

Holistic Integrated Tariff Team Report

Preparing for a reliable and cost-effective future

The regional and national electric grid is rapidly evolving. A changing generation mix, new technologies, and federal and state regulations are impacting how the electric industry does business. Demand for electricity is leveling off overall, while new economic development opportunities are occurring throughout the region. Southwest Power Pool and its members must prepare to meet these challenges.

In March 2018, the SPP Board of Directors and Members Committee 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.

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 represent a consensus-based set of solutions to improve many of SPP's critical functions, with the principal goal of reliably providing the lowest-cost electricity to end-use customers.

HITT BY THE NUMBERS

15 stakeholders representing members, board and regulators

17 meetings

94 requests for information

21 recommendations in four categories



HITT Goals and Drivers

 Ensuring reliability for a changing generation mix and new technologies

 Aligning transmission planning and cost allocation with SPP's market and consolidated Balancing Authority

 Enhancing Integrated Marketplace to reliably deliver low-cost energy to customers

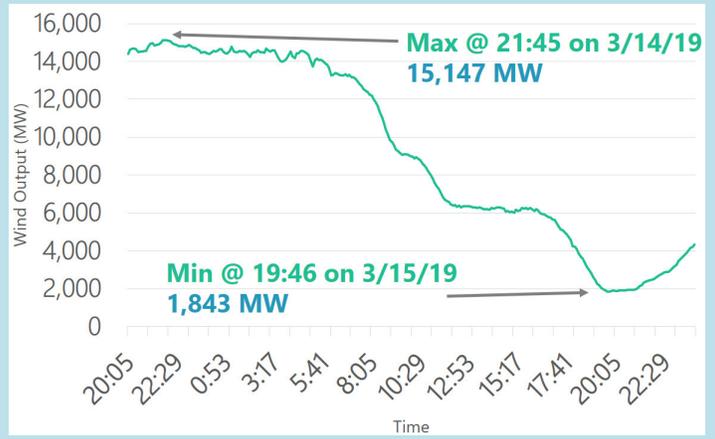
The regional generation mix has changed dramatically, creating new opportunities and challenges.

1. In 2011, coal served 63% of load and wind 6%. In 2018, coal decreased to 42% while wind increased to 23%.
2. Intermittent generation can change drastically hour-to-hour, day-to-day.
3. The amount of installed wind generation in SPP has grown from 80 MW in 2001 to 20,600 MW in 2018.
4. SPP has requests to connect even more renewable generation to the grid, including more than 50,000 MW of wind. Solar and battery storage are rapidly increasing as well.

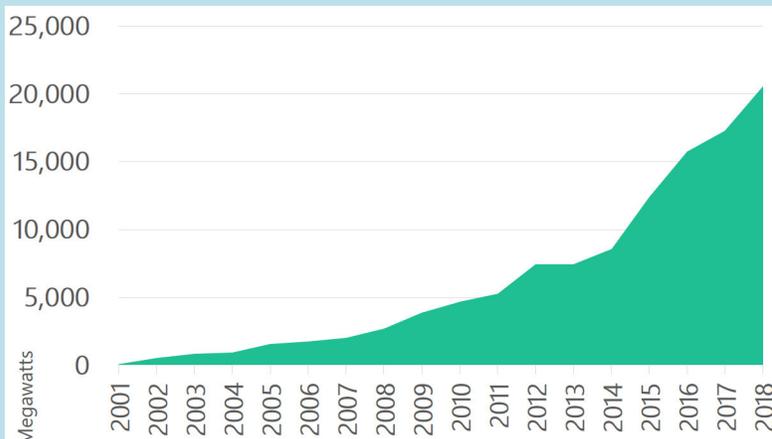
1. Changing generation mix



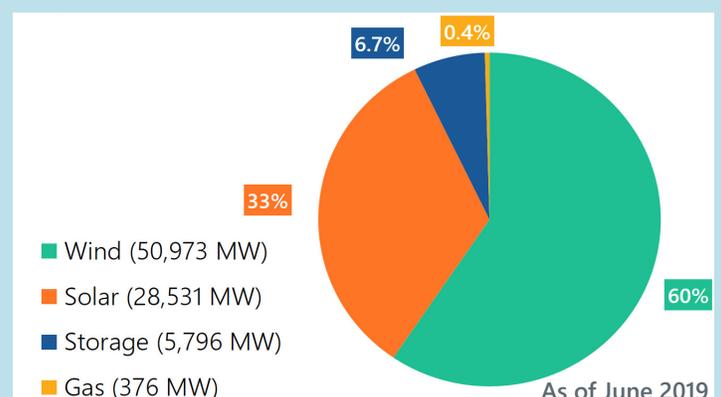
2. Wind swing of 13 GW in one day



3. Wind installed by year



4. Generation interconnection requests 85,676 MW



Reliability



#1 Study Essential Reliability Services and Other Reliability Services

SPP should perform a comprehensive study to evaluate the region's reliability challenges with a changing generation resource mix. The study should identify all Essential Reliability Services (ERS) and Other Reliability Services (ORS) needed in the future to keep the lights on.

Staff
July 2020

#2 Implement ERS and ORS compensation models based on study results

SPP should use the results of the study in reliability recommendation #1 to gain a better understanding of how to best establish an appropriate compensation model for each ERS and ORS, based on the needs and timing required for each service.

Market Working Group
April 2021

#3 Implement market enhancements

SPP should continue enhancements to the Integrated Marketplace, including fast-start resource logic, ramping capability and a multi-day, longer-term market product.

Market Working Group
Ramping: July 2019
Fast-start: January 2020
Multi-day: April 2020

#4 Implement uncertainty market product

SPP should continue to develop an uncertainty product that allows for addressing the potential reliability issues associated with an increased reliance on forecastable generation.

Market Working Group
October 2020

#5 Study additional operational tools

SPP should determine what operational tools are needed to ensure the Bulk Electric System remains reliable in the future.

Staff
Ongoing analysis

Each HITT recommendation has a goal date for stakeholder completion. The implementation date for some recommended changes will be determined pursuant to existing processes.



#1 Implement congestion hedging improvements

SPP should continue with a market mechanism to hedge load against congestion charges. The existing market design should include modifications to implement counter-flow optimization that is limited to excess auction revenues.

Market Working Group
April 2020

#2 Study offer requirements for variable energy resources

SPP should evaluate whether variable energy resources should have a requirement to offer at a specific level related to their forecasted generation output in the day-ahead market. SPP should review incentives and consider market rule changes to improve day-ahead participation for variable resources.

Market Working Group
January 2021

#3 Study mitigation of unduly low offers that create uneconomic dispatch

SPP should evaluate whether generation offer requirements, including those for renewable resources, provide adequate safeguards against uneconomic production.

Market Working Group
January 2021

#4 Study economic evaluations of reliability

SPP should evaluate the costs and benefits of more advanced economic evaluations of reliability. This evaluation should help educate and encourage the use of dynamic line ratings, topology optimization and economic outage coordination when practical, economic and reliable.

Market Working Group/Operating Reliability Working Group
April 2020

Transmission Planning



#1 Implement modifications to NRIS and ERIS

SPP should develop and adopt a policy that creates the appropriate balance between cost assessed and value attained from SPP's ERIS (energy resources interconnection service) and NRIS (network resources interconnection service) generator interconnection products and generating resources with long-term firm transmission service.

Transmission Working Group	NRIS long-term deliverability
Markets and Operations Policy Committee	ERIS
Supply Adequacy Working Group	NRIS

April 2020

#2 Establish uniform Schedule 9 local planning criteria for each zone

SPP should establish uniform local planning criteria within each Schedule 9 pricing zone. The criteria can vary between zones, but all Transmission Owners (TOs) within each zone should be subject to the same local criteria in determining the need for zonal reliability upgrades within the zone. With the additional recommendation that the host TO invite TOs and transmission customers of that zone to participate when developing the zonal criteria before submitting to SPP.

Transmission Working Group
January 2020

#3 Implement new load addition modifications

SPP should modify the Attachment AQ process (delivery-point additions, modifications or abandonments) to be more transparent and allow for quicker results to facilitate potential load growth within SPP. Attachment AQ should be modified to limit its application to new load additions.

Transmission Working Group
April 2020

#4 Evaluate three-phase generation interconnection process effectiveness

SPP should evaluate the effectiveness of the three-phase generation interconnection study process following implementation.

Staff
18 months after implementation

#5 Evaluate benefit-to-cost ratio for economic projects

SPP should evaluate increasing the current benefit-to-cost ratio margin threshold for economic upgrades from the current 1.0 benefit-to-cost ratio to between 1.05 to 1.25.

Economic Studies Working Group
January 2020

Cost Allocation



#1 Decouple Schedule 9 & Schedule 11 transmission pricing zones

SPP should decouple Schedule 9 and Schedule 11 transmission pricing zones, which would allow the creation of larger Schedule 11 pricing zones and/or Schedule 9 sub-zones prospectively. When creating the new pricing zones, consideration should be given to new deliverability sub-regions, distribution factor calculations, and market and power flows.

Regional State Committee/Cost Allocation Working Group
July 2020

#2 Evaluate a byway facility cost allocation review process

SPP should evaluate creating a narrow process through which costs for specific projects between 100 kV and 300 kV can be fully allocated prospectively on a region-wide basis. The process should take into consideration regional benefits resulting from the facilities, including energy exports from the transmission pricing zone where each project is located.

Regional State Committee/Cost Allocation Working Group
July 2020

#3 Eliminate Attachment Z2 revenue crediting

SPP should eliminate Attachment Z2 revenue credits and keep incremental long-term congestion rights (ILTCRs) prospectively for new upgrades. The ILTCRs will function as currently described in Attachment Z2, except that the total compensation will be limited to each upgrade's directly-assigned upgrade costs plus interest.

Regional Tariff Working Group
October 2019

#4 Evaluate cost allocation for transmission storage devices

Evaluate whether SPP should establish cost allocation and rates under its Open Access Transmission Tariff for energy storage resources to treat them as transmission assets if used as transmission assets.

Regional State Committee/Cost Allocation Working Group
July 2020



#1 Add technological advances to SPP's strategic plan

Technology is changing more rapidly than we have seen in SPP's nearly eight decades of existence. To be better prepared for these changes, the HITT recommends that the Strategic Planning Committee add to SPP's strategic plan an understanding and evaluation of technological advances.

Strategic Planning Committee
Ongoing

#2 Continue to include seams in SPP's strategic plan

As noted in the Synergistic Planning Project Team's 2009 report, seams with our neighboring regions continue to be an area that is challenging and for which there are potential improvements. The HITT recommends that SPP continue to make seams a high priority and to continue including seams as a part of SPP's strategic plan. The Seams Steering Committee should continue to provide direction to SPP staff on seams issues.

Strategic Planning Committee
Next plan update

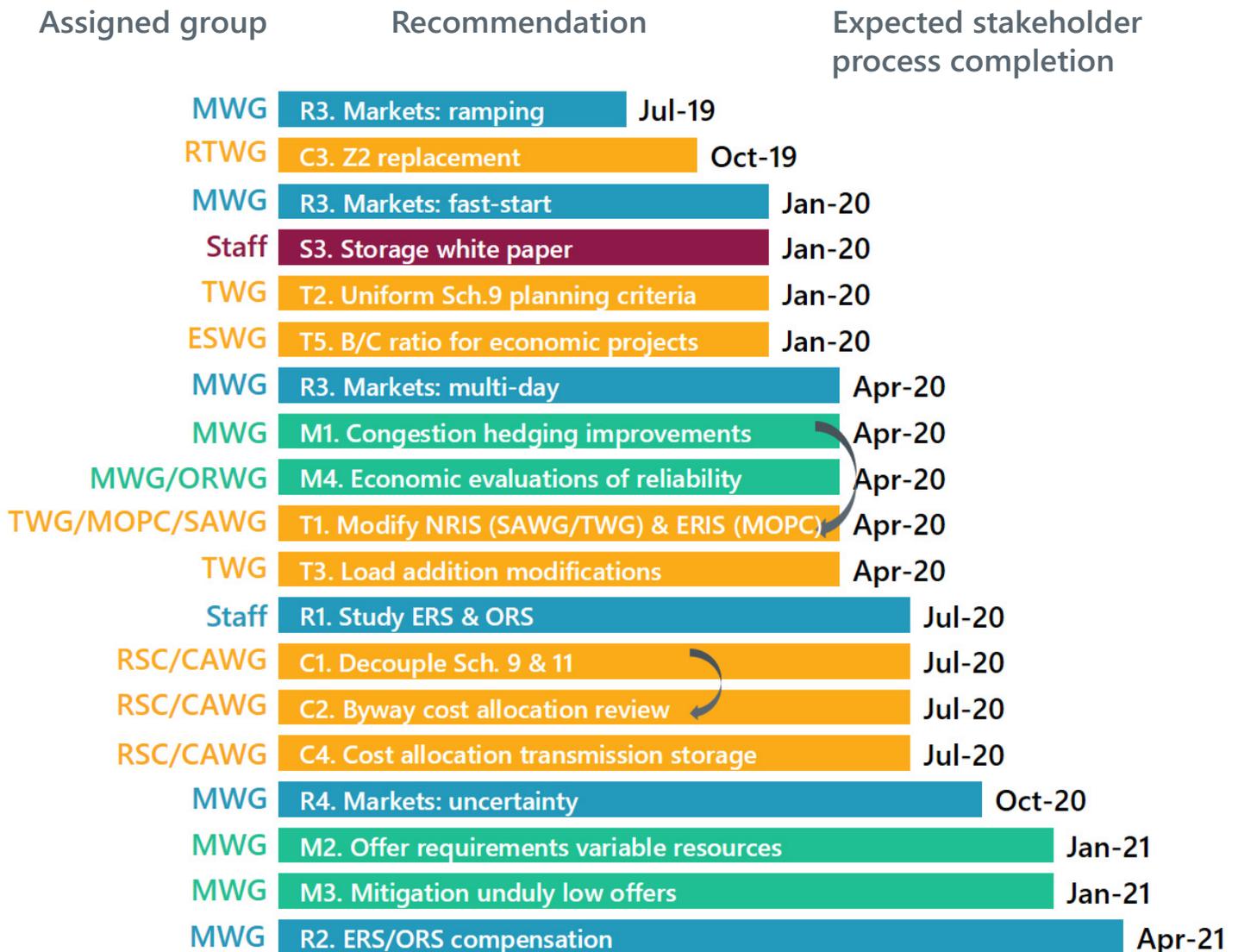
#3 Create energy storage white paper

While technological changes are rapidly developing in the electric industry, energy storage – particularly batteries – is an immediate challenge and opportunity. The impact storage will have on the future is evident by the increasing amount of batteries in SPP's generation interconnection queue and the Federal Energy Regulatory Commission's Order 845.

The HITT recommends that SPP staff create a white paper on the many issues related to storage to gain a better understanding of storage and how SPP should address these issues in the future. This white paper will be delivered to the Markets and Operations Policy Committee (MOPC), Regional State Committee and Board of Directors and Members Committee in January 2020. The white paper should include tactical and strategic recommendations. In the interim, MOPC working groups will continue their efforts.

Staff
January 2020

Implementation Timeline



CAWG Cost Allocation Working Group
 ESWG Economic Studies Working Group
 MOPC Markets and Operations Policy Committee
 MWG Market Working Group
 RSC Regional State Committee
 RTWG Regional Transmission Working Group
 SAWG Supply Adequacy Working Group
 TWG Transmission Working Group

Parallel timeline recommended 



Learn more at SPP.org