SPP INTERREGIONAL TRANSFER FOR MGA MID-GRID

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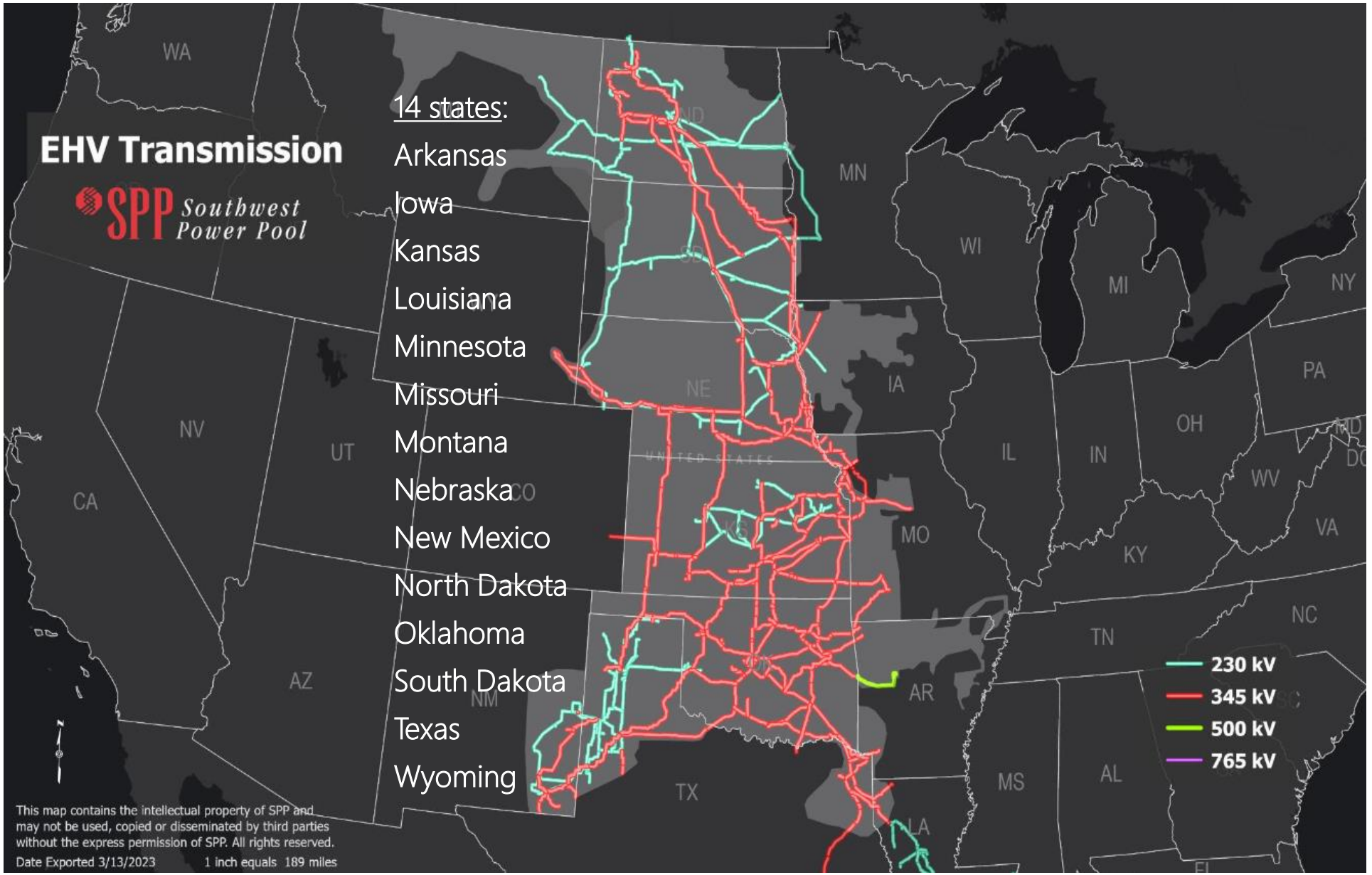
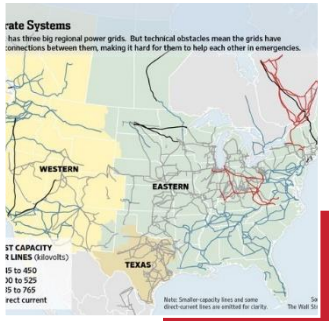


RTO OPERATING REGION

- **552,885** square mile service territory
- **~18 million** population served
- **994*** generating plants
- **5,199*** substations

* In SPP's balancing authority area

INTERREGIONAL TRANSFER



WHY: Interregional Power Transfers

- Interregional transfer capability is necessary to take advantage of **geographic diversity** and availability of resources for both economic opportunity and system reliability
  - Much of the discussion on interregional transfer capability is centered on **system resiliency** in extreme conditions
  - The interregional transfer capability is only useful to the extent **neighboring regions** have available generation

WHAT: Interregional Transmission

- **Tie Line** transmission alone is not enough to leverage interregional power transfers
  - **Internal system limits** must be addressed to deliver resources to load
  - Studies demonstrate the **SPP** system often experiences internal thermal and voltage limitations

SPP INTERREGIONAL TIE LINE CAPACITY AND UTILIZATION

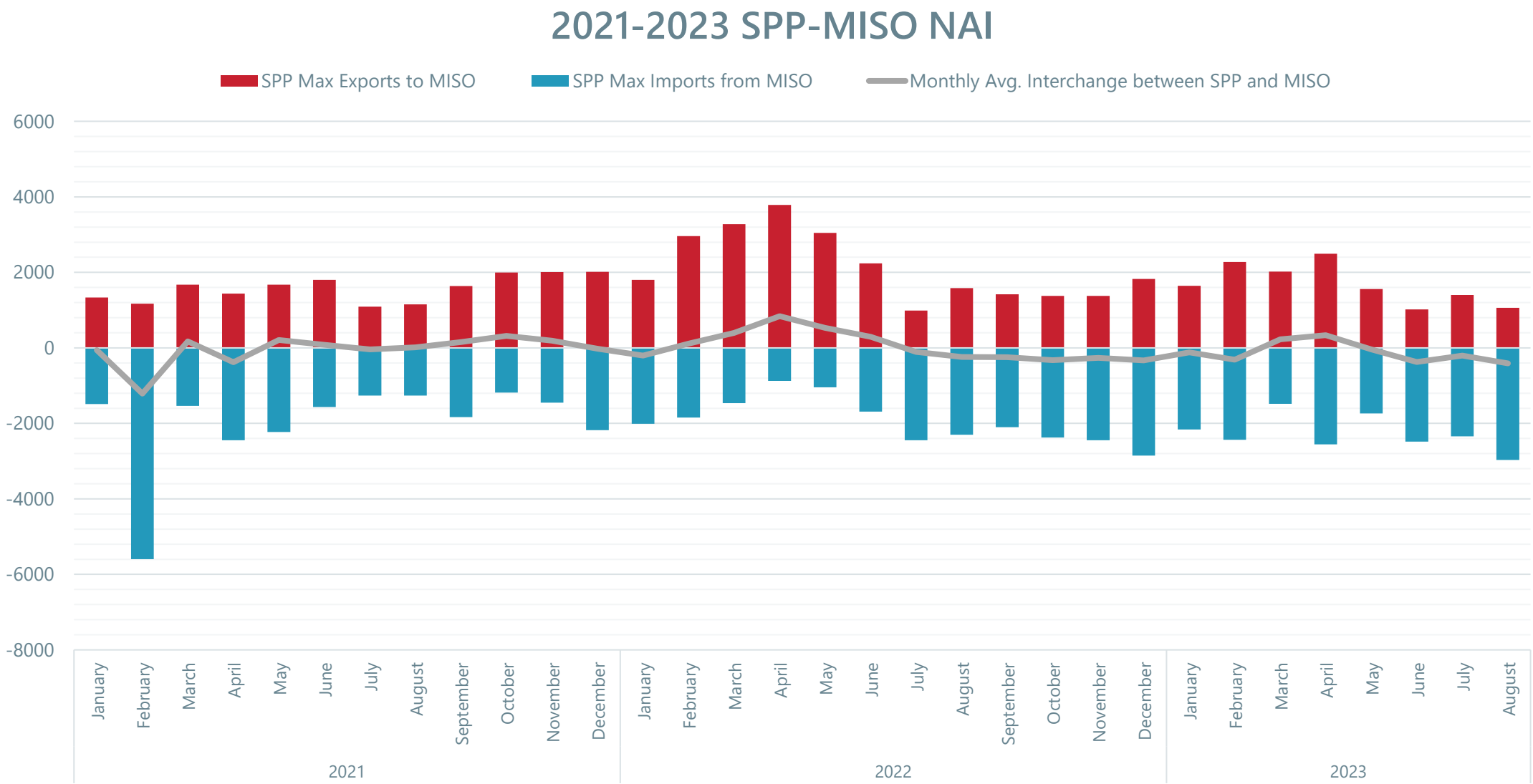
SPP TIE LINE CAPACITY*

All kV	Normal	Emergency
AECI	25,685	25,961
MISO-N	32,860	34,626
MISO-S	14,768	14,978
SASK	319	351
Total	**73,632**	**75,916**

>100 kV	Normal	Emergency
AECI	23,233	23,461
MISO-N	27,071	28,498
MISO-S	14,468	14,642
SASK	319	351
Total	**65,091**	**66,952**

*As of February 2023. Includes SPA in SPP, calculated using planning datasets. Capacity does not consider internal regional limits.

SPP-MISO NET ACTUAL INTERCHANGE



RESILIENCY PLANNING

INTERRELATED WITH INTERREGIONAL TRANSFER

DEFINING RESILIENCY

Interregional Transfers can Increase Resiliency

The ability of the system and its components to

Prepare for

Anticipate

Absorb

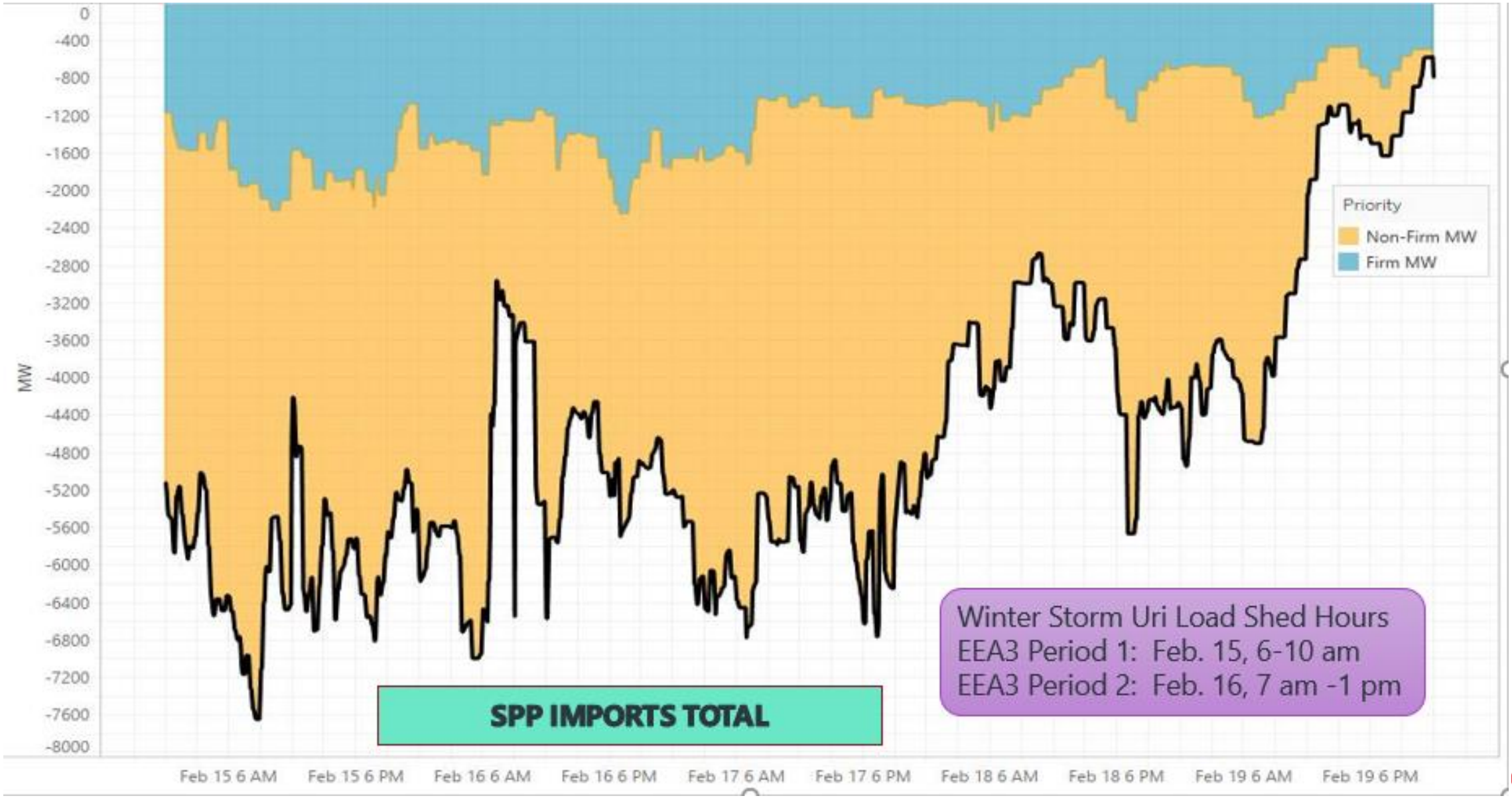
Adapt to

Recover from

non-routine disruptions, including high impact- low frequency events, in a reasonable amount of time.

*NATF/EPRI Definition

PROVEN BENEFIT OF INTERREGIONAL TRANSFER



EXTREME WINTER RELIABILITY MODEL BUILDS
CURRENT PROGRESS

- 2024 ITP Scope Expansion for Winter Weather Resiliency
  - Reliability only (not economic)
  - Elliott near time of load shed
  - Stressed regional winter

Load redistribution complete

Generator additions complete

Capacity reductions complete

Initial import flows have been determined

- Voltage violations exist in current case build
- Thermal overloads exist in current case build
- Imports may be limited to help voltage in extreme conditions OR **transmission can be built to help voltage AND allow imports**

ECONOMIC OPTION FOR RESILIENCY PLANNING

Develop **additional data representing an extreme condition** such as an **extreme summer** (season) or a **1-2 week polar vortex event**

Screen solutions on full **8760 hours** and additional **resiliency condition hours**

Identify resiliency benefits of projects based upon approved set of criteria

- Consider **APC savings from resiliency conditions**
- **Additional metric developm**ent for considerations such as value of Lost Load or
- Calculate **alternative 40-yr benefits** based on expected occurrences of resiliency scenario

Jan	Feb	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.

June	July	Aug.	Sept.

Transmission built for resiliency is likely to increase interregional transfer capability

INTERREGIONAL COORDINATION

COORDINATED SYSTEM PLANNING (CSP)

- **SPP does do CSP with multiple neighbors**
- **SPP/MISO Joint Targeted Interconnection**
  - Improves cost certainty for GI requests
  - Improves timing certainty for GI requests
  - Enhances alignment with FERC initiatives
  - Optimizes Network Upgrades along the seams
- **East/West Interconnection**
  - Texas A&M University studies show synchronization of the eastern western interconnections is technically feasible, with stability
  - The western interconnection benefits greatly from voltage and frequency support during system faults
  - Potential for increased reliability and lower energy prices, by leverage geographic and time diversity of additional low cost resources