



Southwest Power Pool
FINANCE COMMITTEE MEETING

July 15, 2019

Des Moines, IA

• M I N U T E S •

Administrative Items

Chair Bruce Scherr called the meeting to order at 8:00 a.m., a quorum was present. The following individuals participated in the meeting.

Bruce Scherr	SPP Director
Susan Certoma (phone)	SPP Director
Sarah Stafford (phone)	Oklahoma Gas & Electric
Laura Kapustka (phone)	Lincoln Electric
Mike Wise	Golden Spread Electric Cooperative
Sandra Bennett	American Electric Power
Tom Dunn	SPP
Others attending included:	
Denise Buffington	Evergy
Jim Jacoby	American Electric Power
John Olson	Evergy
Bill Grant	SPS
Dennis Florum	Lincoln Electric
Tom Kent	NPPD
Rob Janssen	Dogwood Energy
Tom Christensen	Basin Electric
Traci Bender	NPPD
Les Evans	KEPCo
Harry Skilton	SPP Director
Jim Eckelberger	SPP Director
Larry Altenbaumer	SPP Director
Phyllis Bernard	SPP Director
Doug Healy (phone)	MO Joint Municipal Electric Utility Comm
Ray Bergmeier	Sunflower Electric
Carl Monroe	SPP
Lanny Nickell	SPP
Nick Brown	SPP
Barbara Sugg	SPP
Michael Desselle	SPP
Josh Phillips	SPP

Minutes from the April 29, 2019 meeting were reviewed. Mike Wise motioned to approve the minutes. The motion was seconded by Sandra Bennett and approved by unanimous voice vote.

Business Process Improvement

The committee received a report from SPP staff on process improvement program efforts that have occurred over the trailing 12 month period. The Committee members and other attendees commenced a long discussion on time tracking without making any motions or taking action.

2020 Operating Plan

SPP staff presented the 2020 Operating Plan document, highlighting i) the scope of work involved in existing operations, ii) five primary corporate objectives, and iii) the 2020 incremental project scope. Members of the Strategic Planning Committee and SPP Board of Directors were polled in the meeting if they believed any aspects of the proposed 2020 Operating Plan were out of alignment with the SPP Strategic Plan; none were noted.

Finance Committee
July 15, 2019

Mike Wise made the following motion: **The Finance Committee recommends the SPP Board of Directors accept the 2020 SPP Operating Plan as a working document for development of the 2020 budget.** The motion was seconded by Susan Certoma and approved by unanimous voice vote.

Western Energy Imbalance Service Contract

SPP staff presented an overview of the Western Energy Imbalance Service Contract. The overview focused on services provided, indemnifications, and financial structure.

Future Meetings

The Finance Committee will next meet on Monday October 14, 2019 in Little Rock, AR beginning at 10:00 a.m. and ending at 5:00 p.m.

There being no further business, Bruce Scherr adjourned the meeting at 3:15 p.m..

Respectfully Submitted,

Thomas P. Dunn
Secretary



Southwest Power Pool, Inc.
FINANCE COMMITTEE MEETING

July 15, 2019

Hilton Des Moines Downtown – Des Moines, IA

• A G E N D A •

10:00 a.m. – 3:30 p.m.

- 1. Administrative Items (10 minutes)..... Bruce Scherr
- 2. Business Process Improvement (60 minutes)..... Michael Desselle
- 3. Other Items (20 minutes).....

11:30 – 1:00 LUNCH BREAK (no lunch provided at meeting)

- 4. 2020 Operating Plan (150 minutes) ****ACTION**** Tom Dunn
- 5. Western Energy Imbalance Service Contract (60 minutes) Bruce Rew
- 6. Written Reports.....
 - a. May Financials
- 7. Future Meetings.....

Antitrust: SPP strictly prohibits use of participation in SPP activities as a forum for engaging in practices or communications that violate the antitrust laws. Please avoid discussion of topics or behavior that would result in anti-competitive behavior, including but not limited to, agreements between or among competitors regarding prices, bid and offer practices, availability of service, product design, terms of sale, division of markets, allocation of customers or any other activity that might unreasonably restrain competition.



**Southwest Power Pool
FINANCE COMMITTEE MEETING**

April 29, 2019

Tulsa, OK

• M I N U T E S •

Administrative Items

Chair Bruce Scherr called the meeting to order at 8:00 a.m., a quorum was present. The following individuals participated in the meeting.

Bruce Scherr	SPP Director
Susan Certoma	SPP Director
Jerry Peace	Oklahoma Gas & Electric
Laura Kapustka	Lincoln Electric
Mike Wise	Golden Spread Electric Cooperative
Sandra Bennett	American Electric Power
Tom Dunn	SPP
Others attending included:	
Denise Buffington	Evergy
Jim Jacoby	American Electric Power
Richard Ross	American Electric Power
Dennis Reed	Midwest Regulatory Consulting, LLC
John Olson (phone)	Evergy
Harry Skilton	SPP Director
Luke Haner	OPPD
Robert Pick	NPPD
Heather Starnes (phone)	MO Joint Municipal Electric Utility Comm
Jason Fortik	Lincoln Electric
Sarah Stafford	Oklahoma Gas & Electric
Ray Bergmeier	Sunflower Electric
Eddie Holt (phone)	KPMG
Chad Moore	BKD
Dianne Branch	SPP
Carl Monroe	SPP
Lanny Nickell	SPP
Scott Smith	SPP
Lauren Krigbaum	SPP
Walt Cecil	Missouri Public Service Commission
Adam McKinnie	Missouri Public Service Commission
Brandy Wreath	Oklahoma Corporation Commission

Minutes from the January 28, 2019 meeting were reviewed. Jerry Peace motioned to approve the minutes. The motion was seconded by Laura Kapustka and approved by unanimous voice vote.

Audits

The committee received the following information specific to activities of its external auditors:

1. KPMG – Eddie Holt, audit partner at KPMG, discussed recent findings within KPMG identifying unethical behavior on the part of former partners. Mr. Holt advised the committee of the actions taken by KPMG once the behavior was uncovered.
2. BKD – Chad Moore, audit partner at BKD, advised the committee on the results of the 2018 audit of SPP's financial reports and the status of issuance of the auditor opinion letter.
3. The committee received a recommendation from SPP staff to engage its three external auditors for an additional year and thereafter issue a request for proposal for audit services.

Finance Committee
April 29, 2019

Jerry Peace made the following motion: **Engage KPMG to perform the 2020 controls audit, BKD to perform the 2019 financial audit, and Landmark to perform the 2019 benefit plan audit.** The motion was seconded by Laura Kapustka and approved by unanimous voice vote.

2019 Benefit Plan Funding

The committee received a recommendation from SPP staff to contribute \$5.44 million to the SPP Retirement Plan in 2019 and to contribute \$0 to the SPP Post-retirement Healthcare Plan in 2019.

Susan Certoma made the following motion: **Approve 2019 funding of the SPP Retirement Plan of \$5.44 million. Approve 2019 funding of the SPP Post-retirement Healthcare Plan of \$0.** The motion was seconded by Jerry Peace and approved by unanimous voice vote.

Schedule 1A Task Force

The committee received a recommendation from SPP staff to eliminate the broad rate cap approved by the Schedule 1A Task Force on February 21, 2019 as part of the proposed revisions to SPP's cost recovery processes.

Jerry Peace made the following motion: **Retain the broad rate cap approved by the Schedule 1A Task Force until it is replaced; analyze and evaluate enhanced internal budget control improvements at SPP.** The motion was seconded by Sandra Bennett and approved by unanimous voice vote.

Reports

The committee received reports on the following items with no actions being undertaken:

1. Settlement system replacement project
2. Security requirements for sponsored transmission upgrades
3. Lessons learned from default in PJM congestion rights market
4. SPP internal signature authorities

Executive Session

The committee convened an executive session to meet with Chad Moore of BKD regarding the 2018 financial audit. The committee convened a second executive session after the general session to discuss a legal matter.

Future Meetings

The Finance Committee will next meet on Monday July 15, 2019 in Des Moines, IA beginning at 10:00 a.m. and ending at 3:30 p.m.

There being no further business, Bruce Scherr adjourned the meeting at 11:43 a.m..

Respectfully Submitted,

Thomas P. Dunn
Secretary



BUSINESS PROCESS IMPROVEMENT REPORT

Prepared for
Finance Committee
July 2019

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SECTION 1: SUMMARY

In 2018, the Business Process Improvement report highlighted the engaged staff across our organization focused upon finding value added improvements that could be implemented for SPP. There was significant focus during the presentation of the lean operating structure that enables SPP to meet the increasing demands for providing additional services across its growing footprint. Lastly the report highlighted how SPP has operated in a lean manner for years to ensure we do not have excess capacity, which requires exceptional effort by our staff to maximize efficiency on the front end of every effort we pursue.

SPP's pursuit of efficiency continues. Internal SPP staff continue their efforts through the Performance Excellence (PEX) teams to create value for our stakeholders through process improvement. In addition to the continued effort for finding ways to improve processes the PEX teams are increasing visibility of departmental improvements by sharing these at their regular meetings.

In 2019 SPP was engaged to review its stakeholder processes to ensure that we are meeting excellence expected by our members through venues such as the Holistic Integrated Tariff Team and the Value and Affordability Task Force. Our officers have been working with our stakeholders to find ways to improve meeting effectiveness with our members committees and board.

Since the last report, there have been over 60 processes improvements created or captured at SPP which focus on improving efficiency, accuracy and the quality of SPP staff's service to our members. These efforts range from internal policy reviews which reduce the staff time required for completing compliance training to member coordinated efforts to improve our model building processes. It is efforts like these that ensure our resources are utilized to maximize our productivity and membership satisfaction.

The SPP vision for process improvement continues with two goals.

1. Increase **Value to our Stakeholders** by implementing process improvements that increase efficiency, improve productivity, reduce risk and cost, improve quality, and increase trust and confidence
2. Enhance **Employee Engagement** by creating opportunities for robust collaboration, critical examination of current state, experimentation, and implementation of new ideas

As shared in the 2018 Finance committee report, our history of ever growing services and requirements with limited change to the staffing levels highlights the efforts of our officers and staff to continually look for efficiencies and improvements to our processes to absorb these increasing demands.

SECTION 2: 2019 PROJECT UPDATES

Over the past 12 months numerous projects were developed, monitored, or shared with the Performance Excellence (PEX) Teams and Steering Committee throughout 2019. These process improvements include three categories, PEX Team Improvements, Department Improvements, and Stakeholder Coordinated Efforts.

Our PEX teams consist of four vertical teams from across the organization, Operations, Planning, IT, and Corporate Services. The department improvements were led by SPP management or staff and completed outside of the PEX teams. Stakeholder coordinated efforts were improvements developed through stakeholder committees, taskforces, and efforts by the SPP Board.

These process improvements are a limited set of efforts underway at SPP. Each employee is held accountable for ensuring their efficiency in their work resulting in numerous improvements that may not be captured here. There are two great examples of this in the automation efforts underway in both the IT departments and Planning departments. Each group houses a repository of automation ideas that can be ranked, monitored, and completed by staff as time allows. This ensures that even when there is time between assignments, staff are being utilized to continue improving our processes.

PEX IT IMPROVEMENT

PROVISIONING OF VIRTUAL SYSTEMS – Barry Bull

Metric: Time Savings

Status: Completed – 11/2018

Results: Automation of the server builds will reduce staff effort from days to hours

Overview: SPP utilizes virtual servers for a variety of purposes. These virtual servers reduce the need to buy costly new equipment and build additional infrastructure. We are finding ways to improve the management of these virtual servers to save time. The project is broken into a phase I for building the servers and a phase II for ongoing maintenance and decommissioning.

Phase I is completed and automates the process of building the servers. This effort eliminates the need for staff to address manual redundant efforts, reduced the mistakes with manual processes and enabled internal stakeholders' faster response times for their server needs. For each build it is reduced from four to five hours to less than an hour.

In phase II our IT staff are working to address the increased requirements associated with maintaining virtual servers, such as patching the operating systems and applications, and decommissioning the servers which requires additional documentation and consideration of data retention policies. This will also eliminate redundant manual processes and reduce the risk of varying from the process.

SERVICE DESK AUTOMATION – Niki Gunn

Metric: Time Savings

Status: Completed – 2/2019

Results: Staff no longer duplicating efforts to log an issue into the IT Service Desk Tool

Overview: When SPP implemented its service desk staff could request service from our facilities and IT departments through an email or a phone call. After evaluating the time to process requests it was found that over 3,000 emailed tickets were received by the Service Desk Team over a five-month period. When an email request is received the service team would then copy that information and enter it into their application to track and provide the appropriate support processes. At times this information was complete, but in other cases a follow up would be required to the user to capture the needed information.

To improve the service provided and efficiency, the service desk has created a portal for requests that can gather the needed information for the service desk and create the record themselves. The effort was rolled out in February and is anticipated to save 10 hours a month for the service desk employees.

PEX OPERATIONS IMPROVEMENTS

PSEUDO TIE REGISTRATION PROCESS – Julie Gerush

Metric: Efficiency

Status: Completed 12/2018

Results: SPP staff have fewer pseudo tie registration failures that previously required rework

Overview: A requirement that pseudo ties be registered in the Electric Industry Registry (EIR) created a new workflow for operations staff. The registration for pseudo ties involved internal resources from our modeling department, tariff administration, and customer registration as well as external resources such as other balancing authorities and transmission providers. Customers were submitting a pseudo tie registration in the EIR but having one or more of the entities denying that request. The new process engages all entities on the pseudo tie earlier in the process to prevent surprise denials in the process. The result is improved customer satisfaction, reduced rework required by SPP staff, and lowered risk for the NERC pseudo tie registration requirement.

AUTOMATION OF THE TARRIF AND INTERCHANGE DESKS – Brian Strickland

Metric: Time Savings

Status: Ongoing

Results: Employees are better utilized in our operations center through automated interchange processing

Overview: SPP staff previously utilized one operation shift to monitor the interchange and reservation desk. The desk would actively review and evaluate tagging requests that could be automatically validated and processed. Over the past year there has been an effort to capture the various scenarios and automate these approval or denial processes without the need for the operator to manually evaluate each request. The improvement has allowed those operators to begin supporting other desks without requiring increasing the staff on schedule required to support the expanding functions and capabilities at SPP.

PEX CORPORATE SERVICES IMPROVEMENTS

CORPORATE METRICS IMPROVEMENTS – Tara Smith

Metric: Time Savings, Stakeholder Satisfaction, Accuracy

Status: Ongoing

Result: A recommendation was provided to streamline the collection and presentation of corporate metrics

Overview: Existing corporate metrics reporting is a lengthy process which results in a collation of various data sources and formatted reports. The communications department formats and processes these department reports into a common format for publication to the Board of Directors.

The Corporate Services team evaluated the amount of time used to collect the reports, risks for inaccuracy, and solicited insights from staff preparing the reports. With an understanding of the process, the team produced a recommendation for the communications department that will reduce risks for inaccuracy, improve formatting, and reduce the amount of time required to create the report.

PEX ENGINEERING IMPROVEMENTS

INTERNAL GENERATION INTERCONNECTION PROCESSING – Hannah Jones

Metric: Time Savings, Accuracy

Status: Completed – 5/2019

Results: Internal processing for Generation Interconnection (GI) requests has been modernized through deploying an existing SPP software

Overview: The existing process for SPP engineers to evaluate the GI models required emailing staff across the organization for notifications of changes and approvals. Staff were manually tracking these changes in excel and cross referencing the files on our SharePoint.

Hannah noted this effort and through coordination with our IT department was able to use an existing software application to better manage the communications and collaboration of our engineering teams. Her previous experience with the application enabled her to quickly create workflows with the support of other staff familiar with the current process. The result of this effort is an automated process that tracks, notifies, and records efforts around the various generators and models used in the GI process. Kim Farris has noted the improvements the tool has enabled and is working with IT to leverage this for numerous other workflows within the Engineering Planning Department.

CONSOLIDATED PROCESS REPOSITORY – Kim Farris

Metric: Efficiency, Compliance

Status: Completed 7/2019

Results: The planning department has consolidated its processes into a traceable repository that enables collaboration for improvement and a single location for the various processes completed by our engineering planning teams.

Overview: The processes used to complete the numerous model development, validation and execution for studies across the Engineering Planning were previously held in each

department resulting in a challenging effort to understand the impacts between steps in the process. Kim utilized a new application at SPP to centralize all of these processes into one wiki that would allow any staff in the department to find the right process documents. Additionally, the new application allowed for staff to provide suggestions for improvements, receive notification of changes, and better collaborate on the complicated processes used to ensure a reliable and effective performance of their responsibilities.

DEPARTMENT IMPROVEMENTS

ANNUAL POLICY REVIEW – Donna Freeman

Metric: Efficiency

Status: Completed – 8/2018

Result: Staff can complete the required training in less time.

Overview: SPP staff are required to review employee policies, standards of conduct, and other compliance documents annually. The original implementation of this required acknowledgement of over 30 separate polices that would each require opening them one at a time. SPP leadership coordinated with corporate training to streamline this process and combine the documents into a single Employee Handbook. The results have been a streamlined review process that the employees can complete in less time due to the sole source document.

CUSTOMER SERVICE REQUEST PROCESS – Don Martin

Metric: Time Savings

Status: Completed – 12/2018

Results: Implemented structural and process changes within RMS reducing the average time of resolution, saving \$648,000 annually

Overview: SPP's customer relations department, which manages the Request Management System, processes over 8,000 tickets a year. This number varies dependent upon externally facing projects implemented. General inquiry tickets averaged a 12:40 minute resolution time prior to implementation of structural and process changes implemented at the beginning of 2017.

Since that time the average resolution time for those same tickets has decreased to an average of 3:40 minutes at the end of 2018. Using an average staff salary rate, this led to a savings of approximately \$54,000 per month, or \$648,000 annually in time which can now be reallocated to other priorities. While we can mathematically capture the savings from staff time, the also results in improved response time for our customers, thus saving their time and money also.

PROJECT COST TRACKING – Matthew Sites

Metric: Time Savings

Status: Completed – 3/2019

Result: Reporting condensed to 15 minutes with improved accuracy and less rework.

Overview: The project management department costs tracking effort previously used numerous data sources provided by multiple staff to generate a report. This effort would

frequently result in errors due to data formatting. The result was an immense amount of time being spent to trace back through reports to find the error and then engaging the correct person or team to provide the right information. The initial 2016 improvement streamlined the reporting from months to weeks. The reporting effort continues with staff now being able to generate these reports in roughly 15 minutes.

SMALL PURCHASE PROCESS – Jason Gross

Metric: Time Savings

Status: Completed – 3/2019

Result: Reduced overhead for one time de minimis purchases.

Overview: The purchasing department improved their processing for one-time small item purchases. Previously when an unexpected purchasing need occurred (e.g. a box of screws from Home Depot), staff would need to submit a purchase request to procurement which would route to the requestor’s supervisor, manager before getting to procurement where it would again require additional approval before the purchase order would be created. The new process allows these small purchases to be made to the corporate card with the approval of the employee’s manager.

AUTODRAFT CAPABILITY – Tom Dunn

Metric: Efficiency

Status: Completed – 4/2019

Results: Automation of the collections process.

Overview: The accounting department has enabled new functionality that allows a market participant to register for the automation of their payments to SPP. This enhancement will enable reduced effort for the customer to make the payment, and additionally reduce the effort required by our collections department to register and receive the payment.

ENGINEERING POLICY CHANGE MANAGEMENT PROCESS – Kim Farris

Metric: Efficiency

Status: Completed – 7/2019

Result: Enables Engineering Planning to better plan for upcoming policy changes.

Overview: The Engineering Planning team implemented a new process to capture and track all policy changes, even when they may appear as uncontentious or easy changes. This new process was implemented to provide visibility and organization around policy changes that may have impacts on Engineering. The results have been enhanced collaboration and communication between subject matter experts, management, and staff secretaries and provide better awareness around long lead items.

STAKEHOLDER RELATED IMPROVEMENTS

UTILIZATION OF WEBEX FOR COMMITTEE MEETINGS

Metric: Stakeholder Satisfaction

Status: Completed – 1/2019

Results: Stakeholders will be able to view committee presentations as they occur either on their PCs in the room or remotely. This should also improve the accuracy of motions and votes.

Overview: SPP has historically held its committee meetings as in person meetings, with presentations and reports posted on spp.org. This has resulted in challenges for participants who are unable to join in person, as they must determine what slide is presented or motion is made. Additionally, there are times when the participants in the room may not be able to read the presentation on the projector due to room configurations.

The new WebEx deployment is anticipated to alleviate these issues. As familiarity grows with the platform, SPP anticipates utilizing the functionality for items such as voting, que management, etc.

MEETING SCHEDULES

Metric: Efficiency, Stakeholder Satisfaction

Status: Ongoing

Result: Revision to meeting schedules to reduce transit time for members and staff

Overview: SPP stakeholder meetings require members to repeatedly travel to and from meetings due to the arrangement of those meetings. In an effort to reduce the amount of travel time and number of trips for both stakeholders and staff, a review and rescheduling of several committee groups were made to improve the effective use of everyone's time.

MOPC IMPROVEMENTS

Metric: Efficiency, Stakeholder Satisfaction

Status: Ongoing

Result: MOPC meetings are focused more upon policy and issues are resolved before arriving for approval

Overview: The Markets, Operations, and Policy Committee oversees numerous working groups and task forces to guide and direct SPP. Often these issues are contentious and may result in additional review by the MOPC before it decides upon the best direction for any given issue.

An effort began in January 2019 and continues with a goal of assisting the MOPC's in its focus upon policies rather than granular implementation details proposed by the working groups. The expected outcome is better utilization of SPP members and staff time, while improving the feedback and direction given to the working groups that address the implementation of the policy directives.

This effort also works to better utilize the background meetings held by the chairs, secretaries, and officers at SPP to facilitate the successful outcomes from the MOPC's direction.

GENERATION INTERCONNECTION IMPROVEMENT TASK FORCE

Metric: Stakeholder Satisfaction, Efficiency

Status: Ongoing

Results: MOPC approved process changes will be monitored for 18 months to validate improvements.

Overview: The GIITF has proposed modifications the study process to better incent customer's commitment and data accuracy for the GI process. The new process will provide

better clarity on the upgrades required earlier in the process, tie financial security to upgrade costs to encourage customers consider the risks at an earlier stage, and reduce the number of withdrawals in the final stages of the process. These efforts will also improve the clarity around the process and reduce the amount of staff time required to repeat the studies due to late changes from withdrawals. MOPC has requested that a report be provided 18 months after this has been implemented to evaluate the improvement.

HOLISTIC INTEGRATED TARIFF TEAM

Metric: Stakeholder Satisfaction

Status: Ongoing

Results: Recommendations for consideration by the SPP board for potential improvements

Overview: This team was formed by the board to evaluate transmission planning and study processes, transmission cost allocation issues, the impacts of a changing resource mix in the Integrated Marketplace, disconnects between planning, real time reliability, and economic operations, and areas reasonably associated with these items.

The HITT has provided 21 recommendations, for consideration by the board on its scope of work. The included recommendations highlight several improvements for 2020 that are recommended.

VALUE AND AFFORDABILITY TASK FORCE

Metric: Stakeholder Satisfaction

Status: Ongoing

Results: Ongoing

Overview: The VATF was formed by the board of directors in 2019 to evaluate the value and affordability associated with SPP and its services. As the VATF continues its mission, additional improvements to SPP's processes are anticipated.

SECTION 3: CONCLUSION

SPP continues to reinforce its culture of continuous improvement. Our staff promotes this culture driver through its daily work and seeks efficiencies to provide the most value to our stakeholders.

Over the past year there were many improvements made to how our staff meets the demands for SPP's quality member driven services. While our PEX teams work to capture improvements across the organization, often many occur outside of this effort and provide limited visibility to the Business Process Improvement's PEX teams and steering committee. The results however are apparent when looking at the growing complexity of our industry, expansion of our services, and volume of processes that are needed to provide the service our customers expect all being met with a fiscally responsible approach that limits the need for additional staff.

In 2019 the PEX Steering Committee challenged itself to find opportunities around processes that have negative returns or provide minimal value and with large effort, such as the MW-Mile effort and reporting metrics that may have lost their value as our organization continues to evolve. It is likewise expected there will be many suggestions to address over the coming year from the efforts of SPP's HITT and VATF efforts that are currently underway.

This report was prepared by

Joshua Phillips
BPI Coordinator
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2020 Operating Plan

Published July 08, 2019

By the SPP Finance Department

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SPP Overview

SPP's mission is "Helping our members work together to keep the lights on ... today and in the future." SPP's services are independently provided on a regional basis, focused on electric reliability, cost effectiveness and bringing value to SPP members and their customers. 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

FERC directly regulates SPP. FERC must approve all changes to the SPP Open Access Transmission Tariff (tariff) 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

Tariff

The tariff defines the majority of the required workload for SPP's operations and engineering departments. Changes to the tariff are primarily within the oversight of the Market Operations Policy Committee (MOPC). Significant duties include, but are not limited, to:

- Administering the tariff, including scheduling
- Providing ancillary services
- Operating the market
- Operating the Balancing Authority (BA)
- Settling all transactions under the tariff
- Administering credit services for tariff customers
- Completing system impact studies
- Completing the annual SPP transmission expansion plan
- Studying generation interconnection requests

- Evaluating long-term transmission service requests
- Administering the competitive process for transmission expansion
- Administering the Southwestern Power Administration transmission system beyond their tariff
- Monitoring activities in SPP's energy markets and exercise plans to mitigate market power

Membership Agreement

The membership agreement is an agreement between SPP and each of its members that obligates SPP to perform outlined services, including those in the tariff. Changes to the scope of responsibilities are primarily within the purview of the Market Operations and Policy Committee and Board of Directors and Members Committee. The agreement describes other significant duties, which include, but are not limited, to:

- Acting as the reliability coordinator for the bulk electric system (BES)
- Developing regional reliability plans and emergency procedures
- Reviewing and approving all planned BES maintenance
- Coordinating generation unit maintenance
- Administering an open access same-time information system

Bylaws

The bylaws describe SPP's organizational operation, specifically outlining duties of the board and its advisory committees. Changes to the bylaws are under the oversight of the Corporate Governance Committee and board. SPP has a responsibility to facilitate meetings of every organizational group:

- Board of Directors and Members Committee (1)
- Regional State 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 detailing the administrative practices SPP follows in administering the tariff, including coordinating the sale of transmission service. SPP also has well-documented market protocols detailing how market participants and SPP are to interact. These documents are developed, monitored and amended through SPP's stakeholder process.

Organizational Structure

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

The internal staff structure (Appendix B) illustrates reporting relationships between 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. The governance structure provides directives to staff.

Funding

SPP funds its ongoing operating costs through charges to transmission 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 depreciation and amortization expenses incurred. SPP is able to collect up to 100% of its operating costs from charges to transmission customers up to a cap of 43¢/megawatt-hour (MWh). SPP is charging customers 39.4¢/MWh for service in 2019.

SPP's capital expenditures are funded with borrowings from periodic debt issuances and with 20% equity allocation included in the transmission service charge. SPP's debt issuances are generally unsecured. They 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.

2020 Expected Business Environment

SPP's business environment is constantly changing, and the organization utilizes an evolutionary, rather than revolutionary, approach to managing change. Some of the opportunities and challenges affecting SPP are related to continued electrification and modest increasing load, changing generation mix, transmission planning and cost allocation, evolving energy markets, expansion to the west, regulatory issues and cybersecurity risks.

Electrification

While many projections show U.S. energy consumption will continue to decline, overall electricity use is expected to increase with technologies such as electric cars and heat pumps. SPP anticipates continued growth in its 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 due to an annual normalization of electricity use. 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 assumptions in its engineering models.

While load in the SPP region has been flat overall for the last several years, there are pockets of load growth. Commercial and industrial customers seeking low-cost, renewable service options are increasingly attracted to the SPP region. Companies such as Google, T-Mobile USA and Facebook have contracted with renewable generators to power their data centers or meet carbon-emission-reduction goals. In 2018, SPP had 90 requests for new delivery-point additions representing 2,600 MW of potential load additions over the next 10 years. SPP is considering improvements to the delivery-point-addition process that would help its members capitalize on these economic growth opportunities.

Changing generation mix

The generation fleet at SPP's disposal — more than 750 generators participating in its markets across a 14-state region — has changed dramatically in the last ten years. SPP's current generation mix is primarily coal, gas and wind. On average, these fuel types made up 42%, 24% and 23% of energy production generation. Coal has been on a continual decline in production and capacity since 2014. No new coal generation is being planned, and older plants are being or projected to be retired. In 2018, SPP members retired over 1,800 MW of conventional capacity.

Between 2009 and 2019, the amount of wind energy in the SPP region increased fivefold. The SPP footprint has more than 200 windfarms and 11,000 turbines with output capacity exceeding 21,000 MW. Ten years ago, SPP had only 3,858 MW of wind. SPP holds the North American record for serving the highest percentage of load at a given time with wind power: 67% on April 27, 2019.

Even with these wind generators, total regional wind output has been as low as 147 MW. Wind output has varied 3,700 MW in one hour, equivalent to about six large natural gas or coal plants simultaneously ramping up. SPP's primary operational challenge is maintaining grid reliability as it becomes increasingly dependent on energy delivered from intermittent resources.

The generator interconnection (GI) queue represents new generators "waiting in line" to be analyzed and connected to the transmission system. There are 51,000 MW of wind in the planning queue. SPP needs to develop economic and cost recovery strategies to use excess wind and identify upgrades across Independent System Operator/Regional Transmission Organization boundaries to move wind energy into other markets.

While there is only a small amount of solar energy installed in SPP, solar and battery storage are growing. There are 28,531 MW of solar and 5,796 MW of storage in the generation interconnection queue. These emerging technologies are expected to continue to evolve and become more prevalent, presenting as utility-scale resources or transmission assets when connected to the transmission system and as reduced load when connected to the distribution system.

As part of this transition there are identified physical needs of the bulk power system that conventional generation inherently provide and/or has been designed to provide to maintain the reliability of the bulk electric system. New resources, such as wind, solar, and battery rely on inverter based provision of AC power and thus do not inherently or physically provide those responses and physical need of the power system, including stored potential energy to respond.

Transmission planning and cost allocation

Every year SPP works with its members to determine what new transmission is needed in the region. In 2018, SPP's member companies completed 98 transmission system upgrades in seven states estimated to have cost \$779 million. These projects benefit the region by connecting new generators and demand sources to the transmission system, ensuring low-cost electricity is delivered to consumers, and solving power grid issues that, if not addressed, could impact the reliable delivery of electricity or cause power outages.

SPP's strategic plan has shifted from "building a robust transmission system" to "maintaining an economical, optimized transmission system." Since 2004, SPP members have invested \$10 billion in new transmission facilities; \$7.7 billion is in-service. While modernization ensures system reliability, this transmission build-out has been a significant economic investment. These upgrades have resulted in an annual transmission revenue requirement of over \$850 million for SPP-initiated projects.

Determining who should pay for transmission upgrades is a highly debated public policy issue. SPP is challenged to better align its transmission planning processes, Integrated Marketplace and transmission cost allocation methodologies. It is important to address the cost responsibility of loads and generators as well as cost allocation among loads.

Additional challenges are in the future based on the changing generation mix including how storage can be used for both transmission reliability as well as provide economic benefits through the markets. As load also starts to respond to either reliability needs or economic benefits through the markets, planning will increase in complexity because load will no longer just be a forecasted demand.

Evolving energy markets

Low natural gas prices and wind — which has zero fuel cost and enjoys significant federal tax incentives — is enabling an economic dispatch of SPP's changing generating fleet that reduces wholesale energy prices and shifts the region away from traditional generation. This economic dispatch is feasible due to SPP's robust transmission system investment and Integrated Marketplace. The Integrated Marketplace has provided more than \$2.7 billion in savings since it launched in 2014.

In 2018, SPP's spot wholesale energy prices were the lowest in the nation. SPP's primary financial challenge is ensuring that, given declining wholesale energy prices, resources capable of providing reliability are appropriately compensated and incentivized to offer and deliver these services to the grid. SPP continuously works with stakeholders to enhance the Integrated Marketplace's ability to cost-effectively utilize its diverse generation mix, manage grid congestion and reliably respond to changes in load and generation.

Western markets and services

SPP has begun to implement reliability and offering market services to entities in the western United States. Six western utilities selected SPP to administer the Western Interconnection Unscheduled Flow Mitigation Plan — a blueprint for using controllable devices to mitigate congestion along transmission lines in the west. Beginning in December 2019, SPP will operate in the Western Interconnection as a North American Electric Reliability Corporation (NERC)-certified reliability coordinator, working with customers to keep the lights on and mitigate operational contingencies that threaten reliability. In December 2020, SPP plans to launch a Western Energy Imbalance Service market and administer it on a contract basis. The market will centrally dispatch energy from participating resources every five minutes, enhancing reliability and affordability for western consumers. These partnerships with new customers will benefit SPP's existing customers through economies of scale and cost savings.

Regulatory

Directives from FERC impact SPP's business and operations. In February 2019, FERC reversed a waiver it had previously issued regarding Attachment Z2 of the SPP tariff, which defines how transmission customers are compensated for upgrades others subsequently use. In June 2019, FERC directed SPP to eliminate its exit fee for members who are not transmission owners. Also in June, FERC directed SPP to make tariff changes to allow fast-start resources to set clearing prices in the market. SPP will implement compliance plans to meet FERC's directives on these orders.

In Order 841, FERC initiated proceedings to evaluate electric storage participation in organized markets. SPP worked with stakeholders to respond to FERC and develop market designs that will remove barriers to storage resources. SPP's challenge is identifying the value that battery storage provides and ensuring its market products, planning processes and operational procedures take advantage of those characteristics.

FERC Order 845 revises interconnection rules for generators larger than 20 MW. SPP is working with stakeholders on improving the generation interconnection queue to comply with FERC and provide better service to interconnection customers.

FERC Order 850 requires enforcement of a new NERC standard on supply chain risk. SPP has begun compliance with this standard, which will include negotiating additional conditions for vendors and adding controls related to software and hardware.

Cybersecurity risks

The threat of cyberattacks continues to be a major risk to SPP and the electric utility industry. SPP must remain involved in developing NERC 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.

SPP strives to ensure security through continuous vigilance and compliance. In 2018, SPP selected an open-source cyber maturity model for benchmarking its security posture. SPP conducted a self-assessment and hired a consultant to evaluate SPP. Based on the resulting recommendations; staff prepared a strategic plan detailing five focus areas: standardized security architecture, supply-chain risk management, increased resiliency through focus on business continuity, further maturation of cyber best practices, and expanded threat intelligence capabilities. The estimated cost to implement these recommendations is \$1.1 million in capital expenses and \$300,000 in operating expenses over a three-year period beginning in 2019.

SPP conducts mandatory security awareness training and exercises. In 2019, SPP implemented a new educational campaign using contests, posters and live-action videos to further raise awareness of security risks.

Corporate and Departmental 2020 Objectives

SPP's officers met in May 2019 to discuss corporate and departmental objectives for 2020. That discussion informed the 2020 operating plan and 2020-2022 budget.

Corporate Objectives

- *Western markets* – SPP's top corporate objective is developing an imbalance energy market to be implemented in late 2020. This development follows closely the implementation of reliability coordination services for numerous western utilities. An ancillary effort is being pursued to provide planning coordination services to select western utilities. Costs associated with western markets and planning coordination services will be offset by revenues charged to utilities taking the services.
- *Holistic Integrated Tariff Team (HITT) recommendations* – At the July 2019 SPP Board of Directors and Members Committee meeting, the HITT will present a slate of 21 recommendations for improving SPP's provision of service. These recommendations are slated to be developed in more detail, reviewed and adopted through 2019, 2020 and 2021. The priority, timing and cost of implementing these recommendations will not be certain until well after SPP completes its 2020 planning and budget processes.
- *Cyber risk* – SPP remains committed to addressing the changing cyber security landscape. SPP will identify proactive actions to address known and emerging issues, as well as post-event actions to mitigate the financial consequences of a cyber event.
- *Value and Affordability Task Force recommendations* – SPP expects the task force to advance a number of recommendations to address value additions and affordability opportunities. The priority, timing and cost of implementing these recommendations will not be certain until well after SPP completes its 2020 planning and budget processes.
- *Continuous improvements* – SPP will continue to seek process improvements and automation across all divisions, with specific focus on enhancing business continuity processes and procedures, further maturing cyber security responsibilities and enhancing capabilities for resource changes.

Further factors may influence SPP's ability to achieve these objectives. Significant regulatory uncertainty exists which can derail the best of plans. For instance, FERC recently reversed a waiver it had previously issued to SPP, and it directed SPP to eliminate its exit fee for certain members. Resolving such situations could impact SPP's ability to achieve its stated objectives. In addition to discussing corporate objectives, officers outlined the following objectives for their departments.

Departmental Objectives

Operations

Enhanced reliability capabilities

SPP must maintain reliability excellence to operate the bulk electric system's changing landscape. This landscape continues to move towards integrating more inverter-based technologies, mostly renewable energy generation. During the previous eight years, coal decreased from 63% serving SPP load to 42%. Wind has continued to increase, from 6% to 24% serving SPP load. The generation interconnection queue consists of about 51 GW wind, 29 GW solar, 6 GW battery storage, and minimal traditional fuels.

Large transfers of variable energy continue to increase across the SPP footprint. Wind farms are often located in remote areas with little to no load density. Some traditional fossil generation that directly supports load centers is being retired. Fuel-mix dispatch changes and new generation technologies are creating new operational challenges, such as voltage and transient instability. As the system continues to be pushed in new directions, SPP will be required to develop new processes, technologies and software to meet these challenges. To this end, operational efforts will be focused on these initiatives:

Integrating new tools

Stand-alone training is being developed to assist operations staff in using new reliability tools and ensuring they have appropriate situational awareness of generation capabilities and system impacts.

The current dispatcher training simulator (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 BA, reliability unit commitment and real-time balancing market functions. Since the implementation of the Integrated Marketplace and consolidated BA, market systems have become almost as critical to reliability and balancing as the energy management system. Realistic simulation training using market systems is imperative for SPP operator readiness and increased reliability.

In 2016, SPP launched a multiyear project to upgrade SPP's DTS. SPP is working with GE to create a full training and testing simulated environment that performs more closely to real-time production systems. This work is being done in a phased approach; two phases have been completed. In March 2019, GE provided an updated budget for performing the last phase of this work. Work is ongoing through 2020 to integrate a dedicated market system and situational awareness displays. The new tool will be called the markets and reliability training simulator.

Expand and improve market functionality

SPP's footprint is seeing an increasing amount of variable generation penetration that SPP must manage and account for when dispatching and making resource commitments. High amounts of variable generation, interchange flexibility and net load variations bring inherent uncertainties when

determining SPP's obligation as compared to available generation. Although SPP's renewable forecast is considered one of the more accurate forecasts in the industry, we still have challenges due to the increasing magnitude of renewable generation. Scarcity of certain products can result in higher costs for load during these shortage periods. Addressing these uncertainties through market mechanisms allows SPP to better manage intermittent resources economically and transparently.

SPP's wind generation capacity keeps rising. We have 20 GW of wind capacity in our BA footprint. It is our experience over the last few years that wind forecast vendors are not always able to accurately forecast the weather and wind generation on a day-ahead basis. For example, we have experienced situations where actual wind ended up 5,000 – 7,000 MW below the day-ahead wind forecast. The uncertainty resulting from wind forecast errors is one issue; we also experience uncertainty resulting from load forecasting and unscheduled generation outages. A market uncertainty product could help mitigate these concerns.

The rapid movement and difficulty in forecasting renewable energy resources has caused two distinct issues to occur in SPP's Integrated Marketplace. Operations is concerned that there is not enough ramping capability to address potential wind forecast errors. SPP members and the SPP market monitor are concerned that SPP's real-time prices are overly volatile due to scarcity pricing. A ramp product could ensure the Integrated Marketplace is able to clear and appropriately price products needed to ensure reliable operations and reduce scarcity pricing.

Information Technology

IT's foremost responsibility is maintaining the currency and availability of existing systems to fulfill SPP's core mission of "keeping the lights on." To satisfy this highest-priority obligation, a large percentage of IT's daily work is associated with efforts that support reliability.

IT has a premier responsibility to participate in and ensure the successful implementation of approved corporate capital projects that deliver incremental value to SPP and its stakeholders. These projects vary in scope and timeline, and they may require IT resources to implement the project and provide long-term support and sustainability. In addition to these responsibilities, IT is working on the following objectives.

Critical infrastructure protection standards (CIP) and security

SPP is enhancing security efforts in accordance with the cyber strategic plan the board endorsed in late 2018. Plan milestones are periodically reviewed with the Oversight Committee. This work includes:

- Implementing in 2020 the documented security architecture (to be developed in 2019) by enforcing architectural standards and modifying our software development lifecycle to include more requirements and controls related to CIP security standards.
- Automating the monitoring and provisioning of logical access to information systems, including implementing an identity and access management system.
- Expanding avenues for receiving intelligence related to security threats by engaging with new intelligence partners and deepening our capabilities with existing partners.

Another effort, not included in the cyber strategic plan, is reducing manual work associated with assessing and administering security patches issued by third-party software providers. IT is evaluating automation options for this.

Increase operational efficiency

IT continues to receive an expanding volume of requests and requisite work that reinforces the need for continuous process improvement and automation to gain necessary efficiencies. Focus areas include patch management, server provisioning and application testing.

Efforts to identify and prioritize process optimization opportunities are ongoing. In particular, IT continues to focus on high-touch, repeatable administrative activities that carry a high risk of manual errors.

Another goal for minimizing risk 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 multiple automation initiatives are in flight and in the queue.

SPP has an extensive software portfolio including tools that provide similar functionality in source code versioning, issue tracking, application build processes and information sharing. IT is standardizing platforms that will reduce the SPP software stack and costs associated with licensing, support and maintenance.

Evaluate and leverage emerging technologies

IT continues to evaluate and appropriately implement new technologies that increase needed functionality and optimize current functionality. The technology landscape is in a continual state of change. It is prudent for IT to maintain awareness of evolving technologies with an eye toward integrating systems that support SPP's strategic initiative of enhancing member value and affordability.

For the vast majority of business applications, IT utilizes on-site infrastructure to run application systems and store critical business data. While there are many advantages to this approach, there are less-critical systems and data that may be eligible to be implemented in an off-site cloud environment. IT is evaluating on-site cloud solutions that could allow for more flexibility and efficiency while reducing equipment purchases. During 2020, IT will evaluate options and opportunities to deploy a cloud strategy and consider potential targets that could be more favorably and securely implemented in a cloud environment.

The amount of data required to support end-users continues to increase significantly, leading to an associated increase in SPP's investment in storage technology. This data must be appropriately available to end-users, perform satisfactorily and be backed up to secondary and/or offsite locations as required. In some cases, SPP applications must have duplicate data in multiple environments (test, development, member testing, quality assurance and production) that may necessitate short-term and/or permanent retention periods, all of which require administrative oversight. IT is evaluating an improved backup solution for 2020 that will enable more efficient storage backups and allow better visibility into backup content.

Maintain and replace assets

IT plays a significant role in SPP's ability to keep the lights on. Nearly every system and tool SPP uses to perform its tariff, market and reliability functions requires technology to make it happen. Physical technology assets (servers, hosts, storage devices and 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 improved application performance and connectivity requirements.

IT resources are devoted to the daily care and upkeep of physical technology assets and software assets. We must manage a continuous stream of patches and updates across all of the installed hardware and software. SPP processes over 1,700 security 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.

Finance

Settlements system go-live

The multiyear project to replace and upgrade SPP's settlements system is slated to move into production in February 2020 at a cost of \$5.9 million. The new system will expand automation of existing manual processes, enhancing the accuracy, timeliness and auditability of settlements results. The system will facilitate in-house changes in response to requirements for implementing SPP revision requests, such as joint-owned-unit logic, ramping products and Schedule 1A changes. SPP owns the system code and will maintain and upgrade the system using dedicated in-house IT resources. Annual operating expenses are anticipated to be approximately \$1.4 million less than the previous system, primarily due to elimination of a third-party maintenance agreement. This new system was budgeted as a \$5.3 million capital investment.

Credit policy

SPP's Integrated Marketplace creates both opportunity and risk for market participants. Risk is manifested in the potential for a credit default and the subsequent socialization of that loss among all participants. SPP's credit group and its stakeholders are reviewing and enhancing the credit policy and processes to strengthen them in the event of a potential credit default. The Credit Practices Working Group has established subgroups to address the policy's quantitative and qualitative aspect. The groups' goals are to identify and research policy and process enhancements by fourth quarter 2019 and seek stakeholder and FERC approval for those recommendations by mid-2020. Implementation of the recommendations would occur in late 2020 for production in early 2021.

Engineering

Generation interconnection process

In 2020, the new three-phase GI study process as approved by FERC will have been implemented. In the first year of the new process, SPP will concentrate on clearing the backlog of almost 200 requests from 2017 (more than 36 GW). The requirements of Order 845, implemented in 2019, will begin to flow into tariff study processes. The greatest impact will be from the new surplus interconnection service product and the new partial-capacity product. The emerging energy storage market will become a significant component of GI studies beginning in 2020.

Resource adequacy process

In 2018, FERC approved new tariff provisions that SPP will implement in 2020. Foremost among these are a new enforcement process and enhanced data collection and monitoring provisions that ensure load responsible entities are planning sufficient resource capacity.

The SAWG recognizes the current gap in SPP policies related to capacity accreditation for storage as a capacity resource. As a result, staff is working to finalize a scope of work to evaluate potential capacity accreditation improvements for storage utilizing the ELCC methodology. These efforts along with HITT initiatives and Engineering's PRPC ESR project are expected to close the technical and policy gap related to storage capacity accreditation while rolling into the existing Attachment AA high level requirements

Generation retirement

Fossil-fueled generation retirements are increasing each year. SPP requires a clear and effective process for member-driven generation retirements. SPP has drafted a new business practice as a defined generation retirement process. The draft has been circulated to impacted working groups. A tariff revision request is scheduled to be published in the July timeframe, with tentative MOPC and board approval in January 2020. The generation retirement revision request will then be filed with FERC. Assuming FERC approval in April 2020, the process will be implemented in the latter half of 2020.

Process Integrity

Project management office (PMO) tool replacement

SPP's project management system is nearing the end of Microsoft support, and it is essential to upgrade or replace it. In 2018 the PMO evaluated prospective systems and selected Microsoft's Daptiv because it supports existing and new functionality to enable greater efficiencies in managing the project pipeline and budget processes.

Daptiv will give the PMO the ability to:

- Create displays and dashboards for 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 capacity planning.

Compliance tools and audits

In 2020, SPP's compliance and reliability standards staff will mature and expand use of the governance, reliability and compliance tool. The tool will help compliance staff in its oversight role and should assist in managing NERC standards controls. In addition to responding to and mitigating potential non-compliance issues, compliance staff will continue preparing for a 2020 operations and planning audit that will be led by NERC and the Midwest Reliability Organization.

2020 Projects

The Project Review and Prioritization Committee (PRPC) is comprised of all SPP departmental directors and ensures the effective and efficient use of SPP resources, including staff and capital funds. The PRPC reviews all SPP enterprise project requests and only recommends projects that align with SPP’s foundational strategies and are justified by a project business case. The projects listed below represent approved enterprise projects that were added to the project portfolio for the 2020-2022 budget cycle.

Budget Request Summary (2020 - 2022)				
Budget Allocation	2020	2021	2022	Total
Project Capital	\$633,250	\$366,750	\$0	\$1,000,000
IT Capital	\$36,000	\$0	\$0	\$36,000
Dept Operating	\$596,600	\$416,600	\$416,800	\$1,430,000
IT Operating	\$11,520	\$11,520	\$11,520	\$34,560
Total	\$1,277,370	\$794,870	\$428,320	\$2,500,560

Identity Access Management (IAM) Deployment	Budget Allocation	2020	2021	2022	Total
This Project will build the foundational elements of an IAM program, starting with an access inventory that will also support SPP’s most immediate needs for CIP-004 compliance (i.e., user access certification). Upon completion of that project, which also includes process and procedure development for IAM, SPP will be better positioned to identify the appropriate scope for initial implementation of the Indentity IQ tool.	Project Cap	\$300,000	\$200,000	\$0	\$500,000
	IT Capital	\$0	\$0	\$0	\$0
	Dept Operating	\$0	\$0	\$0	\$0
	IT Operating	\$0	\$0	\$0	\$0
	Total	\$300,000	\$200,000	\$0	\$500,000

Ramping Capability Project	Budget Allocation	2020	2021	2022	Total
This initiative is to address the impact that resource ramp shortages in the market cause with respect to short-term spikes in market prices by designing methods to better anticipate the need for responsive resources in the market. The work associated with implementing these methods will be integrated with a market release that contains other enhancements and fixes.	Project Cap	\$200,000	\$0	\$0	\$200,000
	IT Capital	\$0	\$0	\$0	\$0
	Dept Operating	\$0	\$0	\$0	\$0
	IT Operating	\$0	\$0	\$0	\$0
	Total	\$200,000	\$0	\$0	\$200,000

Southwest Power Pool, Inc.

Energy Storage Resource (ESR) Project	Budget Allocation	2020	2021	2022	Total
As a result of FERC Order 841 and the associated Operations project, ESRs are submitted as Detailed Project Proposals (DPPs) in the 2019 Integrated Transmission Planning (ITP) assessment. SPP engineering will need to scope and implement a solution that can model & study ESRs as generation or as load, or as generation and load. This project will also develop policy & revision request language that allows SPP to select ESRs as viable transmission solutions and enforce issuance of Notice to Construct (NTC) for qualifying ESR solutions.	Project Cap	\$50,000	\$0	\$0	\$50,000
	IT Capital	\$0	\$0	\$0	\$0
	Dept Operating	\$213,300	\$133,300	\$133,400	\$480,000
	IT Operating	\$0	\$0	\$0	\$0
	Total	\$263,300	\$133,300	\$133,400	\$530,000

Replace Human Resources Management System	Budget Allocation	2020	2021	2022	Total
Purchasing an Software as a Service (SAAS) application that provides a universal HR solution from a single provider will ensure 100% compatibility and result in very little, if any, ongoing support from SPP IT staff. This should reduce the required SPP IT support to less than 10% of one FTE from the current 60%. Additionally, adopting an SAAS product will eliminate the loss of vendor support for legacy systems that is already occurring with some existing applications.	Project Cap	\$0	\$0	\$0	\$0
	IT Capital	\$0	\$0	\$0	\$0
	Dept Operating	\$350,000	\$250,000	\$250,000	\$850,000
	IT Operating	\$0	\$0	\$0	\$0
	Total	\$350,000	\$250,000	\$250,000	\$850,000

Transmission & Generation Implementation Tracking (TAGIT)/ Standardized Cost Estimation Reporting Template (SCERT) Rewrite	Budget Allocation	2020	2021	2022	Total
The goal of this project is to enhance the TAGIT/SCERT platform in a way that would allow operators to focus on data analysis, remove potential barriers for additional operators to cross-train, and improve data integrity. These changes will help streamline the tools and provide more consistent and higher quality NTC letters and project tracking reports.	Project Cap	\$83,250	\$166,750	\$0	\$250,000
	IT Capital	\$36,000	\$0	\$0	\$36,000
	Dept Operating	\$33,300	\$33,300	\$33,400	\$100,000
	IT Operating	\$11,520	\$11,520	\$11,520	\$34,560
	Total	\$164,070	\$211,570	\$44,920	\$420,560

Stakeholder Initiatives

Markets and Operations Policy Committee

In July 2018, MOPC created the Schedule 1-A Task Force to develop a new cost recovery methodology that is simple, better aligns payer costs and benefits, and includes energy transactions. A four-rate structure methodology represented in revision request 358 is scheduled to be presented to MOPC for approval in July 2019. System and process changes would occur in 2020 with an effective date of January 2021.

MOPC is also tasked with reviewing and approving revisions to SPP’s Integrated Marketplace. MOPC has approved 11 revision requests that would require approximately \$2.9 million in capital investment to place into production. The table below illustrates the scope of these revisions.

RR Number	Title	Estimated Cost	MWG Review	MOPC Action	Estimated Implementation Date
0365	Day-Ahead Market Timeline Enhancement	Vendor cost A (0k-20k)	6/18/2019	TBD	TBD
0361	Ramp Capability Products	Vendor Cost E (300k-600k)	6/18/2019	TBD	TBD
0352	DA RUC Process Timing	Vendor cost A (0k-20k)	6/18/2019	TBD	TBD
0323	Order 841 Compliance ESR	\$853,500	9/11/2018	Approved	Q4 2020
0306	Multi-Day Minimum Run Time	\$267,448	6/12/2018	Approved	Post SSRP Implementation
0288	DVER Dispatch Instruction Rules Clean-up	\$47,280	8/14/2018	Approved	Post SSRP Implementation
0266	JOU Combined Single Resource Modeling post Settlement Share Allocation	\$200,170	7/10/2018	Approved	Q2 2020
0252	OOME Enhancement	\$168,176	11/14/2017	Approved	Q1 2020
0229	Order No. 831 Compliance (Offer Caps)	\$474,600	05/16/2017	Approved	Q1 2020
0210	Contingency Reserve Deployment Tests	\$100,000	04/17/2017	Approved	Q1 2020
0116	Quick-Start Real-Time Commitment	\$200,000	10/20/2015	Approved	Pending FERC 206 filing

Approximately 68 revision requests are in open status, awaiting stakeholder implementation, or progressing through the stakeholder process. Annually, SPP receives 60-70 revision requests to be evaluated and implemented.

Board of Directors

SPP's board is refocusing on the company's strategic direction. In the past, board discussions have tended to address more tactical and technical issues and have not been as deliberate when looking at strategic issues. The board adjusted its meeting structure in 2019 to include dedicated time for board and member committee discussion of strategic issues and SPP's approach to addressing those issues.

Holistic Integrated Tariff Team (HITT)

In March 2018, the board created the Holistic Integrated Tariff Team (HITT) to comprehensively review SPP's cost allocation model, transmission planning processes, Integrated Marketplace services, and disconnects or synergies between planning and real-time reliability and economic operations. The HITT's goal was for this integrated review to be broad and holistic, taking into consideration the highly interdependent nature of SPP's processes and how changes to one area would impact other business functions.

The team was tasked with recommending solutions to the challenges SPP and its members face. The board appointed 15 stakeholders to the HITT, including board members, state regulators from the Regional State Committee, and members representing diverse sectors. A senior SPP executive served as the staff secretary.

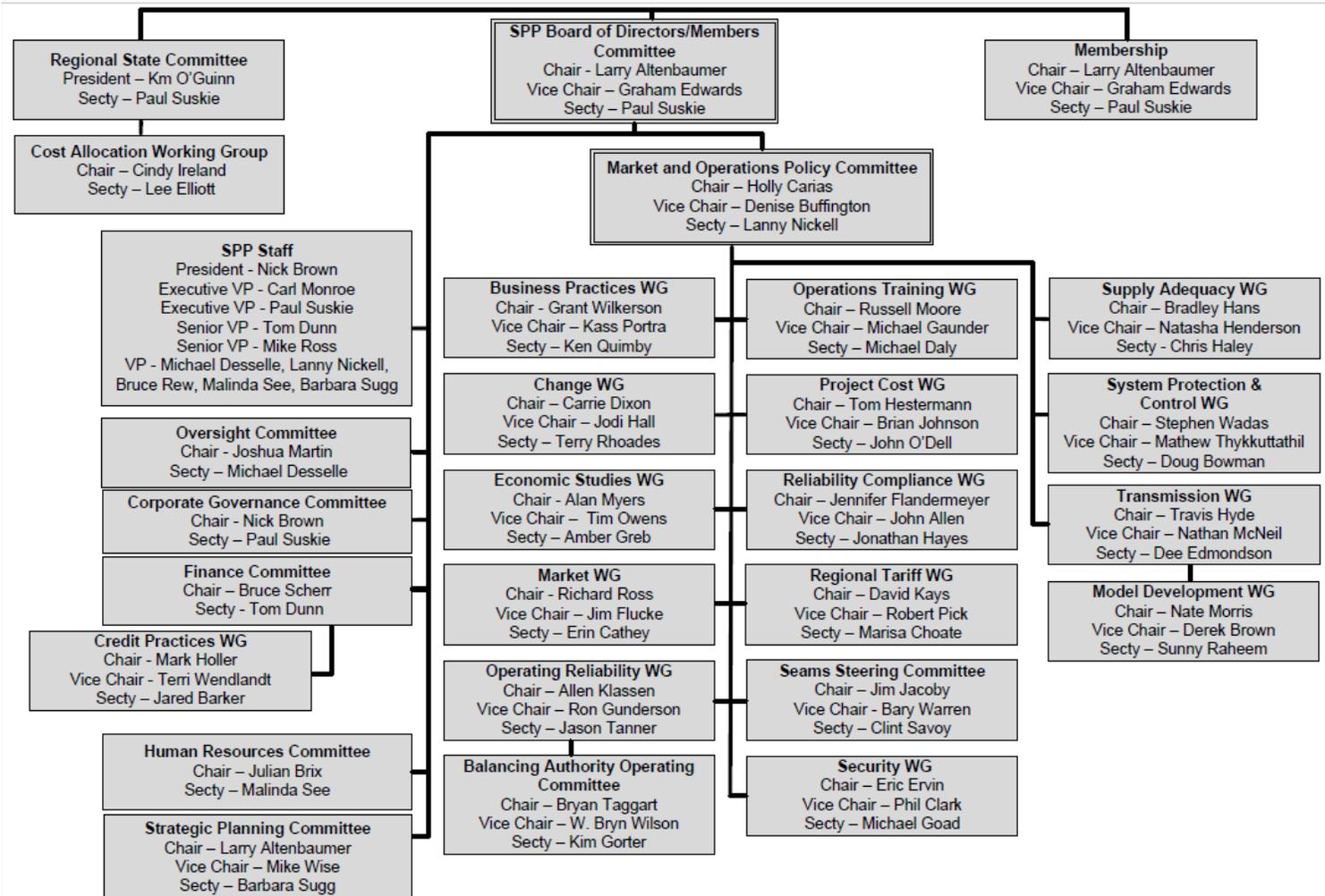
In conducting this holistic review, the HITT met 17 times over the course of a year. In-person meetings included team members and invited guests, while all stakeholders were invited to attend remotely. The group held educational sessions, reviewed 94 requests for information, and reviewed and listened to stakeholder presentations before drafting recommendations.

After vigorous debate and discussion, the HITT agreed on 21 high-level recommendations for the board's consideration. The recommendations were made from a broad perspective rather than a more narrow view of SPP's functions. The recommendations are presented in four categories: reliability, marketplace enhancements, transmission planning and cost allocation, and strategic.

In reaching these recommendations, the HITT used volumes of educational information, data and industry knowledge. Team members settled on recommendations that were a result of extensive discussions, debates, brainstorming, collaboration and compromise. The final package of high-level recommendations represents a holistic, consensus-based set of solutions to implement and/or evaluate to improve many of SPP's critical functions, with the principal goal of reliably providing the lowest-cost electricity to end-use customers.

Upon the board's approval of the HITT's 21 recommendations, the HITT expects these recommendations will be assigned to SPP's committees and working groups for more detailed development and approval, as well as implementation. The HITT has recommended an implementation action plan for board consideration with implementation timelines under oversight of the Strategic Planning Committee.

Appendix 1: SPP Working Groups

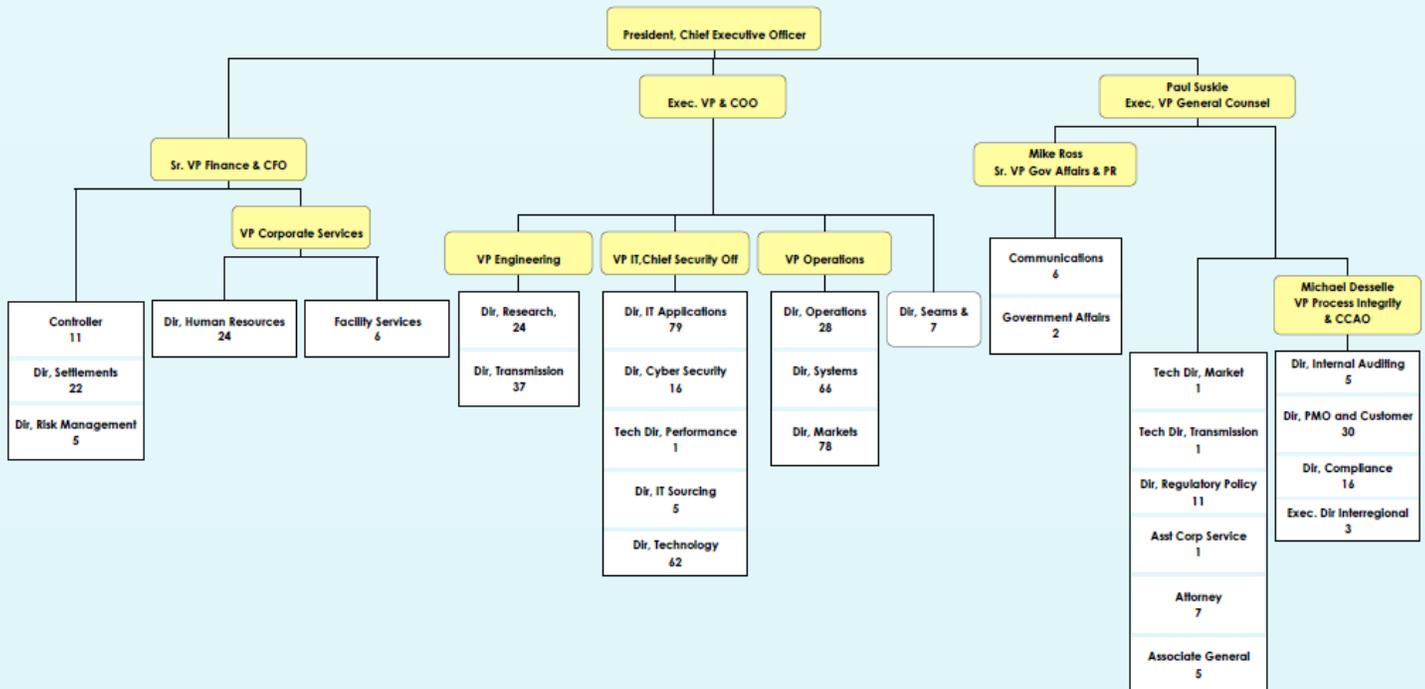


Updated 5/22/19

Appendix 2: SPP Staff Organization



SPP Organizational Chart - July 2, 2019
 Officer with detailed headcount
 Full Headcount 604





Southwest Power Pool, Inc.
FINANCE COMMITTEE
Recommendation to the Board of Directors
July 30, 2019
2020 SPP Operating Plan

Organizational Roster

The following persons are members of the Finance Committee:

Bruce Scherr	SPP Director
Susan Certoma	SPP Director
Sarah Stafford	OG&E
Sandra Bennett	American Electric Power
Laura Kapustka	Lincoln Electric
Mike Wise	Golden Spread

Background

SPP annually documents an Operating Plan (Plan) detailing significant aspects of its planned work for the upcoming calendar year. This Plan document is vetted and reviewed by the SPP Finance Committee in a joint meeting held in with the SPP Strategic Planning Committee.

Analysis

SPP's 2020 Operating Plan describes high-level objectives and initiatives planned by SPP for 2020. Noteworthy focuses are:

- Western Markets – provision of market and reliability services to utilities in the western interconnection, several of which are sister companies of existing SPP members.
- HITT Recommendations – implementation of the recommendations proposed by the HITT report
- Cyber Risk – continue to implement pro-active responses to known and emerging cyber threats

Recommendation

The Finance Committee recommends the SPP Board of Directors accept the 2020 SPP Operating Plan as a working document for development of the 2020 budget.

Approved: SPP Finance Committee July 15, 2019

Action Requested: Approve Recommendation

A PROPOSAL FOR THE SOUTHWEST POWER POOL WESTERN ENERGY IMBALANCE SERVICE MARKET (WEIS)

*Part of SPP's Western Energy Services
family of products*



Southwest Power Pool
**WESTERN
ENERGY
SERVICES**

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A Proposal for the SPP Western Energy Imbalance Service Market

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Utilities have the daunting task of ensuring electric reliability and affordability for their customers. Southwest Power Pool (SPP) has proven energy imbalance markets make this task easier and more successful. We have years of experience and a customer-centric approach to market development. We provide more than just market administration services. We provide peace of mind.

SPP is pleased to present this proposal for our Western Energy Imbalance Service market (WEIS), provided as part of our portfolio of contract-based Western Energy Services. We have made an earnest attempt to accurately estimate and clearly state the anticipated costs and obligations of designing, implementing, and administering the WEIS. We've based the market's design on both our own experience and the expressed wishes of you, our customer.

We look forward to continuing to work with you in developing a mutually beneficial relationship that will bring financial benefits and enhance electric reliability for your customers for years to come.

INTRODUCTION: SPP AND ENERGY MARKETS

A Legacy of Trustworthiness

SPP has coordinated the reliability of the bulk electric grid for more than 75 years. We were founded in 1941, incorporated in 1994, approved by the Federal Energy Regulatory Commission (FERC) as a regional transmission organization (RTO) in 2004 and have grown and matured steadily throughout our history, constantly expanding our service offerings and territory to provide greater value to more and more customers.

Even as our services, responsibilities and staff size have grown, particularly in the last two decades, our values and commitment to serving customers have remained the same. We believe in doing the right thing for the right reason in the right way, and we've managed to stay true to those values even as we've expanded our RTO footprint from eight to 14 states and will soon expand our reliability oversight to include all or part of seven states in the Western Interconnection.

Our annual stakeholder satisfaction surveys regularly return superbly favorable results among our stakeholders, and our employee engagement surveys consistently show phenomenal levels of satisfaction, motivation and effectiveness among our highly qualified, dedicated and professional staff of nearly 600 employees. All of the above is proof: Our strategy is built to last.

Our Value Proposition: Experience and Customer Service Set SPP Apart

Our value is based, among other things, on complimentary principles of maintaining independence through diversity and a commitment to being stakeholder-driven. We are facilitators, helping our stakeholders work together to keep the lights on today and in the future.

We don't tell our stakeholders what to do. We facilitate dialogue among them, ensuring every voice is heard regardless of size.

SPP's approach to business is creating and maintaining a strong, unique culture in which our staff and stakeholders collaborate to be as effective and efficient as possible.

We share your values. We understand equally the challenges of managing transmission in rural areas and the importance of maintaining reliability in large population centers. SPP serves seven of the one hundred largest cities in the U.S. and has a keen understanding of rural America, too: after all, it's where we call home and is the area we have primarily served for the past 75 years.

We hire career employees and invest in them as people first and employees second. We give back to our community. We value transparency in our actions and communications, flexibility in our approach to customer service and response to industry trends, and integrity and trust in everything we do. We consider ourselves partners with our stakeholders and stewards of their valuable resources.

We are proud that SPP today – having grown from 11 members in 1941 to 98 in 2019, spanning all or parts of 14 states and soon to provide service to even more in the west – still reflects our early principles of collaboration with an unwavering commitment to remain customer-focused.

SPP has a proven record of creating value for the companies we serve, who are as diverse as the services we offer. Our customers include investor-owned utilities, rural electric cooperatives, municipalities, public power, large retail customers and state and federal agencies. In fact, we are the only RTO to count among its members a federal agency: Western Area Power Administration, Upper Great Plains Region.

The relationships we've forged and maintained not only serve as a testament to the integrity and strength of our business model but also as a foundation on which to build the next step in SPP's evolution.

SPP's History of Successful Market Development

SPP launched its first energy imbalance services (EIS) market in 2007. With it, we set a precedent for huge returns on market-development investments. The EIS market's total implementation costs were approximately \$33 million, and in its first year alone it provided participants \$103 million in benefits.

Our 2007 EIS market was a real-time balancing market that dispatched participating generating resources to meet load every five minutes. Our members and market participants quickly saw additional reliability and economic opportunity in consolidating our 16 balancing-authority areas and expanding our market to perform day-ahead unit commitment. We began designing and implementing what would become our Integrated Marketplace.

In 2014, we launched the Integrated Marketplace. We did so on time and under budget with the highest degree of quality, something no other RTO in the world has accomplished. In its first

year of operation, our expanded market delivered \$380 million in net savings to our members and their customers, paying for itself in just four months.

SPP-administered markets save money and enhance reliability. In testimony to the House Subcommittee on Energy and Mineral Resources, Western Area Power Administration Administrator and CEO Mark Gabriel said of his organization's participation in SPP's markets, "Our participation in energy and transmission market initiatives has delivered greater benefits than we anticipated ... In addition to experiencing financial and operational benefits exceeding our conservative assumptions, above-average water conditions resulted in surplus generation sales into Southwest Power Pool (SPP) that accrued more than \$48 million of additional net market revenue. These surplus sales help put downward pressure on firm power rates."

We also have a long and successful history of providing contract services to non-members of the SPP RTO. We've provided tariff administration, reliability coordination, reserve sharing and planning authority services to 24 entities.

It's on this foundation of success that we propose to build the WEIS and bring time-tested benefits to customers in the Western Interconnection.

The SPP Advantage

SPP has worked for several years already with utilities in the west to understand their needs and design solutions to ensure the highest levels of reliability while keeping rates as low as possible for customers. SPP understands that western utilities place high value on having a voice in helping shape the ever-changing energy landscape, and that the western utility landscape represents many diverse interests that must be balanced in every decision.

These objectives are at the heart of who SPP is and how we do what we do. Our customer-driven approach will ensure western customers get the products and services they need at affordable rates they help control. Our strength is in our ability to facilitate effective discussions of complex issues

Why SPP?

- Strong customer involvement and transparent governance that balances the interests of all states and all participants
- Demonstrated customer-driven approach to decision-making
- Long-term cost certainty through customer-driven changes to service
- Efficient market operation and flow-based internal congestion management
- Future optionality for long-term market evolution
- Lower up-front and on-going costs for participating balancing authorities thanks to the market's direct interaction with embedded entities
- High utilization of legacy metering requirements
- No long-term commitments and low up-front and on-going costs for market administration

among diverse stakeholders while balancing impacts to the inseparable ideals of reliability and economics.

Our industry is undergoing transformational shifts in generation technologies, customer demands, environmental considerations and political expectations. SPP has more than 75 years of experience using a relationship-based business model to help customers meet their challenges in a way that fits the needs of their business, customers, stakeholders and regulators. We know you have a choice when considering your market options, and we believe after reviewing our proposal you'll agree our approach of providing a customer-driven energy imbalance market is the right choice for you and your customers.

SPP'S WESTERN ENERGY IMBALANCE SERVICE MARKET (WEIS)

SPP's WEIS will create opportunities for participants to take advantage of diverse generating resources, optimize their use of the Western Interconnection's transmission system and minimize overall costs to their end-use customers.

This section describes the scope and design of the WEIS. SPP believes this design will:

- Reduce capacity and energy costs to customers as much as reliably possible while respecting existing resource-adequacy requirements and existing requirements for reserving firm transmission service
- Provide price transparency for wholesale energy
- Ensure efficient use of the transmission system and help participants identify appropriate incentives to transmission expansion
- Provide a framework for efficient and equitable congestion management among market participants and with non-participants
- Allow parties in the WEIS to continue to trade bilaterally while respecting existing transmission service rights
- Provide a hedge against congestion to the owners of transmission service rights through existing rights to schedule their transmission service
- Preserve long-term transmission service rights held by customers today
- Preserve existing Federal Power Marketing Administration statutory obligations to schedule federal resources to their preference customers
- Take advantage of synergies and cost savings to the greatest extent possible through the use of existing SPP systems and processes for market implementation and operations

WEIS Market Design

In designing the WEIS, SPP has leveraged both its experience successfully building and operating an energy imbalance market from 2007-2014 and foundational systems, processes and agreements already in place in the west like the Joint Dispatch Agreement¹ (JDA) operated in the Public Service Company of Colorado (PSCo) balancing-authority area. As is common among many energy imbalance markets, the WEIS's central feature is an intra-hour, centralized dispatch of energy from participating resources. This centralized dispatch more efficiently ensures the reliability of the transmission system and minimizes the production costs of satisfying load's resource obligations.

¹ See *Order Accepting Joint Dispatch Agreement and Tariff Revisions*: <https://www.ferc.gov/whats-new/comm-meet/2016/021816/E-5.pdf>.

Table 1 summarizes key features of the WEIS which are described in greater detail on the following pages.

Resource Registration Types

The WEIS will accommodate a diverse set of resource types. This helps ensure the market operates as efficiently as possible and can take advantage of the capabilities of different resources. SPP will facilitate resource registration as part of the market-participant onboarding process.

Generating Units and Plants

A registered resource must meet the minimum requirements and functions defined in the WEIS market rules. Individual market participants will register resources on a nodal basis at settlement locations. Resources at the same physical and electrically equivalent injection point to the transmission system may register individually as generating units or collectively as a plant, affording market participants the flexibility to decide which option works best for them for each resource.

Dispatchable Demand Response Resources

A dispatchable demand response resource is a special type of resource created to model demand reductions associated with controllable load and/or behind-the-meter generation that is dispatchable by the market on a five-minute basis.

PRODUCTS, PRICING AND DISPATCH	
Design Component	DESCRIPTION
Market Product	Energy imbalance (five-minute)
Supply Adequacy	Supply adequacy checked day-ahead and before each operating hour
Pricing Mechanism	Locational Marginal Prices (LMP)
Dispatch	SPP sends resources real-time security constrained dispatch signals calculated by its market clearing engine (MCE).
Unit Commitment	Each entity is responsible for commitment of generation to meet its real-time obligation.
SETTLEMENTS	
Design Component	DESCRIPTION
Settlement Responsibilities	SPP provides centralized calculation, collection and distribution of market settlements.
Settlement Granularity	Five-minute
Settlement Timeline	Daily settlements statements
TRANSMISSION	
Design Component	DESCRIPTION
Transmission Service	Regional JDTS used as non-firm, "as-available" service with lowest priority offered at zero cost.
PARTICIPATION	
Design Component	DESCRIPTION
Participation	Participation open to entities with load or generation in or pseudo-tied into a participating BA.

Table 1: Key features of the SPP WEIS.

Jointly Owned Unit Resources

Market participants may model each ownership share as a separate resource under the Individual Resource modeling option for jointly-owned unit resources (JOU). Under the Individual Resource option, each ownership share is modeled as a separate resource for the purposes of dispatch, and each resource is offered and cleared independent of other resource shares. A JOU is not required to register under the Individual Resource option and may instead register under a single market participant using any other appropriate resource-registration type.

Dispatchable Variable Energy Resources

A variable-energy resource able to be incrementally dispatched down by the market may register as a Dispatchable Variable Energy Resource (DVER). DVERs must have a zero-megawatt (MW) minimum economic-operating limit. To ensure the WEIS does not negatively impact the participating balancing authorities' ability to comply with North American Electric Reliability Corporation (NERC) balancing standards, DVER ramp rates will be limited to reduce interval-to-interval swings in generator output.

For DVERs with a maximum economic-operating limit less than 200 MW, the maximum ramp rate cannot exceed 8 MW/min. For DVERs with a maximum economic-operating limit greater than or equal to 200 MW, the MW ramp rate per minute cannot exceed 4% of the maximum economic-operating limit. For example, a DVER with maximum economic-operating limit of 300 MW cannot exceed 12 MW/min.

External Resources

External resources wishing to participate in the SPP WEIS must pseudo-tie into a balancing authority (BA) that participates in the WEIS in accordance with any agreements and requirements of the participating BA. External resources will be responsible for registering and performing all responsibilities required of a resource registered in the WEIS.

Overview of Market Participant Responsibilities

Asset Registration

All loads and resources in each participating BA, excluding behind-the-meter generation less than 10 MW, must be registered in the WEIS. Participating balancing authorities with embedded load or generation that elects not to participate in the WEIS should register the embedded load or generation and arrange to submit schedules representing their expected activity in the market. Asset registration identifies each load and resource to an associated settlement location, the entity responsible for submitting meter data for market settlements and the entity responsible for market-settlement activities. A market participant may appoint a designated agent to perform its functions in the WEIS.

In the case of a Qualifying Facility exercising its rights under the Public Utility Regulatory Policies Act to deliver its net output to its host utility, registration will not require the Qualifying Facility to participate in the WEIS or subject it to any charges or payments related to the WEIS. The host utility must arrange to submit schedules representing the Qualifying Facility's output.

Resource Plans

Market participants with registered resources will submit operating information (e.g., on, off, outage, etc.) to enable SPP to assess resource- and ancillary-service adequacy for the WEIS, each participating BA and each market participant. The operator of the BA remains ultimately responsible to balance load and resources in their respective balancing-authority area. The WEIS will provide information that will assist the BA with these responsibilities.

Ancillary Service Plans

Market participants will submit their Ancillary Service Plan so that SPP can confirm each participant is satisfying its ancillary-service obligations. Ancillary Service Plans indicate transfers of energy obligations between market participants and, when self-provided, which resources provide these services. As part of the Ancillary Service Plan, participants may also designate reserves and regulation in excess of their energy obligations for reliability purposes, information that will be important to the responsible BA.

Offer Submittal

Beginning seven days prior to each operating day, market participants may submit offers for each registered resource for use by the WEIS. The WEIS's security-constrained economic dispatch (SCED) will dispatch available resources based on economic offers submitted for each resource while honoring submitted resource parameters and transmission limitations. Market participants may update offers 30 minutes prior to each operating hour. Submitted resource offers roll forward hour-to-hour if a participant has not submitted a resource offer for a particular hour. Market participants may submit separate resource-offer parameters for each hour of the operating day.

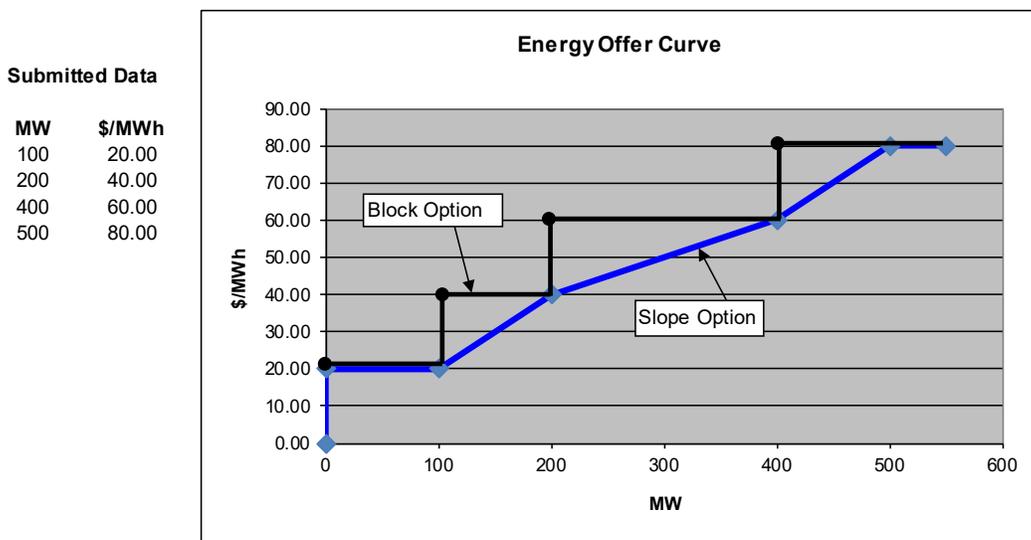
WEIS resource-offer parameters include:

1. **Resource Name**, as specified during market registration. This cannot be changed as part of resource-offer submittal.
2. **Energy Offer Curve (MW, \$/MWh, up to 10 price/quantity pairs, monotonically non-decreasing \$/MWh, increasing MW and slope or block option)**
 - a. Block and slope pairs may not coexist. The resource offer in effect for any given period of time must be comprised by all block or all slope price/quantity pairs.
 - b. The price of all megawatt-hours (MWh) below the first submitted pricing-point MWh is equal to the first pricing-point price. The price of all MWhs above the last submitted pricing point MWh is equal to the last pricing-point price.

- c. Under the slope option, the set of submitted price points are used as the beginning and ending values for calculating a linear slope for each set of beginning and ending values. Therefore, each MW between the two price points has a different price due to the interpolation of the submitted price points. Under the block option, each MW between the two MW points is offered at the price of the larger MW point. Figure 1 illustrates an energy-offer curve developed from submitted price/MWh pairs for both the slope and block options.
3. **Mitigated Energy Offer Curve (MW, \$/MWh, up to 10 price/quantity pairs, monotonically non-decreasing \$/MWh, increasing MW and slope or block option)**
 - a. Block and slope pairs may not coexist. The resource offer in effect for any given period of time must contain all block or all slope price/quantity pairs.
 4. **Minimum Economic Capacity Operating Limit (MW)**
 5. **Minimum Regulation Capacity Operating Limit (MW)**
 6. **Maximum Regulation Capacity Operating Limit (MW)**
 7. **Maximum Economic Capacity Operating Limit (MW)**
 8. **Maximum Normal Capacity Operating Limit (MW)**
 9. **Ramp-Rate-Up (curve, MW/Minute).** Ramp-Rate-Up will be submitted through a segmented profile as follows: Each profile will require at least one segment and may have up to n segments where SPP will define n, initially set to 10.
 10. **Ramp-Rate-Down (curve, MW).** Ramp-Rate-Down will be submitted through a segmented profile as follows: Each profile will require at least one segment and may

Figure 1: Energy-offer curves illustrating slope and block options.

have up to n segments where SPP will define n, initially set to 10.



11. Turn-Around Ramp Rate Factor (a value between 0.01 and 1.00)

12. Resource Dispatch Status

The following graphic illustrates how the WEIS uses the above resource parameters to dispatch energy and verify supply adequacy.

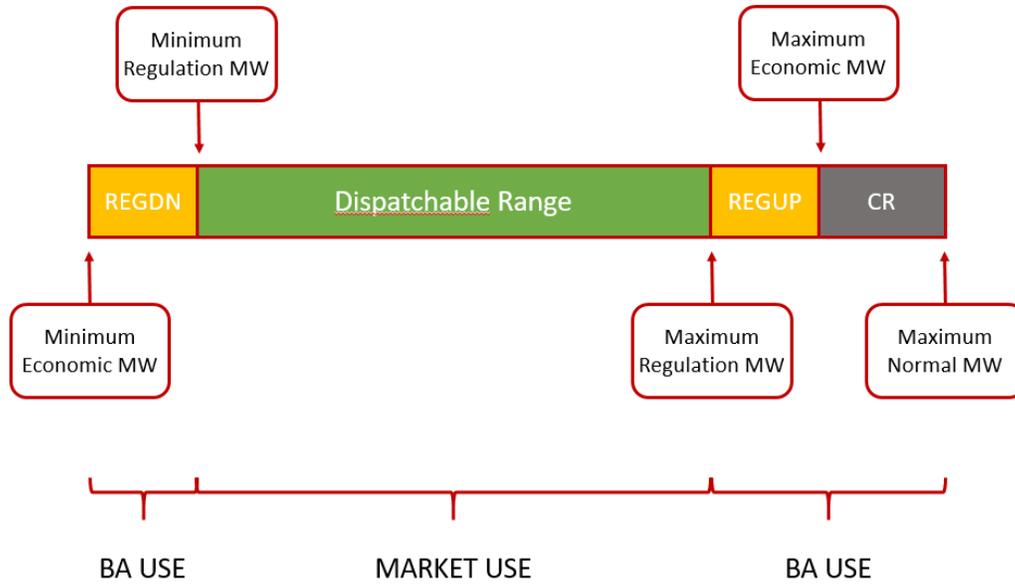


Figure 2: Use of resource-offer parameters in energy dispatch and supply-adequacy verification.

Market Operator Responsibilities

Supply Adequacy Analysis

In its role as the market operator, SPP will perform analysis to ensure each balancing authority and market participant in each balancing authority's boundaries have enough generation in their operating plan to satisfy the load and obligations for that market participant and balancing authority. Supply adequacy analysis will occur day-ahead prior to each operating day and hour-ahead within each operating day. Supply adequacy calculations will use the balancing-authority load forecast. SPP will analyze supply adequacy in both directions to ensure the WEIS is neither under- or over-supplied. Over-supply occurs when minimum generation is greater than load and purchases minus sales. Under-supply occurs when maximum generation is less than load and purchases minus sales. In the event of either over- or under-supply, the market participant will be deemed supply-inadequate.

Given the number of potential registration configurations, a market participant could be supply-inadequate regardless of how they offer into the WEIS. For example, a market participant with only generation would always be deemed to have over-supply. Given this, SPP will ultimately measure and provide information on supply adequacy at the balancing-authority level.

If, after aggregating individual market participant's supply and obligations, the balancing authority is still supply-inadequate, SPP will notify both the supply-inadequate market participants and the associated balancing authority of supply inadequacy in that area. The market participant must resolve this energy supply inadequacy by modifying its resource plan and/or schedules and must make appropriate modifications by 1700 of the day prior to the operating day for any energy-supply inadequacy revealed by the daily study. The market participant must make the appropriate modifications no later than 45 minutes prior to the operating hour for any energy supply inadequacy revealed by the hourly study.

Real-Time Balancing Market

SPP will operate the real-time balancing market (RTBM) on a continuous five-minute basis. SPP will clear the RTBM by determining the SCED that is the lowest-cost means of balancing generation and load (i.e., supply and demand) based on actual conditions, forecasted conditions and submitted offers. The RTBM uses the same network model SPP uses to perform Reliability Coordinator responsibilities in the Western Interconnection. All RTBM network configurations and transmission constraints are determined from the most recent state-estimator results.

The SCED algorithm clears offered and self-dispatched resources, when present, to minimize total production costs while maintaining reliable transmission-system operations. For each five-minute increment, the SCED algorithm will calculate nodal prices (i.e., locational marginal prices or LMPs) and quantities at each resource and load aggregation location (i.e., settlement location or SL) based on the energy imbalance between their expected operations and actual metered values in the hour.

Native Load Hedge Calculation

To calculate energy imbalance, SPP will stack the actual dispatched output of network resources and interchange after-the-fact to represent native load hedges. First, the load obligation is calculated as the submitted load values metered for each market interval plus any exports from the use of network resources in aggregate (i.e., "slice of system"). Second, the network resources and imports to serve network load are economically stacked to determine supply. At the bottom of the stack will be all imports to serve network load plus network resources self-scheduled in the WEIS and the portion of any network resources that represent their economic minimum. The rest of the actual dispatched output of each network resource is stacked based on demand-bid segments submitted in the WEIS, from lowest bid to highest.

The settlement of energy imbalance for each five-minute market interval will be based on the difference between obligation and supply. If the obligation is larger than the supply, the difference is network load energy imbalance and the market participant will pay that quantity of energy imbalance multiplied by the LMP as calculated at the respective load settlement location. If the supply is larger than the obligation, each quantity block of each network resource above the obligation would be paid its dispatched output above the obligation multiplied by that network resource's LMP.

Scheduling Activities: Bilateral Transactions

Market participants will submit energy schedules reflecting all bilateral and self-dispatched activities. The schedules' source and sink information must match the NERC Registry. For proper settlement to occur, schedules that source or sink in the WEIS must be submitted with an appropriate source and/or sink mapped to a settlement location.

SPP will allow real-time injections and withdrawals from the market as a price taker. SPP will settle these transactions with the schedule and at real-time prices.

Congestion Management

Internal Congestion management

Power-flows along parallel paths are dictated by the current, physical state of the transmission system rather than contract paths of corresponding transmission service. Because of this, SPP will use a flow-based congestion management process, including for schedule curtailment and re-dispatch, to ensure the most efficient use of the transmission system as the WEIS optimizes resource dispatch in real-time.

External Congestion Management

External to the WEIS footprint, congestion management will occur as it does today. Each external area is primarily responsible for resolving congestion management on their respective portions of the transmission system, and multi-party congestion management will occur under the Western Interconnection Unscheduled Flow Mitigation Plan (WIUFMP). The WIUFMP is a four-step coordinated process to reduce flows on qualified paths to reliable levels during real-time operations.

Coordinated Congestion Management

Currently, the WIUFMP represents the only process for coordinated congestion management in the Western Interconnection. As part of the WIUFMP, parties participating in the WEIS may receive curtailments to mitigate unscheduled flows on a qualified path. The WEIS also must ensure curtailed schedules are not back-filled inadvertently to ensure anticipated flow reduction on the qualified path occurs.

Similarly, when re-dispatching for underlying flow-based congestion issues where the congestion's primary cause is unscheduled flow on a qualified path, it is important that the market does so equitably with external parties. As the market operator, SPP has dealt with similar issues by monitoring external impacts on SPP-monitored constraints and balancing reliability with all parties contributing their "fair share" of providing relief.

The Enhanced Curtailment Calculator (ECC) continues to mature in the Western Interconnection and may allow for more equitable coordinated congestion management on constraints beyond qualified paths. SPP will continue to participate in the ECC's development or the development of other coordinated congestion management processes.

Metering Requirements

As part of its 2007 EIS market, SPP developed metering requirements to be used as a basis for market metering requirements, as most of that market's participants already had sufficient metering to meet the requirements. Similarly, in development of the WEIS it may prove acceptable to grandfather existing metering infrastructure if impacted parties agree. SPP anticipates that customers of its western RC service will meet real-time metering requirements.

Governance

The Western Joint Dispatch Agreement

SPP will administer the WEIS as a contract service separate and distinct from its role as an RTO. To participate in the WEIS, entities must execute a pro-forma Western Joint Dispatch Agreement (WJDA). The WJDA establishes a legal relationship between SPP and customers taking WEIS market administration services. The WJDA describes the administration of the WEIS by SPP and the payment obligations of customers to fund the administrative costs of WEIS implementation and operation. A draft pro-forma WJDA is available to interested customers on request by contacting customerrelations@spp.org.

Role of the Western Markets Executive Committee and SPP Board of Directors

Participants of the WEIS will have significant input and authority over its administration. SPP will establish a Western Markets Executive Committee (WMEC) comprising representatives of each non-affiliated signatory to the WJDA. Initially, the WMEC will provide a forum in which SPP and market participants can collaborate to finalize market rules for the WEIS's implementation. After market go-live, the WMEC will have authority to:

- Approve or reject proposed amendments to the WEIS Tariff
- Establish detailed WEIS Market Protocols to support the filed tariff
- Provide consultation to SPP in determining the administrative rate charged to participants of the WEIS market
- Recommend proposed amendments to the WJDA

The WMEC may establish working groups and task forces as needed to facilitate its authorities under its Charter, a draft of which is available to interested customers on request by contacting customerrelations@spp.org.

As with other contract services, SPP's independent board of directors will provide ultimate oversight of SPP's administration of the WEIS under the WJDA. The board will give significant recognition to the WMEC's decision-making role. Action taken by the WMEC under the authorities defined in its charter will be deemed to be approved by the board, and SPP will be authorized to submit requisite regulatory filings to implement the WMEC's decision. Any action or inaction taken by the WMEC may be appealed to the SPP board of directors for final resolution.

The WEIS Tariff and Market Participant Agreement

SPP will file with FERC a tariff defining the rates, terms and conditions for the WEIS and will administer the WEIS Tariff separate from its Open Access Transmission Tariff. The WEIS Tariff defines the market's rules and obligations of market participants and SPP as market operator. The WEIS Tariff will include a Market Participant Agreement that will be effective on the date each market participant begins participating in the WEIS. The Market Participant Agreement obligates each market participant to adhere to the rules and requirements of the WEIS Tariff. A

draft of the WEIS Tariff is available to interested customers on request by contacting customerrelations@spp.org. SPP intends to work with the initial WEIS customers to finalize the tariff in advance of filing it at FERC.

Market Settlements

To enable SPP to settle market activities, market participants must declare an entity designation (e.g., Market Participant, Asset-Owner and/or Meter Agent) and provide register assets (e.g., generation resources and load assets) so that SPP may account for them in its commercial model and implement them in WEIS architecture. Market participants will do this as part of their onboarding process. SPP's market clearing engine will determine data points such as LMPs, energy, and out-of-merit energy (OOME) dispatch instructions and curtailments.

SPP's Settlement Management System (SMS) calculates the financial settlement of real-time imbalance market charges and payments including:

- Energy Imbalance: accounts for MWs of energy differences between total load obligations and total resource supply
- Uninstructed Resource Deviation Charge (URD): Differences between dispatched and actual amounts of energy
- Revenue Neutrality Uplift (RNU): Net differences between all charges and credits calculated in the SMS for WEIS activity. These amounts are allocated as charges or credits to all market participants.
- Miscellaneous charges: Charges or credits to market participants for activity that cannot be adjusted by changing the billing determinants.

The SMS uses data from upstream systems including the market clearing engine, schedule data, bilateral settlement schedules (BSS), meter submittal and others. Market participants can submit metered MWhs as hourly or five-minute values. In the case of hourly values, SPP allocates submitted hourly meter data for resources and loads in five-minute values using five-minute telemetered or state estimator profiles for the corresponding hour.

On a daily basis, SPP will post validated settlement reports on a web-based portal accessible by market participants. The preliminary scheduled settlement date occurs seven calendar days after the operating date (S7). The secondary scheduled settlement date occurs 53 calendar days after the operating date (S53) and identifies differences from the preliminary settlement for that same operating date. The final scheduled settlement will occur 120 calendar days after the operating date (S120) and will include subsequent differences between the secondary and final settlement. Resettlements are used as necessary to resolve disputes and correct errors that occur on an ad hoc basis. Each posting date contains settled market activity for preliminary (S7), secondary (S53) and final (S120) dates and, if necessary, resettlement activity for a given set of operating dates.

Market participants with certificate-based access may view settlement reports on the portal. Reports contain granular data used in market settlements that enable the participants to perform shadow settlement activities. For convenience, the portal is compatible with movement of data via application programming interface.

SPP offers a settlements dispute process for resolving questions regarding any billed amount. Participants can challenge or seek clarity regarding any scenario or circumstance leading to a charge or credit on their invoice. Disputes submitted through this process must adhere to timelines outlined in the WEIS Tariff, can be granted or denied, and can lead to resettlement for one or more market participants for any operating day's activities in the stated timelines.

SPP will invoice cumulative market activity for each market participant on a weekly basis. Invoices will be prepared and made available on the portal by 8:00 a.m. Central Prevailing Time (CPT) on Thursdays with exceptions for holidays. Payments are due from market participants by 5:00 p.m. CPT on the fourth business day following the day the invoice was issued. SPP will make payments to market participants no later than 5:00 pm CPT on the sixth business day following the day of the invoice. A market settlement calendar will also be provided on the web-based portal, detailing all dates and settlement activities for upcoming periods.

Market Monitoring

Market monitors ensure a fair and competitive market for all participants. To that end, the mission of the WEIS Market Monitor will be to (a) monitor and report to FERC on possible abuses of horizontal and vertical market power and gaming in the WEIS by any market participant; (b) identify market design flaws and recommend to SPP any changes in design to improve the operation of the WEIS for the benefit of consumers and market participants; and (c) monitor market participants' compliance with market rules. While fulfilling its mission, the market monitor's scope of monitoring encompasses all aspects of transmission and operations activities which may impact the competitiveness of the WEIS.

SPP's independent Market Monitoring Unit (MMU) will perform monitoring oversight for the WEIS. To perform the activities necessary to provide impartial and effective market monitoring in the scope of the Market Monitoring Plan (documented in Attachment C of the WEIS Tariff), the MMU will remain independent from market participants and SPP management, reporting directly to the Oversight Committee of SPP's board of directors.

As the WEIS Market Monitor, the MMU will work to protect and foster competition while minimizing interference with open and competitive markets. The market monitor prefers to minimize opportunities for participants to exercise market power by making recommendations to improve the operation of markets in advance rather than taking corrective measures after-the-fact.

The market monitor will hold an advisory role in stakeholder processes. As part of that role and in this advisory capacity, the independent MMU will participate in working group and internal SPP efforts, providing opinions and recommendations to improve market design and operations as necessary. Additionally, the market monitor will hold training sessions during the onboarding process to educate market participants about its role and functions.

The MMU will ensure a fair and competitive market by monitoring the WEIS for potential market manipulation, including:

- Withholding of generation capacity or uneconomic generation to manipulate price.
- Withholding by both energy-offer manipulation (economic withholding) and physical-generator or transmission-parameter manipulation (physical withholding)
- Potential uneconomic generation to manipulate price (uneconomic production).

Economic withholding is described in Attachment B of the WEIS Tariff, while physical withholding and uneconomic production are described in Attachment C.

In the process of monitoring for market manipulation, the market monitor may request data from market participants and will maintain a secure, confidential web portal through which to collect information. For other information, the Market Monitor may contact market participants to request information or ask for an explanation of unusual behavior. The Market Monitor has a 24/7 on-call support number.

As part of its responsibilities, the market monitor must also refer to FERC any suspected market violations including, but not limited to, suspected exercise of market power or behaviors resulting in manipulation of the market. All such referrals by the market monitor to FERC will be confidential. Both single events and sustained ongoing issues may require referral to FERC.

The market monitor will perform annual and quarterly reviews of the state of the WEIS and provide a report of those reviews to FERC, SPP, the SPP board, state commissions, market participants and other interested entities.

Potential Future Market Enhancements

The WEIS design described above represents a robust, efficient market solution for energy imbalance, though SPP appreciates that market participants likely will consider future enhancements that could lead to greater efficiencies or take advantage of new technologies. After the WEIS is implemented, SPP is committed to collaboratively working with participants to continually evaluate the costs and benefits of potential market enhancements. Based on past experience and understanding of its western customers' goals, SPP believes the following potential enhancements could eventually augment the WEIS's functionality and value.

Dispatchable Dynamic Schedules

Dispatchable dynamic schedules could increase external parties' (i.e., those that lack assets in the market) participation in and access to the WEIS. Parties with necessary transmission service could submit dispatchable dynamic schedule offers to either import into the WEIS market from an external boundary settlement location or to export from the market to an external boundary settlement location. Parties would submit schedules with an associated price for the MW amount on the tag or schedule. When the market runs its SCED, it would consider each schedule as an offer or bid at that settlement location. If the dispatchable dynamic schedule clears, based on the submitted offer and calculated price at the settlement location, the energy settlement would reflect the schedule's impact. The market participant submitting the schedule would pay or receive the LMP at the associated boundary settlement location. The designated responsible party or parties on the schedule would pay congestion charges for the LMP differential between the source and the sink.

Ramping Capability Product

SPP and its members are developing a ramping capability product that will allow the Integrated Marketplace to account for short-term fluctuations in its net-load obligations. These net-load deviations can be caused by differences in load forecast, renewable energy forecasts and fluctuations in generator availability. The ramping capability product will ensure the Integrated Marketplace has the appropriate amount of ramping capability for future intervals. It will also enable more transparent pricing of the ramping capability resources make available to the market.

Trading Hubs

The WEIS may benefit from the ability to define one or more trading hubs to help facilitate bilateral trading between parties. Bilateral schedules, including transmission service requirements, would use the hub(s) as a settlement location. Market participants or other appropriate groups would analyze market behaviors and seek input from stakeholders to identify potential hubs.

Energy Storage Resource

SPP is developing market policy to comply with FERC Order 841 (Electric Storage Participation in Markets Operated by Regional Transmission Organizations and Independent System Operators).

As energy storage resources proliferate in the Western Interconnection, the WEIS could be enhanced to take advantage of their unique physical and operating characteristics.

Quick-Start Resource Logic

SPP continues to work on appropriately valuing and incenting market participation by quick-start resources. As SPP develops logic to address the operating characteristics of these resources, the WEIS may benefit from adopting it as well.

Transmission in the Market

SPP will deliver energy between participating generators and load in the WEIS² using regional Joint Dispatch Transmission Service (JDTS), a form of intra-hour, non-firm transmission service. To produce the most efficient market solution, the WEIS's SCED will use JDTS to make use of all unscheduled transmission capacity in the market footprint to redispatch participating generators. As the lowest priority transmission service, JDTS will not consume marketable available transfer capability or displace other forms of firm or non-firm transmission service offered by a participating transmission provider. Instead, JDTS makes intra-hour use of otherwise-unsold transmission capacity and the non-firm redirect of existing network and point-to-point transmission service that has already been procured by transmission customers.

Load-serving entities may use JDTS only to serve their native load in one of the balancing authorities participating in the WEIS. JDTS cannot be used as a substitute for point-to-point or network integration transmission service or for off-system sales of capacity or energy to provide direct or indirect transmission service to a third party. For off-system purchases and sales, customers must ensure point-to-point transmission service has been obtained from the applicable transmission service providers, as needed, to import purchases from outside the market footprint or to export off-system sales, in accordance with FERC regulations.

An attachment to the WEIS Tariff will describe the rates, terms and conditions for JDTS. Any transmission provider participating in the WEIS will need to amend its tariff to allow for SPP's administration of JDTS. As the WEIS uses unreserved and the non-firm redirect of reserved transmission capacity already paid for by load, there will be no additional charge assessed to load for JDTS. The rate for both on-peak and off-peak JDTS will be zero.

As the lowest priority non-firm transmission service, the market will curtail JDTS prior to curtailing other types of higher priority service. The market will use SCED to accomplish this curtailment of JDTS up to the point where the impact of imbalance energy on a constrained element has been reduced to zero. It will then take action to curtail other schedules in, entering or exiting the market. The reduction of economic imbalance energy will be reflected in the calculation of LMPs between constrained nodes on the transmission system.

SPP will not separately calculate or settle JDTS losses in the market. LMP calculations for the settlement of imbalance energy inherently include the impact of serving load plus losses. Market resources will thus be paid for providing energy to serve losses caused by imbalance, and load will pay for the energy necessary to supply losses. Transmission customers with short- or long-term transmission service from transmission providers participating in the WEIS will continue to compensate them for losses according to the terms of service offered by those providers.

² JDTS was filed by PSCo as part of the Joint Dispatch Agreement in Docket Nos. ER16-178 and ER16-180. As relevant here, JDTS will be expanded to include the use of all unscheduled transmission capability plus the non-firm redirect of existing scheduled capability.

Market Participant Onboarding

SPP will strive to ensure all market participants' readiness to participate in the WEIS, and its onboarding process is a key component of the readiness plan. Onboarding will guide market participants and their designated agents through the process of completing all required contractual documentation, establishing connectivity with market systems and providing necessary information regarding generation and load to be registered in the WEIS. Onboarding is facilitated by an SPP onboarding specialist who serves as a project manager to ensure each market participant is smoothly and successfully integrated into the WEIS.

Market participant readiness is measured in terms of key deliverables per a project timeline and will include frequent communication among the participant and all impacted SPP departments according to the WEIS implementation program hierarchy. If situations arise in which market participants lag in meeting key program milestones, SPP will initiate outreach activities to ensure success for each individual market participant and the overall program. This process entails meeting with the market participant to determine the cause of the delay and implement a plan to address deficiencies.

Once WEIS implementation begins, SPP will initiate onboarding activities with each market participant early in the program schedule. Some key deliverables of the onboarding process include:

- Signing the Market Participant Agreement and all addendums
- Signing the Meter Agent Agreement
- Providing Assurances of Creditworthiness
- Submitting Local Security Administrator form(s)
- Establishing communication links between SPP and the market participant

After the WEIS is implemented, SPP will follow its current and ongoing market participant onboarding process and timelines. The onboarding process for *new* WEIS market participants will support the registration of new asset-owning market participants three times per year.

The registration deadline and implementation dates are listed in the table below.

REGISTRATION DEADLINE	IMPLEMENTATION DATE
February 1	August 1
June 1	December 1
October 1	April 1

Table 1: Registration deadlines and implementation dates for market-participant onboarding

Existing market participants must submit modifications to their registration of assets to SPP with at least 45 days advance notice. Changes to SPP's commercial and network models will occur monthly and will be effective on the first day of the month.

Training

SPP’s stakeholders consistently rank its customer training services as one of the most valuable services it provides. The WEIS training program gives market participants opportunities to not only become efficient and confident participants but also to increase effective participation in the energy imbalance market. All training sessions will be offered multiple times to ensure all interested parties can participate. Table 3 describes trainings that will be available to market participants leading up to and after the WEIS’s implementation.

NAME	DESCRIPTION	TIMEFRAME	TYPE	TARGET AUDIENCE
Introduction to the WEIS	Two-hour introduction to SPP’s WEIS. This course provides an overview of the fundamental concepts for operating and participating in an energy market.	Spring 2020	Virtual Instructor-led Training (VILT)	Personnel interested in understanding the components of an energy imbalance market.
WEIS Fundamentals In-Depth Clinic	This 12-hour course details the specific functions and features of market operations that ensure effective participation in SPP’s WEIS.	Three months prior to market trials	Instructor-led course to be hosted in a central location	Personnel tasked with performing or supporting market activities
Ad-hoc, hot-topic training	These courses will cover specific topics and will be determined based on stakeholder need and/or test results from market trials.	From the start of market trials through parallel operations	VILT or performance support material	Market-support staff
Post Go-Live Training	SPP Customer training provides on-going education post go-live based on market enhancements, NERC/FERC orders and stakeholder identified needs			

Table 2: WEIS Training Deliverables

IMPLEMENTATION

Development and Launch Timeline

SPP expects implementation of the WEIS will take approximately 16 months to complete and anticipates a go-live date of December 1, 2020. This assumes SPP receives signed agreements from a sufficient number of customers by August 1, 2019 to ensure funding of implementation costs. The development and launch schedule, illustrated below, takes into account estimated timelines for state and federal regulatory proceedings, establishing connectivity and data exchange, modifications to SPP’s market and settlements systems and market participant onboarding and training.

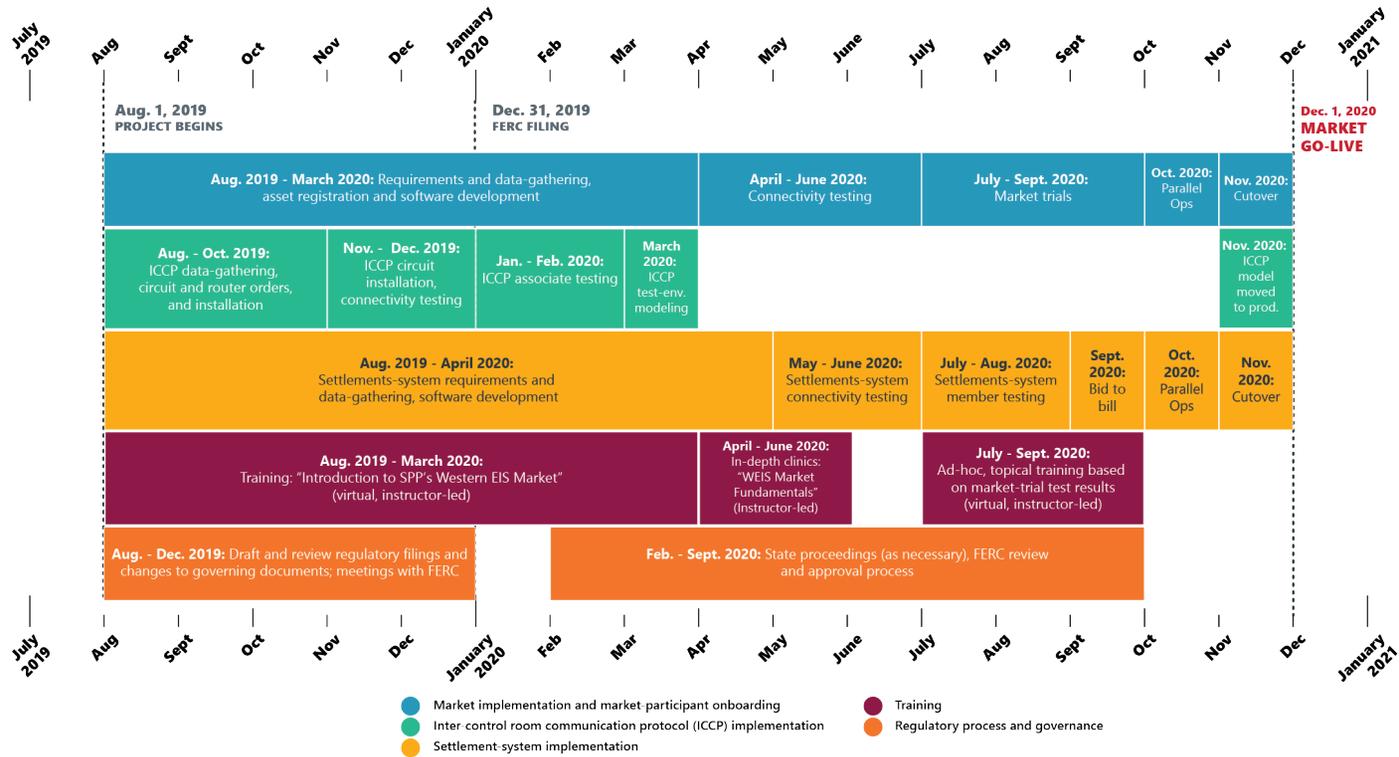


Figure 3: WEIS Implementation Timeline

OTHER POTENTIAL SERVICE OFFERINGS

While this document describes SPP's proposed Western Energy Imbalance Service market, SPP also provides a number of other services on a contract basis. Beginning December 2019, SPP will serve as Reliability Coordinator for fourteen utilities in the west.

We have a long and successful history of providing contract services to non-members of the SPP RTO. We've provided tariff administration, reliability coordination, reserve sharing and planning authority services to 24 entities. We can also provide training on a broad range of topics including markets, settlements, compliance, and transmission planning.

If your company is interested in discussing any of these other services, please contact our Customer Relations department at customerrelations@spp.org or [submit a request using our Request Management System](#) and a representative will contact you to discuss your needs and options.

Monthly Financial Reporting Package
May 2019
(2018 Preliminary & Unaudited)

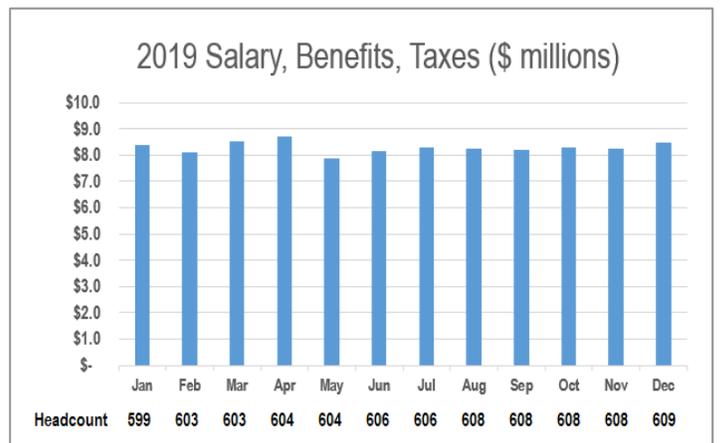
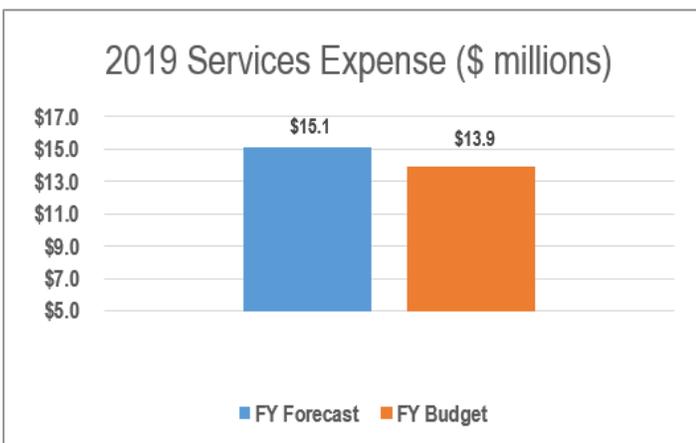
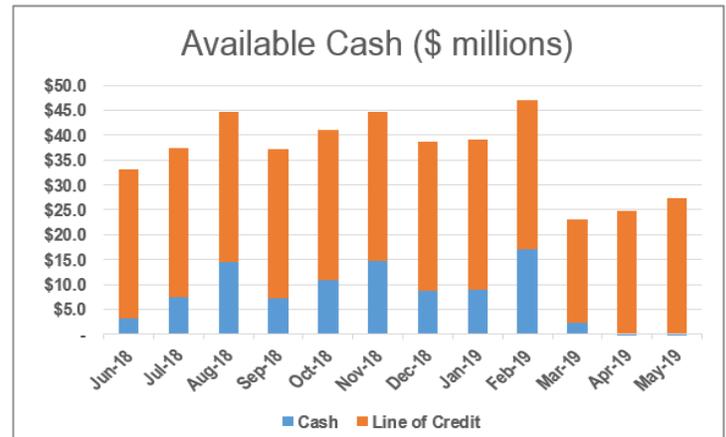
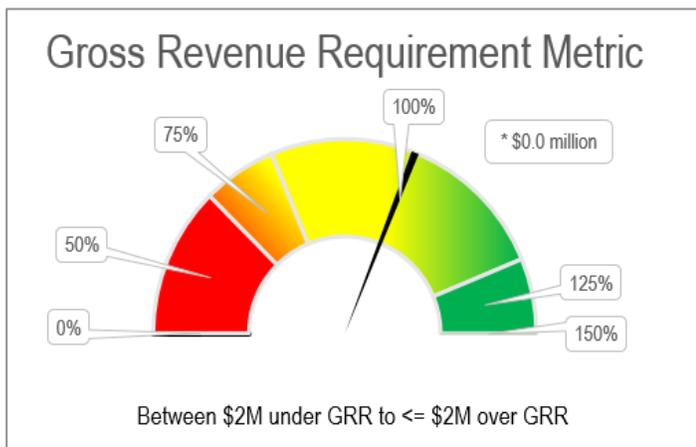
SPP Executive Summary – May

2019 Over / (Under) Recovery

Cost Recovery (\$ millions)	2019 Fcst	2019 Budget	Fav/ (Unfav)
Gross Revenue Requirement (GRR) *	\$171.3	\$171.3	\$0.0
Net Revenue Requirement (NRR)	156.4	157.5	1.1
Admin Fee Revenue	157.9	157.5	0.4
Over / (Under) Recovery	\$1.5	\$0.0	\$1.5

* GRR for HR metric excludes FERC fee expense

GRR & Available Cash, Compensation and Outside Services Expenses



Southwest Power Pool
2019 Financial Commentary
May 31, 2019
(in thousands)

Summary				
	2019 FY Forecast	2019 FY Budget	Fav/(Unfav) Variance	
Revenues	\$194,184	\$194,696	(\$512)	(0.3%)
Expenses	194,470	196,446	1,976	1.0%
Net Income/(Loss)	<u>(\$286)</u>	<u>(\$1,750)</u>	<u>\$1,463</u>	83.6%

Revenue				
	2019 FY Forecast	2019 FY Budget	Fav/(Unfav) Variance	
Tariff Administration Service	\$157,852	\$157,480	\$372	0.2%
FERC Fees	29,622	31,160	(1,539)	(4.9%)
Miscellaneous Income	5,907	5,230	677	12.9%
Contract Services Revenue	216	202	14	6.7%
Annual Non-Load Dues	588	624	(36)	(5.8%)
Total Revenue	<u>\$194,184</u>	<u>\$194,696</u>	<u>(\$512)</u>	(0.3%)

FERC Fees & Assessments budget assumed a significant increase in the Schedule 12 rate for 2019 as a result of associated tariff changes. Although the budget assumed the rate increase would become effective in January 2019, the rate did not go into effect until April which results in an unfavorable variance to the budget for the year.

Miscellaneous Income primarily includes revenues associated with engineering studies along with various other revenue sources such as IM virtual fees, MISO settlement, miscellaneous rebates, reserve sharing, and circuit reimbursements. The variance is driven by increased activity related to Engineering studies and IM virtual fees. Engineering studies income is partially offset by higher pass-thru consulting costs reflected in outside services expense.

Southwest Power Pool
2019 Financial Commentary
May 31, 2019
(in thousands)

	Expense					
	2019 FY Forecast			2019	Fav/(Unfav)	
	SPP	RC West	Total SPP	Budget	Variance	
Salary & Benefits	\$97,398	\$2,152	\$99,549	\$98,704	(\$845)	(0.9%)
Assessments & Fees	23,091	-	23,091	23,091	0	0.0%
Communications	4,056	435	4,491	4,792	300	6.3%
Maintenance	17,417	160	17,577	18,781	1,204	6.4%
Outside Services (Including RSC)	15,413	-	15,413	14,329	(1,084)	(7.6%)
Administrative	4,912	10	4,923	5,229	306	5.9%
Travel & Meetings	2,949	172	3,121	3,055	(65)	(2.1%)
Depreciation	18,805	116	18,921	19,447	526	2.7%
Other Expenses	7,313	71	7,384	9,019	1,635	18.1%
Total Expense	\$191,354	\$3,116	\$194,470	\$196,446	\$1,976	1.0%

Salary & Benefits are expected to be unfavorable to budget primarily related to changes in pension and retiree health care plan costs. The forecast reflects an increase of \$712 thousand based on the most recent actuarial valuations. The approved funding for 2019 exceeds budget by \$470 thousand and contributes to an unfavorable variance in the net revenue requirement (NRR) recovery calculation.

The favorable variance in Maintenance is mainly driven by delays and/or deferrals of capital spending that drive incremental hardware and software maintenance. Additionally, spending for facilities related maintenance is favorable to budget due to shifts in timing of certain replacement/repair projects.

The increase in the Outside Services forecast is primarily related to a rise in legal expenses (e.g. zonal placement litigation), as well as unbudgeted consulting costs associated with performing model validation studies required for the NERC MOD-033-1 requirement that were submitted in late 2018. Increases in engineering studies and modeling activity also contribute to the unfavorable variance to budget. The increase in consulting utilized for engineering studies is offset by associated pass-thru revenues recorded in miscellaneous income. Various other items, mostly related to staff augmentation and reprioritization of various initiatives, are favorable to budget and partially offset the unfavorable variance.

Other Expenses include interest expense, capitalized interest, swap valuation, investment income, unrealized gain/loss on investments, and other miscellaneous income and expense amounts. Interest expense is associated with debt issuances used for capital expenditures. Interest expense and capitalized interest are the only items in this category that are included in the budget and the NRR calculation, and are expected to remain relatively consistent with the budgeted amounts in 2019. The remaining expense and income items are highly unpredictable and therefore are not included in the budget. The valuation adjustments are currently the main driver of the overall favorable variance in other expenses and are not reflected in the NRR recovery calculation since they are considered non-cash items.

Southwest Power Pool
Monthly Financial Overview
May 31, 2019
(in thousands)

	Actual Jan-19	Actual Feb-19	Actual Mar-19	Actual Apr-19	Actual May-19	Forecast Jun-19	Forecast Jul-19	Forecast Aug-19	Forecast Sep-19	Forecast Oct-19	Forecast Nov-19	Forecast Dec-19	FY 2019 Forecast	FY 2019 Budget	Variance Fav/(Unfav)	FY 2018 Actual	Variance Fav/(Unfav)
Income																	
Tariff Administrative Service	\$13,115	\$11,792	\$14,038	\$12,891	\$13,296	\$12,886	\$13,403	\$13,406	\$12,994	\$13,403	\$13,224	\$13,404	\$157,852	\$157,480	\$372	\$164,969	(\$7,117)
FERC Fees	2,362	1,866	1,739	2,588	2,280	2,620	2,929	3,211	3,108	2,620	2,403	2,484	30,210	31,784	(1,575)	27,482	2,728
Contract Services Revenue	5	5	5	5	5	3	3	175	3	3	3	3	216	202	14	856	(641)
Miscellaneous Income	414	452	611	469	431	673	452	597	452	452	452	452	5,907	5,230	677	6,205	(299)
Total Income	15,895	14,116	16,393	15,953	16,012	16,182	16,787	17,389	16,556	16,478	16,082	16,343	194,184	194,696	(512)	199,513	(5,329)
Expense																	
Salary & Benefits	8,368	8,131	8,535	8,692	7,890	8,163	8,285	8,256	8,218	8,285	8,230	8,496	99,549	98,704	(845)	96,616	(2,933)
Employee Travel	129	189	148	177	222	185	183	187	190	190	161	155	2,115	2,050	(65)	1,895	(220)
Administrative	268	389	279	559	351	493	587	296	289	786	313	311	4,923	5,229	306	4,602	(321)
Assessments & Fees	1,924	1,924	1,924	1,924	1,924	1,924	1,924	1,924	1,924	1,924	1,924	1,924	23,091	23,091	0	21,060	(2,031)
Meetings	62	180	52	78	83	127	124	50	56	106	35	52	1,006	1,006	0	919	(87)
Communications	331	351	358	334	360	389	389	392	392	397	403	4,491	4,792	300	3,840	(651)	
Maintenance	1,135	1,381	1,245	1,301	1,218	1,287	1,402	1,464	1,469	1,635	1,916	2,124	17,577	18,781	1,204	17,180	(397)
Services	1,315	1,405	1,047	1,088	1,171	1,370	1,394	1,645	1,108	1,403	1,037	1,087	15,070	13,889	(1,180)	12,192	(2,878)
Regional State Committee	11	30	28	11	32	24	24	37	37	37	37	37	344	440	96	178	(165)
Depreciation	1,399	1,392	1,379	1,387	1,523	1,692	1,693	1,709	1,677	1,699	1,702	1,668	18,921	19,447	526	18,163	(758)
Total Expense	14,943	15,372	14,995	15,552	14,775	15,653	16,007	15,959	15,359	16,462	15,752	16,257	187,086	187,427	340	176,644	(10,442)
Other Income/(Expense)																	
Investment Income	7	6	93	25	16	-	-	-	-	-	-	-	148	-	148	355	(207)
Interest Expense	(741)	(734)	(745)	(752)	(747)	(749)	(731)	(724)	(732)	(720)	(715)	(719)	(8,810)	(9,067)	256	(9,390)	579
Capitalized Interest	-	-	49	-	-	26	-	-	34	-	-	43	152	47	104	122	30
Change in Valuation of Swap	-	-	(169)	-	-	-	-	-	-	-	-	-	(169)	-	(169)	725	(893)
Other Income/Expense	226	88	62	107	(239)	-	-	-	-	-	-	-	244	-	244	(507)	750
Unrealized Gain on Investment	701	300	214	416	(580)	-	-	-	-	-	-	-	1,051	-	1,051	(528)	1,579
Chg in Emp Benefit Plan Funded Status	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(7,019)	7,019
Net Other Income (Expense)	193	(340)	(496)	(204)	(1,550)	(724)	(731)	(724)	(698)	(720)	(715)	(677)	(7,384)	(9,019)	1,635	(16,241)	8,857
Net Income (Loss)	\$1,145	(\$1,596)	\$903	\$197	(\$313)	(\$195)	\$50	\$705	\$499	(\$705)	(\$385)	(\$591)	(\$286)	(\$1,750)	\$1,463	\$6,627	(\$6,914)
2019 Headcount																	
Approved Budgeted Positions	616	616	618	625	625	625	625	625	625	625	625	625	625	625		609	
Actual Headcount (Incl. Vacancy)	599	603	603	604	604	606	606	608	608	608	608	609	609			589	
Actual Positions (Excl. Vacancy)	618	618	620	628	628	628	628	628	628	628	628	628	628			609	
Headcount Vacancy Run rate	3%	2%	3%	4%	4%	4%	4%	3%	3%	3%	3%	3%	3%	3%			
NRR Over / (Under) Recovery	\$1,954	(\$831)	(\$2,765)	\$700	\$1,432	(\$4,464)	\$1,092	\$905	(\$4,267)	\$710	\$649	(\$4,658)	\$1,489			\$11,083	

Southwest Power Pool
RC West Breakout
May 31, 2019
(in thousands)

	SPP			RC West			Total SPP		
	FY 2019 Forecast	FY 2019 Budget	Variance Fav/(Unfav)	FY 2019 Forecast	FY 2019 Budget	Variance Fav/(Unfav)	FY 2019 Forecast	FY 2019 Budget	Variance Fav/(Unfav)
Total Income	\$194,184	\$194,696	(\$512)	-	-	-	\$194,184	\$194,696	(\$512)
Expense									
Salary & Benefits	97,398	96,115	(1,283)	2,152	2,589	437	99,549	98,704	(845)
Employee Travel	1,954	2,019	65	160	30	(130)	2,115	2,050	(65)
Administrative	4,912	5,079	167	10	149	139	4,923	5,229	306
Assessments & Fees	23,091	23,091	0	-	-	-	23,091	23,091	0
Meetings	994	1,000	6	12	5	(7)	1,006	1,006	0
Communications	4,056	4,500	444	435	292	(143)	4,491	4,792	300
Maintenance	17,417	18,586	1,170	160	194	34	17,577	18,781	1,204
Services	15,070	13,889	(1,180)	-	-	-	15,070	13,889	(1,180)
Regional State Committee	344	440	96	-	-	-	344	440	96
Depreciation	18,805	19,447	642	116	-	(116)	18,921	19,447	526
Total Expense	184,040	184,167	127	3,046	3,259	214	187,086	187,427	340
Other Income/(Expense)									
Investment Income	148	-	148	-	-	-	148	-	148
Interest Expense	(8,740)	(8,974)	234	(71)	(92)	22	(8,810)	(9,067)	256
Capitalized Interest	152	47	104	-	-	-	152	47	104
Change in Valuation of Swap	(169)	-	(169)	-	-	-	(169)	-	(169)
Other Income/Expense	244	-	244	-	-	-	244	-	244
Unrealized Gain on Investment	1,051	-	1,051	-	-	-	1,051	-	1,051
Net Other Income (Expense)	(7,313)	(8,927)	1,613	(71)	(92)	22	(7,384)	(9,019)	1,635
Net Income (Loss)	\$2,830	\$1,602	\$1,228	(\$3,116)	(\$3,352)	\$236	(\$286)	(\$1,750)	\$1,463
2019 Headcount	608	605	(3)	20	20	0	628	625	(3)

NOTE: Not reflected above is 2018 spend for RC West of \$284K. The total variance for RC West for 2018 - 2019 is \$48K unfavorable.

Southwest Power Pool
Current Month Financial Overview
May 31, 2019
(in thousands)

	Current Month Compared to Forecast			YTD Actual Compared to YTD Budget			FY Forecast Compared to FY Budget		
	May-2019	May-2019	Variance	May-2019	May-2019	Variance	FY 2019	FY 2019	Variance
	Actual	Forecast	Fav/(Unfav)	Actual	Budget	Fav/(Unfav)	Forecast	Budget	Fav/(Unfav)
Income									
Tariff Administrative Service	\$13,296	\$13,272	\$24	\$65,132	\$65,137	(\$6)	\$157,852	\$157,480	\$372
FERC Fees	2,280	2,316	(36)	10,834	11,290	(456)	30,210	31,784	(1,575)
Contract Services Revenue	5	3	3	26	13	14	216	202	14
Miscellaneous Income	431	430		2,377	2,237	139	5,907	5,230	677
Total Income	16,012	16,021	(10)	78,369	78,678	(309)	194,184	194,696	(512)
Expense									
Salary & Benefits	7,890	8,091	201	41,616	41,406	(210)	99,549	98,704	(845)
Employee Travel	222	200	(23)	865	853	(11)	2,115	2,050	(65)
Administrative	351	276	(74)	1,846	2,023	177	4,923	5,229	306
Assessments & Fees	1,924	1,924	0	9,621	9,621	-	23,091	23,091	
Meetings	83	135	51	456	542	86	1,006	1,006	0
Communications	360	389	28	1,735	1,767	32	4,491	4,792	300
Maintenance	1,218	1,289	72	6,279	7,430	1,150	17,577	18,781	1,204
Services	1,171	1,219	47	6,026	5,928	(98)	15,070	13,889	(1,180)
Regional State Committee	32	24	(8)	112	183	71	344	440	96
Depreciation	1,523	1,694	171	7,081	7,679	598	18,921	19,447	526
Total Expense	14,775	15,240	465	75,637	77,433	1,796	187,086	187,427	340
Other Income/(Expense)									
Investment Income	16	-	16	148	-	148	148	-	148
Interest Expense	(747)	(741)	(5)	(3,719)	(3,780)	60	(8,810)	(9,067)	256
Capitalized Interest	-	-	-	49	47	1	152	47	104
Change in Valuation of Swap	-	-	-	(169)	-	(169)	(169)	-	(169)
Other Income/Expense	(239)	-	(239)	244	-	244	244	-	244
Unrealized Gain on Investment	(580)	-	(580)	1,051	-	1,051	1,051	-	1,051
Net Other Income (Expense)	(1,550)	(741)	(808)	(2,396)	(3,732)	1,336	(7,384)	(9,019)	1,635
Net Income (Loss)	(\$313)	\$40	(\$352)	\$336	(\$2,487)	\$2,823	(\$286)	(\$1,750)	\$1,463
Headcount	604	604	-	604	625	(21)	628	625	3

Southwest Power Pool
Balance Sheet
May 31, 2019
(in thousands)

	<u>5/31/2019</u>	<u>12/31/2018</u>	<u>Net Change</u>
ASSETS			
Current Assets			
Cash & Equivalents	\$158,386	\$93,593	\$64,792
Restricted Cash Deposits	446,398	344,904	101,493
Accounts Receivable (net)	43,054	65,542	(22,488)
Other Current Assets	18,744	12,456	6,287
Total Current Assets	\$666,581	\$516,496	\$150,085
Total Fixed Assets	74,762	77,491	(2,729)
Total Other Assets	2,949	6,842	(3,893)
Investments	13,312	25,239	(11,927)
Total Assets	\$757,603	\$626,067	\$131,535
LIABILITIES & EQUITY			
Liabilities			
Current Liabilities			
Accounts Payable (net)	\$52,646	\$77,645	(24,999)
Customer Deposits	446,365	344,904	101,461
Current Maturities of LT Debt	23,539	24,247	(707)
Other Current Liabilities	152,434	97,246	55,188
Deferred Revenue	330	187	143
Total Current Liabilities	675,314	544,229	131,085
Line of Credit	4,295	340	3,955
Long Term Liabilities			
Long-Term Debt	185,836	191,491	(5,655)
Other Long Term Liabilities	41,915	40,101	1,814
Total Long Term Liabilities	227,751	231,591	(3,840)
Net Income	336	6,627	(6,292)
Members' Equity	(150,093)	(156,721)	6,627
Total Members' Equity	(149,758)	(150,093)	336
TOTAL LIABILITIES & EQUITY	\$757,603	\$626,067	\$131,535

**Southwest Power Pool
Headcount Analysis
May 31, 2019**

	<u>Current Month Actual vs. Budget</u>			<u>Year End Forecast vs. Budget</u>		
	<u>Actual May-19</u>	<u>Budget May-19</u>	<u>Over/(Under) Budget</u>	<u>2019 Forecast</u>	<u>2019 Budget</u>	<u>Over/(Under) Budget</u>
Information Technology	163	168	(5)	169	168	1
Operations (excluding RC West)	155	160	(5)	158	160	(2)
Engineering	76	83	(7)	85	83	2
Process Integrity	57	58	(1)	58	58	0
Administration	49	50	(1)	50	50	0
Corporate Services	30	30	0	30	30	0
Regulatory Policy & General Counsel	27	27	0	27	27	0
Market Monitoring	15	16	(1)	16	16	0
Market Design & Interregional Relations	7	7	0	7	7	0
Communications & Gov't Affairs	8	8	0	8	8	0
RC West	17	20	(3)	20	20	0
Budgeted Attrition	0	(2)	2	0	(2)	2
Total Positions	604	625	(21)	628	625	3
Vacancy Estimate				(20)	(19)	(1)
Headcount Including Vacancy Estimate				608	606	2
				3%	3%	

	<u>2019 Forecast</u>	<u>2019 Budget</u>
Headcount summary		
2018 Total positions at year-end	606	606
2019 Incremental positions	2	2
Budgeted attrition (TBD)	0	(2)
Budgeted attrition (Operations)	(1)	(1)
IT position accelerated from 2020	1	0
RC West positions	20	20
2019 Headcount including RC West	628	625

Notes on staffing changes: The budget reflects two reductions in headcount in 2019, which are expected to occur through collaboration across all divisions to consider restructuring or redistributing workload as attrition occurs.

As the result of advance planning and training, the budget also includes the elimination of one operator position by the end of the first quarter. This reduction occurred in January.

IT accelerated staffing for a position originally planned for 2020.



SOUTHWEST POWER POOL'S WESTERN ENERGY IMBALANCE SERVICE MARKET (WEIS)



www.spp.org/WEIS



WEIS OVERVIEW & CONTRACT

Bruce Rew

July 15, 2019



SouthwestPowerPool



SPPorg



southwest-power-pool

WESTERN ENERGY IMBALANCE SERVICE (WEIS) OVERVIEW & CONTRACT

- **WEIS Overview**
 - Market Overview & Summary of Features
 - WEIS Market Administration
 - Review Implementation Timeline
 - Current Status
- **WEIS Agreement**
 - Agreement overview
 - Implementation Budget projections
 - Management of project

WEIS OVERVIEW

- **Contract-based energy imbalance service market that will:**
 - Balance generation and load regionally and in real time
 - Centrally dispatch energy from participating resources every five minutes
 - Respect existing resource-adequacy and transmission service constructs
 - Enhance reliability and affordability of electricity delivery
 - Provide price transparency of wholesale energy
 - Allow parties to trade bilaterally and hedge against transmission congestion
 - Take advantage of synergies by leveraging existing SPP systems and processes
- **Separate and distinct from SPP's role as a Regional Transmission Organization (RTO) and operating under separately filed WEIS Tariff**
- **Design leverages best practices from SPP's administration of an EIS market 2007-2014 and foundational constructs already in place in the west**



KEY WEIS MARKET FEATURES

PRODUCTS, PRICING AND DISPATCH	
Design Component	DESCRIPTION
Market Product	Energy imbalance (five-minute)
Supply Adequacy	Supply adequacy checked day-ahead and before each operating hour
Pricing Mechanism	Locational Marginal Prices (LMP)
Dispatch	SPP sends resources real-time security constrained dispatch signals calculated by its market clearing engine (MCE).
Unit Commitment	Each entity is responsible for commitment of generation to meet its real-time obligation.



KEY WEIS MARKET FEATURES

SETTLEMENTS	
Design Component	DESCRIPTION
Settlement Responsibilities	SPP provides centralized calculation, collection and distribution of market settlements.
Settlement Granularity	Five-minute
Settlement Timeline	Daily settlements statements



KEY WEIS MARKET FEATURES

TRANSMISSION	
Design Component	DESCRIPTION
Transmission Service	Regional JDTS used as non-firm, "as-available" service with lowest priority offered at zero cost.
PARTICIPATION	
Design Component	DESCRIPTION
Participation	Participation open to entities with load or generation in or pseudo-tied into a participating BA.

WEIS ADMINISTRATION

- WEIS Market is Administered under Western Joint Dispatch Agreement (WJDA) that describes its implementation and ongoing operational cost and obligations
- Implementation and ongoing costs to be paid by WEIS Market Participants based on proportional share of annual Net Energy for Load (NEL)
- SPP expects initial four-year commitment from WEIS Market Participants
- WJDA affords Market Participants a voice in the market's ongoing evolution through representation on the Western Markets Executive Committee (WMEC)
- Market Monitoring provided by SPP's Market Monitoring Unit



THE WESTERN MARKETS EXECUTIVE COMMITTEE

- WMEC comprises representatives of each non-affiliated signatory to the WJDA
- Provides a transparent process in which SPP and WEIS Market Participants can collaborate on market rules
- After go-live, WMEC will have authority to:
 - Approve/reject WEIS Tariff changes
 - Establish WEIS Market protocols
 - Recommend proposed amendments to the WJDA
 - Very similar to SPP's MOPC
- Ultimate WEIS Market oversight lies with SPP Board of Directors with significant recognition given to WMEC



IMPLEMENTATION SCHEDULE

- Requires commitment from critical mass of western market participants by **September 3, 2019**
- Project Implementation **September 15, 2019**
- WEIS market “go-live” **February 1, 2021**
- Additional market participants may be added at approximate 6-month intervals after go-live



AGREEMENT OVERVIEW

- WJDA developed as a pro-forma agreement
- Participants commit to four year service from February 1, 2021, through January 31, 2025
- WEIS has very limited NERC Standards compliance exposure
- SPP will issue debt for start-up costs and recover those over an eight year period. Market Participants who terminate prior to January 31, 2029, responsible for balance of start-up obligation
- Rate structure will be based on NEL and size of market.



IMPLEMENTATION BUDGET

	Estimated Costs (millions)
Salaries & Benefits	\$2.2
Project Consulting	\$1.4
Technology Costs	\$4.2
Travel & Administrative Costs	\$0.1
Principal & Interest Payments	\$0.3
Corporate Overhead Costs	\$1.3
Total Implementation Costs	\$9.5



ANNUAL ONGOING COSTS

	Estimated Costs (millions)
Salaries & Benefits	\$1.5
Project Consulting	\$0.0
Technology Costs	\$0.8
Travel & Administrative Costs	\$0.1
Principal & Interest Payments (first 8 years)	\$1.5
Corporate Overhead Costs	\$1.2
Total Implementation Costs	\$5.0

PROJECT MANAGEMENT

- SPP track budget costs including staff resources for both start-up and annual operation
- Project uses staff across multiple departments
- SPP staff who engage in project use TimeStar software to log hours for project cost allocation
- Staff developed resource estimates for FTE's and will be monitoring to ensure proper recognition of staffing impact
- Project costs will be trued up on an annual basis. Recognizes potential market changes both voluntary and required



CURRENT STATUS

- Significant interest in development of a new energy imbalance market in the Western Interconnection
- SPP initially requested July 26th commitment but that was changed to September 3rd based on potential MP's needing more time to get approvals
- On September 4th, SPP will work with committed MP's to determine final rate and approval to start project
- New market participants can be added approximately every 6 months after go-live and will be allocated portion of start-up costs



SOUTHWEST POWER POOL'S WESTERN ENERGY IMBALANCE SERVICE MARKET (WEIS)



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