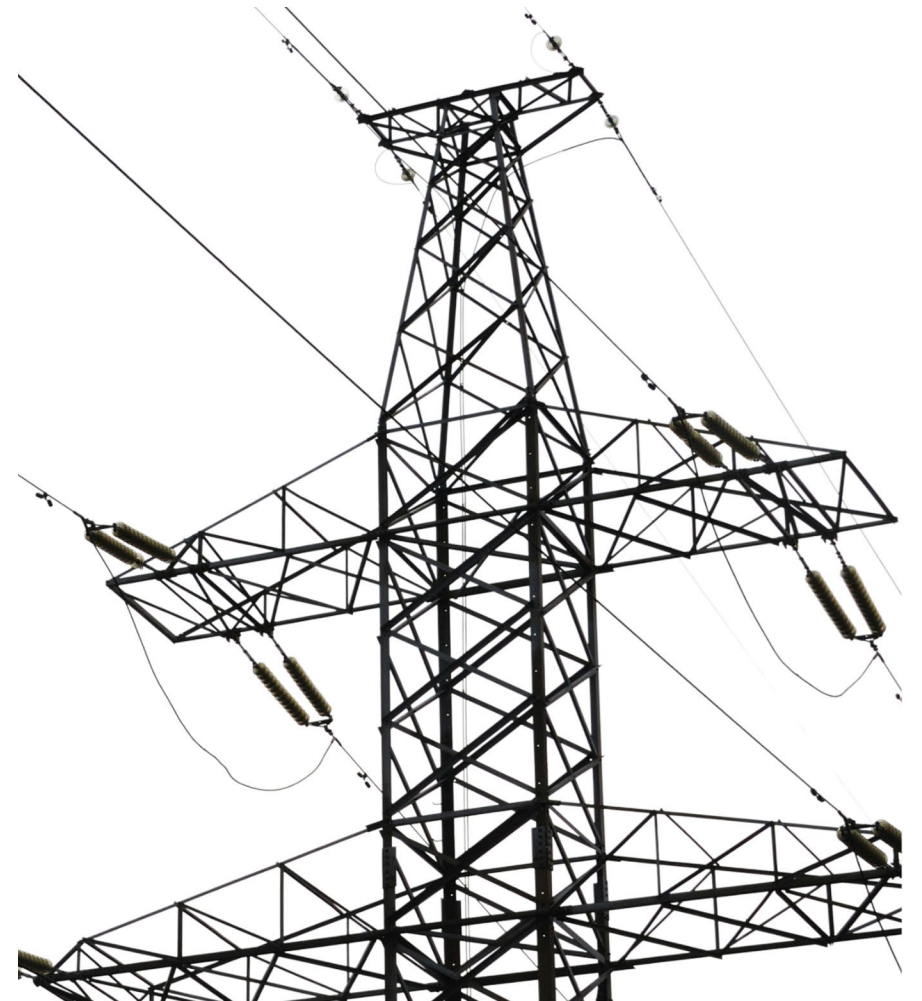


Anti-Trust Statement

It is ReliabilityFirst's policy and practice to obey the antitrust laws and to avoid all conduct that unreasonably restrains competition. This policy requires the avoidance of any conduct which violates, or which might appear to violate, the antitrust laws. Among other things, the antitrust laws forbid any agreement between or among competitors regarding prices, availability of service, product design, terms of sale, division of markets, allocation of customers or any other activity that unreasonably restrains competition.

It is the responsibility of every ReliabilityFirst participant and employee who may in any way affect ReliabilityFirst's compliance with the antitrust laws to carry out this policy.



2026 FALL RELIABILITY & SECURITY SUMMIT

September 15, 2026



RELIABILITY FIRST

2026 FALL RELIABILITY & SECURITY SUMMIT



Morning Agenda

8:30–8:45

Welcome

Brian Thiry, Director Strategic Engagement, ReliabilityFirst

8:45–9:30

Our Energy Future: Preserving reliability and affordability in the face of significant load growth, new technologies, and changing energy markets

Jade Davis, President & CEO, BRITE Energy Innovations

9:30–10:15

State Energy Leadership Outlook Fireside Chat: Policy, reliability, and the future of the grid

Henry Wilhelmus, Electricity Program Manager, Indiana Office of Energy Development
Tim Gallagher, President & CEO, ReliabilityFirst

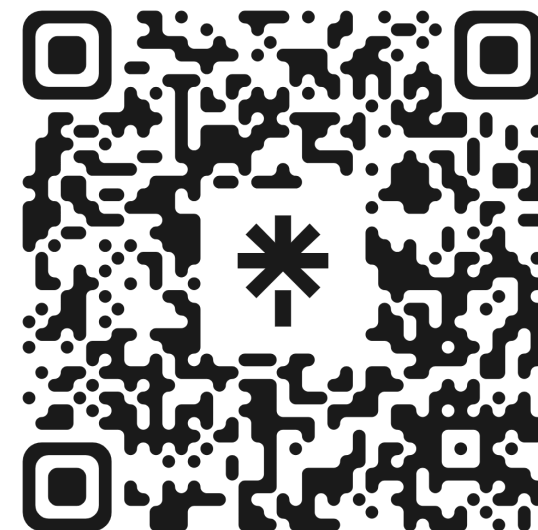
10:15–10:30

Networking break

10:30–11:40

Managing the AI Era: Reliability challenges and opportunities related to large computational loads

Dan Conway, Commissioner, Public Utilities Commission of Ohio
Stacey Burbure, Senior VP of Transmission Regulatory Engagement & Compliance, AEP
Julie LaBella, Vice President, Regulatory & External Affairs, Talen Energy
Craig Sundstrom, Head of Energy & Sustainability Public Policy, Amazon Web Services



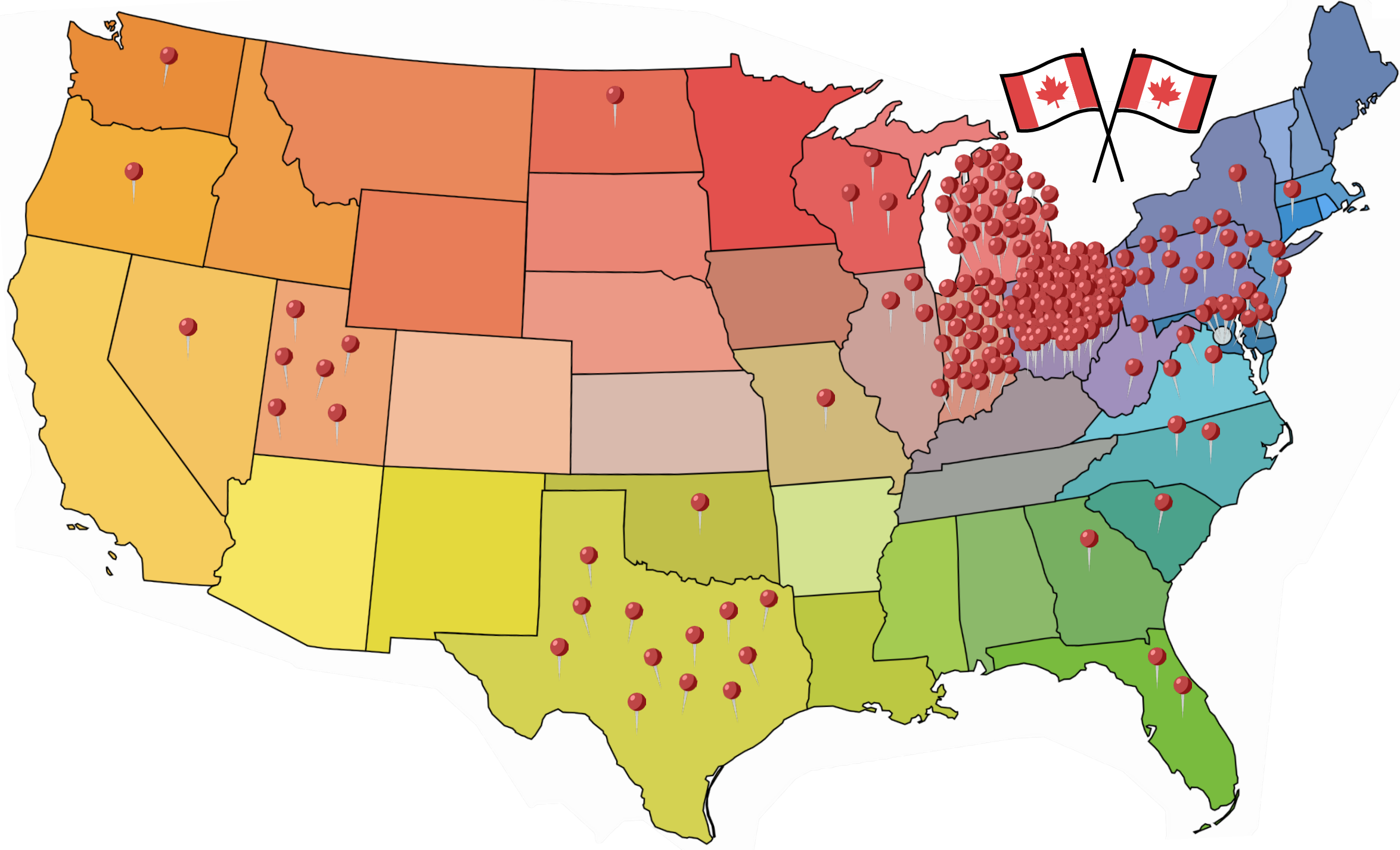
LUNCH

11:45 - 12:30

NETWORKING BOOTHS

12:30 - 1:00







ASK QUESTIONS TO PRESENTERS USING SLIDO

Join the conversation at SLIDO.com

#RFSummit26

OUR ENERGY FUTURE - PRESERVING RELIABILITY AND AFFORDABILITY

Jade Davis

President & CEO



OUR ENERGY FUTURE

Preserving Reliability and Affordability in the Face of Significant Load Growth, New Technologies, and Changing Energy Markets

Jade Davis

President & CEO, BRITE Energy Innovators



The background of the slide shows a group of people at a networking event, possibly a conference or a social gathering. They are seated at tables, and some are looking towards the camera. The image is overlaid with a semi-transparent orange filter. In the background, a sign with the word "RITE" is visible.

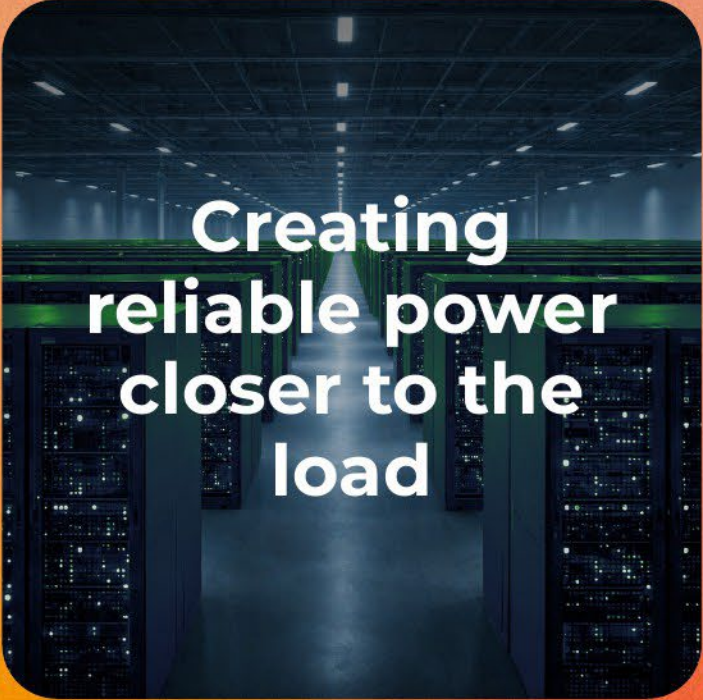
Connectivity.

***How do we grow while
keeping our grid
reliable,
affordable,
and sustainable?***

Innovation requires connectivity between...



Innovation for reliability looks like...



Creating
reliable power
closer to the
load



Enhancing
communication
between
systems



Connecting
emerging
technology
with existing
assets



POWER to
HYDROGEN

Addressing the commercialization gap



Commercialization & Deployment

Real-world deployment with manufacturers, utilities, and communities.



BRITEnetwork

Stronger front door connecting founders with opportunities.



Midwest Hub

DOE award-winning Startup Programs, now open to more founders than ever.



Policy Leadership

Energy policy meets tech deployment.

***Our energy future can be
defined by...***

**Communication.
Collaboration.
Coordination.**

Thank you!



Connect & learn more about BRITE



Tim Gallagher
RF President & CEO



Henry Wilhelmus
Indiana Office of Energy
Development, Program Manager



BREAK TIME





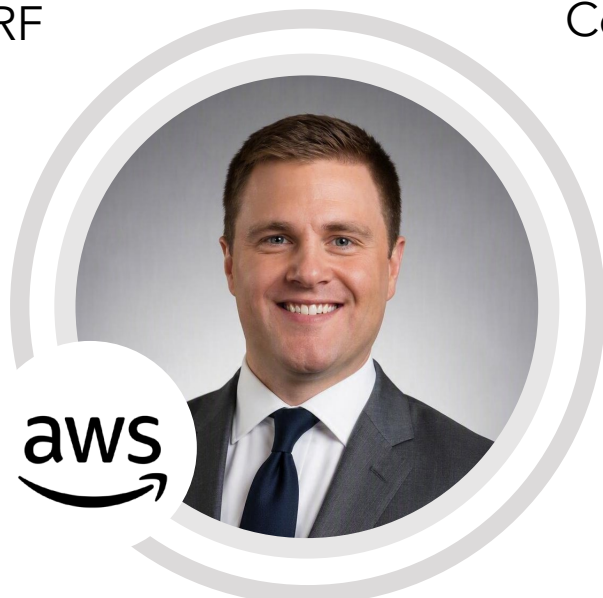
Michelle Cross, Manager,
Regulatory & Legislative
Affairs, RF



Stacey Burbure, SVP Transmission
Regulatory Engagement &
Compliance, AEP



Julie LaBella, SVP External Affairs,
Talen Energy



Craig Sundstrom, Head of Energy &
Sustainability Policy, Amazon Web Services



Daniel Conway, Commissioner,
Public Utilities Commission of Ohio



ASK QUESTIONS TO PRESENTERS USING SLIDO

Join the conversation at [SLIDO.com](https://slido.com)

#RFSummit26

LUNCH TIME

11:45 – 1:00



Afternoon Agenda

- | | |
|-------------|--|
| 1:00 – 2:00 | The Evolving Threat Landscape: Protecting Critical Energy Infrastructure
<i>Garris Ference, Lead Analyst, FBI</i> |
| 2:00 – 2:30 | Strengthening Reliability through Natural Gas and Electric System Coordination
<i>Jerry James, President, Artex Oil</i> |
| 2:30 – 2:45 | Networking Break |
| 2:45 – 3:20 | Data Driven Reliability: Leveraging Analytics to Identify and Mitigate Emerging Risks
<i>Greg Park, Manager, Risk Analysis and Data Services, WECC</i> |
| 3:20 – 4:00 | ReliabilityFirst Regional Risk Assessment: Risk Priorities and Mitigation Strategies
<i>Johnny Gest, Manager, Engineering and System Performance, ReliabilityFirst</i> |
| 4:15 – 6:00 | Reliability Excellence Awards and Networking Reception |

THE EVOLVING THREAT LANDSCAPE: PROTECTING CRITICAL ENERGY INFRASTRUCTURE

Garris Ference

Intel Analyst, FBI

FBI



STRENGTHENING RELIABILITY THROUGH GAS/ELECTRIC COORDINATION

Jerry James

President of Artex Oil Company



Presentation to

Fall Reliability and Security Summit

September 15th, 2026

FALL RELIABILITY & SECURITY SUMMIT

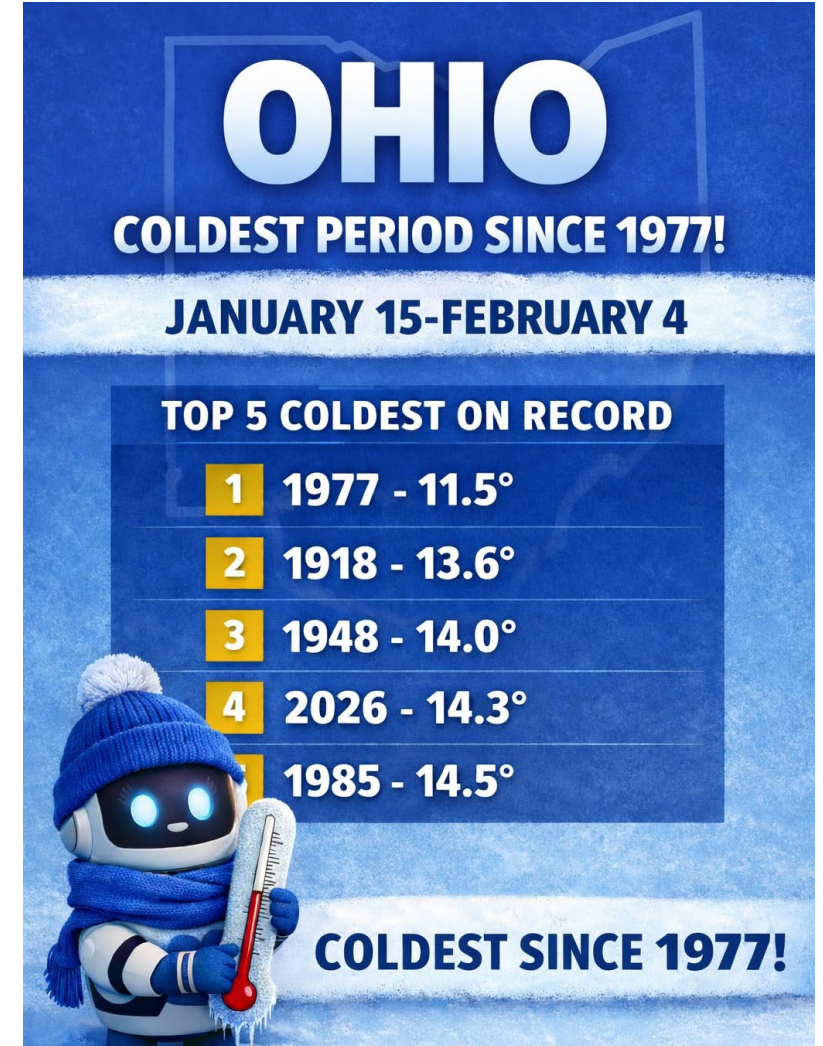


February 5, 2026:

“If you're less than 50 years old, this has been the coldest 3 weeks, ending today, of your life in this state.”

“Only the historically cold winter of 1977 is substantially colder.”

—Meteorologist Ryan Wichman



FALL RELIABILITY & SECURITY SUMMIT

JANUARY COLDEST MONTHLY AVG TEMP			
YEAR	RANK	HIGH TEMP	LOW TEMP
1977	1	20.1	2.1
2026	30	31.9	14.7

FEBRUARY COLDEST MONTHLY AVG TEMP			
YEAR	RANK	HIGH TEMP	LOW TEMP
1978	1	26.1	5.0
2026	73	40.0	21.1



The 1970s were more than just gasoline shortages. Ohio's manufacturers lost 85% of their natural gas supply.

THE WEATHER
 Cloudy tonight, chance of occasional snow; low near 18. Continued cloudy Wednesday, snow flurries likely; high 25 to 30.
Records for this date: high, 71 in 1920; low, 16 below in 1917.
 (Report by National Weather Service)

THE BLADE

One Of America's Great Newspapers

FINAL HOME
 ★ ★ ★ ★

44 PAGES 142nd Year **TOLEDO, OHIO, TUESDAY, JANUARY 25, 1977** 15 CENTS

Rhodes Seeks General Fund Budget Boost
 \$8.77 Billion Proposed For 22 Per Cent Rise; No Tax Increase Urged
 By TOM LINDEMAN
 Staff Columbus Bureau

COLUMBUS — Governor Rhodes today proposed a two-year state general fund budget of \$8.77 billion, up 22 per cent from the last biennium, with no increase in taxes.

The state administration's overall budget runs \$14.5 billion, up from \$12.1 billion in the current biennium. The total budget figure reflects all funds, including federal and rotary accounts over which the state has little or no control.

The formal budget will be introduced in bill form next Tuesday, since legislators are sitting in special session to deal solely with the energy emergency.

Healthy Economy Anticipated
With no inflation, state income declines



Large Users To Lose 85 Pct. Of Columbia Gas Supply From Feb. 1 To Season's End

Situation Is Close To Crisis, Official Of Company Says

Natural-gas supplies to large industrial and large commercial customers of Columbia Gas of Ohio will be curtailed 85 per cent beginning Feb. 1 and continuing through the end of the heating season March 31, company officials announced Monday.

The stricter curtailments probably will mean that some area industries will have to close, John M. Pickens, Columbia northwest district manager, Toledo, said.

Large schools such as high schools fall under the curtailment.

is "close to crisis," Mr. Pickens said the gas company is making "an impassioned plea" for residential customers to conserve.

The company is asking householders to set thermostats no higher than 65 degrees during the day and 55 at night, and for businesses to cut consumption to a minimum by turning down thermostats and shortening hours.

Mr. Pickens stressed that the curtailment plan announced Monday assumes that weather through March will be normal. Colder than normal temperatures could possibly bring even more stringent industrial and commercial curtailment.

"I would not rule it out," he stated, adding that the prospects of finding emergency gas the rest of the winter are "practically nil."

Temperatures throughout Ohio have averaged 31 per cent colder than normal this winter and 43 per cent colder than normal in January, making it the coldest winter in Ohio in more than 100 years, the company said.

"We're almost beyond the point of no return. We have to conserve in every way we can to maintain this level," Mr. Pickens stated.

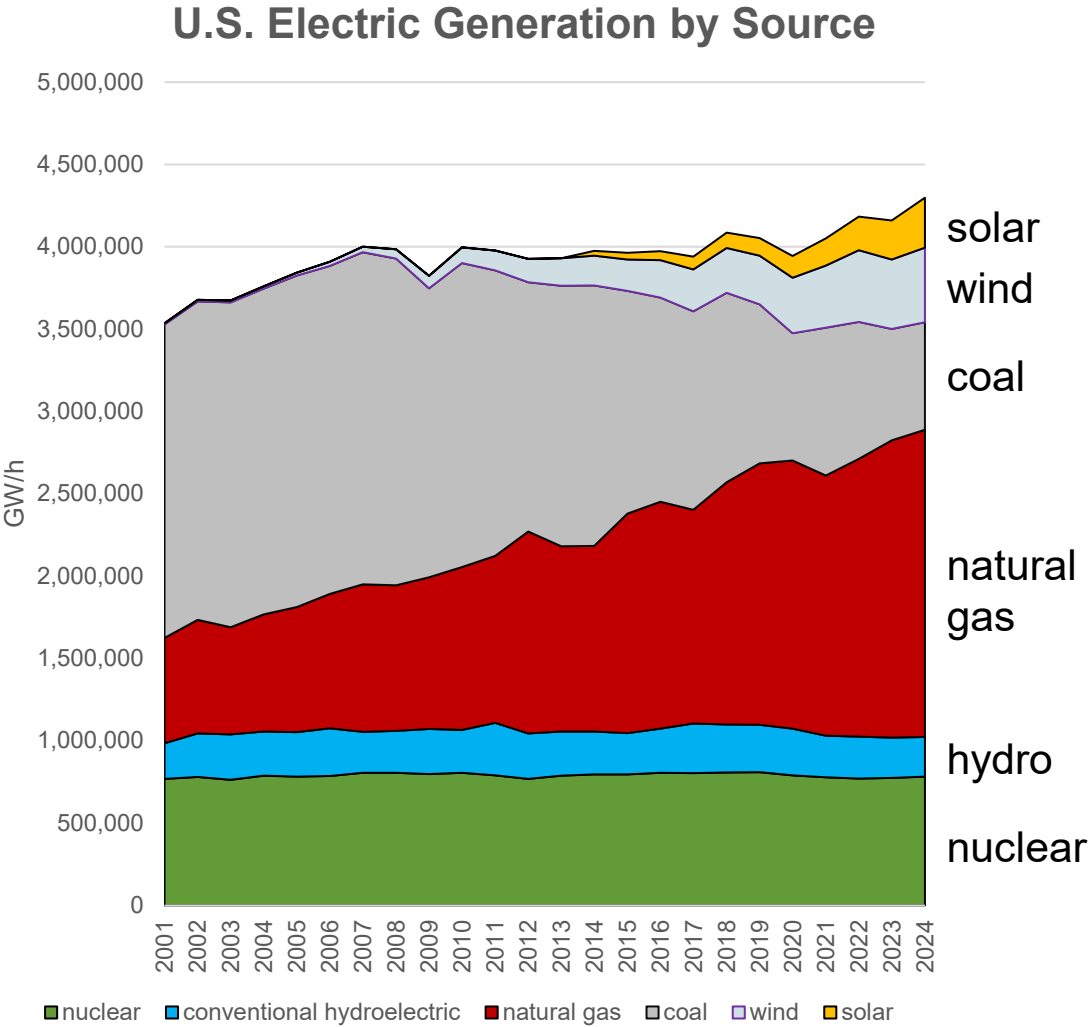
He said that Columbia had hoped to obtain some 3 to 7 billion cubic feet of gas, some from Ohio industrial users outside the Columbia system who could use alternate fuels. But the supplies did not materialize.

★ ★ ★

- Increase the coordination of the natural gas and electric infrastructure and ensure a more reliable, resilient, and secure bulk power system.
 - The electric power sector has become the largest consumer of natural gas, leading to increased interdependence between the two industries and requiring enhanced coordination—particularly during extreme cold weather events.
 - Upstream and midstream gas facilities (compressors, processing plants, and wellheads) rely on electricity from the grid to operate.
 - Gas and electric system planning is not integrated, and assessments of infrastructure are needed to assure the reliability and adequacy of both systems.

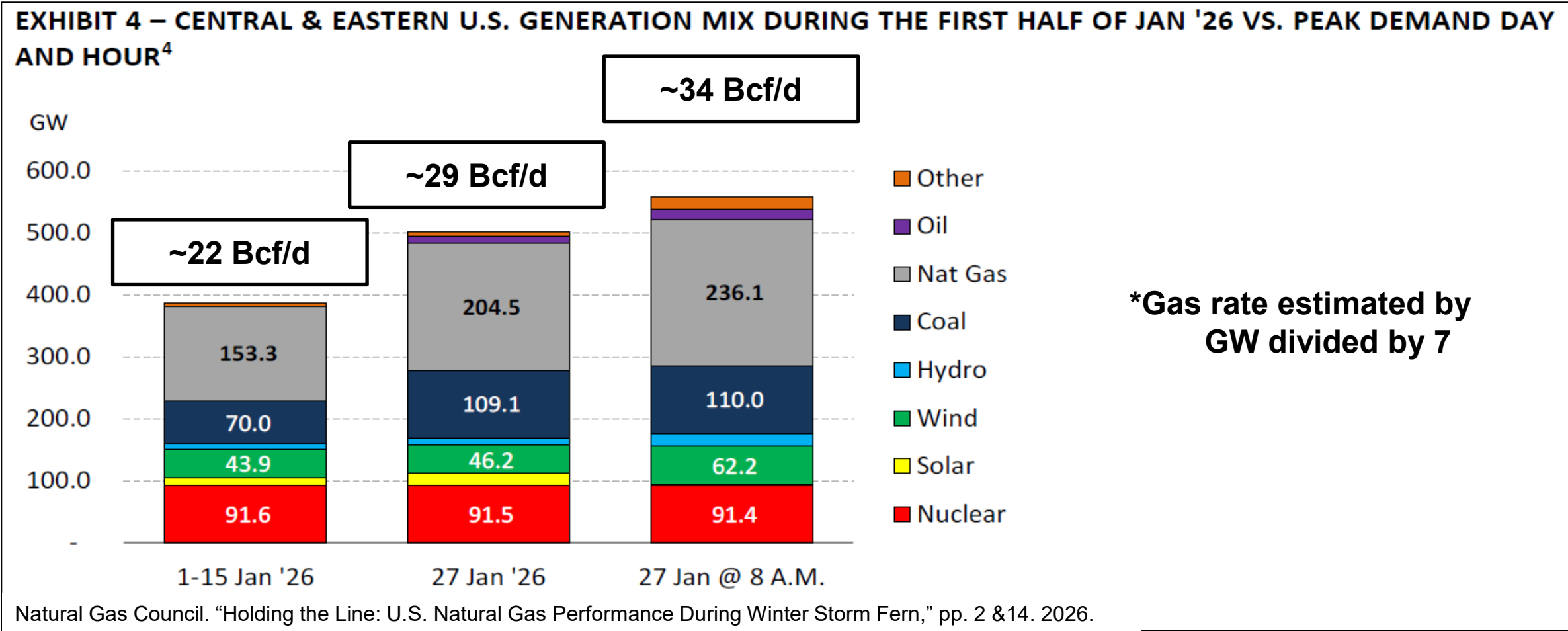
$$Demand = Production + Storage$$

FALL RELIABILITY & SECURITY SUMMIT



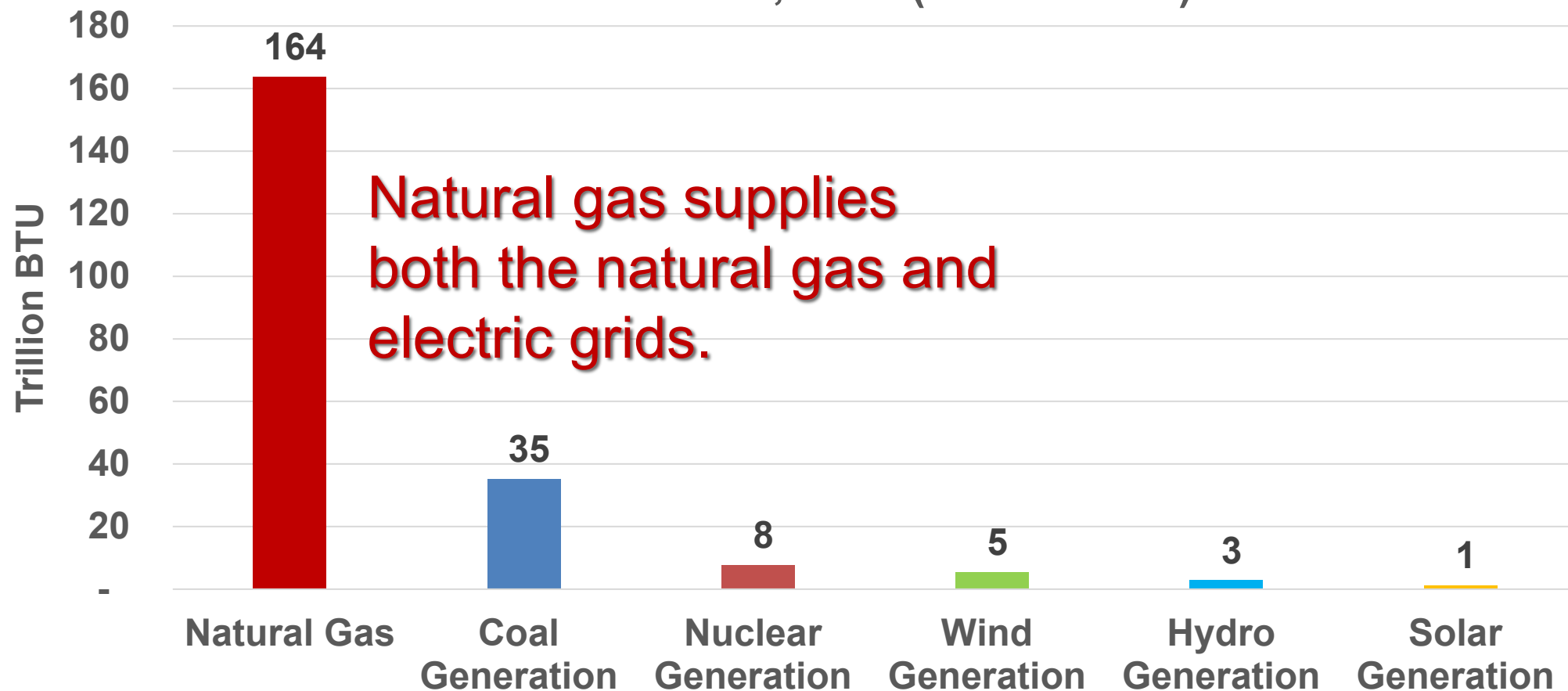
• Natural gas is now the dominant fuel for electric generation.

FALL RELIABILITY & SECURITY SUMMIT



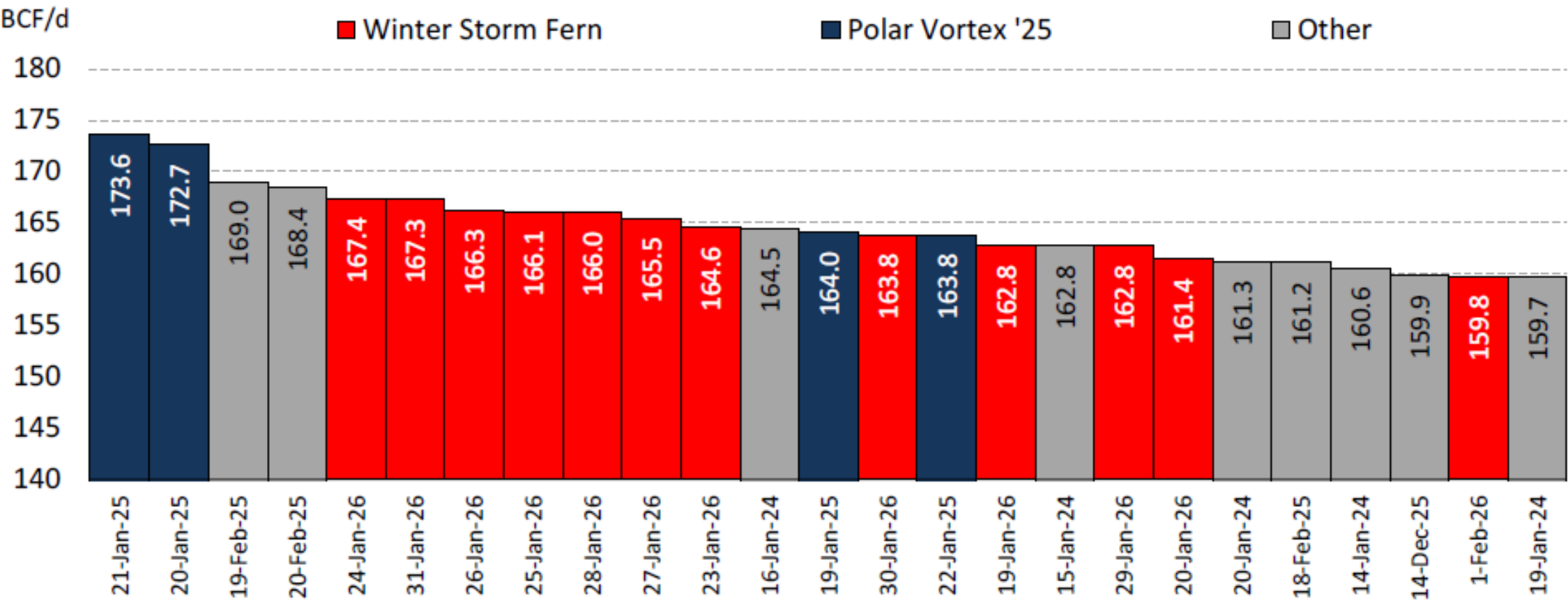
FALL RELIABILITY & SECURITY SUMMIT

Fuels Delivered on a Peak Demand Day
Jan 17, 2024 (Trillion BTU)



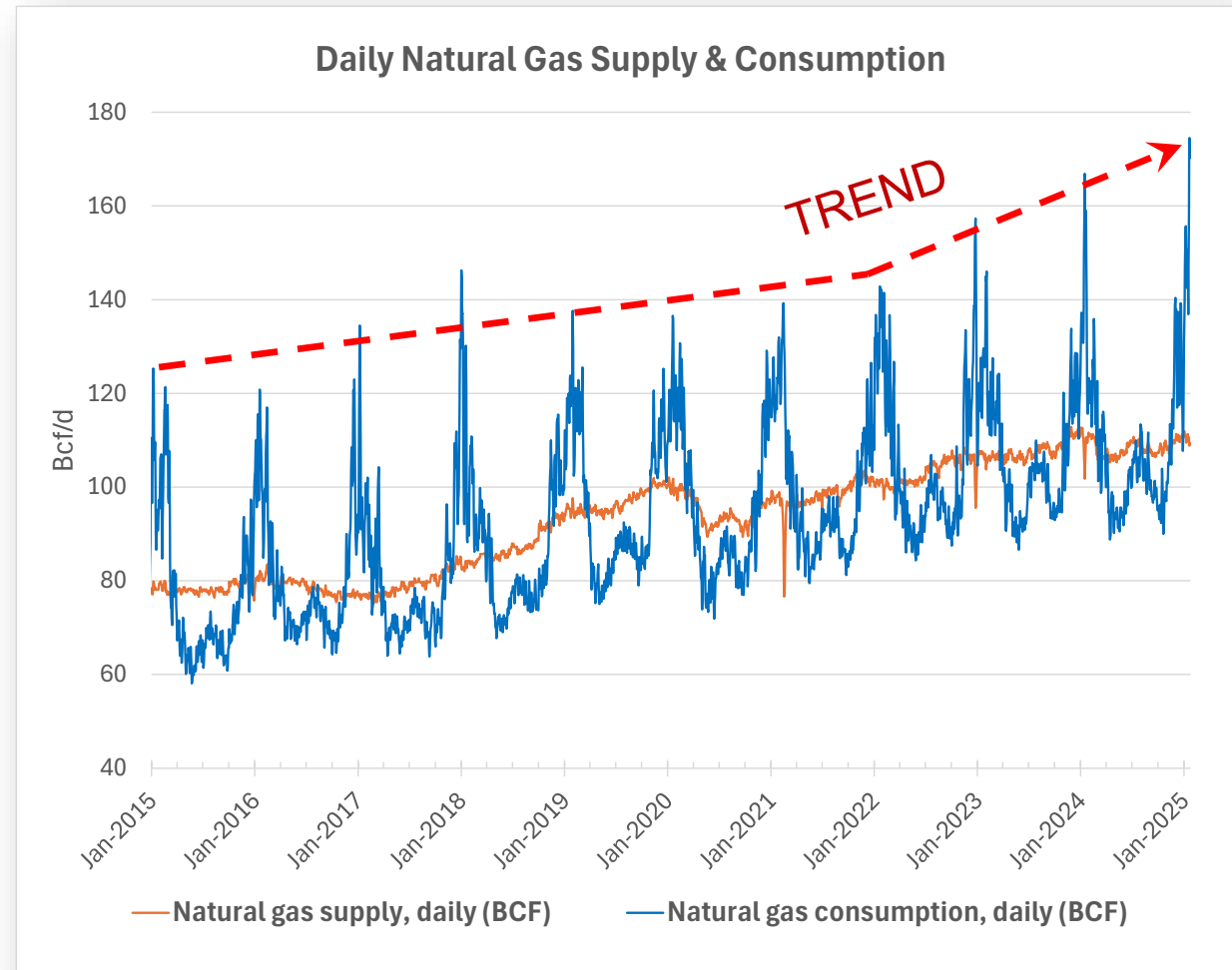
FALL RELIABILITY & SECURITY SUMMIT

LOWER-48 - TOP 25 NATURAL GAS DEMAND DAYS



Natural Gas Council. "Holding the Line: U.S. Natural Gas Performance During Winter Storm Fern," pp. 2 &14. 2026.

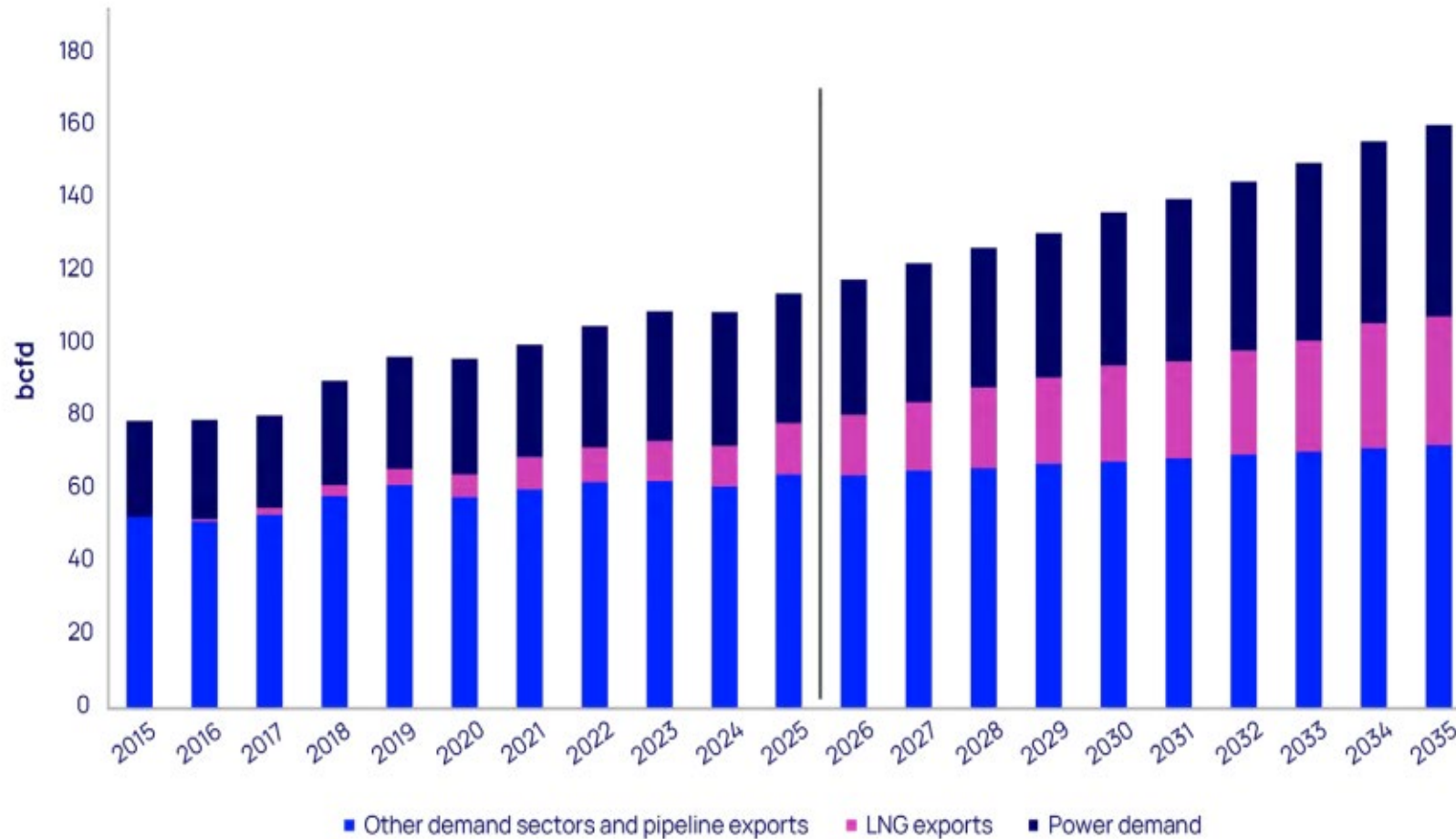
- Peak natural gas demand is growing faster than natural gas production.



Data derived from EIA's *Natural Gas Weekly Updates* and PointLogic

FALL RELIABILITY & SECURITY SUMMIT

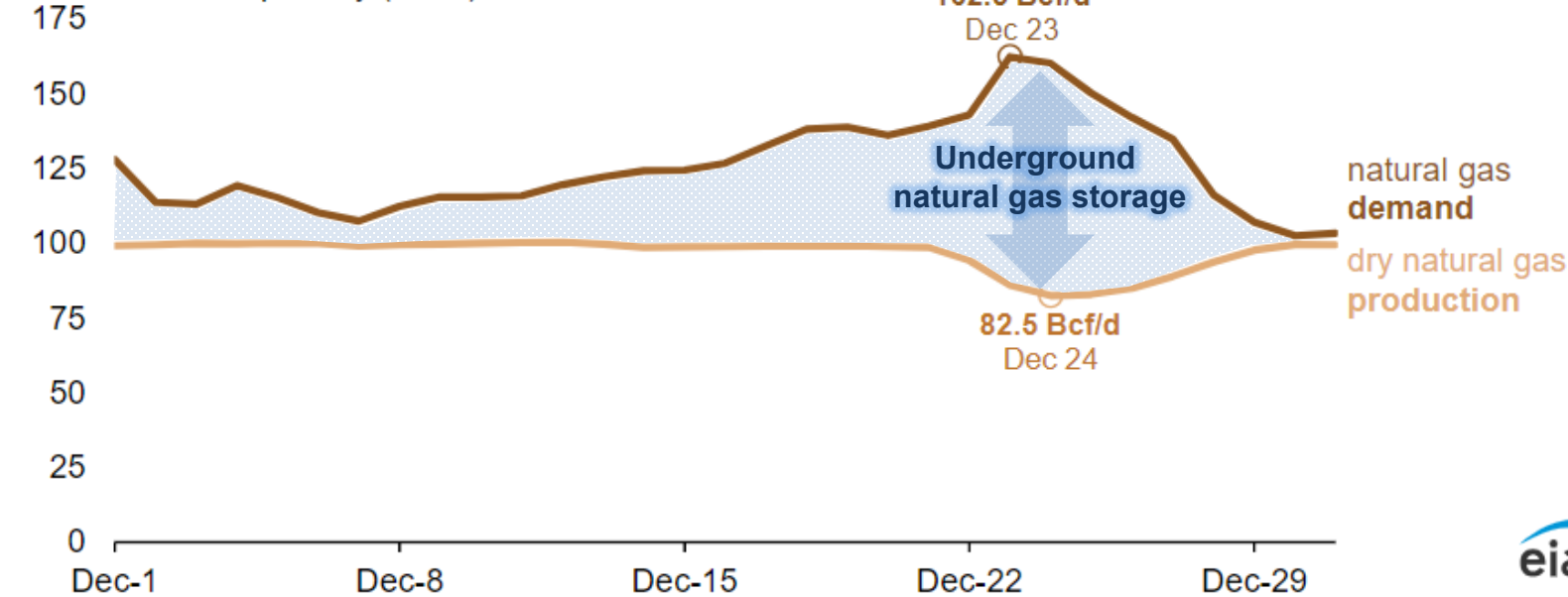
US gas demand 2015-35: continuing on the same trajectory



- U.S. gas demand expected to grow 40% by 2035.

December daily natural gas supply and demand in the Lower 48 states (Dec 1–31, 2022)

billion cubic feet per day (Bcf/d)



Data source: S&P Global Commodity Insights

Note: Total demand includes total consumption, pipeline exports, liquefied natural gas (LNG) feedgas deliveries, and pipeline loss and fuel.

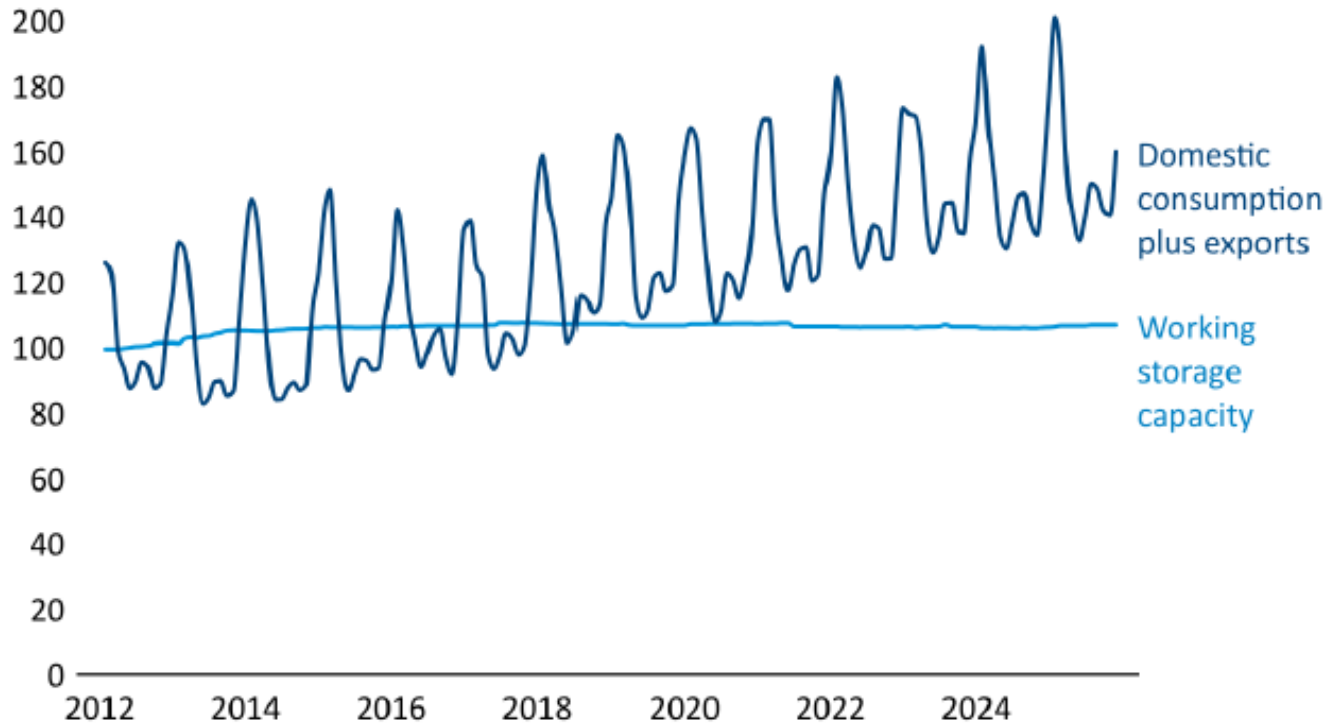


- Natural gas storage backs up the electric and natural gas grid during extreme weather events.

FALL RELIABILITY & SECURITY SUMMIT

Growth in U.S. consumption and exports of natural gas have outpaced working storage capacity growth

U.S. natural gas consumption, exports, and storage based to 2012=100

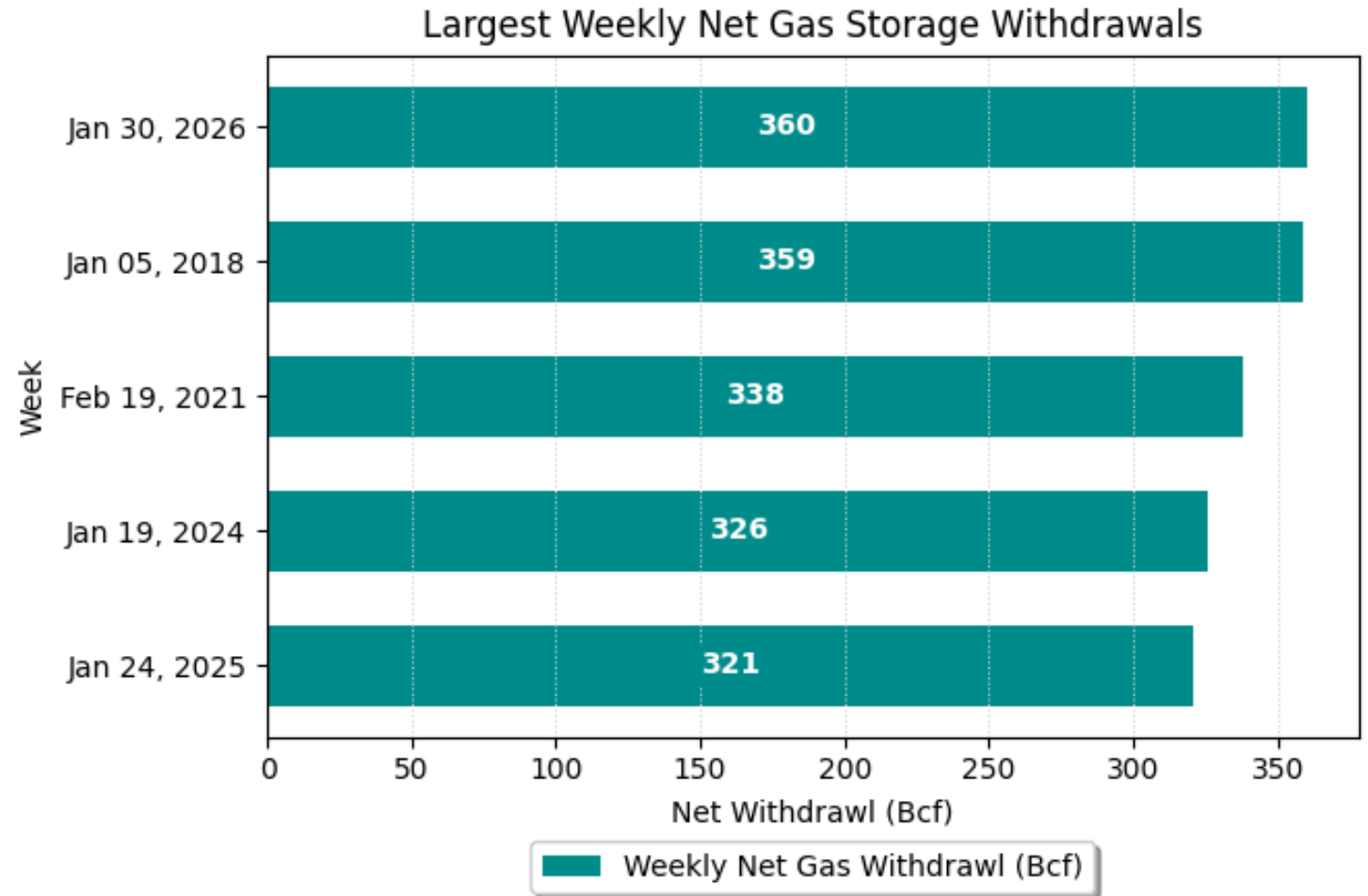


Source: U.S. EIA



- Demand is growing faster than U.S. natural gas storage.
- The East region storage declined 2 Bcf year over year.

- Peak demand is growing faster than production.
- Demand is also growing faster than storage.
- Record withdrawals from natural gas storage is the new norm.



. Government

- DOE
- FERC
- NERC
- NARUC
- NPC (National Petroleum Council)
- Energy Dominance Council

. Industry

- AGA
- API
- National Gas Council

- An OSU report issued in the late 1970s discussing the natural gas shortages at the request of Governor Rhodes still rings true today.

Everyone could see the problem coming but nobody did anything about it.

BREAK TIME



DATA DRIVEN RELIABILITY: LEVERAGING ANALYTICS TO IDENTIFY AND MITIGATE RISKS

Greg Park

Manager, Risk Analysis and
Data Services, WECC



WECC



Data driven reliability: Leveraging analytics to identify and mitigate emerging risks

Greg Park

Manager, Risk Analysis & Data Services

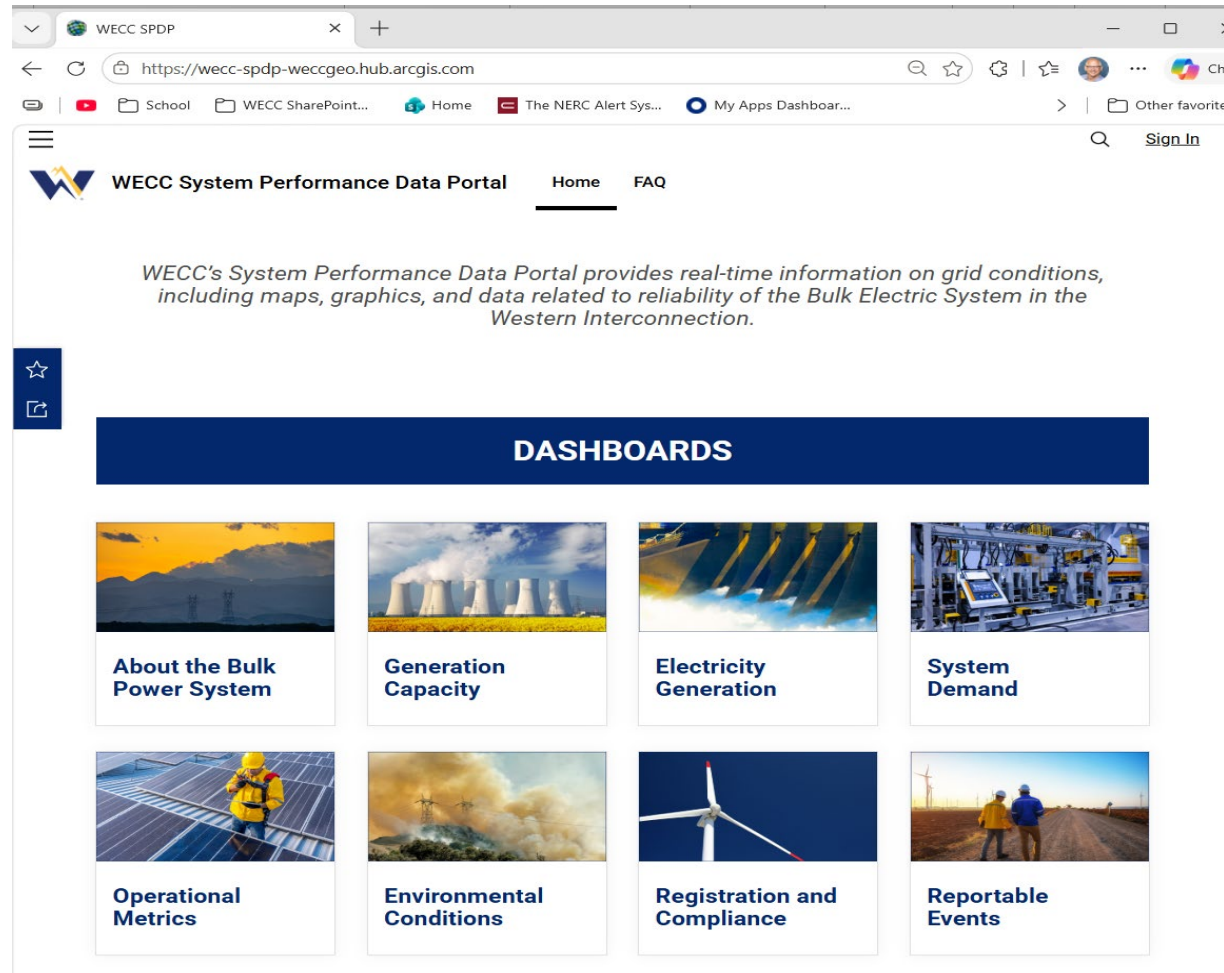
Western Interconnection- Regions



WECC's "System Performance Data Portal"

- Majority of data can be located on the WECC data portal located at:

[WECC SPDP](https://wecc-spdp-weccgeo.hub.arcgis.com)





High Levels of IBR Penetration

IBR Ratio

Region

All

BA

All

Year

2025

Fuel Type

Multiple selections

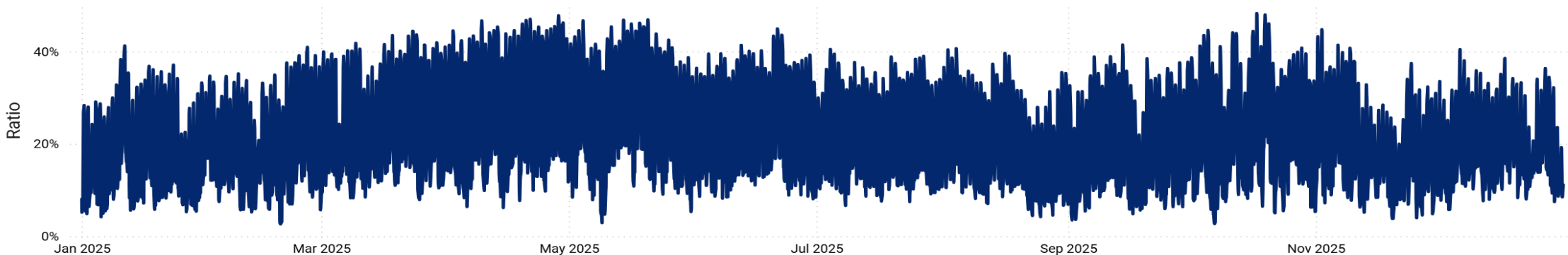
IBR/Demand Ratio by Month and Hour

Source: WECC Loads and Resources. Dashboard refreshed 6/1/2026.

Mth/Hr	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Jan	10.57%	10.75%	10.83%	10.72%	10.35%	9.80%	9.31%	11.99%	21.62%	27.69%	29.52%	30.13%	30.74%	31.19%	30.62%	25.89%	14.81%	9.89%	9.43%	9.50%	9.67%	9.93%	10.34%	10.62%
Feb	12.06%	12.23%	12.20%	11.98%	11.50%	10.84%	10.55%	16.44%	25.88%	30.02%	31.35%	32.02%	32.66%	32.57%	31.57%	29.02%	21.05%	12.15%	10.35%	10.21%	10.48%	10.84%	11.28%	11.94%
Mar	14.73%	14.93%	15.09%	14.99%	14.32%	13.39%	15.74%	25.17%	32.61%	35.79%	37.60%	38.18%	38.55%	38.43%	37.64%	35.31%	30.06%	18.73%	13.54%	12.74%	13.09%	13.75%	14.34%	14.56%
Apr	15.48%	15.61%	15.51%	15.07%	14.23%	14.58%	23.46%	34.16%	39.40%	42.15%	43.26%	43.54%	43.50%	43.11%	42.34%	40.18%	35.34%	24.06%	15.45%	13.46%	13.60%	14.27%	14.95%	15.51%
May	15.07%	15.03%	14.86%	14.44%	13.58%	16.97%	28.08%	35.82%	39.21%	40.92%	41.55%	41.42%	40.78%	40.11%	39.17%	37.35%	33.84%	25.91%	16.48%	13.48%	13.56%	14.09%	14.46%	14.49%
Jun	13.78%	13.89%	13.76%	13.14%	12.35%	17.25%	28.43%	34.93%	37.07%	38.09%	38.08%	37.64%	36.77%	35.76%	34.56%	33.17%	30.65%	24.72%	16.08%	12.10%	11.93%	12.59%	13.22%	13.84%
Jul	12.60%	12.56%	12.31%	11.87%	11.21%	13.99%	24.11%	31.55%	34.20%	34.92%	34.69%	34.15%	33.48%	32.77%	31.58%	30.09%	27.74%	22.38%	14.53%	11.34%	11.10%	11.66%	12.27%	12.68%
Aug	11.57%	11.59%	11.47%	11.23%	10.58%	11.12%	19.11%	27.84%	31.59%	32.68%	32.68%	32.09%	31.18%	29.94%	28.65%	26.75%	23.63%	17.27%	11.28%	9.73%	9.94%	10.41%	10.75%	11.27%
Sep	10.43%	10.62%	10.60%	10.35%	9.76%	9.24%	14.96%	25.54%	30.99%	33.05%	33.36%	32.90%	32.18%	31.26%	29.73%	27.26%	21.20%	12.29%	8.81%	8.76%	9.36%	9.74%	10.00%	10.31%
Oct	13.07%	13.25%	13.13%	13.04%	12.48%	11.71%	14.96%	26.62%	34.28%	37.49%	38.19%	38.32%	38.04%	37.71%	36.42%	32.13%	20.52%	12.68%	11.27%	11.45%	11.80%	12.17%	12.47%	12.77%
Nov	12.32%	12.67%	12.94%	13.07%	12.77%	12.06%	11.99%	18.90%	26.95%	30.13%	31.20%	31.60%	31.67%	31.39%	29.59%	22.54%	12.62%	10.00%	9.83%	10.01%	10.21%	10.65%	11.19%	11.83%
Dec	14.13%	14.27%	14.35%	14.13%	13.79%	13.19%	12.67%	15.92%	24.26%	28.61%	29.80%	30.57%	31.16%	31.42%	30.20%	23.36%	14.01%	11.73%	11.64%	11.77%	11.97%	12.40%	12.96%	13.66%

IBR/Demand Ratio by Datetime

Source: WECC Loads and Resources. Dashboard refreshed 6/1/2026.



- <https://wecc-sdpd-weccgeo.hub.arcgis.com/pages/electricity-generation>

IBR Ratio

Region

All

BA

All

Year

Multiple selections

Fuel Type

Multiple selections

IBR/Demand Ratio by Month and Hour

Source: WECC Loads and Resources. Dashboard refreshed 6/1/2026.

Mth/Hr	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
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Feb	11.84%	12.10%	12.17%	12.03%	11.68%	11.11%	10.81%	15.80%	24.09%	27.95%	29.47%	30.22%	30.65%	30.43%	29.43%	26.77%	19.18%	11.45%	10.12%	10.16%	10.20%	10.54%	10.99%	11.62%
Mar	14.03%	14.07%	14.13%	13.93%	13.21%	12.37%	14.68%	23.46%	30.14%	33.11%	34.81%	35.48%	35.83%	35.70%	34.85%	32.50%	27.20%	16.96%	12.87%	12.53%	12.53%	13.05%	13.59%	13.88%
Apr	15.50%	15.55%	15.36%	14.84%	14.03%	14.41%	22.96%	32.59%	37.05%	39.46%	40.47%	40.94%	41.05%	40.88%	40.12%	38.10%	33.62%	22.93%	15.10%	13.71%	13.63%	14.27%	14.88%	15.33%
May	15.61%	15.67%	15.47%	15.18%	14.41%	18.13%	28.88%	35.69%	38.43%	39.86%	40.39%	40.36%	39.92%	39.28%	38.33%	36.68%	33.30%	25.45%	16.39%	13.83%	13.67%	14.32%	14.86%	15.17%
Jun	13.61%	13.70%	13.60%	13.10%	12.51%	17.59%	28.06%	33.37%	35.22%	36.01%	36.06%	35.71%	34.94%	33.98%	32.85%	31.41%	28.94%	23.21%	15.29%	11.96%	11.63%	12.31%	12.96%	13.48%
Jul	11.33%	11.33%	11.07%	10.64%	10.10%	12.90%	22.30%	28.46%	30.62%	31.17%	30.91%	30.40%	29.55%	28.58%	27.47%	26.12%	23.99%	19.11%	12.24%	9.73%	9.57%	10.17%	10.77%	11.27%
Aug	11.07%	10.97%	10.73%	10.37%	9.76%	10.47%	18.63%	26.83%	29.92%	30.96%	30.96%	30.38%	29.53%	28.40%	27.20%	25.49%	22.46%	16.09%	10.50%	9.46%	9.57%	10.05%	10.52%	10.89%
Sep	10.95%	10.96%	10.86%	10.56%	10.02%	9.62%	15.86%	26.39%	31.03%	32.64%	32.79%	32.34%	31.60%	30.61%	29.09%	26.68%	20.60%	11.97%	9.15%	9.35%	9.73%	10.25%	10.58%	10.87%
Oct	12.53%	12.56%	12.46%	12.28%	11.78%	11.12%	14.23%	25.34%	31.98%	34.48%	35.08%	35.06%	34.81%	34.31%	32.82%	28.48%	17.90%	11.65%	10.99%	11.25%	11.29%	11.64%	12.00%	12.29%
Nov	12.13%	12.40%	12.52%	12.49%	12.18%	11.62%	11.93%	18.86%	26.67%	29.54%	30.41%	30.84%	31.02%	30.67%	28.80%	21.91%	12.48%	10.23%	10.23%	10.35%	10.39%	10.71%	11.15%	11.71%
Dec	13.05%	13.30%	13.46%	13.38%	13.09%	12.46%	11.92%	15.02%	22.93%	27.03%	28.31%	28.95%	29.47%	29.64%	28.20%	21.29%	12.71%	10.80%	10.86%	10.98%	11.00%	11.42%	11.91%	12.55%

Ratio Difference Between Selected Year(s)

Source: WECC Loads and Resources. Dashboard refreshed 6/1/2026.

Mth/Hr	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Jan	0.59%	0.48%	0.48%	0.45%	0.22%	0.16%	0.14%	1.02%	4.47%	6.78%	7.01%	7.00%	7.45%	8.11%	8.59%	7.64%	3.60%	1.35%	0.80%	0.69%	1.06%	1.05%	1.08%	1.04%
Feb	0.44%	0.27%	0.06%	-0.09%	-0.38%	-0.56%	-0.53%	1.30%	3.63%	4.19%	3.80%	3.64%	4.06%	4.33%	4.34%	4.54%	3.78%	1.41%	0.47%	0.10%	0.55%	0.59%	0.58%	0.64%
Mar	1.42%	1.74%	1.94%	2.13%	2.25%	2.07%	2.14%	3.46%	5.00%	5.45%	5.70%	5.51%	5.55%	5.57%	5.70%	5.74%	5.81%	3.60%	1.36%	0.43%	1.14%	1.40%	1.51%	1.38%
Apr	-0.04%	0.14%	0.32%	0.46%	0.42%	0.34%	1.01%	3.19%	4.81%	5.50%	5.71%	5.31%	5.00%	4.55%	4.55%	4.24%	3.50%	2.29%	0.71%	-0.52%	-0.08%	0.01%	0.14%	0.37%
May	-1.12%	-1.29%	-1.24%	-1.50%	-1.68%	-2.36%	-1.62%	0.26%	1.60%	2.17%	2.38%	2.19%	1.77%	1.70%	1.72%	1.40%	1.11%	0.94%	0.17%	-0.72%	-0.23%	-0.46%	-0.82%	-1.39%
Jun	0.35%	0.38%	0.31%	0.09%	-0.33%	-0.67%	0.75%	3.14%	3.73%	4.18%	4.05%	3.86%	3.69%	3.57%	3.42%	3.53%	3.44%	3.04%	1.61%	0.29%	0.62%	0.56%	0.51%	0.73%
Jul	2.50%	2.42%	2.44%	2.43%	2.18%	2.17%	3.59%	6.11%	7.05%	7.37%	7.41%	7.33%	7.64%	8.10%	7.93%	7.66%	7.27%	6.36%	4.46%	3.14%	3.00%	2.93%	2.95%	2.77%
Aug	1.02%	1.27%	1.49%	1.76%	1.68%	1.31%	0.96%	2.06%	3.38%	3.50%	3.49%	3.48%	3.36%	3.14%	2.95%	2.56%	2.39%	2.40%	1.59%	0.55%	0.75%	0.75%	0.49%	0.77%
Sep	-1.06%	-0.70%	-0.54%	-0.41%	-0.54%	-0.78%	-1.82%	-1.73%	-0.08%	0.84%	1.15%	1.15%	1.18%	1.31%	1.30%	1.18%	1.21%	0.64%	-0.69%	-1.18%	-0.75%	-1.05%	-1.19%	-1.15%
Oct	1.09%	1.40%	1.35%	1.53%	1.41%	1.19%	1.47%	2.55%	4.61%	6.02%	6.19%	6.47%	6.38%	6.68%	7.03%	7.08%	5.10%	2.02%	0.55%	0.41%	1.02%	1.06%	0.94%	0.96%
Nov	0.38%	0.55%	0.84%	1.15%	1.16%	0.87%	0.12%	0.09%	0.57%	1.18%	1.60%	1.53%	1.33%	1.46%	1.61%	1.29%	0.29%	-0.46%	-0.81%	-0.69%	-0.36%	-0.13%	0.08%	0.23%
Dec	2.19%	1.97%	1.80%	1.52%	1.41%	1.45%	1.51%	1.80%	2.68%	3.18%	3.02%	3.28%	3.43%	3.62%	4.05%	4.21%	2.65%	1.89%	1.59%	1.59%	1.97%	1.98%	2.11%	2.25%

Select two years for the differences

IBR Ratio

Region

California

BA

All

Year

2025

Fuel Type

Multiple selections

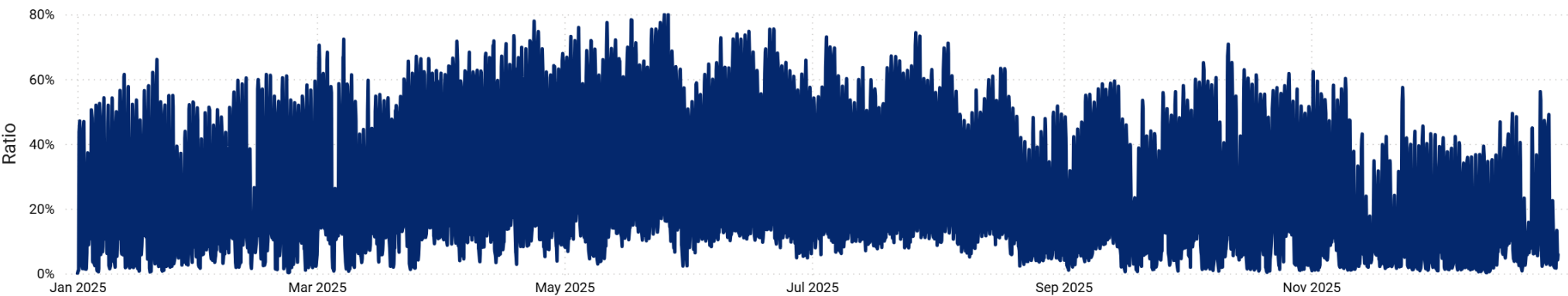
IBR/Demand Ratio by Month and Hour

Source: WECC Loads and Resources. Dashboard refreshed 6/1/2026.

Mth/Hr	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Jan	5.52%	5.57%	5.44%	5.27%	4.97%	4.57%	4.26%	11.94%	33.91%	45.16%	49.00%	50.43%	50.87%	50.27%	47.74%	37.44%	12.68%	4.77%	4.80%	5.20%	5.43%	5.53%	5.65%	5.65%
Feb	7.30%	7.45%	7.56%	7.50%	7.26%	6.68%	7.15%	21.76%	40.98%	47.82%	50.14%	51.41%	52.17%	50.89%	47.46%	41.98%	25.21%	7.95%	6.24%	6.18%	6.29%	6.38%	6.71%	7.20%
Mar	9.28%	9.24%	9.76%	9.72%	9.06%	8.35%	15.15%	35.41%	47.50%	51.59%	54.22%	55.00%	55.82%	55.08%	54.11%	50.25%	40.63%	17.22%	9.84%	9.56%	9.75%	9.77%	9.33%	9.06%
Apr	11.34%	11.33%	10.91%	10.36%	9.57%	11.95%	32.08%	51.08%	57.81%	61.85%	63.88%	65.29%	65.30%	65.22%	64.50%	61.22%	51.16%	25.83%	11.61%	10.50%	10.47%	10.68%	11.13%	11.32%
May	12.47%	12.73%	12.50%	11.88%	10.99%	19.98%	42.97%	56.17%	61.53%	64.89%	66.66%	67.09%	66.39%	65.73%	63.69%	59.27%	50.76%	32.16%	14.46%	11.05%	11.06%	11.62%	11.83%	12.32%
Jun	12.56%	12.70%	12.46%	11.94%	11.07%	22.50%	43.83%	53.78%	58.12%	61.48%	63.04%	63.98%	63.82%	62.73%	60.34%	56.46%	49.46%	34.06%	16.21%	10.57%	10.70%	11.15%	11.59%	12.25%
Jul	12.13%	12.23%	12.01%	11.48%	10.51%	17.56%	38.81%	50.70%	55.21%	57.73%	58.97%	59.75%	60.06%	59.02%	56.40%	52.27%	45.76%	31.82%	14.99%	10.18%	10.38%	11.00%	11.24%	11.79%
Aug	10.01%	10.05%	9.96%	9.58%	8.60%	10.39%	27.62%	41.96%	47.09%	49.23%	50.37%	50.79%	49.81%	47.75%	44.76%	40.58%	33.72%	20.05%	9.46%	8.18%	8.66%	9.04%	9.02%	9.69%
Sep	6.43%	6.34%	6.20%	5.94%	5.50%	5.22%	18.08%	36.37%	42.98%	45.85%	46.93%	47.12%	46.28%	45.14%	42.48%	38.01%	26.27%	10.35%	6.02%	6.07%	6.35%	6.46%	6.32%	6.42%
Oct	6.08%	6.02%	5.85%	5.93%	5.52%	4.88%	13.61%	37.98%	49.16%	53.37%	54.23%	54.85%	55.00%	54.00%	51.55%	42.98%	19.07%	6.56%	5.71%	5.92%	6.04%	6.20%	6.13%	6.28%
Nov	3.60%	3.66%	4.09%	4.43%	4.70%	4.24%	5.98%	22.42%	36.22%	40.55%	41.73%	42.13%	41.96%	40.53%	37.03%	23.97%	6.19%	3.81%	3.94%	3.95%	3.87%	3.74%	3.61%	3.70%
Dec	4.18%	4.29%	4.53%	4.60%	4.62%	4.36%	4.29%	13.00%	28.45%	34.68%	36.15%	37.03%	37.08%	36.49%	33.92%	21.47%	5.29%	3.65%	3.86%	4.15%	4.00%	3.88%	3.91%	4.10%

IBR/Demand Ratio by Datetime

Source: WECC Loads and Resources. Dashboard refreshed 6/1/2026.



- <https://wecc-sdpd-weccgeo.hub.arcgis.com/pages/electricity-generation>

IBR Ratio

Region

California

BA

All

Year

Multiple selections

Fuel Type

Multiple selections

IBR/Demand Ratio by Month and Hour

Source: WECC Loads and Resources. Dashboard refreshed 6/1/2026.

Mth/Hr	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Jan	5.65%	5.75%	5.76%	5.73%	5.53%	5.04%	4.64%	11.27%	29.96%	39.70%	43.15%	44.43%	44.74%	43.86%	41.13%	31.71%	11.31%	5.05%	5.01%	5.23%	5.39%	5.45%	5.58%	5.58%
Feb	6.70%	6.86%	7.05%	6.95%	6.77%	6.42%	6.64%	19.51%	37.32%	44.23%	46.84%	48.01%	48.37%	46.97%	43.86%	38.03%	21.85%	6.83%	5.45%	5.46%	5.61%	5.85%	6.19%	6.66%
Mar	9.56%	9.56%	9.91%	9.87%	9.25%	8.47%	14.97%	34.58%	46.17%	50.49%	53.25%	54.24%	54.64%	53.59%	51.84%	47.27%	36.95%	15.51%	9.28%	9.23%	9.43%	9.58%	9.49%	9.42%
Apr	11.30%	11.17%	10.75%	10.14%	9.32%	11.51%	30.92%	48.25%	55.02%	58.99%	61.00%	62.74%	63.06%	63.14%	62.39%	58.57%	48.83%	24.86%	11.07%	10.29%	10.35%	10.74%	11.17%	11.22%
May	13.85%	14.17%	14.00%	13.34%	12.23%	21.15%	43.46%	55.36%	60.19%	63.38%	65.19%	66.04%	65.97%	65.24%	63.30%	59.05%	50.72%	32.24%	14.41%	11.42%	11.70%	12.41%	12.94%	13.50%
Jun	12.56%	12.66%	12.42%	11.93%	11.10%	22.16%	42.50%	51.14%	55.16%	58.01%	59.53%	60.54%	60.48%	59.00%	56.28%	52.26%	45.67%	31.53%	15.03%	10.30%	10.57%	11.10%	11.67%	12.21%
Jul	10.45%	10.42%	10.16%	9.57%	8.67%	14.90%	33.87%	44.22%	48.29%	50.28%	51.22%	51.52%	50.79%	48.92%	46.21%	42.78%	37.33%	25.79%	11.98%	8.43%	8.71%	9.25%	9.62%	10.17%
Aug	9.56%	9.66%	9.48%	9.04%	8.26%	10.00%	27.14%	41.12%	45.91%	47.90%	48.87%	49.03%	48.07%	46.02%	43.11%	39.13%	32.39%	18.73%	8.65%	7.78%	8.16%	8.57%	8.81%	9.18%
Sep	6.99%	6.84%	6.63%	6.28%	5.72%	5.57%	19.27%	37.85%	44.07%	46.87%	47.84%	47.94%	47.02%	45.40%	42.24%	37.42%	25.38%	9.76%	6.09%	6.35%	6.69%	6.95%	6.98%	7.08%
Oct	6.24%	6.13%	6.05%	6.02%	5.64%	5.06%	13.33%	36.20%	46.05%	49.48%	50.51%	50.75%	50.28%	48.81%	45.51%	36.93%	16.07%	6.12%	5.75%	5.99%	5.99%	6.11%	6.19%	6.30%
Nov	5.00%	5.11%	5.33%	5.33%	5.27%	4.99%	7.31%	24.16%	38.10%	42.35%	43.63%	43.97%	43.73%	42.11%	38.02%	24.89%	7.24%	4.77%	4.75%	4.67%	4.68%	4.69%	4.69%	5.04%
Dec	4.45%	4.62%	4.92%	5.08%	5.11%	4.74%	4.68%	13.28%	28.36%	34.62%	36.68%	37.79%	38.22%	37.74%	34.60%	21.60%	5.99%	4.18%	4.28%	4.38%	4.21%	4.15%	4.16%	4.30%

Ratio Difference Between Selected Year(s)

Source: WECC Loads and Resources. Dashboard refreshed 6/1/2026.

Mth/Hr	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Jan	-0.26%	-0.37%	-0.63%	-0.93%	-1.12%	-0.95%	-0.77%	1.36%	8.08%	11.18%	11.93%	12.20%	12.47%	13.01%	13.37%	11.40%	2.72%	-0.56%	-0.44%	-0.06%	0.09%	0.16%	0.14%	0.14%
Feb	1.19%	1.16%	1.00%	1.08%	0.97%	0.52%	1.01%	4.45%	7.32%	7.25%	6.65%	6.84%	7.62%	7.85%	7.20%	7.86%	6.60%	2.19%	1.55%	1.41%	1.33%	1.03%	1.02%	1.06%
Mar	-0.57%	-0.65%	-0.31%	-0.29%	-0.39%	-0.23%	0.35%	1.68%	2.75%	2.27%	2.00%	1.59%	2.43%	3.08%	4.68%	6.10%	7.41%	3.45%	1.10%	0.65%	0.65%	0.38%	-0.31%	-0.73%
Apr	0.08%	0.33%	0.33%	0.45%	0.51%	0.88%	2.35%	5.80%	5.84%	6.01%	6.05%	5.33%	4.68%	4.32%	4.38%	5.47%	4.74%	1.98%	1.10%	0.43%	0.24%	-0.11%	-0.09%	0.20%
May	-2.84%	-2.95%	-3.07%	-2.97%	-2.50%	-2.37%	-1.00%	1.67%	2.78%	3.15%	3.09%	2.20%	0.89%	1.03%	0.81%	0.46%	0.08%	-0.17%	0.09%	-0.75%	-1.31%	-1.63%	-2.31%	-2.44%
Jun	-0.01%	0.09%	0.07%	0.03%	-0.05%	0.68%	2.68%	5.31%	5.96%	6.97%	7.04%	6.83%	6.61%	7.31%	7.95%	8.21%	7.42%	4.98%	2.33%	0.54%	0.26%	0.11%	-0.15%	0.08%
Jul	3.21%	3.45%	3.55%	3.66%	3.53%	5.12%	9.50%	12.44%	13.27%	14.19%	14.66%	15.41%	17.08%	18.39%	18.43%	17.20%	15.41%	11.11%	5.59%	3.27%	3.12%	3.31%	3.08%	3.09%
Aug	0.92%	0.78%	0.96%	1.08%	0.67%	0.79%	0.97%	1.68%	2.41%	2.71%	3.05%	3.55%	3.48%	3.45%	3.26%	2.88%	2.64%	2.63%	1.62%	0.80%	1.01%	0.94%	0.42%	1.03%
Sep	-1.13%	-1.02%	-0.87%	-0.69%	-0.45%	-0.70%	-2.39%	-3.01%	-2.20%	-2.10%	-1.89%	-1.70%	-1.52%	-0.52%	0.49%	1.17%	1.80%	1.20%	-0.15%	-0.56%	-0.68%	-1.02%	-1.34%	-1.34%
Oct	-0.31%	-0.22%	-0.40%	-0.18%	-0.24%	-0.35%	0.55%	3.48%	6.09%	7.63%	7.31%	8.02%	9.14%	9.95%	11.40%	11.29%	5.64%	0.84%	-0.08%	-0.14%	0.11%	0.17%	-0.13%	-0.04%
Nov	-2.78%	-2.86%	-2.45%	-1.78%	-1.12%	-1.46%	-2.60%	-3.42%	-3.75%	-3.63%	-3.89%	-3.76%	-3.65%	-3.25%	-2.03%	-1.87%	-2.12%	-1.92%	-1.61%	-1.42%	-1.61%	-1.90%	-2.14%	-2.65%
Dec	-0.55%	-0.67%	-0.80%	-0.96%	-0.97%	-0.77%	-0.79%	-0.56%	0.19%	0.12%	-1.10%	-1.56%	-2.34%	-2.57%	-1.40%	-0.27%	-1.41%	-1.05%	-0.85%	-0.47%	-0.43%	-0.55%	-0.50%	-0.41%

Select two years for the differences

Region

Southwest

BA

All

Year

2025

Fuel Type

Multiple selections

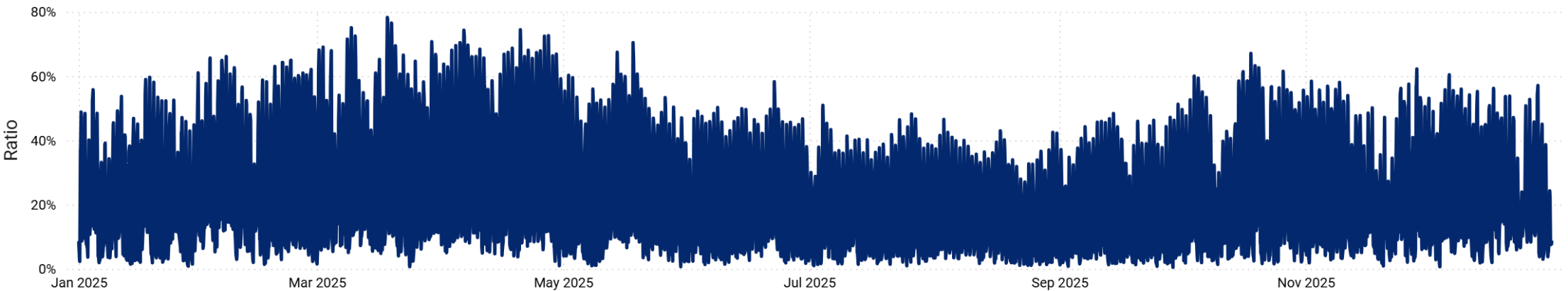
IBR/Demand Ratio by Month and Hour

Source: WECC Loads and Resources. Dashboard refreshed 6/1/2026.

Mth/Hr	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Jan	7.67%	7.84%	7.87%	7.56%	7.11%	6.50%	6.02%	9.28%	25.17%	37.90%	40.79%	42.09%	43.88%	45.99%	46.23%	39.40%	22.02%	10.23%	8.17%	7.98%	7.83%	7.84%	7.85%	7.93%
Feb	9.35%	9.65%	9.66%	9.52%	9.28%	8.78%	8.64%	18.30%	38.84%	50.09%	53.78%	55.34%	56.10%	56.31%	54.39%	49.11%	33.77%	15.52%	9.70%	9.49%	9.33%	9.25%	9.13%	8.98%
Mar	10.19%	10.40%	10.37%	10.62%	10.56%	10.11%	13.47%	31.63%	49.11%	55.81%	58.14%	58.64%	58.22%	57.86%	55.17%	49.52%	39.15%	20.72%	10.75%	8.81%	8.91%	9.20%	9.60%	9.99%
Apr	10.41%	10.53%	10.45%	10.51%	10.26%	11.61%	27.66%	50.39%	60.76%	64.60%	64.90%	62.95%	60.57%	57.65%	53.72%	47.89%	40.23%	25.58%	11.78%	8.20%	8.64%	9.19%	9.78%	10.18%
May	7.29%	7.36%	7.25%	6.83%	6.21%	11.89%	31.83%	45.58%	49.91%	51.12%	50.60%	48.71%	45.93%	43.38%	40.76%	37.47%	33.42%	24.70%	11.81%	6.61%	6.67%	7.27%	7.37%	7.24%
Jun	6.40%	6.08%	5.86%	5.28%	5.02%	12.53%	31.74%	43.24%	45.07%	44.85%	42.99%	40.43%	37.51%	34.96%	32.41%	30.72%	28.15%	22.62%	12.20%	5.82%	5.24%	5.66%	6.24%	6.55%
Jul	4.94%	4.88%	4.92%	4.91%	4.78%	8.81%	23.27%	34.89%	38.37%	38.67%	37.03%	35.01%	32.84%	30.87%	28.75%	27.03%	24.55%	19.58%	9.94%	4.68%	4.27%	4.54%	4.92%	5.02%
Aug	5.21%	5.49%	5.32%	5.05%	4.84%	6.14%	16.97%	30.77%	35.60%	35.97%	34.90%	32.99%	30.84%	28.85%	27.11%	25.09%	21.77%	14.83%	6.86%	3.93%	3.91%	4.32%	4.55%	4.76%
Sep	4.37%	4.25%	4.16%	3.98%	3.80%	3.84%	12.09%	29.66%	37.82%	40.02%	39.39%	37.48%	35.55%	33.52%	30.80%	28.11%	21.33%	10.09%	4.50%	4.15%	4.33%	4.50%	4.56%	4.57%
Oct	7.19%	7.20%	6.93%	6.50%	6.24%	5.89%	10.38%	31.93%	47.53%	50.53%	49.98%	49.12%	47.11%	45.66%	43.25%	36.87%	21.85%	9.43%	6.33%	6.58%	6.72%	6.94%	7.29%	7.35%
Nov	8.46%	8.36%	8.54%	8.48%	8.04%	7.54%	7.56%	19.53%	37.96%	44.29%	46.24%	45.89%	45.65%	45.46%	42.40%	31.99%	15.18%	7.76%	6.68%	6.74%	6.81%	6.92%	7.59%	8.29%
Dec	9.98%	10.01%	10.05%	9.90%	9.65%	8.97%	8.54%	13.20%	31.01%	41.64%	44.03%	45.18%	46.11%	47.24%	46.07%	34.49%	16.20%	8.85%	8.32%	8.30%	8.56%	8.70%	8.99%	9.51%

IBR/Demand Ratio by Datetime

Source: WECC Loads and Resources. Dashboard refreshed 6/1/2026.



- <https://wecc-spdp-weccgeo.hub.arcgis.com/pages/electricity-generation>

IBR Ratio

Region

Southwest

BA

All

Year

Multiple selections

Fuel Type

Multiple selections

IBR/Demand Ratio by Month and Hour

Source: WECC Loads and Resources. Dashboard refreshed 6/1/2026.

Mth/Hr	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Jan	7.62%	7.79%	7.72%	7.50%	7.27%	6.88%	6.94%	9.88%	22.27%	31.78%	34.69%	35.85%	37.16%	38.27%	37.88%	32.11%	18.69%	9.71%	8.57%	8.38%	7.28%	7.33%	7.47%	7.65%
Feb	9.94%	10.31%	10.27%	10.07%	9.81%	9.40%	10.04%	17.03%	32.59%	41.45%	44.96%	46.59%	47.45%	47.62%	45.83%	41.60%	28.93%	15.06%	11.06%	10.95%	9.29%	9.42%	9.44%	9.69%
Mar	10.98%	11.06%	10.95%	10.86%	10.46%	9.99%	13.18%	28.06%	42.99%	49.72%	52.51%	53.47%	53.31%	53.21%	50.72%	46.10%	36.29%	20.54%	12.92%	11.57%	9.66%	9.87%	10.26%	10.70%
Apr	10.76%	10.78%	10.69%	10.48%	10.00%	11.24%	25.40%	45.31%	53.66%	57.23%	57.60%	56.55%	55.08%	53.09%	49.77%	45.33%	38.58%	25.24%	13.78%	10.91%	9.06%	9.73%	10.20%	10.52%
May	8.36%	8.40%	8.27%	8.09%	7.53%	13.31%	31.50%	43.98%	47.93%	48.87%	48.28%	46.53%	43.91%	41.89%	39.45%	36.55%	32.75%	24.47%	13.43%	9.19%	7.51%	8.16%	8.33%	8.30%
Jun	6.61%	6.50%	6.34%	5.89%	5.68%	12.70%	28.93%	37.83%	39.47%	39.27%	37.84%	35.79%	33.26%	31.11%	29.11%	27.64%	25.40%	20.38%	11.77%	6.86%	5.26%	5.71%	6.26%	6.61%
Jul	4.72%	4.72%	4.68%	4.59%	4.45%	8.33%	21.18%	30.36%	33.40%	33.48%	32.14%	30.37%	28.37%	26.67%	25.03%	23.71%	21.67%	17.21%	9.69%	5.73%	4.37%	4.59%	4.80%	4.85%
Aug	4.86%	4.86%	4.57%	4.32%	4.10%	5.37%	15.82%	28.02%	32.34%	33.04%	32.18%	30.59%	28.78%	27.03%	25.58%	23.74%	20.63%	14.23%	7.39%	5.12%	4.11%	4.44%	4.54%	4.59%
Sep	4.82%	4.63%	4.52%	4.36%	4.19%	4.31%	12.63%	29.43%	36.69%	38.11%	37.00%	35.30%	33.39%	31.50%	29.26%	26.86%	20.75%	10.87%	6.32%	5.85%	4.82%	5.02%	5.08%	5.07%
Oct	7.50%	7.61%	7.44%	7.20%	7.03%	6.74%	10.85%	29.59%	42.10%	44.67%	44.04%	42.62%	41.17%	39.54%	37.31%	31.66%	19.18%	9.81%	7.64%	7.65%	6.55%	6.70%	6.96%	7.21%
Nov	9.78%	9.95%	10.10%	9.93%	9.53%	9.07%	9.61%	20.11%	37.29%	43.58%	45.37%	46.04%	46.49%	46.72%	43.79%	32.93%	16.35%	9.66%	9.12%	9.06%	8.03%	8.16%	8.75%	9.36%
Dec	10.22%	10.31%	10.25%	10.09%	9.81%	9.30%	8.96%	13.20%	29.84%	40.19%	42.64%	42.94%	43.61%	44.65%	43.31%	32.29%	15.68%	9.67%	9.58%	9.58%	8.80%	8.98%	9.39%	9.84%

Ratio Difference Between Selected Year(s)

Source: WECC Loads and Resources. Dashboard refreshed 6/1/2026.

Mth/Hr	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Jan	0.10%	0.10%	0.30%	0.11%	-0.34%	-0.79%	-1.94%	-1.28%	6.11%	12.83%	12.78%	13.05%	14.05%	16.19%	17.54%	15.25%	6.91%	1.08%	-0.83%	-0.83%	1.15%	1.07%	0.80%	0.59%
Feb	-1.20%	-1.35%	-1.24%	-1.11%	-1.06%	-1.24%	-2.83%	2.55%	12.58%	17.29%	17.73%	17.63%	17.52%	17.69%	17.53%	15.39%	9.92%	0.94%	-2.77%	-2.97%	0.08%	-0.35%	-0.63%	-1.45%
Mar	-1.65%	-1.40%	-1.22%	-0.50%	0.21%	0.25%	0.61%	7.48%	12.83%	12.85%	11.93%	10.99%	10.47%	9.95%	9.58%	7.38%	6.18%	0.39%	-4.65%	-5.89%	-1.60%	-1.42%	-1.38%	-1.50%
Apr	-0.74%	-0.53%	-0.51%	0.07%	0.55%	0.78%	4.72%	10.60%	14.88%	15.56%	15.43%	13.56%	11.66%	9.72%	8.42%	5.46%	3.53%	0.73%	-4.27%	-5.77%	-0.88%	-1.16%	-0.90%	-0.71%
May	-2.23%	-2.18%	-2.14%	-2.65%	-2.78%	-2.99%	0.69%	3.33%	4.19%	4.76%	4.91%	4.61%	4.25%	3.15%	2.77%	1.92%	1.42%	0.49%	-3.40%	-5.44%	-1.79%	-1.87%	-2.03%	-2.23%
Jun	-0.42%	-0.86%	-0.99%	-1.24%	-1.34%	-0.34%	5.71%	11.01%	11.43%	11.36%	10.47%	9.44%	8.67%	7.84%	6.75%	6.29%	5.63%	4.60%	0.88%	-2.14%	-0.03%	-0.12%	-0.04%	-0.12%
Jul	0.43%	0.32%	0.48%	0.64%	0.66%	0.97%	4.18%	9.08%	9.98%	10.39%	9.77%	9.26%	8.89%	8.35%	7.41%	6.62%	5.75%	4.74%	0.51%	-2.12%	-0.20%	-0.11%	0.25%	0.33%
Aug	0.74%	1.31%	1.56%	1.53%	1.55%	1.61%	2.40%	5.78%	6.83%	6.16%	5.71%	5.05%	4.33%	3.85%	3.23%	2.85%	2.42%	1.27%	-1.13%	-2.52%	-0.41%	-0.25%	0.03%	0.36%
Sep	-0.93%	-0.79%	-0.76%	-0.79%	-0.82%	-0.99%	-1.15%	0.50%	2.36%	3.95%	4.92%	4.48%	4.42%	4.11%	3.13%	2.52%	1.17%	-1.58%	-3.69%	-3.46%	-1.00%	-1.07%	-1.08%	-1.04%
Oct	-0.62%	-0.85%	-1.04%	-1.42%	-1.61%	-1.74%	-0.96%	4.83%	10.96%	11.73%	11.78%	12.78%	11.63%	11.93%	11.51%	10.07%	5.18%	-0.74%	-2.59%	-2.13%	0.33%	0.48%	0.68%	0.28%
Nov	-2.80%	-3.36%	-3.29%	-3.05%	-3.11%	-3.19%	-4.23%	-1.18%	1.38%	1.49%	1.83%	-0.33%	-1.83%	-2.74%	-3.05%	-2.08%	-2.58%	-4.14%	-5.28%	-4.98%	-2.61%	-2.63%	-2.48%	-2.27%
Dec	-0.50%	-0.62%	-0.42%	-0.38%	-0.33%	-0.69%	-0.87%	0.00%	2.43%	3.02%	2.89%	4.69%	5.22%	5.43%	5.78%	4.63%	1.10%	-1.73%	-2.66%	-2.68%	-0.50%	-0.59%	-0.85%	-0.68%

- <https://wecc-spdp-weccgeo.hub.arcgis.com/pages/electricity-generation>

IBR Ratio

Region

All

BA

PSCO

Year

2025

Fuel Type

Multiple selections

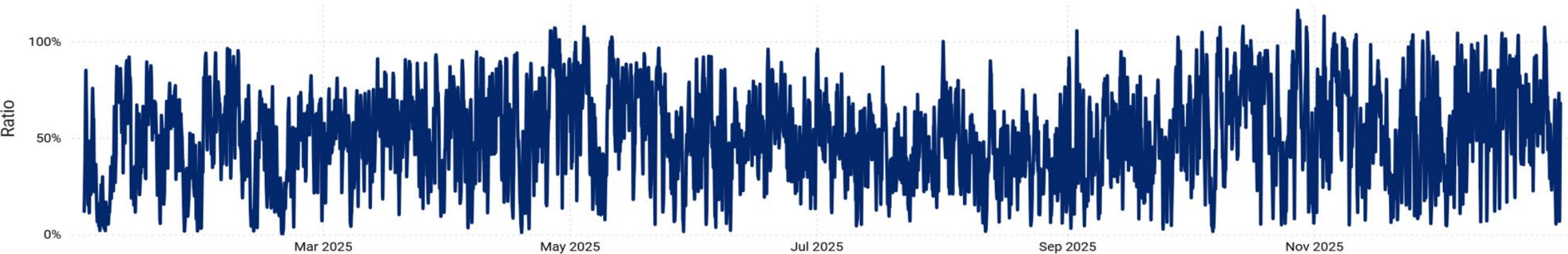
IBR/Demand Ratio by Month and Hour

Source: WECC Loads and Resources. Dashboard refreshed 6/1/2026.

Mth/Hr	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Jan	43.07%	44.19%	45.36%	45.53%	44.54%	43.81%	41.76%	40.15%	46.44%	49.66%	51.57%	51.70%	52.30%	52.35%	52.49%	47.43%	36.42%	32.50%	34.49%	36.05%	36.97%	37.92%	41.24%	44.41%
Feb	47.77%	47.64%	46.67%	45.27%	43.42%	40.38%	36.87%	40.36%	47.75%	50.99%	52.47%	53.10%	55.68%	56.23%	56.39%	56.36%	51.94%	40.79%	39.78%	39.87%	40.91%	42.78%	44.24%	45.37%
Mar	47.87%	48.79%	49.14%	48.19%	45.83%	42.65%	44.05%	53.83%	59.94%	65.34%	67.90%	67.79%	68.11%	67.64%	65.63%	61.65%	53.73%	40.67%	36.04%	37.01%	38.60%	41.27%	44.90%	47.11%
Apr	51.60%	51.17%	51.01%	48.64%	44.70%	43.62%	52.09%	58.24%	63.02%	67.11%	69.17%	70.14%	69.96%	70.14%	69.47%	67.85%	63.35%	53.41%	46.74%	46.29%	49.89%	53.64%	54.64%	53.50%
May	56.81%	55.39%	54.47%	53.96%	50.28%	50.48%	55.67%	59.52%	64.15%	65.98%	67.18%	67.26%	66.24%	64.60%	63.23%	62.02%	59.69%	54.15%	47.28%	49.68%	52.94%	54.47%	56.45%	56.14%
Jun	54.24%	56.46%	55.85%	53.49%	48.87%	52.18%	56.29%	57.15%	58.41%	58.85%	57.97%	56.00%	52.27%	49.22%	46.80%	45.42%	45.76%	43.41%	37.61%	36.59%	40.22%	45.95%	50.62%	53.23%
Jul	49.80%	47.90%	46.23%	43.65%	38.94%	41.22%	48.45%	50.99%	52.36%	51.51%	49.33%	46.92%	44.58%	42.65%	40.93%	39.08%	38.53%	37.62%	35.97%	38.06%	39.30%	41.14%	45.27%	47.80%
Aug	43.33%	43.29%	42.46%	43.50%	41.02%	39.53%	45.20%	47.43%	48.71%	49.89%	49.33%	47.42%	46.43%	43.73%	42.16%	39.53%	38.03%	34.47%	31.95%	33.29%	34.88%	37.16%	40.64%	42.03%
Sep	47.42%	49.35%	50.09%	47.98%	42.44%	39.43%	45.66%	54.51%	58.70%	60.35%	59.96%	58.56%	56.67%	54.15%	52.69%	49.09%	41.99%	33.02%	33.92%	37.55%	41.26%	43.35%	45.88%	48.18%
Oct	59.24%	60.36%	59.91%	59.53%	55.93%	51.53%	52.78%	63.85%	66.72%	69.95%	71.29%	71.58%	71.55%	71.86%	70.49%	67.13%	56.93%	52.64%	55.35%	56.87%	57.00%	55.57%	54.68%	55.38%
Nov	58.50%	61.67%	63.75%	63.89%	60.47%	55.89%	48.77%	51.70%	57.96%	61.42%	63.04%	65.66%	66.17%	65.28%	63.17%	53.52%	40.57%	39.09%	40.42%	43.74%	46.37%	49.27%	52.23%	56.18%
Dec	61.74%	62.21%	60.73%	59.05%	56.74%	53.59%	51.16%	51.51%	62.10%	66.73%	68.70%	72.93%	75.66%	74.30%	71.47%	59.44%	42.59%	38.74%	41.12%	42.70%	44.37%	48.56%	53.68%	59.40%

IBR/Demand Ratio by Datetime

Source: WECC Loads and Resources. Dashboard refreshed 6/1/2026.



IBR Ratio

Region

All

BA

PSCO

Year

Multiple selections

Fuel Type

Multiple selections

IBR/Demand Ratio by Month and Hour

Source: WECC Loads and Resources. Dashboard refreshed 6/1/2026.

Mth/Hr	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Jan	42.45%	43.59%	44.39%	44.38%	43.26%	42.03%	39.55%	38.20%	44.98%	48.26%	49.77%	50.52%	50.76%	50.64%	50.07%	44.79%	33.89%	30.06%	31.74%	33.29%	34.23%	36.17%	39.24%	42.01%
Feb	48.06%	48.96%	48.64%	47.80%	47.15%	44.34%	40.65%	43.63%	51.21%	54.13%	56.24%	57.83%	60.14%	59.55%	58.86%	57.91%	51.19%	40.40%	39.55%	40.57%	42.28%	43.55%	44.66%	45.83%
Mar	55.02%	54.21%	53.11%	51.01%	48.16%	44.80%	45.67%	54.72%	60.69%	64.23%	65.77%	65.64%	66.34%	66.51%	65.91%	62.72%	56.63%	45.73%	43.16%	45.65%	47.74%	50.12%	53.14%	54.49%
Apr	58.65%	58.01%	56.23%	53.50%	50.29%	48.84%	56.17%	62.55%	66.94%	70.20%	71.18%	70.97%	71.11%	70.63%	69.73%	67.50%	63.22%	54.63%	48.90%	49.76%	53.77%	56.34%	57.71%	57.92%
May	63.17%	62.62%	61.65%	61.20%	58.00%	58.27%	62.88%	66.21%	68.26%	68.89%	69.63%	69.60%	68.69%	67.03%	66.01%	65.02%	62.36%	58.03%	51.92%	52.92%	55.82%	59.47%	61.70%	62.62%
Jun	54.83%	55.92%	55.73%	53.98%	51.47%	54.55%	57.74%	58.82%	59.46%	58.28%	56.90%	54.96%	51.85%	49.38%	47.90%	46.81%	46.12%	44.55%	41.06%	40.27%	43.15%	48.50%	52.35%	54.13%
Jul	48.58%	47.70%	46.28%	44.11%	40.56%	42.17%	47.58%	49.94%	51.14%	50.47%	48.10%	45.55%	42.66%	39.69%	37.81%	36.30%	36.41%	35.53%	32.27%	34.49%	37.87%	41.13%	44.87%	46.65%
Aug	47.22%	46.14%	44.57%	43.76%	40.67%	39.80%	44.70%	47.10%	48.50%	49.45%	48.26%	45.85%	44.14%	41.43%	39.74%	38.73%	38.03%	35.98%	35.09%	37.41%	39.42%	41.58%	45.96%	47.57%
Sep	55.73%	56.10%	55.04%	53.09%	49.46%	45.94%	50.08%	56.43%	58.82%	60.05%	59.99%	58.75%	56.91%	53.97%	51.94%	49.22%	43.61%	37.02%	39.11%	44.10%	48.59%	52.12%	54.78%	56.25%
Oct	58.37%	58.41%	57.62%	56.67%	54.23%	51.59%	53.11%	62.97%	65.89%	68.89%	70.20%	70.11%	70.08%	70.20%	68.57%	65.61%	56.69%	53.56%	56.77%	58.24%	58.33%	57.63%	57.52%	57.68%
Nov	54.62%	55.99%	56.18%	55.68%	53.24%	49.86%	44.94%	49.53%	56.41%	59.70%	60.58%	62.40%	63.29%	62.86%	61.46%	53.62%	42.75%	40.35%	41.95%	44.27%	46.52%	47.96%	50.35%	52.51%
Dec	58.20%	59.17%	58.47%	56.84%	54.29%	50.70%	47.52%	47.33%	56.38%	59.17%	61.14%	63.69%	65.32%	65.49%	63.53%	53.81%	41.00%	38.59%	40.79%	42.08%	43.55%	46.88%	50.52%	55.31%

Ratio Difference Between Selected Year(s)

Source: WECC Loads and Resources. Dashboard refreshed 6/1/2026.

Mth/Hr	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Jan	1.27%	1.23%	2.00%	2.36%	2.63%	3.63%	4.53%	4.00%	3.00%	2.87%	3.71%	2.42%	3.15%	3.50%	4.95%	5.38%	5.15%	4.96%	5.61%	5.62%	5.62%	3.58%	4.11%
Feb	-0.59%	-2.69%	-3.99%	-5.16%	-7.57%	-8.00%	-7.63%	-6.57%	-6.91%	-6.26%	-7.50%	-9.42%	-8.89%	-6.62%	-4.92%	-3.10%	1.52%	0.78%	0.45%	-1.41%	-2.76%	-1.56%	-0.87%
Mar	-14.27%	-10.80%	-7.90%	-5.60%	-4.65%	-4.29%	-3.21%	-1.76%	-1.48%	2.18%	4.16%	4.21%	3.47%	2.21%	-0.57%	-2.12%	-5.74%	-10.08%	-14.20%	-17.22%	-18.24%	-17.65%	-16.45%
Apr	-14.24%	-13.82%	-10.55%	-9.82%	-11.29%	-10.53%	-8.17%	-8.57%	-7.77%	-6.10%	-3.96%	-1.63%	-2.26%	-0.99%	-0.52%	0.70%	0.27%	-2.45%	-4.33%	-6.98%	-7.82%	-5.45%	-6.20%
May	-12.75%	-14.48%	-14.39%	-14.48%	-15.46%	-15.58%	-14.42%	-13.36%	-8.19%	-5.79%	-4.91%	-4.71%	-4.94%	-4.91%	-5.63%	-6.08%	-5.40%	-7.83%	-9.34%	-6.51%	-5.81%	-10.06%	-10.56%
Jun	-1.17%	1.08%	0.24%	-0.98%	-5.18%	-4.70%	-2.85%	-3.26%	-2.03%	1.11%	2.06%	1.99%	0.82%	-0.30%	-2.10%	-2.67%	-0.68%	-2.22%	-6.75%	-7.21%	-5.76%	-5.00%	-3.41%
Jul	2.48%	0.41%	-0.09%	-0.93%	-3.28%	-1.93%	1.74%	2.09%	2.43%	2.08%	2.47%	2.77%	3.87%	5.98%	6.29%	5.57%	4.23%	4.14%	7.39%	7.16%	2.87%	0.02%	0.80%
Aug	-7.83%	-5.74%	-4.25%	-0.53%	0.69%	-0.53%	1.00%	0.64%	0.42%	0.86%	2.08%	3.08%	4.50%	4.51%	4.75%	1.58%	-0.00%	-2.98%	-6.28%	-8.27%	-9.12%	-8.90%	-10.71%
Sep	-16.47%	-13.42%	-9.86%	-10.21%	-14.03%	-13.08%	-8.80%	-3.77%	-0.24%	0.59%	-0.05%	-0.36%	-0.46%	0.34%	1.42%	-0.24%	-3.08%	-7.68%	-10.06%	-12.74%	-14.33%	-17.22%	-17.54%
Oct	1.76%	3.95%	4.64%	5.81%	3.46%	-0.12%	-0.67%	1.75%	1.62%	2.06%	2.13%	2.84%	2.84%	3.19%	3.69%	2.94%	0.47%	-1.83%	-2.82%	-2.74%	-2.67%	-4.13%	-5.72%
Nov	7.57%	11.05%	14.71%	15.97%	14.03%	11.70%	7.44%	4.18%	2.94%	3.26%	4.68%	6.19%	5.49%	4.64%	3.29%	-0.19%	-4.28%	-2.47%	-2.99%	-1.03%	-0.29%	2.57%	3.69%
Dec	7.06%	6.06%	4.49%	4.40%	4.86%	5.72%	7.19%	8.27%	11.24%	14.79%	14.79%	18.06%	20.17%	17.18%	15.54%	11.10%	3.13%	0.31%	0.66%	1.23%	1.61%	3.32%	6.27%

See
year
dif

- <https://wecc-spdp-weccgeo.hub.arcgis.com/pages/electricity-generation>

IBR Ratio

Region

All

BA

PNM

Year

2025

Fuel Type

Multiple selections

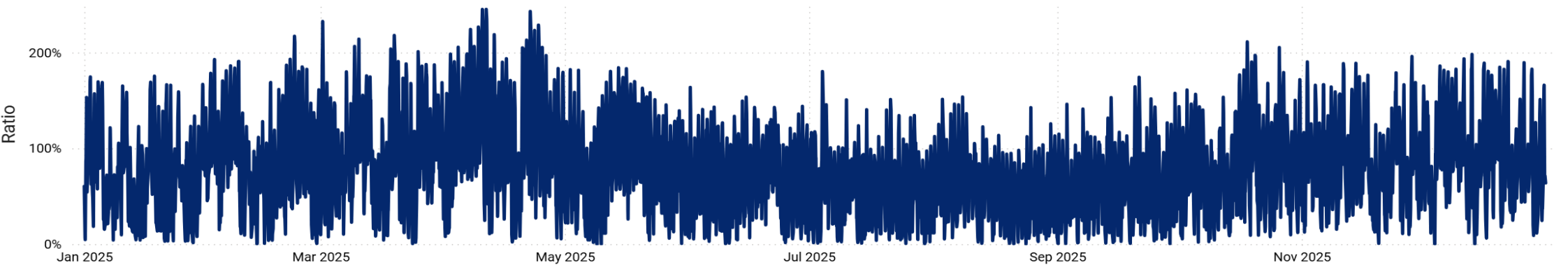
IBR/Demand Ratio by Month and Hour

Source: WECC Loads and Resources. Dashboard refreshed 6/1/2026.

Mth/Hr	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Jan	45.53%	47.35%	47.04%	43.98%	40.75%	37.62%	35.21%	38.06%	71.75%	98.27%	107.18%	110.85%	116.80%	124.72%	126.28%	117.60%	78.25%	51.69%	47.65%	45.95%	45.12%	46.05%	45.72%
Feb	49.73%	52.02%	54.20%	54.60%	53.71%	52.05%	49.54%	65.69%	105.71%	126.44%	134.07%	142.77%	147.12%	149.12%	145.88%	135.54%	104.77%	60.74%	52.56%	55.04%	53.42%	53.07%	51.53%
Mar	63.06%	64.57%	62.82%	63.51%	64.39%	62.02%	64.69%	102.74%	133.28%	143.47%	145.70%	147.25%	149.01%	145.49%	138.94%	125.26%	103.26%	66.81%	46.91%	45.52%	46.93%	50.51%	53.83%
Apr	70.31%	73.39%	73.53%	75.95%	74.61%	71.70%	104.89%	150.40%	167.72%	182.40%	186.81%	183.54%	174.15%	166.62%	156.49%	139.30%	124.34%	90.18%	54.50%	49.19%	55.05%	60.84%	65.84%
May	43.86%	44.20%	43.98%	41.69%	37.95%	44.35%	93.96%	118.68%	128.92%	135.76%	138.46%	133.04%	129.30%	125.64%	119.67%	110.99%	103.74%	83.38%	47.02%	38.34%	43.50%	47.99%	47.81%
Jun	38.90%	36.67%	35.43%	31.19%	30.16%	41.66%	86.65%	110.28%	115.48%	116.91%	114.90%	110.25%	102.77%	94.18%	90.44%	87.75%	85.00%	74.31%	46.79%	31.67%	32.60%	35.17%	39.87%
Jul	28.31%	27.38%	29.45%	32.26%	32.33%	35.52%	68.64%	98.06%	107.77%	107.53%	101.68%	95.61%	89.46%	81.99%	77.73%	72.93%	65.75%	58.48%	36.90%	25.28%	25.35%	26.54%	29.15%
Aug	38.18%	39.95%	38.79%	37.37%	35.79%	34.19%	58.59%	94.65%	105.77%	105.61%	98.93%	90.39%	83.02%	77.61%	71.98%	67.70%	61.39%	48.05%	30.00%	24.52%	25.77%	28.09%	30.33%
Sep	30.42%	29.76%	28.20%	26.94%	25.51%	22.21%	37.05%	83.85%	103.87%	111.79%	111.56%	106.94%	101.28%	95.76%	88.30%	82.41%	68.73%	35.80%	25.41%	29.33%	30.22%	31.81%	32.56%
Oct	53.96%	51.88%	49.45%	45.86%	43.26%	39.46%	45.40%	91.80%	124.43%	132.27%	133.64%	135.25%	131.09%	127.91%	121.81%	111.81%	75.31%	42.61%	44.10%	48.30%	50.80%	53.17%	56.12%
Nov	64.51%	63.73%	64.37%	63.44%	59.86%	55.76%	50.12%	69.98%	113.97%	127.84%	132.78%	132.00%	134.05%	136.21%	131.36%	109.60%	60.37%	46.83%	49.03%	51.95%	52.28%	52.93%	57.96%
Dec	70.43%	70.30%	70.07%	69.73%	68.64%	64.25%	61.23%	66.59%	106.37%	133.91%	141.30%	142.20%	146.21%	151.89%	148.11%	119.92%	66.83%	54.01%	56.46%	58.44%	59.40%	60.61%	62.86%

IBR/Demand Ratio by Datetime

Source: WECC Loads and Resources. Dashboard refreshed 6/1/2026.



- <https://wecc-spdp-weccgeo.hub.arcgis.com/pages/electricity-generation>

IBR Ratio

Region

All

BA

PNM

Year

Multiple selections

Fuel Type

Multiple selections

IBR/Demand Ratio by Month and Hour

Source: WECC Loads and Resources. Dashboard refreshed 6/1/2026.

Mth/Hr	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
Jan	46.89%	48.46%	48.01%	46.18%	44.73%	42.41%	40.04%	41.62%	65.34%	84.21%	92.70%	97.18%	101.48%	105.38%	105.53%	98.03%	67.91%	47.40%	44.58%	43.89%	42.97%	44.07%	44.92%	4
Feb	57.21%	59.63%	60.18%	59.56%	58.71%	57.15%	53.94%	64.26%	92.90%	108.27%	114.52%	120.05%	123.54%	124.72%	121.53%	114.14%	92.27%	59.43%	52.78%	54.70%	54.71%	56.07%	55.81%	5
Mar	67.80%	68.74%	67.28%	65.76%	63.15%	60.23%	61.96%	90.41%	114.42%	123.68%	126.85%	128.84%	129.85%	128.16%	123.26%	114.02%	98.19%	69.39%	53.47%	53.60%	55.22%	57.64%	61.31%	6
Apr	71.38%	72.36%	72.46%	72.34%	68.95%	64.75%	90.36%	126.19%	140.35%	151.85%	155.42%	154.21%	149.87%	146.62%	139.37%	127.78%	115.80%	86.66%	56.48%	52.85%	58.05%	64.47%	68.32%	6
May	53.47%	53.02%	52.75%	51.91%	48.65%	52.95%	91.63%	112.54%	121.35%	126.38%	127.76%	124.70%	121.29%	118.17%	113.48%	106.17%	98.77%	82.56%	52.90%	44.89%	49.39%	54.17%	54.95%	5
Jun	40.76%	40.47%	39.26%	36.09%	34.64%	42.99%	75.48%	93.47%	97.35%	98.55%	97.68%	95.40%	88.94%	82.28%	78.28%	75.52%	72.11%	64.87%	43.88%	32.36%	32.81%	35.85%	40.35%	4
Jul	29.60%	29.87%	30.22%	31.16%	30.13%	32.70%	61.53%	85.63%	93.49%	92.49%	87.34%	81.95%	76.13%	69.75%	66.33%	63.60%	58.63%	52.71%	37.15%	28.73%	29.12%	29.65%	31.26%	3
Aug	33.02%	32.47%	30.35%	28.70%	26.98%	25.83%	47.67%	79.49%	90.57%	91.71%	87.63%	81.42%	75.81%	71.34%	66.44%	61.43%	56.30%	43.79%	28.52%	26.00%	28.12%	30.14%	30.38%	3
Sep	32.63%	30.56%	28.78%	27.12%	25.90%	23.54%	38.56%	83.25%	101.98%	106.19%	104.69%	100.70%	96.02%	91.67%	86.15%	80.96%	69.78%	40.09%	30.08%	32.79%	35.12%	36.20%	36.15%	3
Oct	54.52%	54.07%	52.35%	49.54%	47.34%	44.15%	48.47%	89.74%	117.87%	124.31%	124.10%	122.74%	119.57%	115.64%	110.79%	101.17%	69.05%	42.30%	43.74%	46.91%	48.38%	49.81%	51.38%	5
Nov	63.14%	64.32%	65.88%	65.12%	61.98%	57.81%	52.17%	68.40%	107.13%	119.41%	124.06%	126.15%	129.69%	132.04%	128.30%	107.90%	62.31%	49.22%	50.30%	52.66%	52.50%	53.45%	57.27%	6
Dec	66.03%	66.50%	66.16%	65.34%	63.63%	60.53%	57.47%	62.07%	99.88%	124.21%	131.18%	132.06%	136.49%	141.34%	139.30%	113.83%	64.22%	52.62%	54.35%	55.70%	56.99%	58.26%	61.04%	6

Ratio Difference Between Selected Year(s)

Source: WECC Loads and Resources. Dashboard refreshed 6/1/2026.

Mth/Hr	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Jan	-2.81%	-2.29%	-2.02%	-4.55%	-8.23%	-9.89%	-9.97%	-7.35%	13.14%	28.67%	29.41%	27.72%	31.03%	39.26%	42.09%	39.72%	21.08%	8.76%	6.28%	4.20%	4.42%	4.07%	1.65%
Feb	-14.70%	-14.93%	-11.73%	-9.72%	-9.79%	-9.96%	-8.61%	2.79%	24.96%	35.29%	37.86%	43.98%	45.75%	47.44%	47.46%	41.95%	24.60%	2.56%	-0.44%	0.65%	-2.52%	-5.87%	-8.40%
Mar	-9.53%	-8.38%	-9.00%	-4.55%	2.50%	3.59%	5.49%	24.81%	38.00%	40.04%	38.27%	37.42%	38.94%	35.33%	32.05%	23.04%	10.38%	-5.24%	-13.27%	-16.33%	-16.74%	-14.41%	-15.13%
Apr	-2.17%	2.09%	2.16%	7.29%	11.41%	14.00%	29.21%	48.94%	55.44%	62.01%	64.09%	60.26%	50.47%	41.69%	35.70%	23.95%	17.74%	7.26%	-4.05%	-7.44%	-6.08%	-7.36%	-5.02%
May	-19.40%	-17.84%	-17.76%	-20.67%	-21.65%	-17.39%	4.68%	12.27%	15.09%	18.62%	21.31%	16.70%	16.07%	14.96%	12.42%	9.67%	9.94%	1.63%	-11.80%	-13.17%	-11.82%	-12.44%	-14.48%
Jun	-3.75%	-7.66%	-7.71%	-9.88%	-9.03%	-2.67%	22.34%	33.58%	36.06%	36.51%	34.21%	29.57%	27.63%	23.83%	24.31%	24.36%	25.72%	18.91%	5.86%	-1.39%	-0.43%	-1.38%	-0.96%
Jul	-2.63%	-5.09%	-1.58%	2.26%	4.51%	5.78%	14.53%	25.34%	29.08%	30.59%	29.09%	27.65%	26.95%	24.67%	22.87%	18.65%	14.25%	11.56%	-0.50%	-6.99%	-7.64%	-6.32%	-4.31%
Aug	10.50%	15.19%	17.15%	17.63%	17.88%	16.91%	22.03%	30.48%	30.55%	27.94%	22.74%	18.10%	14.54%	12.62%	11.15%	12.63%	10.25%	8.62%	3.00%	-2.98%	-4.75%	-4.17%	-0.11%
Sep	-4.39%	-1.59%	-1.15%	-0.35%	-0.77%	-2.63%	-3.00%	1.20%	3.77%	11.11%	13.60%	12.34%	10.39%	8.07%	4.21%	2.84%	-2.05%	-8.34%	-9.10%	-6.79%	-9.64%	-8.68%	-7.14%
Oct	-1.11%	-4.34%	-5.77%	-7.31%	-8.13%	-9.34%	-6.10%	4.10%	13.00%	15.70%	18.70%	24.48%	22.52%	23.87%	21.29%	20.53%	12.11%	0.60%	0.72%	2.74%	4.80%	6.68%	9.43%
Nov	2.66%	-1.15%	-2.93%	-3.28%	-4.11%	-4.00%	-3.97%	3.05%	13.20%	16.33%	16.99%	11.43%	8.54%	8.21%	6.03%	3.36%	-3.81%	-4.65%	-2.47%	-1.38%	-0.43%	-1.03%	1.36%
Dec	8.69%	7.49%	7.69%	8.62%	9.86%	7.32%	7.37%	8.85%	12.79%	19.11%	19.97%	20.03%	19.28%	20.89%	17.48%	12.08%	5.16%	2.74%	4.15%	5.41%	4.76%	4.64%	3.59%

Select two years for the differences

IBR Ratio

Region

All

BA

NEVP

Year

2025

Fuel Type

Multiple selections

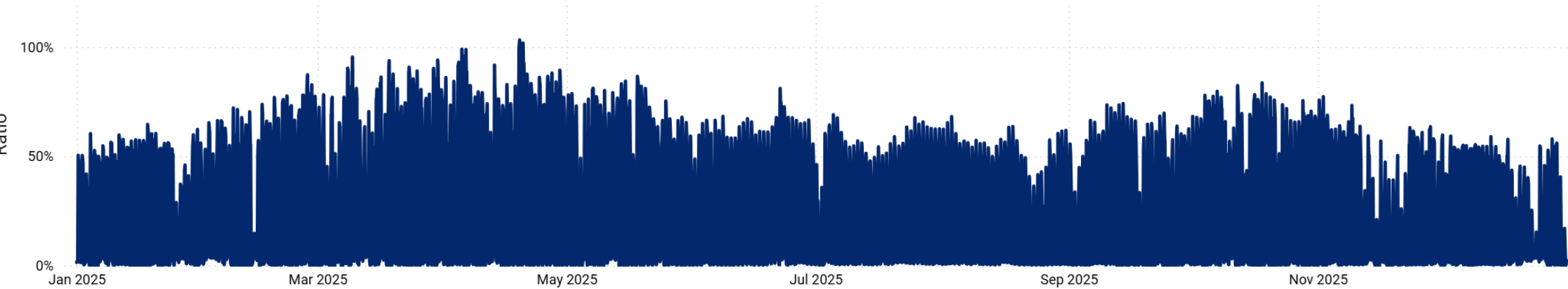
BR/Demand Ratio by Month and Hour

Source: WECC Loads and Resources. Dashboard refreshed 6/1/2026.

Mth/Hr	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Jan	1.25%	1.25%	1.22%	1.36%	1.28%	1.22%	1.21%	11.91%	41.04%	51.96%	49.01%	47.45%	48.39%	49.19%	48.26%	32.82%	5.98%	1.47%	1.31%	1.41%	1.45%	1.24%	1.34%	1.36%
Feb	1.33%	1.34%	1.36%	1.37%	1.31%	1.43%	2.93%	27.77%	57.03%	63.12%	62.98%	61.35%	61.28%	61.37%	58.60%	50.65%	19.77%	1.88%	1.36%	1.48%	1.53%	1.51%	1.33%	1.27%
Mar	0.96%	1.01%	1.10%	1.21%	1.17%	1.24%	13.71%	46.84%	63.91%	68.01%	69.77%	69.09%	66.92%	68.94%	66.83%	60.28%	37.44%	6.66%	1.71%	1.58%	1.41%	1.48%	1.25%	1.14%
Apr	0.73%	0.78%	0.77%	0.57%	0.64%	7.51%	46.18%	74.37%	78.73%	77.64%	77.53%	75.01%	73.73%	71.43%	68.55%	61.72%	45.47%	14.41%	1.81%	1.28%	1.12%	1.24%	1.04%	0.74%
May	0.67%	0.73%	0.79%	0.79%	1.31%	21.08%	56.06%	65.08%	67.11%	67.78%	66.51%	65.19%	60.95%	56.50%	53.57%	49.26%	39.93%	20.31%	3.61%	1.72%	0.80%	0.96%	0.79%	0.73%
Jun	0.77%	0.73%	0.81%	0.73%	1.98%	25.88%	56.98%	61.96%	61.09%	60.49%	58.93%	55.95%	52.36%	48.95%	43.80%	41.18%	34.20%	21.31%	5.10%	1.17%	1.13%	1.16%	1.15%	0.94%
Jul	1.00%	0.95%	1.02%	0.96%	1.27%	17.13%	47.80%	55.47%	55.00%	54.43%	52.47%	49.93%	47.11%	44.45%	40.13%	37.31%	33.09%	20.71%	4.36%	1.10%	1.15%	1.42%	1.28%	1.27%
Aug	0.83%	0.83%	0.78%	0.76%	0.84%	7.34%	35.12%	52.13%	52.48%	51.25%	49.77%	47.17%	44.34%	40.25%	36.74%	33.89%	27.44%	11.73%	1.78%	1.07%	0.86%	1.15%	1.10%	1.12%
Sep	0.66%	0.59%	0.53%	0.49%	0.53%	2.04%	26.97%	54.35%	55.99%	56.80%	56.00%	53.66%	51.76%	47.95%	42.31%	38.14%	20.92%	3.49%	0.77%	0.73%	0.84%	0.90%	0.81%	0.79%
Oct	0.83%	0.87%	0.83%	0.83%	0.83%	0.84%	15.92%	55.31%	68.17%	65.59%	62.93%	62.05%	61.45%	60.87%	58.19%	41.46%	10.12%	1.42%	1.17%	1.41%	1.25%	1.23%	1.08%	0.91%
Nov	0.85%	0.84%	0.87%	0.95%	1.01%	1.05%	3.77%	28.09%	45.70%	47.35%	48.13%	47.97%	47.99%	48.12%	43.94%	20.95%	2.40%	1.23%	1.19%	1.19%	1.23%	1.02%	0.87%	0.82%
Dec	1.38%	1.32%	1.38%	1.31%	1.23%	1.27%	1.35%	13.60%	37.86%	44.53%	42.76%	42.53%	43.44%	44.45%	43.05%	19.00%	2.07%	1.30%	1.37%	1.22%	1.34%	1.39%	1.27%	1.32%

BR/Demand Ratio by Datetime

Source: WECC Loads and Resources. Dashboard refreshed 6/1/2026.



IBR Ratio

Region

All

BA

NEVP

Year

Multiple selections

Fuel Type

Multiple selections

IBR/Demand Ratio by Month and Hour

Source: WECC Loads and Resources. Dashboard refreshed 6/1/2026.

Mth/Hr	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Jan	1.09%	1.07%	1.00%	1.09%	1.09%	1.06%	1.06%	9.29%	31.93%	41.12%	40.90%	39.92%	40.46%	40.85%	39.31%	25.86%	4.75%	1.24%	1.25%	1.30%	1.25%	1.10%	1.12%	1.17%
Feb	1.30%	1.28%	1.26%	1.34%	1.31%	1.29%	2.40%	21.09%	43.63%	50.31%	51.71%	51.54%	51.61%	51.31%	48.65%	41.62%	16.20%	1.83%	1.30%	1.30%	1.32%	1.35%	1.31%	1.29%
Mar	1.25%	1.27%	1.36%	1.44%	1.47%	1.49%	12.42%	41.09%	57.02%	63.54%	66.23%	66.35%	64.79%	65.81%	62.48%	55.58%	32.78%	5.86%	1.71%	1.73%	1.69%	1.71%	1.39%	1.22%
Apr	0.86%	0.83%	0.83%	0.71%	0.74%	7.47%	43.20%	67.96%	72.26%	72.86%	72.68%	71.41%	70.12%	67.88%	64.33%	59.11%	44.38%	14.57%	2.14%	1.71%	1.70%	1.70%	1.26%	0.95%
May	0.96%	0.99%	1.01%	1.02%	1.59%	22.32%	57.89%	67.33%	69.56%	69.49%	67.56%	65.71%	62.07%	58.74%	55.49%	50.89%	41.79%	20.97%	3.62%	1.74%	1.34%	1.41%	1.27%	1.09%
Jun	0.90%	0.80%	0.83%	0.79%	1.99%	25.37%	54.56%	59.51%	58.83%	57.64%	55.57%	52.65%	48.88%	45.46%	41.60%	38.95%	33.47%	20.85%	5.05%	1.35%	1.30%	1.36%	1.22%	1.06%
Jul	0.78%	0.73%	0.76%	0.74%	1.09%	15.82%	43.56%	51.15%	51.79%	50.69%	48.33%	45.64%	42.29%	39.61%	36.10%	33.54%	29.46%	18.15%	3.91%	1.06%	0.99%	1.21%	1.01%	0.98%
Aug	0.84%	0.83%	0.82%	0.81%	0.87%	6.80%	34.67%	50.85%	50.84%	50.23%	48.85%	46.50%	43.83%	40.20%	37.20%	34.06%	27.04%	11.90%	1.96%	1.18%	1.01%	1.24%	1.12%	1.03%
Sep	0.68%	0.59%	0.57%	0.56%	0.58%	2.00%	27.14%	54.77%	56.38%	56.17%	54.78%	52.71%	50.83%	47.22%	41.91%	37.16%	20.62%	3.62%	1.11%	1.03%	1.05%	1.10%	1.04%	0.88%
Oct	0.91%	0.91%	0.89%	0.84%	0.90%	0.92%	15.00%	52.36%	62.97%	60.88%	58.76%	57.10%	57.34%	55.76%	51.96%	36.55%	9.45%	1.41%	1.23%	1.41%	1.31%	1.24%	1.13%	0.99%
Nov	0.99%	0.98%	1.05%	1.09%	1.11%	1.07%	3.65%	28.46%	49.10%	51.07%	50.57%	50.88%	51.31%	51.44%	47.47%	23.35%	3.00%	1.68%	1.48%	1.34%	1.38%	1.22%	1.12%	1.02%
Dec	1.17%	1.18%	1.19%	1.13%	1.04%	1.07%	1.18%	13.21%	37.95%	45.51%	43.77%	42.42%	43.24%	44.20%	41.54%	18.83%	1.96%	1.35%	1.28%	1.17%	1.24%	1.23%	1.15%	1.15%

Ratio Difference Between Selected Year(s)

Source: WECC Loads and Resources. Dashboard refreshed 6/1/2026.

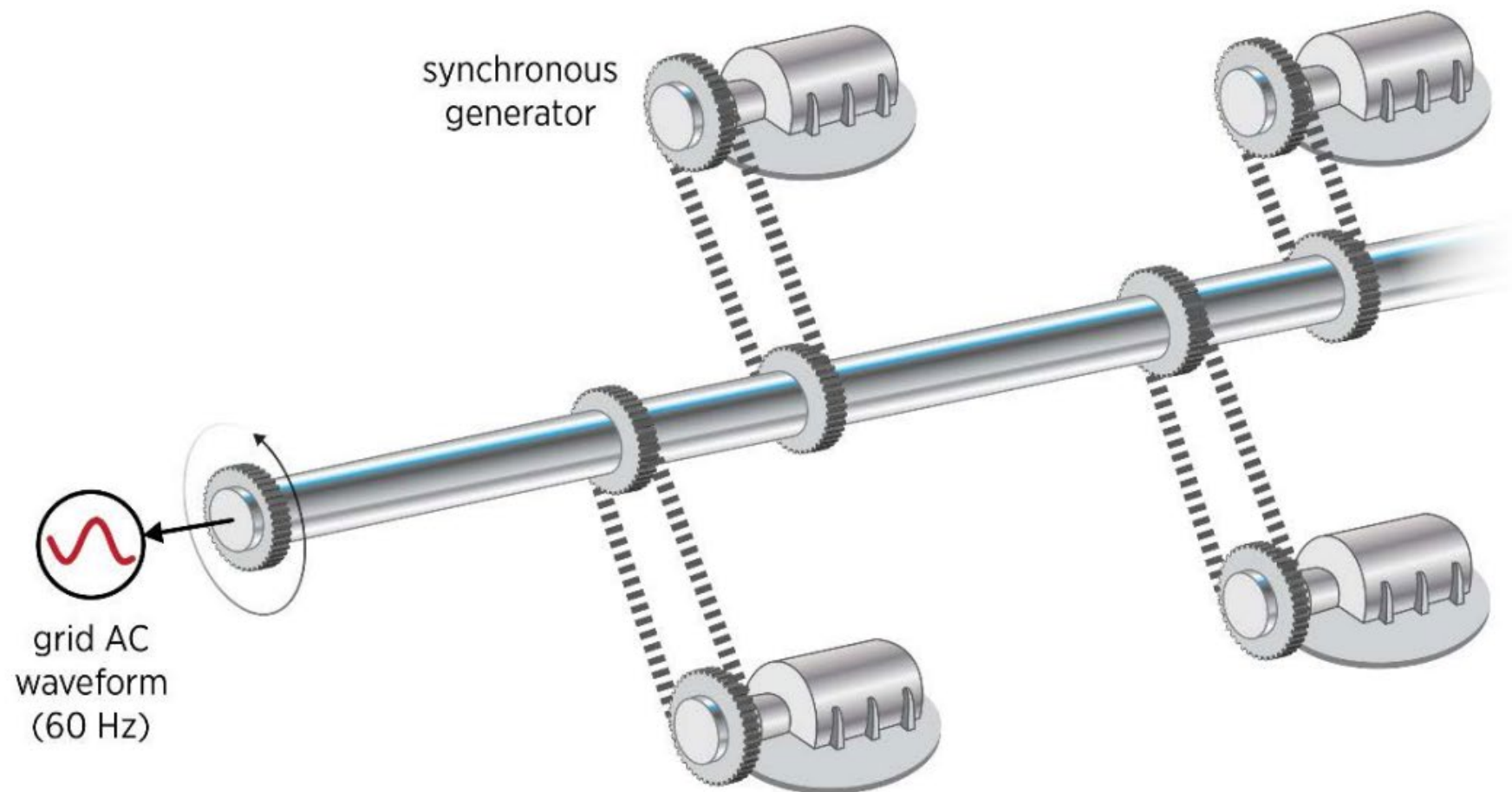
Mth/Hr	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Jan	0.31%	0.36%	0.44%	0.54%	0.36%	0.31%	0.30%	5.28%	18.32%	21.77%	16.65%	15.51%	16.42%	17.42%	18.76%	14.33%	2.43%	0.46%	0.11%	0.22%	0.41%	0.27%	0.44%	0.39%
Feb	0.07%	0.11%	0.19%	0.06%	-0.00%	0.26%	1.02%	12.95%	26.03%	25.14%	22.40%	19.60%	19.42%	20.19%	20.09%	18.01%	7.02%	0.12%	0.13%	0.34%	0.41%	0.32%	0.05%	-0.05%
Mar	-0.59%	-0.51%	-0.52%	-0.45%	-0.60%	-0.49%	2.57%	11.59%	14.02%	9.25%	7.37%	5.71%	4.40%	6.43%	9.03%	9.61%	9.47%	1.64%	0.02%	-0.31%	-0.58%	-0.45%	-0.29%	-0.17%
Apr	-0.26%	-0.11%	-0.11%	-0.29%	-0.21%	0.08%	5.96%	12.65%	12.97%	9.80%	9.87%	7.32%	7.26%	7.11%	8.40%	5.22%	2.19%	-0.31%	-0.68%	-0.91%	-1.21%	-0.95%	-0.47%	-0.43%
May	-0.58%	-0.51%	-0.43%	-0.46%	-0.56%	-2.52%	-3.67%	-4.51%	-5.03%	-3.49%	-2.13%	-1.05%	-2.26%	-4.48%	-3.84%	-3.26%	-3.75%	-1.33%	-0.02%	-0.03%	-1.12%	-0.93%	-0.99%	-0.73%
Jun	-0.26%	-0.14%	-0.04%	-0.10%	-0.03%	1.00%	4.66%	4.77%	4.45%	5.59%	6.53%	6.38%	6.72%	6.71%	4.27%	4.29%	1.43%	0.91%	0.11%	-0.36%	-0.33%	-0.40%	-0.13%	-0.24%
Jul	0.42%	0.42%	0.50%	0.42%	0.34%	2.51%	7.98%	8.22%	6.17%	7.14%	7.87%	8.12%	9.03%	9.07%	7.61%	7.09%	6.88%	4.85%	0.86%	0.06%	0.31%	0.40%	0.53%	0.57%
Aug	-0.02%	-0.01%	-0.07%	-0.10%	-0.06%	1.08%	0.89%	2.56%	3.27%	2.06%	1.85%	1.33%	1.04%	0.10%	-0.94%	-0.33%	0.82%	-0.33%	-0.36%	-0.21%	-0.30%	-0.20%	-0.05%	0.18%
Sep	-0.04%	-0.00%	-0.08%	-0.13%	-0.10%	0.08%	-0.36%	-0.84%	-0.77%	1.25%	2.41%	1.85%	1.80%	1.43%	0.79%	1.89%	0.57%	-0.26%	-0.67%	-0.59%	-0.43%	-0.40%	-0.46%	-0.19%
Oct	-0.16%	-0.09%	-0.11%	-0.03%	-0.14%	-0.16%	1.84%	5.83%	9.94%	8.99%	7.95%	9.36%	7.79%	9.61%	11.57%	9.05%	1.25%	0.04%	-0.11%	0.00%	-0.12%	-0.03%	-0.10%	-0.16%
Nov	-0.28%	-0.29%	-0.36%	-0.27%	-0.20%	-0.05%	0.23%	-0.76%	-6.97%	-7.53%	-4.90%	-5.90%	-6.74%	-6.74%	-7.16%	-5.02%	-1.26%	-0.94%	-0.62%	-0.31%	-0.31%	-0.41%	-0.53%	-0.40%
Dec	0.42%	0.28%	0.39%	0.37%	0.38%	0.39%	0.33%	0.78%	-0.20%	-1.99%	-2.02%	0.22%	0.40%	0.49%	2.98%	0.34%	0.24%	-0.10%	0.19%	0.09%	0.21%	0.32%	0.25%	0.34%

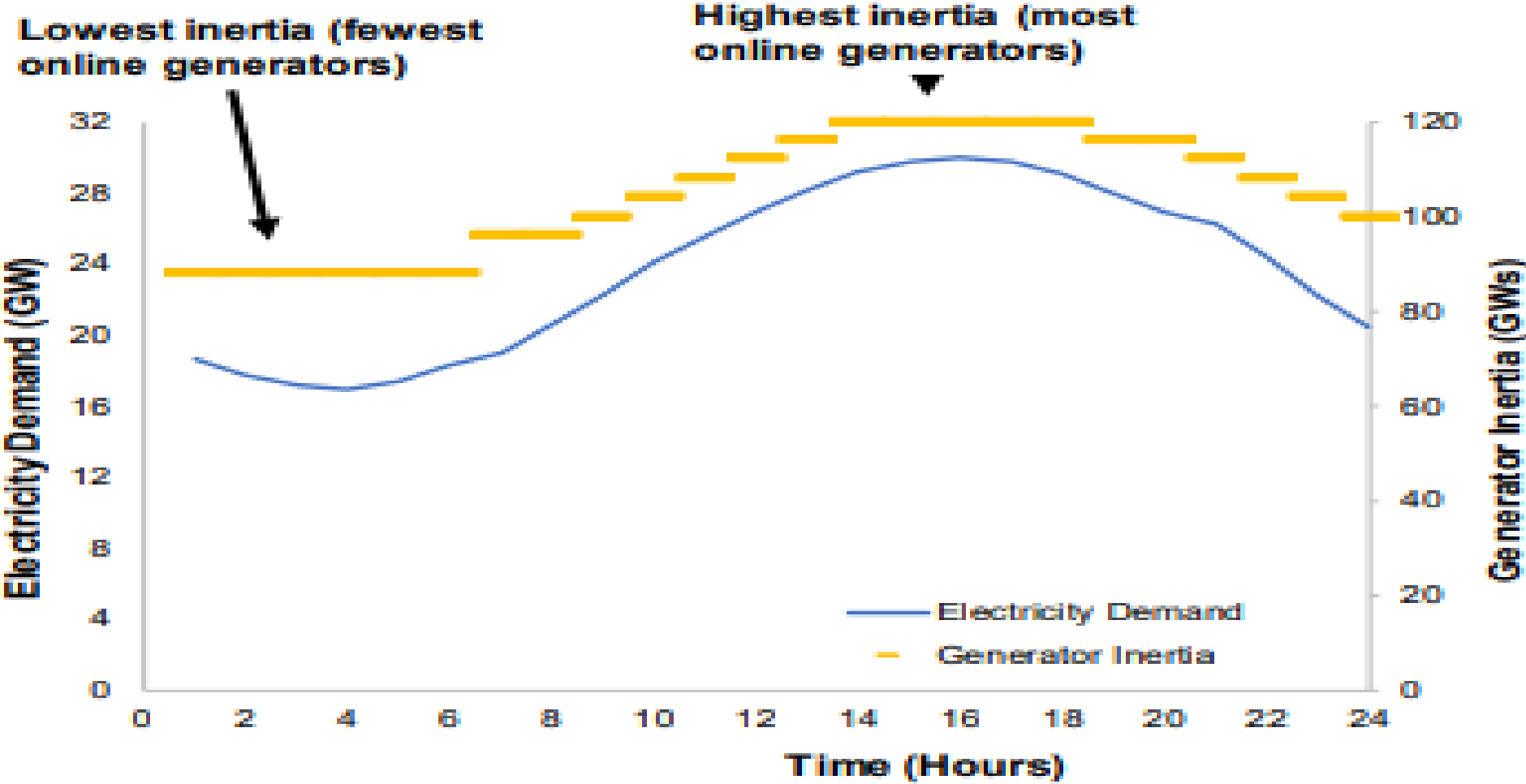
- <https://wecc-sdpd-weccgeo.hub.arcgis.com/pages/electricity-generation>



Interconnection Inertia

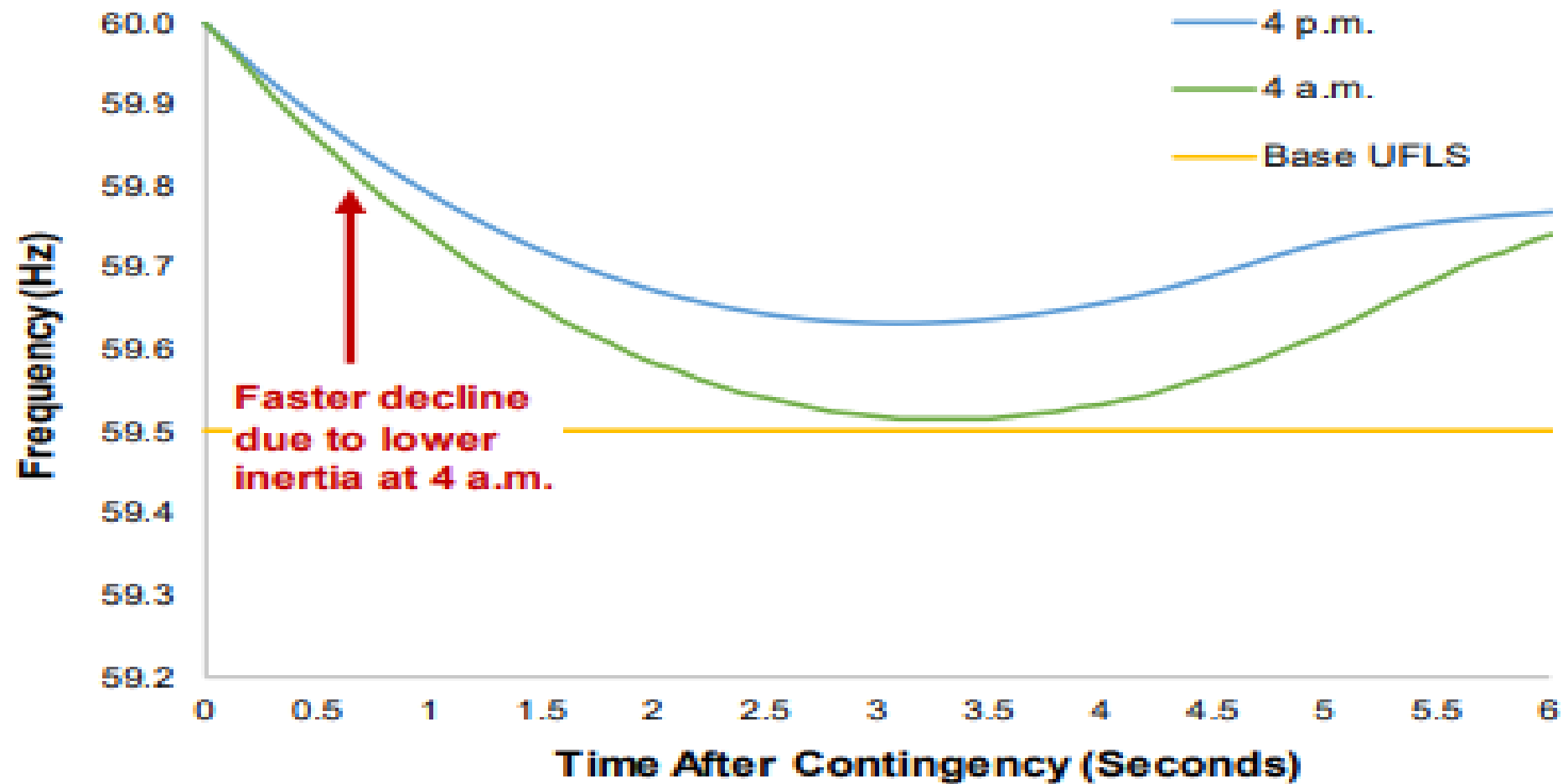
Interconnection Inertia



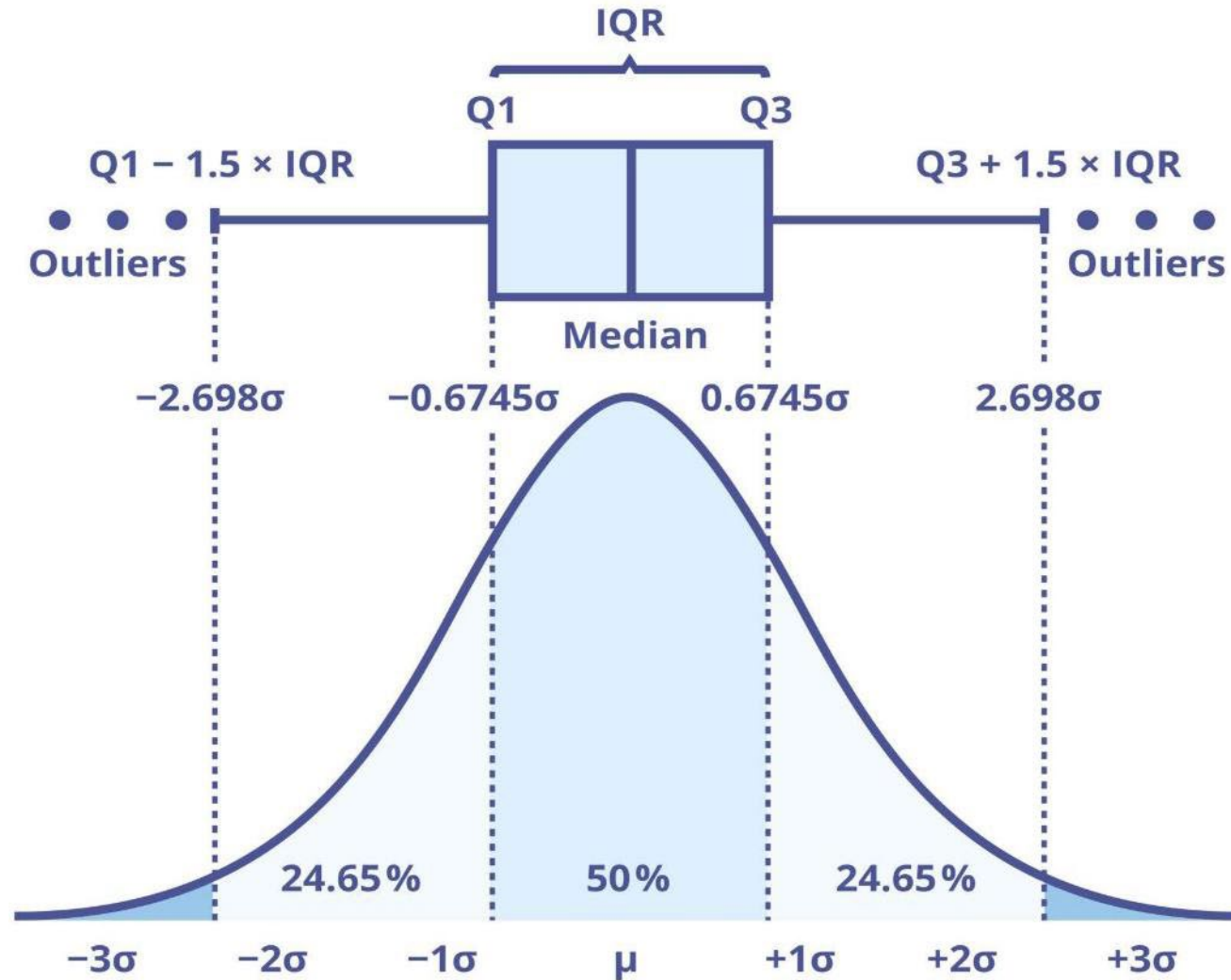


a) Load and inertia

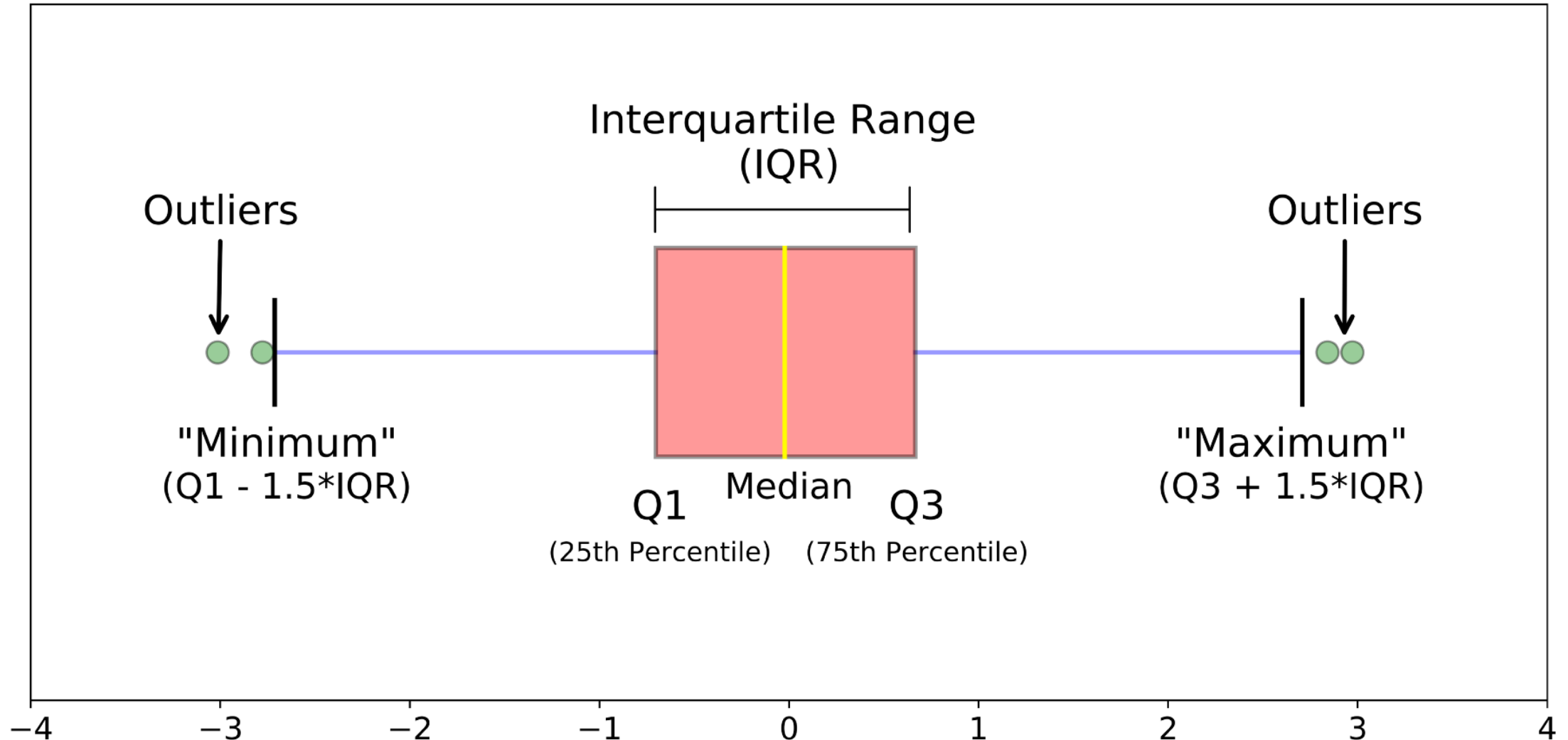
Interconnection Inertia



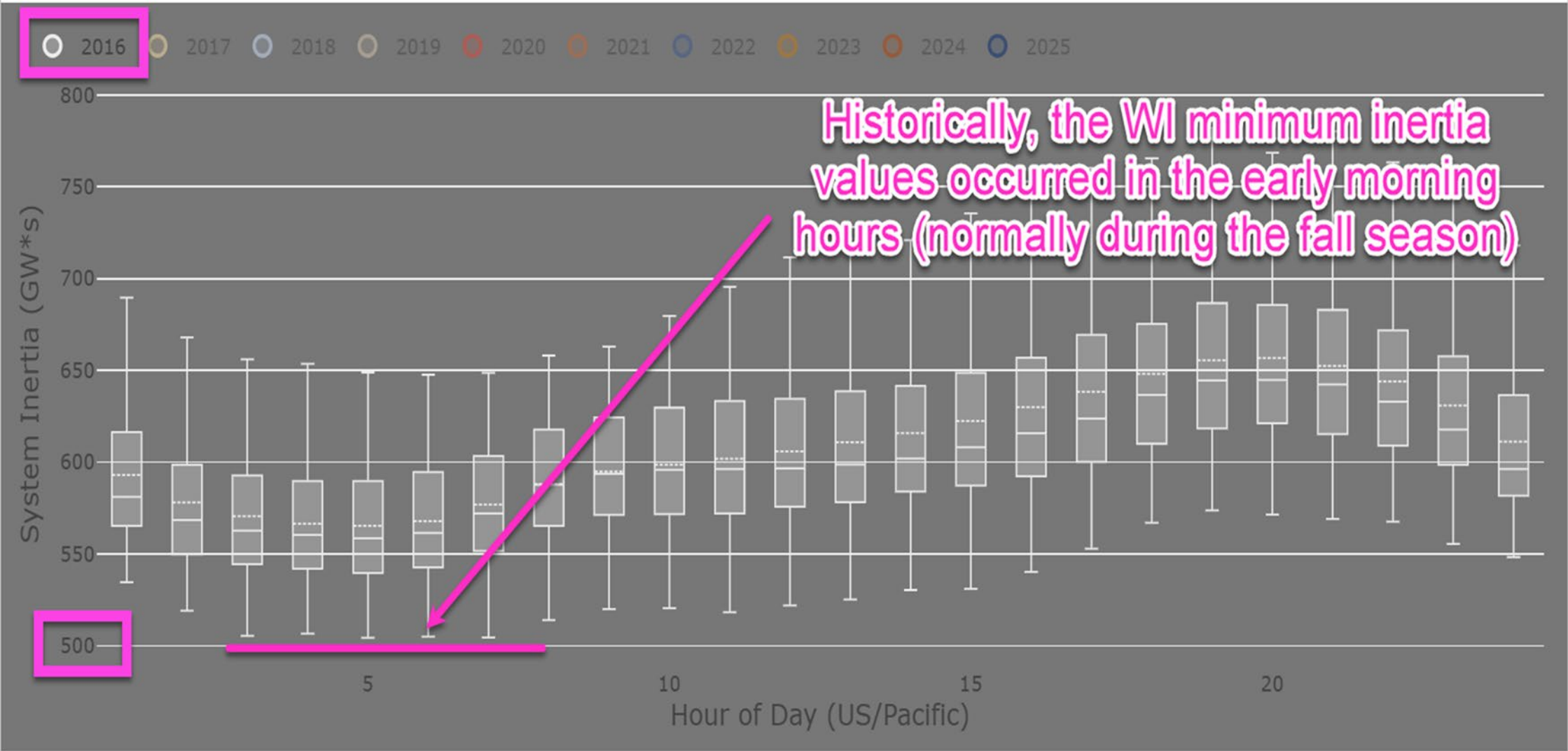
Box and Whisker Plot for the Standard Normal Distribution



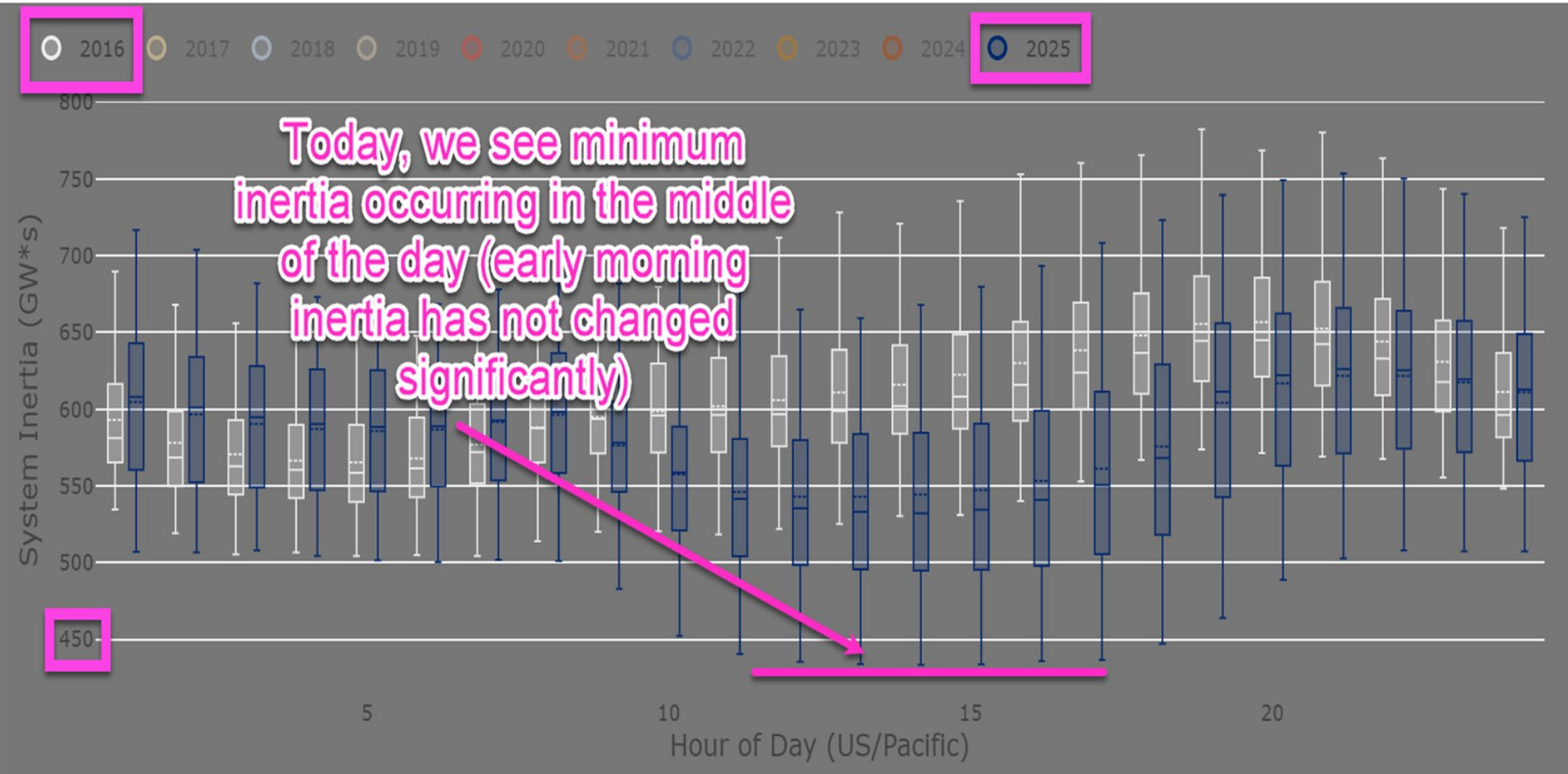
Interpreting a "Box and Whisker" plot



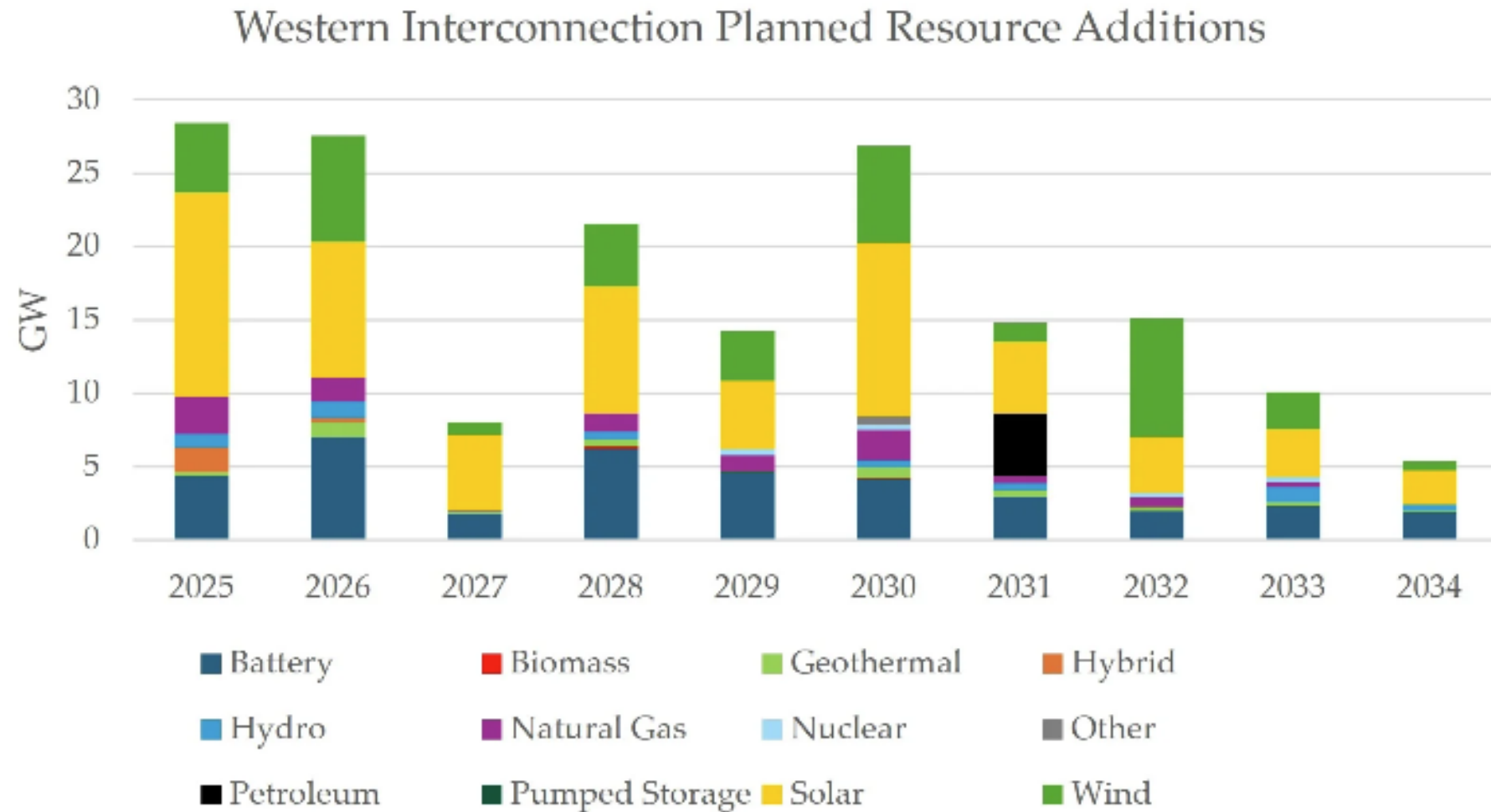
Interconnection Inertia – 2016



Interconnection Inertia – 2025

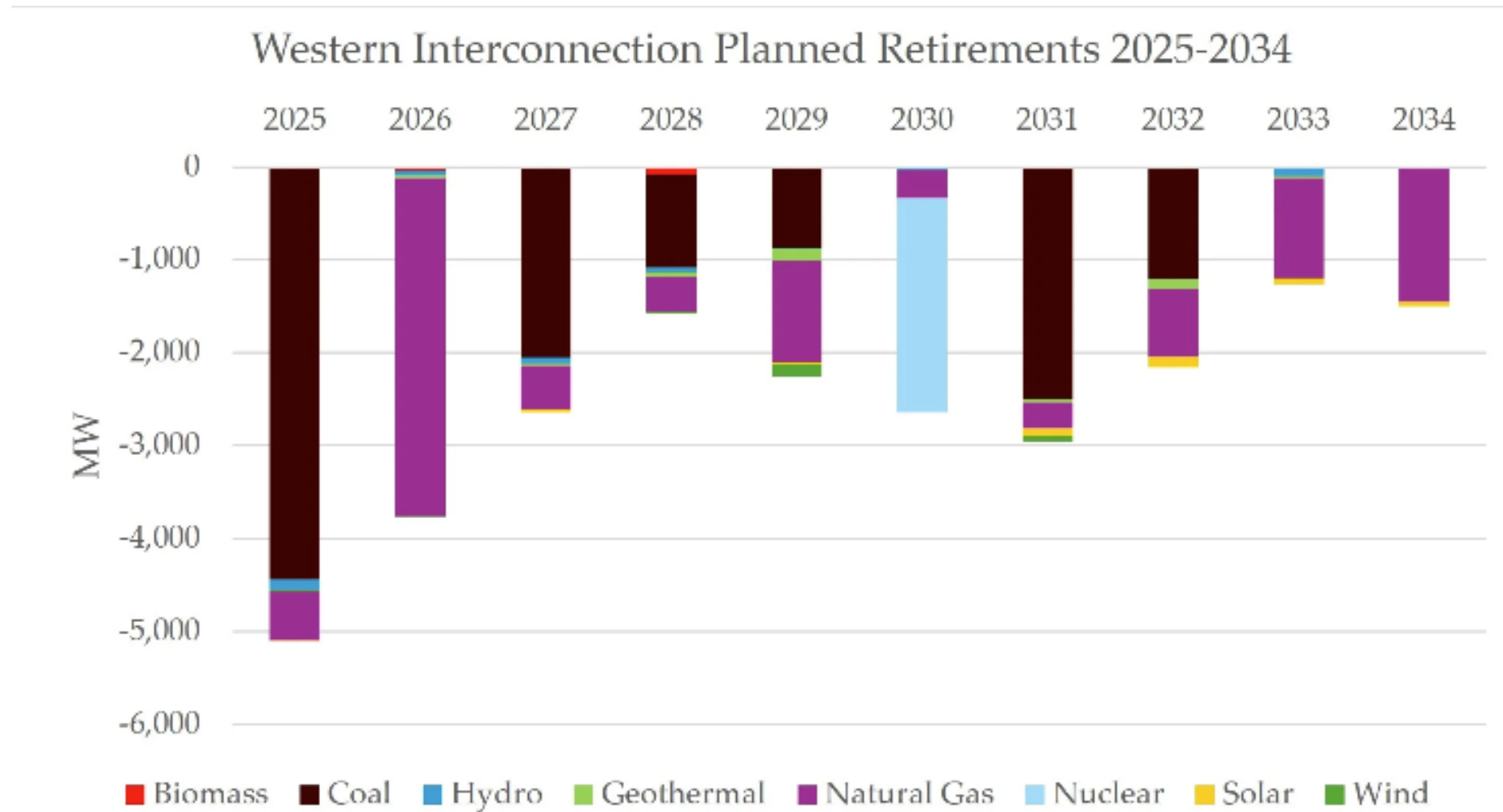


Grid Transformation—Resource Additions



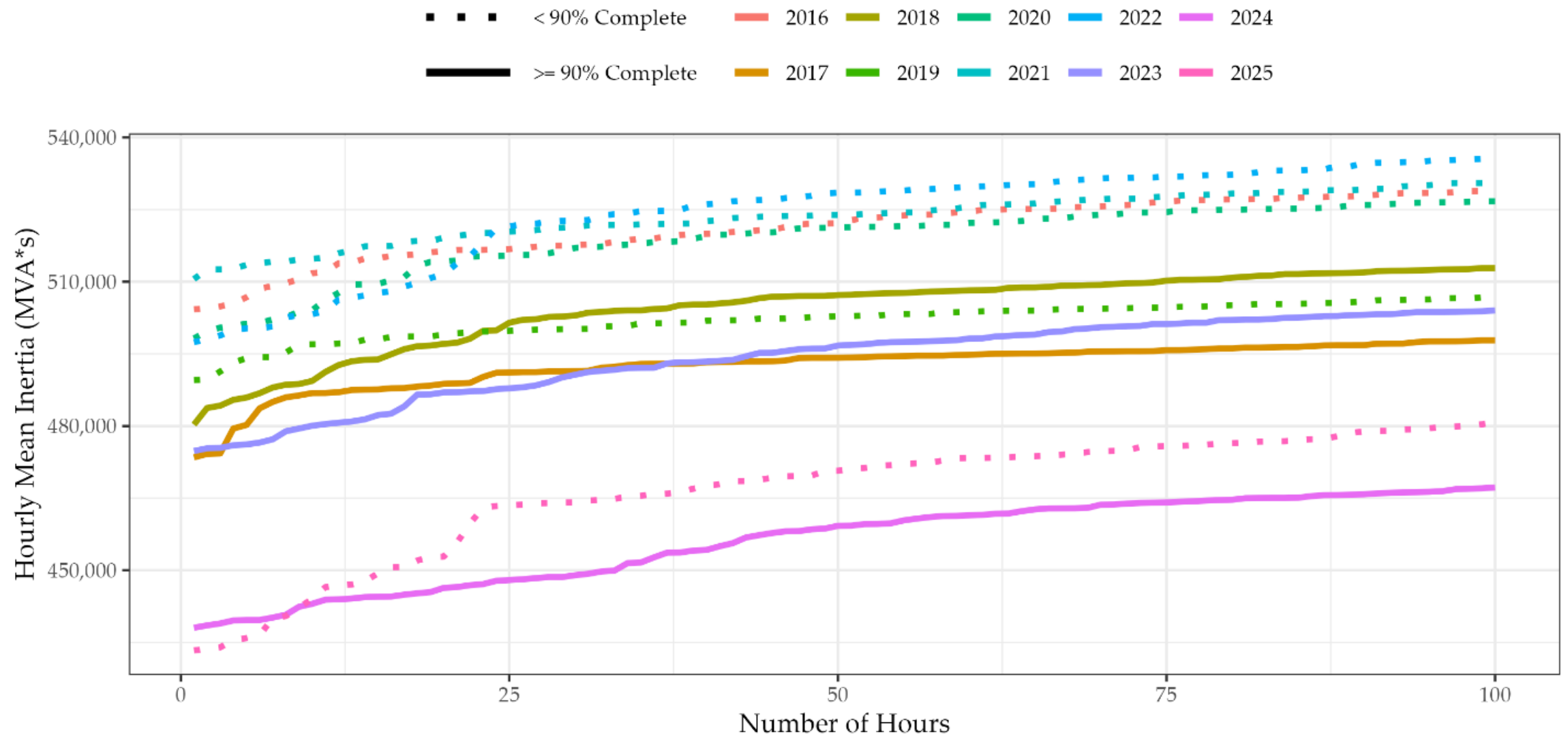
* 2025 WECC WARA

Grid Transformation—Resource Retirements

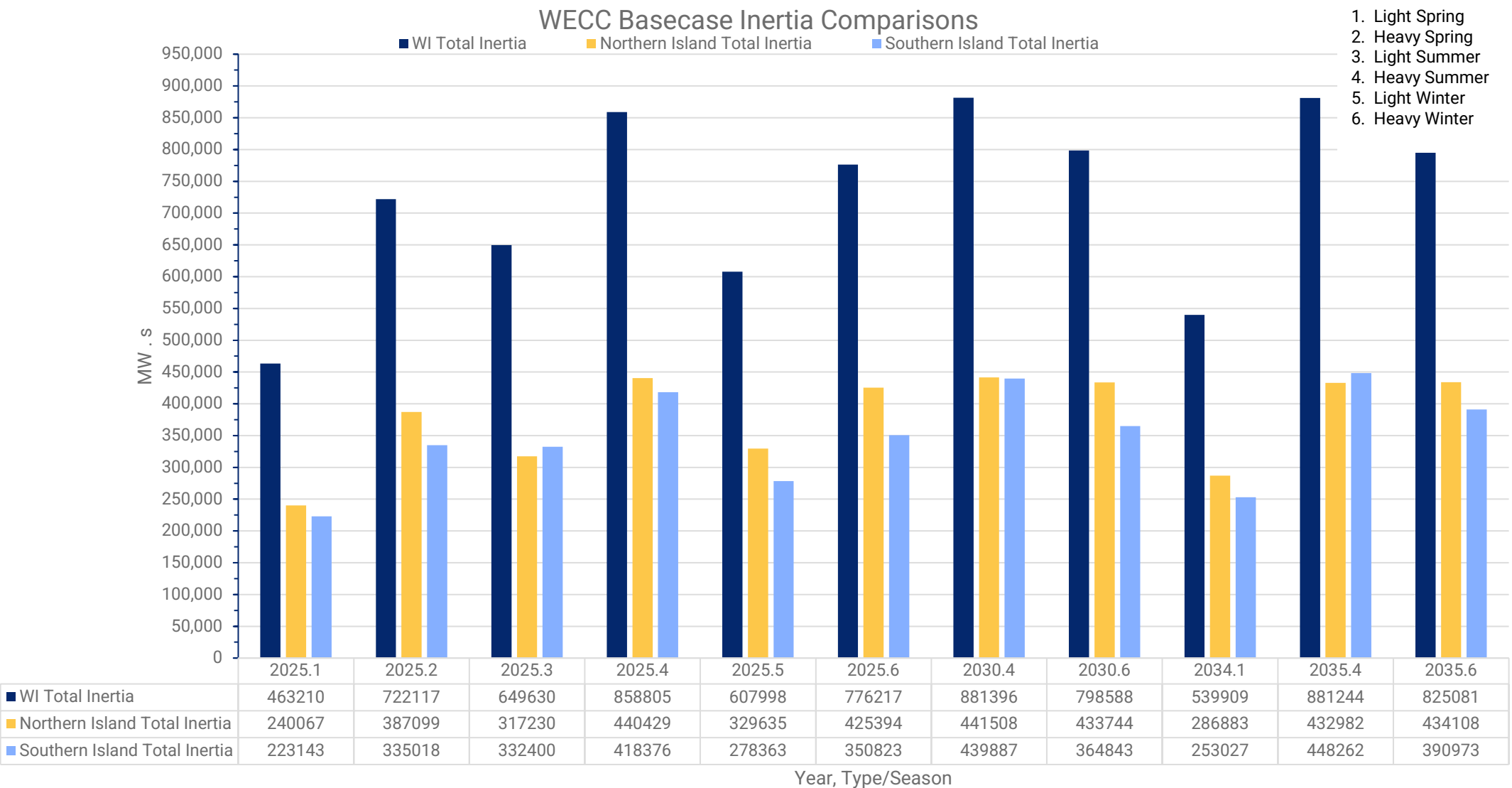


* 2025 WECC WARA

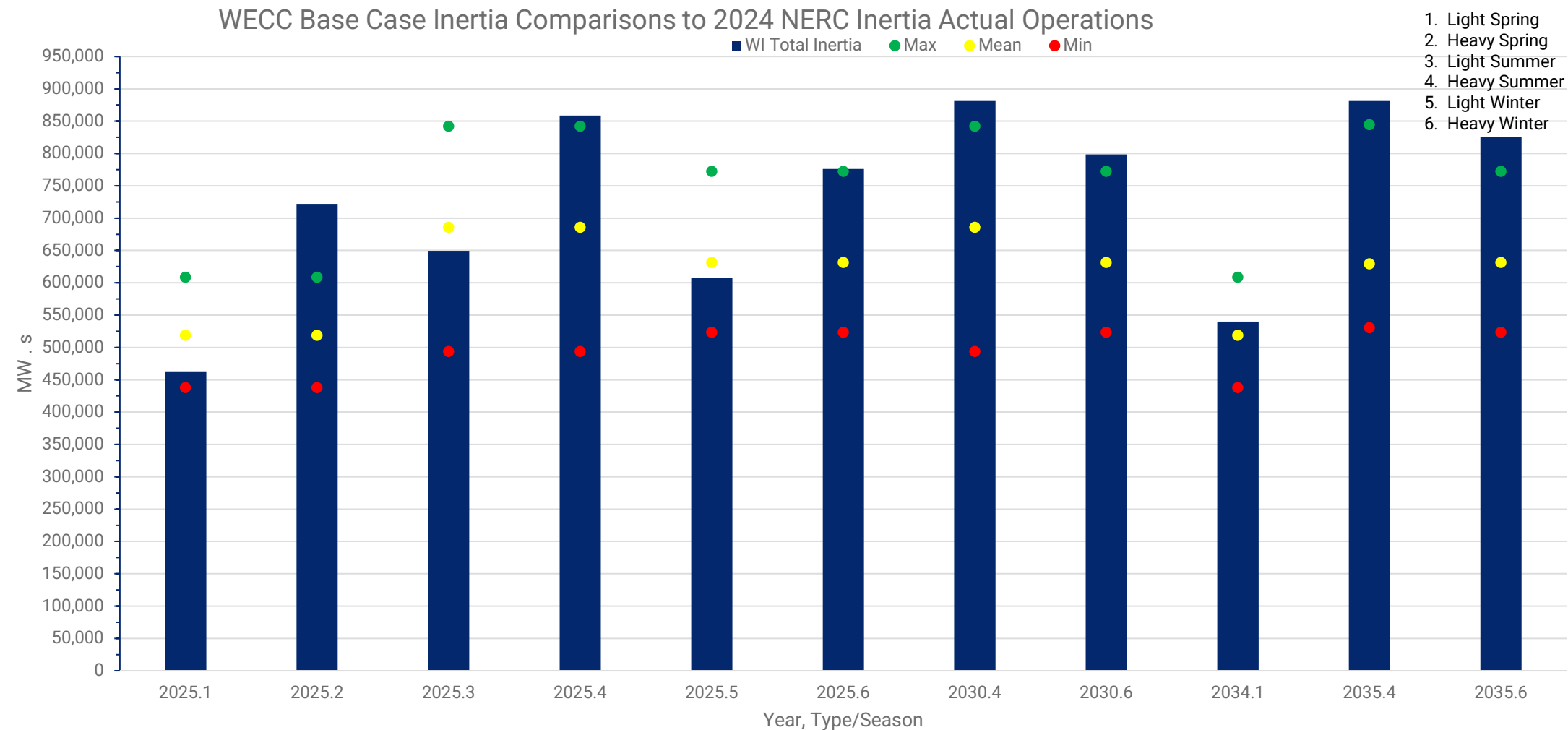
Historical Inertia Levels



Inertia Base case Analysis



Base Case Comparison to Actual Operations





Western Interconnection Frequency Control – Hourly Evaluation

Western Interconnection Frequency Control – Background

- Industry Balancing Authorities expressed concern with degraded frequency performance during solar ramp hours
- Beginning in 2024, the NERC Resources Subcommittee began development of a methodology to determine impacts to PV on Interconnection Frequency Control
- NERC RS wanted to develop a metric that “made sense” to Balancing Authorities
- Developed a metric of frequency deviation of scheduled that related to the BA Control Performance Standard – CPS1

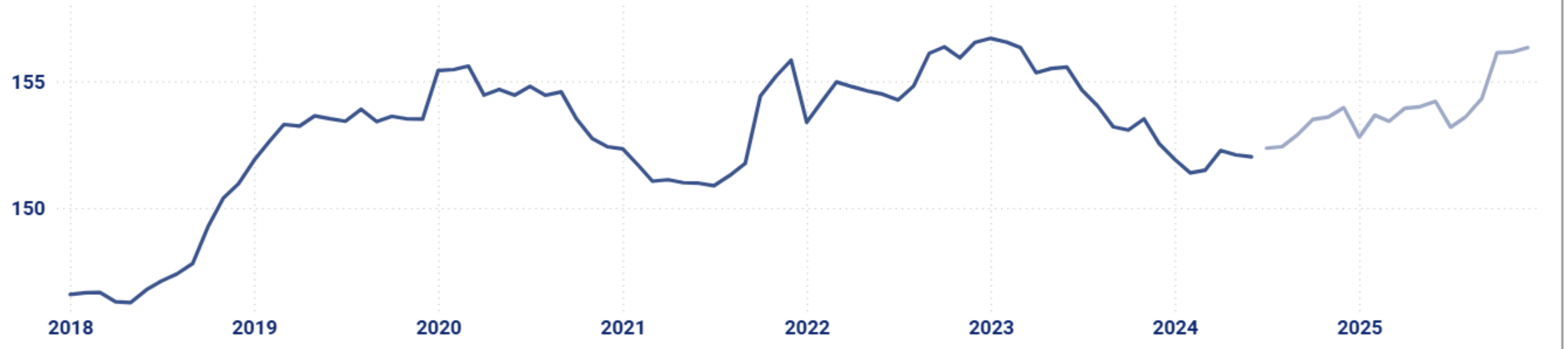
$$CPS1_{Interconnection} = 100 * \left(2 - \frac{\Delta F^2}{\epsilon_1^2} \right)$$



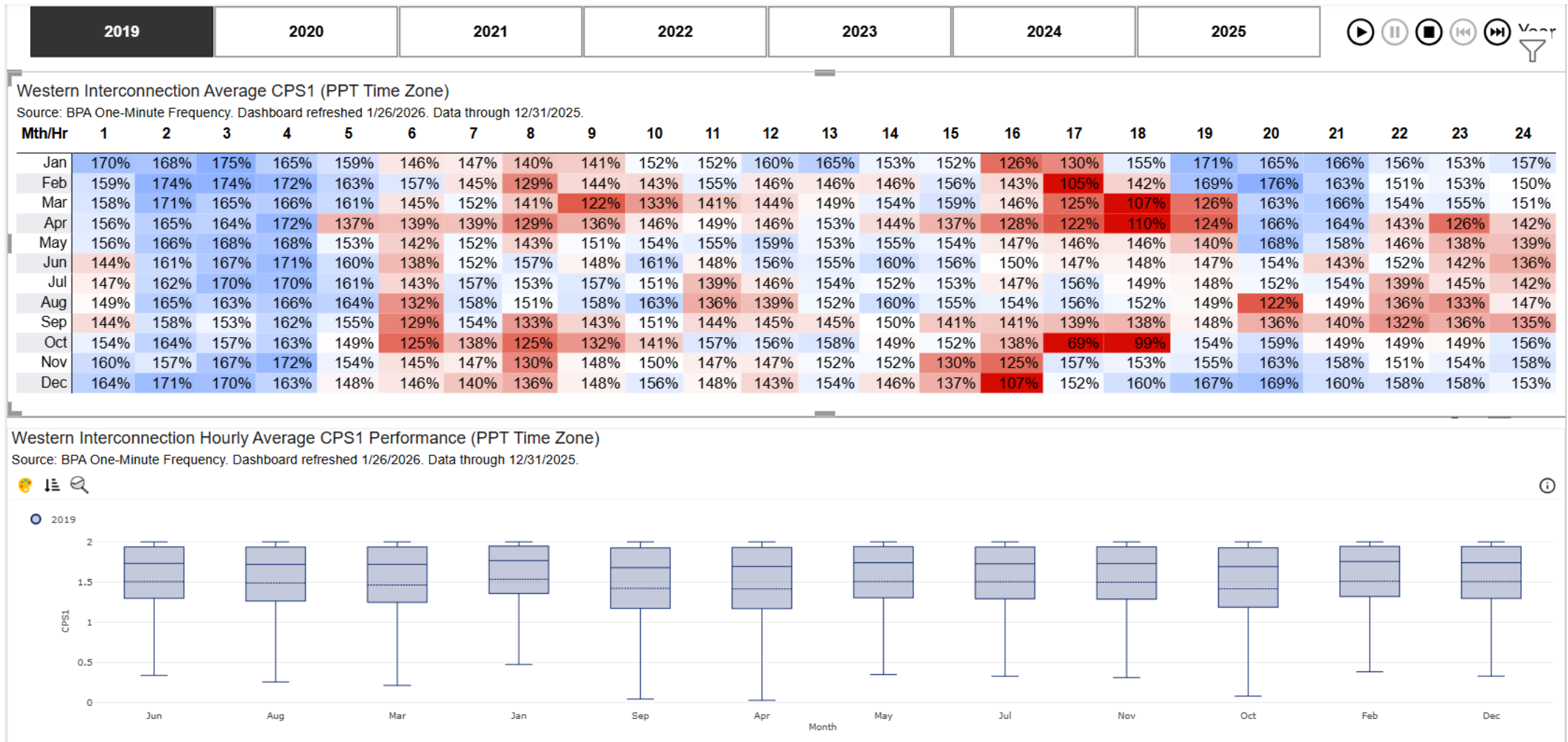
Western Interconnection Frequency Control – “Weighted CPS1”

Weighted Interconnection Rolling Mean CPS1 by Month

Source: BAL-001. Dashboard refreshed 3/16/2026. Data through 12/1/2025.



Western Interconnection Frequency Control – 2019



<https://wecc-spdp-weccgeo.hub.arcgis.com/pages/system-frequency>

Western Interconnection Frequency Control – 2020



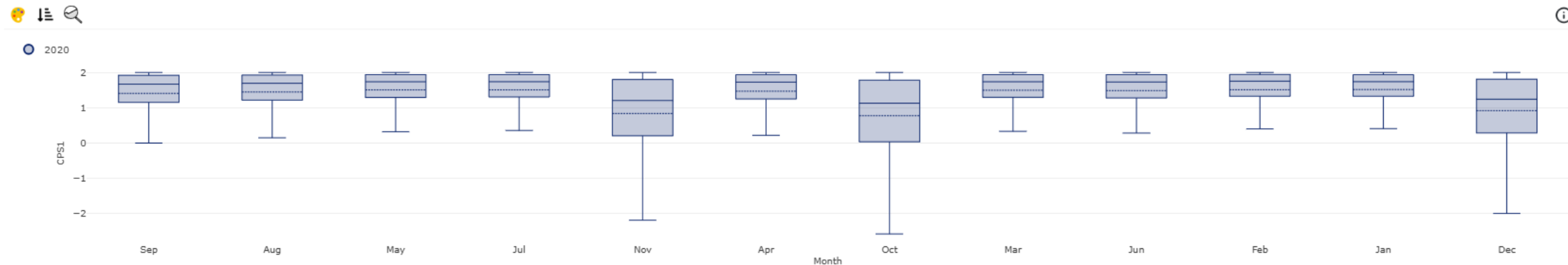
Western Interconnection Average CPS1 (PPT Time Zone)

Source: BPA One-Minute Frequency. Dashboard refreshed 1/26/2026. Data through 12/31/2025.

Mth/Hr	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Jan	170%	173%	173%	167%	152%	149%	151%	143%	138%	147%	151%	161%	152%	153%	138%	98%	129%	164%	172%	170%	158%	154%	156%	161%
Feb	167%	178%	170%	170%	165%	155%	151%	132%	138%	150%	152%	157%	165%	159%	146%	120%	71%	151%	173%	165%	159%	154%	160%	157%
Mar	163%	172%	163%	170%	165%	163%	160%	148%	136%	151%	145%	147%	138%	149%	137%	134%	117%	117%	150%	170%	162%	151%	159%	161%
Apr	157%	160%	162%	170%	160%	169%	155%	139%	149%	152%	139%	131%	149%	150%	146%	137%	131%	112%	139%	160%	159%	154%	146%	142%
May	158%	166%	168%	164%	165%	158%	152%	147%	147%	150%	136%	142%	153%	147%	146%	157%	148%	145%	145%	161%	161%	145%	141%	148%
Jun	153%	165%	160%	168%	164%	146%	159%	154%	148%	149%	142%	141%	146%	154%	153%	147%	148%	148%	151%	152%	142%	150%	136%	129%
Jul	157%	171%	174%	180%	167%	151%	163%	166%	154%	139%	137%	145%	158%	157%	156%	153%	152%	150%	152%	136%	143%	121%	128%	143%
Aug	159%	159%	161%	171%	164%	151%	158%	154%	153%	140%	129%	142%	144%	144%	136%	146%	131%	151%	138%	122%	137%	136%	131%	150%
Sep	143%	156%	156%	164%	148%	127%	160%	143%	149%	144%	147%	130%	150%	138%	133%	145%	143%	134%	119%	133%	128%	140%	139%	145%
Oct	140%	155%	161%	158%	155%	145%	153%	133%	123%	134%	139%	137%	129%	136%	146%	152%	103%	134%	137%	139%	131%	148%	141%	134%
Nov	164%	169%	168%	164%	155%	136%	148%	141%	152%	146%	149%	141%	147%	151%	142%	79%	147%	159%	156%	164%	159%	154%	150%	149%
Dec	159%	165%	167%	168%	159%	141%	141%	145%	147%	157%	149%	144%	158%	155%	144%	84%	131%	174%	169%	165%	165%	154%	156%	156%

Western Interconnection Hourly Average CPS1 Performance (PPT Time Zone)

Source: BPA One-Minute Frequency. Dashboard refreshed 1/26/2026. Data through 12/31/2025.

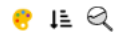


Western Interconnection Frequency Control – 2021

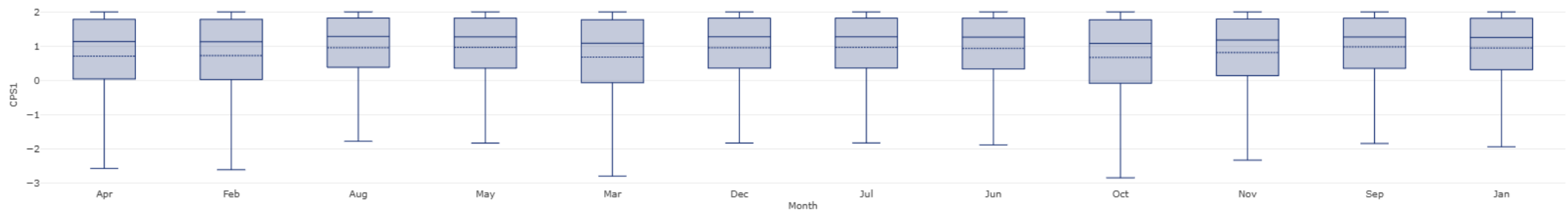
2019		2020			2021			2022			2023			2024			2025			Year								
Western Interconnection Average CPS1 (PPT Time Zone)																												
Source: BPA One-Minute Frequency. Dashboard refreshed 1/26/2026. Data through 12/31/2025.																												
Mth/Hr	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24				
Jan	171%	172%	169%	168%	162%	155%	136%	133%	148%	146%	158%	156%	152%	162%	138%	114%	115%	153%	173%	171%	173%	160%	157%	151%				
Feb	163%	163%	171%	167%	154%	147%	140%	135%	135%	140%	143%	148%	150%	147%	156%	126%	20%	134%	168%	164%	169%	158%	151%	152%				
Mar	162%	166%	166%	173%	149%	129%	141%	136%	126%	132%	150%	148%	155%	157%	147%	136%	90%	75%	127%	159%	163%	156%	141%	150%				
Apr	155%	163%	168%	170%	146%	145%	151%	128%	148%	141%	154%	154%	155%	159%	150%	140%	145%	85%	85%	154%	160%	154%	139%	145%				
May	161%	169%	172%	161%	164%	164%	149%	137%	156%	163%	160%	162%	152%	157%	154%	153%	150%	144%	133%	152%	157%	145%	139%	143%				
Jun	158%	163%	162%	169%	162%	146%	157%	155%	158%	163%	156%	154%	146%	149%	156%	149%	160%	153%	148%	152%	143%	152%	133%	145%				
Jul	155%	164%	167%	174%	169%	149%	162%	158%	165%	160%	159%	152%	153%	146%	157%	148%	150%	146%	161%	151%	145%	151%	137%	148%				
Aug	146%	167%	167%	173%	163%	142%	159%	159%	164%	160%	148%	151%	153%	154%	164%	151%	154%	148%	155%	151%	151%	141%	140%	143%				
Sep	154%	166%	166%	168%	160%	126%	144%	145%	135%	152%	152%	147%	143%	145%	150%	144%	137%	117%	156%	148%	156%	151%	151%	154%				
Oct	152%	165%	165%	159%	156%	135%	121%	134%	127%	140%	145%	157%	145%	145%	140%	118%	68%	118%	158%	157%	166%	156%	152%	154%				
Nov	165%	167%	164%	164%	152%	136%	131%	129%	148%	143%	156%	162%	155%	156%	112%	90%	148%	162%	166%	170%	168%	164%	164%	167%				
Dec	164%	172%	176%	176%	167%	150%	147%	150%	144%	147%	148%	148%	157%	155%	148%	118%	155%	169%	172%	173%	168%	164%	159%	161%				

Western Interconnection Hourly Average CPS1 Performance (PPT Time Zone)

Source: BPA One-Minute Frequency. Dashboard refreshed 1/26/2026. Data through 12/31/2025.



2021



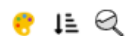


Western Interconnection Frequency Control – 2022

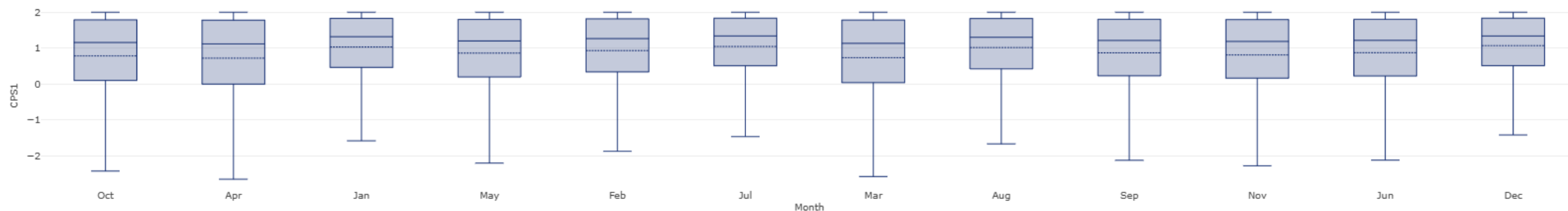
W Sc	2019		2020			2021			2022				2023			2024			2025			Year			
	Mth/Hr	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21			
Jan	172%	172%	177%	165%	158%	148%	144%	144%	136%	154%	157%	168%	163%	156%	155%	111%	134%	165%	173%	174%	176%	168%	161%	165%	
Feb	174%	179%	175%	173%	161%	151%	160%	128%	141%	148%	158%	167%	162%	161%	161%	117%	74%	154%	169%	174%	174%	173%	164%	168%	
Mar	165%	171%	172%	169%	159%	142%	142%	137%	133%	128%	139%	148%	153%	146%	148%	138%	88%	99%	149%	174%	173%	161%	160%	157%	
Apr	162%	168%	172%	167%	150%	141%	152%	113%	119%	148%	151%	154%	156%	154%	143%	136%	120%	80%	95%	155%	165%	160%	154%	163%	
May	162%	167%	170%	166%	156%	149%	143%	116%	149%	152%	153%	160%	147%	155%	156%	145%	139%	132%	111%	162%	161%	156%	149%	153%	
Jun	154%	163%	164%	164%	160%	152%	150%	151%	149%	160%	157%	151%	147%	153%	150%	152%	147%	148%	135%	151%	150%	156%	143%	137%	
Jul	153%	161%	175%	174%	170%	166%	168%	155%	165%	158%	165%	164%	167%	163%	161%	154%	152%	157%	152%	164%	145%	150%	153%	157%	
Aug	157%	161%	171%	174%	169%	164%	162%	160%	158%	161%	158%	158%	159%	155%	148%	150%	143%	146%	159%	143%	163%	148%	146%	153%	
Sep	147%	163%	160%	168%	159%	145%	152%	142%	158%	159%	142%	136%	144%	146%	141%	143%	137%	129%	152%	156%	144%	153%	151%	154%	
Oct	155%	162%	162%	165%	154%	137%	133%	117%	141%	154%	154%	154%	157%	148%	148%	137%	78%	135%	153%	160%	157%	150%	161%	149%	
Nov	167%	168%	168%	167%	140%	133%	146%	145%	140%	152%	153%	151%	149%	154%	147%	75%	120%	154%	162%	169%	168%	162%	156%	157%	
Dec	163%	174%	174%	173%	158%	151%	145%	149%	153%	161%	161%	167%	166%	162%	138%	121%	155%	172%	178%	170%	173%	166%	160%	162%	

Western Interconnection Hourly Average CPS1 Performance (PPT Time Zone)

Source: BPA One-Minute Frequency. Dashboard refreshed 1/26/2026. Data through 12/31/2025.



2022



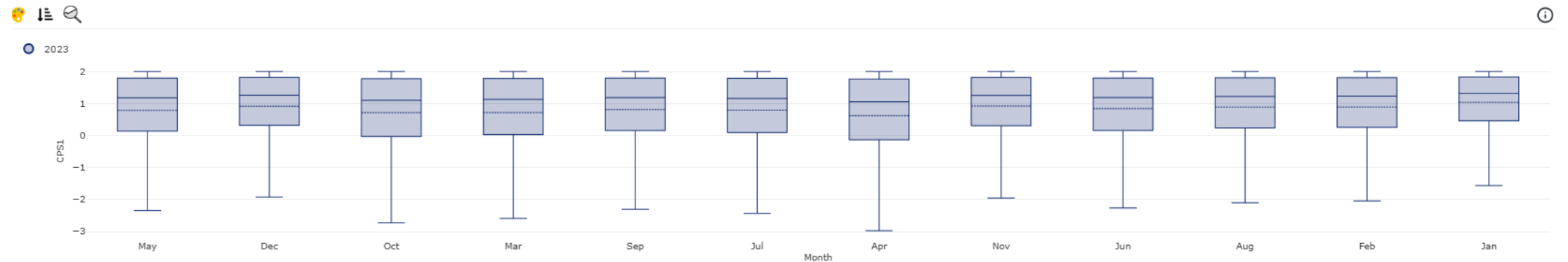
Western Interconnection Frequency Control – 2023



Mth/Hr	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Jan	160%	174%	173%	166%	152%	150%	147%	137%	145%	150%	159%	167%	162%	157%	152%	133%	132%	167%	176%	172%	173%	168%	157%	165%
Feb	163%	172%	172%	171%	163%	159%	149%	129%	148%	163%	157%	157%	158%	155%	150%	107%	85%	157%	162%	169%	172%	161%	154%	161%
Mar	169%	166%	167%	170%	154%	142%	141%	132%	131%	130%	139%	149%	141%	143%	140%	126%	102%	114%	139%	171%	167%	162%	157%	157%
Apr	151%	161%	166%	164%	160%	148%	129%	106%	126%	142%	149%	145%	133%	138%	138%	130%	126%	70%	101%	157%	156%	150%	140%	138%
May	153%	167%	168%	175%	168%	152%	147%	126%	153%	164%	155%	162%	157%	148%	142%	122%	122%	137%	124%	156%	170%	151%	147%	155%
Jun	156%	165%	169%	171%	161%	161%	142%	130%	156%	161%	159%	157%	149%	152%	141%	153%	121%	119%	122%	148%	155%	160%	147%	148%
Jul	143%	158%	166%	161%	158%	155%	149%	148%	153%	149%	156%	154%	149%	140%	145%	155%	139%	147%	137%	125%	123%	136%	141%	148%
Aug	152%	156%	158%	169%	159%	155%	145%	152%	154%	151%	160%	158%	153%	150%	140%	130%	144%	139%	154%	137%	154%	143%	135%	149%
Sep	144%	172%	167%	169%	169%	148%	137%	123%	136%	146%	157%	152%	139%	136%	130%	130%	116%	105%	137%	148%	157%	153%	140%	148%
Oct	143%	163%	164%	158%	159%	143%	142%	110%	130%	139%	142%	149%	149%	143%	142%	139%	63%	130%	156%	159%	158%	157%	152%	152%
Nov	162%	167%	170%	173%	159%	148%	143%	131%	145%	149%	154%	157%	152%	147%	136%	101%	148%	162%	172%	174%	170%	165%	158%	165%
Dec	161%	171%	177%	170%	166%	150%	148%	121%	132%	145%	150%	147%	142%	144%	121%	111%	152%	165%	167%	173%	168%	166%	156%	155%

Western Interconnection Hourly Average CPS1 Performance (PPT Time Zone)

Source: BPA One-Minute Frequency. Dashboard refreshed 1/26/2026. Data through 12/31/2025.

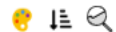


Western Interconnection Frequency Control – 2024

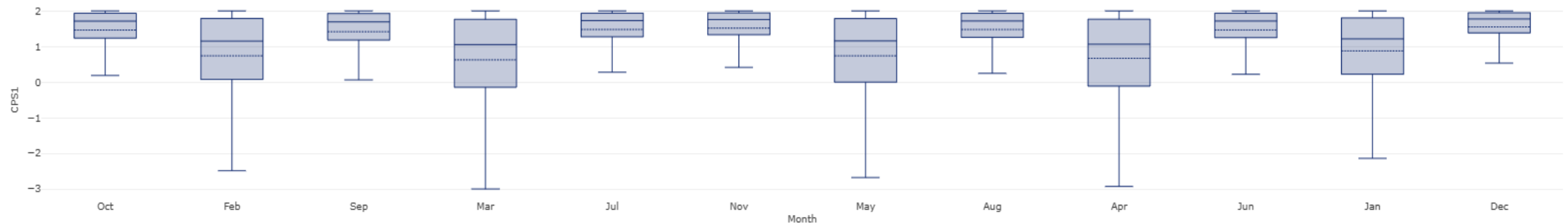
2019		2020			2021			2022			2023			2024			2025			Year				
Western Interconnection Average CPS1 (PPT Time Zone)																								
Source: BPA One-Minute Frequency. Dashboard refreshed 1/26/2026. Data through 12/31/2025.																								
Mth/Hr	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Jan	158%	165%	163%	164%	156%	132%	147%	126%	137%	141%	144%	152%	151%	145%	135%	105%	140%	156%	170%	169%	169%	161%	158%	158%
Feb	164%	165%	166%	169%	159%	154%	139%	139%	133%	132%	143%	140%	138%	136%	110%	92%	99%	157%	161%	165%	163%	157%	151%	155%
Mar	165%	174%	172%	172%	164%	147%	144%	129%	142%	124%	136%	137%	126%	122%	124%	113%	87%	76%	135%	166%	169%	172%	163%	158%
Apr	167%	163%	172%	163%	158%	155%	139%	128%	133%	140%	147%	142%	132%	144%	139%	130%	127%	65%	68%	150%	161%	164%	161%	157%
May	156%	168%	167%	169%	158%	156%	131%	121%	139%	153%	150%	149%	142%	140%	133%	136%	115%	96%	62%	145%	167%	170%	157%	158%
Jun	158%	169%	169%	163%	165%	153%	130%	127%	145%	154%	150%	155%	147%	139%	128%	140%	125%	135%	126%	154%	149%	156%	159%	153%
Jul	153%	164%	165%	172%	161%	153%	119%	151%	158%	162%	158%	158%	145%	137%	147%	137%	133%	137%	123%	152%	146%	155%	141%	156%
Aug	156%	163%	160%	167%	166%	152%	134%	130%	152%	157%	158%	149%	150%	137%	144%	141%	135%	129%	143%	145%	156%	151%	152%	152%
Sep	140%	163%	171%	170%	163%	152%	134%	106%	141%	151%	146%	153%	150%	139%	135%	142%	92%	86%	131%	155%	158%	148%	153%	155%
Oct	158%	172%	171%	169%	157%	146%	140%	131%	128%	144%	147%	149%	148%	148%	140%	137%	82%	148%	144%	158%	163%	157%	153%	151%
Nov	163%	171%	174%	172%	153%	142%	141%	131%	146%	153%	152%	157%	144%	147%	127%	90%	154%	163%	171%	171%	169%	166%	161%	157%
Dec	165%	170%	168%	173%	158%	145%	146%	144%	139%	153%	157%	156%	151%	155%	136%	99%	159%	169%	170%	174%	175%	169%	164%	163%

Western Interconnection Hourly Average CPS1 Performance (PPT Time Zone)

Source: BPA One-Minute Frequency. Dashboard refreshed 1/26/2026. Data through 12/31/2025.



2024



Western Interconnection Frequency Control – 2025



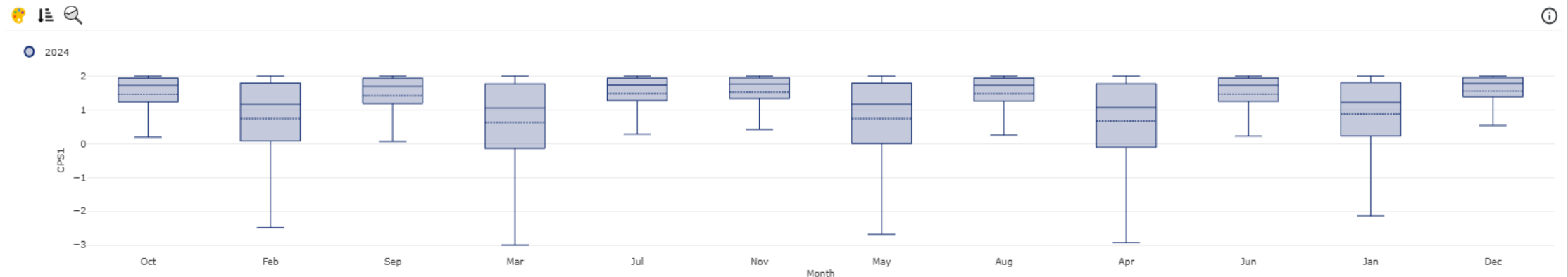
Western Interconnection Average CPS1 (PPT Time Zone)

Source: BPA One-Minute Frequency. Dashboard refreshed 1/26/2026. Data through 12/31/2025.

Mth/Hr	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Jan	164%	171%	170%	171%	156%	149%	148%	131%	116%	147%	153%	155%	156%	156%	155%	100%	113%	162%	169%	173%	171%	167%	160%	164%
Feb	167%	173%	175%	171%	165%	155%	152%	131%	129%	145%	146%	154%	151%	144%	138%	125%	95%	156%	169%	165%	172%	168%	163%	163%
Mar	158%	171%	172%	168%	158%	154%	157%	129%	114%	127%	137%	138%	132%	131%	124%	128%	82%	94%	138%	158%	167%	165%	163%	162%
Apr	161%	170%	174%	175%	163%	160%	143%	123%	137%	149%	145%	151%	143%	146%	138%	130%	120%	82%	102%	162%	160%	162%	163%	161%
May	165%	171%	174%	177%	167%	165%	146%	135%	148%	150%	155%	152%	146%	139%	140%	122%	137%	117%	104%	155%	161%	167%	151%	163%
Jun	149%	157%	167%	165%	159%	155%	140%	147%	155%	162%	162%	158%	151%	139%	131%	141%	130%	112%	88%	155%	148%	151%	139%	155%
Jul	152%	167%	171%	169%	158%	156%	129%	140%	152%	159%	159%	159%	153%	144%	151%	145%	139%	144%	127%	155%	161%	142%	156%	145%
Aug	158%	167%	166%	165%	175%	157%	133%	144%	134%	156%	156%	147%	154%	144%	148%	137%	131%	120%	155%	147%	155%	147%	148%	152%
Sep	156%	164%	169%	172%	165%	145%	148%	142%	138%	141%	136%	141%	130%	132%	123%	119%	95%	113%	148%	163%	151%	152%	154%	154%
Oct	150%	167%	164%	158%	153%	144%	145%	128%	137%	144%	149%	153%	151%	142%	139%	123%	67%	132%	150%	161%	162%	158%	154%	156%
Nov	165%	172%	173%	172%	166%	149%	149%	136%	141%	148%	150%	140%	144%	141%	115%	107%	148%	164%	171%	170%	168%	155%	168%	161%
Dec	165%	167%	172%	171%	162%	159%	149%	133%	143%	161%	164%	163%	153%	153%	144%	121%	167%	173%	168%	174%	166%	164%	159%	161%

Western Interconnection Hourly Average CPS1 Performance (PPT Time Zone)

Source: BPA One-Minute Frequency. Dashboard refreshed 1/26/2026. Data through 12/31/2025.



Western Interconnection Frequency Control – 2026

2020	2021	2022	2023	2024	2025	2026	     Year
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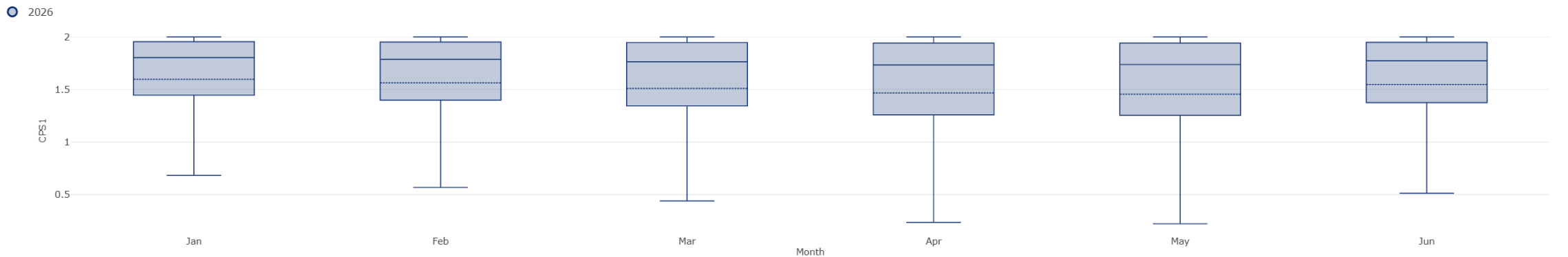
Western Interconnection Average CPS1 (PPT Time Zone)

Source: BPA One-Minute Frequency. Dashboard refreshed 7/30/2026. Data through 6/30/2026.

Mth/Hr	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Jan	170%	182%	179%	179%	167%	158%	160%	141%	146%	156%	162%	167%	160%	153%	141%	112%	154%	164%	175%	172%	172%	170%	166%	162%
Feb	171%	176%	176%	172%	172%	157%	153%	135%	148%	159%	153%	160%	155%	144%	142%	119%	120%	164%	168%	169%	169%	165%	172%	166%
Mar	167%	172%	175%	176%	169%	165%	161%	132%	135%	150%	155%	155%	156%	149%	143%	135%	121%	91%	155%	163%	160%	159%	156%	165%
Apr	155%	173%	175%	175%	169%	162%	148%	128%	142%	150%	151%	145%	149%	143%	137%	135%	120%	104%	106%	156%	162%	163%	158%	157%
May	158%	165%	172%	173%	166%	150%	127%	136%	153%	152%	156%	147%	148%	142%	147%	128%	124%	106%	82%	160%	161%	164%	160%	163%
Jun	157%	168%	171%	175%	175%	164%	111%	138%	156%	162%	169%	164%	160%	159%	150%	144%	145%	135%	131%	160%	162%	168%	163%	167%

Western Interconnection Hourly Average CPS1 Performance (PPT Time Zone)

Source: BPA One-Minute Frequency. Dashboard refreshed 7/30/2026. Data through 6/30/2026.



Western Interconnection Frequency Control – 2024 vs. 2023

2020	2021	2022	2023	2024	2025	2026	     Year
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Western Interconnection Average CPS1 (PPT Time Zone)

Source: BPA One-Minute Frequency. Dashboard refreshed 7/30/2026. Data through 6/30/2026.

Mth/Hr	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Jan	158%	165%	163%	164%	156%	132%	147%	126%	137%	141%	144%	152%	151%	145%	135%	105%	140%	156%	170%	169%	169%	161%	158%	158%
Feb	164%	165%	166%	169%	159%	154%	139%	139%	133%	132%	143%	140%	138%	136%	110%	92%	99%	157%	161%	165%	163%	157%	151%	155%
Mar	165%	174%	172%	172%	164%	147%	144%	129%	142%	124%	136%	137%	126%	122%	124%	113%	87%	76%	135%	166%	169%	172%	163%	158%
Apr	167%	163%	172%	163%	158%	155%	139%	128%	133%	140%	147%	142%	132%	144%	139%	130%	127%	65%	68%	150%	161%	164%	161%	157%
May	156%	168%	167%	169%	158%	156%	131%	121%	139%	153%	150%	149%	142%	140%	133%	136%	115%	96%	62%	145%	167%	170%	157%	158%
Jun	158%	169%	169%	163%	165%	153%	130%	127%	145%	154%	150%	155%	147%	139%	128%	140%	125%	135%	126%	154%	149%	156%	159%	153%
Jul	153%	164%	165%	172%	161%	153%	119%	151%	158%	162%	158%	158%	145%	137%	147%	137%	133%	137%	123%	152%	146%	155%	141%	156%
Aug	156%	163%	160%	167%	166%	152%	134%	130%	152%	157%	158%	149%	150%	137%	144%	141%	135%	129%	143%	145%	156%	151%	152%	152%
Sep	140%	163%	171%	170%	163%	152%	134%	106%	141%	151%	146%	153%	150%	139%	135%	142%	92%	86%	131%	155%	158%	148%	153%	155%
Oct	158%	172%	171%	169%	157%	146%	140%	131%	128%	144%	147%	149%	148%	148%	140%	137%	82%	148%	144%	158%	163%	157%	153%	151%
Nov	163%	171%	174%	172%	153%	142%	141%	131%	146%	153%	152%	157%	144%	147%	127%	90%	154%	163%	171%	171%	169%	166%	161%	157%
Dec	165%	170%	168%	173%	158%	145%	146%	144%	139%	153%	157%	156%	151%	155%	136%	99%	159%	169%	170%	174%	175%	169%	164%	163%

Western Interconnection Average CPS1 (PPT Time Zone)

Source: BPA One-Minute Frequency. Dashboard refreshed 7/30/2026. Data through 6/30/2026.

Mth/Hr	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Jan	-2%	-9%	-10%	-2%	4%	-18%	0%	-11%	-8%	-9%	-15%	-15%	-11%	-12%	-17%	-27%	7%	-10%	-6%	-3%	-4%	-7%	1%	-7%
Feb	1%	-8%	-6%	-2%	-4%	-6%	-10%	10%	-16%	-31%	-14%	-17%	-20%	-19%	-40%	-15%	14%	-0%	-1%	-4%	-9%	-4%	-3%	-6%
Mar	-4%	7%	5%	3%	10%	5%	3%	-3%	11%	-6%	-3%	-12%	-15%	-22%	-16%	-13%	-15%	-38%	-4%	-5%	2%	10%	6%	0%
Apr	16%	2%	6%	-2%	-2%	7%	10%	22%	8%	-2%	-2%	-3%	-1%	6%	1%	-0%	0%	-4%	-33%	-7%	5%	13%	21%	19%
May	3%	1%	-1%	-6%	-10%	4%	-16%	-5%	-14%	-11%	-5%	-14%	-15%	-8%	-9%	14%	-7%	-41%	-62%	-11%	-3%	19%	9%	3%
Jun	2%	4%	0%	-8%	3%	-7%	-12%	-3%	-10%	-7%	-9%	-2%	-2%	-13%	-13%	-13%	4%	16%	4%	6%	-6%	-4%	12%	6%
Jul	10%	7%	-2%	10%	3%	-1%	-30%	4%	5%	13%	3%	4%	-4%	-3%	1%	-18%	-6%	-10%	-13%	27%	23%	20%	-0%	8%
Aug	5%	7%	3%	-2%	7%	-3%	-12%	-22%	-2%	6%	-2%	-8%	-4%	-13%	4%	11%	-9%	-10%	-11%	8%	2%	8%	17%	2%
Sep	-4%	-8%	5%	1%	-6%	4%	-3%	-17%	6%	5%	-11%	1%	11%	3%	5%	12%	-24%	-19%	-6%	8%	1%	-5%	13%	7%
Oct	15%	9%	7%	12%	-2%	4%	-2%	21%	-1%	5%	5%	1%	-1%	6%	-2%	-2%	19%	19%	-12%	-0%	4%	-0%	1%	-1%
Nov	1%	4%	4%	-1%	-6%	-6%	-2%	0%	2%	4%	-2%	-1%	-8%	0%	-9%	-11%	6%	0%	-2%	-4%	-1%	1%	3%	-8%
Dec	4%	-1%	-9%	3%	-9%	-5%	-2%	23%	7%	8%	8%	8%	9%	11%	15%	-12%	7%	3%	3%	1%	7%	4%	8%	8%

Western Interconnection Frequency Control – 2024 vs. 2023

2020	2021	2022	2023	2024	2025	2026	     Year
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Western Interconnection Average CPS1 (PPT Time Zone)

Source: BPA One-Minute Frequency. Dashboard refreshed 7/30/2026. Data through 6/30/2026.

Mth/Hr	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Jan	158%	165%	163%	164%	156%	132%	147%	126%	137%	141%	144%	152%	151%	145%	135%	105%	140%	156%	170%	169%	169%	161%	158%	158%
Feb	164%	165%	166%	169%	159%	154%	139%	139%	133%	132%	143%	140%	138%	136%	110%	92%	99%	157%	161%	165%	163%	157%	151%	155%
Mar	165%	174%	172%	172%	164%	147%	144%	129%	142%	124%	136%	137%	126%	122%	124%	113%	87%	76%	135%	166%	169%	172%	163%	158%
Apr	167%	163%	172%	163%	158%	155%	139%	128%	133%	140%	147%	142%	132%	144%	139%	130%	127%	65%	68%	150%	161%	164%	161%	157%
May	156%	168%	167%	169%	158%	156%	131%	121%	139%	153%	150%	149%	142%	140%	133%	136%	115%	96%	62%	145%	167%	170%	157%	158%
Jun	158%	169%	169%	163%	165%	153%	130%	127%	145%	154%	150%	155%	147%	139%	128%	140%	125%	135%	126%	154%	149%	156%	159%	153%
Jul	153%	164%	165%	172%	161%	153%	119%	151%	158%	162%	158%	158%	145%	137%	147%	137%	133%	137%	123%	152%	146%	155%	141%	156%
Aug	156%	163%	160%	167%	166%	152%	134%	130%	152%	157%	158%	149%	150%	137%	144%	141%	135%	129%	143%	145%	156%	151%	152%	152%
Sep	140%	163%	171%	170%	163%	152%	134%	106%	141%	151%	146%	153%	150%	139%	135%	142%	92%	86%	131%	155%	158%	148%	153%	155%
Oct	158%	172%	171%	169%	157%	146%	140%	131%	128%	144%	147%	149%	148%	148%	140%	137%	82%	148%	144%	158%	163%	157%	153%	151%
Nov	163%	171%	174%	172%	153%	142%	141%	131%	146%	153%	152%	157%	144%	147%	127%	90%	154%	163%	171%	171%	169%	166%	161%	157%
Dec	165%	170%	168%	173%	158%	145%	146%	144%	139%	153%	157%	156%	151%	155%	136%	99%	159%	169%	170%	174%	175%	169%	164%	163%

Western Interconnection Average CPS1 (PPT Time Zone)

Source: BPA One-Minute Frequency. Dashboard refreshed 7/30/2026. Data through 6/30/2026.

Mth/Hr	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Jan	-2%	-9%	-10%	-2%	4%	-18%	0%	-11%	-8%	-9%	-15%	-15%	-11%	-12%	-17%	-27%	7%	-10%	-6%	-3%	-4%	-7%	1%	-7%
Feb	1%	-8%	-6%	-2%	-4%	-6%	-10%	10%	-16%	-31%	-14%	-17%	-20%	-19%	-40%	-15%	14%	-0%	-1%	-4%	-9%	-4%	-3%	-6%
Mar	-4%	7%	5%	3%	10%	5%	3%	-3%	11%	-6%	-3%	-12%	-15%	-22%	-16%	-13%	-15%	-38%	-4%	-5%	2%	10%	6%	0%
Apr	16%	2%	6%	-2%	-2%	7%	10%	22%	8%	-2%	-2%	-3%	-1%	6%	1%	-0%	0%	-4%	-33%	-7%	5%	13%	21%	19%
May	3%	1%	-1%	-6%	-10%	4%	-16%	-5%	-14%	-11%	-5%	-14%	-15%	-8%	-9%	14%	-7%	-41%	-62%	-11%	-3%	19%	9%	3%
Jun	2%	4%	0%	-8%	3%	-7%	-12%	-3%	-10%	-7%	-9%	-2%	-2%	-13%	-13%	-13%	4%	16%	4%	6%	-6%	-4%	12%	6%
Jul	10%	7%	-2%	10%	3%	-1%	-30%	4%	5%	13%	3%	4%	-4%	-3%	1%	-18%	-6%	-10%	-13%	27%	23%	20%	-0%	8%
Aug	5%	7%	3%	-2%	7%	-3%	-12%	-22%	-2%	6%	-2%	-8%	-4%	-13%	4%	11%	-9%	-10%	-11%	8%	2%	8%	17%	2%
Sep	-4%	-8%	5%	1%	-6%	4%	-3%	-17%	6%	5%	-11%	1%	11%	3%	5%	12%	-24%	-19%	-6%	8%	1%	-5%	13%	7%
Oct	15%	9%	7%	12%	-2%	4%	-2%	21%	-1%	5%	5%	1%	-1%	6%	-2%	-2%	19%	19%	-12%	-0%	4%	-0%	1%	-1%
Nov	1%	4%	4%	-1%	-6%	-6%	-2%	0%	2%	4%	-2%	-1%	-8%	0%	-9%	-11%	6%	0%	-2%	-4%	-1%	1%	3%	-8%
Dec	4%	-1%	-9%	3%	-9%	-5%	-2%	23%	7%	8%	8%	8%	9%	11%	15%	-12%	7%	3%	3%	1%	7%	4%	8%	8%

Western Interconnection Frequency Control – 2024 vs. 2023

2020	2021	2022	2023	2024	2025	2026	▶ ■ ◀ ▶▶ Year
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Western Interconnection Average CPS1 (PPT Time Zone)

Source: BPA One-Minute Frequency. Dashboard refreshed 7/30/2026. Data through 6/30/2026.

Mth/Hr	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Jan	170%	182%	179%	179%	167%	158%	160%	141%	146%	156%	162%	167%	160%	153%	141%	112%	154%	164%	175%	172%	172%	170%	166%	162%
Feb	171%	176%	176%	172%	172%	157%	153%	135%	148%	159%	153%	160%	155%	144%	142%	119%	120%	164%	168%	169%	169%	165%	172%	166%
Mar	167%	172%	175%	176%	169%	165%	161%	132%	135%	150%	155%	155%	156%	149%	143%	135%	121%	91%	155%	163%	160%	159%	156%	165%
Apr	155%	173%	175%	175%	169%	162%	148%	128%	142%	150%	151%	145%	149%	143%	137%	135%	120%	104%	106%	156%	162%	163%	158%	157%
May	158%	165%	172%	173%	166%	150%	127%	136%	153%	152%	156%	147%	148%	142%	147%	128%	124%	106%	82%	160%	161%	164%	160%	163%
Jun	157%	168%	171%	175%	175%	164%	111%	138%	156%	162%	169%	164%	160%	159%	150%	144%	145%	135%	131%	160%	162%	168%	163%	167%

Western Interconnection Average CPS1 (PPT Time Zone)

Source: BPA One-Minute Frequency. Dashboard refreshed 7/30/2026. Data through 6/30/2026.

Mth/Hr	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Jan	6%	11%	10%	8%	11%	9%	12%	10%	30%	9%	10%	12%	4%	-3%	-14%	11%	42%	2%	6%	-1%	1%	4%	6%	-2%
Feb	4%	3%	1%	1%	6%	2%	1%	5%	19%	14%	7%	6%	3%	-0%	4%	-6%	25%	7%	-1%	4%	-3%	-3%	9%	3%
Mar	10%	2%	3%	7%	11%	11%	5%	3%	20%	23%	19%	17%	25%	19%	18%	7%	38%	-3%	17%	6%	-7%	-6%	-7%	3%
Apr	-6%	3%	2%	1%	7%	2%	5%	5%	5%	1%	6%	-6%	6%	-4%	-0%	5%	0%	22%	4%	-6%	2%	1%	-4%	-5%
May	-7%	-6%	-2%	-5%	-1%	-15%	-19%	1%	5%	2%	1%	-6%	2%	4%	6%	5%	-14%	-11%	-22%	5%	-0%	-3%	9%	-0%
Jun	7%	10%	4%	10%	16%	10%	-29%	-9%	1%	0%	7%	6%	9%	20%	19%	2%	14%	23%	43%	5%	14%	17%	24%	12%



ENGAGE WITH WECC





www.wecc.org | 801-582-0353



155 N 400 W, Salt Lake City, Utah 84103, USA

RELIABILITYFIRST REGIONAL RISK ASSESSMENT: RISK PRIORITIES & MITIGATION STRATEGIES

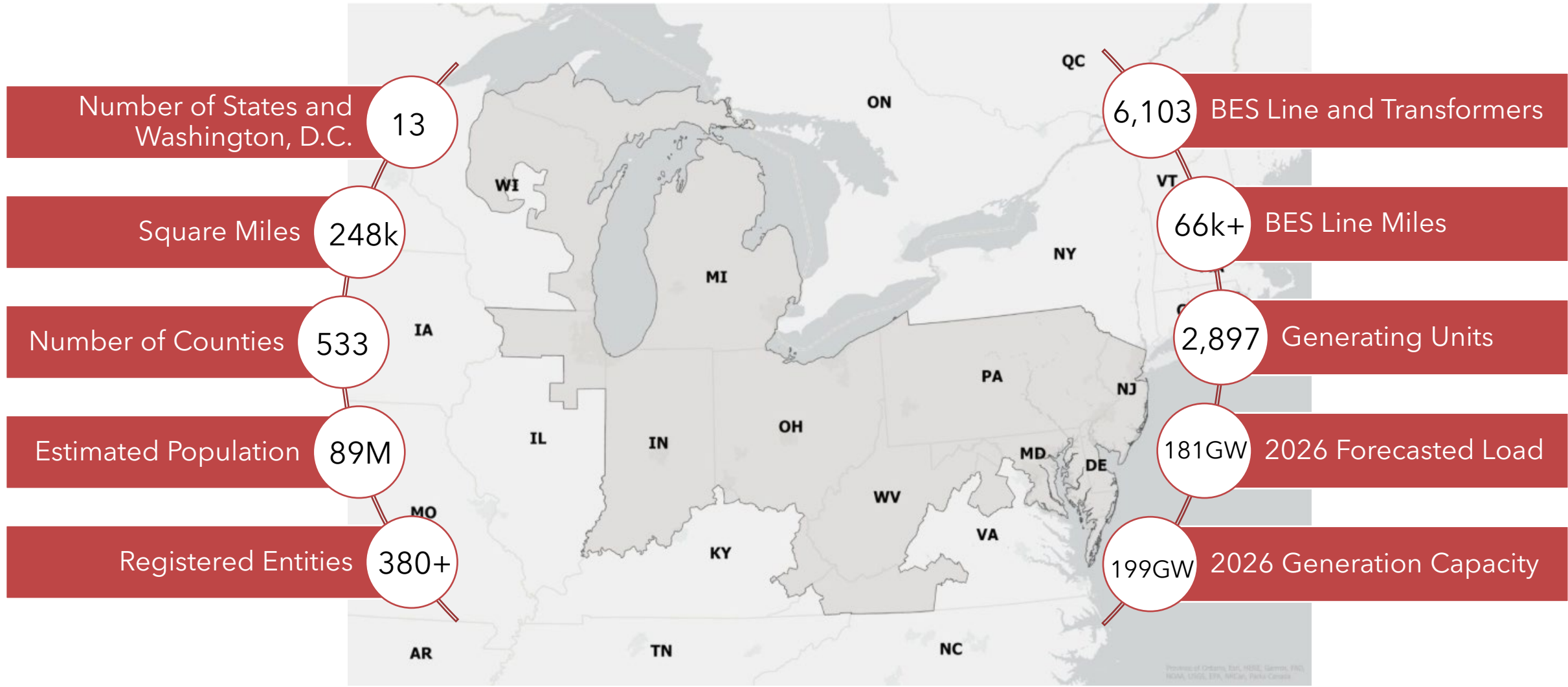
Johnny Gest

Manager, Engineering & System
Performance, ReliabilityFirst



RELIABILITYFIRST

FORWARD TOGETHER ^{RF} RELIABILITYFIRST

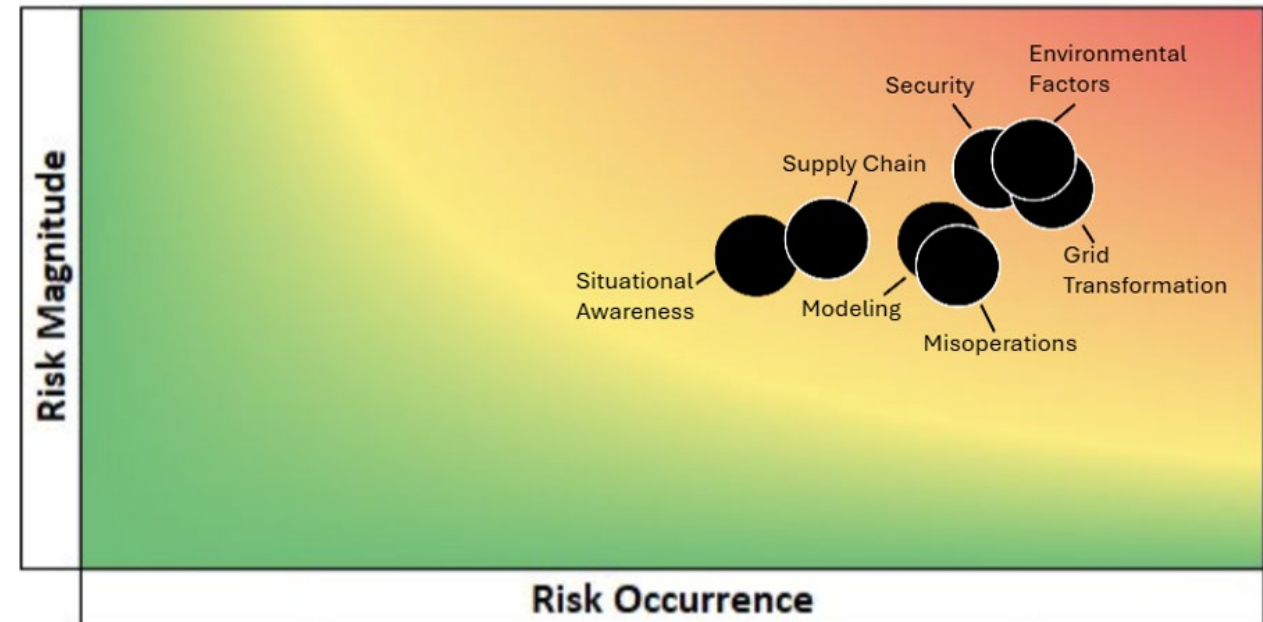


RRA OVERVIEW

- Examines risk from a regional perspective
- Input obtained from industry stakeholders via RF technical committees
- Utilizes performance data, reviews trends, identifies areas that require focus
- Informs future RF work
- Conducted approximately every two years
- Internal and public facing reports
- Efforts ongoing to ensure RRA is data driven and can be operationalized

2025-26 RRA Risk Category Rankings

Risk Category	Risk Ranking
Environmental Factors	High
Grid Transformation	High
Security	High
Supply Chain	Medium-High
Misoperations	Medium-High
Modeling	Medium-High
Situational Awareness	Medium



RISK ANALYSIS CONSIDERATIONS

Analyzed four common considerations for each risk:



Human Performance

The capability of the workforce to complete the tasks associated with a given risk. This includes consideration of established processes and procedures, training, and capability to mitigate human error, as well as skilled workforce retention and retirements.



Energy Policy

The implementation of rules and regulations at federal, state, and local levels that directly or indirectly impact the reliability of the Bulk Power System. This includes the NERC Reliability Standards.



Resilience

The ability to anticipate, absorb, adapt to, minimize the impact of, and/or rapidly recover from a potentially disruptive event.



Data

The availability of data to perform analysis, the quality of the data available, the development and maturity of metrics to assess performance, and the level of expertise held by the risk analysts.

COMPARABLE RF AND NERC RISKS

RF ensures that all NERC
identified risks are covered

RF focuses on additional region-
specific risks: *Situational
Awareness and Misoperations*

NERC has additional
considerations around electric-
gas coordination and other
critical infrastructure

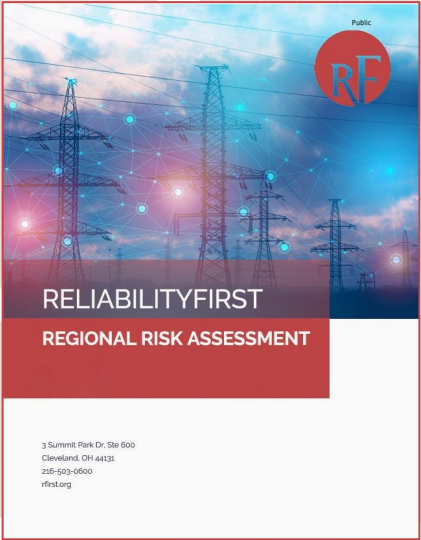
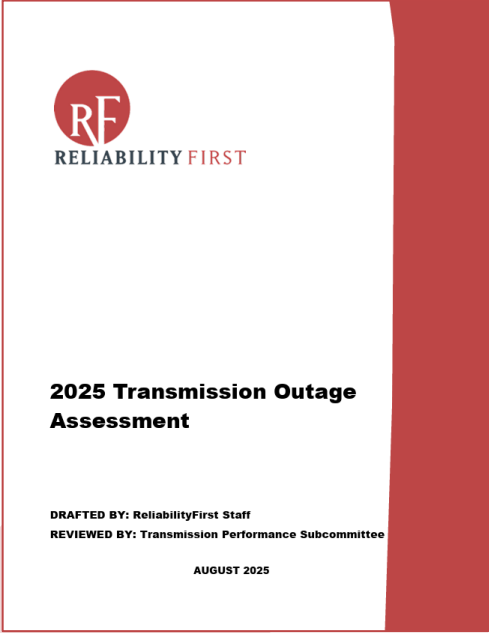
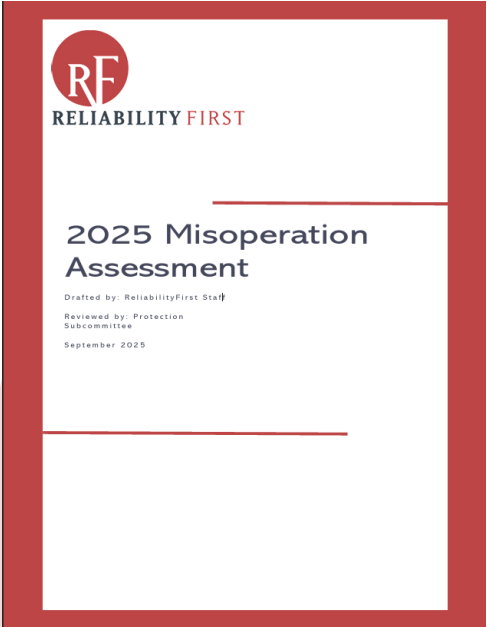
Summary of Risk Themes in 2025 ERO Reliability Risk Priorities Report



RRA MAIN CONTRIBUTORS



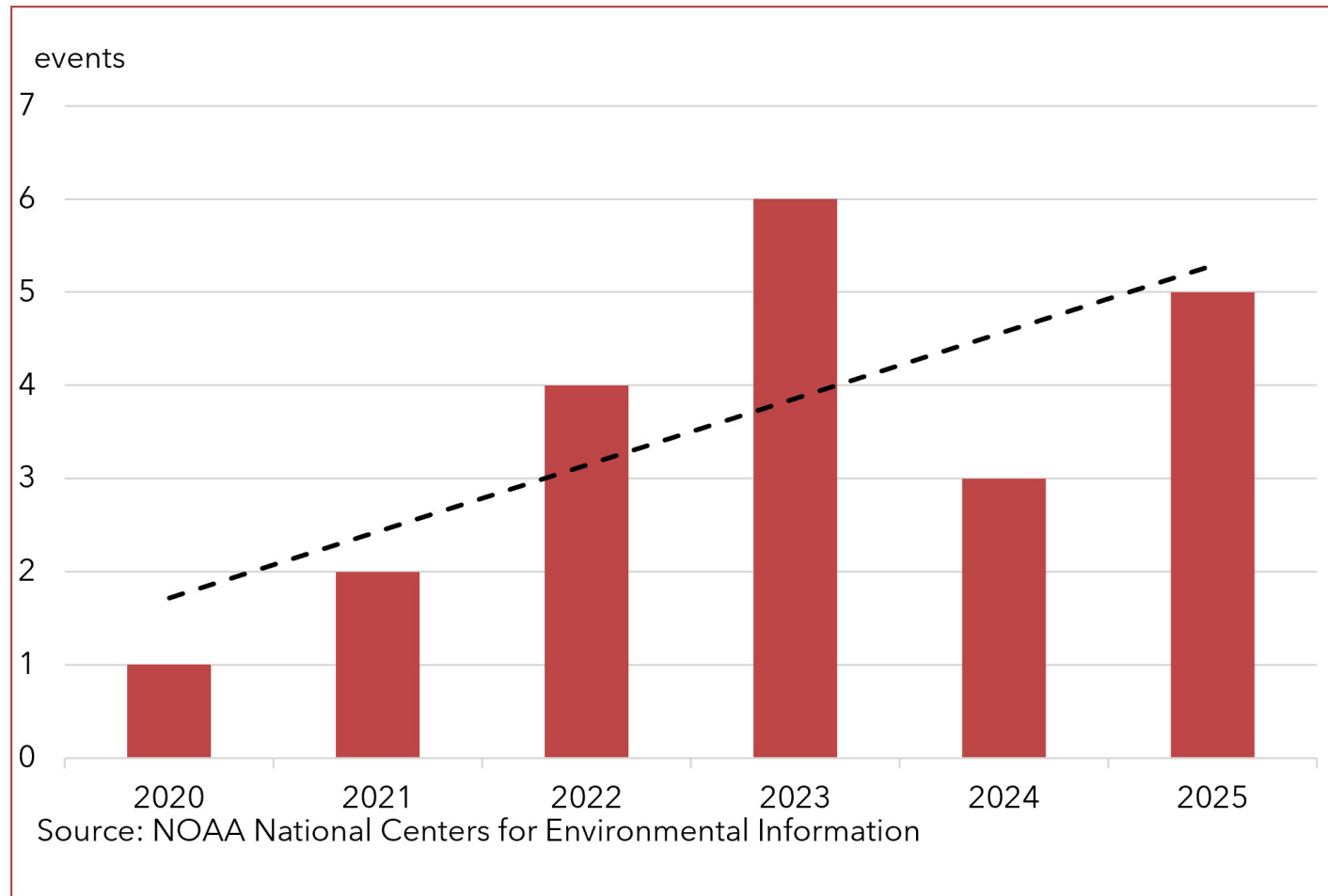
RRA AND PUBLIC REPORTS



ENVIRONMENTAL FACTORS

Phenomena that occur naturally, such as extreme weather and vegetation-related issues.
Focuses on weather impacting resource and transmission availability.

Billion-dollar Weather and Climate Disasters in RF Footprint (2020-2025)



COLD WEATHER

Five cold weather events in the past 12 years that resulted in substantial generation unavailability or firm load shed

Winter Storm Elliott

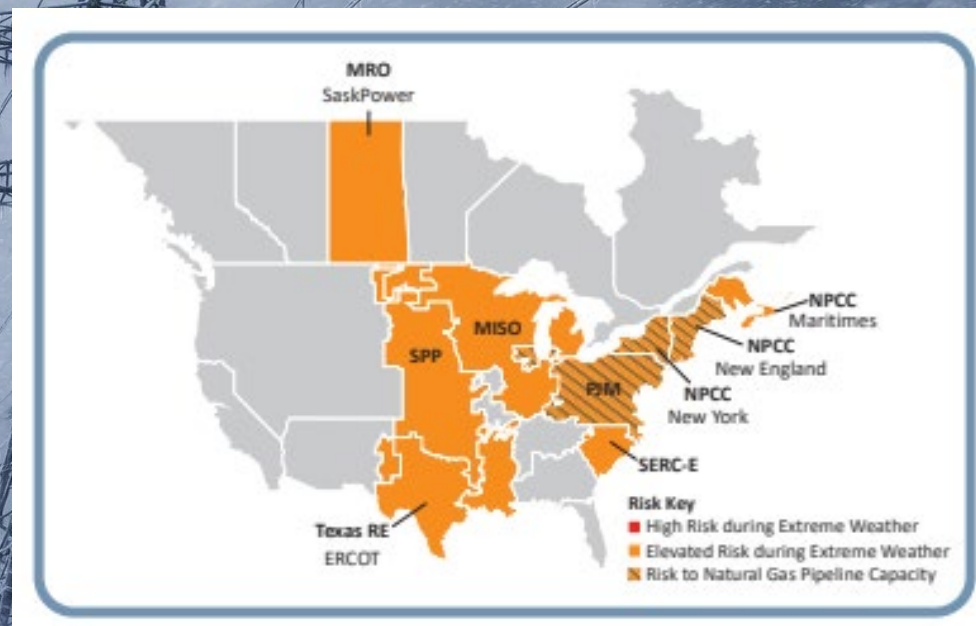
- 5 GW firm load shed (outside of RF)
- PJM/MISO simultaneously experienced 91 GW of generation unavailability

Winter Storm Fern

- Extreme weather tested gas-electric resilience without widespread disruptions
- Winterization, preparedness, and coordination strengthened BPS reliability

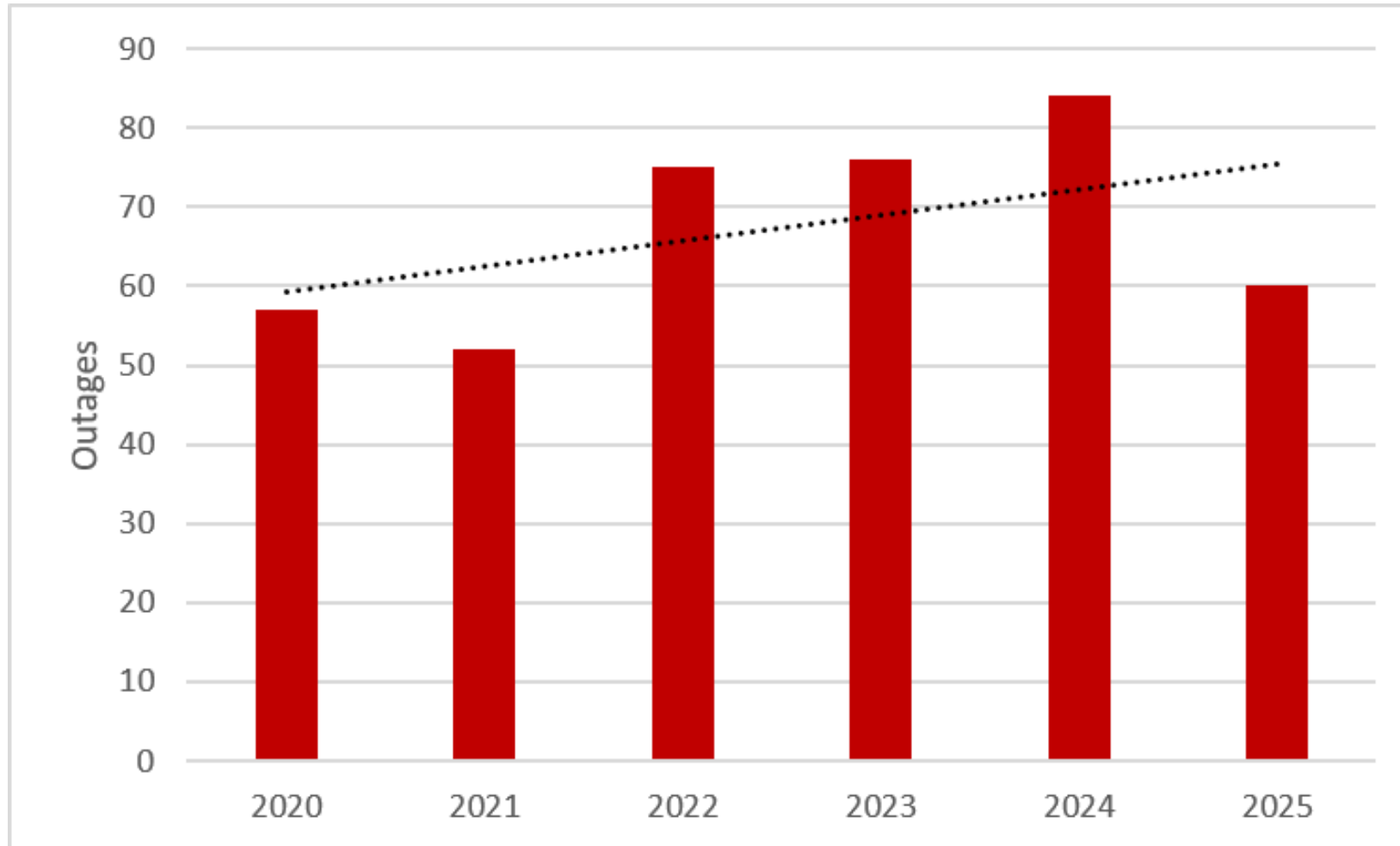
Monitoring and Management of Risk

- NERC 2024/25 Winter Reliability Assessment – PJM/MISO elevated risk
- Natural gas resources exhibit less availability in winter months
- Updated Reliability Standards: EOP-012-3, EOP-011-4, and TOP-002-5
- RF Plant Winterization Visits



VEGETATION OUTAGES

RF Vegetation Outages on 100-199 kV Facilities



Source: Transmission Availability Data System (TADS)

GRID TRANSFORMATION

Covers reliability impacts from federal and state regulations and policies on resource and demand growth

Federal Policies

State Policies

Resource Retirements

Growth of Inverter-based Resources

Resource Availability

Demand Growth (Computational Loads)



POLICY IMPACTS - EXAMPLE

State

Clean Energy Goals

Multiple states have initiatives to reduce greenhouse gas emissions by 2050 or earlier

- Early retirement of conventional resources
- Shifted resource mix toward inverter-based resources

Federal

DOE Reliability 202(c) Orders

Prevent resources from retiring due to potential reliability concerns

- Keeps 4.2 GW of generation online within RF

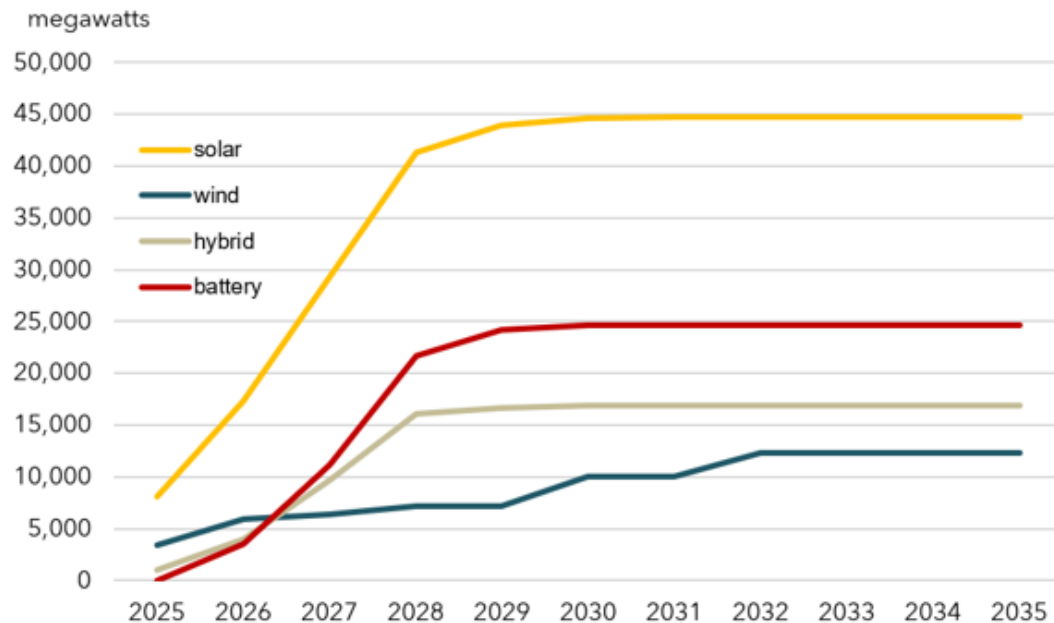
Observed a net reduction of coal and petroleum resources making natural gas the dominant fuel source

INVERTER-BASED RESOURCE GROWTH

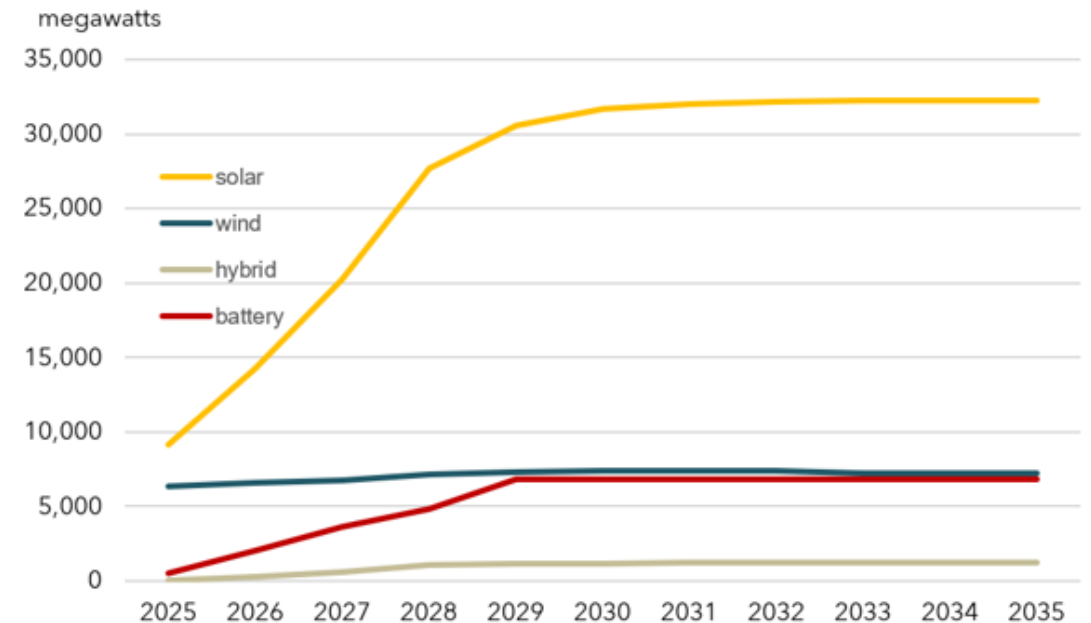
Between 2026 - 2035

- Natural gas is dominant fuel source
- Battery growth not on pace with other renewables

PJM Existing, Planned, and Queued Renewable Capacity (2025-2035)



MISO Existing, Planned, and Queued Renewable Capacity (2025-2035)

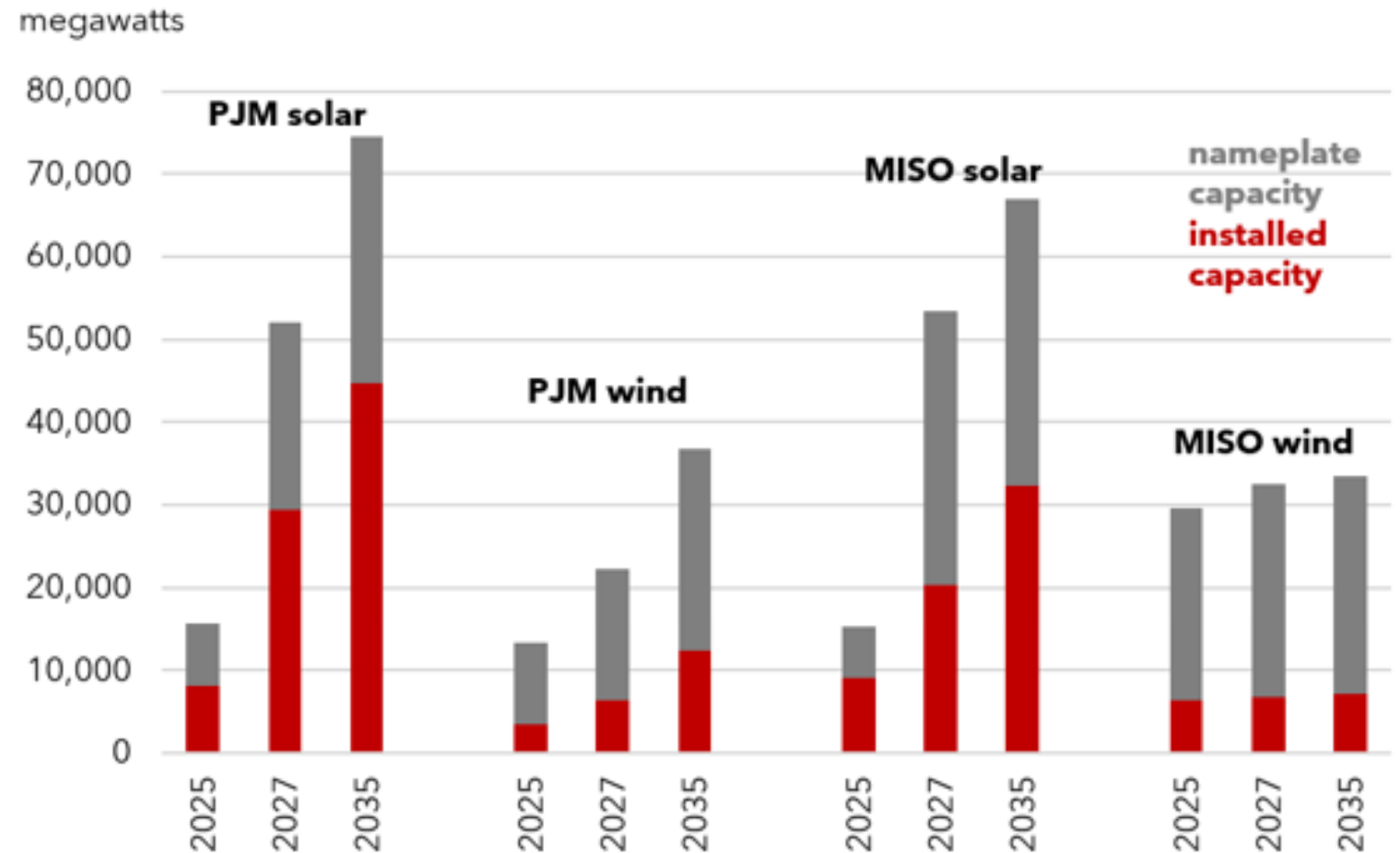


Source: PJM and MISO via 2025 NERC LTRA

RESOURCE VARIABILITY

PJM, MISO Solar and Wind

Installed vs. Nameplate Capacity (2025-2035)



Source: PJM and MISO via 2025 NERC LTRA

**Natural gas susceptible
to cold weather outages**

**Solar, wind, hybrid, and
battery output varies
during high demand
periods**

DEMAND GROWTH

PJM

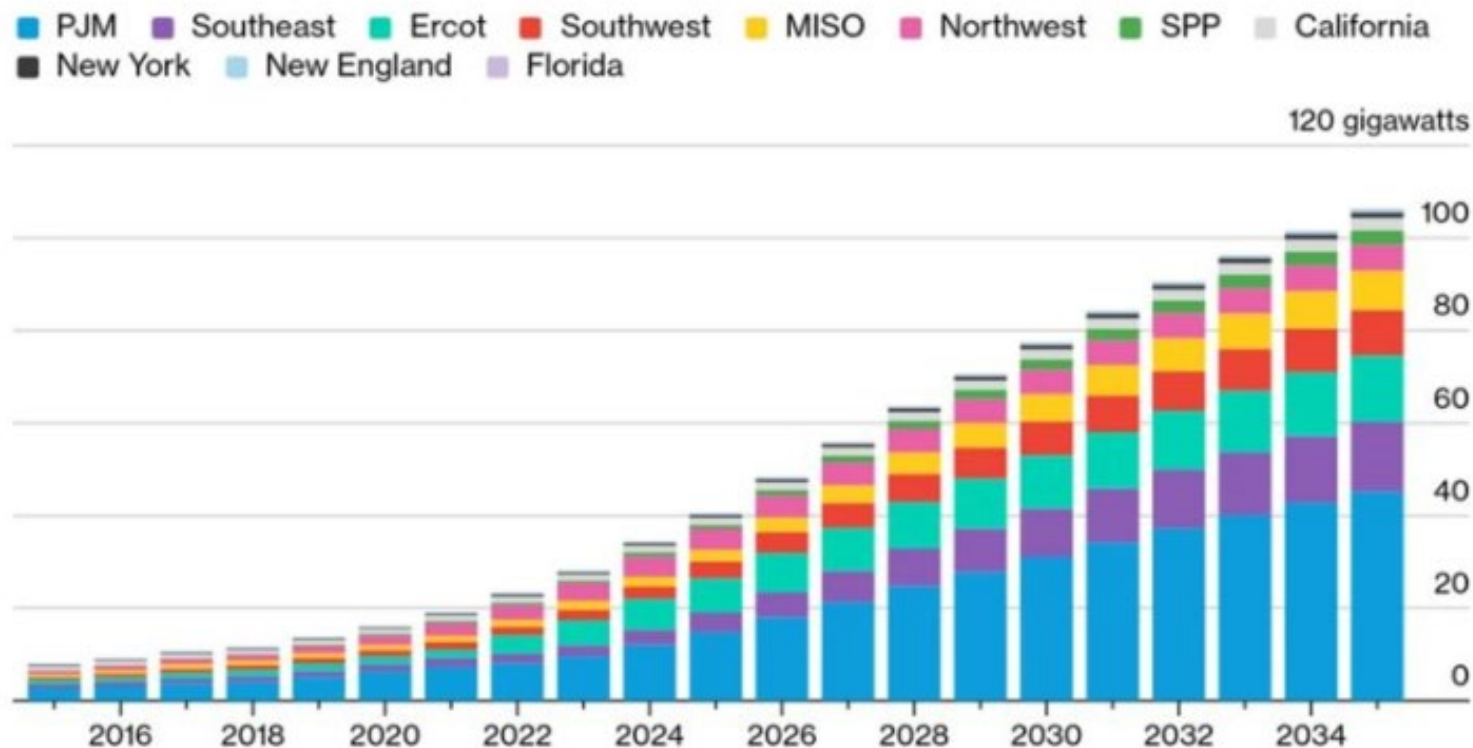
- Increase in summer peak demand by 42% from 146 GW to 222 GW

MISO

- Increase in summer peak demand by 15% from 125 GW to 144 GW

Computational Loads

US Data Center Demand to Triple in a Decade



Source: [BloombergNEF, DC Byte](#)

SUMMARY

Between 2026 - 2035

- **Fossil Fuel Retirements** - Retirement of coal and petroleum resources
- **Fuel Assurance** - Natural gas dominant fuel source but susceptible to cold weather
- **Intermittent Resources** - Increase in solar, wind, hybrid, and battery resources, output varies
- **Ability to Manage Intermittency** - Battery/storage growth is not on pace with other renewables

Results in high/elevated risk for resource shortfalls in the next 5 years

RF continues to *Monitor, Trend, and Manage* this risk



CYBER SECURITY

Emerging Cyber Security Threats and Vulnerabilities



AI-ORCHESTRATED ATTACKS

Attackers use AI to automate, adapt, and scale attacks—making them faster, smarter, and harder to detect.



QUANTUM COMPUTING

Advances in quantum computing threaten current encryption and could enable the breaking of critical security defenses.



THIRD-PARTY VENDORS

Expanded ecosystems increase exposure. Vulnerabilities in third parties can be a direct path to critical systems.



ZERO-DAY ATTACKS

Exploiting unknown vulnerabilities before patches exist—leaving organizations with little to no warning.



THE ENERGY SECTOR REMAINS
A HIGH-VALUE TARGET



PROACTIVE DEFENSE, STRONG PARTNERSHIPS,
AND CONTINUOUS MONITORING ARE CRITICAL.



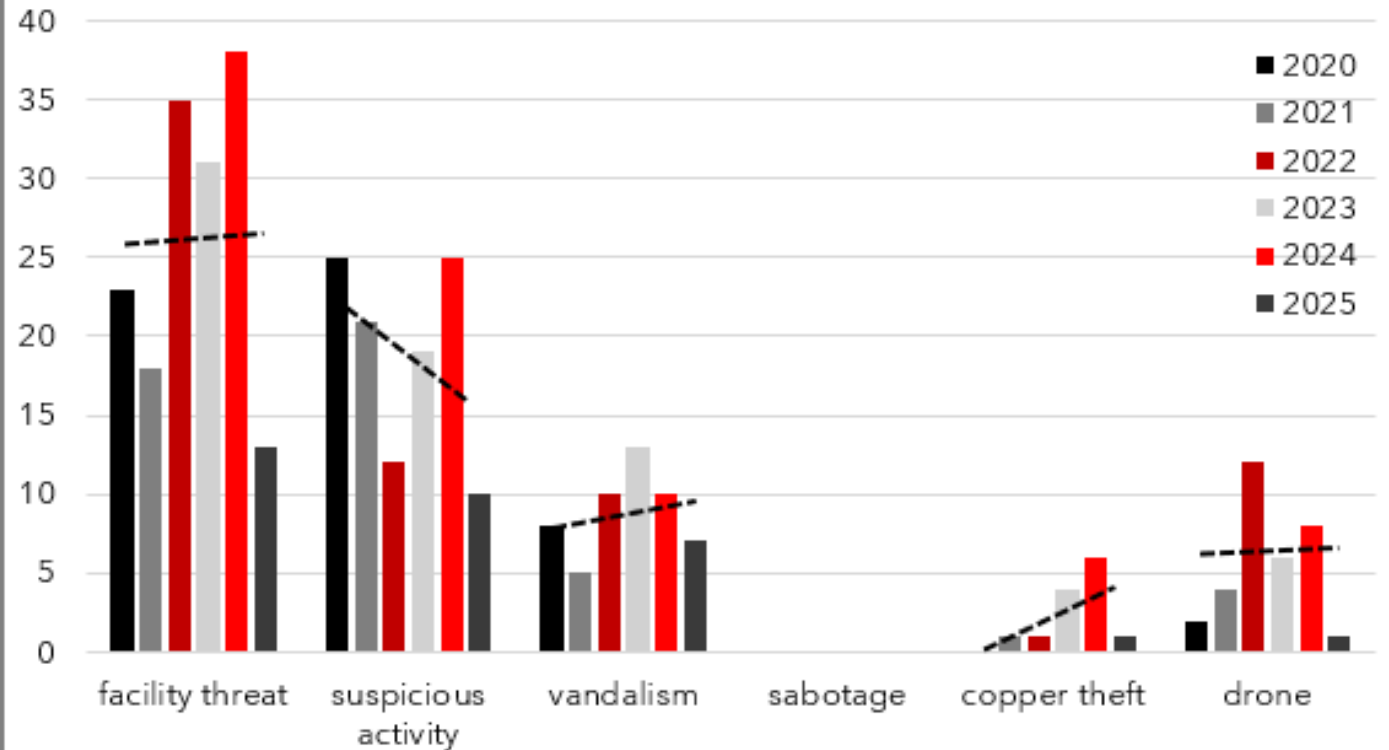
PHYSICAL SECURITY



Source: Microsoft Copilot: Pictures are a dramatization

Characteristics of Physical Threats in RF footprint (2020-2025)

events



Source: ReliabilityFirst

ADDRESSING RISKS

Protecting Grid Reliability Through a Multi-Faceted Risk Strategy



A proactive, risk-informed approach that identifies emerging threats, promotes industry best practices, strengthens stakeholder collaboration, and enhances the reliability, resilience, and security of the Bulk Power System.

QUESTIONS & ANSWERS

Johnny Gest

Manager - Engineering &
System Performance

johnny.gest@rfirst.org

AGENDA FOR TOMORROW WEDNESDAY, SEPT. 16

8:00 – 9:00 **Breakfast**

9:00 – 11:45

Track 1 Energy Policy Track – NorthPointe 1

- Insights from the NERC Large Load Working Group
- Energy Assurance
- Flexible Load as a Reliability Resource

Track 2 Cyber Security Track – NorthPointe 2

- Cloud Adoption
- Supply Chain Risk Management
- Lessons Learned from Case Studies

Track 3 Data Submittals – Hickory 1

- xADS Reporting
- Self-Reports
- Event Reporting



RELIABILITYFIRST 2026 RECOGNITION AWARDS

Diane Holder, Vice President Engineering & Strategic Engagement

September 15, 2026



ENGAGEMENT & LEADERSHIP in Technical Groups and Committees

FIRSTENERGY

Engagement & Leadership in Technical Groups and Committees

- › In the Reliability Committee, FirstEnergy has driven discussion, brought insightful topics, and recommended assignments to RF subcommittees
- › In the Transmission Performance Subcommittee, FirstEnergy has led discussions and driven assignments and topics to closure
- › In the Protection Subcommittee, the entity participated in discussions, performed peer reviews, and provided content for the RF 2025 Misoperation Assessment report
- › In the NERC System Protection & Controls Working Group, the entity has represented the RF area and participated in major initiatives
- › Participation in the development of an RF whitepaper regarding dynamic analysis



FirstEnergy®

PROACTIVITY IN COLD WEATHER PREPAREDNESS

LAWRENCEBURG POWER | TALEN ENERGY

Proactivity in Cold Weather Preparedness

- › During a recent winterization visit, Lawrenceburg demonstrated strong commitment from their staff at every level, including upper management.
- › Lawrenceburg showcased initiatives that exceeded industry norms:
 - › Automated alarms to start winterization when temperatures hit set points
 - › Heat trace panels that feature control room alarms
 - › Maintains a fuel strategy that ensures reliable fuel supply and sustained operations during periods of extreme cold
 - › Active collaboration across its fleet, regularly sharing winterization insights and lessons learned to support continuous improvement

The Talen Energy logo is displayed within a large, dark blue diamond shape. The diamond is outlined in white and has two thick blue diagonal bars crossing it. The logo itself consists of the word "TALEN" in a large, white, sans-serif font, followed by a stylized white graphic of three curved lines representing a flame or wind. Below "TALEN" is the word "ENERGY" in a smaller, white, sans-serif font. A small "TM" trademark symbol is located to the right of the stylized graphic.

TALEN
ENERGY

TRANSPARENCY **in Event Analysis &** **Audit Readiness**

BGE - AN EXELON COMPANY

Transparency in Event Analysis & Audit Readiness

- › BGE's above-and-beyond response to the RF data request and their transparency during the Baltimore event
- › BGE's assistance with RF's follow-up analysis and report development, allowing RF to produce a largely complete internal report in under a week



bgeSM

AN EXELON COMPANY

COLLABORATION, TRANSPARENCY, & AUDIT READINESS

PECO - AN EXELON COMPANY

Collaboration, Transparency, & Audit Readiness

- › During engagements, PECO demonstrated their strong culture of compliance through their open and transparent communication
- › They prepared evidence that was detailed, well-bookmarked, and very well organized
- › They were well-prepared for the onsite field walkdowns



pecoSM

AN EXELON COMPANY

CONGRATULATIONS

FirstEnergy

Lawrenceburg Power

BGE

PECO