

## **RSC Meeting**

**January 28, 2019  
1:00 p.m.  
International Ballroom  
Doubletree New Orleans  
New Orleans, LA**

### **JOINT QUARTERLY STAKEHOLDER BRIEFING**

**(SPP Board of Directors, Members Committee and Regional State Committee)**

#### **1. QUARTERLY BRIEFINGS**

- a. FERC.....Patrick Cleary**
- b. RSC/OMS Joint Task Force Update.....Shari Feist Albrecht**  
This report will update Stakeholders on the activities of the RSC/OMS Joint Task Force.
- c. Holistic Integrated Tariff Team (HITT) Update .....Tom Kent**  
This report will update Stakeholders on the activities of the HITT.
- d. Integrated Transmission Plan (ITP) Assessment Update.....Lanny Nickell**  
This report will update Stakeholders on the ITP assessment.
- e. Integrated Marketplace Update.....Bruce Rew**  
This report will update Stakeholders on the Integrated Marketplace.

### **RSC BUSINESS MEETING**

#### **2. CALL TO ORDER**

#### **3. PRELIMINARY MATTERS**

- a. Commissioners' Roll Call and Declaration of a Quorum**
- b. Meeting Attendees Roll Call**
- c. Adoption of Minutes from October 29, 2018**
- d. Review of Ongoing Action Items**

#### **4. UPDATE**

- a. RSC Fourth Quarter 2018 Financial Report**
- b. SPP**

#### **5. BUSINESS ITEMS**

- a. Auditor Cost for Audit and Taxes for 2018 and Engagement Letter [Voting Item]**

**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.

**6. CAWG REPORT**

- a. Cost Allocation Working Group (CAWG) Report.....Cindy Ireland**

This report will update the RSC on the activities of the CAWG.

- i. Cost Allocation in Wind Rich Areas Update .....John Krajewski**

This report will update the RSC on the CAWG's proposed work on this issue.

**7. OTHER RSC MATTERS**

**8. NEW ACTION ITEMS**

**9. SCHEDULING OF NEXT REGULAR MEETINGS, SPECIAL MEETINGS OR EVENTS**

- a. RSC Meetings:**

**April 29, 2019 – Tulsa, OK**

**July 29, 2019 – Des Moines, IA**

**October 28, 2019 – Little Rock, AR**

**10. ADJOURNMENT OF BUSINESS MEETING**

**Executive Session**

**11. RSC WILL HOLD AN EXECUTIVE SESSION WITH THE SPP BOARD & MEMBERS  
COMMITTEE**

**\* NOTE: ADDITIONAL INFORMATIONAL MATERIAL ATTACHED.** Attached to the RSC's meeting agenda and background material is additional material that is either for informational or reporting purposes.

# OMS/RSC Seams Liaison Committee

A joint committee of the Organization of MISO States  
and  
the SPP Regional State Committee

# Committee Members

## OMS

Lambert Boissiere (LA)

Julie Fedorchak (ND)

Daniel Hall (MO) – 2019 lead

Matt Schuerger (MN)

Nick Wagner (IA), *ex officio*

## RSC

Shari Feist Albrecht (KS)

Kristie Fiegen (ND)

Kim O'Guinn (AR) – 2019 lead

DeAnn Walker (TX)

# Goals

Identify potential improvements in the following areas and work with SPP and MISO on implementation:

- Increase benefits to ratepayers in both markets by improving market-based transactions and operations across the seam.
- Ensure equal consideration of beneficial regional and inter-regional projects in transmission planning, including evaluation of projects identified in the Coordinated System Plans.
- Support the timely interconnection of new resources that includes consideration of the dynamics of the interconnection queue in both RTOs.
- Improve inter-RTO relations through state-led cooperation.

# Guiding Principles

- No one is right or wrong where viewpoints don't align. We strive to understand the drivers behind our differences. It's not personal.
- Working from a common set of facts is critical. Be willing to challenge others thoughtfully and professionally so that all points of view are understood.
- The best outcome for customers is the best outcome. Customers in all portions of an RTO footprint should benefit from RTO membership.
- Internal viewpoints from states on both sides of the seam are crucial as it represents balancing of customer interests.
- Everyone is open to change if better solutions are identified, even if they aren't perfect.
- Alleviating transmission constraints can provide benefits under the right circumstances. There can be significant benefits from alleviating transmission constraints.
- Commissioners are the primary participants in these efforts with support from staff.

# Timeline

- July 17, 2018      Coordination Document Developed
- July 30, 2018      RSC Educational Session with OMS  
Commissioners Ted Thomas (AR) and  
Matt Schuerger (MN)
- Aug. 28, 2018      Committee Membership Established
- Sept. 11, 2018      Committee's First Meeting (telephone)
- Oct. 1, 2018      Goals and Guiding Principles  
Developed

# Timeline (continued)

- Oct. 15, 2018      Whitepaper Request of MISO and SPP
- Oct. 25, 2018      OMS Approved Goals and Guiding Principles
- Oct. 29, 2018      RSC approved Goals and Guiding Principles
- Nov. 2, 2018        MISO and SPP Whitepaper Submitted
- Nov. 11, 2018      Seams Liaison Committee meeting in Orlando



# Timeline (continued)

- Dec. 12, 2018 Questions inviting stakeholder comment to Whitepaper issued
- Jan. 10, 2019 Stakeholder comments submitted
- Jan. 11, 2019 Panel Discussion (MARC Meeting)  
“The Seams: What’s Going On at the Edges of RTOs and ISOs?” Co-moderated by  
OMS Commissioner Daniel Hall (MO) and  
RSC Commissioner Shari Albrecht (KS)
- Jan. 17, 2019 Stakeholder Responses Posted at  
<https://www.spp.org/spp-documents-filings/?id=173559>

# **MISO-SPP Whitepaper Discussion Slides**

Available at [spp.org](http://spp.org) under  
SPP Documents / Org Group Documents /  
SPP – RSC/OMS Liaison Committee / Meeting Materials

Slides prepared by Adam McKinnie

# Stakeholder Questions

- What do you believe to be the single most important/impactful seams issue and what barriers are preventing resolution? If applicable, include two to four additional priority items the regulators should focus on.
- How should the RTOs weigh the benefits of more efficient seams operation against focusing on maximizing intra-RTO efficiencies and operation?
- What areas of the whitepaper do you agree and disagree with? Why?
- Are there seams issues that you believe were left out?
- What seams issue(s) require additional analysis and study prior to solution identification? What should the goal of such an analysis/study be and what metrics or other measurable information should it include?

# Summary of Stakeholder Responses

- Interregional Planning / Cost Allocation
- Unreserved use / Capacity Sharing
- Regional Through and Out Rate
- Exports / Point to Point Transmission
- Differences in Planning and Operations
- Interface Pricing / moving energy across seams

# Next Steps

OMS/RSC Seams Liaison Committee Meeting in Washington, D.C. on February 10, 2019 to:

- Discuss the stakeholder responses
- Consider any additional questions for MISO/SPP
- Discuss request for FERC analysis
- Consider an independent analysis

# HOLISTIC INTEGRATED TARIFF TEAM

RSC Update – January 2019

# HITT TASKS FROM SPP BOARD

# OVERVIEW OF HITT TASK (5 AREAS)

- SPP's transmission planning and study processes, including, but not limited to, Generation Interconnections (GI); the GI queue; Aggregate Studies; Energy Resource Interconnection Service (ERIS) and Network Resource Interconnection Service (NRIS); capacity requirements, including more attributes than energy; and related FERC planning requirements;
- Transmission cost allocation issues, including, but not limited to, Highway/Byway, directly assigned costs, Attachment Z2 credits, cost allocation impacts on transmission pricing zones with large wind resources, and state by state supply resource mix requirements and/or goals;
- Integrated Marketplace impacts related to a changing resource mix, access to lower cost generation, potential changes in production tax credits, approach of using market-based compensation for varying attributes of different types of generators, etc.;
- Disconnects or potential synergies between transmission planning and real-time reliability and economic operations; and
- Additional areas and/or issues as appropriate and reasonably related to its scope of work.



# OVERVIEW OF HITT TASK

- The Team is expected to issue a report to the SPP Board of Directors and Members Committee containing a set of high-level recommendations that provide solutions for the region by April 2019.

# HITT ISSUES

- **Issue No. 1A:** *SPP's current planning processes for transmission facilities were created prior to the development of the current full Day Ahead and Real Time energy and ancillary services markets. How should we change the planning process, operating processes and market/tariff products to get the right results? That is, the right system facility projects built with the right entity paying. Additionally, what synergies can be developed between market operations and planning?*
- **Issue No. 1B:** *Given the guidance the HITT developed for Issue No. #1A, the Team will review the transmission cost allocation methodologies to potentially make recommendations to improve processes to ensure that just and reasonable cost allocation principles are used in the SPP region. Any recommendation will be sent to the RSC/CAWG for consideration.*
- **Issue No. 2:** *Develop a better understanding of the product needs of customers based on looking at different market designs to see if enhancements could be implemented to get correct products in place and incented for the SPP market. This includes the need to understand essential reliability services and see if market designs should be changed to get mechanisms in place. Additionally, need to look at impacts to resource adequacy and planning processes.*
- **Issue No. 3.** *Examine barriers to load growth within SPPs policies and tariff procedures.*

# HITT AREAS 1A, 1B, 2, & 3

## 1(A)

Transmission  
Planning &  
Resource  
Adequacy

## 1(B)

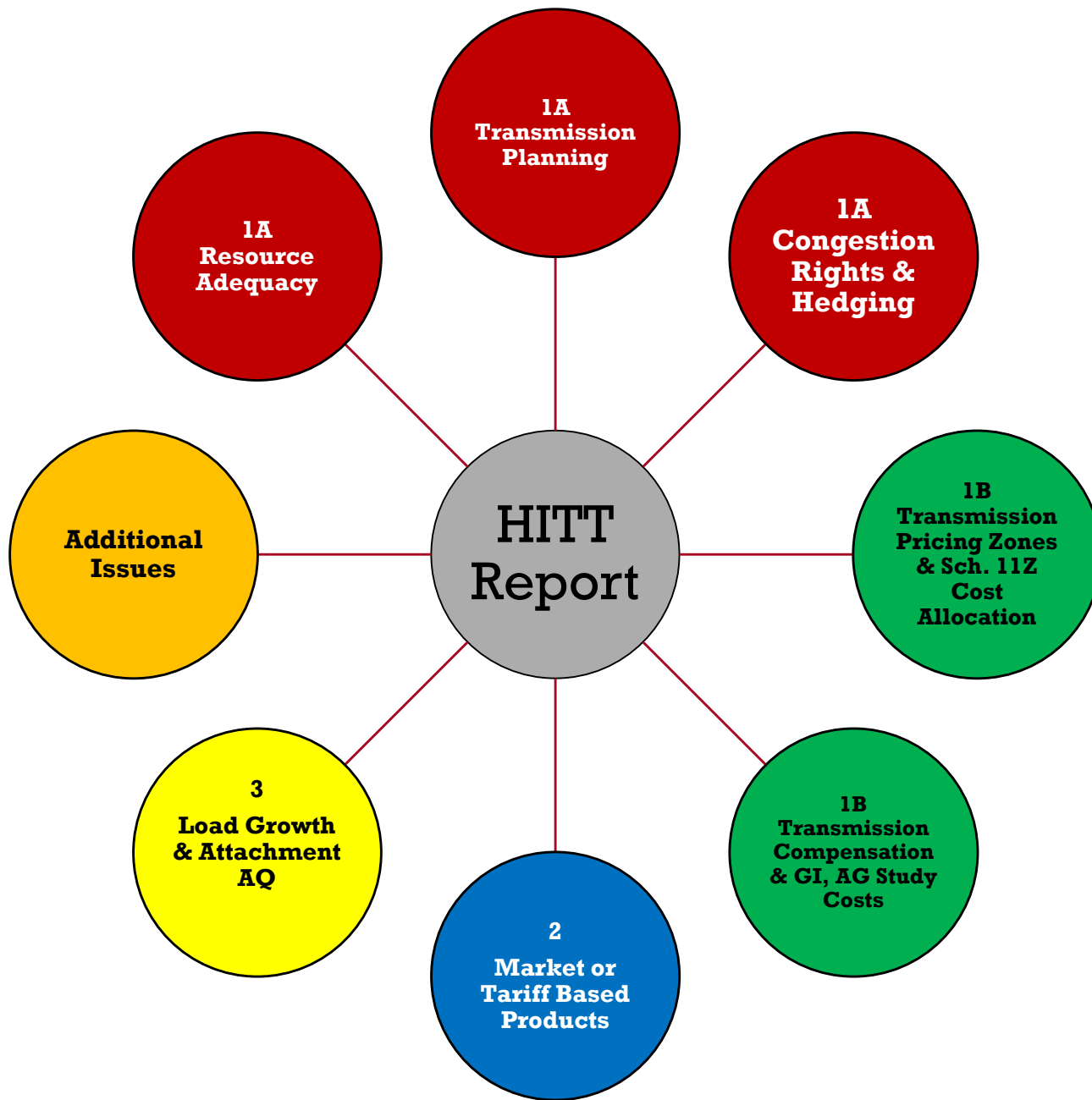
Review of  
Existing Cost  
Allocation  
Methodologies

## 2

Review of  
Integrated  
Marketplace and  
Essential  
Reliability  
Services

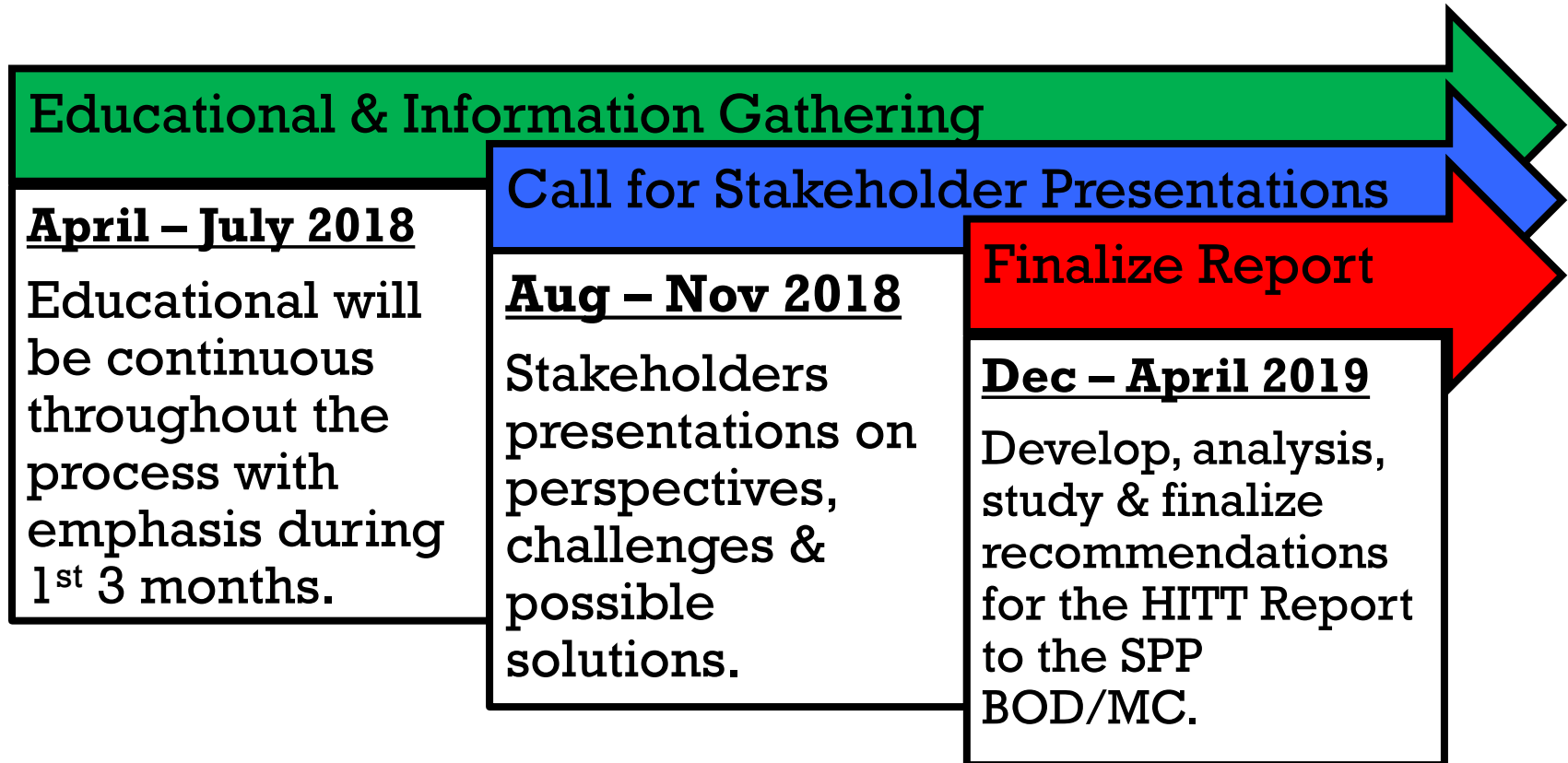
## 3

Potential Load  
Growth  
Opportunities  
and Attachment  
AQ



# MEETING NORMS & TIMELINES

# PROPOSED TIMELINE AND APPROACH



# STAKEHOLDER SOLICITATION

- The HITT has received several presentations/briefings from SPP staff, members, stakeholders, and chairs from various working groups.
- On January 3, 2019 the SPP Staff sent a solicitation email for SPP members and Stakeholder to draft proposed recommendations for the HITT to consider to include in the HITT's final report to the SPP Board of Directors.
- **Deadline is Friday January 18<sup>th</sup>, Close of Business.**

# PROPOSED HITT SCHEDULE

## 2019

**Jan 23-24:**     *Review, Discuss Possible Recommendation  
for Options for 1A and 1B*

**Feb 28-Mar-1:** *Review, Discuss Possible Recommendation  
for Options For 2 and 3.*

**April 3-4:**     *Finalize Recommendations and propose edits  
to HITT Report*

**April 25:**     *Finalize and Approve HITT Report*



# QUESTIONS

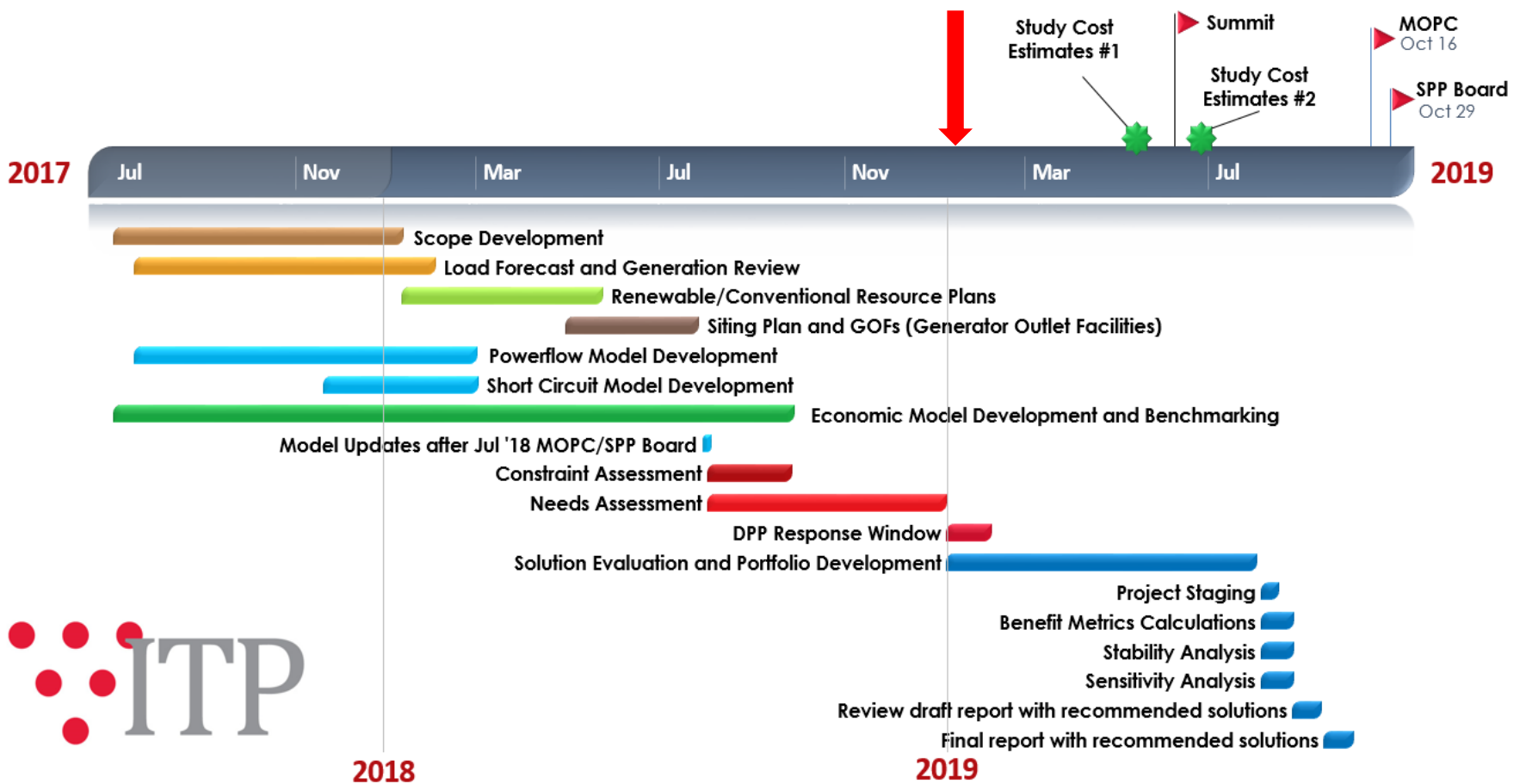
# ITP Update

Lanny Nickell

# 2019 ITP Update

# 2019 ITP Timeline

## Current Status



# New ITP Process

- **First ITP Assessment following new process**
  - Combination of reliability and economic analysis in one assessment
- **Process Improvements**
  - Economic assessment in Year 2
  - Reliability analysis extending to Year 10
  - Addition of short circuit and operational assessments
  - ITP models used for SPP's NERC Compliance
  - Allows for additional analysis in focus areas

# 2019 ITP Scope

- Future 1: Reference Case
- Future 2: Emerging Technologies

Key Assumptions	Drivers				
	Year 2	Reference Case		Emerging Technologies	
		Year 5	Year 10	Year 5	Year 10
Energy Demand Growth Rates	As submitted in load forecast	As submitted in load forecast		Increased due to electric vehicle growth	
Fossil Fuel Retirements	Age-Based 60+, subject to stakeholder input	Age-Based 60+, subject to stakeholder input		Age-based 60+	
Distributed Generation (Solar)	As submitted in load forecast	As submitted in load forecast		+300 MW	+500 MW
<b>Total Renewable Capacity</b>					
Solar (GW)	~.25	3	5	4	7
Wind (GW)	~18	24.2	24.6	27	30

## 2019 ITP Needs



- Reliability (must solve)\*
- Economic (may solve)
- ▭ SE KS/SW MO focus area

\* Includes base reliability and short circuit needs.

# SE KS/SW MO Focus Area

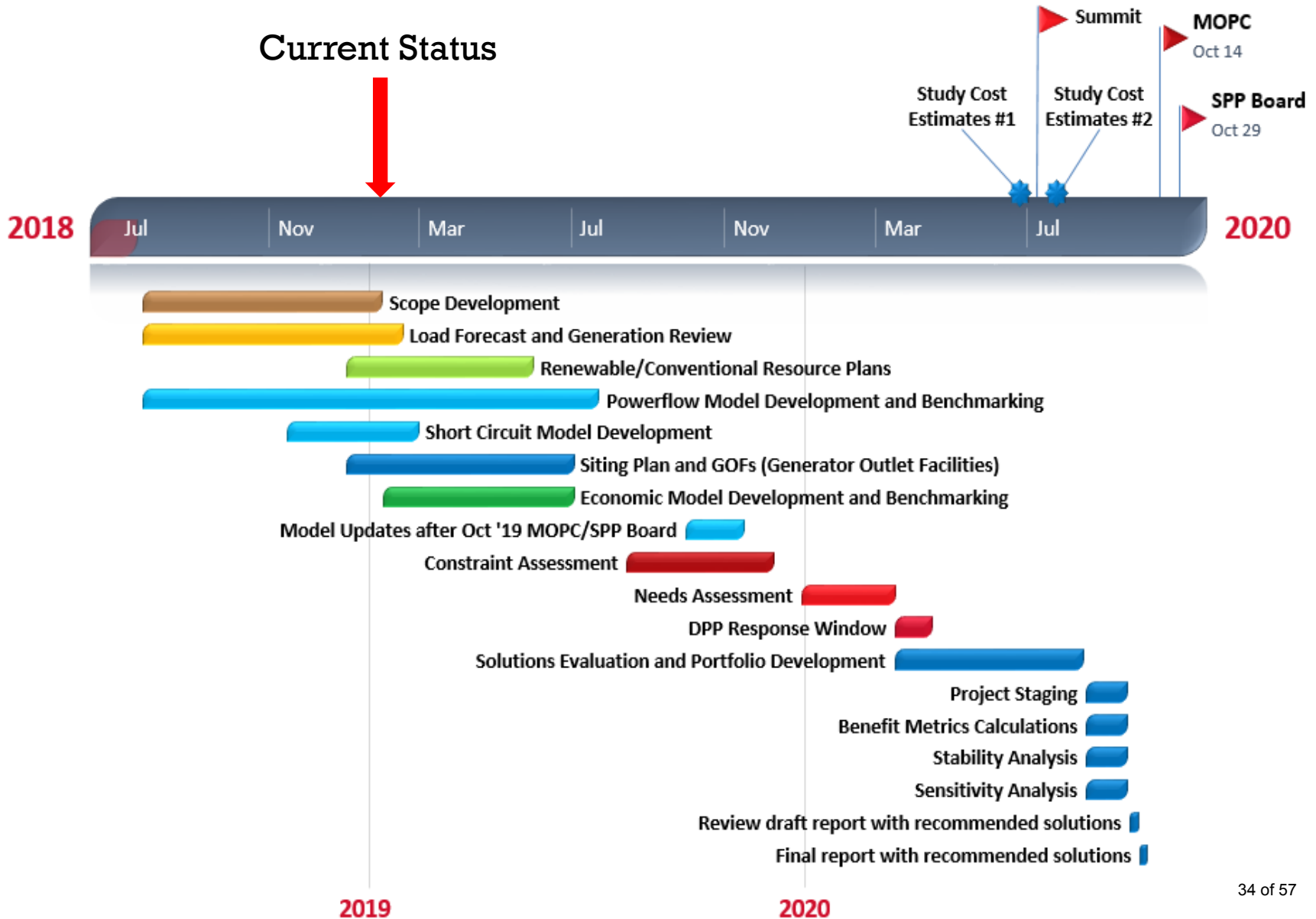
- ITP Manual allows for additional analysis for identified areas of concern based upon certain criteria
  - Additional analysis allows staff to identify the best regional solution
- Stakeholders agreed due to concerns raised related to
  - Historic and projected congestion
  - Transient stability concerns
  - Seams impacts
  - Previously identified issues in other studies



# 2020 ITP Scope

# Schedule

Current Status



# 2020 ITP Scope

- 2020 ITP scope similar to the 2019 ITP scope
  - Future 1: Reference Case
  - Future 2: Emerging Technologies
- Specific adjustments made to drivers shown below

Key Assumptions	Drivers				
	Year 2	Reference Case		Emerging Technologies	
		Year 5	Year 10	Year 5	Year 10
Fossil Fuel Retirements	Coal: Age-based 56+ , Gas/Oil: Age-based 50+, subject to generator owner review	Coal: Age-based 56+ , Gas/Oil: Age-based 50+, subject to generator owner review		Coal: Age-based 56+ , Gas/Oil: Age-based 50+, subject to repowering or emissions upgrades	
Storage	None	20% of projected solar		35% of projected solar	
<b>Total Renewable Capacity</b>					
Solar (GW)	Existing + RARs*	4	7	5	9
Wind (GW)	Existing + RARs*	26	28	30	33

\*Resource Addition Requests (RARs) defined in ITP Manual Section 2.2.1.4

# 2019 SPP Transmission Expansion Plan (STEP)

January 28, 2019 RSC

# SPP Transmission Expansion Plan (STEP)

## Upgrades Included in STEP

**ITP Assessment**

**High Priority**

**Balanced Portfolio**

**Interregional**

**ITP 20 Assessment**

**Transmission Service**

**Generation Interconnection**

**Sponsored**

**Board Approval Required**

**Board Endorsement Required**

# 2018 STEP Activity

January 1 - December 31, 2018

23 New NTCs



\$387 million

10 Withdrawn NTCs



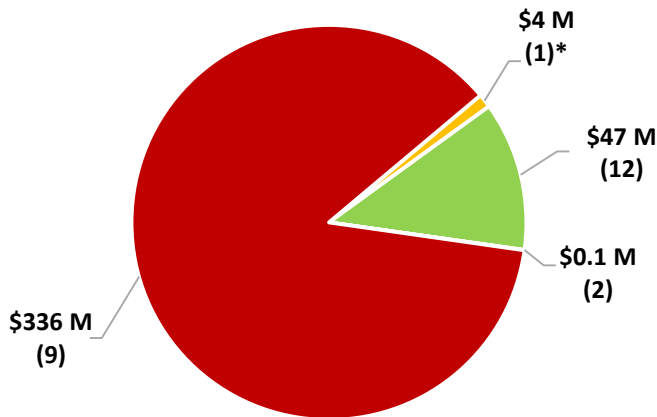
\$140 million

98 Completed Upgrades

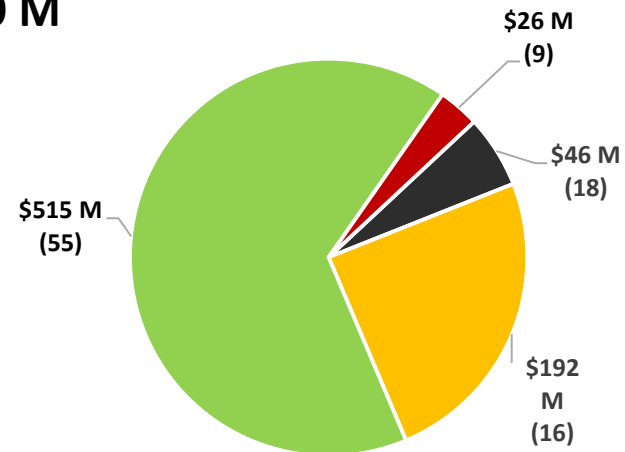


\$779 million

23 NTCs Issued  
\$387 M

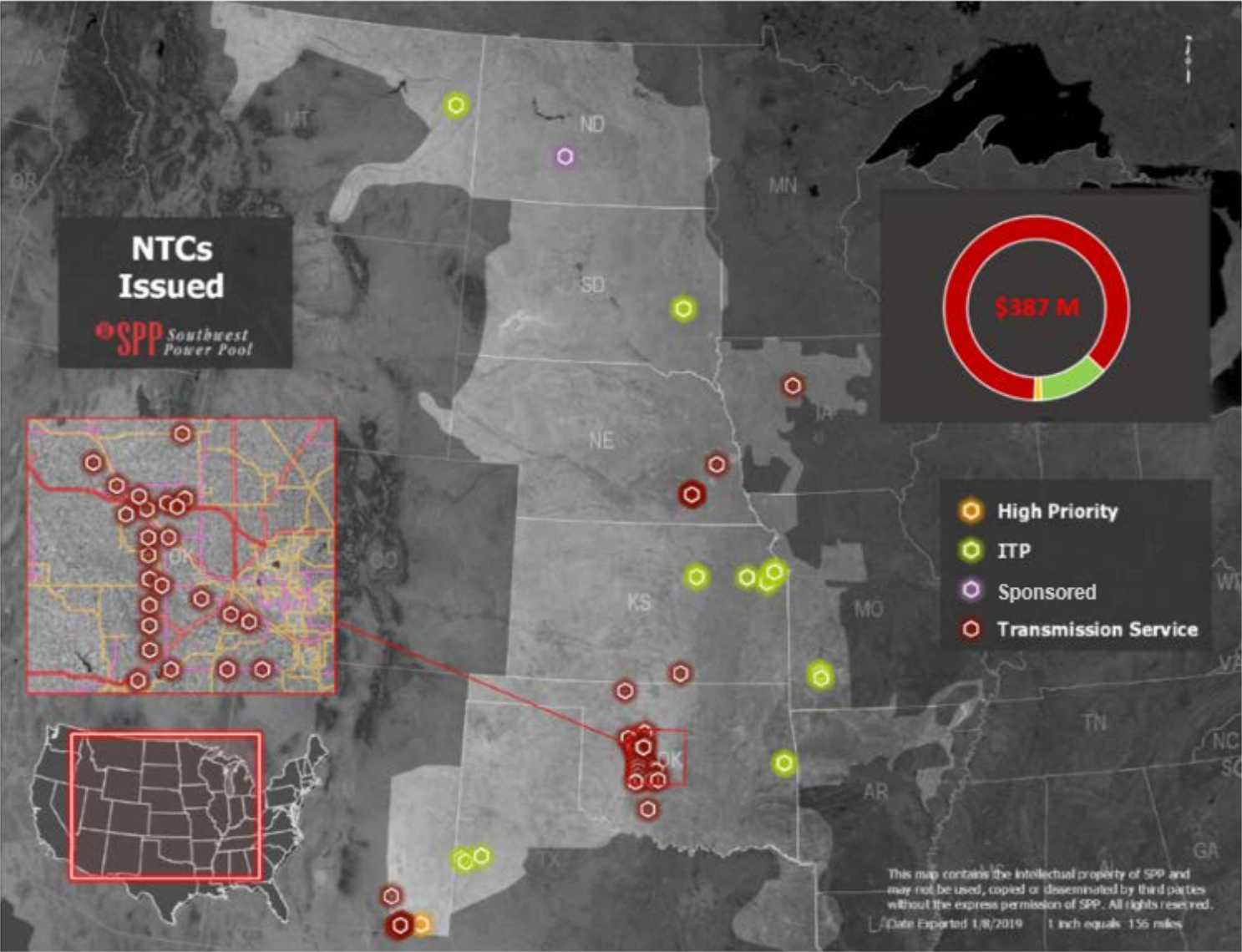


98 Upgrades Completed  
\$779 M

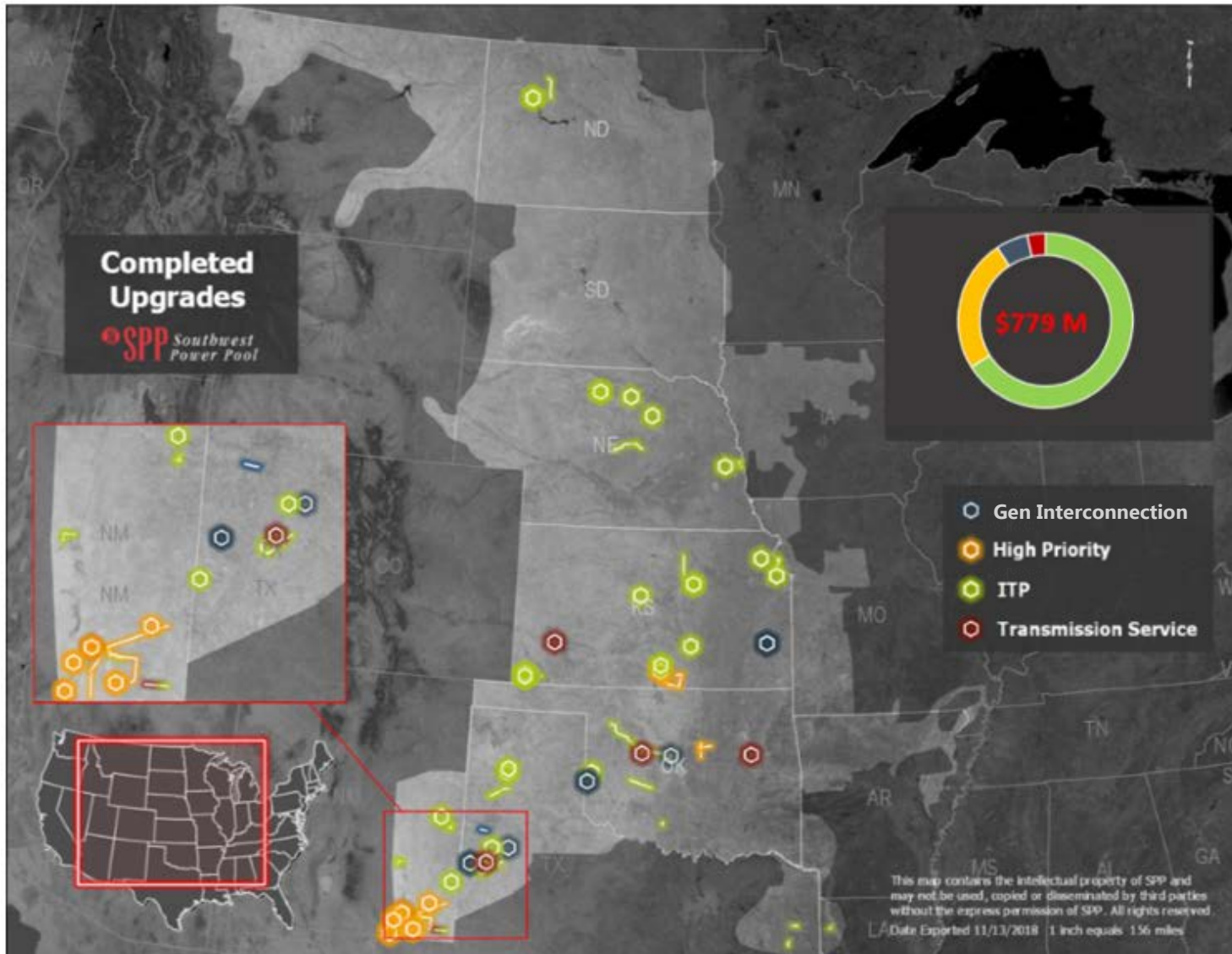


■ Generation ■ Interconnection ■ High Priority ■ ITP ■ Sponsored ■ Transmission Service

# NTCs Issued in 2018

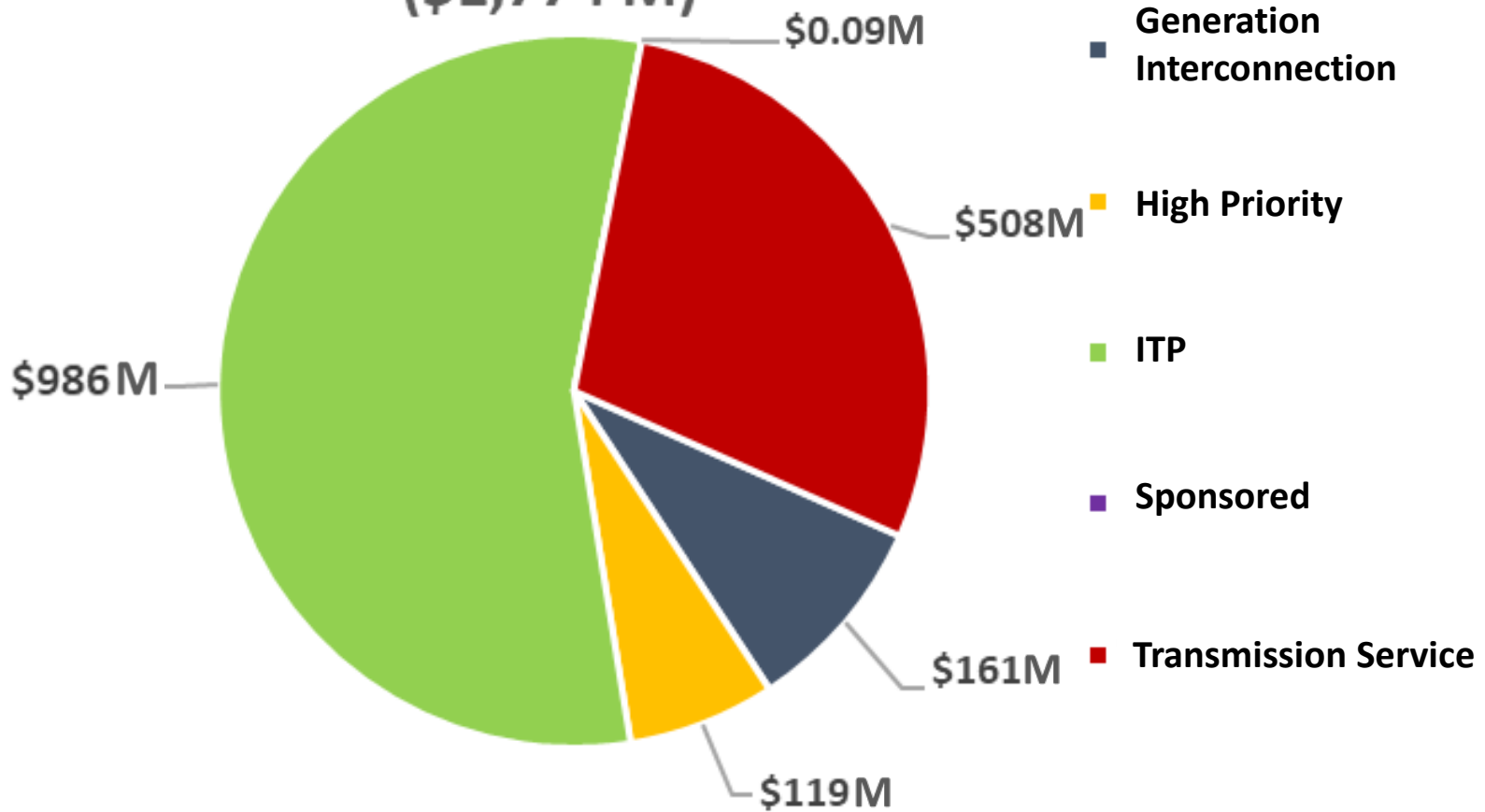


# Upgrades Completed in 2018





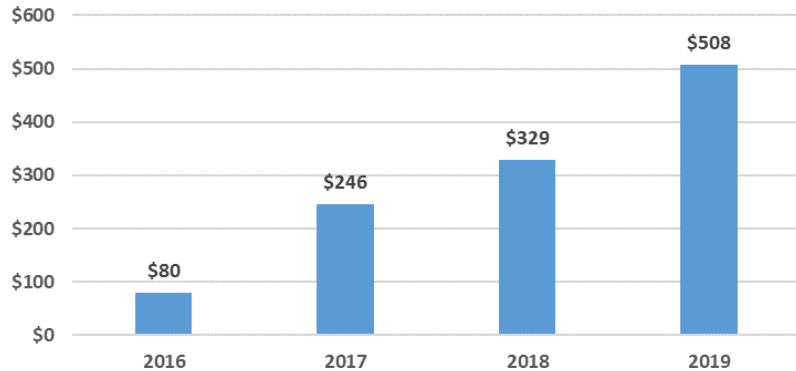
# 2019 STEP Committed Spend (\$1,774 M)



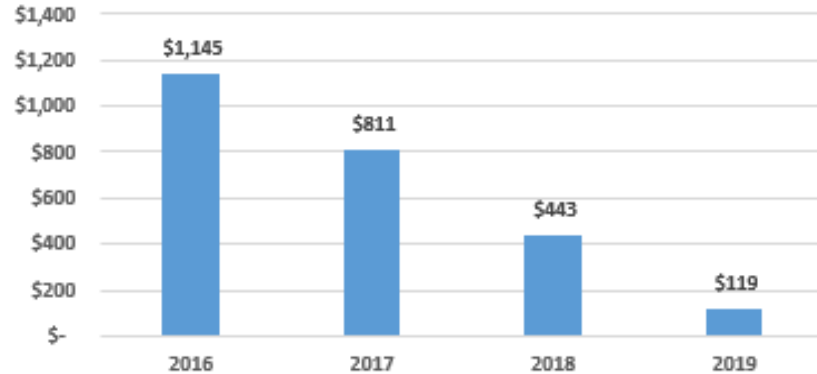
*\*Reflects upgrades not completed*

# STEP Trends

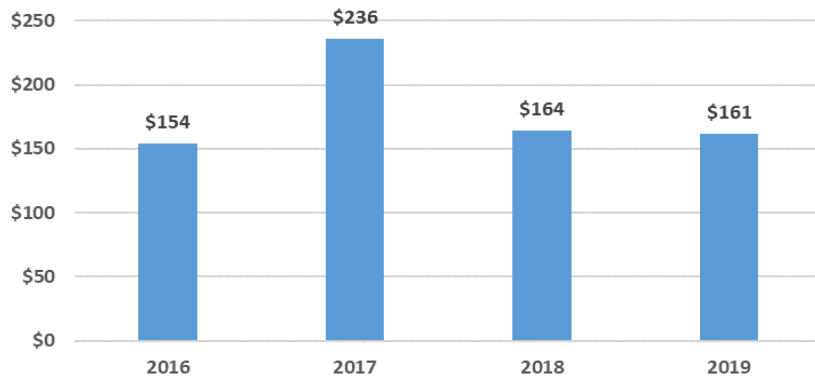
### Transmission Service Upgrades (\$Millions)



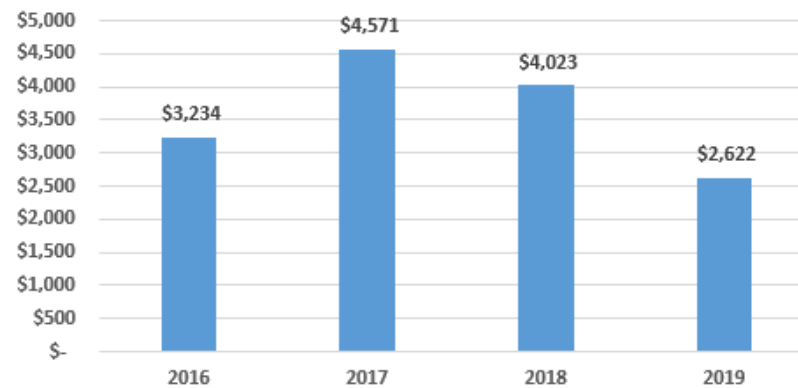
### High Priority Upgrades (\$Millions)



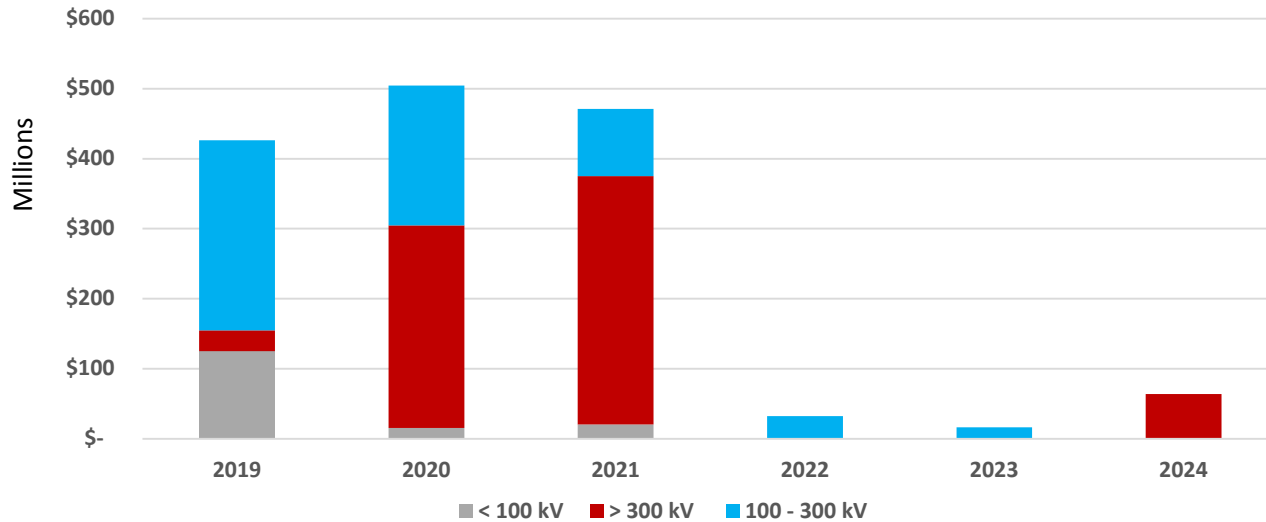
### Generation Interconnection Upgrades (\$Millions)



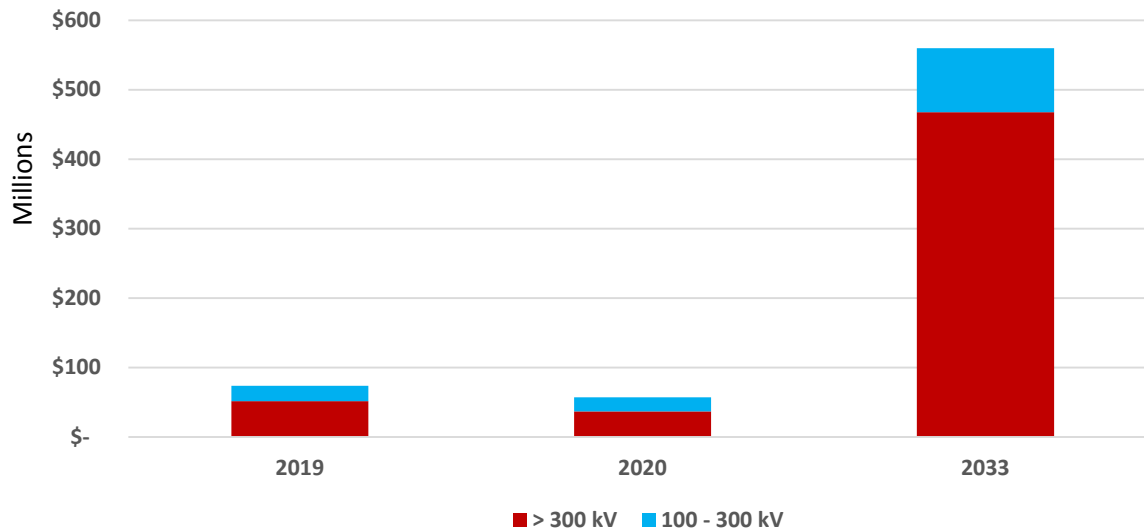
### ITP Upgrades (\$Millions)



# Upgrades by In-Service Year (NTC)



# Upgrades by In-Service Year (Non NTC)



# Integrated Marketplace and Operations Update

Bruce Rew, PE

Vice President, Operations

# SPP Integrated Marketplace Update

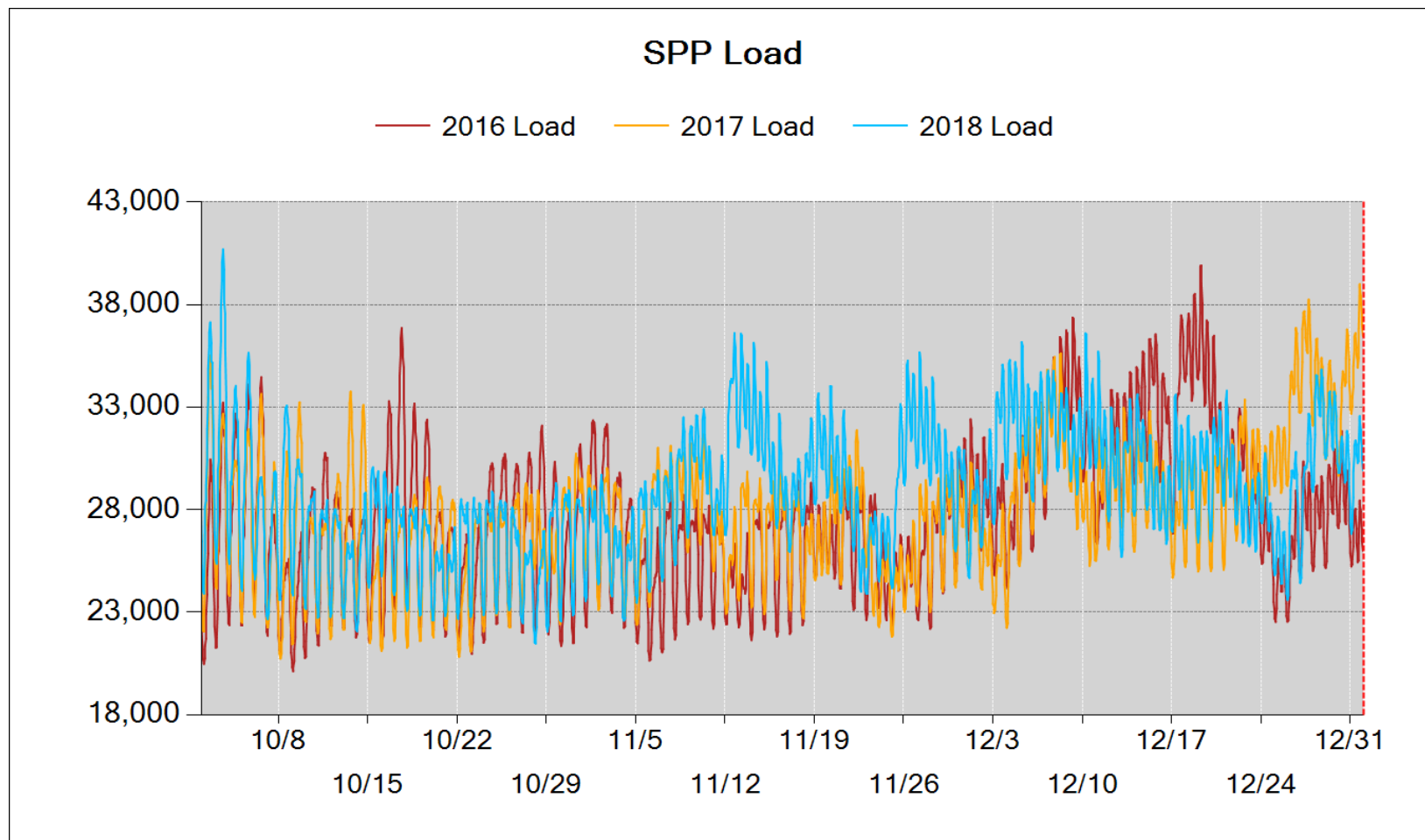
- Marketplace Operational Highlights
- Historical Load and Wind Trends
- Marketplace Highlights and Information
- Enhancements implemented and under development



# Marketplace Operational Highlights

- No new load peaks during the quarter
  - Load peaked around 40.9 GW on 10/03 (short of historical winter peak 43.6 GW on 1/17/2018)
- Load forecast error decreased compared to summer
  - October and November's mild weather improved forecast accuracy.
  - December's colder weather saw error starting to increase again
- Less accurate wind forecasts due to volatility in wind fronts during the fall.
- Currently over 20GW of wind registered in the market

# SPP Load profile: October – December (comparing 2016, 2017, 2018 years at same date)



# Wind Output: Oct - Dec 2018

	@ Max Wind Output	@ Min Wind Output
<b>MW Wind</b>	16,382 MW	678 MW
<b>Time</b>	12/20 @ 07:40:48	11/1 @ 11:48
<b>SPP Load</b>	32,562 MW	28,579 MW
<b>Appx Gen Mix</b>		
Coal	33%	45%
Wind	48%	2.5%
Nat. Gas	11%	41%
Nuclear	6%	4%
Hydro	3%	7%



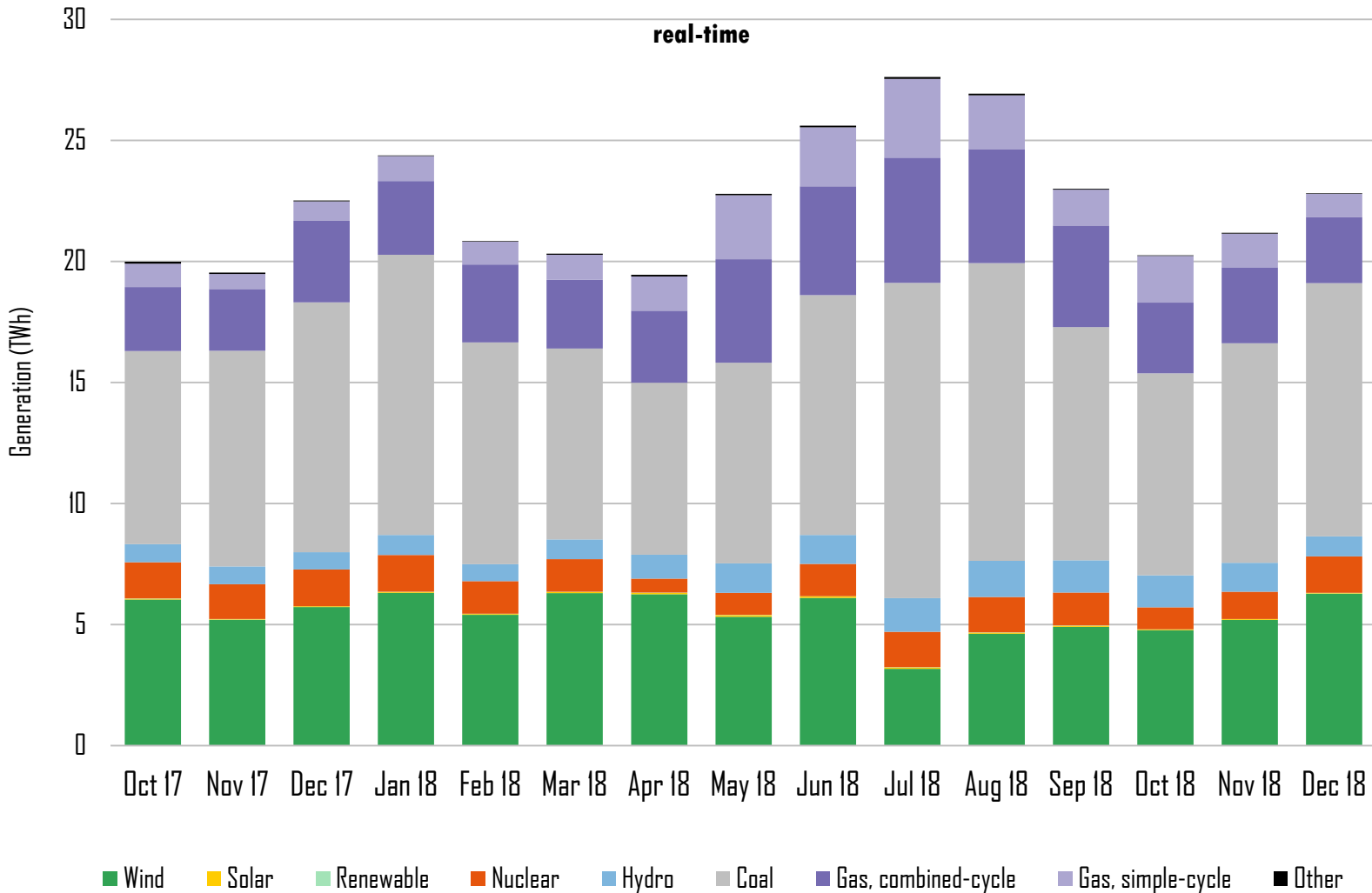
# Wind Penetration: Oct - Dec 2018

	<b>Max Penetration</b>	<b>Min Penetration</b>
<b>Wind Penetration</b>	58.07% of load	2.37% of load
<b>Time</b>	12/20 @ 02:40	11/1 @ 11:48
<b>SPP Load</b>	26,395MW	28,579 MW
<b>Wind Output</b>	15,327 MW	678 MW
<b>Appx Gen Mix</b>		
Coal	32%	45%
Wind	53%	2.46%
Nat. Gas	7%	41%
Nuclear	7%	4%
Hydro	1.6%	7%

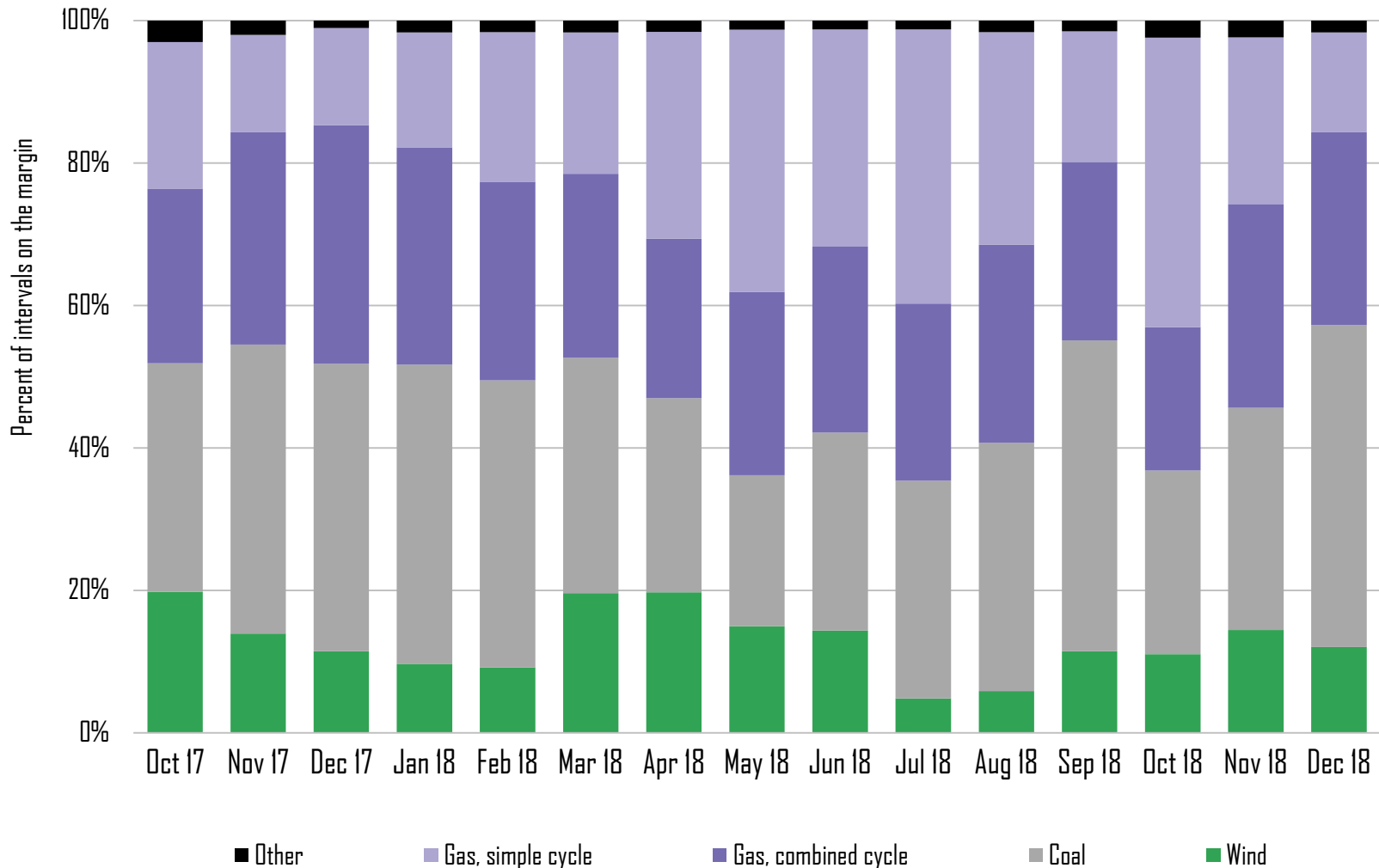
# Marketplace Over Last 12 Months

- **232 Market Participants**
  - 149 financial only and 83 asset owning
- **SPP BA has successfully maintained NERC control performance standards (BAAL & CPS)**
- **High System availability**
  - Day-Ahead Market results have posted late 2 times in 2018
    - 1 late posting in 2018 Q1 due to power outage issues
    - 1 late posting in 2018 Q2 due to issues resulting from new market system release
- **Real-Time Balancing Market has successfully solved 99.9% of all intervals**

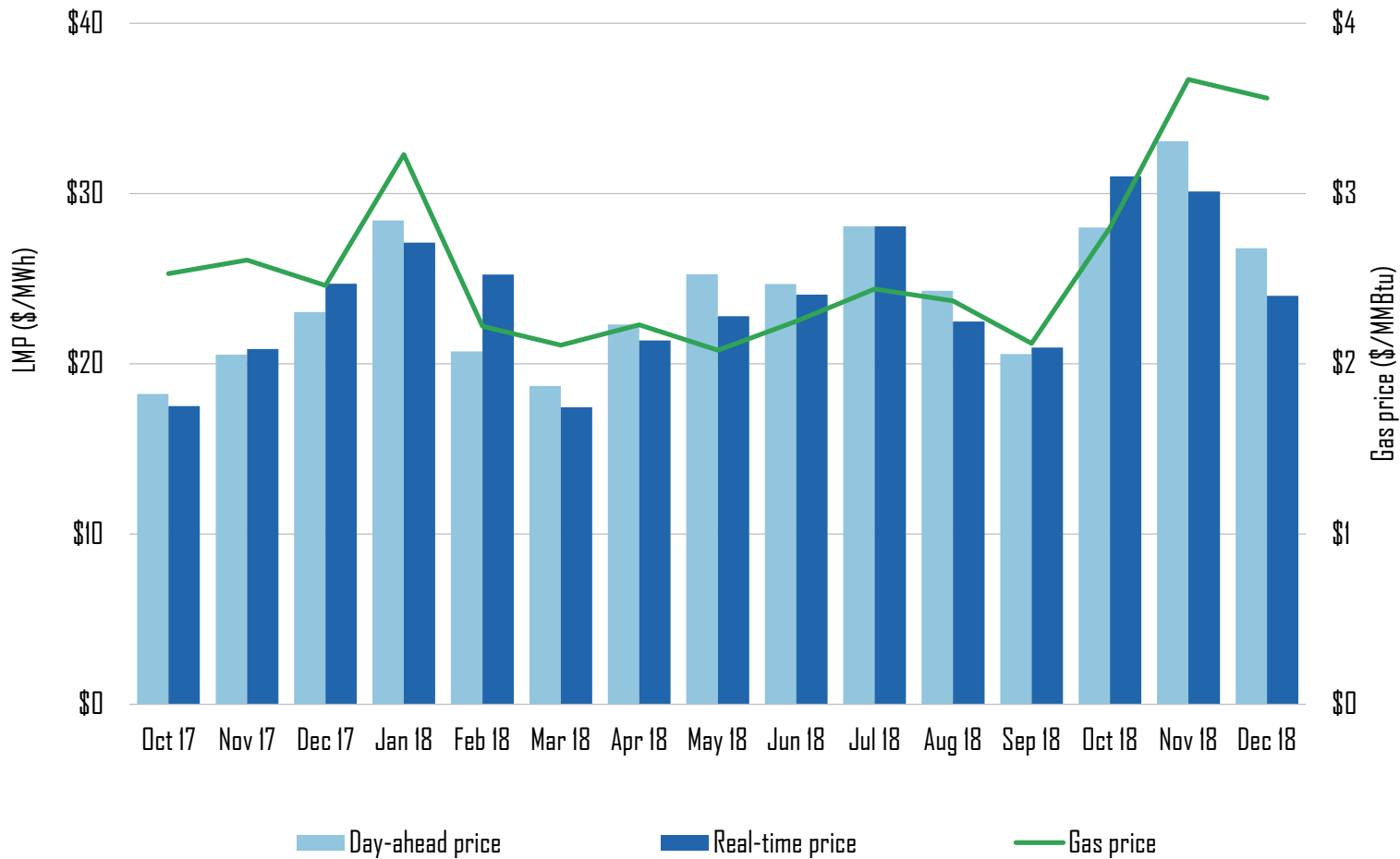
# Dispatch by Fuel Type



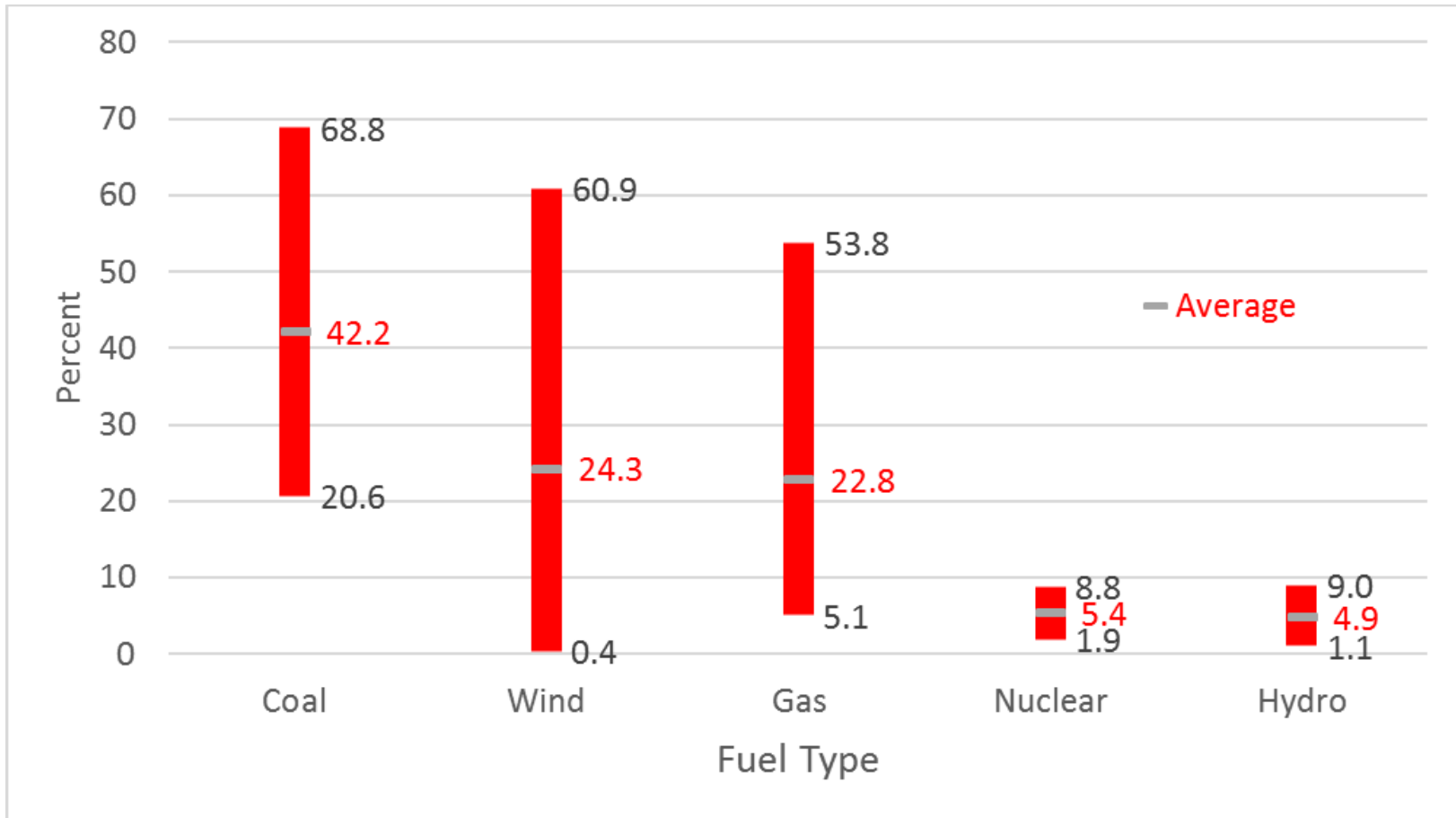
# Fuel on the Margin in Real-Time



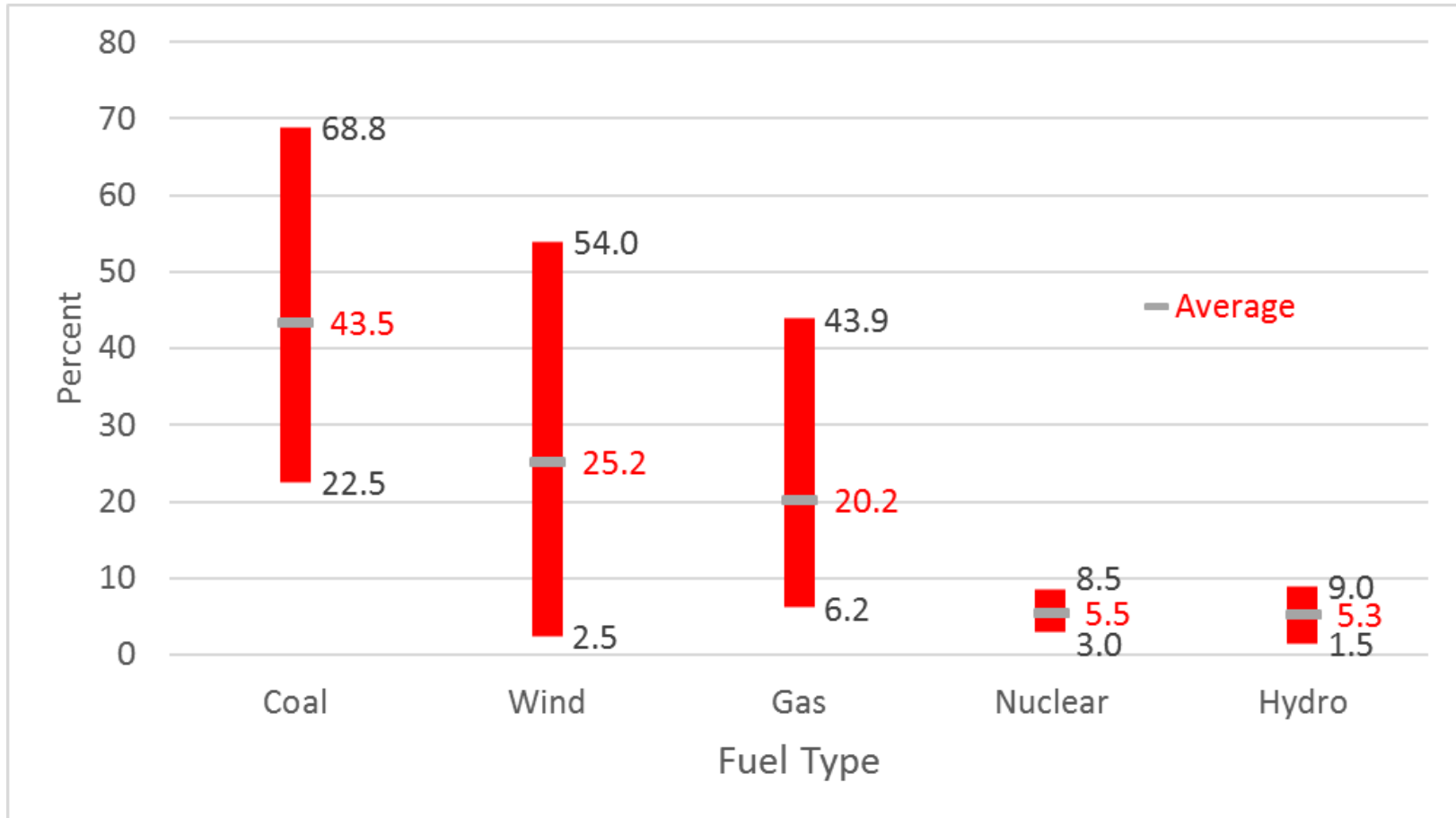
# Real-Time versus Day-Ahead pricing



# Min and Max Percent of Generation Mix Per Fuel Type - Last 12 Months



# Min and Max Percent of Generation Mix Per Fuel Type – Q4 2018



# Integrated Marketplace Enhancements

## Implemented December 2018

- RR231 – Mitigation of Locally Committed Resources
- RR253 – DVER Regulation Enhancement

## Implemented January 2019

- RR310 – FERC Order 844 – Uplift Allocation and Transparency
  - Operations Reports

## Planned for February 2019

- FERC Order 844 – Uplift Allocation and Transparency
  - Settlements Reports

## Planned for May 2019

- Settlement System Replacement
- RR210 – Contingency Reserve Deployment Tests
- RR229 – Order No. 831 Compliance (Offer Caps)
- RR252 – OOME Enhancement

## Planned for July 2019

- RR 266 – JOU Combined Single Resource Modeling
- RR316 – MCR Plant & Group Min Down Time
- RR288 – DVER Instructions Rules Clean-up

## Planned for December 2019

- RR232 – FERC Order 841 – Electric Storage Participation



# Our Mission

Helping our members work together to  
keep the lights on ...  
today and in the future.