           |
|--|------------|-----------|
|  | <u>RTO</u> | <u>RE</u> |
| 2018 Beginning RTO budget              | 598        |           |
| 2018 Beginning Regional Entity budget  |            | 23        |
| RE resignations / retirements          |            | (9)       |
| RE staff filling open RTO positions    |            | (7)       |
| RE staff absorbed by RTO *             | 7          | (7)       |
| Operations positions eliminated        | (3)        |           |
| Out-of-budget positions added (Eng/IT) | 4          |           |
| 2018 Year-end RTO forecast             | 606        | 0         |

\* 2018 Budget assumed RTO would absorb 11 of 23 RE positions.

Operations (three reductions): The operator-in-training (OIT) program is utilized for the development of qualified personnel to facilitate the staffing of system operator vacancies as they occur through natural attrition. An evaluation of real-time operations staffing requirements in relation to anticipated staff retirements occurred during 2017, at which point operations management recommended a temporary increase in staff for the OIT program from three to six. This planning allowed for restructuring and transfer of knowledge/expertise to accommodate staff retirements, and therefore resulted in an overall reduction in staff during 2018. Excluding an intercompany transfer of two positions from the interregional relations division, operations has been able to decrease staff by three positions since 2016. The OIT rotation program is expected to remain at three positions going forward.

### **2018 Staff increases**

Engineering (three additions): Growth in volume and complexity of generation interconnection (GI) studies over the years resulted in significant backlogs and delays in the administration of the studies. SPP created three incremental staff positions in 2018 to supplement the GI studies process. The addition of these positions will result in efficiency gains within the GI studies department and in eventual savings for GI customers and additional revenue for SPP stakeholders once the new staff are able to absorb more of the work currently supplemented by outside contractors.

Information Technology (one addition): A position was added in the IT cybersecurity department to enhance focus on cybersecurity issues. IT has committed to one overall staff reduction within the IT division (due to attrition and/or gained efficiencies) to offset this increase by 2021.

### **2019 Staffing Changes**

Management identified the need for incremental staff associated with business continuity and supply chain management. The two incremental positions were assessed by the senior management team and recommended for inclusion in the 2019 budget.

Credit (one addition): As a continuation of SPP's cybersecurity roadmap, a business continuity specialist position was recommended to facilitate maintenance, training, and exercising of SPP's corporate and departmental business continuity plans. The position will lead efforts to mature current plans and help SPP staff maintain a continual state of readiness to effectively react to short-term or long-term business interruption events.

Information Technology (one addition): As part of the cybersecurity strategic plan reviewed with the board and members committee in July 2018, IT recommended a supply chain analyst

position to help mitigate the risk of procured hardware and software being leveraged to compromise SPP's cyber security perimeters.

Operations (one reduction): As the result of advance planning and training, one additional operator position will be eliminated due to a planned retirement in the first quarter of 2019.

Unidentified (two reductions): SPP officers recommended managing attrition to reflect reductions in staffing levels over 2019-2021. The proposed staff reductions are two in 2019, three in 2020 and two in 2021. In addition, IT commits to one overall staff reduction by 2021 to offset the incremental position added during 2018. The reductions in staff will be achieved by collaboration across all divisions to consider restructuring or redistributing the workload as attrition occurs over the specified timeframe.

Overall changes in the approved staffing levels is illustrated in the table below:

| <b>Approved Staffing Levels</b>            |             |             |             |             |
|--|-------------|-------------|-------------|-------------|
|  | <u>2018</u> | <u>2019</u> | <u>2020</u> | <u>2021</u> |
| <b>2018 Budget</b>                         | <b>609</b>  |             |             |             |
| Net incremental (3 Eng, 1 IT)              | 4           |             |             |             |
| Net reductions (4 additional RE, 3 Ops)    | <u>(7)</u>  |             |             |             |
| <b>2018 Forecast</b>                       | <b>606</b>  |             |             |             |
| Business Continuity Specialist (Credit)    |             | 1           |             |             |
| Supply Chain Analyst (IT)                  |             | 1           |             |             |
| Budgeted attrition (1 Ops, 2 unidentified) |             | <u>(3)</u>  |             |             |
| <b>2019 Budget</b>                         |             | <b>605</b>  |             |             |
| Customer Relations Representative          |             |             | 1           |             |
| Programmer/Analyst (DTS project) *         |             |             | 1           |             |
| Governance & Compliance Tool Administrator |             |             | 1           |             |
| Budgeted attrition (3 unidentified)        |             |             | <u>(3)</u>  |             |
| <b>2020 Forecast</b>                       |             |             | <b>605</b>  |             |
| Customer Relations Representative          |             |             |             | 1           |
| Budgeted attrition (1 IT, 2 unidentified)  |             |             |             | <u>(3)</u>  |
| <b>2021 Forecast</b>                       |             |             |             | <b>603</b>  |
| Prior Budget / Forecast                    |             | 610         | 612         | n/a         |

*\* Refer to capital project section for details on project descriptions.*

The following table shows the staff numbers by executive division:

## 2018 - 2021 APPROVED POSITIONS BY DIVISION

| Headcount                                | 2018 Budget | 2018 Forecast | 2019 Budget | 2020 Forecast | 2021 Forecast |
|--|-------------|---------------|-------------|---------------|---------------|
| Operations                               | 162         | 161           | 160         | 160           | 160           |
| Information Technology                   | 164         | 167           | 168         | 169           | 169           |
| Engineering                              | 80          | 83            | 83          | 83            | 83            |
| Finance & Corporate Services             | 68          | 68            | 69          | 69            | 69            |
| Process Integrity <sup>(1)</sup>         | 54          | 58            | 58          | 60            | 60            |
| Regulatory & Legal                       | 27          | 27            | 27          | 27            | 27            |
| Market Monitoring (MMU)                  | 16          | 16            | 16          | 16            | 16            |
| Officer                                  | 11          | 11            | 11          | 11            | 11            |
| Interregional Relations & Market Design  | 9           | 7             | 7           | 7             | 7             |
| Corporate Communications & Gov't Affairs | 7           | 8             | 8           | 8             | 8             |
| Other <sup>(2)</sup>                     | 0           | 0             | (2)         | (5)           | (7)           |
| <b>RTO Total</b>                         | <b>598</b>  | <b>606</b>    | <b>605</b>  | <b>605</b>    | <b>603</b>    |
| Regional Entity <sup>(3)</sup>           | 11          | 0             | 0           | 0             | 0             |
| <b>SPP Total</b>                         | <b>609</b>  | <b>606</b>    | <b>605</b>  | <b>605</b>    | <b>603</b>    |

1) The Process Integrity division includes compliance, project management, training, customer relations, internal audit and interregional relations departments.

2) "Other" represents total of 7 unidentified reductions for attrition (2 in 2019, 3 in 2020 and 2 in 2021).

3) The 2018 budget assumed 11 of 23 positions would be absorbed by the RTO by mid-year 2018.

Note: In some instances, the net increases/decreases by division discussed in the previous section are partially offset by additional interdepartmental transfers including but not limited to allocation of remaining RE staff.

## Staffing Components

**The base salary budget assumes a merit increase of 3 percent, a promotion increase of 0.75 percent and a vacancy factor of 2.5 percent.**

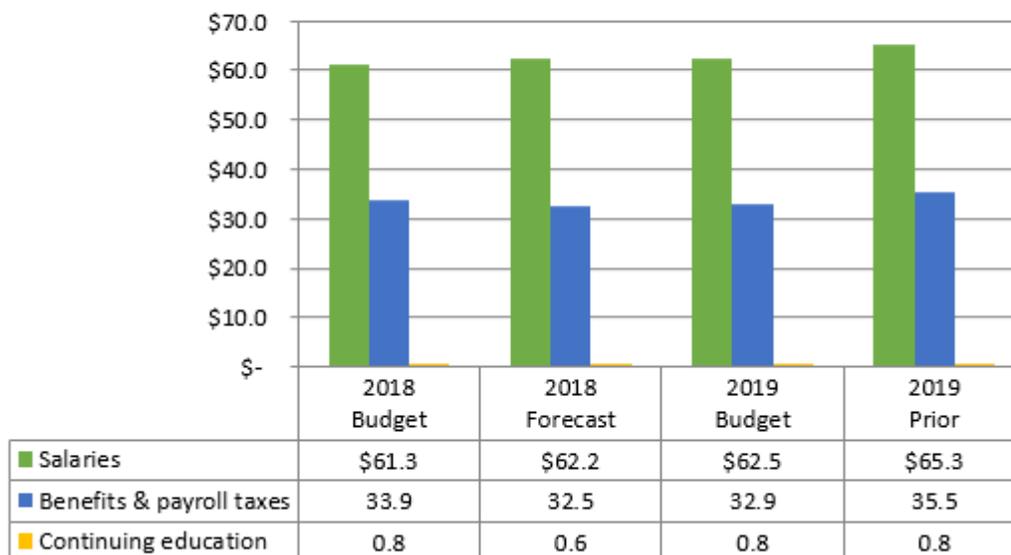
The staffing budget for 2019 includes funding for salaries (including base salary and overtime pay), benefits and payroll taxes, and continuing education.

| Salary Expenses (\$ millions)      | 2018 Budget <sup>(1)</sup> | 2018 Forecast | 2019 Budget <sup>(2)</sup> | 2019 Prior <sup>(2)</sup> |
|------------------------------------|----------------------------|---------------|----------------------------|---------------------------|
| Base salaries at beginning of year | \$60.1                     | \$60.1        | \$60.6                     | \$61.9                    |
| Merit increase                     | 1.8                        | 1.8           | 1.8                        | 1.9                       |
| Premium pay                        | 1.0                        | 1.1           | 1.0                        | 1.0                       |
| Retention and severance            | 0.0                        | 0.7           | 0.0                        | 0.0                       |
| Incremental staff                  | 0.3                        | 0.6           | 0.1                        | 0.1                       |
| Promotions                         | 0.5                        | 0.5           | 0.5                        | 0.5                       |
| Vacancy                            | (1.9)                      | (1.8)         | (1.6)                      | 0.0                       |
| RE reductions                      | (0.5)                      | (0.7)         | 0.0                        | 0.0                       |
| <b>Total Salary Expenses</b>       | <b>\$61.3</b>              | <b>\$62.2</b> | <b>\$62.5</b>              | <b>\$65.3</b>             |

(1) 2018 budget vacancy 3.0%, merit 3.0%

(2) 2019 budget vacancy 2.5%, merit 3.0%, 2019 prior vacancy 0.0%

## Compensation (\$millions)



Unbudgeted retention payout associated with the dissolution of the RE plus incremental staff and severance payout within the RTO resulted in an increase in the 2018 salary forecast as compared to the 2018 budget.

Only a minimal increase is reflected in salaries from the 2018 forecast to the 2019 budget. This is due to a partial year of RE expenses included in both the 2018 budget and forecast that are no longer reflected in the 2019 budget. Removing RE salaries from the 2018 forecast more clearly illustrates the expected year-over-year variance, which is primarily associated with merit/promotion pool additions and full-year compensation in 2019 for the incremental positions added at various times throughout 2018.

|               | Salary Expenses Excluding RE |             |          |    |
|---------------|------------------------------|-------------|----------|----|
| (\$ millions) | 2018 Forecast                | 2019 Budget | Increase |    |
| Total Salary  | \$60.0                       | \$62.5      | \$2.4    | 4% |

## Vacancy and Merit Assumptions

During the 2018 budget planning process, 2017 vacancy levels averaged approximately 3 percent and therefore a vacancy factor of 3 percent was applied to the 2018 budget. Zero vacancy was reflected in the prior year 2019 forecast based on the commitment to integrate RE positions.

The average vacancy for 2018 headcount is expected to be approximately 2.6 percent for the year. SPP anticipates staff turnover in 2019 to be relatively consistent with its experience in 2018, and a vacancy rate of 2.5 percent was applied to the 2019 budget. This equates to headcount vacancy averaging 15 positions during the calendar year.

|              | <u>2018 Budget</u> | <u>2018 Forecast</u> | <u>2019 Budget</u> | <u>2019 Prior</u> |
|--------------|--------------------|----------------------|--------------------|-------------------|
| Vacancy rate | 3.0%               | 2.6%                 | 2.5%               | 0.0%              |

The Human Resources Committee recommended an overall merit increase of \$1.8 million (3 percent) and a promotion pool of \$0.5 million (0.75 percent) for 2019 based on their review of several regional and industry factors, including SPP members.

| <b>Merit and Promotion Budget</b> |             |             |             |             |             |
|-----------------------------------|-------------|-------------|-------------|-------------|-------------|
|                                   | <u>2015</u> | <u>2016</u> | <u>2017</u> | <u>2018</u> | <u>2019</u> |
| Merit Increase                    | \$1.1       | \$1.4       | \$1.7       | \$1.8       | \$1.8       |
| Promotion Pool                    | \$0.4       | \$0.4       | \$0.5       | \$0.5       | \$0.5       |
| Merit %                           | 2.0%        | 2.5%        | 3.0%        | 3.0%        | 3.0%        |
| Promotion %                       | 0.75%       | 0.75%       | 0.75%       | 0.75%       | 0.75%       |

## Benefits and Taxes

The budget for benefits and payroll taxes includes pension cost; performance compensation; payroll taxes; medical, dental and life insurance benefits; employee events; and relocation expenses. Below is a breakdown of employee benefits and taxes:

| <b>Benefits &amp; Taxes (\$ millions)</b>          | <u>2018 Budget</u> | <u>2018 Forecast</u> | <u>2019 Budget</u> | <u>2019 Prior</u> |
|--|--------------------|----------------------|--------------------|-------------------|
| Retirement Plans (401K, pension, deferred comp)    | \$12.6             | \$11.2               | \$11.1             | \$12.7            |
| Performance Compensation                           | 10.2               | 10.2                 | 10.4               | 10.9              |
| Payroll Taxes                                      | 5.0                | 4.8                  | 5.1                | 5.4               |
| Medical Benefits                                   | 4.9                | 5.0                  | 5.0                | 5.3               |
| Other Employee Benefits                            | 0.4                | 0.5                  | 0.5                | 0.4               |
| Dental Benefits                                    | 0.4                | 0.4                  | 0.4                | 0.4               |
| Life Insurance Benefits                            | 0.4                | 0.4                  | 0.4                | 0.4               |
| <b>Total Benefits &amp; Taxes</b>                  | <b>\$33.9</b>      | <b>\$32.5</b>        | <b>\$32.9</b>      | <b>\$35.5</b>     |
| Continuing Education                               | 0.8                | 0.6                  | 0.8                | 0.8               |
| <b>Total Benefits, Taxes &amp; Con't Education</b> | <b>\$34.7</b>      | <b>\$33.1</b>        | <b>\$33.6</b>      | <b>\$36.3</b>     |

The 2018 forecast and 2019 budget amounts for pension and retiree healthcare expense are based on the most recent actuarially calculated pension costs. SPP will make cash contributions of \$4.5 million to the pension plan during 2018. Contributions to the plan are expected to be \$5.0 million in 2019. Pension expense is included in compensation, but has no cash impact to

the current year NRR. The difference between the pension expense and the expected cash contributions is included as a non-cash adjustment in the NRR calculation.

|                                  | <u>2018 Budget</u> | <u>2018 Forecast</u> | <u>2019 Budget</u> | <u>2019 Prior</u> |
|----------------------------------|--------------------|----------------------|--------------------|-------------------|
| <b><u>Pension</u></b>            |                    |                      |                    |                   |
| Pension expense                  | \$7.4              | \$6.6                | \$7.0              | \$7.6             |
| Cash contribution                | (5.9)              | (4.5)                | (5.0)              | (6.0)             |
| Non-cash adjustment              | \$1.5              | \$2.1                | \$2.0              | \$1.5             |
| <b><u>Retiree healthcare</u></b> |                    |                      |                    |                   |
| Retiree healthcare expense       | \$1.1              | \$1.0                | \$1.0              | \$1.1             |
| Cash contribution                | 0.0                | 0.0                  | 0.0                | 0.0               |
| Non-cash adjustment              | \$1.1              | \$1.0                | \$1.0              | \$1.1             |
| <b>Total non-cash adjustment</b> | <b>\$2.6</b>       | <b>\$3.1</b>         | <b>\$3.0</b>       | <b>\$2.6</b>      |

Performance compensation is budgeted at the target level of 15 percent of base salary and is paid in March of the following year. Funding for 401(k) matching contribution is estimated at 4.7 percent of the salary expense (including performance compensation) based on recent company trends.

**Medical Benefits Costs**

**The net cost of the self-funded medical plan in the 2019 budget is \$5.0 million, which is in line with the 2018 budget and forecast.**

SPP experienced an increase in medical claims beginning in 2015 and continuing throughout 2016. The increase has since leveled off starting in 2017. Total gross claims are estimated to be \$5.4 million in 2019, which is consistent with the 2018 forecast.

Close to 94 percent of employees participate in the medical plan, which is comparable with previous years. The total estimated number of employee participants in 2019 is 567, compared to 557 in 2018. SPP retirees were removed from SPP’s self-funded plan in 2015. SPP now provides eligible retirees fixed monthly payments through a tax-free health reimbursement account to pay for individual Medicare supplement health-insurance plans or other eligible healthcare expenses. This change decreased SPP’s medical funding exposure for those retiree participants.

Changes were implemented in 2018 to limit the increase in claims and administrative costs, as well as provide cost savings to employees with differing medical insurance needs and priorities.

A healthcare savings account (HSA) option was added to the medical plan, which reduces SPP’s exposure to claims expense. Under the HSA option, SPP contributes on a semi-annual basis a fixed dollar amount to participants’ accounts. Participants are then responsible for paying for their medical expenses utilizing the accumulated savings. Deductibles under this plan are much higher which reduces SPP’s exposure. Sixty-three employees participated in this new option in 2018. Administrative changes were implemented in the drug prescription process which reduced pharmaceutical claims as well during 2018.

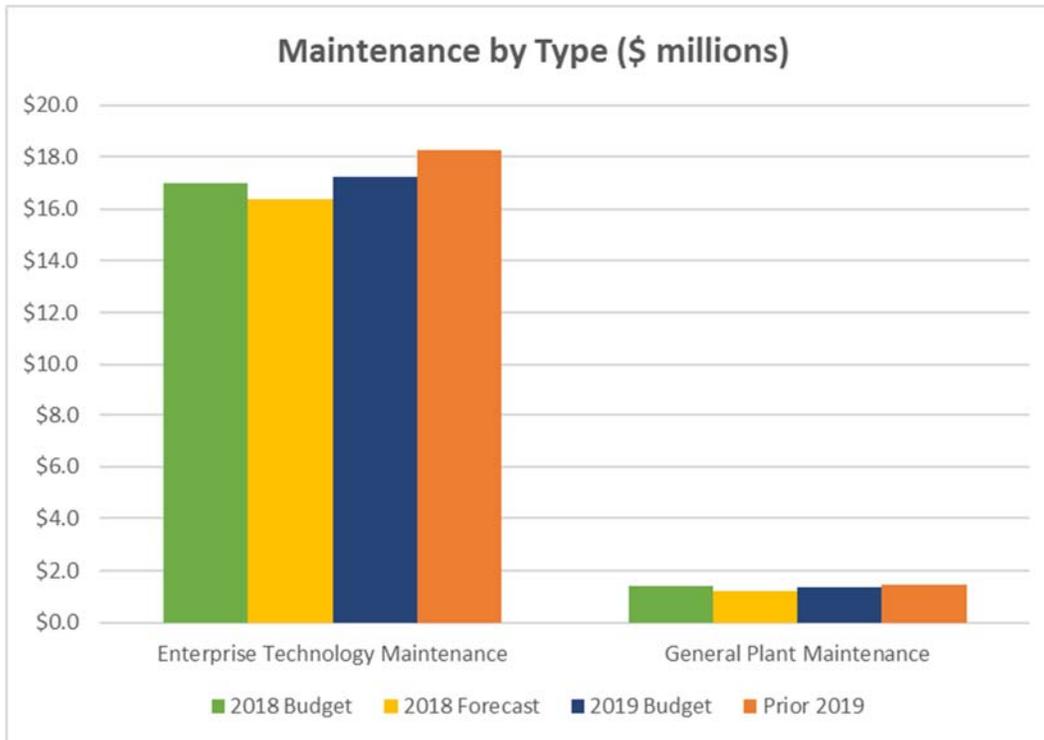
Fees are paid to the insurance provider to cover administrative costs and insure against excessive losses at both the participant and corporate level. These fees are estimated to be \$1.0 million in 2019, which is also consistent with 2018.

Employee contributions to the medical plan offset the overall cost and are estimated to be \$1.4 million in 2019. The net annual cost of the medical plan to SPP per participant is expected to be approximately \$8,700 thousand in 2019. SPP’s Human Resource Committee continues to target an 80/20 cost share between employer and employee for the medical benefit costs.

|                                 | <b>Healthcare Costs (\$ millions)</b> |                      |                    |                   |
|---------------------------------|---------------------------------------|----------------------|--------------------|-------------------|
|                                 | <b>2018 Budget</b>                    | <b>2018 Forecast</b> | <b>2019 Budget</b> | <b>2019 Prior</b> |
| Gross Claims                    | \$5.3                                 | \$5.4                | \$5.4              | \$5.7             |
| Admin Fees                      | 1.0                                   | 1.0                  | 1.0                | 1.0               |
| Employee Contributions          | (1.4)                                 | (1.4)                | (1.4)              | (1.4)             |
| Net Expenses                    | \$4.9                                 | \$5.0                | \$5.0              | \$5.3             |
| Number of employee participants | 549                                   | 557                  | 567                | 567               |

**MAINTENANCE**

*Maintenance expense is primarily related to contractual agreements in IT to cover hardware and software assets, plus expense for general upkeep of facilities. The increase in the 2019 budget is primarily related to year-over-year inflationary increases on existing IT contracts.*



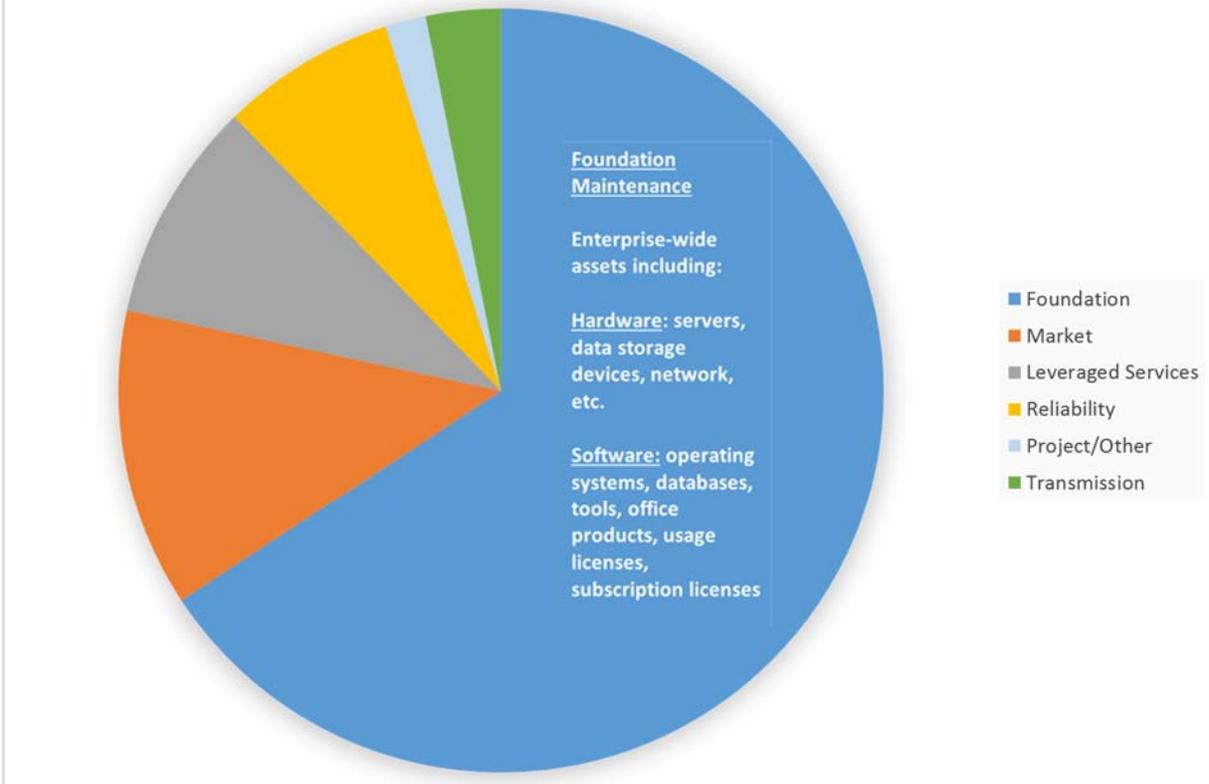
| Maintenance Expense (\$ millions) | 2018 Budget   | 2018 Forecast | 2019 Budget   | Prior 2019    |
|-----------------------------------|---------------|---------------|---------------|---------------|
| Enterprise Technology Maintenance | \$17.0        | \$16.4        | \$17.2        | \$18.3        |
| General Plant Maintenance         | 1.4           | 1.2           | 1.3           | 1.5           |
| <b>Total</b>                      | <b>\$18.4</b> | <b>\$17.6</b> | <b>\$18.6</b> | <b>\$19.7</b> |

## Enterprise Technology Maintenance

*Enterprise technology maintenance expense covers hardware and software assets in the existing portfolio as well as incremental purchases and new systems developed across the organization.*

Enterprise technology maintenance agreements encompass necessary coverage such as defect restorations, security patches, product updates and version upgrades of software products. SPP retains maintenance agreements on the majority of in-use installed hardware and software. The level of maintenance is selected based on factors including the criticality of the application and the environment (testing, development or production).

## 2019 Enterprise Technology Maintenance Budget



The three primary components of enterprise technology maintenance include hardware maintenance, perpetual software maintenance and software subscriptions.

Components within each maintenance category include:

- Maintenance/support agreements for hardware (servers, storage, network, etc.)
- Maintenance/support agreements for software (operating systems, databases, tools, Office products, usage licenses, subscription licenses)
- Maintenance/support agreements for business applications (market, reliability, transmission, leveraged services, etc.)

The majority of the increase in 2019 maintenance expense is related to year-over-year increases (two percent) to support the existing environment.

Approximately 80 percent of the maintenance budget is under a multi-year contract in support of the existing environment.

The increase in the 2019 maintenance budget is primarily due to year-over-year inflationary increases (two percent) related to agreements that are required to sustain the health and operation of the system, plus additional increases related to maintenance associated with new projects and/or purchases.

In addition to maintaining the existing environment, the budget also is driven by new capital projects requiring annual support agreements.

| <b>Enterprise Maintenance Expense (\$ millions)</b> |     |               |
|---|-----|---------------|
| <b>2018 Forecast</b>                                |     | \$16.4        |
| Increases for existing portfolio (2%)               | 0.4 | 50%           |
| New 2019 PRPC projects                              | 0.2 | 22%           |
| Incremental maintenance on new security software    | 0.1 | 16%           |
| New subscription license (SPP Ops div)              | 0.1 | 12%           |
| <b>2019 Budget</b>                                  |     | <b>\$17.2</b> |

*The IT sourcing staff remains focused on scrutinizing maintenance costs and trends. The staff makes conscious efforts to minimize maintenance costs through negotiating multi-year term and price-protection agreements, leveraging product purchases and rightsizing the level of support with the criticality of the environment.*

Over the past few years, the foundation maintenance budget was estimated to correspond with original business plans under the expectation that new capital expenditures (drivers of incremental maintenance) would occur early in the project cycle. Trending analysis has shown that many budgeted capital expenditures become deferred (or avoided altogether), which results in a corresponding delay or elimination of maintenance expenses. In consideration of this recurring trend, a more aggressive approach was utilized for the 2018 budget and again in 2019. This approach results in a relatively low increase from 2018 forecast to 2019 budget for incremental maintenance.

## **General Plant Maintenance**

In addition to maintenance for hardware and software, other facility expenses are included in the general plant maintenance budget such as janitorial expense, landscape services and preventive maintenance.

SPP utilizes historical data to estimate costs associated with general upkeep such as waste removal, landscape maintenance, janitorial services, etc. These costs remain fairly constant with minimal projected increases. Costs associated with facilities systems and equipment maintenance are generally defined in multi-year service agreements (e.g. elevators, chillers, generators, etc.).

Additional maintenance costs are required for general repairs and upkeep of the SPP facilities.

## COMMUNICATIONS INFRASTRUCTURE

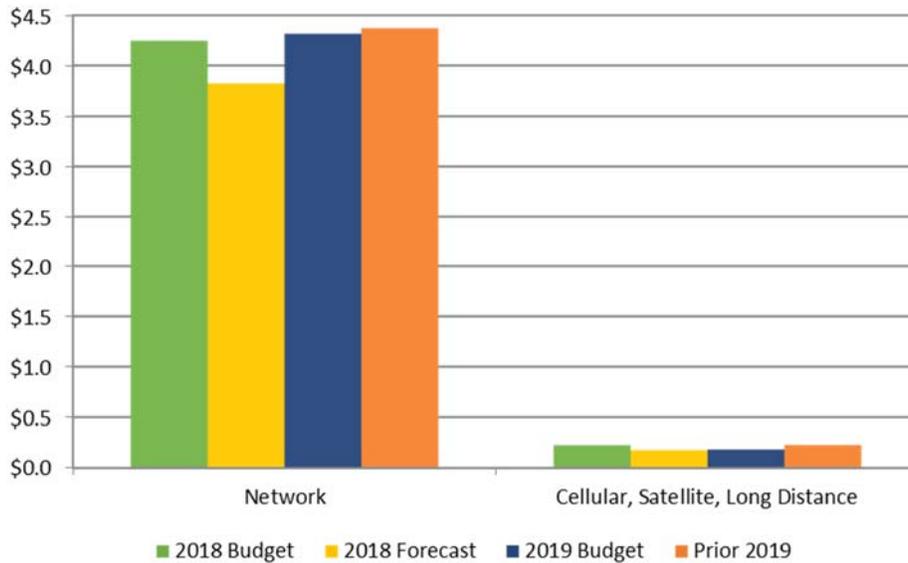
Communications infrastructure includes all expenditures related to SPP's internal and external networks and telecommunications. Network communications include frame relay and circuit costs, including components for bandwidth between data centers, and circuits to members, market participants, and other service organizations. The majority of expenses in this budget are ongoing and under long-term contracts, making the overall spend fairly consistent each year.

The increase in 2019 over the 2018 forecast is primarily attributable to projects budgeted in 2018 that were delayed until 2019. The delayed projects are associated with cloud storage implementation and phasor measurement unit (PMU) data exchange.

- Additional bandwidth for cloud storage data backup: SPP's data requirements continue to increase, including the need to store and archive data. The use of cloud technologies for offsite data storage requires appropriate internet bandwidth between SPP and the storage provider.
- Circuit costs to share PMU data over secure network: A limited amount of PMU data is currently shared across the internet. Additional and more secure bandwidth will be required as the volume of data and number of participants increase.

SPP implemented a second circuit/carrier in July 2018 between the primary and backup datacenters to satisfy the critical infrastructure protection standard requiring separation of ESP traffic and non-ESP traffic. The full-year impact in 2019 contributes to the year-over-year increase.

## Communications Infrastructure (\$ millions)



| Communications (\$ millions)       | 2018 Budget  | 2018 Forecast | 2019 Budget  | Prior 2019   |
|------------------------------------|--------------|---------------|--------------|--------------|
| Network                            | \$4.2        | \$3.8         | \$4.3        | \$4.4        |
| Cellular, satellite, long distance | 0.2          | 0.2           | 0.2          | 0.2          |
| <b>Total</b>                       | <b>\$4.5</b> | <b>\$4.0</b>  | <b>\$4.5</b> | <b>\$4.6</b> |

## OUTSIDE SERVICES AND CONSULTING

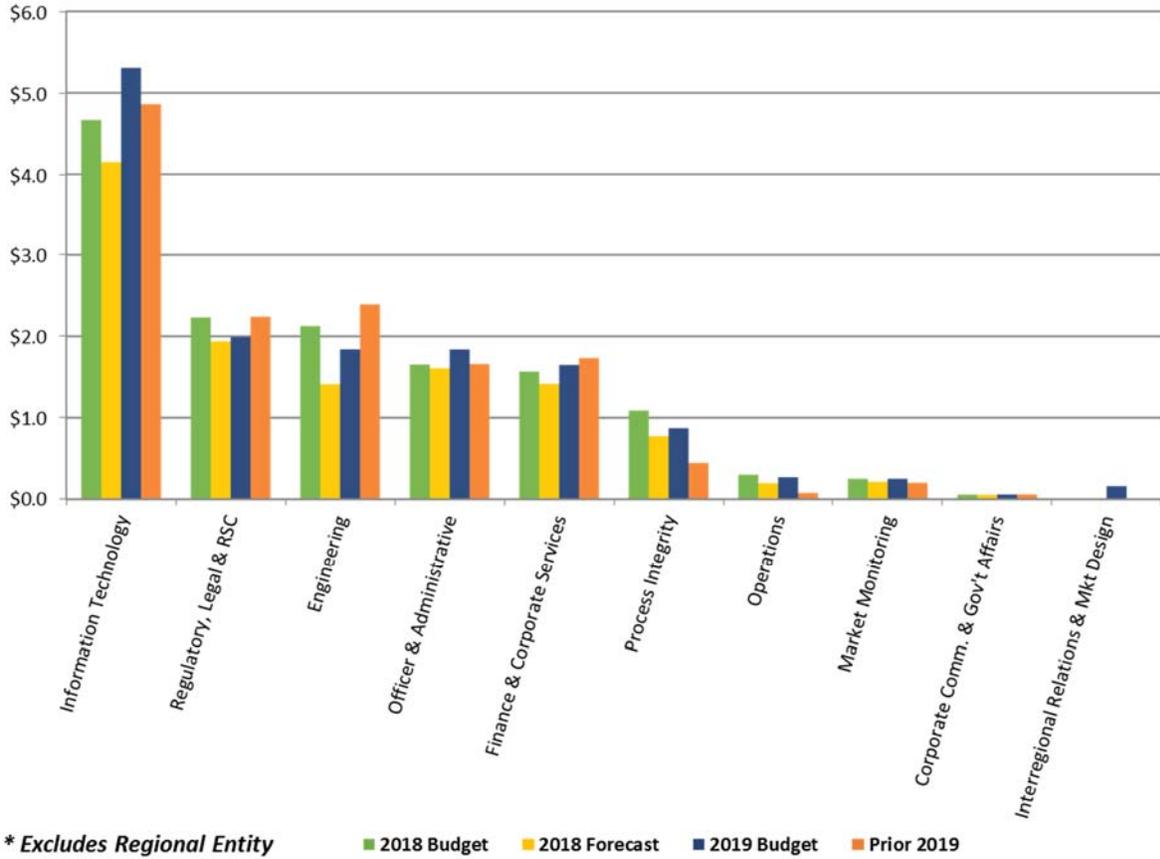
*Outside services and consulting expenses have increased from both the 2018 forecast and prior-year estimates for 2019.*

Outside services consist of third-party expertise to assist SPP in deploying various services. Over 75 percent of the outside services budget is related to IT initiatives, legal counsel, engineering studies and board compensation. IT utilizes outside services for a variety of functions including hosted services, data storage, consulting for key projects and initiatives, etc. Additionally, wind forecasting and interchange distribution calculator (IDC) fees are paid to outside providers in support of reliability coordination functions.

Outside counsel for legal expertise on specific FERC matters allows SPP to leverage the counsel's relationships with FERC staff, while also utilizing their knowledge of RTO-specific matters. The majority of consulting in engineering is for work on generation interconnection studies, which is passed through to study participants and offset by income.

Consulting services related to the RE in 2018 are not included in the following discussion.

### Outside Services and Consulting by Division (\$ millions) \*



## Outside Services and Consulting by Division (\$ millions)

|                                      | <u>2018 Budget</u> | <u>2018 Forecast</u> | <u>2019 Budget</u> | <u>Prior 2019</u> |
|--------------------------------------|--------------------|----------------------|--------------------|-------------------|
| Information Technology               | \$4.7              | \$4.1                | \$5.3              | \$4.9             |
| Regulatory, Legal & RSC              | 2.2                | 1.9                  | 2.0                | 2.2               |
| Engineering                          | 2.1                | 1.4                  | 1.8                | 2.4               |
| Officer & Administrative             | 1.7                | 1.6                  | 1.8                | 1.7               |
| Finance & Corporate Services         | 1.6                | 1.4                  | 1.6                | 1.7               |
| Process Integrity                    | 1.1                | 0.8                  | 0.9                | 0.4               |
| Operations                           | 0.3                | 0.2                  | 0.3                | 0.1               |
| Market Monitoring                    | 0.2                | 0.2                  | 0.2                | 0.2               |
| Corporate Comm. & Gov't Affairs      | 0.1                | 0.1                  | 0.1                | 0.1               |
| Interregional Relations & Mkt Design | 0.0                | 0.0                  | 0.2                | 0.0               |
| <b>RTO Total</b>                     | <b>\$13.9</b>      | <b>\$11.8</b>        | <b>\$14.2</b>      | <b>\$13.7</b>     |
| Regional Entity                      | 0.7                | 0.4                  | 0.0                | 0.0               |
| <b>SPP Consolidated Summary</b>      | <b>\$14.6</b>      | <b>\$12.2</b>        | <b>\$14.2</b>      | <b>\$13.7</b>     |

### Information Technology (IT)

*The largest component of the 2019 outside services budget and the largest increase over the 2018 forecast resides in the IT department.*

| <u>Outside Services and Consulting (\$ millions)</u> | <u>2018 Budget</u> | <u>2018 Forecast</u> | <u>2019 Budget</u> | <u>Prior 2019</u> |
|--|--------------------|----------------------|--------------------|-------------------|
| Information Technology                               | \$4.7              | \$4.1                | \$5.3              | \$4.9             |

Although IT management continually analyzes options and seeks opportunities to leverage existing staff, in many cases the utilization of external entities is more cost-efficient based on the required skillsets or longevity of the project.

The 2019 work plan includes in-progress initiatives that will continue from 2018 as well as new corporate and IT objectives targeted to be implemented in 2019 and beyond.



The primary IT initiatives are centered on security, CIP, automation and infrastructure consolidation activities.

The IT organization uses outside services for a variety of functions including:

- Hosted services (i.e., software-as-a-service) for WebOasis, Webtrans, and other related transmission reservation services
- Data center services for remote data storage

- Wind and weather forecasting services for operations
- Interchange distribution calculator (IDC) association fees
- Consulting for key projects and initiatives
- Staff augmentation for interim resource needs and/or skill requirements
- Data center cabling and wiring services and asset disposal services
- Cybersecurity vulnerability assessments and testing services

| <b>IT Outside Services and Consulting Expense (\$ millions)</b>   |              |
|---|--------------|
| Existing services (ongoing)<br><i>(Hosted services, wind/weather forecasting, IDC, remote data storage, etc.)</i>                                   | \$3.5        |
| New services (ongoing)<br><i>(Vendor security patching, static code analysis, mobile phone security, etc.)</i>                                      | 0.8          |
| Projects (short-term engagements and implementations)<br><i>(IAM, CIP 13 supply chain, automation design, data governance, cloud hosting, etc.)</i> | 0.8          |
| Staff augmentation<br><i>(Settlements, data protection software and storage backup)</i>   | 0.3          |
| <b>2019 Budget</b>  | <b>\$5.3</b> |

The primary IT initiatives are centered on security, CIP, automation and infrastructure consolidation activities. The majority of IT’s outside services and consulting budget relates to existing and new ongoing services that will continue throughout each year. The remainder of the budget is comprised of short-term project engagements and staff augmentation assistance that vary from year to year.

The increase in outside services from the 2018 forecast to the 2019 budget is attributed to 1) new initiatives primarily related to cybersecurity, 2) items deferred from the 2018 budget, and 3) annual price increases.

| <b>Increase in IT Outside Services and Consulting Expense (\$ millions)</b> |              |
|---|--------------|
| New services - ongoing  | \$0.7        |
| Security patch assessments and static code analysis                         |              |
| Mobile phone security   |              |
| Outsource / cloud services – email and data backup                          |              |
| Secondary wind/solar forecasting product                                    |              |
| New short-term projects including deferred projects                         | 0.4          |
| Controls development for cybersecurity and quality control departments      |              |
| Integration consulting for settlements project                              |              |
| Automation and application-architecture consulting                          |              |
| CIP 13 supply chain and vendor risk management consulting                   |              |
| Identity and access management consulting (non-project)                     |              |
| Data governance consulting  |              |
| Splunk & tripwire consulting  |              |
| Year-to-year increases for existing services                                | 0.1          |
| Incident response   |              |
| Cyber risk information sharing program (CRISP)                              |              |
| Weather services  |              |
| Vendor impact assessments   |              |
| <b>2019 Budget increase over 2018 forecast</b>                              | <b>\$1.2</b> |

**Regulatory, Legal and Regional State Committee (RSC)**

Outside legal counsel is employed for various litigation matters throughout the year. These services provide unique legal expertise on specific FERC matters and allows SPP to leverage the counsel’s relationships with FERC staff, while utilizing their knowledge of RTO-specific matters. Expense for outside counsel is expected to remain reasonably consistent year-over-year.

| <b>Outside Services and Consulting (\$ millions)</b> | <b>2018 Budget</b> | <b>2018 Forecast</b> | <b>2019 Budget</b> | <b>Prior 2019</b> |
|--|--------------------|----------------------|--------------------|-------------------|
| Legal  | \$1.9              | \$1.7                | \$1.7              | \$1.9             |
| Regional State Committee                             | 0.3                | 0.2                  | 0.3                | 0.3               |
| Regulatory, Legal & RSC                              | \$2.2              | \$1.9                | \$2.0              | \$2.2             |

The RSC provides collective state regulatory agency input on matters of regional importance related to the development and operation of bulk electric transmission. The budget is created

and submitted to SPP by the RSC each year and includes all costs associated with RSC travel, meetings and consulting.

## Engineering

The engineering organization engages consultants primarily for planning and tariff services processes primarily for 1) engineering studies, 2) support of reliability and economic planning processes during peak periods associated with the Integrated Transmission Planning (ITP) process, and 3) administering the detailed project proposal (DPP) process and transmission project cost estimation related to FERC Order 1000.



The largest component of engineering outside services expense is related to generation interconnection studies, which is offset by income from study participants.

Engineering also engages consultants to assess new approaches and tools to refine performance objectives that align with future planning needs. Additional resources will be required to finalize action plans with stakeholder and regulatory approvals and to implement recommendations to improve the generator interconnection (GI) process.

| Outside Services and Consulting (\$ millions) | 2018 Budget | 2018 Forecast | 2019 Budget | Prior 2019 |
|---|-------------|---------------|-------------|------------|
| Pass-thru studies consulting                  | \$1.4       | \$0.9         | \$1.2       | \$1.4      |
| Transmission planning                         | 0.1         | 0.2           | 0.4         | 0.4        |
| Engineering support (Order 1000/DPP)          | 0.2         | 0.2           | 0.2         | 0.2        |
| Research and development                      | 0.4         | 0.1           | 0.1         | 0.4        |
| Engineering Outside Services and Consulting   | \$2.1       | \$1.4         | \$1.8       | \$2.4      |

Growth of renewable generation in the SPP footprint continues to drive increases in GI study requests. Engineering engages contractors to complete studies when requests exceed SPP staff's capacity and to perform specific stability analysis where currently staff lacks the required skills. Contractor costs associated with studies are passed through to the study participants as part of overall study charges.

Of the \$4.1 million studies revenue, \$1.2 million is for pass-through contractor costs and \$2.9 million is for SPP engineering staff time.

| <b>Net Studies Income/(Expense) (\$ millions)</b> | <b>2018 Budget</b> | <b>2018 Forecast</b> | <b>2019 Budget</b> | <b>Prior 2019</b> |
|---|--------------------|----------------------|--------------------|-------------------|
| Engineering staff time income                     | \$1.6              | \$2.9                | \$2.9              | \$1.6             |
| Pass-thru consulting income                       | 1.4                | 0.9                  | 1.2                | 1.4               |
| Pass-thru consulting expense                      | (1.4)              | (0.9)                | (1.2)              | (1.4)             |
| <b>Net Studies Income/(Expense)</b>               | <b>\$1.6</b>       | <b>\$2.9</b>         | <b>\$2.9</b>       | <b>\$1.6</b>      |

Although engineering staff's growing knowledge and experience in the studies activities has led to increased productivity, three incremental engineering positions were added in 2018 to reduce a continued backlog of study requests. Revenue associated with engineering staff time is expected to be consistent with the activity experienced in 2018.

## Other Outside Services Expenses

The 2019 budget includes outside services and consultants in various other areas including:

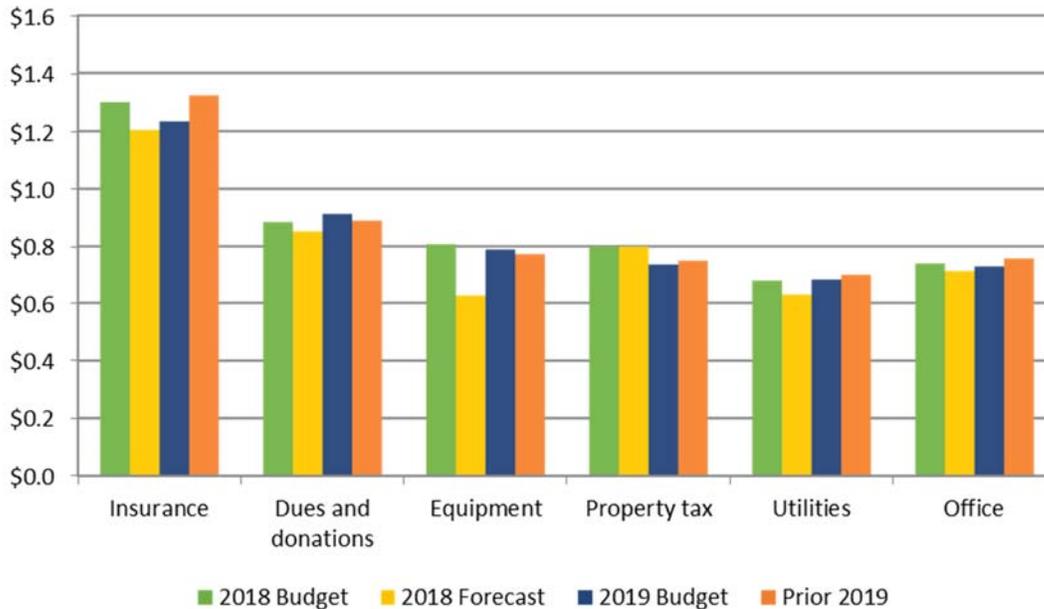
- Officer and Administrative: Board of directors compensation and miscellaneous consulting engagements  
\$1.8 million
- Finance and Corporate Services: Security and employee services and financial audits  
\$1.6 million
- Process Integrity: Compliance and project management staff augmentation [CIP compliance program review, governance risk and compliance (GRC) tool support, project management support] and SOC 1 audit services  
\$0.9 million
- Other Departments: Remaining outside services expense is spread across numerous departments including operations (wind studies); market monitoring (legal counsel and special studies); communications and government affairs (reporting and data services); and interregional relations and market design (interregional planning and market resilience study)  
\$0.8 million

## ADMINISTRATIVE EXPENSES

*Overall administrative expenses are expected to remain relatively consistent with the 2018 budget and forecast.*

Administrative expenses include items such as insurance costs, small equipment purchases, property taxes, professional dues, charitable donations, and utility and office expenses.

## Administrative (\$ millions)



The largest component of the administrative expense is for insurance costs.

| Administrative (\$ millions) | 2018 Budget  | 2018 Forecast | 2019 Budget  | Prior 2019   |
|------------------------------|--------------|---------------|--------------|--------------|
| Insurance                    | \$1.3        | \$1.2         | \$1.2        | \$1.3        |
| Dues and donations           | 0.9          | 0.9           | 0.9          | 0.9          |
| Equipment                    | 0.8          | 0.6           | 0.8          | 0.8          |
| Property tax                 | 0.8          | 0.8           | 0.7          | 0.8          |
| Office                       | 0.7          | 0.7           | 0.7          | 0.8          |
| Utilities                    | 0.7          | 0.6           | 0.7          | 0.7          |
| <b>Total Administrative</b>  | <b>\$5.2</b> | <b>\$4.8</b>  | <b>\$5.1</b> | <b>\$5.2</b> |

### Insurance Expense

SPP’s corporate insurance policies allow for the transfer of certain financial and operational risks from the corporation to third-party insurers. The majority of SPP’s premiums are used to purchase policies to provide additional indemnification related to commercial and director and officer (D&O) liabilities.

Commercial liability policies provide additional indemnification from claims arising from SPP’s administration of its Open Access Transmission Tariff (OATT) and other contractual arrangements. Within this classification is a new policy SPP has obtained which is specific to cyber-related liabilities and events.

D&O liability policies provide additional indemnification to SPP’s independent directors, management and employees from claims arising from certain actions taken in oversight of the corporation. Both commercial and D&O policies include the insurer’s obligation to pay for legal costs for claims made, which could be extensive depending on actual claims made.

| <b>Insurance Expense (\$ millions)</b> | <b><u>2018 Budget</u></b> | <b><u>2018 Forecast</u></b> | <b><u>2019 Budget</u></b> | <b><u>Prior 2019</u></b> |
|--|---------------------------|-----------------------------|---------------------------|--------------------------|
| Commercial excess liability            | \$0.8                     | \$0.8                       | \$0.8                     | \$0.8                    |
| General liability and pension          | 0.4                       | 0.3                         | 0.3                       | 0.4                      |
| Directors & Officers (D&O) liability   | 0.1                       | 0.1                         | 0.1                       | 0.1                      |
| Workers compensation                   | 0.1                       | 0.1                         | 0.1                       | 0.1                      |
| <b>Total</b>                           | <b>\$1.3</b>              | <b>\$1.2</b>                | <b>\$1.2</b>              | <b>\$1.3</b>             |

## Dues and Donations

Dues are budgeted for professional and technical licenses and memberships in professional organizations that are related to employment by SPP, required to maintain professional standing for employees, or otherwise beneficial to SPP.

| <b>Dues &amp; Donations (\$ millions)</b> | <b><u>2018 Budget</u></b> | <b><u>2018 Forecast</u></b> | <b><u>2019 Budget</u></b> | <b><u>Prior 2019</u></b> |
|---|---------------------------|-----------------------------|---------------------------|--------------------------|
| EPRI membership                           | \$0.4                     | \$0.4                       | \$0.4                     | \$0.4                    |
| Engineering R&D university partnerships   | 0.2                       | 0.1                         | 0.2                       | 0.2                      |
| Corporate donations/contributions         | 0.2                       | 0.2                         | 0.2                       | 0.2                      |
| Staff license/memberships                 | 0.1                       | 0.1                         | 0.1                       | 0.1                      |
| <b>Total</b>                              | <b>\$0.9</b>              | <b>\$0.9</b>                | <b>\$0.9</b>              | <b>\$0.9</b>             |

A substantial portion of the dues budget is for Electric Power Research Institute (EPRI) membership (\$0.4 million) which allows access to research related to the electric power industry. SPP’s long-standing relationship and engagement with EPRI enables participation in programs related to grid operations, planning and renewable integration and high voltage direct current (HVDC) ties applications. This agreement includes support for new markets initiatives, new tools to enable additional and more efficient NERC transmission planning compliance activities and operational needs such as tools for system restoration. Engagement by SPP staff at EPRI provides value in terms of development of new tools and analytics such as case studies using SPP data to address ramping needs for wind integration studies.

The remaining costs consist of engineering research and development partnerships with specific universities; SPP corporate donations and contributions; and professional and technical license and memberships for staff.

The engineering organization's involvement with university research and development programs keeps SPP engineers up to date with processes and ideas coming out of respected engineering institutions. These relationships foster collaboration between SPP and regional university programs which in turn attracts talented job candidates.

SPP establishes a budget for community relations and charitable donations to add value in the community and region. SPP believes in serving the community to make it a better place for employees and all citizens to live and work. This belief is a part of the core ideology to "do the right thing, for the right reason, in the right way." The company and its employees take great pride in working with many worthwhile nonprofit organizations to build stronger families and a vibrant community to continue attracting career employees who share SPP's culture.

### **Other Administrative Expenses**

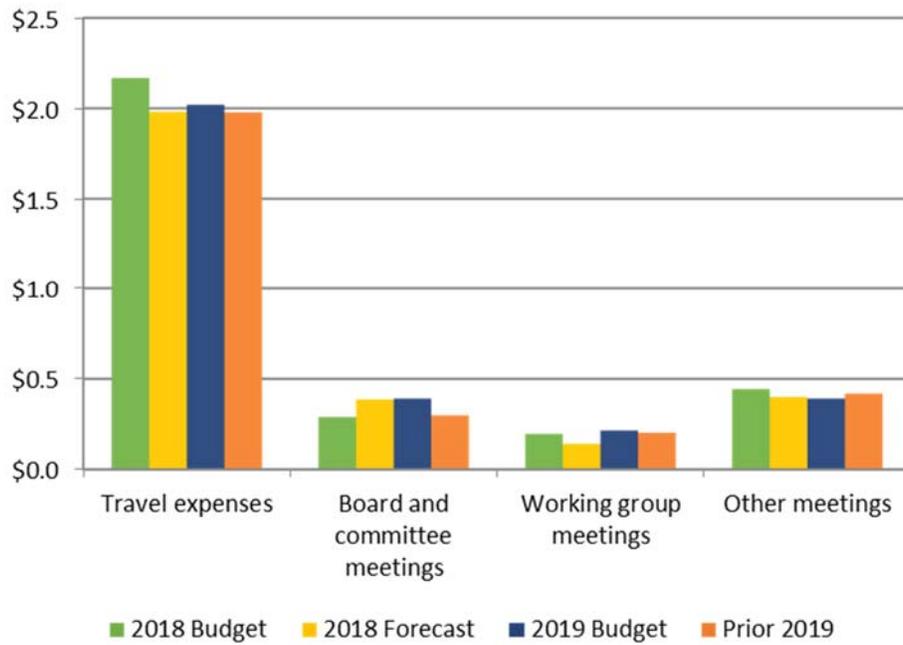
Small equipment purchases, property taxes, utilities and general office expenses make up the remainder of the administrative expenses and remain reasonably consistent year- over- year. Small equipment purchases are items less than \$5,000 in value (expensed rather than capitalized) and include purchases such as personal computers and related equipment, member routers and local area network access points, and fixtures and furniture.

### **TRAVEL AND MEETINGS**

*Travel and meetings expenses in 2019 remain relatively consistent compared to the 2018 forecast and budget.*

SPP continues to encourage the use of corporate or member facilities when planning external meetings to maintain lower travel and meeting expenses. SPP also encourages organizational groups to include Little Rock in the rotation for working group meetings.

## Travel & Meetings (\$ millions)



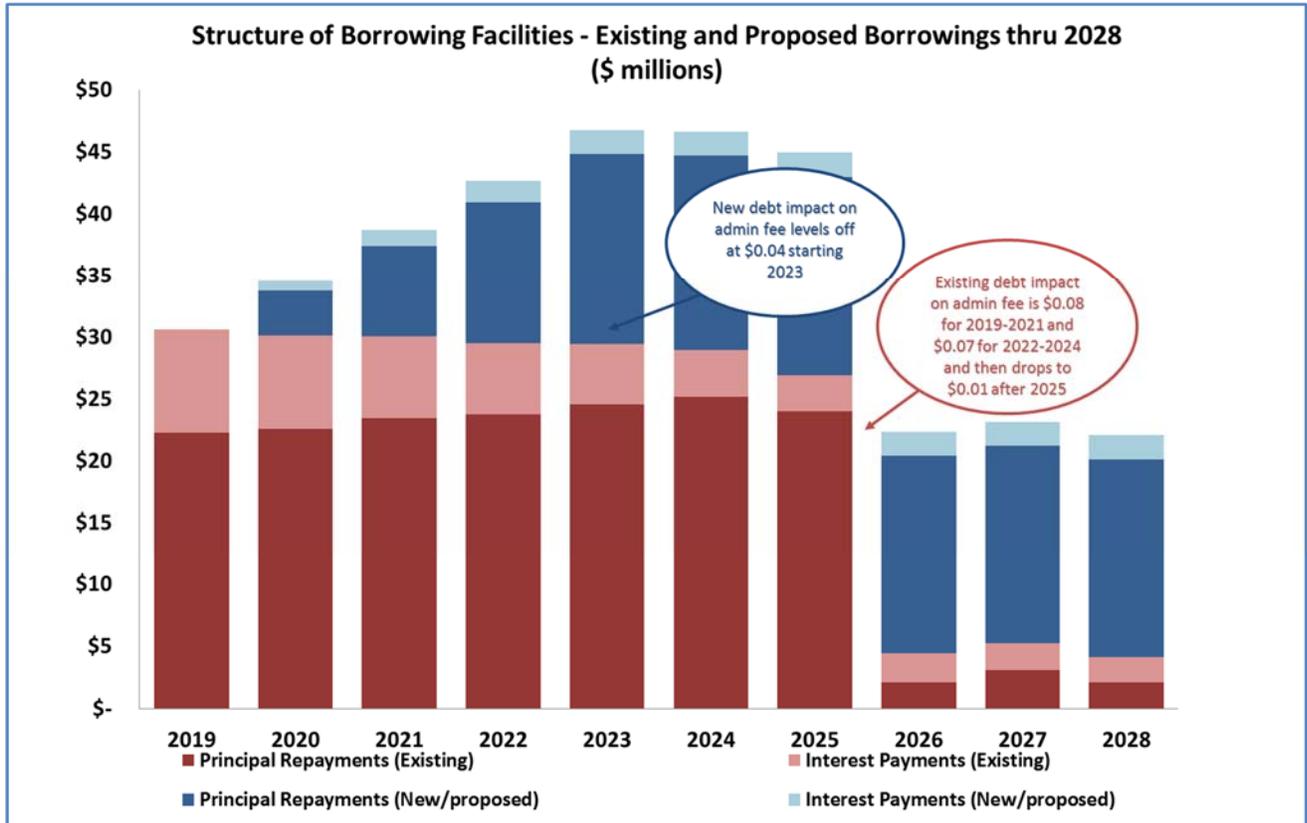
| Travel & Meetings (\$ millions) | <u>2018 Budget</u> | <u>2018 Forecast</u> | <u>2019 Budget</u> | <u>Prior 2019</u> |
|---------------------------------|--------------------|----------------------|--------------------|-------------------|
| Travel expenses                 | \$2.2              | \$2.0                | \$2.0              | \$2.0             |
| Board and committee meetings    | 0.3                | 0.4                  | 0.4                | 0.3               |
| Working group meetings          | 0.2                | 0.1                  | 0.2                | 0.2               |
| Other meetings                  | 0.4                | 0.4                  | 0.4                | 0.4               |
| <b>Total</b>                    | <b>\$3.1</b>       | <b>\$2.9</b>         | <b>\$3.0</b>       | <b>\$2.9</b>      |

## IV. DEBT SERVICE

*SPP's capital spending is financed through borrowings that SPP has historically successfully secured from financial institutions and investors at competitive terms.*

SPP's capital projects are funded from monies borrowed under medium and long-term credit agreements, primarily with institutional investors. SPP generally aims to match the duration of these borrowings to the useful life of assets they are used to acquire. The entire capital project costs are not included in the NRR calculation; though annual principal and interest payments for borrowings (net of capitalized interest) are considered. SPP's outstanding borrowings are projected to equal \$216.4 million as of Jan. 1, 2019, with principal payments of \$24.3 million, \$26.3 million and \$30.8 million in 2019, 2020 and 2021, respectively.

SPP has recently obtained an unsecured five-year \$80.0 million revolving line of credit to fund capital expenditures. SPP anticipates drawing funds from this new facility beginning in 1Q'19. Advances from the credit line will be converted to four-year term notes at the end of each year. The following chart illustrates SPP's principal and interest payment obligations including projected new borrowings through 2028.



The schedule below shows the principal amounts outstanding for each borrowing at the beginning and end of the 2019-2021 budget periods, as well as annual principal payments.

| <b>Future Debt Repayments (\$ millions)</b>      |                    |                     |                 |                         |                         |                         |                         |                           |
|--|--------------------|---------------------|-----------------|-------------------------|-------------------------|-------------------------|-------------------------|---------------------------|
|  | <b>Issue Date</b>  | <b>Issue Amount</b> | <b>Due Date</b> | <b>Balance 1/1/2019</b> | <b>2019 Prin. Pmts.</b> | <b>2020 Prin. Pmts.</b> | <b>2021 Prin. Pmts.</b> | <b>Balance 12/31/2021</b> |
| 5.51% notes due 2027                             | 3/23/2007          | \$5.1               | Feb-2027        | \$2.7                   | (\$0.2)                 | (\$0.2)                 | (\$0.2)                 | \$2.1                     |
| 4.82% construction notes due 2042 (2010A, 2010B) | 10/31 & 12/28/2010 | \$65.0              | Dec-2042        | \$58.3                  | (\$1.3)                 | (\$1.4)                 | (\$1.5)                 | \$54.1                    |
| 3.55% integrated markets notes due 2024 (2010C)  | 3/30/2011          | \$70.0              | Mar-2024        | \$36.8                  | (\$7.0)                 | (\$7.0)                 | (\$7.0)                 | \$15.8                    |
| 3.00% capital funding notes due 2024 (2012D-1)   | 5/30/2012          | \$50.0              | Mar-2024        | \$26.3                  | (\$5.0)                 | (\$5.0)                 | (\$5.0)                 | \$11.3                    |
| 3.25% capital funding notes due 2024 (2012D-2)   | 11/30/2012         | \$50.0              | Sep-2024        | \$28.8                  | (\$5.0)                 | (\$5.0)                 | (\$5.0)                 | \$13.8                    |
| 3.8% capital funding notes due 2025 (2014-E)     | 3/21/2014          | \$37.0              | Dec-2025        | \$37.0                  | \$0.0                   | \$0.0                   | \$0.0                   | \$37.0                    |
| 4.95% senior notes due 2024                      | 3/10/2014          | \$33.0              | Mar-2024        | \$24.8                  | (\$3.8)                 | (\$4.0)                 | (\$4.8)                 | \$12.3                    |
| Capital lease obligation                         | 2/1/2015           | \$6.9               | Nov-2019        | \$2.0                   | (\$2.0)                 | \$0.0                   | \$0.0                   | \$0.0                     |
| New term note due 2023 (for 2019 advances)       | 1/1/2020           | \$14.7              | Dec-2023        | -                       | -                       | (\$3.7)                 | (\$3.7)                 | \$7.4                     |
| New term note due 2024 (for 2020 advances)       | 1/1/2021           | \$14.7              | Dec-2024        | -                       | -                       | -                       | (\$3.7)                 | \$11.0                    |
| <b>Total</b>                                     |                    | <b>\$346.4</b>      |                 | <b>\$216.4</b>          | <b>(\$24.2)</b>         | <b>(\$26.3)</b>         | <b>(\$30.8)</b>         | <b>\$164.6</b>            |

## V. WESTERN INTERCONNECTION RELIABILITY COORDINATION SERVICES

*SPP has agreed to serve as the Reliability Coordinator (RC) for 15 utilities in the Western Interconnection representing approximately 101 TWh of electrical load.*

The agreements stipulate SPP will provide RC services as defined by NERC, and in return, SPP will receive annual payments from the utilities based upon a calculated contractual rate multiplied by each utilities' net energy for load. Customers will make payments prior to each production year, and the agreement will be in force for a minimum of five years.

SPP expects an implementation period of approximately 15 months beginning in the fourth quarter of 2018 with service beginning around January 2020. These services will generate approximately \$5.7 million in annual revenues for an initial term of five years. These annual contract revenues will fund both implementation costs and annual operating and financing expenses.

SPP staff has developed a budgetary estimation of the operating and capital costs required for successful implementation and production of RC services for its contractual commitments.

| (\$ millions)               | <u>2019</u> | <u>2020</u> | <u>2021</u> | <u>2022</u> | <u>2023</u> | <u>2024</u> | <u>Total</u> |
|-----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|
| Contract services revenues  | \$0.0       | \$5.5       | \$5.6       | \$5.7       | \$5.8       | \$5.9       | \$28.4       |
| Incremental expense         | 4.5         | 4.0         | 4.0         | 4.1         | 4.2         | 4.3         | 25.0         |
| Net Income                  | (\$4.5)     | \$1.5       | \$1.5       | \$1.6       | \$1.6       | \$1.6       | \$3.4        |
| Financing of implementation | \$4.5       | (\$1.1)     | (\$1.1)     | (\$1.1)     | (\$1.1)     | \$0.0       | \$0.0        |
| Net cash flows              | \$0.0       | \$0.4       | \$0.4       | \$0.5       | \$0.5       | \$1.6       | \$3.4        |

Costs incurred by SPP during the fifteen-month implementation period will be financed by SPP, and will be recovered by the western utilities over the five-year production period within the annual contract service fees calculation. As a result, there will be no impact to the NRR in 2019. Annual contract revenues and principal payments will begin in 2020 resulting in a favorable impact to the NRR of \$0.4 million in 2020 and 2021.

**2021 Consolidated Net Revenue Requirement  
SPP Including RC Services Contract**

| (\$ millions)                        | 2019 Budget    |              |                | 2020 Budget    |                |                | 2021 Budget    |                |                |
|--------------------------------------|----------------|--------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
|                                      | SPP            | RC           | Total          | SPP            | RC             | Total          | SPP            | RC             | Total          |
| <b>Operating Expenses</b>            |                |              |                |                |                |                |                |                |                |
| Salary & Benefits                    | \$96.1         | \$2.6        | \$98.7         | \$98.9         | \$2.8          | \$101.7        | \$101.2        | \$2.8          | \$104.0        |
| Communications & Maintenance         | 23.1           | 0.5          | 23.6           | 23.8           | 1.0            | 24.8           | 24.8           | 1.0            | 25.8           |
| Outside Services                     | 14.2           | 0.0          | 14.2           | 13.6           | 0.0            | 13.6           | 13.0           | 0.0            | 13.0           |
| Administrative / Interest            | 13.9           | 0.2          | 14.1           | 13.7           | 0.2            | 13.8           | 13.4           | 0.1            | 13.5           |
| Travel & Meetings                    | 3.0            | 0.0          | 3.1            | 3.1            | 0.0            | 3.1            | 3.1            | 0.0            | 3.1            |
| Operating Expenses                   | \$150.4        | \$3.4        | \$153.7        | \$153.1        | \$4.0          | \$157.0        | \$155.5        | \$4.0          | \$159.5        |
| Debt Payments                        | 24.2           |              | 24.2           | 26.3           | 1.1            | 27.4           | 30.8           | 1.1            | 31.9           |
| Capital Expenditure Reserve          | 3.0            |              | 3.0            | 2.9            |                | 2.9            | 3.2            |                | 3.2            |
| <b>Gross Revenue Requirement</b>     | <b>\$177.6</b> | <b>\$3.4</b> | <b>\$180.9</b> | <b>\$182.2</b> | <b>\$5.1</b>   | <b>\$187.3</b> | <b>\$189.5</b> | <b>\$5.2</b>   | <b>\$194.6</b> |
| Less:                                |                |              |                |                |                |                |                |                |                |
| Miscellaneous & Contract Revenues    | (\$6.1)        |              | (\$6.1)        | (\$6.0)        | (\$5.5)        | (\$11.5)       | (\$6.0)        | (\$5.6)        | (\$11.6)       |
| NRR Adjustments                      | (14.1)         |              | (14.1)         | (3.4)          |                | (3.4)          | (3.4)          |                | (3.4)          |
| RC Capital Expenditures              |                | 1.2          | 1.2            |                |                |                |                |                |                |
| RC Borrowings to Fund Implementation |                | (4.5)        | (4.5)          |                |                |                |                |                |                |
| <b>Net Revenue Requirement</b>       | <b>\$157.4</b> | <b>\$0.0</b> | <b>\$157.4</b> | <b>\$172.8</b> | <b>(\$0.4)</b> | <b>\$172.4</b> | <b>\$180.0</b> | <b>(\$0.4)</b> | <b>\$179.6</b> |
| Capital Expenditures                 | \$16.2         | \$1.2        | \$17.4         | \$14.5         | \$0.0          | \$14.5         | \$14.5         | \$0.0          | \$14.5         |
| Debt Service (Principal & Interest)  | \$39.3         | \$0.1        | \$39.4         | \$26.3         | \$1.3          | \$27.6         | \$26.3         | \$1.3          | \$27.5         |
| Headcount                            | 605            | 20           | 625            | 605            | 20             | 625            | 603            | 20             | 623            |

## VI. SUPPLEMENTAL ANALYSIS AND SCHEDULES

### 2018-2019 INCOME STATEMENT COMPARISONS

| (\$ millions)                 | 2018<br>Budget | 2018<br>Forecast | 2019<br>Budget | 2019<br>Prior  |
|-------------------------------|----------------|------------------|----------------|----------------|
| <b>Income</b>                 |                |                  |                |                |
| Tariff Administration Service | \$164.0        | \$164.9          | \$157.5        | \$178.8        |
| Fees & Assessments            | 26.1           | 26.6             | 31.8           | 21.4           |
| Contract Services Revenue     | 0.2            | 0.8              | 0.2            | 0.0            |
| Miscellaneous Income          | 4.0            | 5.2              | 5.2            | 4.0            |
| <b>Total Income</b>           | <b>\$194.2</b> | <b>\$197.6</b>   | <b>\$194.7</b> | <b>\$204.2</b> |
| <b>Expense</b>                |                |                  |                |                |
| Salary & Benefits             | \$96.1         | \$95.4           | \$96.1         | \$101.6        |
| Employee Travel               | 2.2            | 2.0              | 2.0            | 2.0            |
| Administrative                | 5.2            | 4.8              | 5.1            | 5.2            |
| Assessments & Fees            | 20.3           | 21.1             | 23.1           | 20.3           |
| Meetings                      | 0.9            | 0.9              | 1.0            | 0.9            |
| Communications                | 4.5            | 4.0              | 4.5            | 4.6            |
| Maintenance                   | 18.4           | 17.6             | 18.6           | 19.7           |
| Services                      | 14.3           | 12.0             | 13.9           | 13.3           |
| Regional State Committee      | 0.3            | 0.2              | 0.3            | 0.3            |
| Depreciation                  | 19.4           | 18.2             | 19.4           | 22.0           |
| Other Expense                 | 9.3            | 7.4              | 8.9            | 9.0            |
| <b>Total Expense</b>          | <b>\$190.8</b> | <b>\$183.5</b>   | <b>\$193.0</b> | <b>\$198.9</b> |
| <b>Net Income (Loss)</b>      | <b>\$3.5</b>   | <b>\$14.1</b>    | <b>\$1.7</b>   | <b>\$5.3</b>   |
| Debt Repayment                | \$23.4         | \$23.4           | \$24.2         | \$26.6         |
| Net Revenue Requirement       | \$164.0        | \$154.3          | \$157.4        | \$178.8        |
| Capital Expense               | \$17.9         | \$17.7           | \$14.9         | \$16.6         |
| Headcount                     | 609            | 606              | 605            | 610            |

## 2019-2021 INCOME STATEMENT

| (\$ millions)                 | <b>2019</b>    | <b>2020</b>     | <b>2021</b>     |
|-------------------------------|----------------|-----------------|-----------------|
|                               | <u>Budget</u>  | <u>Forecast</u> | <u>Forecast</u> |
| <b>Income</b>                 |                |                 |                 |
| Tariff Administration Service | \$157.5        | \$172.9         | \$180.1         |
| Fees & Assessments            | 31.8           | 24.9            | 26.4            |
| Contract Services Revenue     | 0.2            | 0.2             | 0.2             |
| Miscellaneous Income          | 5.2            | 5.2             | 5.2             |
| <b>Total Income</b>           | <b>\$194.7</b> | <b>\$203.2</b>  | <b>\$211.9</b>  |
| <b>Expense</b>                |                |                 |                 |
| Salary & Benefits             | \$96.1         | \$98.9          | \$101.2         |
| Employee Travel               | 2.0            | 2.0             | 2.0             |
| Administrative                | 5.1            | 4.9             | 5.0             |
| Assessments & Fees            | 23.1           | 24.5            | 26.0            |
| Meetings                      | 1.0            | 1.0             | 1.0             |
| Communications                | 4.5            | 4.7             | 4.8             |
| Maintenance                   | 18.6           | 19.2            | 20.0            |
| Services                      | 13.9           | 13.3            | 12.7            |
| Regional State Committee      | 0.3            | 0.3             | 0.3             |
| Depreciation                  | 19.4           | 19.9            | 17.8            |
| Other Expense                 | 8.9            | 8.8             | 8.5             |
| <b>Total Expense</b>          | <b>\$193.0</b> | <b>\$197.6</b>  | <b>\$199.4</b>  |
| <b>Net Income (Loss)</b>      | <b>\$1.7</b>   | <b>\$5.6</b>    | <b>\$12.5</b>   |
| <br>                          |                |                 |                 |
| Debt Repayment                | \$24.2         | \$26.3          | \$30.8          |
| Net Revenue Requirement       | \$157.4        | \$172.8         | \$180.0         |
| Capital Expense               | \$14.9         | \$14.5          | \$16.2          |
| Headcount                     | 605            | 605             | 603             |

## 2019-2021 CAPITAL PROJECTS LIST

|  | Prior<br>Year(s) | 2019<br>Budget | 2020<br>Forecast | 2021<br>Forecast | Total<br>Capital |
|--|------------------|----------------|------------------|------------------|------------------|
| <b>(\$ millions)</b>                                     |                  |                |                  |                  |                  |
| <b>Reliability Assurance</b>                             |                  |                |                  |                  |                  |
| EMS Upgrade  | \$ -             | \$ -           | \$ -             | \$ 2.8           | \$ 2.8           |
| DTS Upgrade Phase 2B                                     | -                | 0.8            | 1.3              | -                | 2.2              |
| Online SSAT  | -                | -              | -                | 1.2              | 1.2              |
| <b>Total Reliability Assurance</b>                       | <b>\$ -</b>      | <b>\$ 0.8</b>  | <b>\$ 1.3</b>    | <b>\$ 3.9</b>    | <b>\$ 6.1</b>    |
| <b>Enhance Member Value and Affordability</b>            |                  |                |                  |                  |                  |
| Settlement Systems Replacement                           | \$ 5.1           | \$ 0.2         | \$ -             | \$ -             | \$ 5.3           |
| PMO Tool Upgrade/Replacement                             | -                | 0.5            | -                | -                | 0.5              |
| <b>Total Enhance Member Value and Affordability</b>      | <b>\$ 5.1</b>    | <b>\$ 0.7</b>  | <b>\$ -</b>      | <b>\$ -</b>      | <b>\$ 5.8</b>    |
| <b>Enhance and Optimize Interdependent Systems</b>       |                  |                |                  |                  |                  |
| Data Lake Phase 3  | \$ 0.3           | \$ 0.1         | \$ -             | \$ -             | \$ 0.4           |
| FERC Order 841: Electric Storage                         | -                | 0.4            | -                | -                | 0.4              |
| Interface Pricing  | -                | -              | 0.3              | -                | 0.3              |
| Freeze Data Replacement                                  | -                | -              | 0.2              | -                | 0.2              |
| <b>Total Enhance and Optimize Interdependent Systems</b> | <b>\$ 0.3</b>    | <b>\$ 0.5</b>  | <b>\$ 0.5</b>    | <b>\$ -</b>      | <b>\$ 1.3</b>    |
| <b>Total Capital Projects</b>                            | <b>\$ 5.4</b>    | <b>\$ 2.1</b>  | <b>\$ 1.9</b>    | <b>\$ 3.9</b>    | <b>\$ 13.2</b>   |
| <b>Foundation</b>  |                  |                |                  |                  |                  |
| Information Technology                                   |                  | \$ 8.2         | \$ 8.4           | \$ 8.9           | \$ 25.5          |
| Miscellaneous Departments                                |                  | 0.8            | 1.7              | 0.8              | 3.4              |
| <b>IT Total</b>  |                  | <b>\$ 9.0</b>  | <b>\$ 10.1</b>   | <b>\$ 9.7</b>    | <b>\$ 28.9</b>   |
| Operations   |                  | 2.6            | 2.3              | 2.2              | 7.1              |
| Facilities   |                  | 1.0            | 0.3              | 0.3              | 1.6              |
| Settlements  |                  | 0.2            | -                | -                | 0.2              |
| <b>Total Foundation *</b>                                |                  | <b>\$ 12.8</b> | <b>\$ 12.7</b>   | <b>\$ 12.2</b>   | <b>\$ 37.7</b>   |
| <b>Total Capital Budget</b>                              |                  | <b>\$ 5.4</b>  | <b>\$ 14.9</b>   | <b>\$ 16.2</b>   | <b>\$ 50.9</b>   |

**2019 - 2021 Capital Budget**

**\$ 45.6**

\* Foundation projects are reforecast during each budget cycle and do not include any carry-over funds.

# VII. SPP OPERATING PLAN DOCUMENT



# **2019 OPERATING PLAN**

Published September 18, 2018

By the SPP Finance Department

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## BACKGROUND INFORMATION

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### ABOUT SPP

SPP's mission is "Helping our members work together to keep the lights on ... today and in the future." SPP provides services regionally and independently, focusing on reliability and cost effectiveness. SPP is mandated by the Federal Energy Regulatory Commission (FERC) to ensure reliable supplies of power, adequate transmission infrastructure and a competitive wholesale electricity marketplace.

SPP's primary services provided to members and customers include:

- Facilitation
- Reliability coordination
- Tariff administration
- Transmission planning
- Market operations
- Compliance
- Training

### REGULATORY

SPP is directly regulated by FERC. SPP must file changes to the SPP regional tariff with FERC, and FERC must approve changes prior to implementation. SPP's failure to comply with tariff provisions and/or FERC directives must be reported to FERC and may be subject to penalties and fines.

### GOVERNING DOCUMENTS

#### **Open Access Transmission Tariff (OATT or "tariff")**

The SPP tariff defines the majority of the required workload for SPP's operations and engineering departments. Significant duties include, but are not limited to:

- Provide tariff administration services, including scheduling
- Provide ancillary services
- Operate market and balancing authority
- Settle all transactions under the OATT
- Administer credit services for OATT customers
- Complete system impact studies
- Complete annual SPP Transmission Expansion Plan
- Study generation interconnection requests
- Evaluate long-term transmission service requests
- Administer the competitive process for transmission expansion
- Administer the Southwestern Power Administration transmission system beyond their tariff
- Monitor activities in SPP's energy markets and exercise plans to mitigate market power

## **Membership Agreement**

The membership agreement between SPP and each of its members obligates SPP to perform the services outlined above, including those in the OATT. The agreement describes other significant duties including but not limited to:

- Act as the reliability coordinator for the bulk electric system (BES)
- Develop regional reliability plans and emergency procedures
- Review and approve all planned maintenance of the BES
- Coordinate the maintenance of generation units
- Administer an Open Access Same-Time Information System

## **Bylaws**

The bylaws describe SPP's organizational operation, outlining the duties of the board of directors and committees advising the board. SPP has a responsibility to facilitate meetings of every organizational group. The scope of the organizational structure is as follows:

- Board of directors (1)
- Regional State Committee (1)
- Members committee (1)
- Board-level committees (6)
- Working groups (18)
- Task forces, subcommittees, strike teams (35+)

## **Protocols and Business Practices**

SPP has well-documented business practices that detail the administrative practices SPP follows in administering the OATT, including coordinating the sale of transmission service. SPP also has well-documented market protocols that detail how customers and SPP are to interact. These documents are developed through SPP's stakeholder process.

## **ORGANIZATIONAL STRUCTURE**

SPP operates via two distinct organizational structures. The governance structure (see Appendix A), begins with the board of directors and cascades into board-level committees and working groups. This organizational structure is populated largely with representatives from SPP's member companies. Generally, this structure directs the work SPP is expected to accomplish.

The internal staff structure (see Appendix B) illustrates reporting relationships among employees. The staff structure begins with the SPP president and cascades into vice presidents, departmental directors/managers, etc. The staff structure is generally aligned based on functional responsibilities. Staff receives direction from the governance structure and acts on those directives.

## FUNDING

SPP funds its ongoing operating costs through charges to customers under the tariff and customers of specific non-tariff services. SPP's operating costs include scheduled principal and interest payments on its outstanding debt but exclude incurred depreciation and amortization expenses. SPP is able to collect up to 100 percent of its operating costs from charges to transmission customers up to a cap of 43¢/megawatt-hour (MWh). SPP charged customers 42.9¢/MWh for service in 2018.

SPP's capital expenditures are funded with borrowings from periodic debt issuances and with 20 percent equity allocation included in the transmission service charge referenced above. SPP's debt issuances are generally unsecured, have a one-to-two year, interest-only payment period and then fully amortize by the maturity of the notes. SPP is required to obtain regulatory approvals prior to issuing new debt. SPP carries an A rating from Fitch Ratings that was last affirmed in August 2018. SPP issued new notes in August 2018 to fund capital expenditures incurred through 2023.

Short-term liquidity is provided by managing SPP's cash float. SPP has a committed \$30 million revolving credit facility to provide additional liquidity support.

## 2019 EXPECTED BUSINESS ENVIRONMENT

The business environment in which SPP works is constantly changing. Some of the opportunities and challenges affecting SPP are cybersecurity risks, a changing generation mix, electrification impacts, regulatory changes and SPP's expansion to the west.

### Cybersecurity

The threat of cyberattacks continues to be a major risk to the electric utility industry. SPP must remain involved in developing Critical Infrastructure Protection (CIP) standards that are flexible enough to meet security challenges but still allow the provision of reliable and affordable electricity. Evolving threats and emerging technologies surface more quickly than standards can be revised or implemented. To ensure the grid is protected from cyber threats, the industry must continue to prioritize cybersecurity maturity above and beyond that which is required for compliance.

A number of new and modified CIP standards are on the horizon. SPP anticipates FERC will approve CIP-013-1 (supply chain management) by the end of 2018. According to FERC's notice of proposed rulemaking, the implementation plan will be shortened to just one year, increasing the urgency of the effort to develop and implement required plans and procedures. Additional standards that will impact SPP are requirements to protect data communications between control centers and the integration of virtual systems, networks and storage into CIP standards. SPP is waiting on the outcome of a recent FERC-ordered study on interactive remote access and what new controls may be required.

Social engineering, and especially phishing, continues to be a cybersecurity concern. SPP conducts quarterly and annual cybersecurity awareness training and regularly conducts phishing email exercises to test risk awareness.

### Electrification, Energy Efficiency and Demand Response

While many projections show total energy consumption is expected to continue to decline, they anticipate that overall electricity use will increase with technologies such as electric cars and heat pumps. While electrification occurs within the energy sector, it is expected there will be continued

growth in SPP members' demand response and energy efficiency programs. Over time, these changes will likely cause lower summer peaks, higher winter peaks and a flattening of load shapes. Consumers will have more choices about how they use energy and interact with the electric grid. While major changes may not materialize over the next year, SPP is incorporating more of these evolving electricity usage assumptions in its engineering models.

## **Western Markets and Services**

In the western U.S., energy markets and reliability services are undergoing major changes. In 2018 Peak Reliability announced it will wind down by the end of 2019. The Western Electricity Coordinating Council requested that Peak members choose another reliability coordinator. As of September 2018, California ISO (CAISO) and SPP are both seeking to become the reliability coordinator for Peak members. The California state legislature considered a bill that would change CAISO's governance to a regional governance structure, turning CAISO into a multistate regional transmission organization. The bill failed to make it out of committee before the end of the August 2018 session, though there is a chance the governor could call a special session to address the legislation.

SPP continues to talk with entities in the west about joining SPP as members and participating in its markets. In 2018, a group of six utilities selected SPP to administer the Western Interconnection Unscheduled Flow Mitigation Plan, a blueprint for the use of certain controllable devices to mitigate congestion on transmission lines.

## **Changing Generation Mix**

The SPP region is rich in renewable resources, containing the strongest on-shore wind potential and the highest confluence of wind and solar potential in the country. This tremendous growth opportunity makes the SPP region attractive to large industrial customers such as Walmart, which joined SPP in 2018.

Wind is a zero-fuel-cost generation source and plays a major role in keeping electricity prices down and allowing SPP members to provide affordable power. SPP has about 10,000 wind turbines installed that generate almost 20 GW of generation. SPP is studying more than 64 GW of wind to determine what transmission upgrades would be needed to add it to the electric grid. Many potential customers are seeking to interconnect their wind to the grid before eligibility to get production tax credits expires in 2020.

While SPP has reliably managed wind-penetration levels of more than 64 percent, and an average of 26 percent of SPP's load is served by wind, a saturation point will be reached and wind energy will need to be curtailed or exported to other areas. SPP needs to develop economic and cost recovery strategies to use this excess wind and identify upgrades across seams to move wind energy into other markets.

Other types of generation must be available to supply demand when wind generation is not available. Coal still serves as baseload generation, but the use of coal has decreased in the SPP region, and the use of natural gas for quick-start, reliability driven purposes has increased. While there is only a small amount of solar energy installed in SPP, 20 GW of solar energy are in the generation interconnection queue. SPP has 3 GW of battery storage in the queue as well.

## **Regulatory**

FERC directives in 2018 are impacting SPP and will require effort in the next few years. Order 841 requires ISO/RTOs to revise their tariffs to establish market rules that facilitate the participation of electric storage resources in their markets. Order 845 revises interconnection rules for generators larger than 20 MW and will allow interconnection customers to request a level of service lower than its generating capacity — an issue that has become increasingly prevalent with the rise of renewable resources. Energy storage, coupled with renewables, can reduce volatility. SPP is studying what market products are needed long-term to address these changes. The expectations described below largely resemble those in last year's Operating Plan, with attention given to cybersecurity, the proliferation of renewable energy resources and the impact of energy efficiency on load. An exception, though, is found in the regulatory arena, where a new presidential administration and subsequent changes in policy and regulatory and legislative leadership have brought numerous issues into question.

## 2019 OPERATING PLAN BY CATEGORY

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### 2019 SPP OPERATING PLAN ORGANIZATION

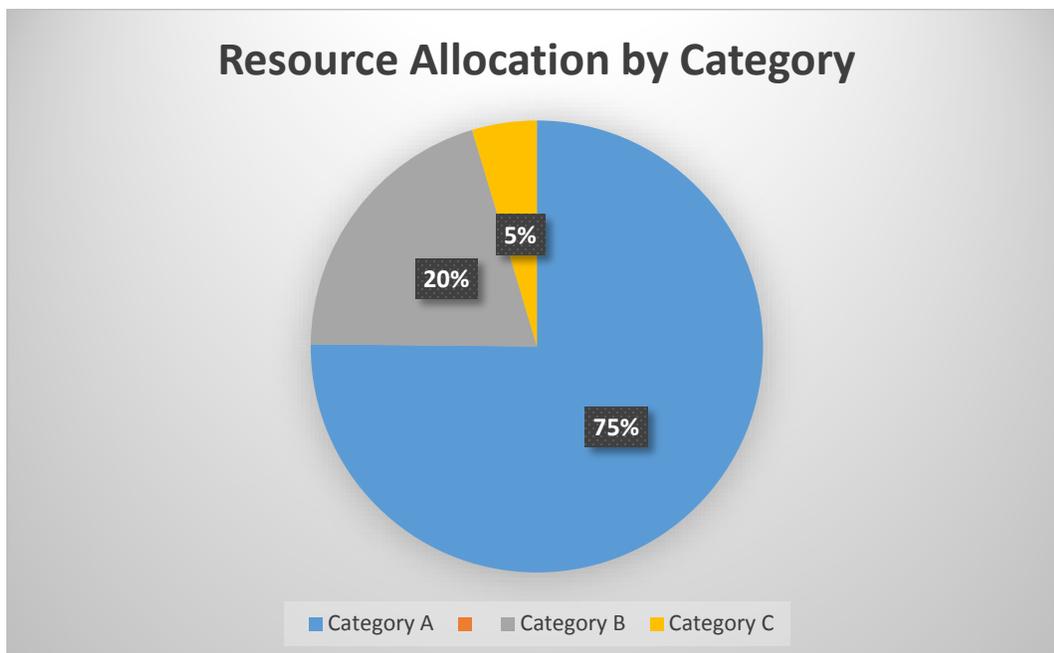
In July 2018, senior SPP staff met with leadership of the Markets and Operations Policy Committee, Strategic Planning Committee and Finance Committee to discuss how to best coordinate and communicate the 2019 Operating Plan. The group determined SPP should organize its operating plan by aligning functional performance, resource allocation and outcomes within three broad categories:

- Category A     Activities SPP is required to do per its tariff, regulatory orders or directives, reliability standards, legal requirements, and sound business requirements. These are mandatory and non-negotiable activities.
- Category B     Activities that are not required by the tariff, regulatory, legal, etc., but were requested by stakeholders or are overseen by a stakeholder group.
- Category C     Activities that do not fall under categories A and B. Generally, these are activities deemed reasonable and prudent by SPP staff/board.

Category A activities are no more or less important than category B and C activities. The items in each category are subject to further development and review by staff, stakeholders and the board. Descriptions of the initiatives are intended to illustrate the scope of the issues, not to dictate the final implementation, approach, or restrict discussion.

This symbol denotes a 2019 SPP initiative: 

The following pie chart illustrates the relative allocation of resources by category. Categories A and B account for 95 percent of SPP’s resource allocation.



## CATEGORY A

Category A activities represent the majority of SPP’s expected effort and resource allocations. Significant among these are:

- Operations functions, encompassing transmission and market tariff administration
- Engineering functions, including long-term transmission planning, transmission service and generation interconnection studies
- Information technology functions, which provide the technical resources and support that make SPP’s systems run

Noteworthy SPP initiatives that are required by legal or regulatory directives include:



### **FERC Order 841: Electric Storage Participation in Markets Operated by ISOs/RTOs**

The order requires each RTO and ISO to revise its tariff to establish market rules that facilitate participation of electric storage resources in RTO/ISO markets. The participation model must:

- Ensure a resource is eligible to provide all capacity, energy and ancillary services of which it is technically capable
- Ensure a resource can be dispatched and set the wholesale market clearing price as both a wholesale seller and wholesale buyer, consistent with existing market rules that govern when a resource can set the wholesale price
- Account for the physical and operational characteristics of electric storage resources through bidding parameters or other means
- Establish a minimum size requirement that does not exceed 100 kilowatts

Each RTO/ISO has to specify that energy must be at the wholesale locational marginal price if it is sold from a market to a storage resource and then resold back to the market.

A high-level timeline for implementing Order 841 is as follows:

|               |   |
|---------------|---|
| October 2018  | Market Working Group recommendation to MOPC and board |
| December 2018 | Compliance filing due to FERC                         |
| December 2019 | Implementation  |



### **Supply Chain Management**

The North American Electric Reliability Corporation (NERC) proposed Critical Infrastructure Protection standard 013-1 (CIP-013-1) in response to FERC Order 829. That order required NERC to develop standards to address supply chain risk management for industrial control system hardware, software, and computing and networking services. In January 2018, FERC proposed to approve the NERC standard. FERC required NERC to include electronic access control and monitoring systems within the standard’s scope and to evaluate risks presented by physical access controls and protected cyber assets as part of a NERC study.

Managing supply chain risk and complying with CIP-013-1 will result in significant additional workload including but not limited to:

- Managing contracts with vendors and negotiating additional terms and conditions
- Evaluating vendors' risk management and security processes
- Adding rigor for evaluating ALL software that is introduced into SPP
- Having tools and running analyses on all hardware prior to installing into an SPP environment
- Developing and administering additional processes and controls related to software and hardware acquisition while collecting appropriate evidence to ensure compliance

### **Integrated Transmission Planning (ITP)**

The SPP Board of Directors and stakeholders approved sweeping changes to the ITP processes in 2017. The first ITP study completed under the new processes began in late 2017 and will complete in 2019. The study process will consume over 28,000 man-hours of labor and require at least 60 stakeholder meetings until it is presented to the SPP board.

### **Resource Adequacy Process**

SPP will implement new tariff provisions that FERC approved in 2018. Foremost among these will be the new enforcement process and the enhanced data collection and monitoring provisions that ensure load responsible entities are planning sufficient resource capacity.

### **CIP Compliance**

SPP will mitigate issues identified in NERC’s mid-2018 audit of SPP’s CIP compliance. SPP expects the final audit report will be issued in late 2018 and will contain several findings of non-compliance. The mitigation effort will include three parallel paths: quick-fix and “low-hanging” items, high-risk items requiring longer-term architectural changes, and root-cause examination and rectification of key processes. This effort will engage the majority of the IT department and potentially require outside consulting.

### **Category A Financial Impact**

| Initiative                   | Expected Financial Impact |         | Required | Required      | Status                                   |
|------------------------------|---------------------------|---------|----------|---------------|--|
|                              | O&M                       | Capital |          |               |  |
| FERC Order 841 - Storage     | \$ -                      | \$ 0.4  | FERC     | FERC Order    | Development, implement by 12/2019        |
| Supply Chain Management      | \$ 0.1                    | \$ -    | NERC     | NERC Standard | Underway                                 |
| Integrated Transmission Plan | \$ -                      | \$ -    | Tariff   | Tariff        | Underway, delivery of 1st report in 2019 |
| Resource Adequacy Process    | \$ -                      | \$ -    | Tariff   | Tariff        | Underway                                 |
| CIP 5 Audit Mitigation       | \$ -                      | \$ -    | NERC     | NERC Standard | Underway                                 |

## CATEGORY B

Activities in this category represent work that is directly tied to the SPP stakeholder process. Generally, a stakeholder group will decide on these activities or will oversee the work.

### Human Resources Committee



#### Compensation Survey

The committee is studying SPP’s retirement plan structure to determine if an alternative structure exists that could provide a similar level of benefit yet be more affordable long term. The committee has engaged Mercer, the world’s largest human resources consultant, to identify and analyze opportunities.

The committee has commissioned a third-party vendor to conduct a salary survey to ensure SPP’s salary structure and job slotting within the structure are at the 50th percentile of its peer group.

### Markets and Operations Policy Committee (MOPC)



#### Revision Requests & Enhancements

The MOPC is evaluating alternatives to SPP’s current cost recovery methodology. The committee expects to deliver a recommendation to the SPP board of directors in early 2019 with implementation anticipated in mid-2020.

The MOPC is charged with reviewing and approving revisions to SPP’s Integrated Marketplace. As of July 2018, the committee had approved eight revision requests that would require approximately \$1.6 million in capital investment. The table below illustrates the scope of these revisions.

| RR Number | Title  | Estimated Cost | MWG Review | MWG Action | Estimated Implementation Date |
|-----------|--|----------------|------------|------------|-------------------------------|
| 116       | Quick-Start Real-Time Commitment                                       | \$200,000      | 9/15/2015  | Approved   | TBD                           |
| 210       | Contingency Reserve Deployment Tests                                   | \$100,000      | 4/17/2017  | Approved   | Q2 2019                       |
| 231       | Mitigation of Locally Committed Resources                              | \$235,480      | 8/22/2017  | Approved   | Q4 2018                       |
| 245       | Mitigated Start-Up and No-Load Offer Maintenance Cost                  | \$101,200      | 10/24/2017 | Approved   | Q1 2019                       |
| 252       | OOME Enhancement   | \$168,176      | 11/14/2017 | Approved   | Q2 2019                       |
| 253       | DVER Regulation Enhancement  | \$146,800      | 11/14/2017 | Approved   | Q1 2019                       |
| 266       | JOU Combined Single Resource Modeling post Settlement Share Allocation | \$389,290      | 12/11/2017 | Approved   | Q2 2019                       |
| 306       | Multi-Day Minimum Run Time   | \$267,448      | 6/12/2018  | Approved   | Q4 2019                       |

Seven other revision requests representing \$0.6 million in financial impacts are working through the stakeholder process. Active in the stakeholder process are another 52 revision requests that do not require financial resources to be implemented. Annually, SPP receives 60-70 revision requests for evaluation and action.

## Oversight Committee



### **Business Continuity**

The Oversight Committee is driving meaningful improvements to SPP's emergency management and business continuity processes. Transactions settled under the tariff have grown, significantly outpacing the maturity of SPP's business continuity processes. Under the committee's oversight, SPP is undertaking deliberate steps to ensure its business continuity plans are well documented, coordinated and tested. This process will accelerate in 2019 and continue into 2020 to get SPP to the minimum maturity level identified by the committee.

## Board of Directors

The board is refocusing on SPP's strategic direction. Board discussions have tended to address more tactical and technical issues and have not been as deliberate when looking at strategic issues.



### **Holistic Integrated Tariff Team (HITT)**

The SPP board of directors created the HITT in March 2018. The team is expected to deliver recommendations for improvement to the board in April 2019. The recommendations are expected to address issues such as:

- Changes to SPP's transmission planning and study processes, including but not limited to: generation interconnections; the generation interconnection queue; aggregate studies; energy resource interconnection service; network resource interconnection service; capacity requirements, including more attributes than energy; and related FERC planning requirements.
- Transmission cost-allocation issues, including but not limited to: highway/byway, directly assigned costs, attachment Z2 credits, cost-allocation impacts on transmission pricing zones with large wind resources, and state-by-state supply resource mix requirements and/or goals.
- Integrated Marketplace impacts related to: a changing resource mix, access to lower cost generation, potential changes in production tax credits, approach of using market-based compensation for varying attributes of different types of generators, etc.
- Disconnects or potential synergies between transmission planning and real-time reliability and economic operations.

Due to the uncertainty of the expected HITT recommendations, this operating plan does not contain any specific activities or resource allocation to address HITT's initiatives.



### **Generation Interconnection (GI) Process:**

SPP will submit to the board proposed tariff language to implement GI process improvements that were recommended by the GI Improvement Task Force and approved by the MOPC. Significant improvements are the elimination of the single source study process, which does not contribute significant benefit, and the establishment of a three-stage process with escalating levels of financial commitment from study participants. Once approved by the board, SPP will make a FERC filing seeking approval to implement these changes.

## Markets and Operations Policy Committee and Working Groups



### **Ramp Product**

Members requested a market-based ramp management approach that leverages operational experience to manage variances associated with system net obligation and the intermittency of variable energy resources. It will allow the market to value resource flexibility through a product that indicates the value to build resources that are capable of offering such product to the market.

A ramping product allows two processes SPP does not currently use in its reliability-based economic approach. The first is a systematic way to “hold back” resources that have available ramp capability for situations when it is needed. This is particularly useful in ramping events in which cheap, fast-moving generation has been dispatched to the maximum, leaving only slower-moving generation online to manage the ramp. The second is the calculation and systematic procurement of ramping capability that accounts for the potential error in load and renewable energy forecasts. The procured excess ramping capability would be insurance against issues that occur when SPP under-forecasts ramping capability. This new process will increase grid security and allow for fewer pricing excursions. SPP would be able to transparently price these megawatts, provide an opportunity for market participants to compete to provide this product, and have assurance when studying additional generation additions into the footprint.



### **Multi-Day Economic Commitment**

This is a member-requested enhancement. The first phase, which SPP staff supports, is providing a generation commitment forecast to the market participants that are responsible for those generation assets. Market participants will benefit by having more information on whether SPP will commit those assets, allowing them to reduce risk, possibly make better offers, procure fuel, etc. The second phase, which SPP staff does not support, would be a multi-day clearing, similar to a day-ahead of the day-ahead market. Staff’s initial assessment is that the effort to perform multi-day clearing would outweigh the perceived benefits.



### **R-COMM**

Members have been asking staff to develop R-COMM since 2015. The tool provides a robust forum for the reliability coordinator to communicate with transmission operators and balancing areas about issues that are not appropriate for email or phone calls. This new tool’s automation will improve operator efficiency and reduce the risk of human error. Operators will no longer need to make phone calls during load-shed events, flowgate activation and deactivation, or other situations.



### **Primary Frequency Response (PFR) & System Inertia**

These are ancillary services required to maintain reliability while operating an alternating current grid. SPP is participating with other ISOs/RTOs and NERC to decide if Eastern Interconnection grid operators need to provide or require this service. The effort to determine SPP’s PFR and System Inertia requirements is the primary scope of the PFR Task Force, which reports to SPP’s Operating Reliability Working Group. The group’s first goal is to identify the ongoing requirement of this service for SPP’s footprint. The second goal is to determine if SPP should develop tariff requirements for generation to provide the services, or if SPP should create a market in which capable generation can offer the service for payment.



**De-commitment**

This is a member-requested enhancement. SPP believes there are time periods that have too many long-lead (base) resources online. During these times, the energy price may be lower if SPP could turn these resources off (de-commitment). This is a very complex issue to resolve, as it involves more than merely assessing the resources’ cost for that time period and shutting it off. SPP would need to understand what day-ahead positions the resource has. SPP would also need a robust, trusted, time-coupled solution to prove that de-committing the resource is more economic and does not introduce reliability risk. The Market Working Group is exploring these issues.



**Generation Retirement**

Fossil-fueled generation retirements are increasing each year. SPP needs a single process for member-driven retirements that quickly assess the impacts and, before any new or planned upgrades, maintains the resource via tariff and market constructs. The Transmission Working Group and Operating Reliability Working Group are studying this issue.

**Category B Financial Impact**

| Initiative                            | Expected Financial Impact |         | New Staff | Org Group | Status                                   |
|---------------------------------------|---------------------------|---------|-----------|-----------|--|
|                                       | O&M                       | Capital |           |           |  |
| Compensation Survey                   | \$ 0.2                    | \$ -    | -         | HRC       | Not started                              |
| Revision Requests & Enhancements      | \$ -                      | \$ 2.0  | -         | MOPC      | Ongoing                                  |
| Business Continuity                   | \$ 0.1                    | \$ -    | 1         | OC        | Not started                              |
| Holistic Integrated Transmission Team | \$ -                      | \$ -    | -         | BOD       | Study phase, in stakeholder group        |
| GI Process Changes                    | \$ -                      | \$ -    | -         | BOD       | Underway                                 |
| Ramp Product                          | \$ -                      | \$ -    | -         | MWG       | Study phase, in stakeholder group        |
| Multi-day Economic Commitment         | \$ -                      | \$ -    | -         | MWG       | Study phase, in stakeholder group        |
| Reliability Communications Tool       | \$ -                      | \$ -    | -         | ORWG      | Internal development, implement in 1Q'19 |
| Primary Frequency Response            | \$ -                      | \$ -    | -         | ORWG      | Study phase, in stakeholder group        |
| De-Commitment                         | \$ -                      | \$ -    | -         | ORWG      | Study phase, in stakeholder group        |
| Generation Retirement                 | \$ -                      | \$ -    | -         | TWG/ORWG  | Study phase, in stakeholder group        |

## CATEGORY C

Category C resources are deployed based on management and board decisions. Tasks in this category are deemed worthwhile for SPP's success, though they may lack a direct tie to a stakeholder group and/or operational aspect.

### Process Integrity



#### **PMO Tool Replacement**

The project management office (PMO) is engaged with small teams of SPP directors to develop processes and procedures that streamline:

- Project pipeline
- Project management life cycle
- Portfolio management
- Program management
- Deferred asset tracking (time tracking)
- Resource forecasting and management
- Budget cycle management

The teams will evaluate and select the best solution that provides current functionality and adds new functionality to enable greater efficiencies in managing the SPP project pipeline and budget processes.

SPP uses Microsoft Project Web Access (PWA) to plan, manage and track enterprise projects. It also serves as a resource management system for engineering's billing process. PWA is nearing the end of Microsoft support. To streamline project submission/review and develop a functional pipeline for all capitalized projects, it is essential to upgrade or replace the project management system. The replacement must meet the business needs for budget, program and portfolio/pipeline management processes. A system replacement or upgrade is needed to give the PMO the ability to:

- Create displays and dashboards for various audiences including internal and external stakeholders, the Finance Committee, the project review and prioritization committee and the stakeholder prioritization quarterly meeting.
- Easily and accurately track time reporting and metrics, resource forecasting and planning, and time against project tasks related to deferred assets.
- Support and maintain the existing system, which is relegated to one PMO technician who supports the application for the PMO and the engineering planning department. Engineering planning has integrated a custom database that enables their billing process.

## Operations

### Enhanced Reliability Capabilities

SPP must maintain reliability excellence to operate the bulk electric system's changing landscape. During the previous seven years, coal moved from 63 percent serving SPP load to 46 percent, while wind moved from 6 percent to 23 percent serving SPP load. The generation interconnection queue consists of about 65 GW wind, 20 GW solar, 3 GW batteries, and a gas plant.

Large transfers of variable fueled energy have increased across the SPP footprint. Wind farms are often located where load is not, and the region is experiencing retirements of traditional fossil generation that is close to load centers. Fuel-mix dispatch changes and new generation technologies are creating operational issues that have traditionally not manifested in real-time, such as voltage and transient instability.

To maintain reliability excellence, operational efforts will be focused on these initiatives:

 **Voltage security assessment tool (VSAT)** allows the SPP reliability coordinator function to perform studies and provide warnings to the reliability coordinator and transmission operator that potential voltage instabilities may exist in real-time or up to four hours out. These warnings allow operators to take action that could mitigate a potential voltage collapse. This tool recently moved into production for real-time and look-ahead modes (four hours out). The VSAT tool provides enhanced visibility and reliability by mitigating voltage collapses before they occur.

 **Transient security assessment tool (TSAT)** allows the SPP reliability coordinator function to perform stability studies to determine the transient response on simulated faults. Operators are not able to detect this with current tools. The TSAT tool is scheduled to be placed into production the first quarter of 2019. The TSAT tool's primary benefit is enhanced visibility and reliability by preventing or reducing occurrences of adverse transient responses to resource trips.

 **Phasor measurement units (PMU)** provide more accurate information by receiving high-frequency sampled data and using phasor and frequency estimation algorithms to calculate the voltage magnitude, phase angle and frequency of voltage signals. PMU benefits include more robust model accuracy verification and post-event analysis. A real-time benefit is the ability to feed the measurements into existing operations tools for more accurate situational awareness. The PMU tool will reduce potential risk to load by providing more accurate study results. Generators will benefit when the tool identifies sources of oscillations to prevent equipment damage and reduce unit trips. Additional benefits come from identifying issues that are not visible with traditional SCADA (supervisory control and data acquisition) real-time measurements.

### Expand and Improve Market Functionality

In the four years since the inception of the SPP Integrated Marketplace, SPP's operational challenges have become increasingly complex and could be difficult to manage without market enhancements. SPP's geographic location, vast footprint and diverse fuel mix makes its situation unique as compared to other RTOs/ISOs.

SPP's previous focus on transmission expansion was successful in unlocking generation that otherwise might not have been built or would have been limited due to lack of transmission. The majority of this

unlocked generation has been renewable, specifically wind and solar. With the vast amount of variable energy resources online and being interconnected, SPP must constantly assess what we do not know and mitigate forecasted problems. SPP is managing real-time challenges and expecting new challenges that could potentially put reliability and resiliency at risk.

Two major new studies focused on reliability have helped justify speeding up transmission builds (now complete) and the need to run online voltage and transient stability software in real-time (some of this work is completed and some is in progress). While these targeted studies have led to greatly needed insights, SPP has not recently surveyed the whole grid landscape from a combined reliability and economic perspective. The grid is facing many complex issues such as generation retirements, the addition of renewables, short-term capacity needs, energy storage, and generator profitability. SPP needs a more holistic study of the current situation. Actions targeted for 2019:



### **2019 SPP Market and Reliability Study for Renewable Resource Resiliency and a Long-Term Committable Market Study (RRIMS)**

The RRIMS is a coordinated and comprehensive study to evaluate what the SPP footprint needs from a reliability perspective and what market products would best fulfill those needs. This study will help drive the design of a longer-term committable market, a flexibility product or portion of ramp product, and 30-minute/one-hour/two-hour/three-hour/four-hour products.

This initiative will study operational and market needs that may be met with near-term market design changes (less than five years from 2019). As of September 2018, the MOPC, HITT, Economic Studies Working Group, Market Working Group, Operating Reliability Working Group, Transmission Working Group and Supply Adequacy Working Group have been or will be involved in scoping the study. The study is expected to last about six months and deliverables will identify applicable market product recommendations with costs and benefits.

### **Addressing short-term capacity needs**

In the past two years, unique and unforeseen issues have occurred that require additional attention and effort, such as the day-ahead market's choice to run short-lead resources and the loss of SPP's ability to mitigate variances in wind/load. The RRIMS study supports the effort to address short-term capacity needs and will lead to a robust market solution. The goal is to address reliability needs now via operational procedures, quick enhancements to determine uncertainty via in-house tools, and commitment of more long-lead resources in the multi-day reliability assessment process.



**Dispatcher Training Simulator (DTS) phase 2B:** The current DTS does not allow for production-like training, due to the lack of an integrated market system. The DTS does not meet SPP operators' needs related to the balancing authority, reliability unit commitment, and real-time balancing market functions. Since the implementation of the Integrated Marketplace and consolidated balancing authority, market systems have become almost as critical to reliability and balancing as the energy management system. Realistic simulation training using market systems is imperative to SPP operator readiness and increased reliability.

In 2016, SPP launched a multiyear project to upgrade SPP's DTS. Implementing phase 2B will require market simulator enhancements from GE to create a full training and testing simulated environment (TTSE) that performs more closely to real-time production systems. In February 2018, GE provided an updated budget for performing this work. In March 2018, SPP's North American Transmission Forum Peer Review reaffirmed that SPP, as an RTO operating a market, needs to have a TTSE. Reviewers

compared SPP's current simulation tools to using a Cessna to train 747 pilots. SPP is the only ISO/RTO in the United States without a full market simulator.

## Information Technology



### **Critical Infrastructure Protection Standards (CIP) and Security**

Numerous activities are underway and continue into 2019 to enhance overall security and address requirements under NERC's CIP standards. SPP plans to implement:

- A software solution known as "Application Whitelisting" that only permits pre-identified authorized programs to be accessed and/or executed. Essentially, whitelisting flips the traditional antivirus model from a "default allow" to a "default deny" approach for all executable files, which is considerably more effective and secure. This solution should be deployed to key systems supporting bulk electric system operation by the end of 2019.
- "User behavior analytics" that uses machine learning combined with user behavior patterns to detect insider threats and cyberattacks. This functionality will further mature SPP's cybersecurity position.
- Several new functions within its existing product sets to improve SPP's cyber posture. SPP will implement "static code analysis" on vendor application code to identify potential vulnerabilities before it is put into production. The static code effort will require external vendor assistance for vendor-owned applications. Internal SPP resources will scan programs for which SPP has access to the source code.



### **Increase Operational Efficiency**

IT continues to receive an expanding volume of requests and requisite work. This work brings greater awareness and identification of inefficient and manual processes ripe for improvement and automation. Areas of focus include patch management, server provisioning and application testing. In each of these areas, IT staff spends significant time performing manual processes to build, track, replicate and verify information.

- As part of SPP's overall focus on continuous improvement, the IT department will lead an effort to identify and prioritize existing manual processes that consume staff resources and would benefit from new, streamlined processes. In particular, IT will focus on high-touch, repeatable administrative activities that carry a high risk of manual errors, such as ongoing CIP processes and server/application patching processes.
- Another goal is to identify and prioritize opportunities for automation, develop a clearinghouse for automation activities, determine the cost/benefit of automation proposals and develop a holistic implementation plan. The automation framework has been established, and seven automation initiatives are in the queue for 2019.
- SPP has an extensive software portfolio with many tools that provide similar functionality in the areas of source code versioning, issue tracking, application build processes and information sharing. The disparate toolsets result in higher licensing, support and maintenance costs, as well as non-standard processes and potential lack of integration. IT plans to standardize on a single, common platform to reduce the SPP software stack and associated costs.



### **Evaluate and Leverage Emerging Technologies**

IT continues to evaluate and appropriately implement new technologies that increase functionality and/or optimize current functionality. The IT landscape is in a continual state of change. Vendors are rapidly offering products that have new functionality and potential economic benefits. The IT department thinks it is prudent to maintain awareness of evolving technologies and integrate them in alignment with SPP’s strategic initiative of enhancing member value and affordability.

For the vast majority of business applications, IT utilizes “on premise” infrastructure to run application systems and store critical business data. While there are many advantages to this approach, there are potentially less-critical systems and data that may be eligible to be implemented in an off-site “cloud” environment. Cloud storage could reduce IT infrastructure, costs, and ongoing support and management resources. During 2019, the team will evaluate cloud opportunities, develop a cloud strategy and position based on security and compliance guidelines and requirements, and evaluate potential targets that could be more favorably and securely implemented in a cloud environment.

The amount of data to support end-user requirements has increased dramatically over recent years, leading to an associated increase in SPP’s investment in storage technology. This data must be highly available to end-users, perform satisfactorily, and be backed up to secondary and/or offsite locations as appropriate. In many cases, SPP applications must have duplicate data in multiple environments (test/development/member testing environment/quality assurance/production) that may necessitate various short-term or permanent retention periods, all of which require oversight for efficient allocation and removal of storage consumption.

In recent years, IT has attempted to implement a “fit for purpose” approach, whereby the most cost-effective storage solution is aligned with user/application requirements. During 2019, the team will continue with that approach and further develop a data-governance strategy to ensure the allocation, control, and deletion of data is in accordance with SPP retention policies and/or end-user requirements. The 2019 focus will be on initial development of a unified data governance program that will ultimately eliminate unnecessary data and improve data life-cycle management.



### **Asset Replacement**

The IT department plays a significant role in SPP’s ability to keep the lights on. Nearly every system and tool SPP uses to perform its tariff and reliability functions requires technology to make it happen.

Physical technology assets (servers, storage devices, networking equipment) comprise approximately \$35-\$40 million of capital inventory. Importantly, these physical assets must be replaced on a periodic basis due to: exposure to increased hardware failure rates, discontinued or unaffordable vendor support, operating system incompatibility, and the need for faster application performance and connectivity requirements.

A tremendous volume of resources are devoted to the daily care and upkeep of physical technology assets and software assets. In addition to asset setup and installation, staff must manage a continuous stream of patches and updates across all of the installed hardware and software. SPP processes over 1,700 patch sources annually, resulting in approximately 1,000 patches being applied on its critical cyber assets. NERC standards require these patches to be assessed within 35 days of release and installed within 35 days of completing the assessment.

## Settlements



### Settlements System Replacement

The multiyear project to replace and upgrade SPP’s settlements system is slated to move into production in May 2019. The system will expand automation of manual processes to enhance accuracy, timeliness and auditability of settlements results. The system was architected to facilitate in-house changes in response to requirements needed to implement approved revision requests. SPP owns the code to the system and will maintain and upgrade the system using dedicated in-house IT resources. Annual expenses to operate the system are anticipated to be approximately \$1.4 million less than the prior system, primarily due to elimination of a third-party maintenance agreement.

\$5.3 million in capital investment was budgeted for the replacement system. This project is progressing on time and on budget.

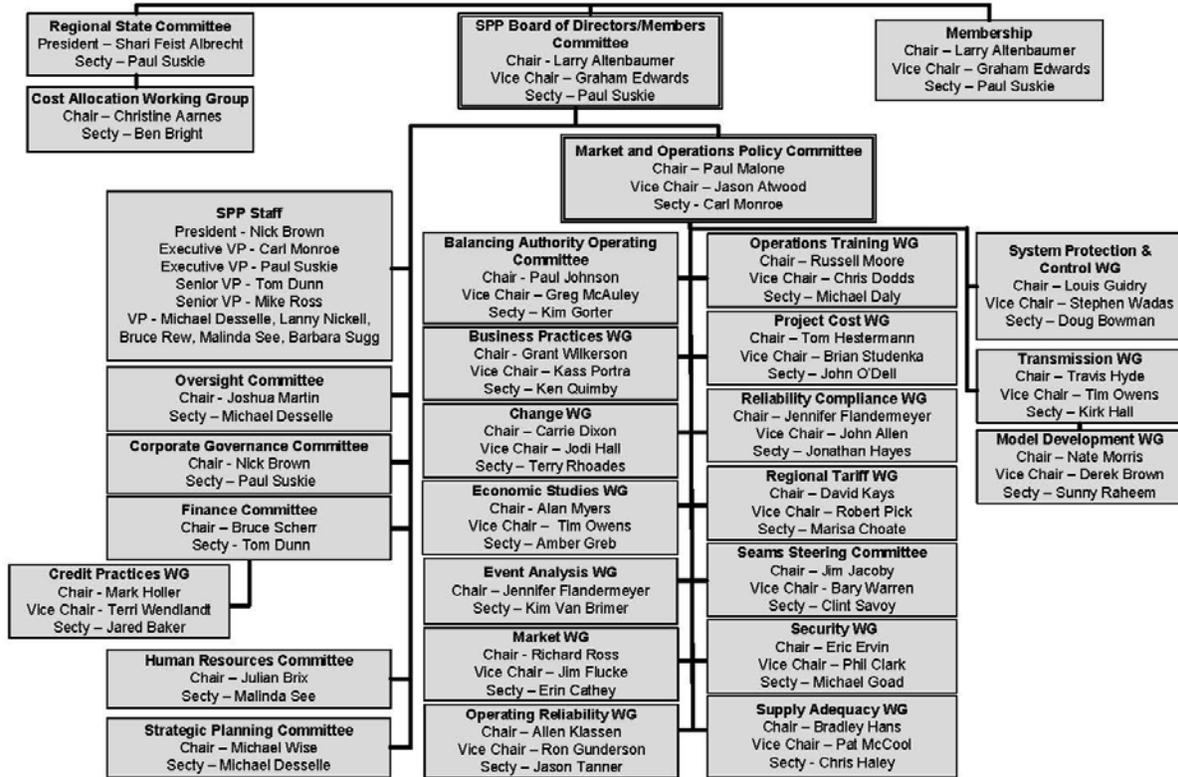
## Category C Financial Impact

| Initiative                         | Expected Financial Impact |         | New Staff | Status                                    |
|------------------------------------|---------------------------|---------|-----------|---|
|                                    | O&M                       | Capital |           |   |
| Dispatcher Training Simulator      | \$ 0.1                    | \$ 2.2  | -         | Not yet approved                          |
| PMO Tool Replacement               | \$ -                      | \$ 0.5  | -         | Researching options                       |
| Voltage Security Assessment Tool   | \$ -                      | \$ 1.0  | -         | In production, new functionality in 2019  |
| Transient Security Assessment Tool | \$ -                      | \$ 0.8  | -         | Under construction, deliver in 2Q'19      |
| PMU                                | \$ 0.2                    | \$ -    | -         | In place, working on data security issues |
| RRIMS                              | \$ 0.3                    | \$ -    | -         | Not yet started                           |
| CIP and Security Issues            | \$ 0.7                    | \$ 0.5  | -         |   |
| Increase IT Efficiency             | \$ 0.3                    | \$ 0.1  | -         |   |
| Emerging Technology Application    | \$ 0.1                    | \$ 0.3  | -         | Study and develop framework               |
| Asset Replacement                  | \$ -                      | \$ 8.0  | -         | Ongoing                                   |
| Settlements System                 | \$ (1.4)                  | \$ 5.3  | -         | Under construction, deliver in 2Q'19      |

# APPENDIX A



## Group Organizational Chart



Updated 9/14/18

# APPENDIX B



**SPP Organizational Chart  
Officers with detailed headcount  
Full Headcount 607**

