



THE POWER OF PEOPLE



# Southwest Power Pool Update

NPPD Board of Directors Meeting  
May, 2023

Robert J. Pick Sr. Mgr. Energy Market Strategies



Nebraska Public Power District

*Always there when you need us*



# OPERATIONS UPDATE 1Q 2023

BRUCE REW, PE

SENIOR VICE PRESIDENT, OPERATIONS



# MARKETPLACE OPERATIONAL HIGHLIGHTS

- Two new operational peaks set during the quarter
- Historical Max Wind
  - Current record: 23,838 MW at 3/16/23 8:54:36 PM [2.8% increase]
  - Previous record: 23,187 MW at 2/14/23 7:15:48 AM
- Historical Renewable Total MW (Wind + Solar + Hydro + Waste):
  - Current record: 24,894 3/16/23 at 8:53:48 PM [2.6% increase]
  - Previous record: 24,269 2/14/23 at 7:15:48 AM

	2023	2022	
Forecast Error	Q1	Q4	Q1
Load	1.72%	1.89%	2.13%
Wind	4.37%	4.12%	5.10%
Solar	3.74%	3.65%	4.51%

Available Wind	
IM	32,221 MWs
WEIS	5,479 MWs

# LOAD SPP BAA

- Winter 2022/2023 Load peak
  - Historical Max Winter Load (All-time BA Winter Load Nov - April): 47,157 MW 12/22/22 6:27 PM
  - Historical Max RC Winter Load (All-time Winter RC Load Nov - April): 47,257 MW 12/22/22 6:27 PM
- Summer 2022 Load peak
  - Historical Max Load (All-time BA/Market Load) and Historical Max Summer Load (All-time BA Summer Load May - October): 53,243 MW 7/19/22 4:59 PM
  - Historical Max RC Load (All-time RC load) and Historical Max RC Summer Load (All-time Summer RC Load May - October): 53,337 7/19/22 4:56: PM

Winter Year	Winter 1 min data	Summer Year	Summer 1 min data
2016/2017	40,323	2016	50,622
2017/2018	43,584	2017	50,574
2018/2019	41,084	2018	49,685
2019/2020	39,258	2019	50,662
2020/2021	43,661	2020	48,835
2021/2022	41,328	2021	51,037
2022/2023	47,157	2022	53,243

# WIND OUTPUT: JAN – MARCH 2023

	@ Max Wind Output	@ Min Wind Output
MW Wind	23,837.97 MW	1,711.72 MW
Time	3/16/23 at 20:54:36	2/24/23 at 16:30:40
SPP Load	32,805 MW	34,001 MW
<i>Gen Mix Percent</i>		
Wind	69.95%	5.26%
Coal	13.40%	38.68%
Nat. Gas	8.81%	45.71%
Nuclear	4.79%	6.21%
Hydro	2.97%	3.24%
Other	0.08%	0.9%

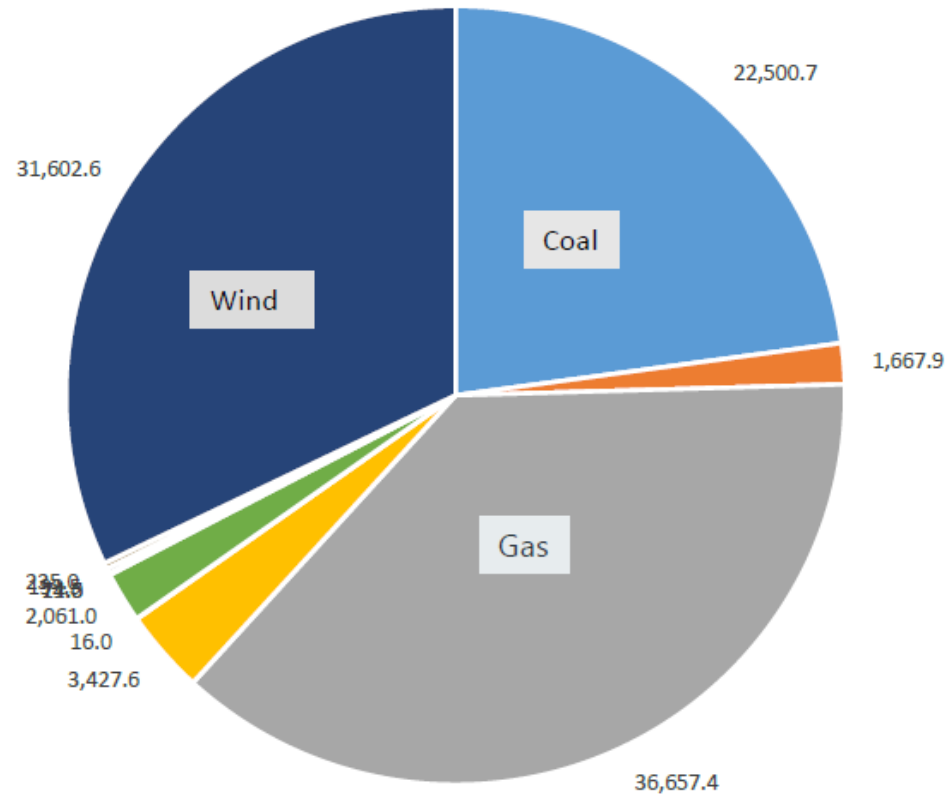
# WIND PENETRATION: JAN – MARCH 2023

	Max Penetration	Min Penetration
Wind Penetration	79.56 % of load	5.03 % of load
Time	2/6/23 at 00:22:16	2/24/23 at 16:30:44
SPP Load	27,385 MW	34,016 MW
Wind Output	21,765 MW	1,711 MW
<i>Gen Mix Percent</i>		
Wind	69.92%	5.26%
Coal	15.29%	38.67%
Nat. Gas	7.25%	45.70%
Nuclear	6.53%	6.21%
Hydro	0.90%	3.24%
Other	0.11%	0.92%

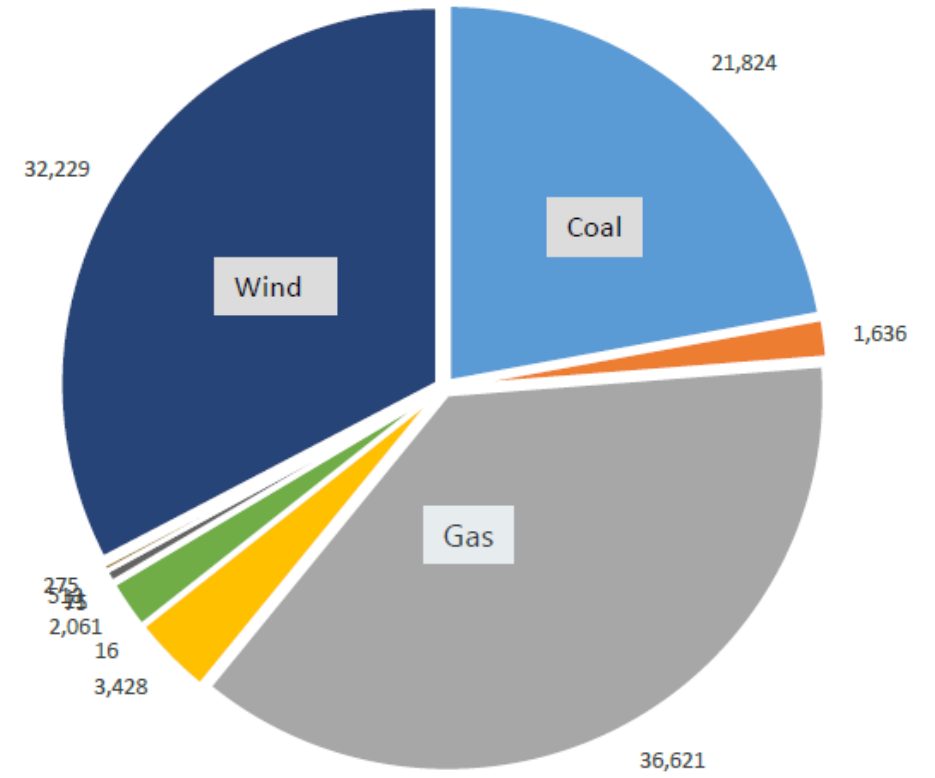


Changes to fuel mix in last 12 Months	
Coal	-677 MW
DFO	-32 MW
GAS	-37 MW
Solar	+40 MW
Wind	+626 MW
Demand Response	+314 MW

SPP BBA fleet: Registered Capacity 4/1/2022



SPP BBA fleet: Registered Capacity 4/1/2023



■ CO ■ FO ■ GAS ■ HYDRO ■ MSW ■ NUKE ■ OTH ■ Battery Storage ■ Demand response ■ SOLAR ■ WIND

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# 2022 ANNUAL STATE OF THE MARKET REPORT

KEITH COLLINS, VICE-PRESIDENT – SPP MMU  
BOARD AND MEMBERS COMMITTEE  
APRIL 25, 2023



# MARKET OUTCOMES REFLECT CHANGING CONDITIONS

Increasing energy prices

- Increasing natural gas prices
- Increasing load

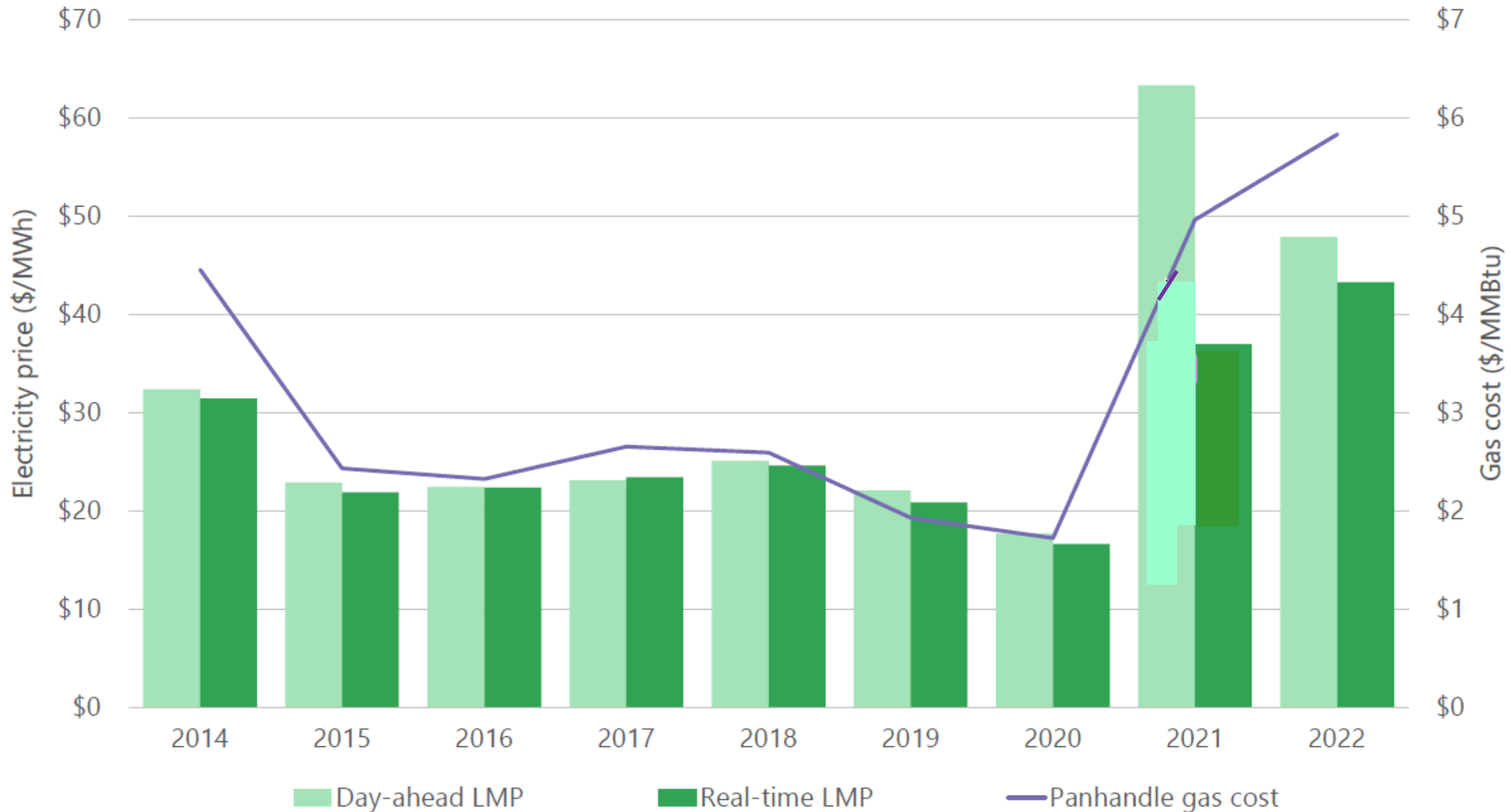
Continued higher renewable penetration

Increased make-whole payments

Increased congestion

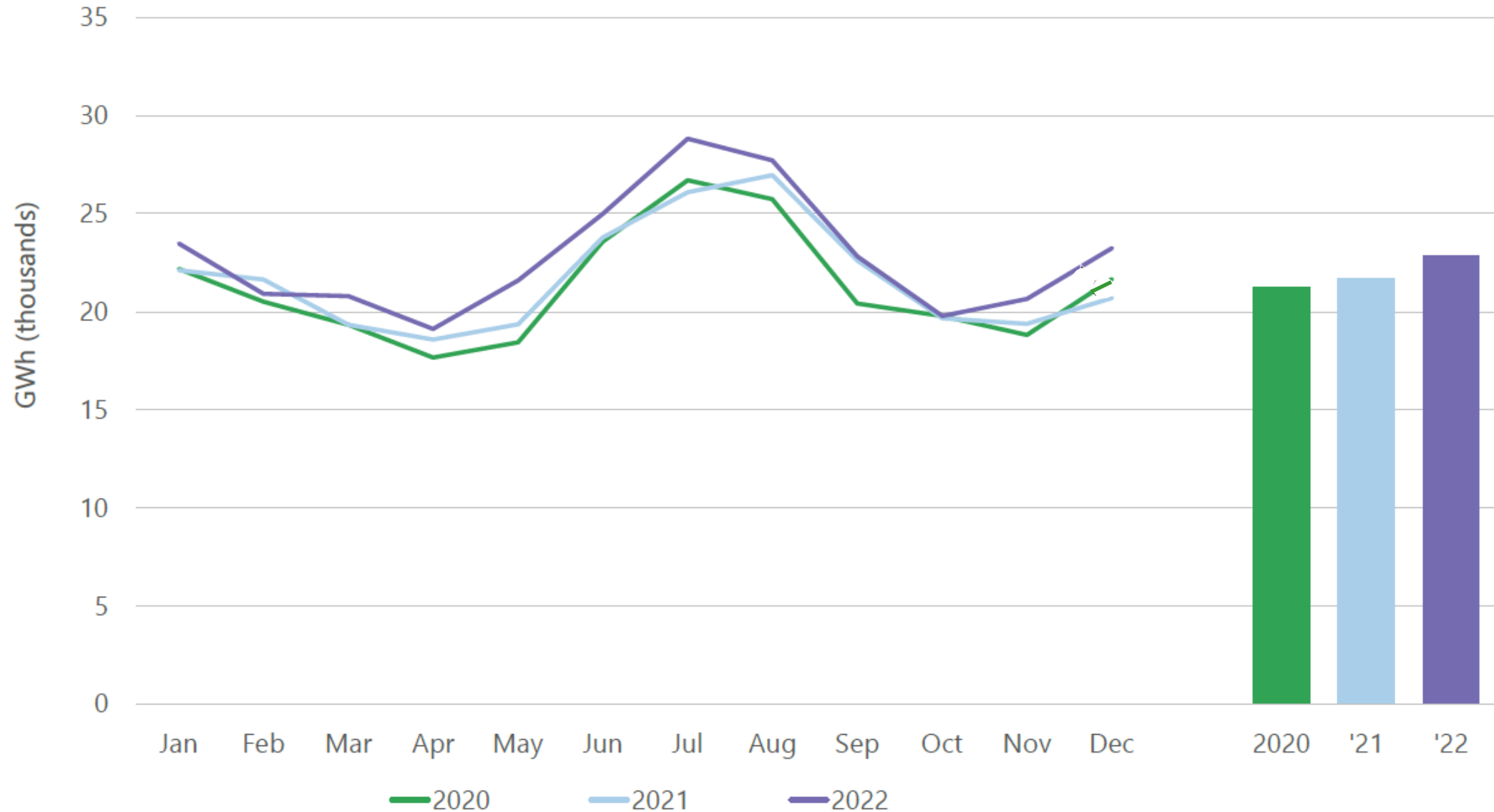
Increased revenue neutrality uplift

# ELECTRICITY AND GAS PRICES UP

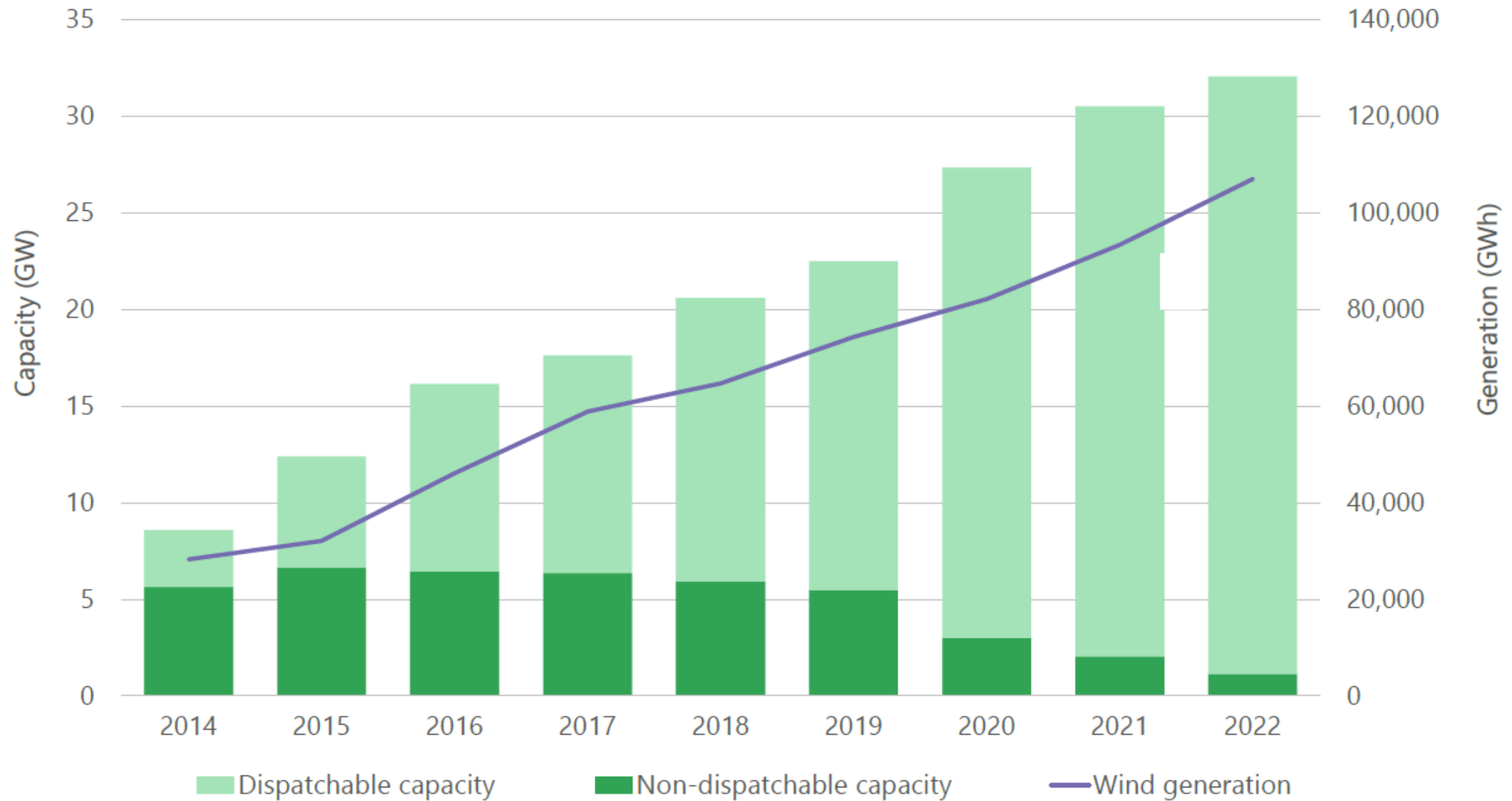


\* Markers in the 2021 bars indicate prices without February included

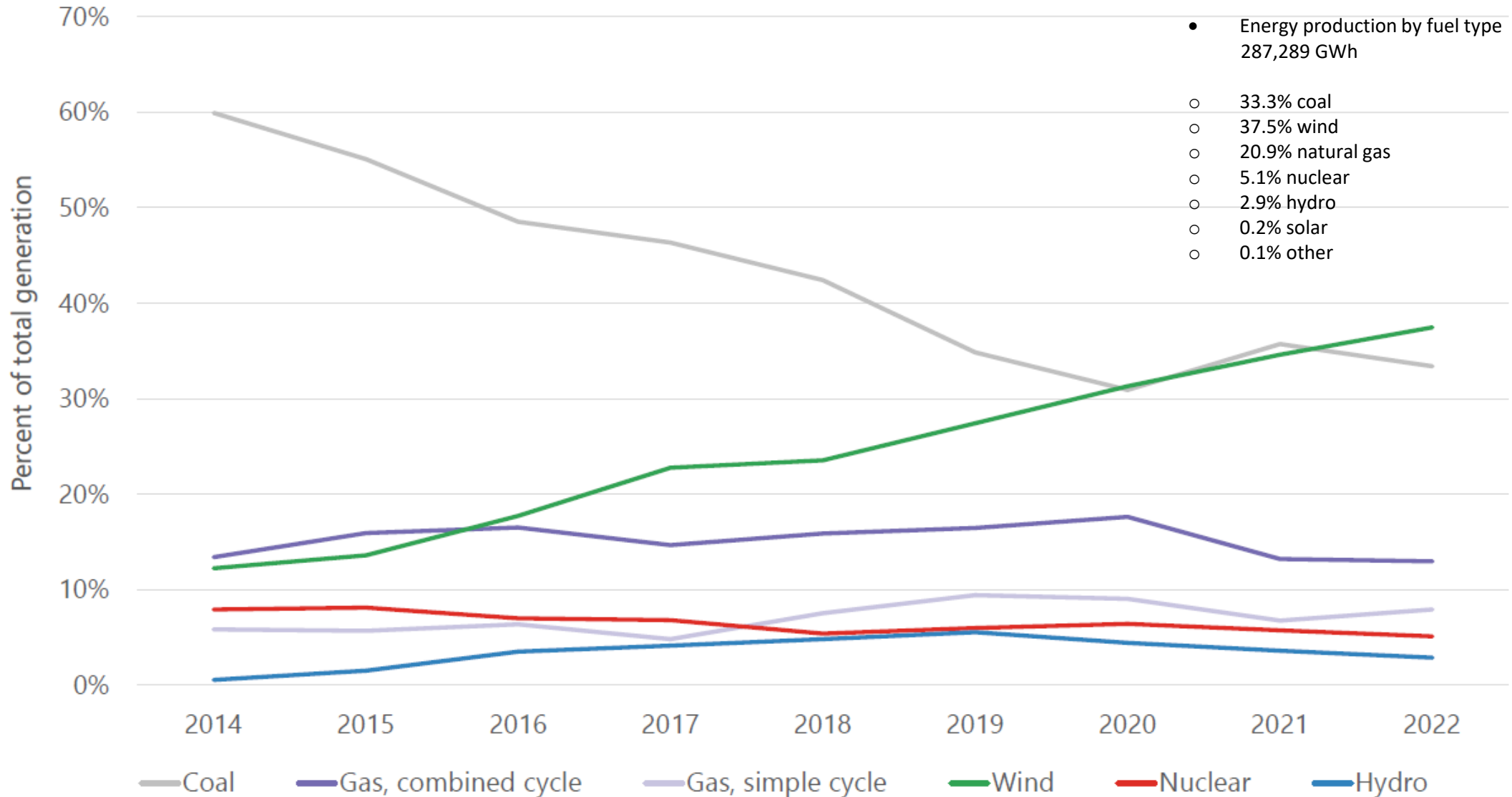
# ENERGY CONSUMPTION UP



# WIND GENERATION AND CAPACITY INCREASING



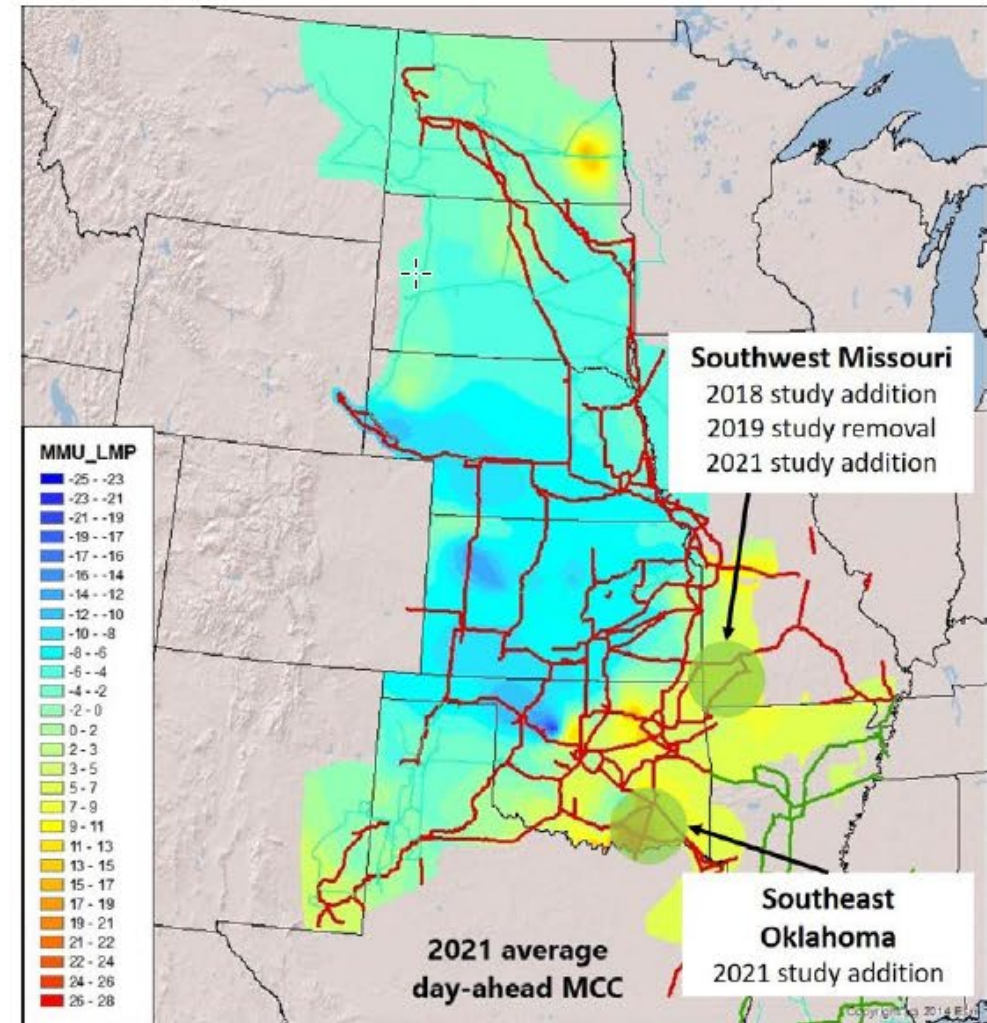
# WIND GENERATION CONTINUES TO RISE



# FREQUENTLY CONSTRAINED AREAS UNCHANGED

In December 2021, two frequently constrained areas (FCAs) were added:

- Southwest Missouri
- Southeast Oklahoma





## NEW RECOMMENDATIONS FOR 2022

Consider limitations on virtual trading during emergency conditions

Address limitations with the ramp capability product

Improve situational awareness of transmission upgrades and improve process to reassign projects

Approve congestion hedging mechanisms to enhance equity





# THE VALUE OF SPP

## 2022 MEMBER VALUE STATEMENT

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



SouthwestPowerPool



SPPorg



southwest-power-pool

# \$3.787 BILLION

## 2022 SAVINGS AND BENEFITS



### **Operations and Reliability: \$1.026 billion**

SPP operates from a regional perspective. This reduces costs and required energy reserves and increases efficiency.

### **Markets: \$2.304 billion**

SPP's Integrated Marketplace combines efficient and economic day-ahead, real-time and transmission markets.

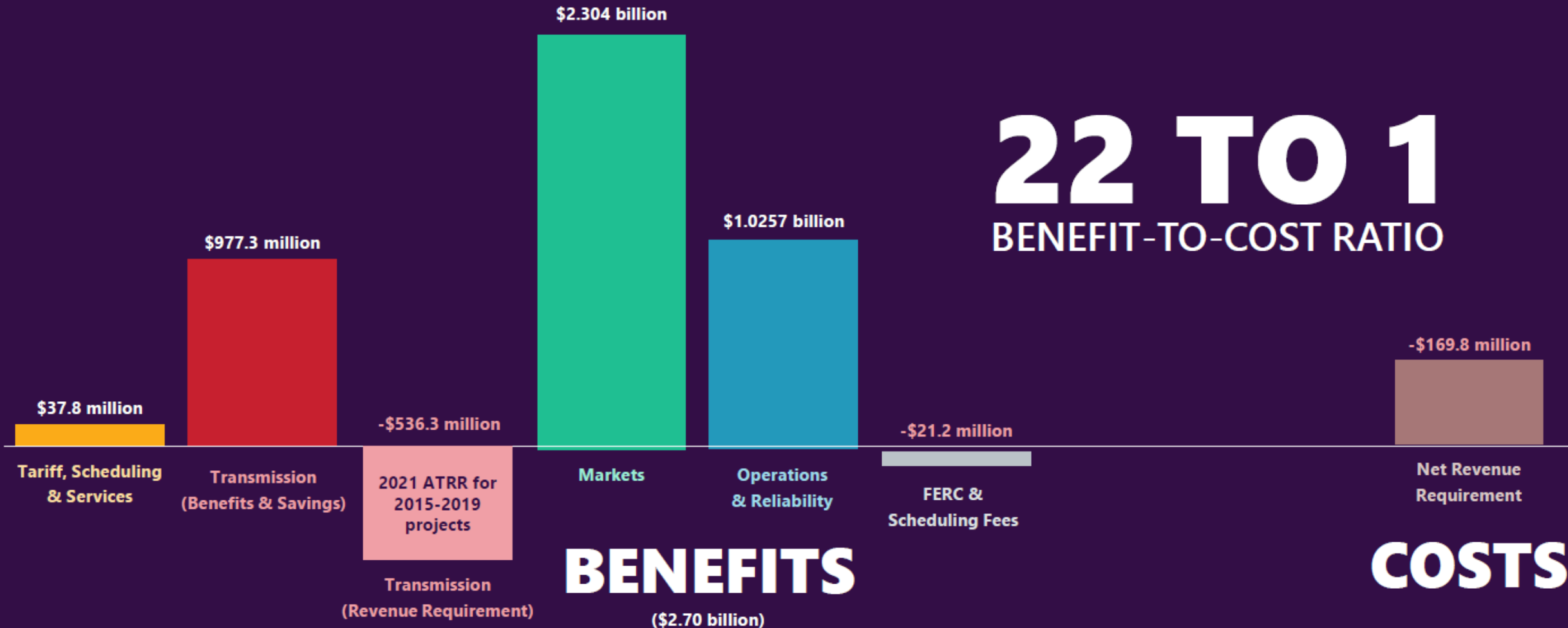
### **Transmission: \$441.0 million**

SPP's collaborative, stakeholder-driven transmission planning processes result in robust infrastructure and have rapidly and reliably integrated renewables.

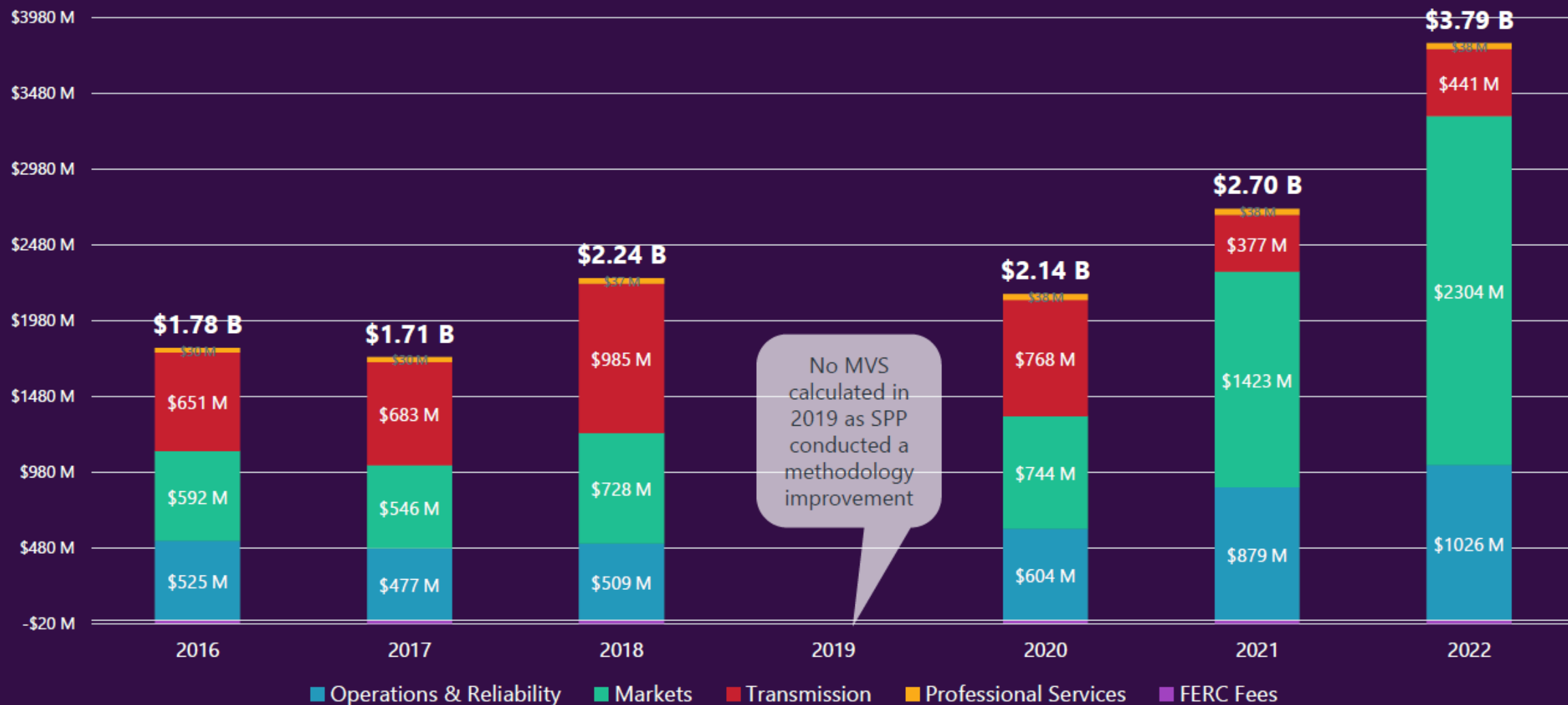
### **Tariff, Scheduling and Services: \$37.8 million**

SPP's industry-leading services and training meet the compliance, settlements, engineering, tariff and scheduling needs of our customers on a regional scale.

# 22:1 RETURN ON INVESTMENT

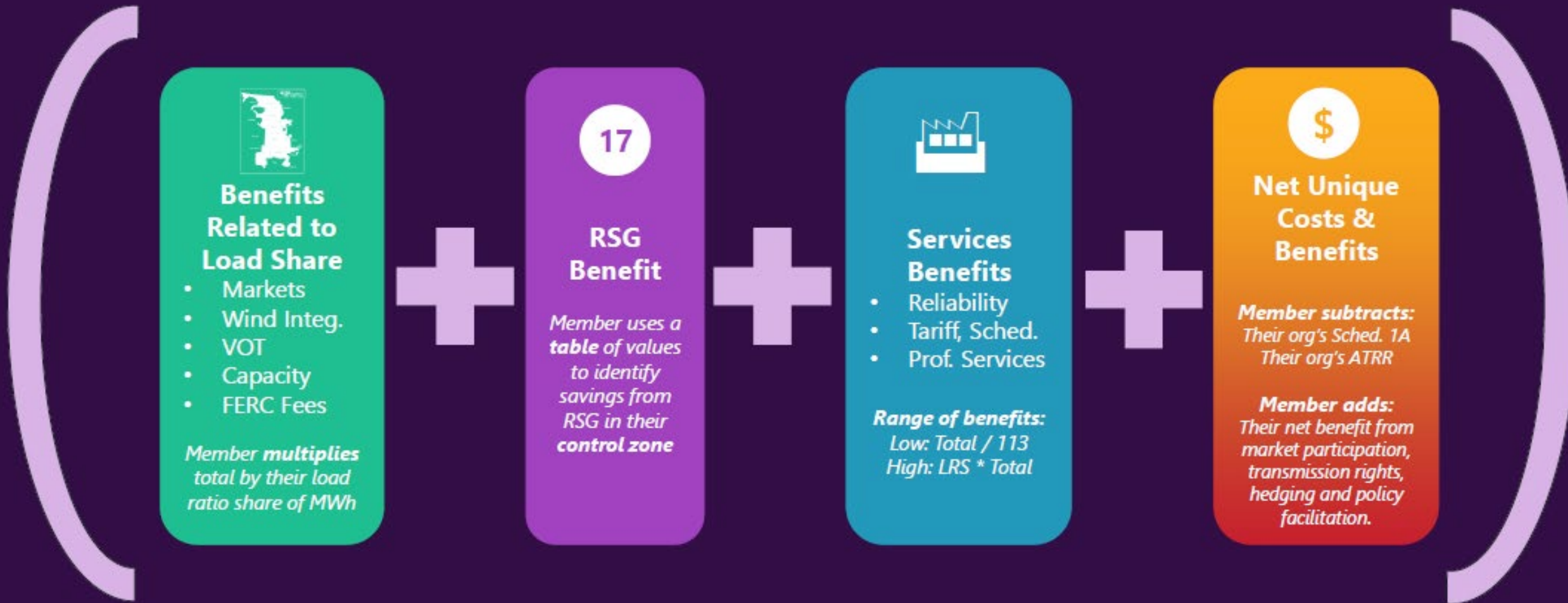


# A HISTORY OF VALUE





# INDIVIDUALIZING VALUE





# THE POWER OF PEOPLE



## Questions

Stay connected with us.



**Nebraska Public Power District**

*Always there when you need us*