
2025
UNVEILING THE MAGIC OF MIDSTREAM INNOVATION
GPA MIDSTREAM CONVENTION
Welcome!

Baker & O'Brien

- Energy Advisory and Consulting Firm based in Houston, Dallas, and London
- Technical and Commercial Due Diligence

Natural Gas, LNG, and Midstream Group

Kent Bayazitoglu
Consultant (me)

Ajey Chandra
CEO – GPA Board Member

Jeremy Goh
Consultant – Presenter

What was Winter Storm Uri?

- Severe Winter Storm impacting Texas and the Mid Continental States in February 2021
- Caused record high prices, power outages, death, and economic destruction

It’s Been Four Years… Why Talk Now?

- Time to digest and receive facts
  - Why energy systems failed
  - Competing narratives
- Relevant to other unexpected disasters
  - Hurricane Beryl (Houston Summer 2024)
  - California Fires (January 2025)
  - Spanish Blackouts (April 2025)
  - Texas Floods (July 2025)
- Could it happen again?
  - What has been done and what challenges are ahead

The Aftermath and the Blame Game

Timeline of Events

- Mid February 2021: Arctic air mass descends into Texas and the midcontinental area (Oklahoma/Kansas)
- Widespread power outages
- “Eye-popping” record high power and natural gas prices
- High prices turn disagreements into major disputes
- 200-plus deaths, $80 - $130 billion in damages[1]
- Big (not so Beautiful) Bills for utilities
  - Spreads cost to customers over many years
  - Texas utilities sold $3.5 billion of 15-year bonds[1]

1. Federal Reserve Bank of Dallas
2. Texas Natural Gas Securitization Finance Corporation – bonds with final maturities in 2035 and 2039

Blame Game – Article and Studies

- Renewables blame fossil fuels
- Producers blame renewables
- Power plants blame natural gas producers
- Gas producers/processors blame the power plants

OPINION CULTURAL COMMENTARY Follow

Texas' Blackouts Blew In on the Wind

The grid nearly failed because of an energy mix weighted toward unreliable sources of power.

From WSJ

THE TEXAS TRIBUNE INVESTIGATIONS GUIDES ABOUT EVENTS DATA NEWSLETTERS DON

DONATE Redistricting Fight Proposed Maps Flood Response STAAR Test TribFest 2025

WINTER STORM 2021

No, frozen wind turbines aren't the main culprit for Texas' power outages

What Went Wrong

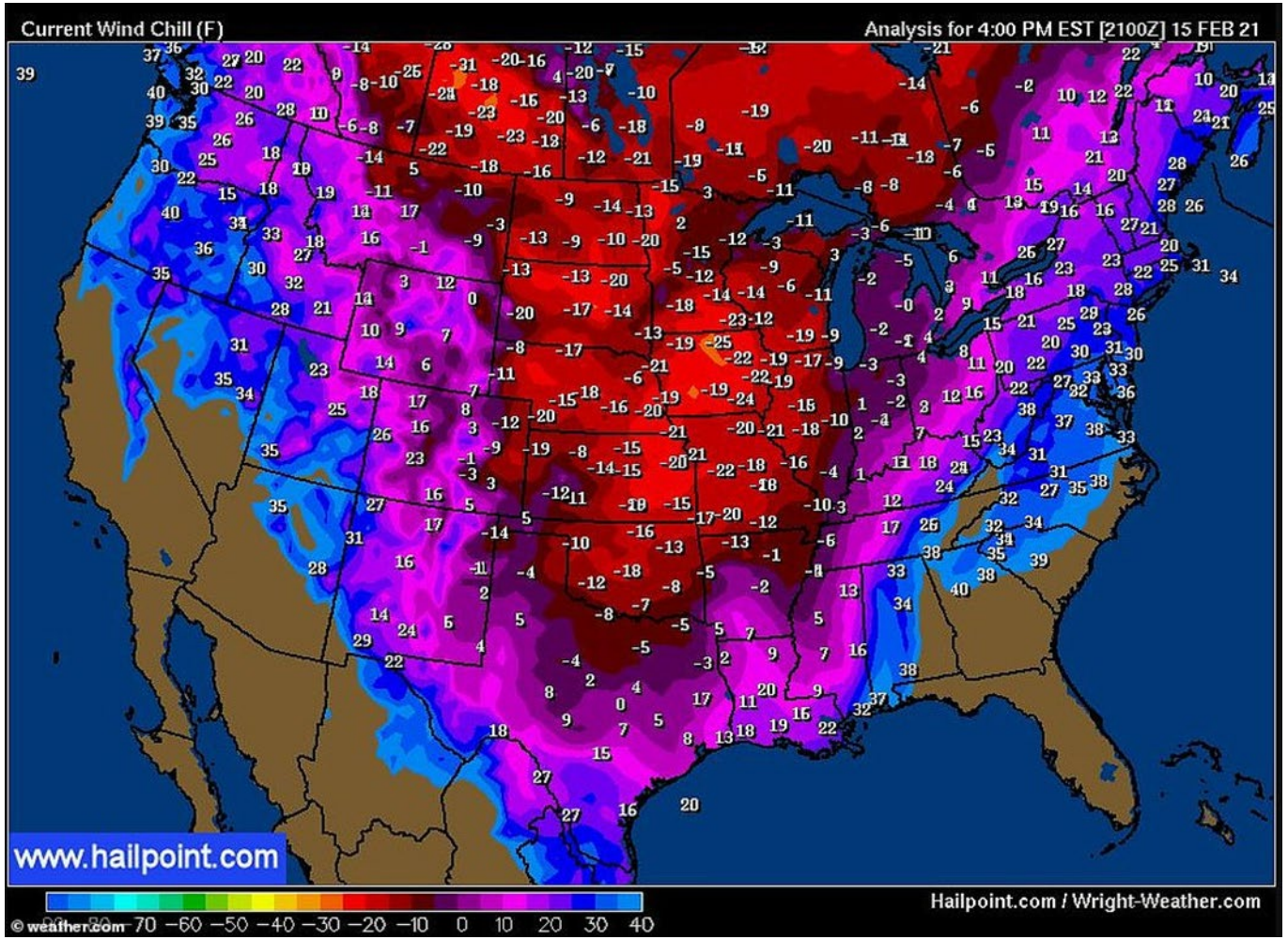
Extreme Weather Event

Triple Threat of an unpresented winter event

- Extreme cold, Sustained, and Widespread
- Complacency - no recent history of an event that had all three characteristics, temperatures had trended warmer
- Lots of growth in natural gas production and processing which had not been fully tested

Extreme, sustained, widespread cold

- Record Lows (Headline number) - *easy to quantify*
- Sustained Cold allowed deep penetration to underground pipes, wells, equipment, buildings – *harder to quantify*
- Widespread cold spiked power demand and decreased generation in neighboring states, challenging power imports – *difficult to quantify to compare to prior years*

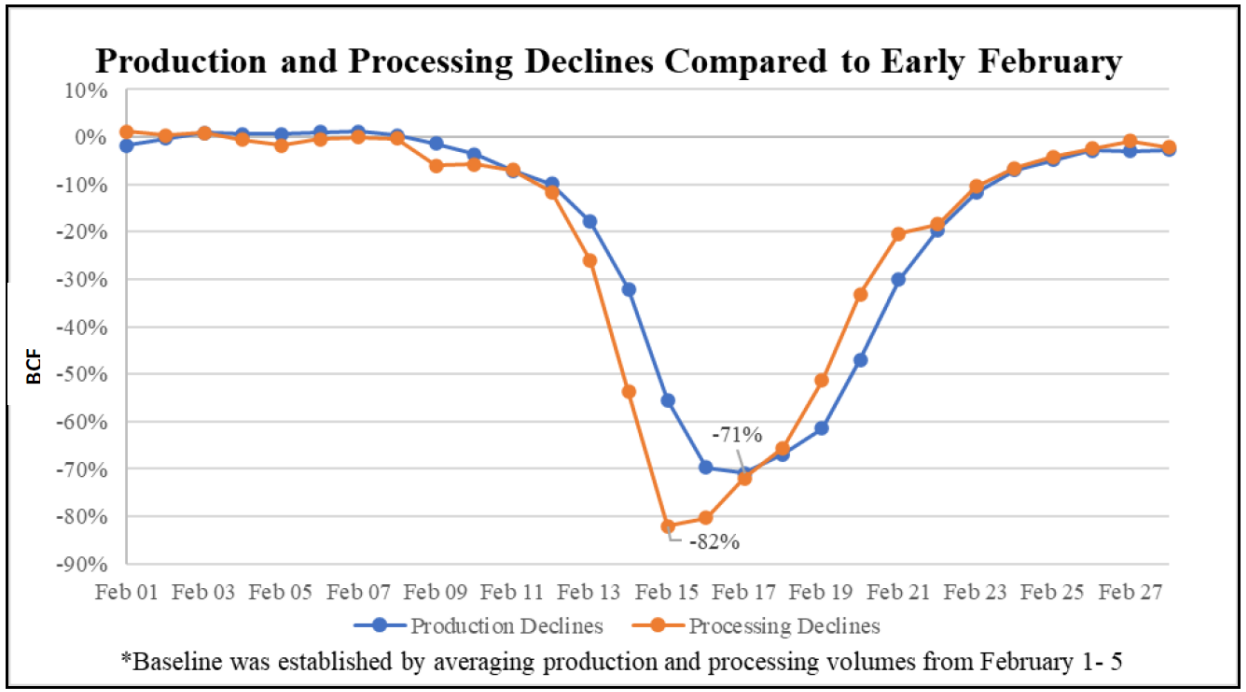


Lack of Winterization/Backup Power

- Not Enough Winterization
  - Insulation of plants, buildings, equipment, cooling water lines, lack of heaters
  - Recommendations made 2011 freeze (Frozen Dallas Superbowl)
- Natural Gas Producer Incentives
  - Monthly Index price for February 2021, determined in January, was $2.70/MMBtu
  - Daily prices spiked to between $300/MMBtu to $1,200/MMBtu
  - Producers typically receive lower monthly index
  - Risk-reward equation favored not producing

Cutting Power to Critical Infrastructure

- Gas production and processing plants are critical to the power generation
- Most natural gas production and processing facilities surveyed were not identified as critical load. (FERC report)
- Power providers cut power to gas production and gas processing plants – exacerbating the problem



Gas production down 71%
Gas processing down 82%

(from FERC report)

Major Causes of Natural Gas Losses

- Gas Production
  - 50% Well and gathering line freezing
  - 18% Loss of Power

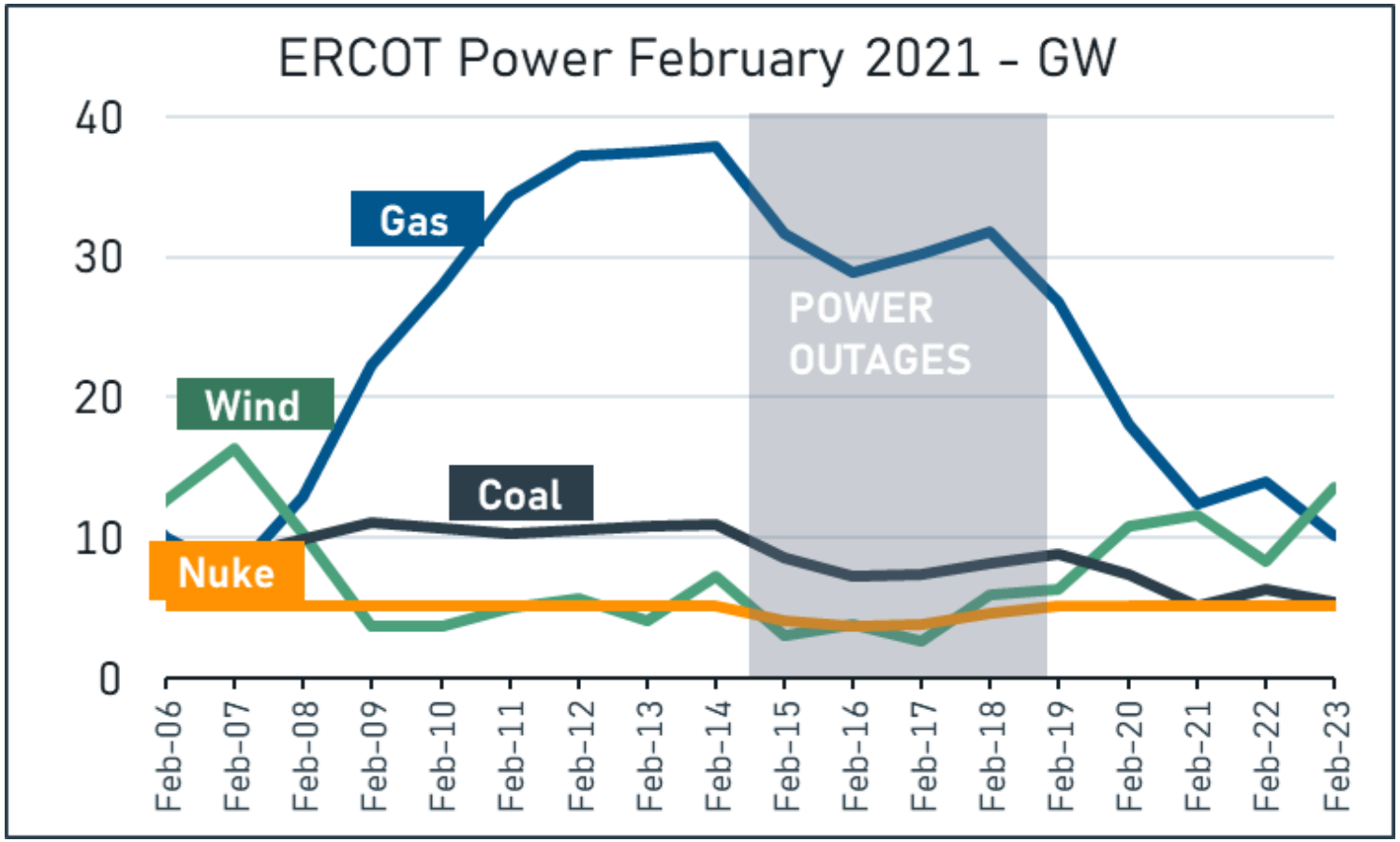
- Gas Processing
  - 61% Lack of upstream gas
  - 18% Loss of Power
  - 13% Freezing at Processing Plant

*Above Analysis from the FERC Report, alternatively, the surveys from the Enverus report puts more blame on the lack of provided power

Power Plant Generation by Type (ERCOT)

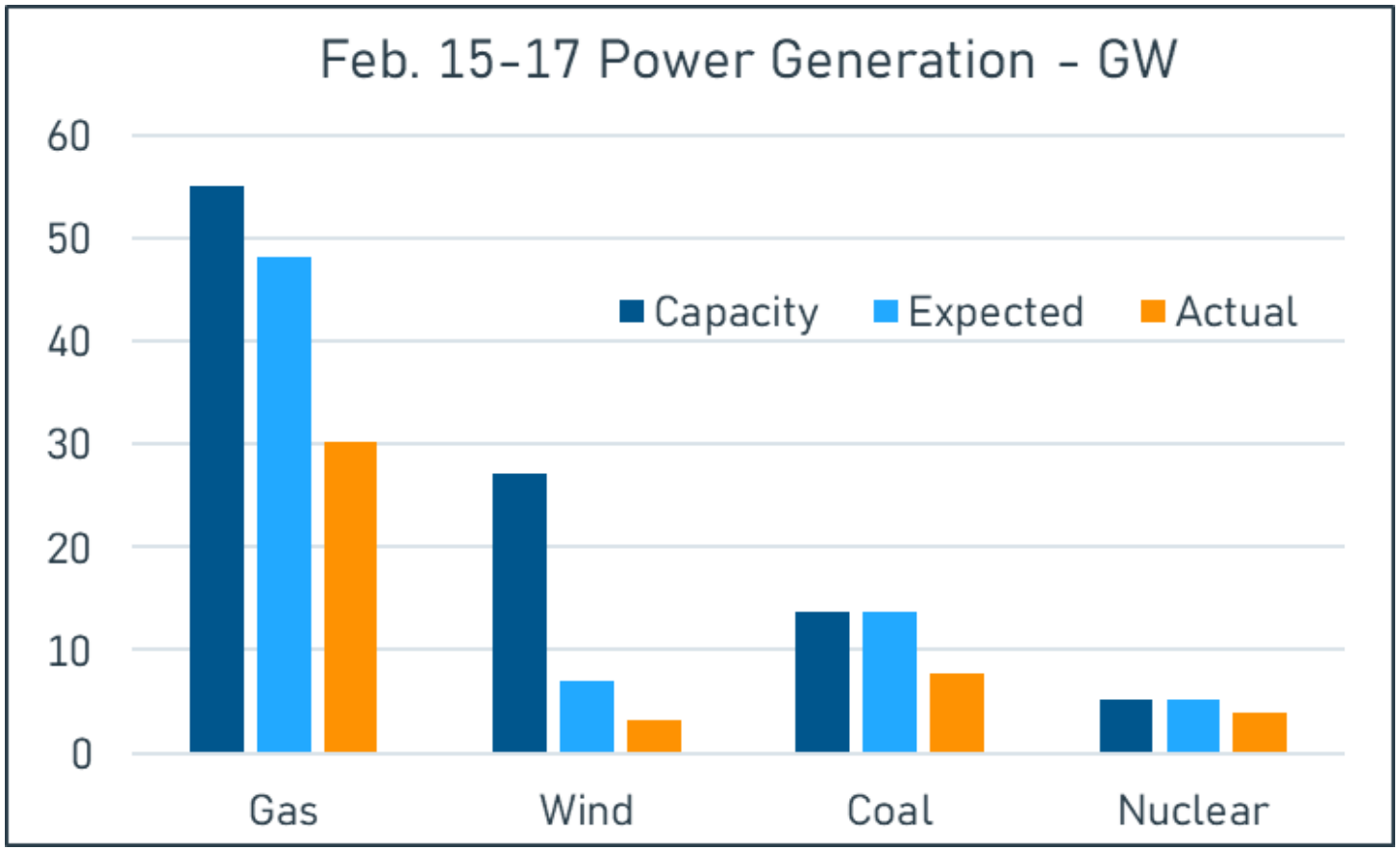
- Power generation failed to meet power demand
- Natural gas produced the majority of power
- All major power generation types declined due to the storm

*ERCOT data



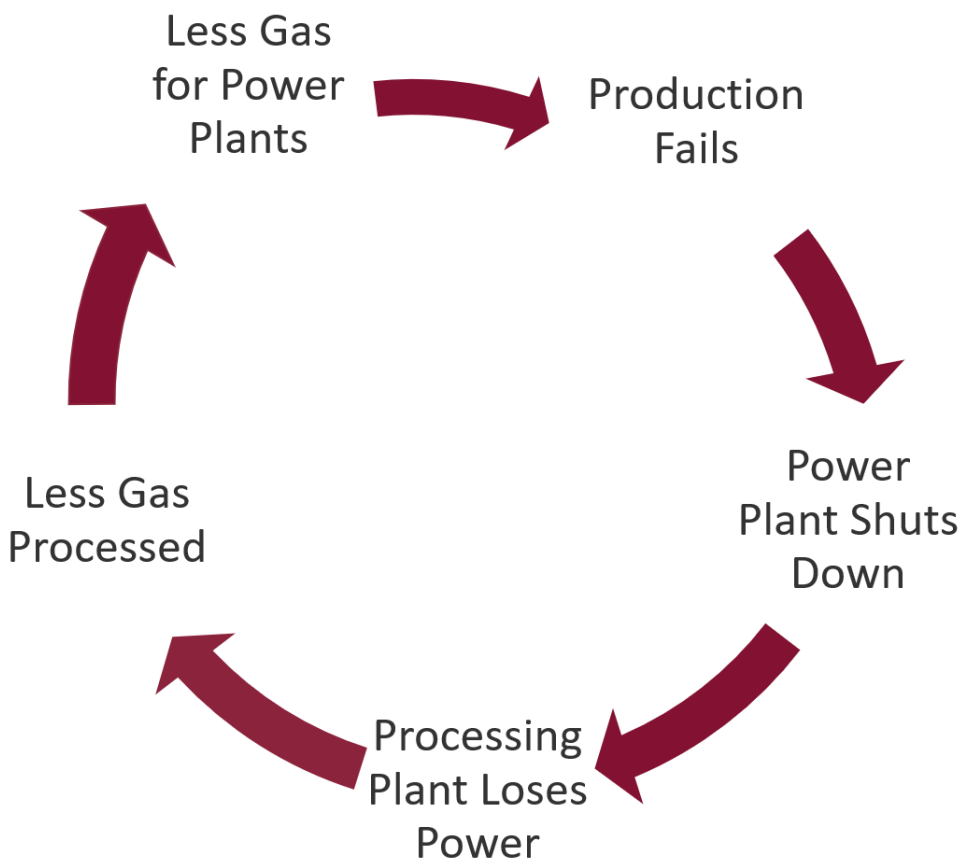
Generation vs capacity/expectations – Feb. 15-17

- Only gas powered generation increased during the storm and provided the majority of power
- Nominally, gas performed the most below expectations
- All fuel types fell
- Performance evaluation depends on measurement criteria



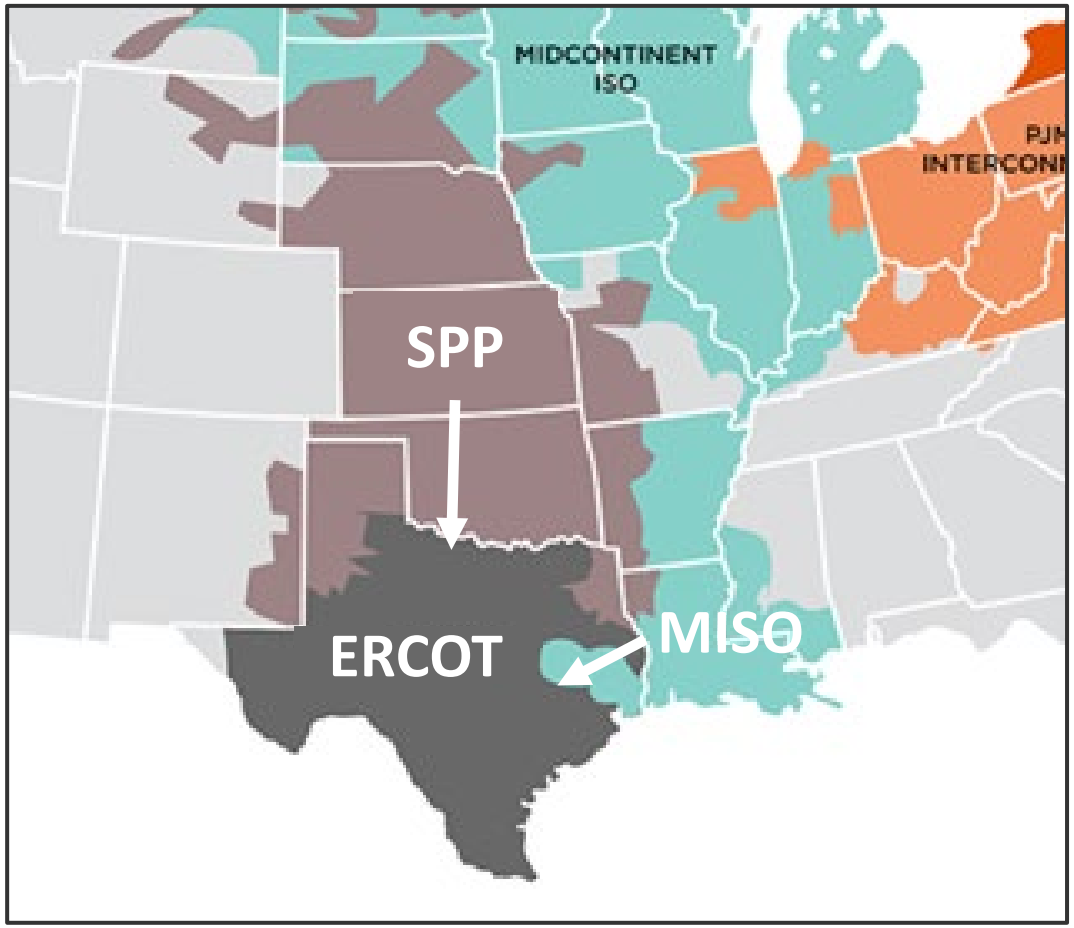
Negative Feedback Loops

- Lack of power reduced gas production and gas processing
- Reduced gas production and gas processing reduced power generation
- Power plants and equipment not running were more likely to get cold and freeze up



ERCOT Independence Had Little Impact

- ERCOT did import power
- Power imports limited by capacity restrictions on power lines
- Neighboring zones were short of power and had load shedding



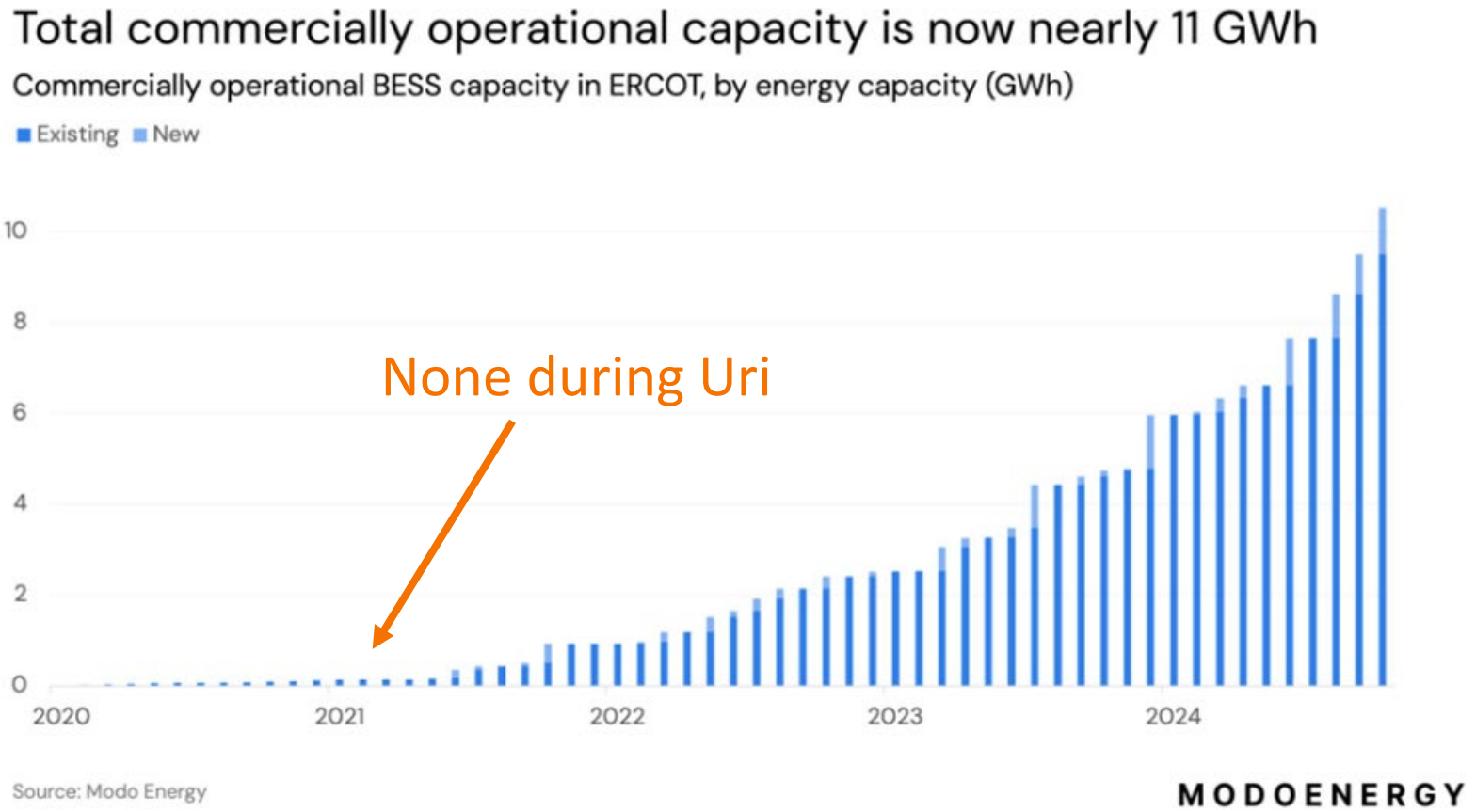
Can this Happen Again?

Why it Won’t Happen Again

- Texas passed laws with million-dollar fines to enforce winterization compliance above Winter Storm 2011 recommendations
- More demand response (Paid Load Shedding Volunteers)
- More wind and solar (most helpful in summer)
- Battery capacity added

Lots of Battery Capacity Added

- Helps balance renewable power
- 10 GW is 15% of peak load
- Short Term Only
  -11 GWhr provides 15% of peak load for one hour



Why It Can Happen Again

- Huge growth in power demand from data centers/LNG plants
- Not adding enough dispatchable fuel sources (gas/coal/oil)
- Added capacity is renewable – non-dispatchable and seasonal
- Batteries – only add short-term relief, primarily for grid stability

What will the event look like?

- Likely an unforeseen, different event that the market is not prepared for

Final Thoughts

- Be critical of headlines/articles regarding Uri and the reliability of power sources
- Gas processing is critical to our power infrastructure
  - Follow winterization recommendations
  - Communicate with power providers/transmitters
- Rapid growth in power demand will challenge the system
- Can’t anticipate all events, additional spare capacity is needed but that comes at a high cost

Thank you!