The image shows the exterior of a modern, multi-story building with a light-colored facade. The words "FEDERAL ENERGY REGULATORY COMMISSION" are prominently displayed in large, dark, sans-serif capital letters above a large glass entrance. To the right of the entrance, the number "888" is visible on the wall. The overall scene is dimly lit, suggesting dusk or dawn.

FEDERAL ENERGY  
REGULATORY COMMISSION

# FERC Developments of Interest 2023 & Beyond

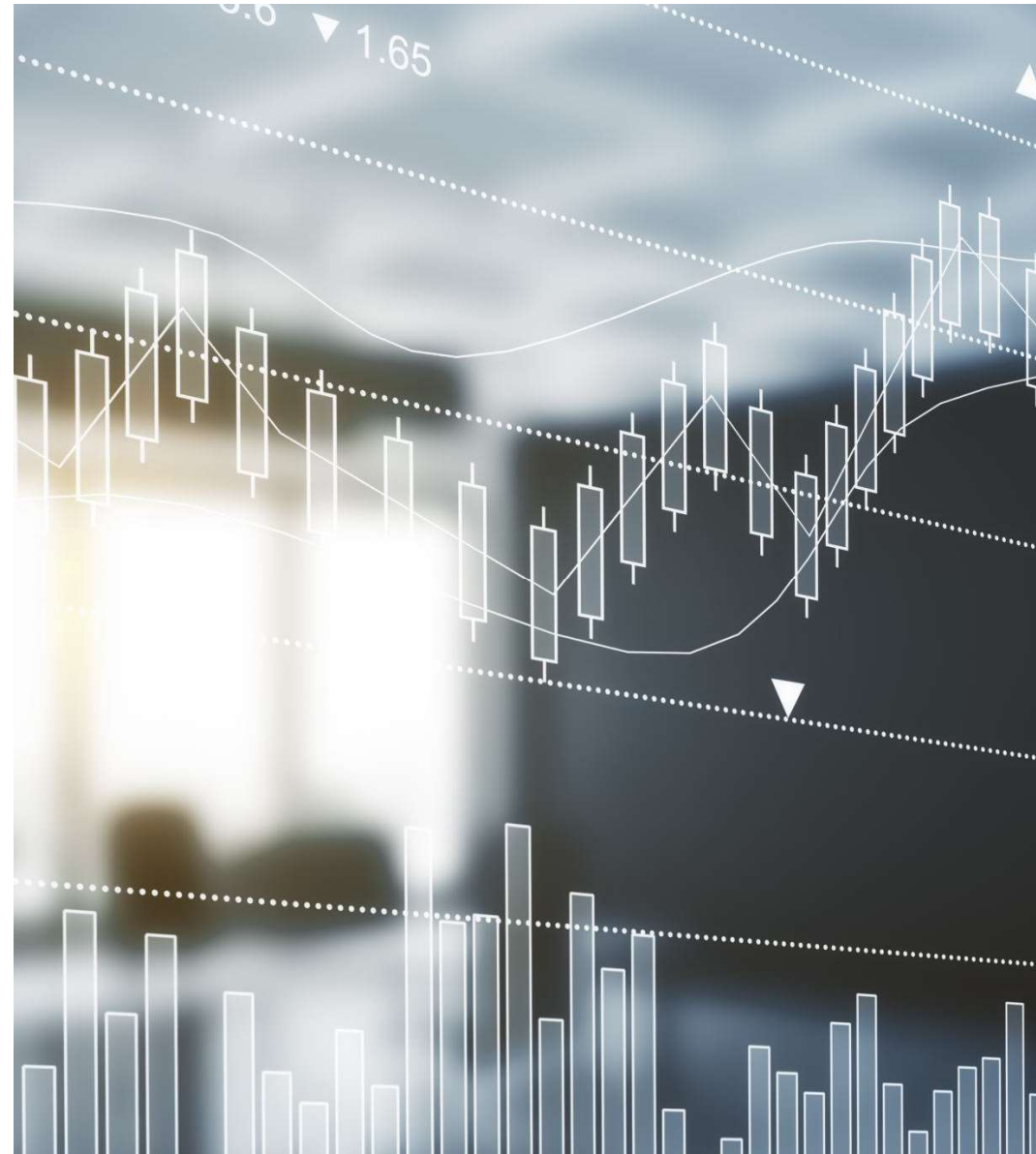
TVPPA Legal Conference  
February 8, 2024

888

John Coyle  
Duncan & Allen LLP

# Today's Topics

- Winter Resiliency Initiatives
  - Extreme Weather Events
  - Evolving NERC Standards and Relevance to TVPPA LPCs
  - TVA Capacity Situation
- Southeast Energy Exchange Market (“SEEM”) Remand and Implications





# Extreme Weather Initiatives

Evolving NERC Reliability Standards

# Extreme Weather Events

## Recent History

- Between 2011 and 2023, large segments of the U.S. Bulk-Power System experienced five winter “extreme weather events”
- Southwest Cold Weather Event (February 1-5, 2011)
- Polar Vortex (January 5-8, 2014)
- South Central U.S. Bulk Electric System Cold Weather Event (January 17, 2018)
- Winter Storm Uri (February 8-20, 2021)
- Winter Storm Elliott (December 21-26, 2022)





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# A Few Winter Storm Elliott Statistics

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- 5,400 MW total load shed in TVA, LGE/KU, DEC, DEP, Dominion SC, and Santee Cooper (largest controlled shed of firm load in the history of the Eastern Interconnection)
- 90,500 MW of coincident unplanned outages in Eastern Interconnection
- TVA experienced unplanned outages of 6,000 MW of generation
- TVA initiated shedding of firm load (Emergency Load Curtailment Program Step 50) on December 24, ultimately shedding 3,000 MW of firm load in rolling blackouts.



## Extreme Winter Weather Events Impact on Utility Operations:

Sudden and severe temperature drop creates →  
Simultaneous high electricity and natural gas demand, which create simultaneous stresses on →

- (1) electric generation, especially CTs,
  - (2) natural gas wells (freeze-in),
  - (3) natural gas pipelines (freeze-out), and
  - (4) electric transmission, esp. inter BAA,
- The combination of which →  
Constrains operator reaction time.



# FERC/NERC Jurisdiction Over TVA and LPCs

- **Bulk-Power System** = “facilities and control systems necessary for operating an interconnected electric energy transmission network (or any portion thereof), and electric energy from generating facilities needed to maintain transmission system reliability.” (FPA § 215(a)(1) (16 U.S.C. § 824o(a)(1)), but
- “does not include facilities used in the local distribution of electric energy.”
- FERC has “jurisdiction, within the United States, over . . . any regional entities, and all users, owners and operators of the bulk-power system, **including but not limited to the entities described in section 201(f), for purposes of approving reliability standards . . . and enforcing compliance. . . . All users, owners and operators of the bulk-power system shall comply with reliability standards** that take effect under this section.” (FPA § 215(b)(1), 16 U.S.C. § 824o(b)(1)).

# Regulatory Responses

Event	NERC Std/Revision	FERC Order on Std/Revision
Polar Vortex (2014)	EOP-011-1 (Energy Emergency); PRC-10-1 (Undervoltage Load Shedding)	Order No. 818, 153 FERC ¶ 61,228 (Nov. 19, 2015)
South Central U.S. Event (2018)	EOP-011-2 (added R7 and R8 (generator preparation and training)); IRO-010-4 (Reliability Coordinator Data); TOP-003-5 (Operational Reliability Data)	<i>N. American Elec. Reliability Corp.</i> , Dkt No. RD21-5, 176 FERC ¶ 61,119 (Aug. 24, 2021)
Winter Storm Uri (2021)	EOP-011-3 (moves R7 and R8 to EOP-012-1 as R3 and R5, minimize overlap of manual load shed, critical circuits, UFLS, and UVLS); EOP-012-1 (generator freeze protection, generator operating minimums 12 hr. and 1 hr., corrective action plans)	<i>N. American Elec. Reliability Corp.</i> , Dkt. No. RD23-1, 182 FERC ¶ 61,094 (Feb. 16, 2023), <i>reh'g</i> , 183 FERC ¶ 61,222 (June 29, 2023) (“Extreme Cold Weather Reliability Standards Order”)
Winter Storm Elliott (2022)	Work in progress (transmission system planning performance reqts for extreme weather – hot or cold)	Order Nos. 896, 183 FERC ¶ 61,191 (June 15, 2023) (directing add'l stds); EOP-011-4 and TOP-002-5 filed Oct. 30, 2023, in FERC Dkt RD24-1-000



# Summary of Key Pending NERC Standard Initiatives (EOP-011-4, EOP-012-1, TOP-002-5)

EOP-011-4 Most immediate impact on LPCs – new requirements for emergency load shedding:

**R1.** Transmission Operator must develop, maintain and implement RC-reviewed operating plan to mitigate emergencies in Transmission Operating Area, including . . .

**1.2.5** Operator-controlled manual Load shed, undervoltage load shed (UVLS), or underfrequency load shed (UFLS) during an Emergency that accounts for each of the following:

- **1.2.5.1.** Provisions for manual Load shedding capable of being implemented in a timeframe adequate for mitigating the Emergency;
- **1.2.5.2.** Provisions to minimize the overlap of circuits that are designated for manual Load shed, UVLS, or UFLS and circuits that serve designated critical loads which are essential to the reliability of the BES;
- **1.2.5.3.** Provisions to minimize the overlap of circuits that are designated for manual Load shed and circuits that are utilized for UFLS or UVLS;
- **1.2.5.4.** Provisions for limiting the utilization of UFLS or UVLS circuits for manual Load shed to situations where warranted by system conditions;
- **1.2.5.5.** Provisions for the identification and prioritization of designated critical natural gas infrastructure loads which are essential to the reliability of the BES as defined by the Applicable Entity . . .

## EOP-011-4 (Cont'd)

**Proposed Implementation Schedule:** Effective Date = Regulatory Approval plus 6 months, plus 30 months from Effective Date.

-R7 Transmission Operator must, on an annual basis, identify and notify any Distribution Providers, UFLS-Only Distribution Providers, and Transmission Owners that are required to assist with mitigation of operating emergencies in its Transmission Operator Area

- R8 Each Distribution Provider receiving R7 notification must develop a load shedding plan that addresses, *inter alia*, the relevant portions of Requirement R1 Part 1.2.5 that address operator controlled manual Load shedding or automatic UFLS or UVLS, including provisions for the consideration of critical natural gas infrastructure loads.

# EOP-011-4 (Cont'd)

R8 Distribution Provider load shedding plan shall include (as applicable):

**8.1.** Operator-controlled manual Load shedding, undervoltage Load shedding, or underfrequency Load shedding during an Emergency that accounts for each of the following:

- 8.1.1.** Provisions for manual Load shedding capable of being implemented in a timeframe adequate for mitigating the Emergency;
- 8.1.2.** Provisions to minimize the overlap of circuits that are designated for manual, undervoltage, or underfrequency Load shed and circuits that serve designated critical loads which are essential to the reliability of the BES;
- 8.1.3.** Provisions to minimize the overlap of circuits that are designated for manual Load shed and circuits that are utilized for UFLS or UVLS;
- 8.1.4.** Provisions for limiting the utilization of UFLS or UVLS circuits for manual Load shed to situations where warranted by system conditions; and
- 8.1.5.** Provisions for the identification and prioritization of designated critical natural gas infrastructure loads which are essential to the reliability of the BES as defined by the Applicable Entity.

**8.2.** Provisions to provide the Load shedding plan to the Transmission Operator for review.

# EOP-012-1 (Extreme Cold Weather Preparedness) Generator Owners and Operators

- Key Terms: Extreme Cold Weather Temperature, Generator Cold Weather Critical Components, Generator Cold Weather Reliability Event and Corrective Action Plans
- Approved in FERC Extreme Cold Weather Reliability Standards Order (Feb. 2023) with directions to accelerate proposed 60-month timeframe from regulatory approval to implementation for R1 and R2 freeze protection measures.
- R1 and R2: Implement freeze protection measures to ensure operability not less than 12 continuous hours in Extreme Cold Weather Temperature, or explain why not and develop and implement Corrective Action Plan
- R3: Implement and maintain generator cold weather preparedness plan (identify Extreme Cold Weather Temperature and Generator Cold Weather Critical Components for each unit, document freeze protection measures, provide cold weather operating data – dual fuel, etc.

## EOP-012-1 (Cont'd)

- R4: Every five years, update Extreme Cold Weather Temperature (lowest 0.2 percentile of the hourly temperatures measured in December, January, and February from January 1, 2000, through the date the temperature is calculated), update cold weather preparedness plan.
- R5: Requirements for training (and documenting training) of personnel implementing cold weather preparedness plan.
- R6 and R7: Development, reporting and implementation of Corrective Action Plans following Generator Cold Weather Reliability Event





## TOP-002-5

- Requires Balancing Authority (e.g., TVA) to develop extreme cold weather Operating Process, to include:
  - Evaluation of adequate reserve margin during extreme cold weather period, considering historical generator performance in cold weather, fuel supply and inventory, start-up issues, fuel-switching capabilities, and environmental constraints; and
  - Methodology for determining five-day hourly forecast during extreme cold weather period, including expected generator resources and commitments, demand patterns, capacity and energy reserve requirements (including deliverability capability), and weather forecast.
- Potential linkage to load shedding planning requirements in EOP-011-4



# TVA Statistics (Cont'd)

- Winter Storm Elliott TVA peak demand = 33,425 MW
- December 24, 2022, implementation of ELCP Step 50 = 4,800 MW load shedding
- By 9 a.m. (Central Time) December 23, 2022, TVA had lost 6,705 MW of on-system generation (coal, CC, and IPPs)
- Max. generation unavailability of 7,300 MW due to freeze related issues (2023 10-K at p. 81)
- December 24, TVA relying on 20% market and emergency purchases to meet load
- PJM curtailed emergency supplies to neighboring BAs due to System Operating Limit (transmission) exceedance
- January 17, 2024, at 8 a.m. CT, TVA hit all-time system peak of 34,524 MW
- No reported loss of generation or load.
- TVA reports having “invested nearly \$123 million and completed 3,400 winter readiness activities to harden system” in 2023, anticipates spending \$120 million above regular funding in 2024 on enhancing reliability of generating fleet

# TVA Statistics (Cont'd)

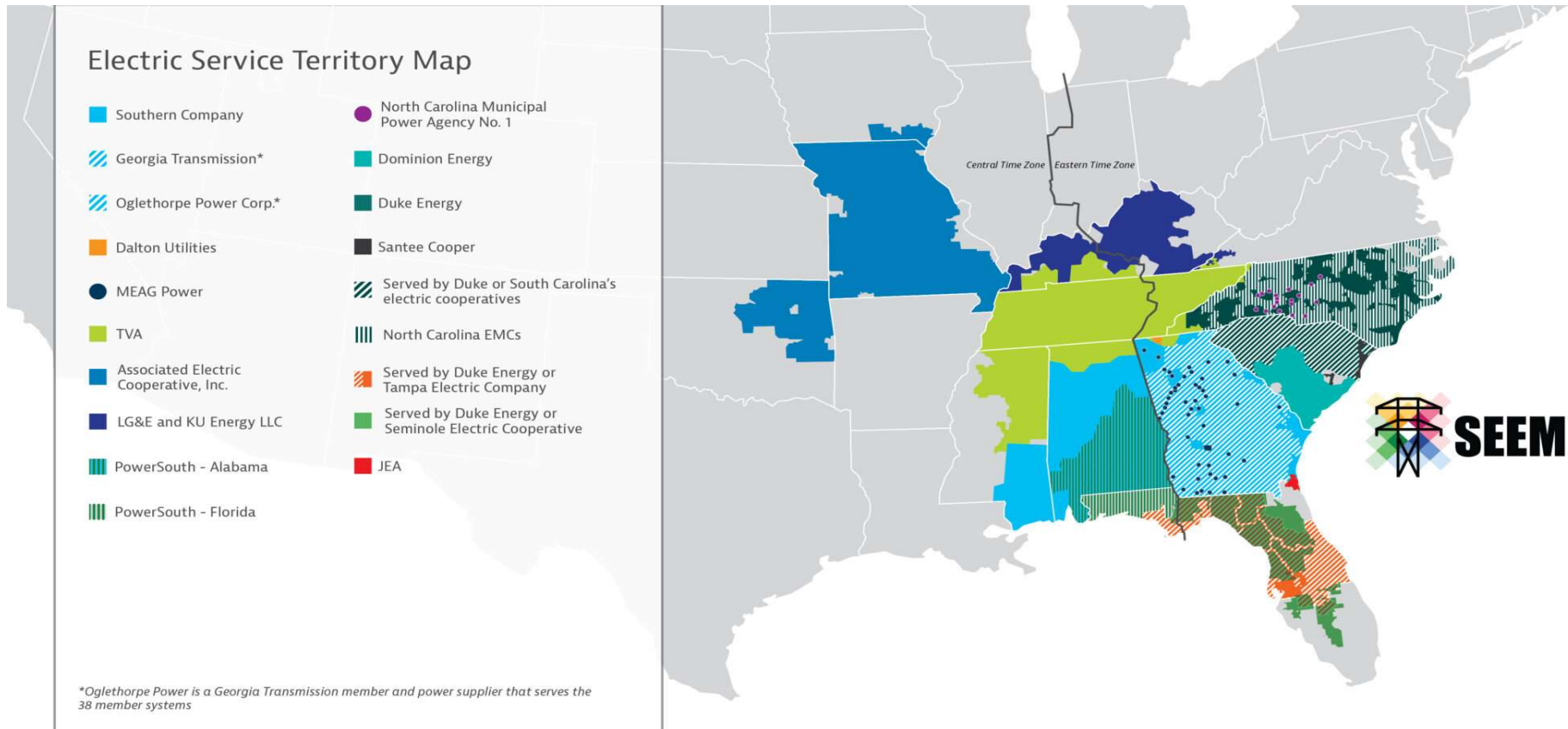
- TVA owns and operates generation with total summer claimed capability of 32,139 MW (2023 10-K at 59)
- At FYE 9/30/23, TVA holds PPAs for additional 8,471 MW of nameplate or contracted generating capacity, of which 5,410 MW is in PPAs that do not renew and are due to expire between 2024 and 2033.
- TVA Act bond limit of \$30 billion
- Current TVA bond debt = \$19.5 billion (2023 10-K at 75)
- TVA anticipates:
  - Capacity expansion expenditures of \$11 billion to \$12 billion between Oct. 1, 2024, and Sept 30, 2028 (*id*).
  - Adding 10,000 to 14,000 MW of new generating capacity by 2030, approx. 5,000 MW to be solar.
  - Retirements: Cumberland (2,470 MW by 2028), Kingston (1,398 MW) by EOY 2027, others?

## Is There a Role for LPC Capacity Ownership?

- Previous efforts to develop agreeable structure 2005-2007 (Seven States Power Corp.); discussed again in 2015 (Quantum Choctaw); legally feasible but never implemented.
- Contractual structure can simultaneously accommodate (1) full requirements relationship with TVA, **and** (2) LPC asset ownership.
- LPC access to low-cost capital.
- Geographic diversification can achieve both efficient transmission deployment and improvement of local reliability in extreme weather.



# What's Happening with SEEM?



# What Is SEEM?

- Southeast Energy Exchange Market – essentially, an inter-utility trading arrangement for intra-hourly transactions using no-cost transmission service. Two central features:
  - An automated algorithm that matches bids and offers voluntarily submitted by Participants for 15-minute intervals and then prices matched transactions on a “split-the-savings” (midpoint between the seller’s offer price and the buyer’s bid price, with an adjustment for losses) basis (“Energy Exchanges”).
  - Energy Exchanges are then delivered using zero-charge Non-Firm Energy Exchange Transmission Service (“NFEETS”) provided by the Participating Transmission Providers.

## SEEM Member Utilities

### Ten Investor-Owned Utility Members:

Dominion Energy South Carolina, Inc., Duke Energy Progress, LLC, Duke Energy Carolinas, LLC, Duke Energy Florida, LLC, Louisville Gas and Electric Company, Kentucky Utilities Company, Alabama Power Company, Georgia Power Company, Mississippi Power Company, Tampa Electric Company.

### Thirteen Consumer-Owned Utility Members:

Associated Electric Cooperative, Inc., North Carolina Municipal Power Agency Number 1, North Carolina Electric Membership Corporation, South Carolina Public Service Authority, Dalton Utilities, Municipal Electric Authority of Georgia, Oglethorpe Power Corporation, Georgia System Operations Corporation, Georgia Transmission Corporation, PowerSouth Energy Cooperative, TVA, Jacksonville Electric Authority, and Seminole Electric Cooperative.

# Partial Case Chronology (So Far)

Date	Event
February 12, 2021	SEEM Agreement filed at FERC
May 4, 2021	First FERC Staff deficiency letter
June 7, 2021	SEEM Proponents' response to deficiency letter
August 6, 2021	Second FERC Staff deficiency letter
August 11, 2021	Completed SEEM Agreement filing.
October 13, 2021	FERC Notice of Taking Effect based on 2-2 Commission vote
November 12, 2021	Rehearing Requests filed
December 10, 2021	FERC Order Rejecting Rehearing (177 FERC ¶ 61,178)
July 14, 2023	<i>Advance Energy United, Inc. v. FERC</i> , 82 F.4 <sup>th</sup> 1095 (D.C. Cir. 2023)

# *Advanced Energy United, Inc. v. FERC*

## Three rulings:

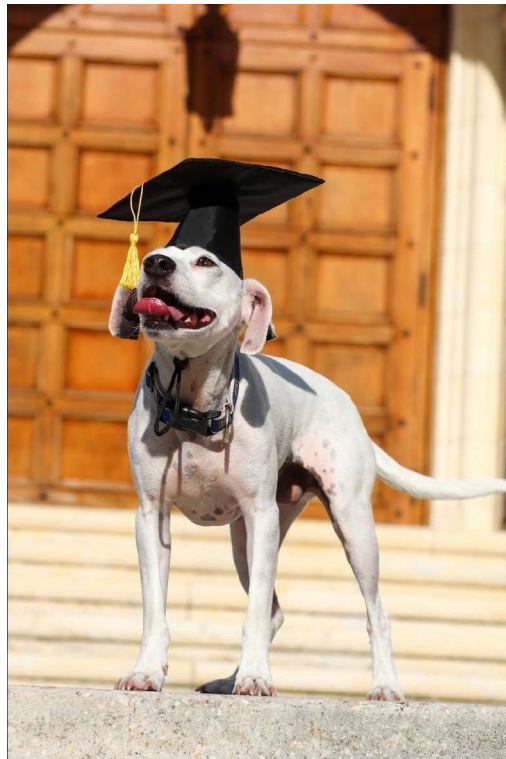
- Application of FPA Section 205(g) where FERC fails to act within 60-day time limit in Section 205(d) (82 F.4<sup>th</sup> at 1108-1111)
- SEEM Agreement unduly discriminatory: “[T]he record reflects 65 *existing* bilateral trading partners who cannot participate in this new service due to the geographic requirement [of Source and Sink within SEEM footprint]. \*\*\*\* The creation of a new service that—by its design—excludes existing market participants evokes the discriminatory practices against third-party competitors by monopoly utilities that prompted the Commission's adoption of Order No. 888.” (82 F.4<sup>th</sup> at 1112-1113)
- Inadequate explanation of why SEEM is not a “loose power pool” required by FERC Order No. 888 to file a non-discriminatory open access transmission tariff: “had the Commission found NFEETS to be a ‘discounted’ rate, it would have required SEEM to ‘establish open, non-discriminatory membership provisions and modify any provisions that [were] unduly discriminatory or preferential,’” under Order No. 888.



## *Advanced Energy United, Inc. v. FERC* (cont'd)

- Results:
  - Order/Notice of Taking Effect – Vacated
  - Order Rejecting Rehearing Requests – Vacated
  - Underlying Deadlock Order and Requests for Rehearing remanded to FERC for decision in the first instance.
- SEEM continues to operate.

# QUESTIONS?



## Appendix:

# Links to FERC/NERC Extreme Event Reports and TVA Winter Storm Elliott “After-Action” Report

- [Report on outages and curtailments during the Southwest cold weather event \(ferc.gov\)](#) (2011 Report)
- [Report \(nerc.com\)](#) (2014 Polar Vortex Review)
- [The South Central United States Cold Weather Bulk Electric System Event of January 17, 2018 \(ferc.gov\)](#) (2018 Report)
- [The February 2021 Cold Weather Outages in Texas and the South Central United States | FERC, NERC and Regional Entity Staff Report | Federal Energy Regulatory Commission](#) (Winter Storm Uri Report)
- [Winter Storm Elliott Report: Inquiry into Bulk-Power System Operations During December 2022 | Federal Energy Regulatory Commission \(ferc.gov\)](#)
- [14125\\_149056454 \(webdamdb.com\)](#) (TVA Winter Storm Elliott After-Action Report)