



SPP GENERATION INTERCONNECTION UPDATE

KANSAS SPECIAL COMMITTEE ON ENERGY AND
UTILITIES

Paul Suskie

Executive Vice President, Regulatory Policy and General Counsel

*Working together to responsibly and economically
keep the lights on today and in the future.*



SouthwestPowerPool



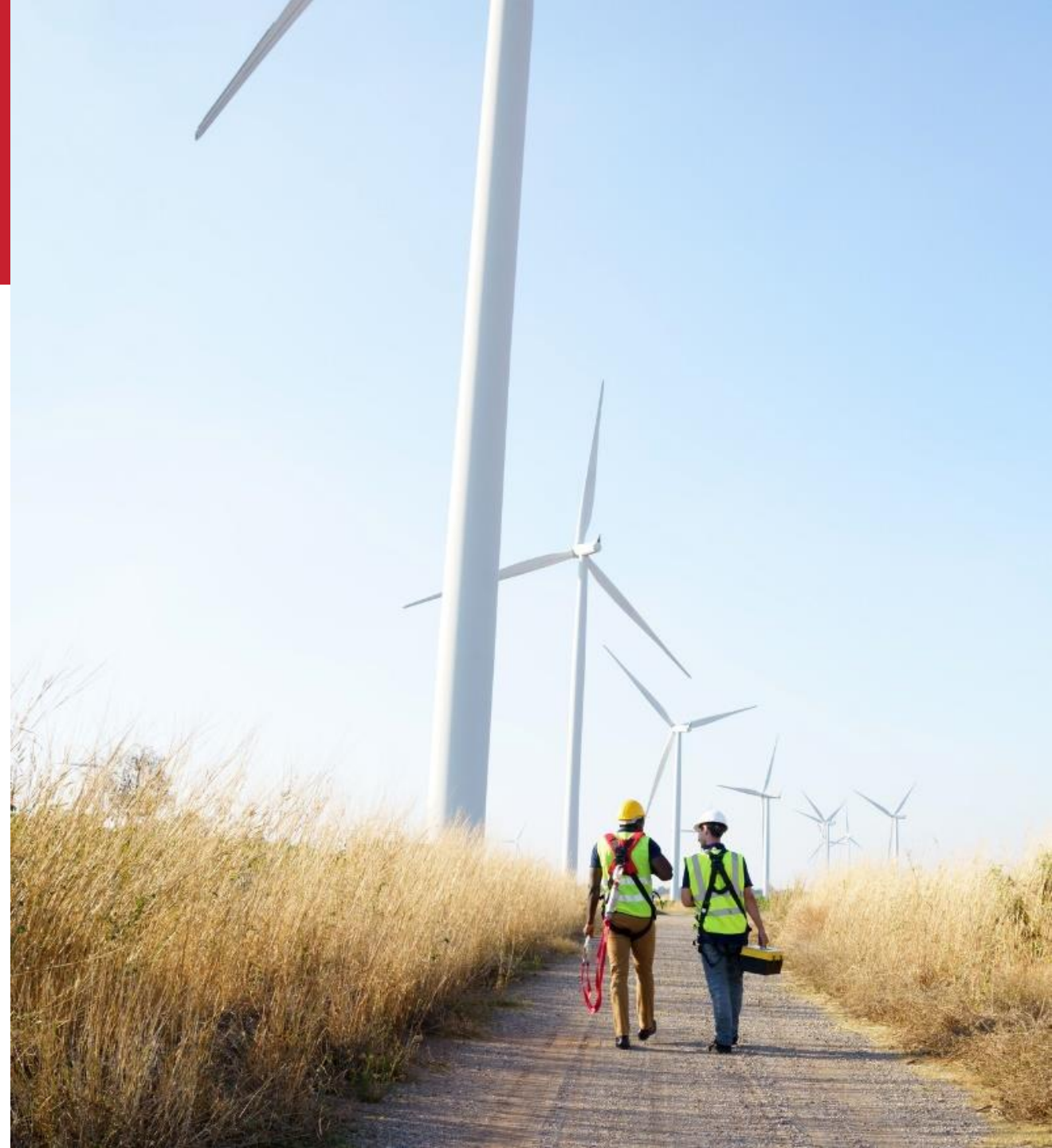
SPPorg



southwest-power-pool

TOPICS TO BE COVERED

- SPP's Current Generating Fleet & Recent Changes
- Current Generation Interconnect Queue & Process
- Backlog Clearing
- FERC Order No. 2023



CURRENT GENERATING FLEET & RECENT CHANGES

MANAGING OUR CHANGING GRID

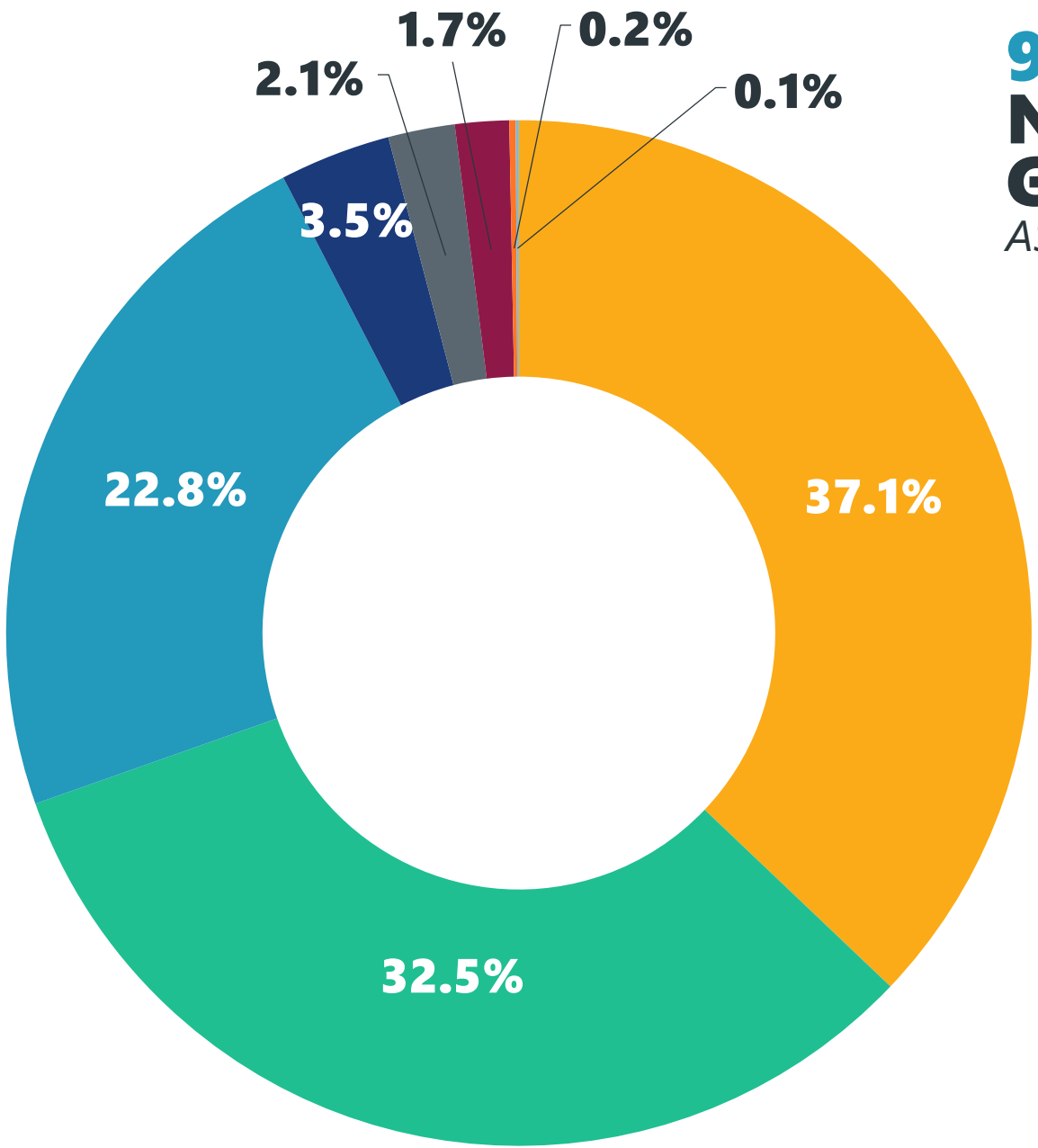
We are tasked with studying GI interconnection requests in a non-discriminatory manner

We DO NOT build or own generating facilities. Utilities and developers decide which generation will be built

We DO NOT pick winners or losers. SPP is fuel-agnostic

98,608 MW NAMEPLATE GENERATING CAPACITY

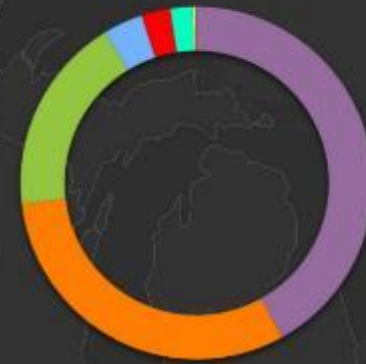
AS OF JAN. 1, 2023



- Natural Gas (37.1%)
- Wind (32.5%)
- Coal (22.8%)
- Hydro (3.5%)
- Nuclear (2.1%)
- Fuel Oil (1.7%)
- Solar (0.2%)
- Other (0.1%)

Distribution of Generation

Generation Mix



- Natural Gas
- Coal
- Wind
- Hydro
- Nuclear
- Fuel Oil
- Solar
- Other

0 - 138

139 - 370

371 - 730

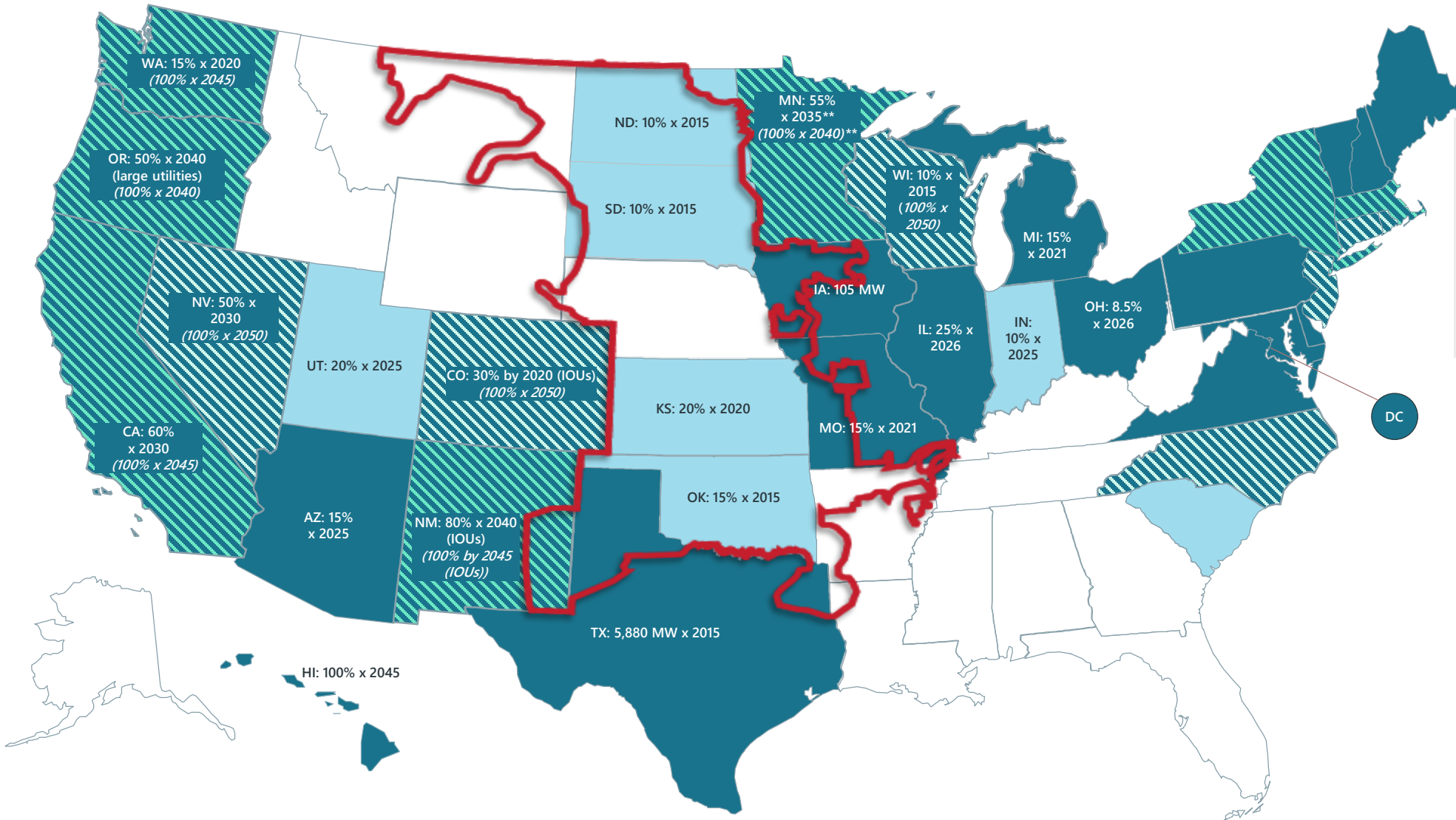
731 - 1334

> 1334

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Date Exported 2/7/2023 1 inch equals 182 miles

RENEWABLE & CLEAN ENERGY STANDARDS



29 States + DC have a Renewable Portfolio Standard

7 states have a Clean Energy Standard

(7 states have renewable portfolio goals, 7 states have clean energy goals)

- Renewable portfolio standard
- Renewable portfolio goal
- Clean energy standard
- Clean energy goal
- SPP RTO footprint

* Data from DSIRE, November 2022

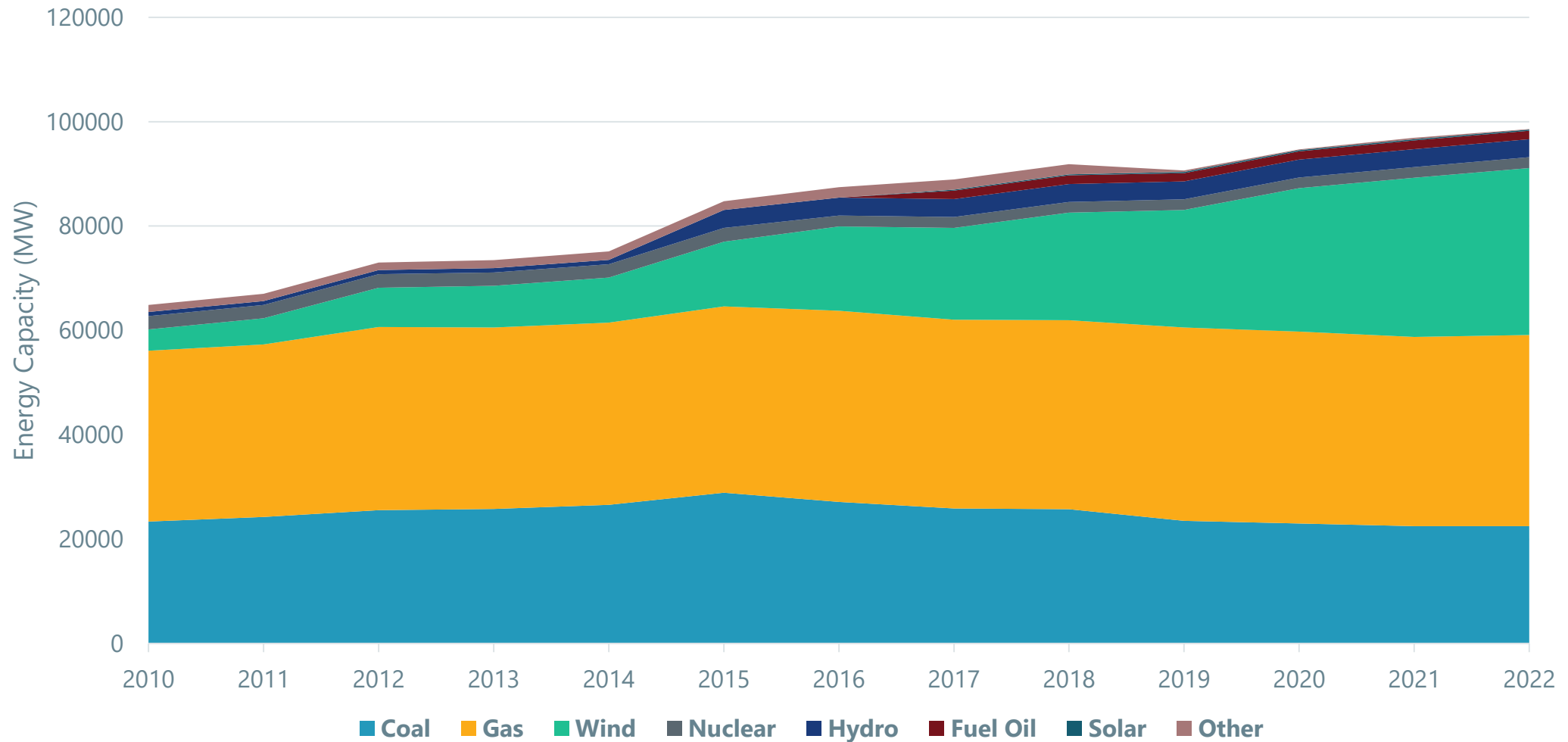
** Adopted in February 2023

Installed Wind Capacity

Wind capacity increased dramatically between 2001-2022



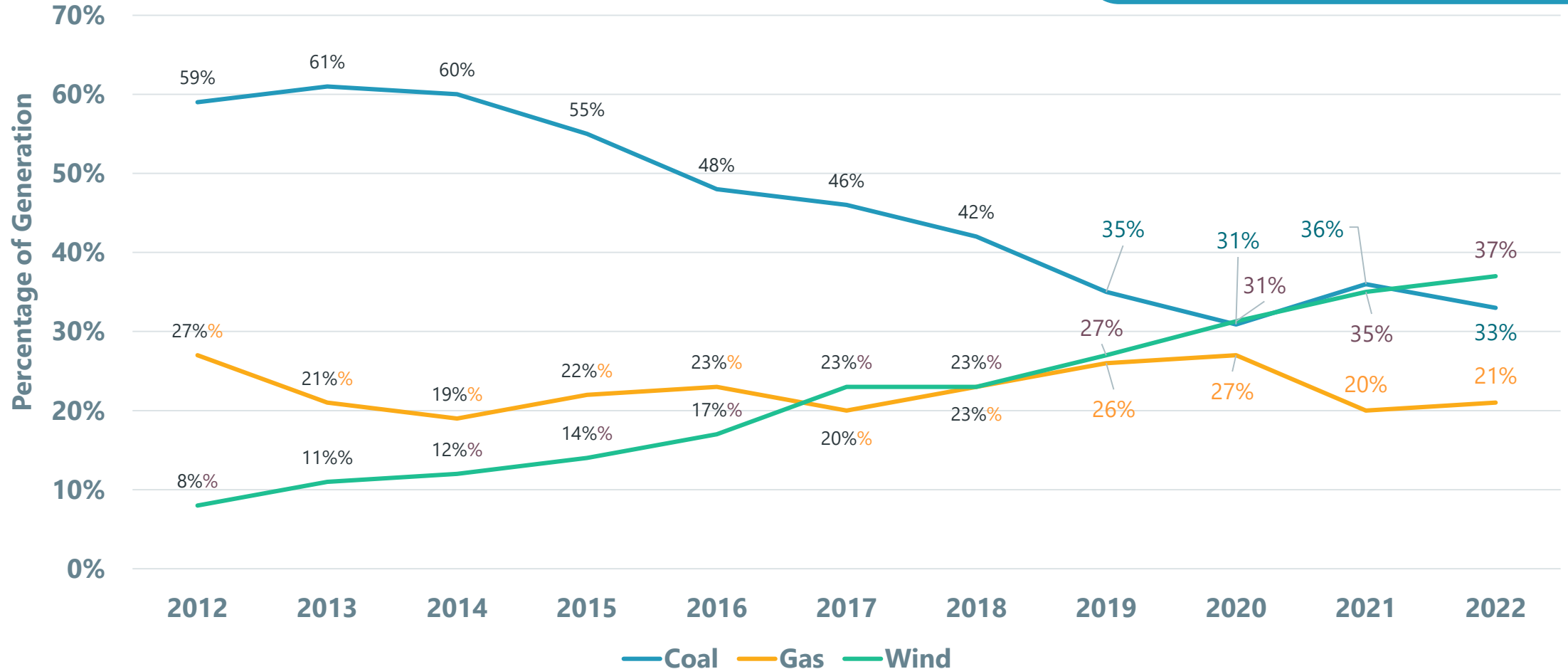
NAMEPLATE GENERATING CAPACITY BY FUEL MIX OVER TIME



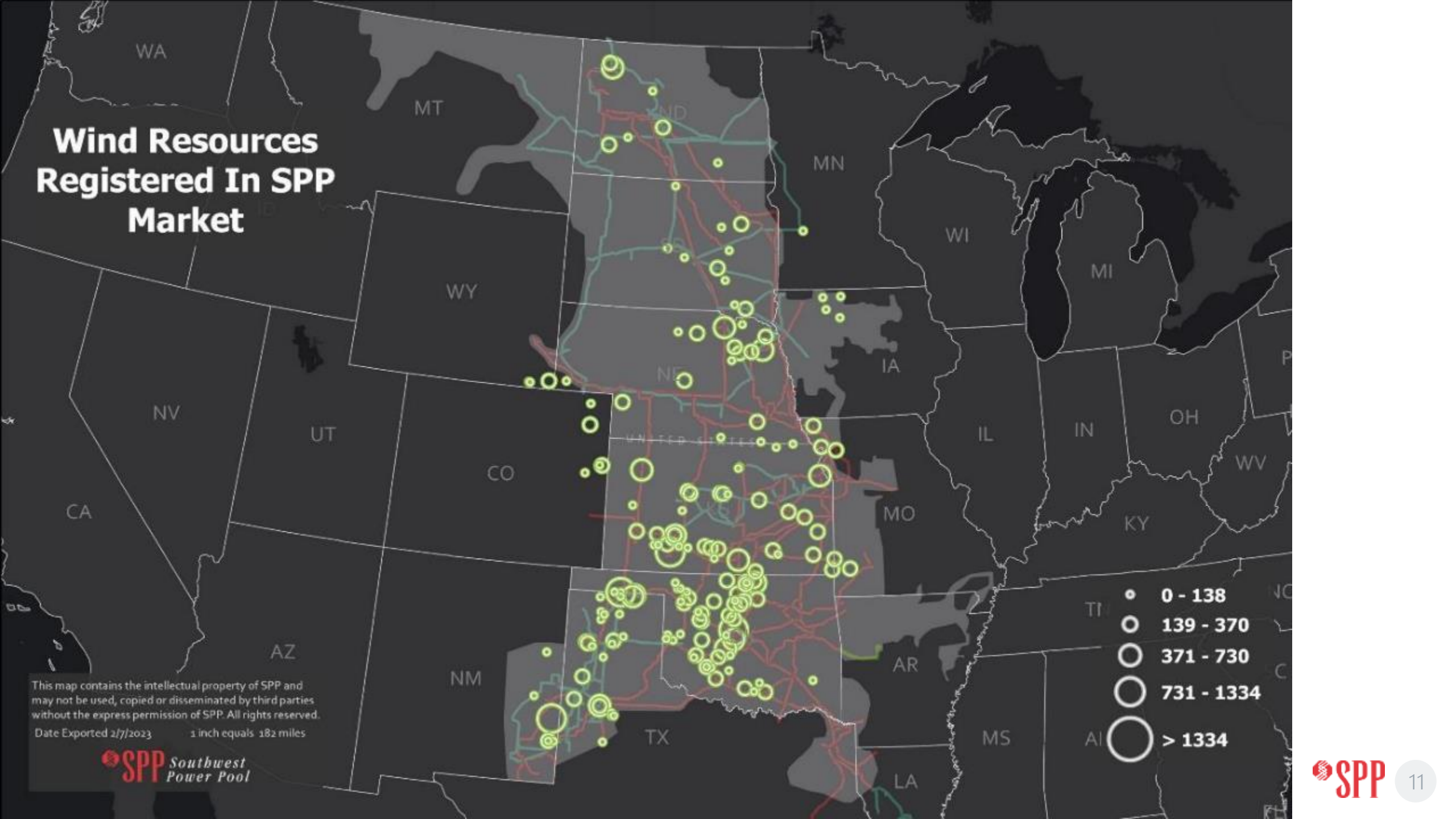
OUR EVOLVING ENERGY MIX

Coal and gas use has decreased, while wind has increased

Trend By Year



Wind Resources Registered In SPP Market



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Solar in SPP's system

- Solar in service: 245 MW
- Solar in all stages of study and development: 36,323 MW

Solar Resources Registered In SPP Market



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GENERATION INTERCONNECTION QUEUE & PROCESS

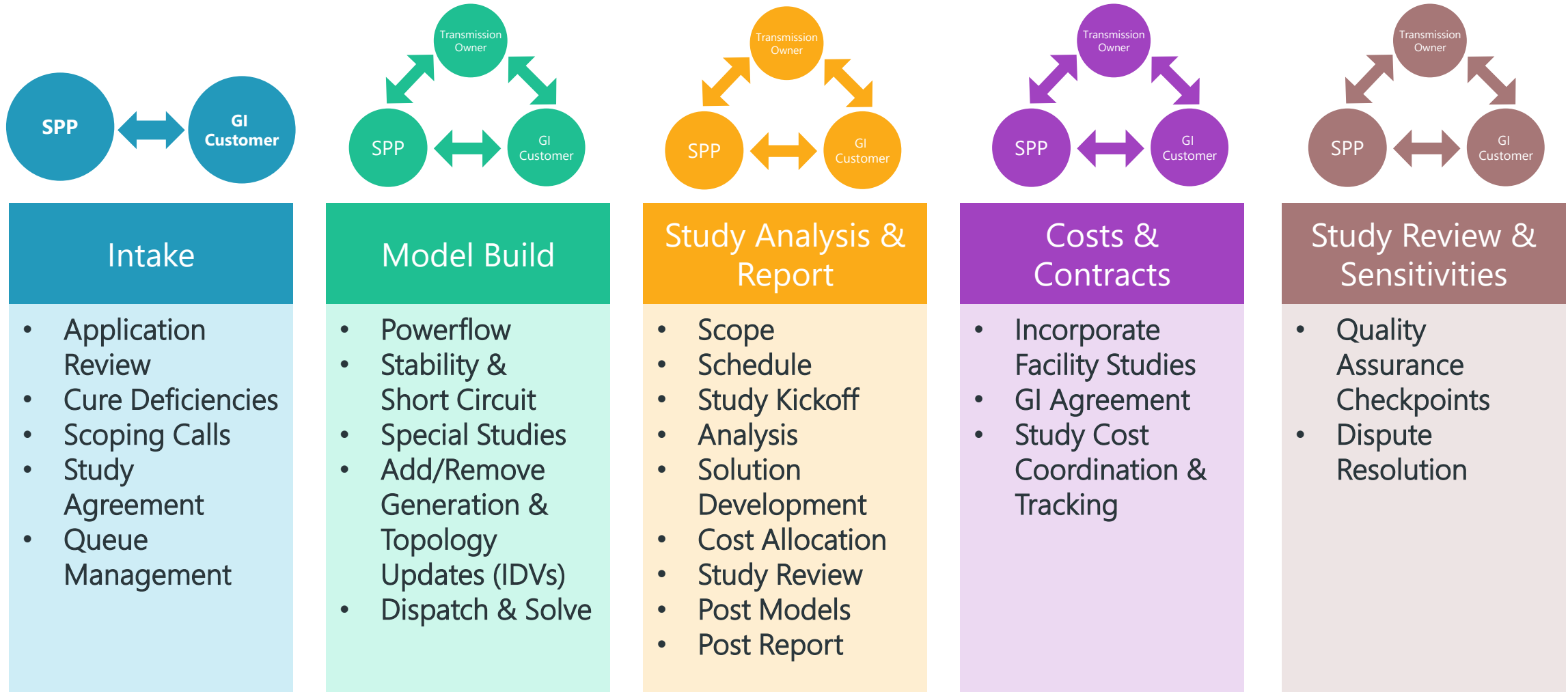
WHAT IS GENERATOR INTERCONNECTION?

- A tariff-based service provided by transmission providers to **facilitate the orderly interconnection of new generation** to the grid
- SPP's GI process provides a means for:
 - Planners and developers to submit requests to connect new generation to SPP's transmission network
 - SPP to validate, study and analyze these requests
 - Joint execution of a Generator Interconnection Agreement
 - Staging of requests, studies and connection in the queue

Governing Documents

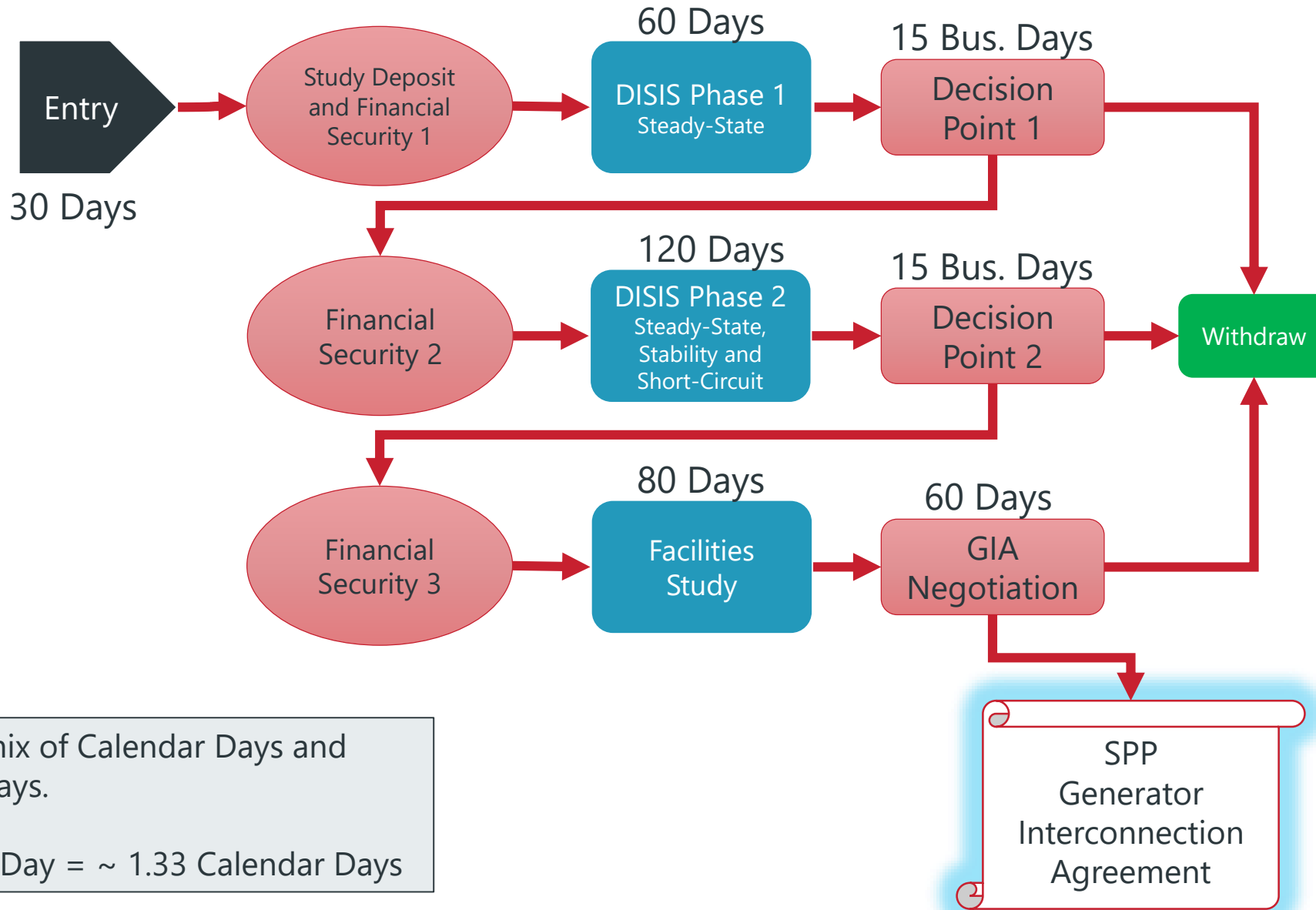
- **SPP Open Access Transmission Tariff**
 - GI Procedures (Attachment V)
- **SPP Business Practices**
 - 7250 GI Service
 - 7300 Guideline for Clarifying Application for the SPP GI Procedures
 - 7350 GI Modeling of Variable Energy Resources
 - 7400 Interconnection Service for Energy Storage Resources
 - **7900 Generator Interconnection Manual (Pending)**
- **SPP Planning Criteria**
- **Seams Agreements**

GI: WHAT GOES INTO OUR STUDIES?



SPP'S THREE-PHASE STUDY PROCESS

Definitive Interconnection System Impact Studies (DISIS)



Tariff has mix of Calendar Days and Business Days.
 1 Business Day = ~ 1.33 Calendar Days

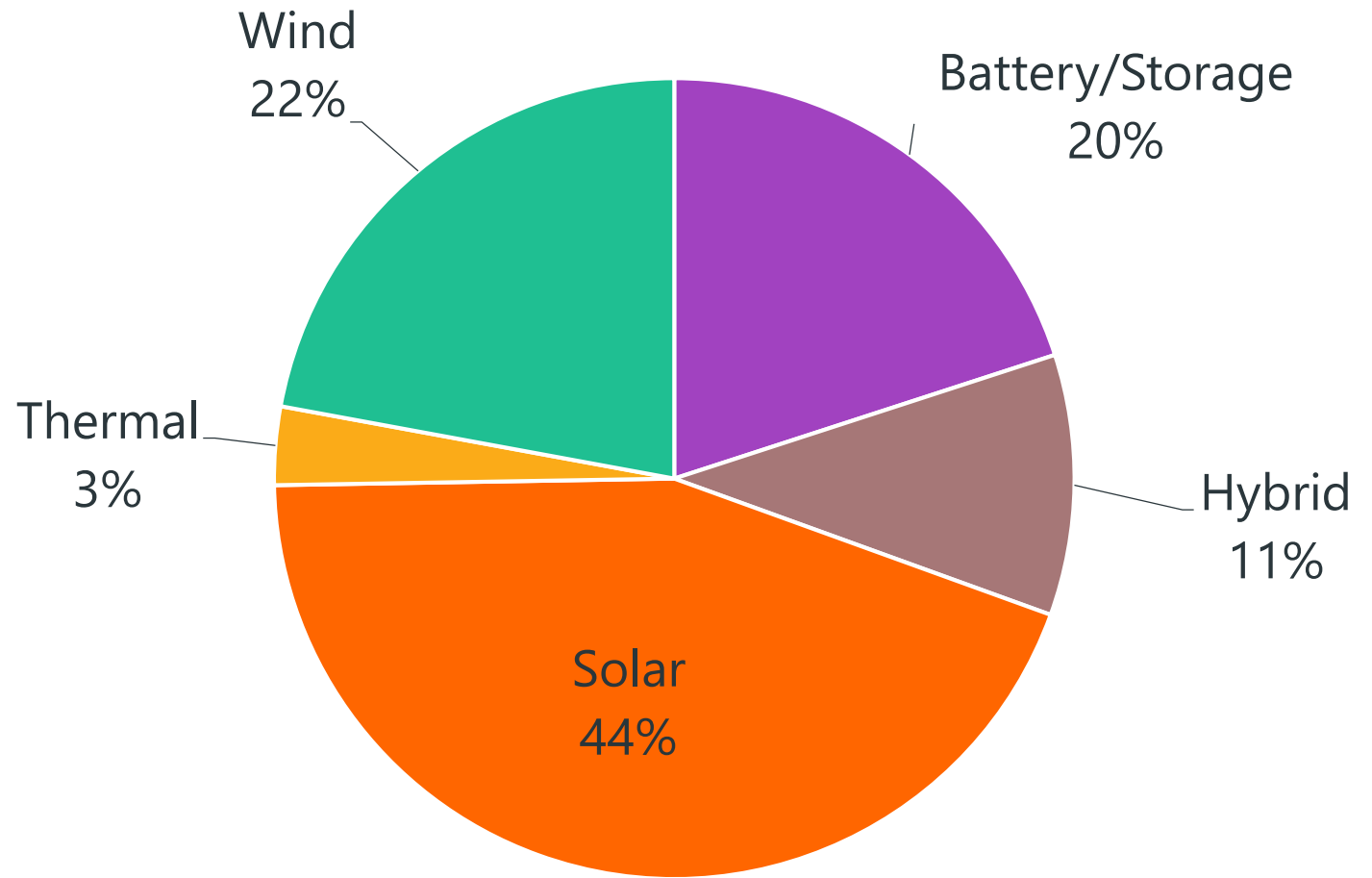
GENERATOR INTERCONNECTION COSTS

- 92% of projects that have completed all required interconnection studies complete between 2020 and 2022 have costs under \$125/kW.
- A 10MW Generation Interconnection customer paid for **\$540,000** in transmission upgrades on average.
- Economies of scale exist for completed renewable projects but not for other fuel types
 - Among complete wind projects, costs fall from \$61/kW for medium-sized projects (20-100 MW) to \$47/kW for large (100-250 MW) and \$44/kW for very large (250-675 MW) projects

Source: [Lawrence Berkeley National Laboratory](#)

REQUESTS PENDING IN THE CURRENT GI QUEUE

GEN TYPE	Requests	GW Capacity
Battery / Storage	126	19 GW
Hybrid	49	10 GW
Solar	191	42 GW
Thermal	20	3 GW
Wind	87	21 GW
TOTAL	473	95 GW

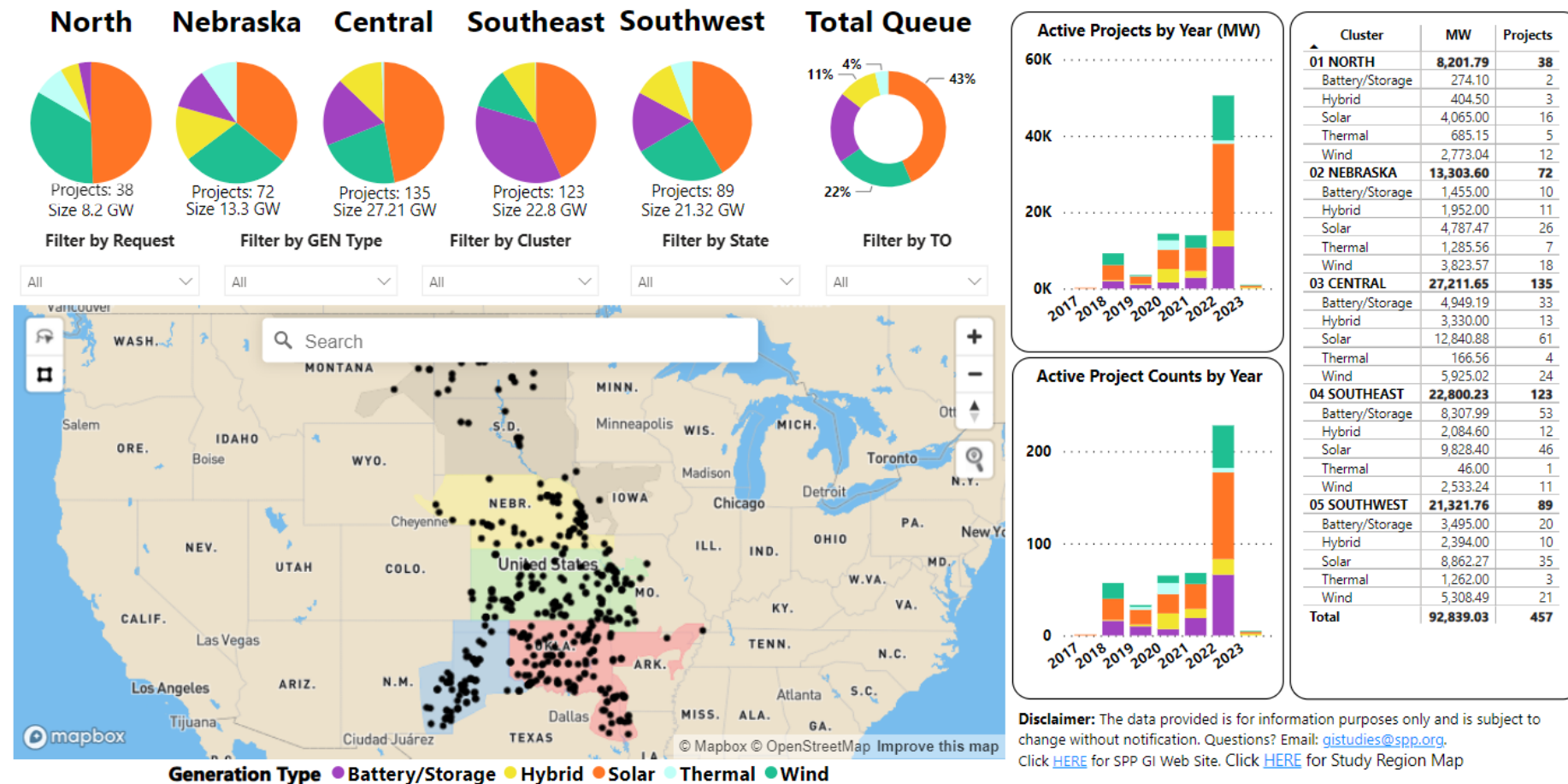


GENERATION INTERCONNECTION DASHBOARD (9/30/23)

SPP.org/engineering/generator-interconnection/

Southwest Power Pool Generation Interconnection Queue Dashboard

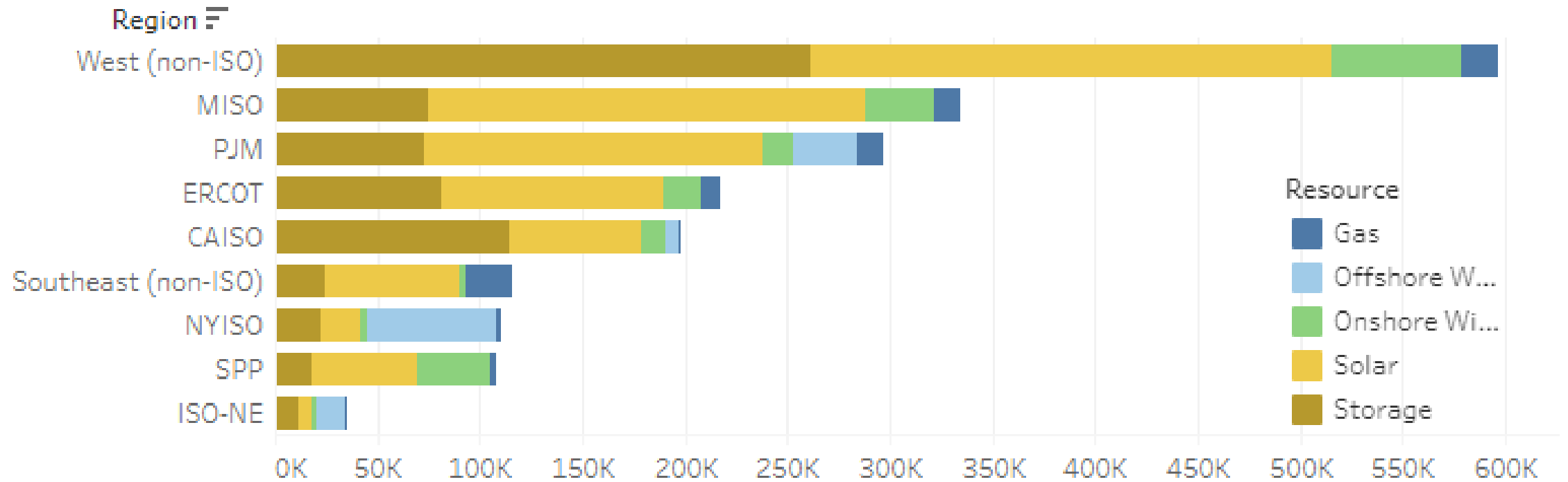
The current generator interconnection active queue consists of 457 projects totaling 92.8 GW



Disclaimer: The data provided is for information purposes only and is subject to change without notification. Questions? Email: gistudies@spp.org. Click [HERE](#) for SPP GI Web Site. Click [HERE](#) for Study Region Map

BACKLOG CLEARING

Regional queues by resource -- Cumulative

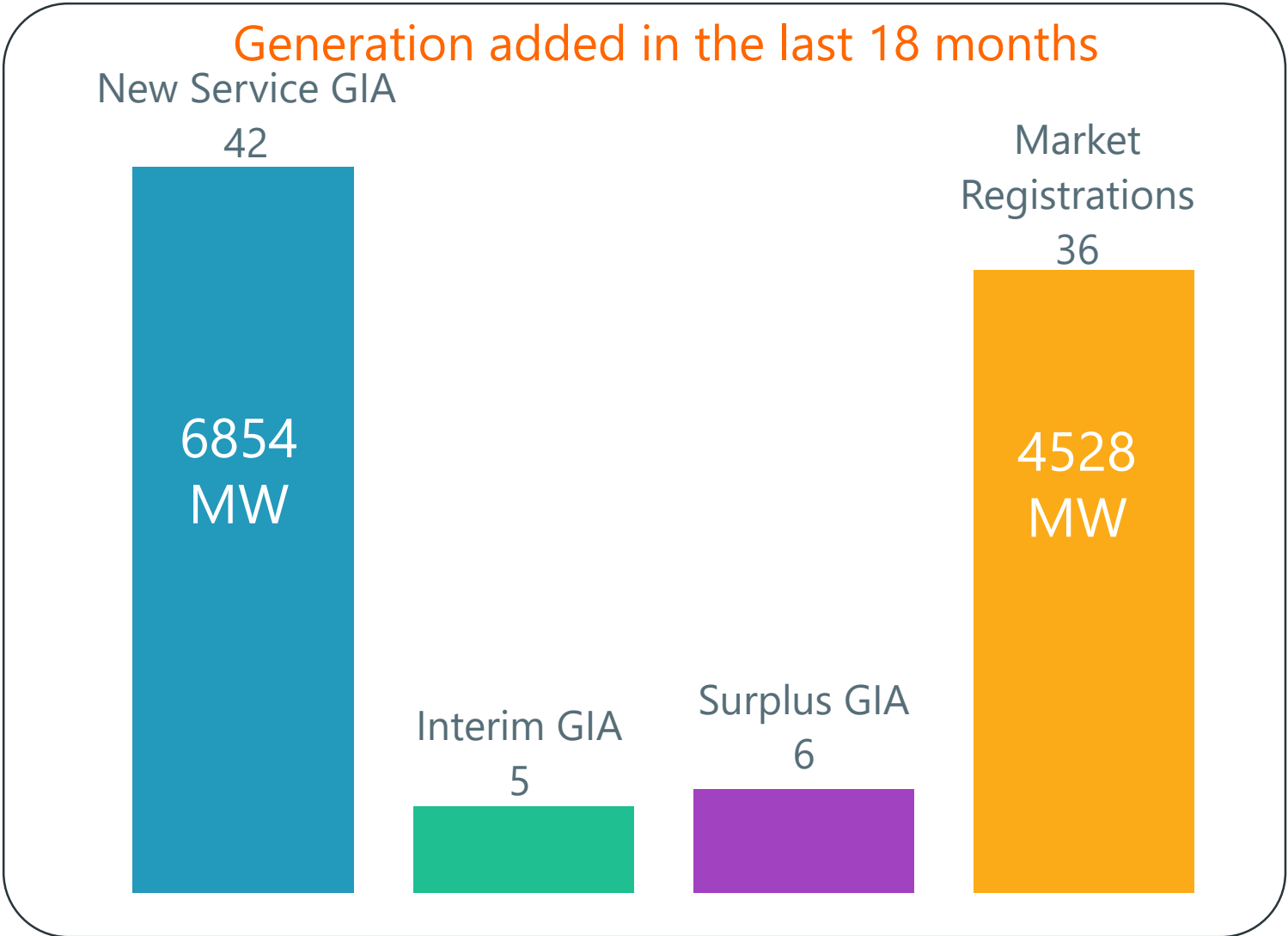


2.012 TW in GI Queue Nationwide
754.42 GW added to queue in 2022

Source: [Lawrence Berkeley National Laboratory](#)

HOW ARE WE DOING? GENERATION ADDED TO THE SYSTEM

In spite of the backlog, new generators are being added to SPP's resource pool

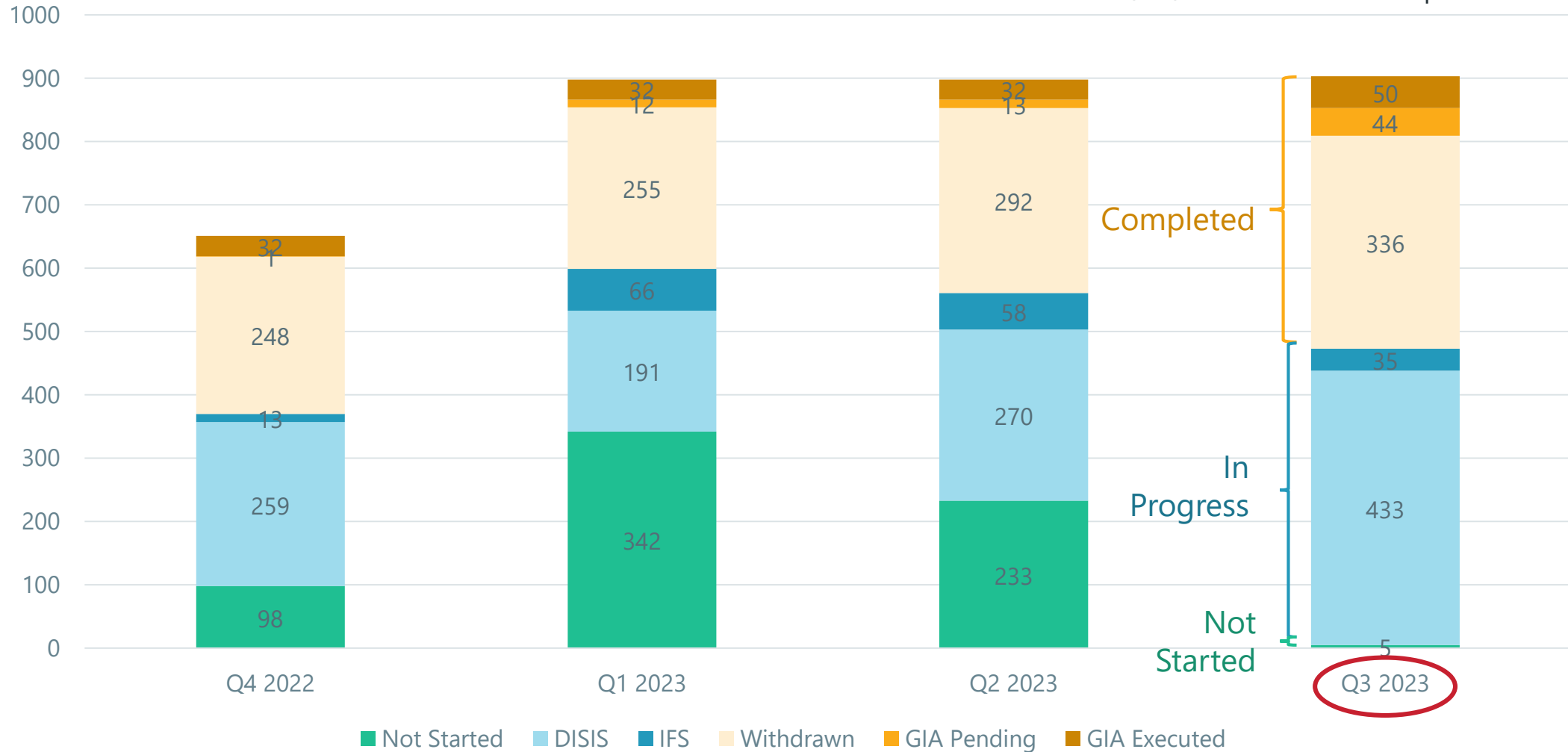


Since January 2017:
31,005 MW added
to the system
161 GIAs executed

HOW ARE WE DOING? BACKLOG MITIGATION

Progress towards
eliminating the backlog

Active queue began with 903 Requests = 171.4 GW
As 9/28/2023: 473 active requests = 95.4 GW





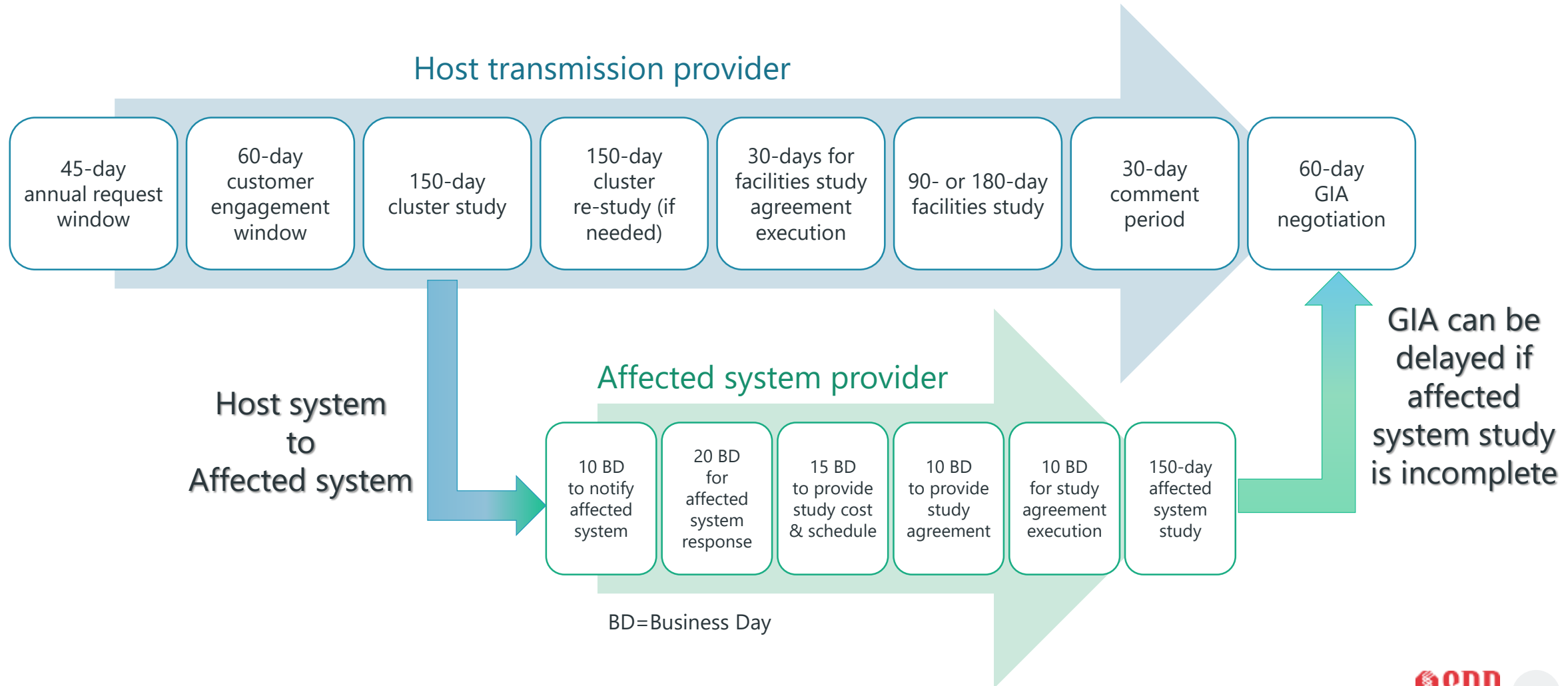
FERC ORDER NO. 2023

ORDER 2023 BASICS

Title	Improvements to Generator Interconnection Procedures and Agreements
Issued	July 28, 2023
Docket	RM22-14
Effective date	November 5, 2023
Compliance filing due	December 5, 2023

If SPP's request for extension of time is not granted

UNIVERSAL CLUSTER STUDIES



SITE CONTROL FOR GENERATING FACILITY

Acreage requirements to be publicly posted

- 90% at time of request submission
- 100% at execution of facilities study agreement and LGIA

Acreage requirements at time of submission are binding

Deposit in lieu of site control

- Only where regulatory limitation can be demonstrated
- \$10,000/MW, range of \$500,000 to \$2,000,000

COMMERCIAL READINESS CRITERIA SECURITY

- No non-financial readiness criteria other than site control in the pro-forma. However, non-financial criteria may be permitted if they meet variation standard.
- Security Deposits

Stage	Security Deposit
Initial deposit at request submission	2 X Study Deposit (range: \$110k - \$500k)
To enter cluster re-study	Bring total deposit to 5% of assigned network upgrade costs from cluster study
To enter facilities study	Bring total deposit to 10% of assigned network upgrade costs from cluster study or re-study
LGIA execution	Bring total deposit to 20% of assigned network upgrade costs



QUESTIONS?

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