



2026 WESTERN REGIONAL NATURAL GAS READINESS FORUM

ALBUQUERQUE, NM - MAY 31, 2026

WELCOME



KIMBERLY DENBOW
VICE PRESIDENT, SECURITY & OPERATIONS
AGA

PROGRAM AGENDA

Working Lunch (12:00 – 1:00)

- **Welcome & Antitrust Compliance Guidelines** (Kimberly Denbow & Mathew Agen, AGA)
- **Opening Remarks** (Chairman Gabriel Aguilera, New Mexico Public Regulation Commission)
- **Western Weather Forecast** (Jason McKittrick, Kinder Morgan)

Break (1:00 – 1:15)

General Session (1:15 to 2:35)

- **Western Electric Outlook** (Layne Brown, WECC)
- **Western Natural Gas Outlook** (Liz Pardue, AGA)
- **Natural Gas/Electric Coordination Initiative** (Tricia Johnstone, CA ISO)
- **Natural Gas/Electric Coordination Case Study** (Jason Ketchum, ONE Gas & Dan English, Kinder Morgan)
- **General Session Closing Remarks**

Break (2:35 – 2:50)

Regional Tabletop Emergency Exercise (Invitation Only, No Media) (2:50 to 4:30)

- **Opening Remarks** (Commissioner Ann Rendahl, Washington Utilities and Transportation Commission)
- **Exercise** (Facilitated by Jonathon Monken, Converge Strategies)

AGA ANTITRUST COMPLIANCE GUIDELINES & SAFETY CULTURE STATEMENT

Antitrust Compliance Guidelines

AGA and its members are committed to full compliance with all laws and regulations and to maintaining the highest ethical standards in the way we do business. This commitment includes strict compliance with federal and state antitrust laws. In the materials distributed with the agenda for this meeting, you will find guidelines outlining AGA's antitrust compliance policy and procedures. If you have any questions or concerns regarding antitrust issues, please feel free to raise them at any time during the meeting.

Safety Culture Statement

AGA and its member companies are committed to promoting positive safety cultures among their employees throughout the natural gas distribution industry. All employees, as well as contractors and suppliers providing services to AGA members, are expected to place the highest priority on employee, customer, public and pipeline safety.



Matthew Agen
Chief Regulatory Counsel, Energy
AGA

Safety Moment



OPENING REMARKS



COMMISSIONER GABRIEL AGUILERA
CHAIRMAN
NEW MEXICO PUBLIC REGULATION
COMMISSION

WESTERN WEATHER FORECAST



JASON MCKITTRICK
MEASUREMENT SUPERVISOR
KINDER MORGAN

SUMMER 2026 – SPRING 2027 WEATHER OUTLOOK

JASON MCKITTRICK
METEOROLOGIST

2026 AGA WESTERN NATURAL GAS READINESS FORUM
MAY 31, 2026



2025

— CALENDAR —



MAY 2025

SUN	MON	TUE	WED	THU	FRI	SAT
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24

WHERE HAVE WE BEEN?

La Nina 2025

Western United States

AUGUST 2025

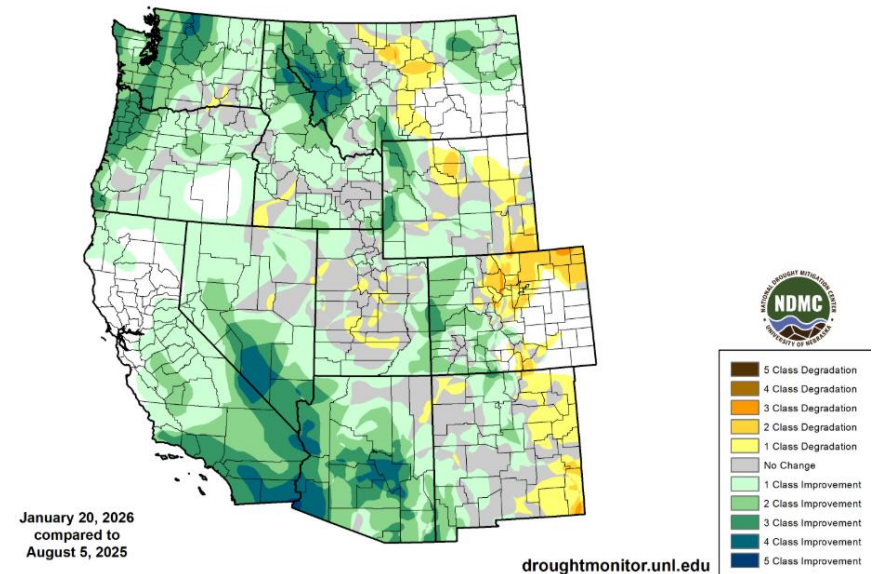
2025 Weather Headlines



Fall 2025

- Lack of snow for Colorado, New Mexico and Utah
- Heavy rains for Southern California and Nevada, and all of Arizona

U.S. Drought Monitor Class Change - West
24 Week



Winter 2025

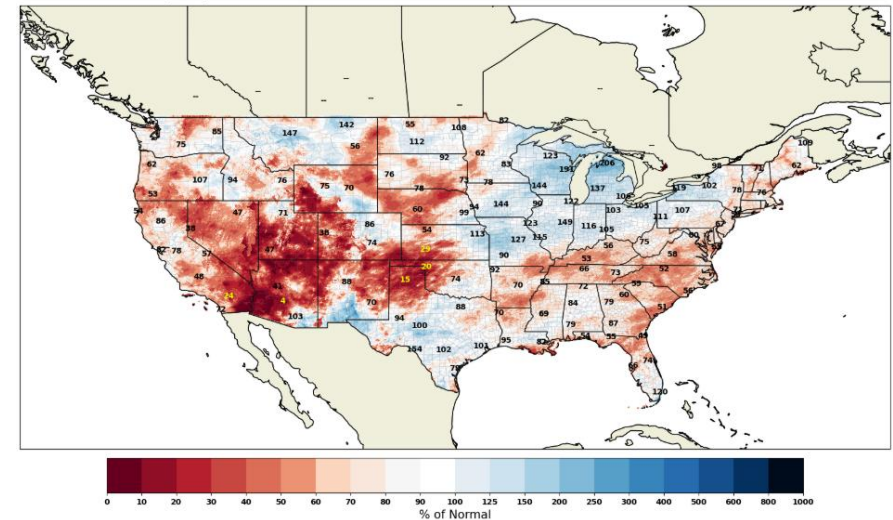
Impacts the northward displaced storm track due to La Niña

- Record warm temperatures
- Poor Western United States snowpack

Antecedent Concerns

- Increased wildfire activity
- Significantly reduced runoff for the Colorado River Basin

AHPS Year-to-Date Total Accumulated Precipitation (% of Normal)
Valid: 12Z Wednesday May 20





WHERE
ARE WE
NOW

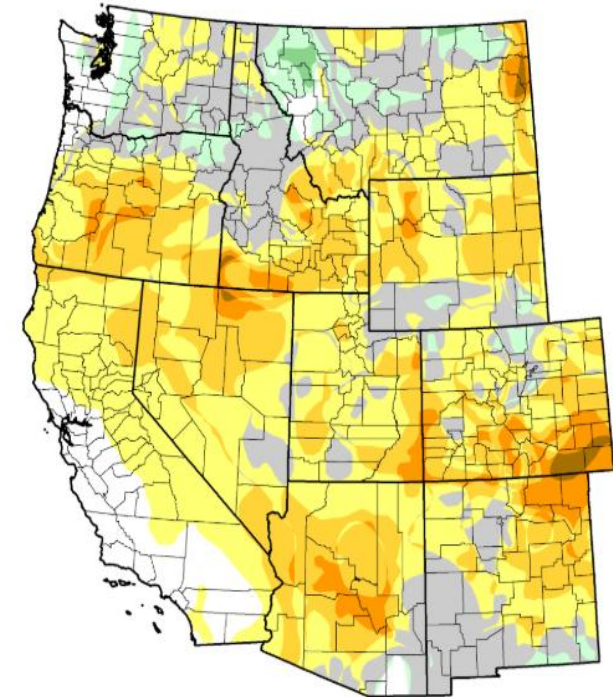
Current Conditions

Western United States

Exploring the Drought Index: A Comparison to Last Spring's Conditions

Severe drought has developed across the intermountain regions

U.S. Drought Monitor Class Change - Western U.S.
12 Week



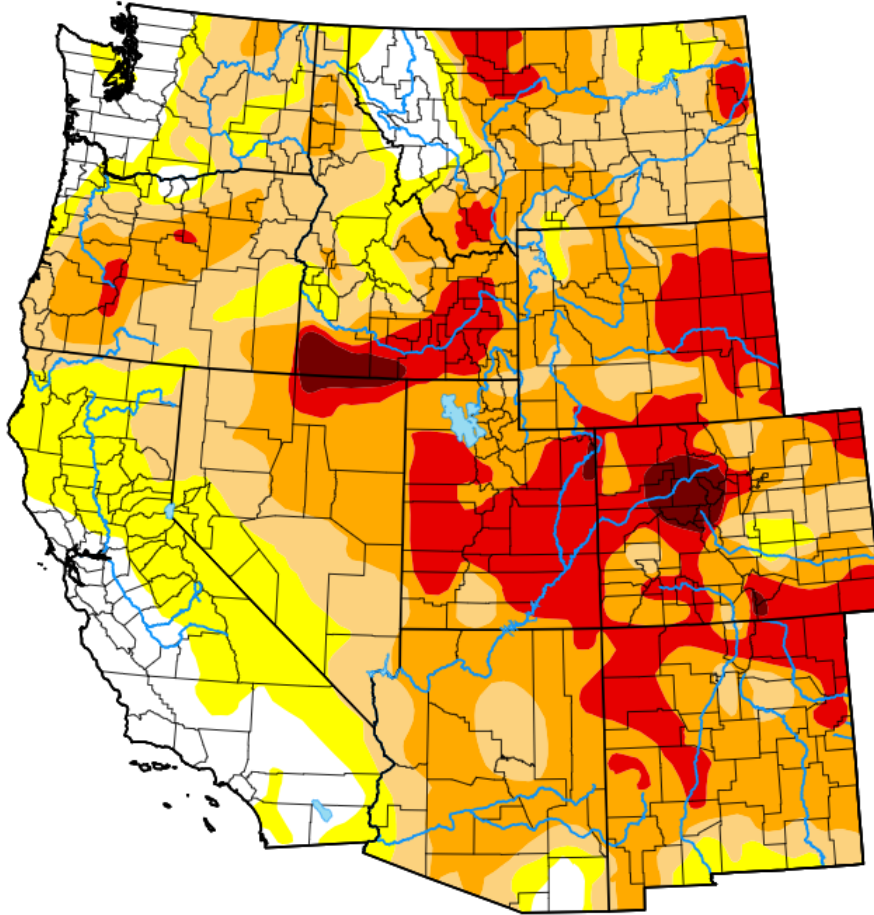
May 19, 2026
compared to
February 24, 2026

droughtmonitor.unl.edu



- 5 Class Degradation
- 4 Class Degradation
- 3 Class Degradation
- 2 Class Degradation
- 1 Class Degradation
- No Change
- 1 Class Improvement
- 2 Class Improvement
- 3 Class Improvement
- 4 Class Improvement
- 5 Class Improvement

U.S. Drought Monitor

[Current](#)[Maps](#)[Data](#)[Summary](#)[About](#)[Conditions & Outlooks](#)[Ag in Drought](#)[En Español](#)[NADM](#)

Map released: Thurs. May 21, 2026

Data valid: May 19, 2026 at 8 a.m. EDT

Intensity

- None
- D0 (Abnormally Dry)
- D1 (Moderate Drought)
- D2 (Severe Drought)
- D3 (Extreme Drought)
- D4 (Exceptional Drought)
- No Data

Authors

United States and Puerto Rico Author(s):

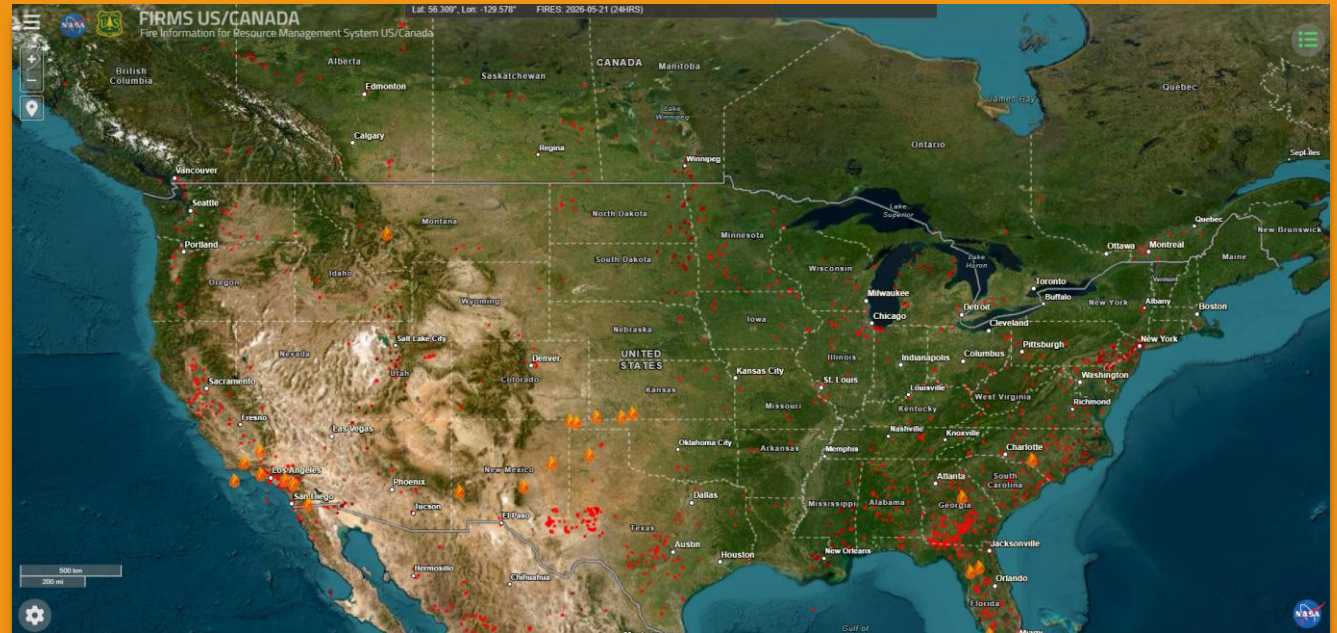
[Rocky Bilotta](#), NOAA/NCEI

Pacific Islands and Virgin Islands Author(s):

[Tsegaye Tadesse](#), National Drought Mitigation Center

Current Wildfire Activity

Late-season snow has mitigated wildfire activity in the central intermountain region



2027

— CALENDAR —



JANUARY 2027

SUN	MON	TUE	WED	THU	FRI	SAT
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
					22	23

WHERE ARE WE GOING?

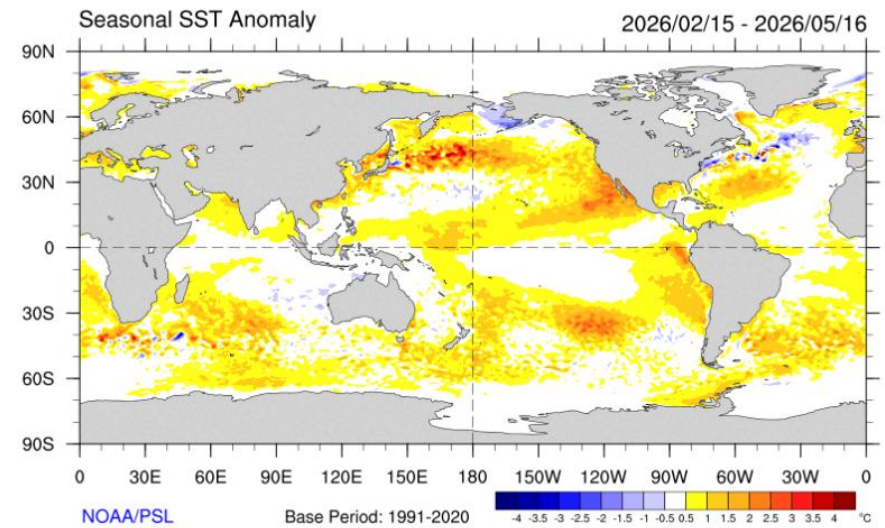
El Nino 2026 - 2027

Western United States

APRIL 2027

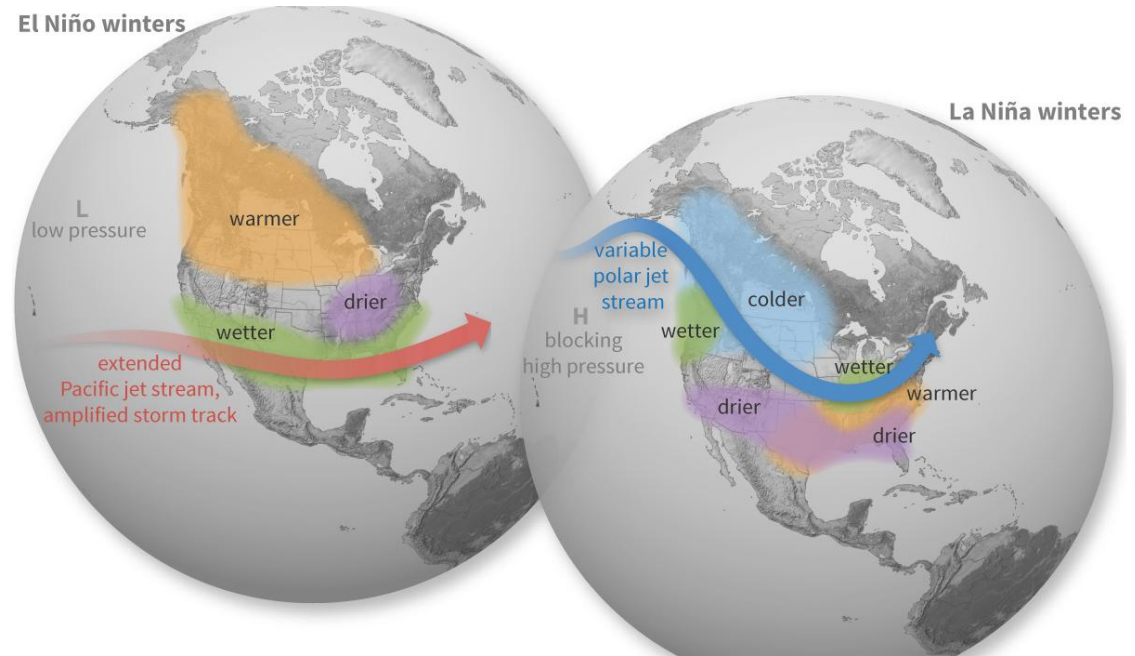
Western US Summer Outlook

- La Niña is gone
- El Niño is expected to begin this summer
- Warm water off Baja California will be the main influence this summer
- Strong El Niño expected Fall-Winter 2026-2027



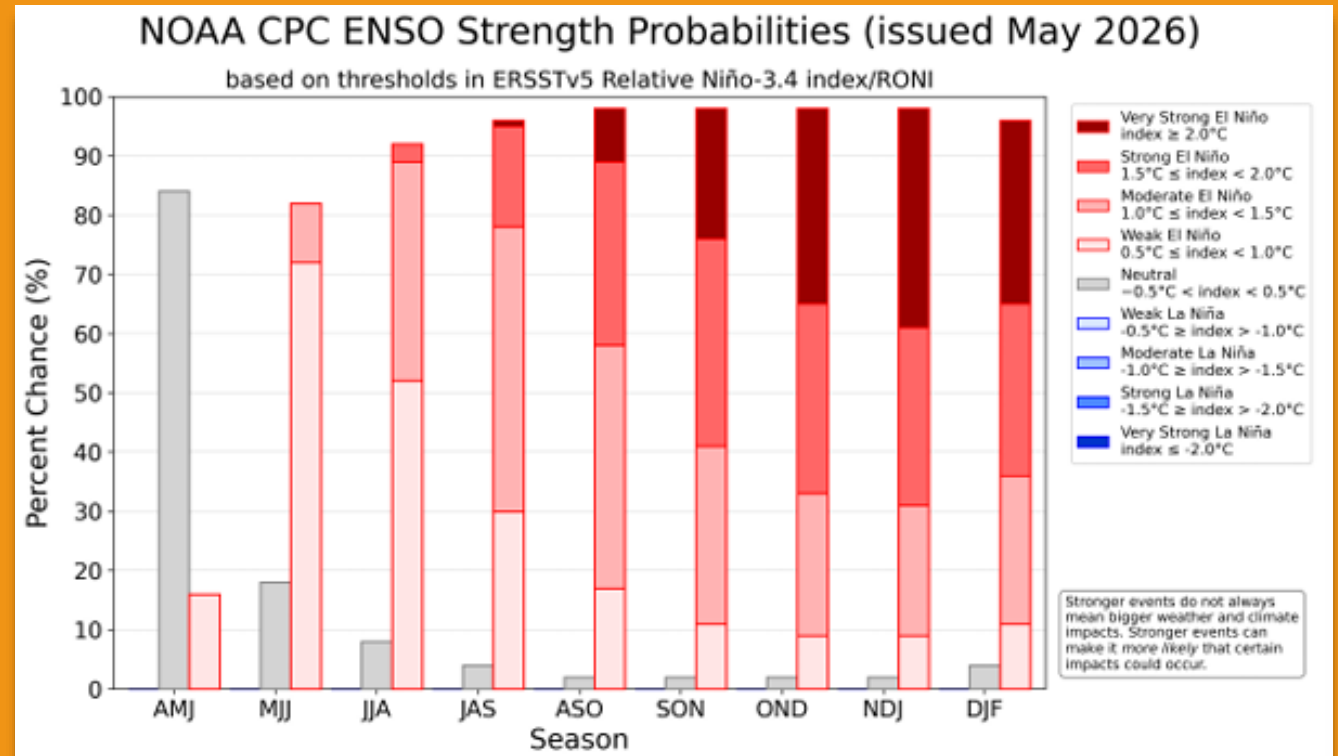
El Niño vs La Niña

- Cooler and Wetter Southwest
- Warmer and Drier Pacific Northwest
- Warmer Central and Northern Mountains



El Niño Forecast

- El Niño is a certainty
- A strong or very strong El Niño is likely
- El Niño will peak in November or December

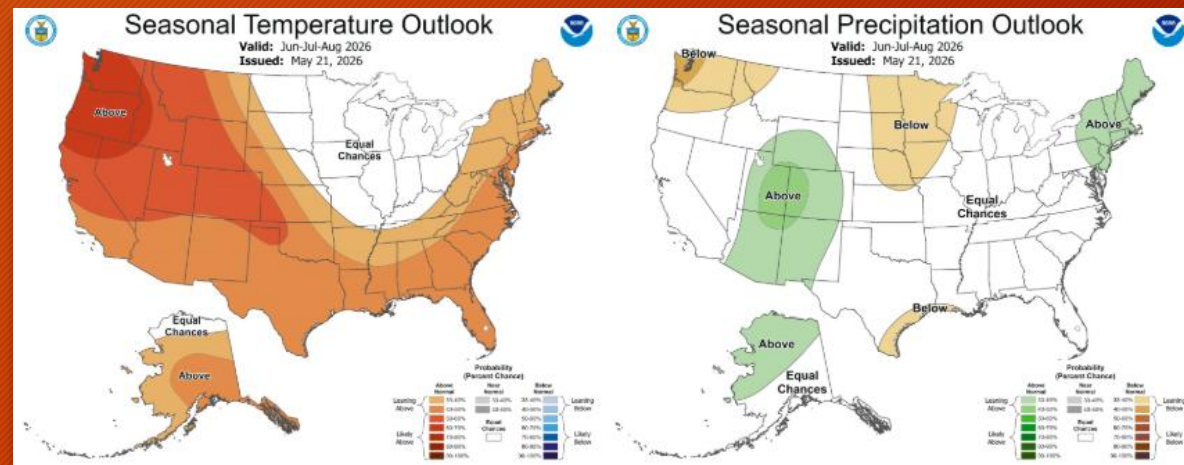


NOAA - Summer 2026 Outlook

High Likelihood of above-normal temperatures over the Pacific Northwest and the Central and Northern Rockies

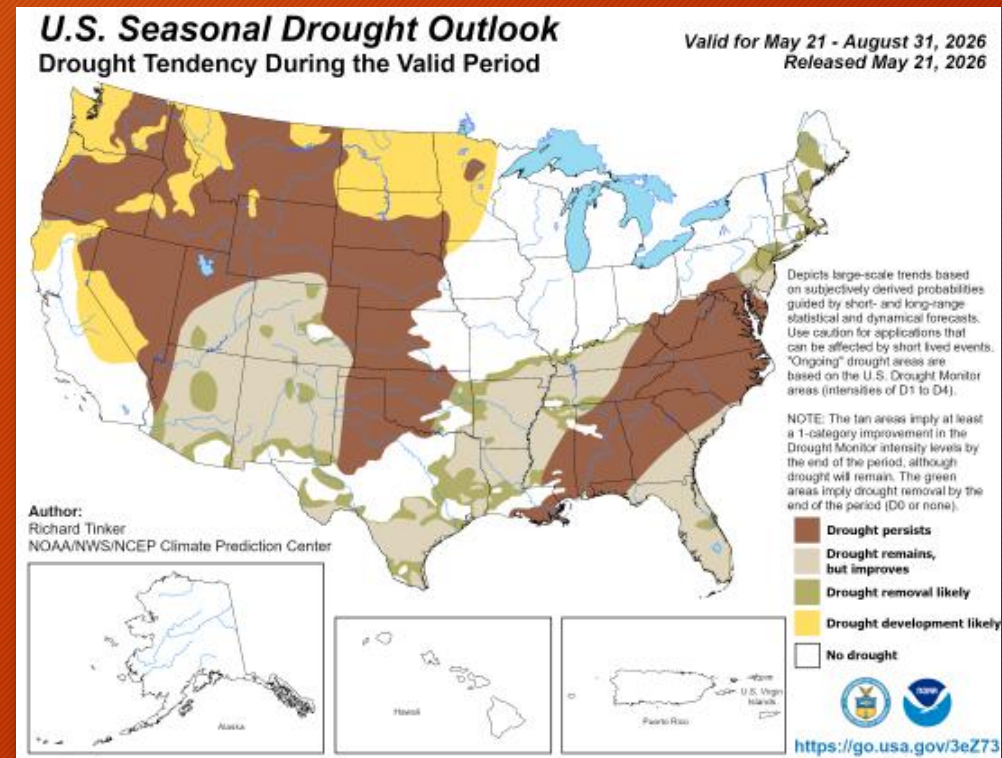
Above normal Monsoon expected. This is less certain.

- El Niño suggests a later start and less rainfall
- Current forecast trends suggest a more active period in June and warm ocean temperatures west of Baja California suggest an active tropical season



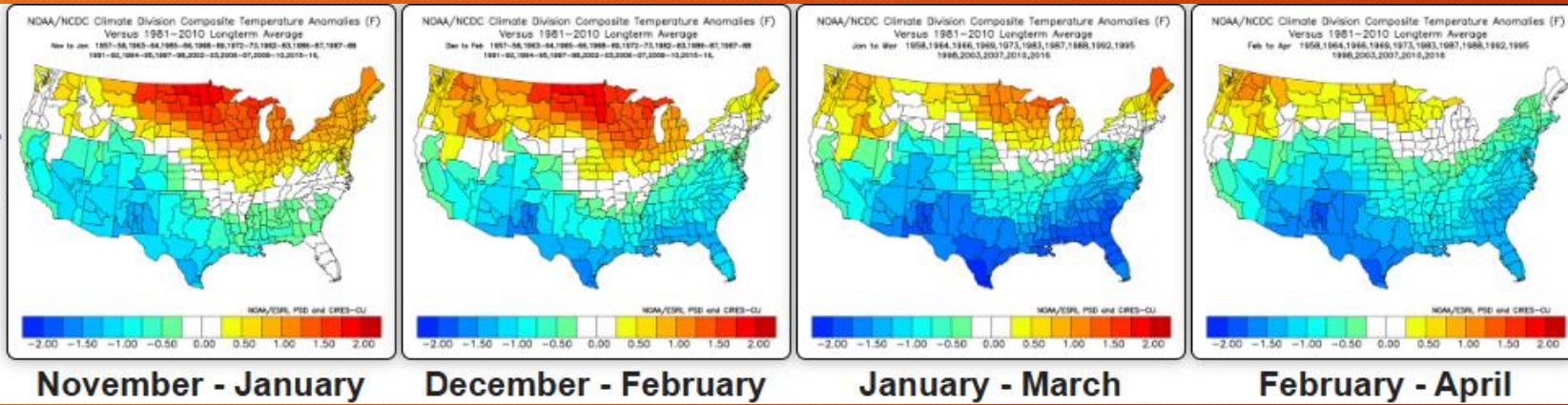
Southwest Monsoon Impacts

- Likely drought development across the remaining drought free areas of the Pacific Northwest and Northern Rockies
- Possible drought improvement over the Four Corners region



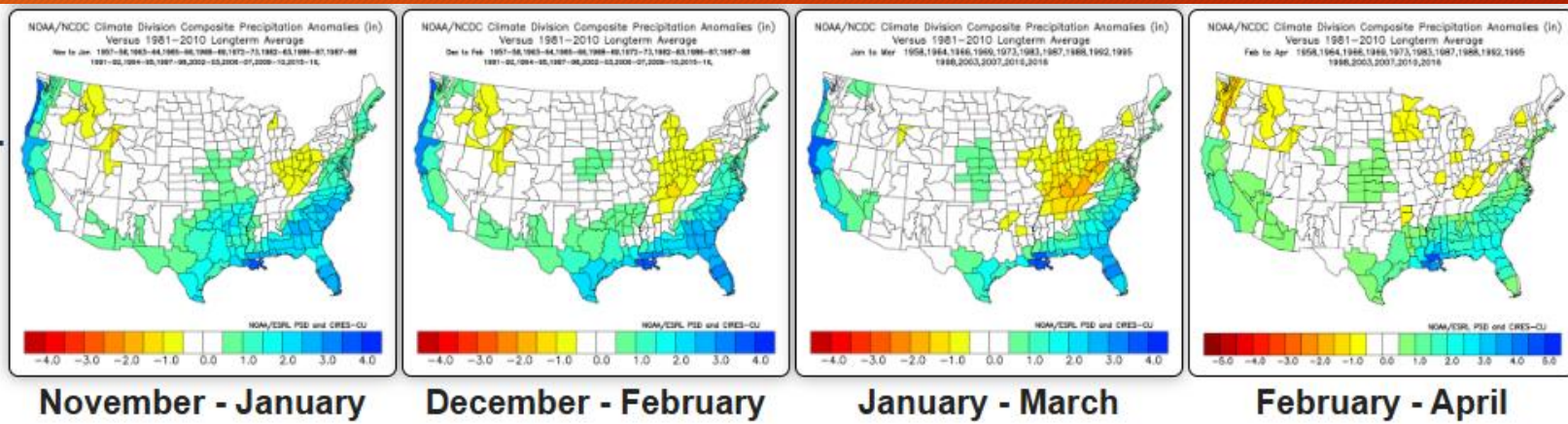
El Niño Temperature Probabilities

Moderate-Strong Episodes



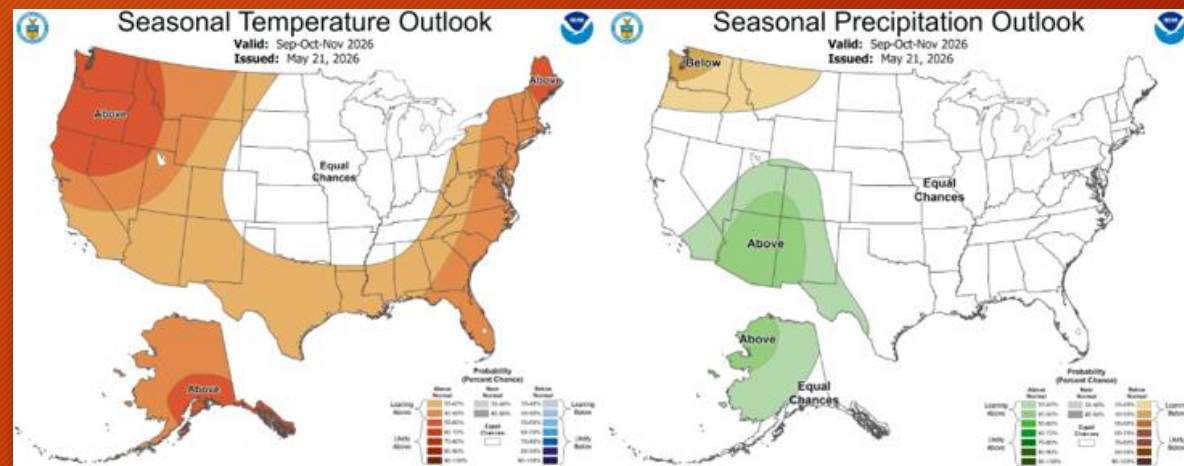
El Niño Precipitation Probabilities

Moderate-Strong Episodes



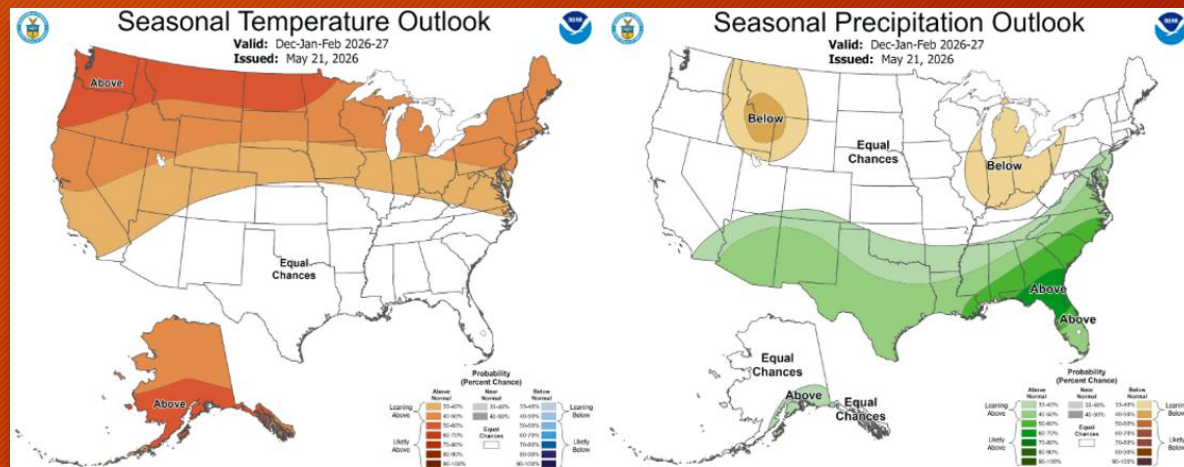
NOAA - Fall 2026 Outlook

- Likely Southwest Monsoon persists into September
- Likely Hot and Dry for the Pacific states



NOAA - Winter 2026-2027 Outlook

- Typical El Niño pattern
- Likely Warmer West Coast, Northern and Central Rockies
- Possible drier Northern Rockies
- Likely Wetter Desert Southwest and Southern High Plains



WESTERN ELECTRIC OUTLOOK

LAYNE BROWN
SENIOR RELIABILITY ASSESSMENT ANALYST
WESTERN ELECTRICITY COORDINATING
COUNCIL (WECC)

Western Electric Outlook

Layne Brown

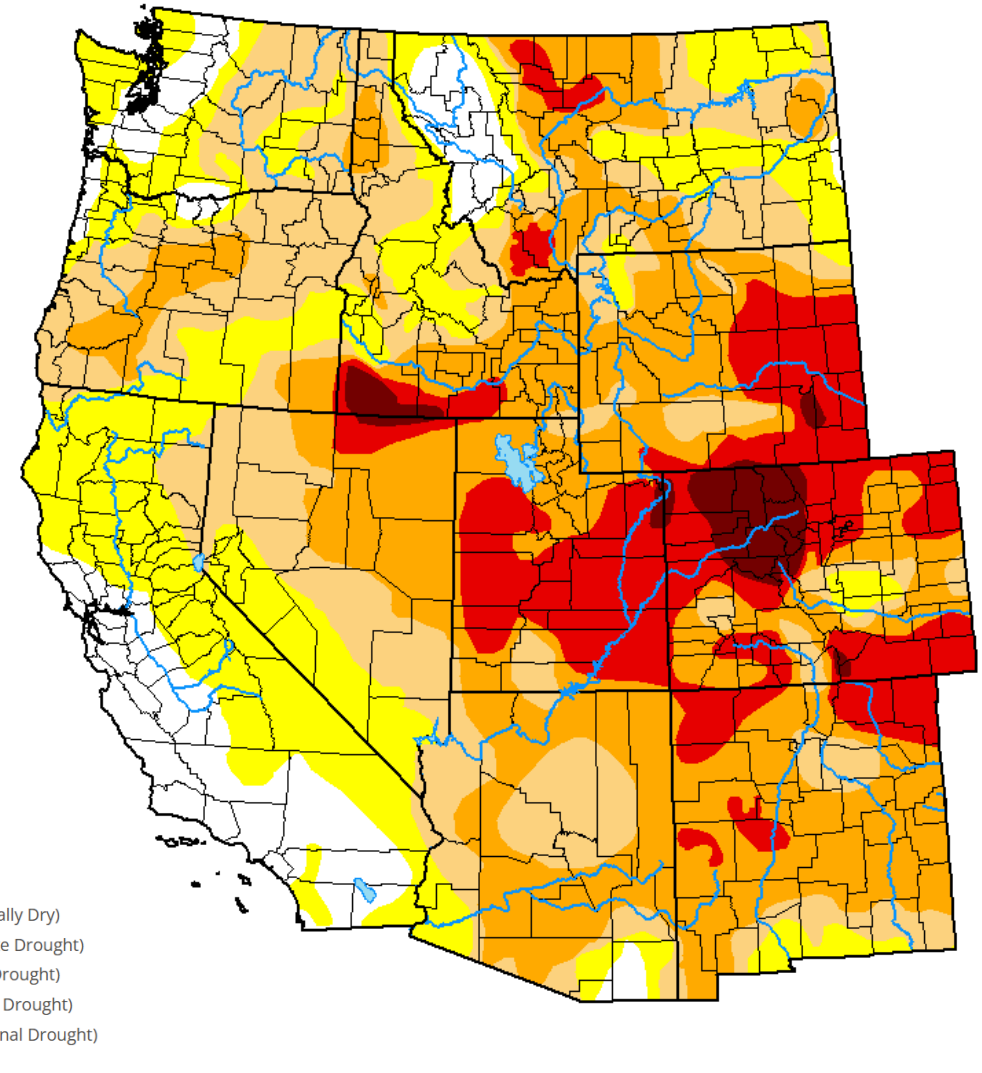
Senior Reliability Assessments Analyst

**Electric Reliability
& Security for the West**

May 31, 2026

Drought Outlook

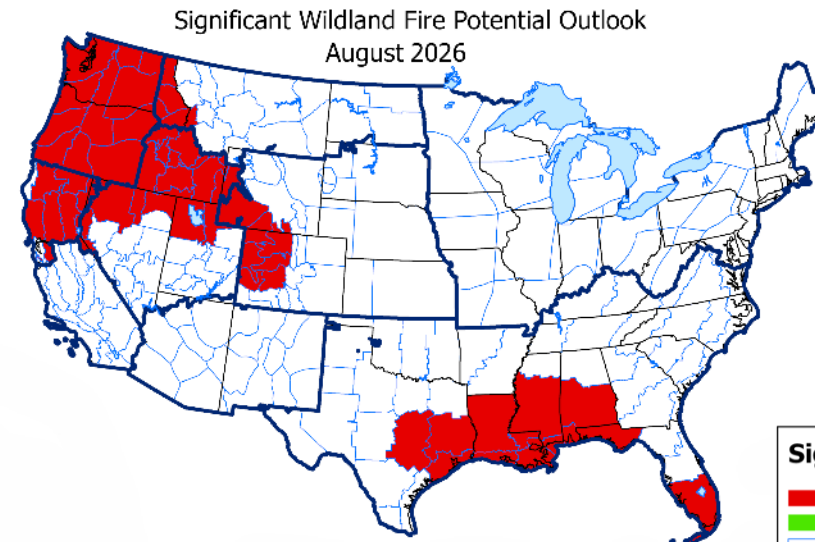
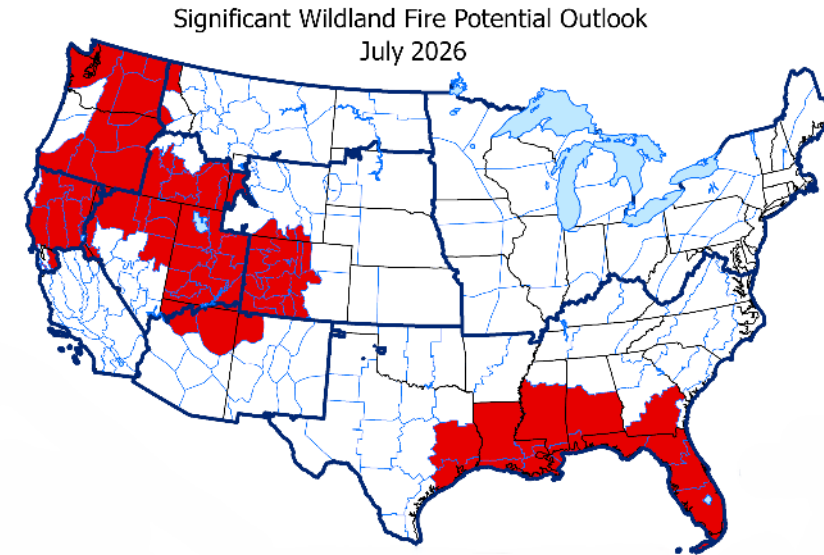
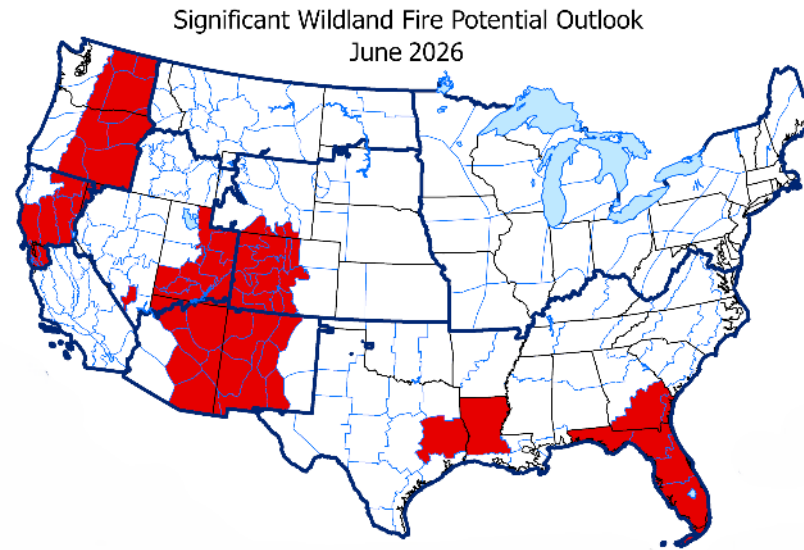
- Developed or intensified this winter in portions of Colorado, Idaho, Nevada, Oregon, and Utah
- Expected to develop this summer across much of the Southwest
- The drought outlook for southern California is more positive, with no drought projected this summer despite abnormally dry conditions throughout the state





Wildfire Outlook

- Fire activity increased this spring across much of the continent
- As the Southwest returns to normal fire danger in July, above-normal potential is expected to cover much of the Northwest
- Alberta and British Columbia: Hot dry forecasts create potential for active fire season



Map produced by
Predictive Services,
National Interagency Fire Center
Boise, Idaho
Issued: May 1, 2026
Next Issue: June 1, 2026





Hydro Outlook – Summer 2026

- Colorado River System
 - Bureau of Reclamation
 - Release 660,000–1 million acre-feet from Flaming Gorge Reservoir from April 2026 to April 2027
 - Lower release volume from Lake Powell to Lake Mead by 20% through September 2026
 - Expected to increase Lake Powell's elevation to at least 3,500 feet by April 2027

Glen Canyon Dam (Lake Powell)

Full pool level: **3,700 ft**
Min. power pool elevation: **3,490 ft**
Current level: **3,526 ft**
Nameplate capacity: **1,021 MW**

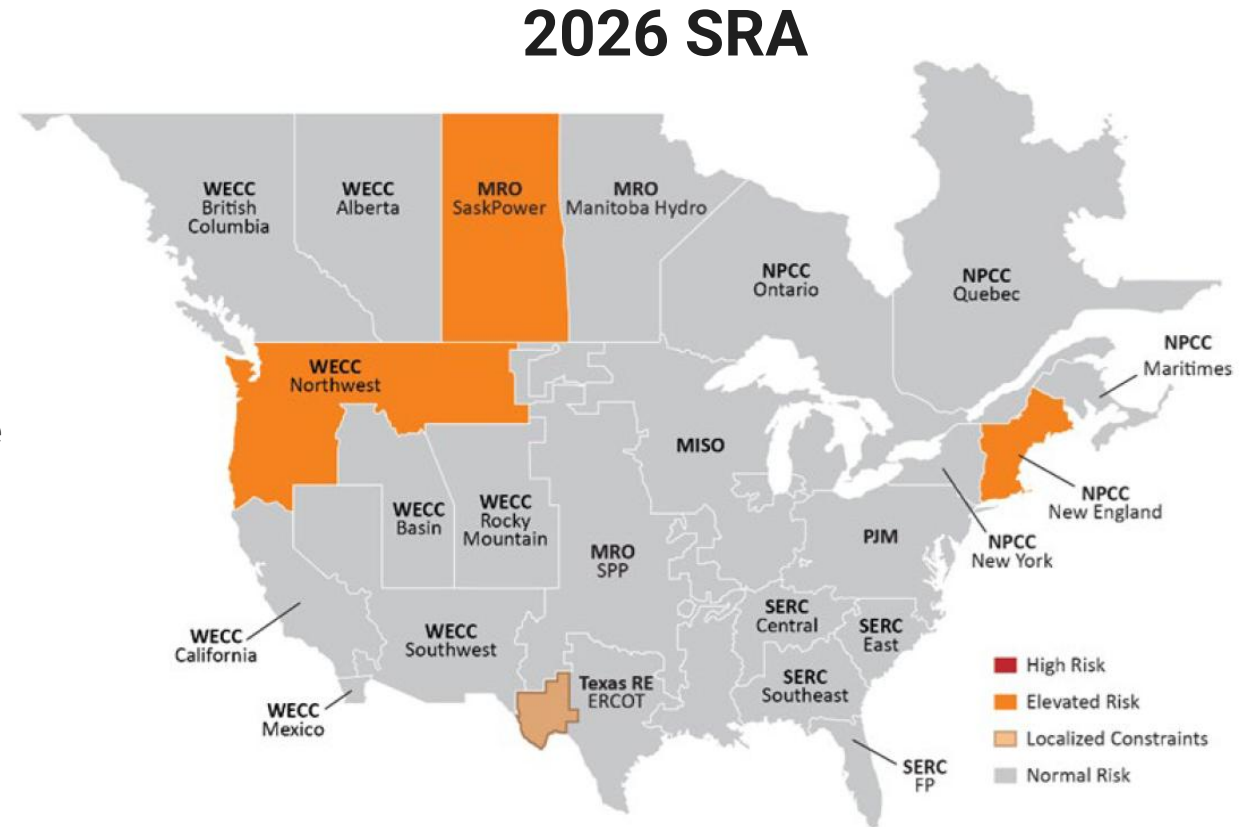
Hoover Dam (Lake Mead)

Full pool level: **1,229 ft**
Min. power pool elevation: **950 ft**
Current level: **1,054 ft**
Nameplate capacity: **2,080 MW**



NERC 2026 Summer Reliability Assessment: Key Takeaways

- All areas have adequate anticipated resources for normal summer peak load conditions.
- The Northwest subregion in the Western Interconnection face elevated risk of supply shortfalls during periods of more extreme summer conditions.
- Along with challenging hydro conditions, the Northwest’s elevated designation centers on a nearly 5% increase in demand projected for this summer, and a nearly 2% decrease in existing resources.
- The Mexico subregion added 1 GW of gas-fired generation since last summer, significantly improving the Mexico region outlook.
- Overlap of early summer heat and spring maintenance outages can lead to reliability risks.

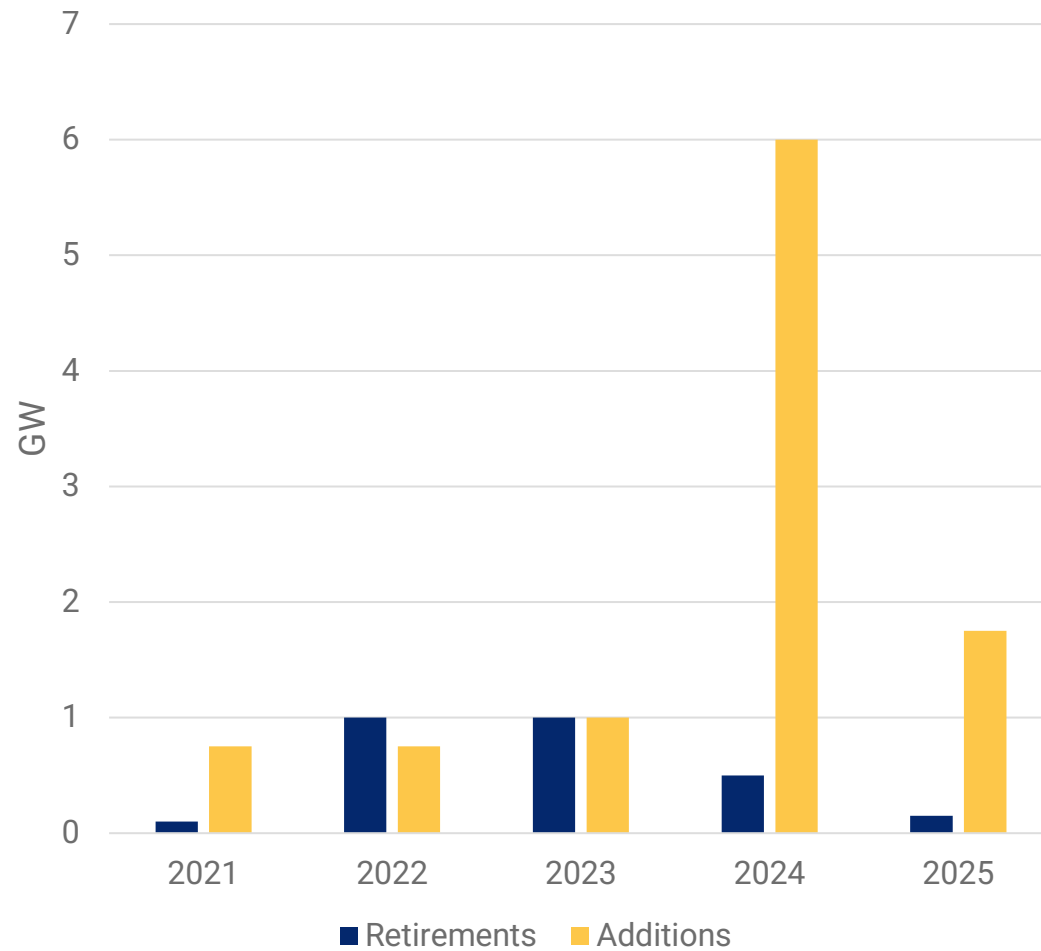


Seasonal Risk Assessment Summary	
High	Potential for insufficient operating reserves in normal peak conditions
Elevated	Potential for insufficient operating reserves in above-normal conditions
Normal	Sufficient operating reserves expected

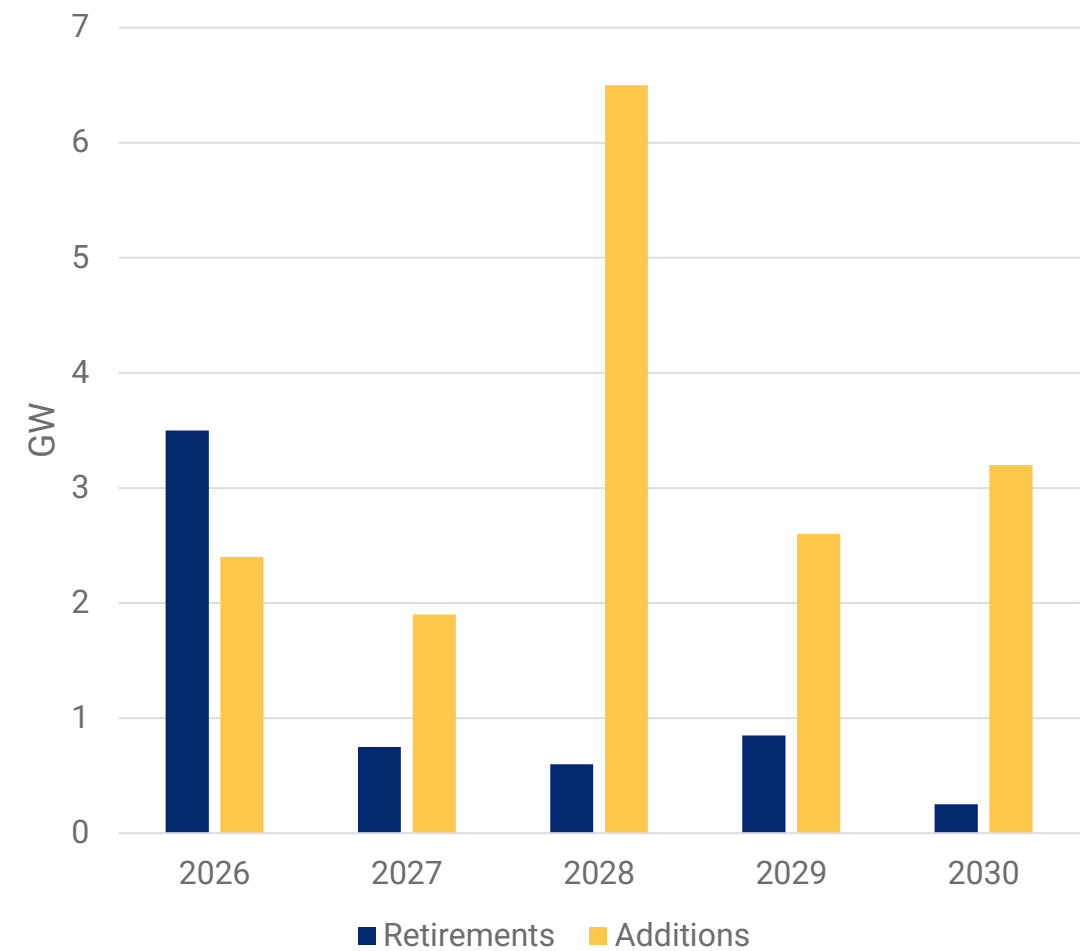


Western Interconnection Natural Gas Additions and Retirements

Actual Additions & Retirements 2021–2025

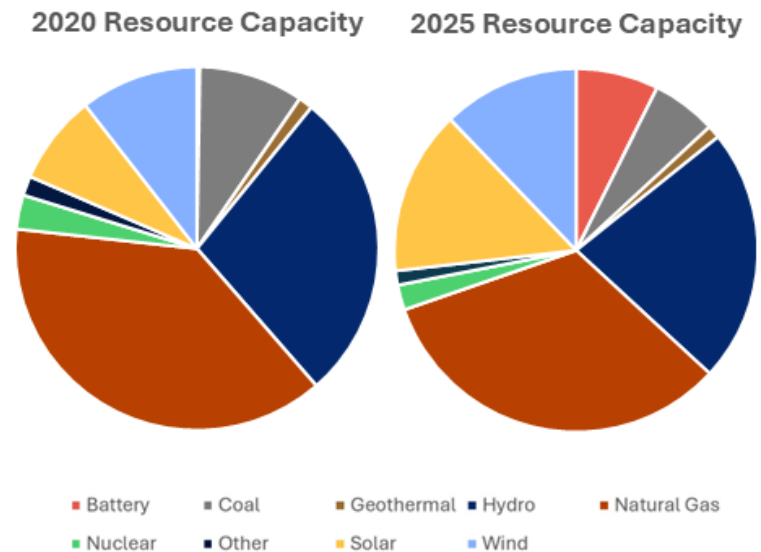
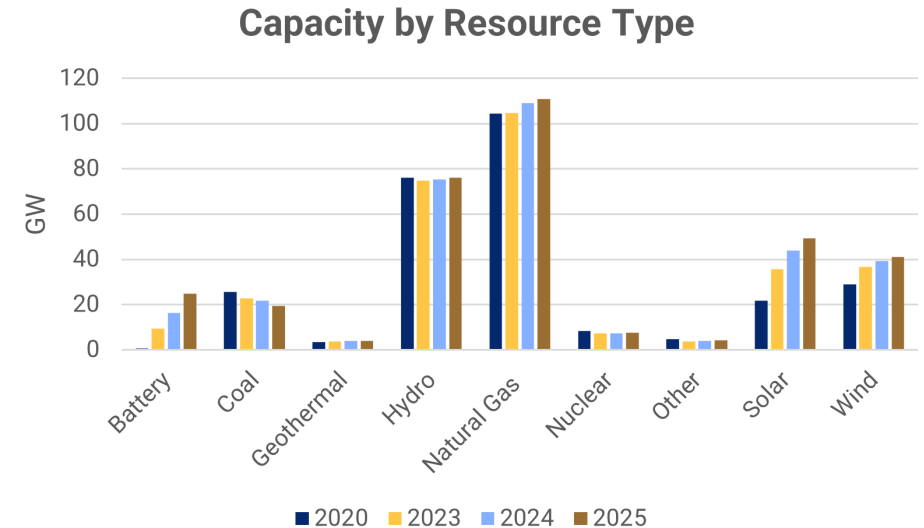


Planned Additions & Retirements 2026–2030



Resources

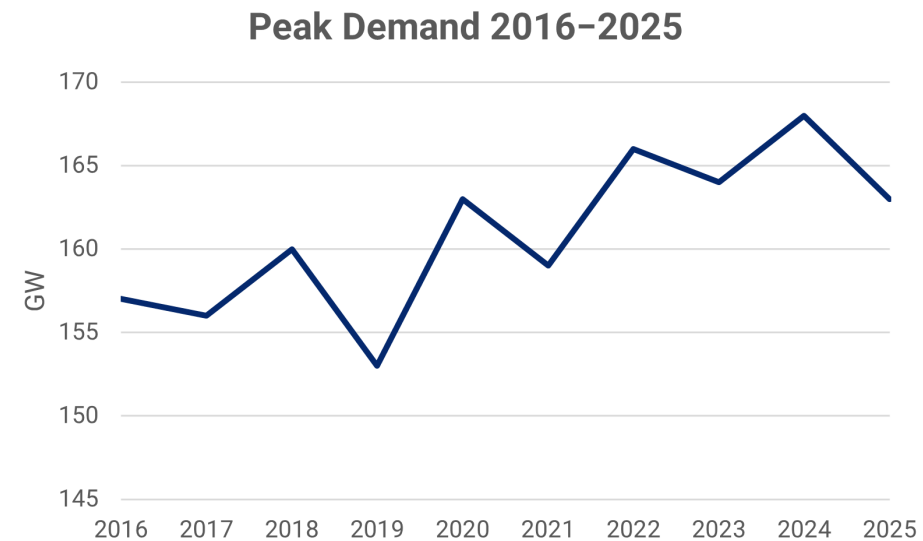
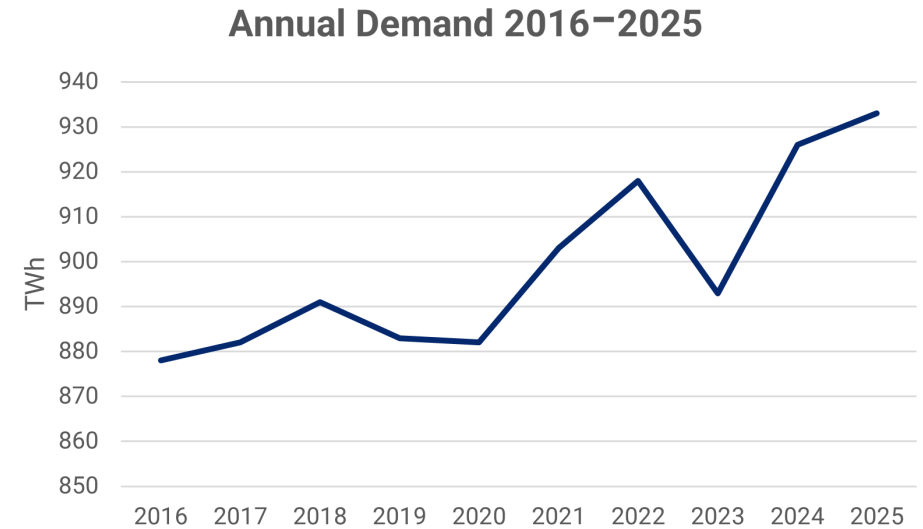
- Approximately 18 GW of capacity were added in 2025 in the Western Interconnection.
 - 24 GW added in 2024
 - Nearly 15 GW (85%) of capacity added in 2025 were inverter-based resources (IBR).
- 1.7 GW of natural gas-fired generation were added in 2025, down from 6 GW added in 2024.
- 2.6 GW of generation capacity retired in 2025.
 - 2.2 GW of coal-fired generation retired, an increase from 0.9 GW retired in 2024.
- 1.2 MW in coal retirements were delayed after the Department of Energy issued emergency orders.
 - Nameplate capacity of coal-fired generation in the Western Interconnection fell to roughly 19 GW, less than battery storage capacity for the first time.





Load

- 2025 annual demand was 932,902 GWh, surpassing the record of 926,000 GWh set in 2024.
- Peak demand was 163 GW in 2025, down from 168 GW in 2024.
- Load forecasts submitted by the balancing authorities this year project a 33% increase in annual demand over the coming decade, and a 28% increase in peak demand.





Forecasted Load Growth

Annual Demand

- Demand is expected to grow 25% over the next 10 years.
- The 2024 load forecasts indicated a 20% increase in demand over the decade.

Peak Demand

- Peak demand is forecast to grow 20% over the next decade, from 160 GW in 2026 to 191 GW in 2035.
- Peak demand values, while projected to increase over the next 10 years, are not as high as projected in 2024.

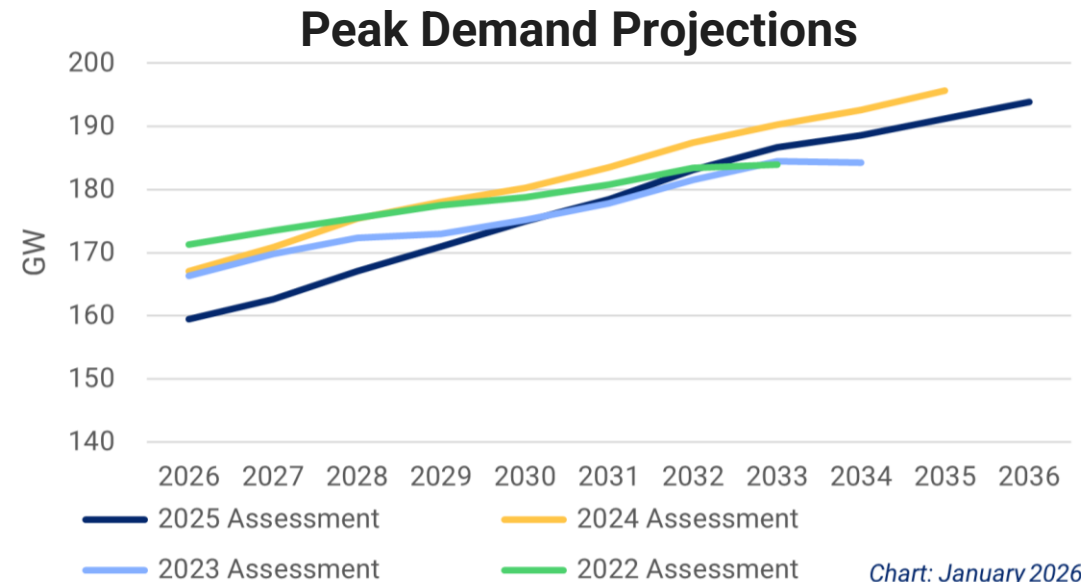
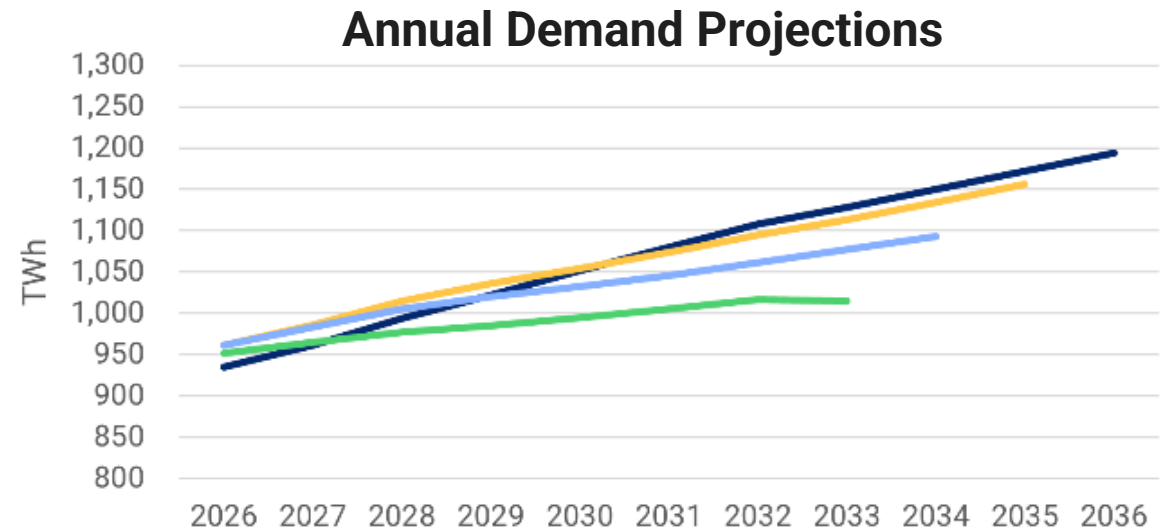


Chart: January 2026
Source: 2025 L&R Data



Forecasted Resource Additions

- 177 GW planned between 2026 and 2035
 - 90% is inverter-based resources (battery, solar, wind).
 - 70 GW are planned in Southwest; 49 GW are planned in California.
 - Basin, Northwest, and Rocky Mountain subregions each have about 15 GW in planned additions over the coming decade.
 - Mexico subregion has 600 MW of solar planned.

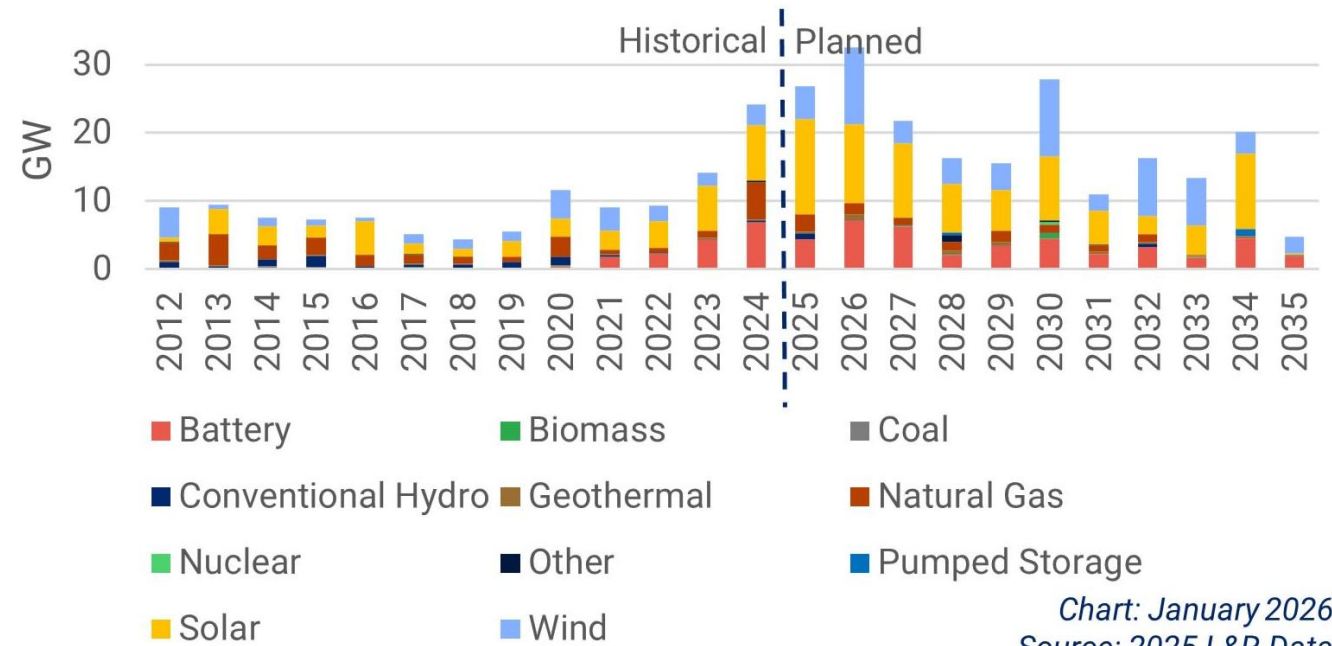


Chart: January 2026
Source: 2025 L&R Data



Forecasted Planned Retirements

- 22 GW across the interconnection over the coming decade
- 80% dispatchable generation
 - 8 GW natural gas
 - 7 GW coal
 - 2.3 GW nuclear

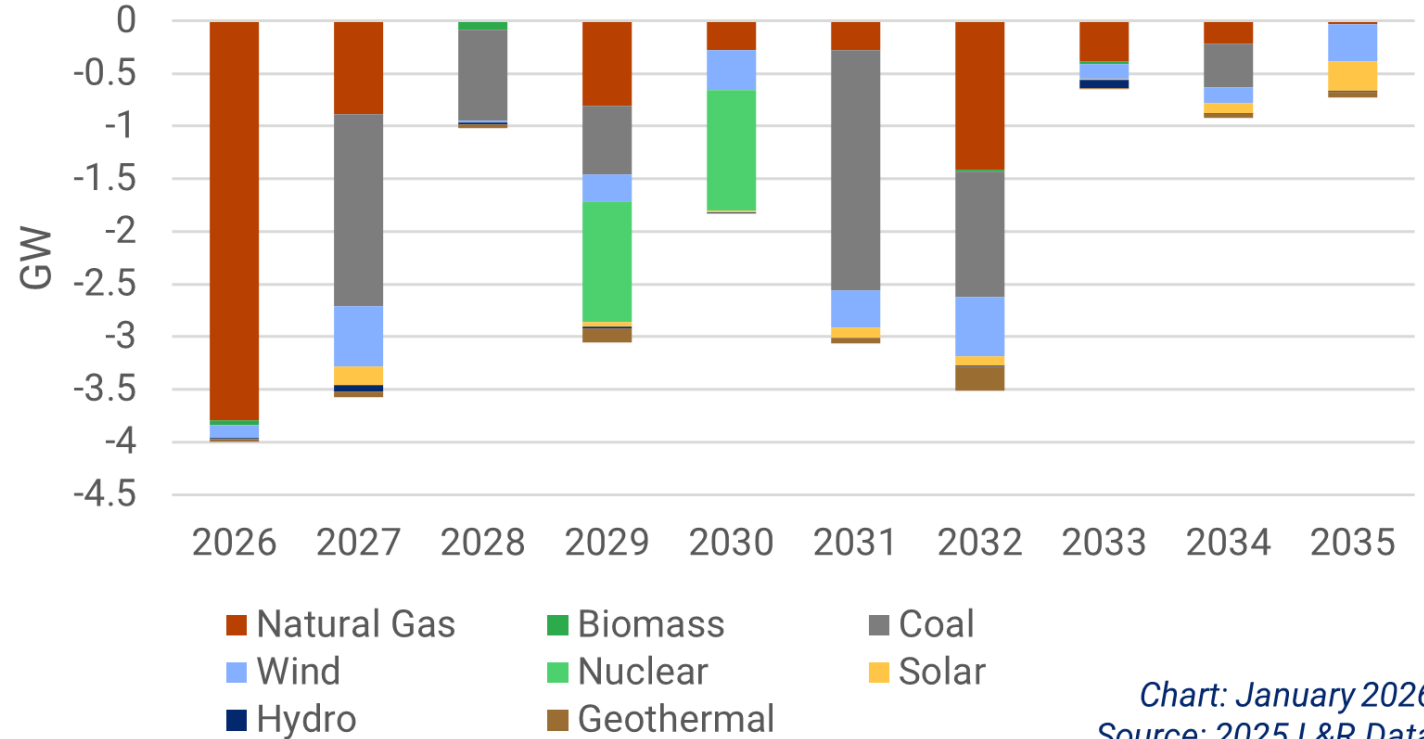


Chart: January 2026
Source: 2025 L&R Data



ENGAGE WITH WECC





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WESTERN NATURAL GAS OUTLOOK



LIZ PARDUE
DIRECTOR, ECONOMIC & REGULATORY
ANALYSIS
AGA

Western Natural Gas Market Fundamentals


AGA Western Readiness Forum
New Mexico



 www.aga.org

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The American Gas Association, founded in 1918, represents more than 200 local energy companies that deliver clean natural gas throughout the United States. There are more than 79 million residential, commercial, and industrial natural gas customers in the U.S., of which 94 percent — more than 74 million customers — receive their gas from AGA members. Today, natural gas meets more than one-third of the United States' energy needs.

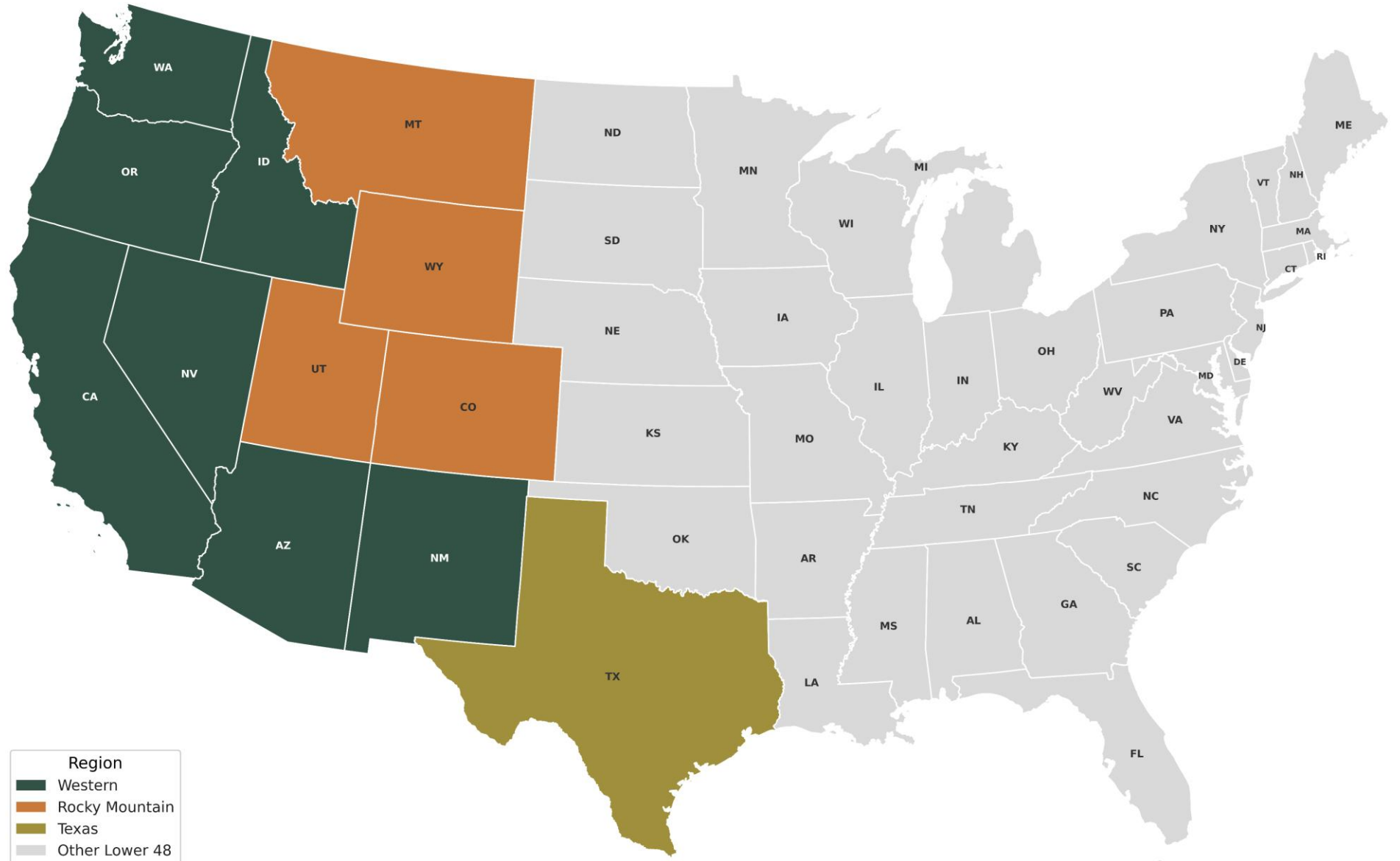
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Regional Focus



State of Play

Texas Leads

Texas leads the regional breakdown in demand and production growth

Western Trends Mixed

Softer recent demand in the Western region despite production gains; trends could be changing

Rockies Stability

The Rockies remain stable but stagnant since 2012; demand and production outlooks are mixed

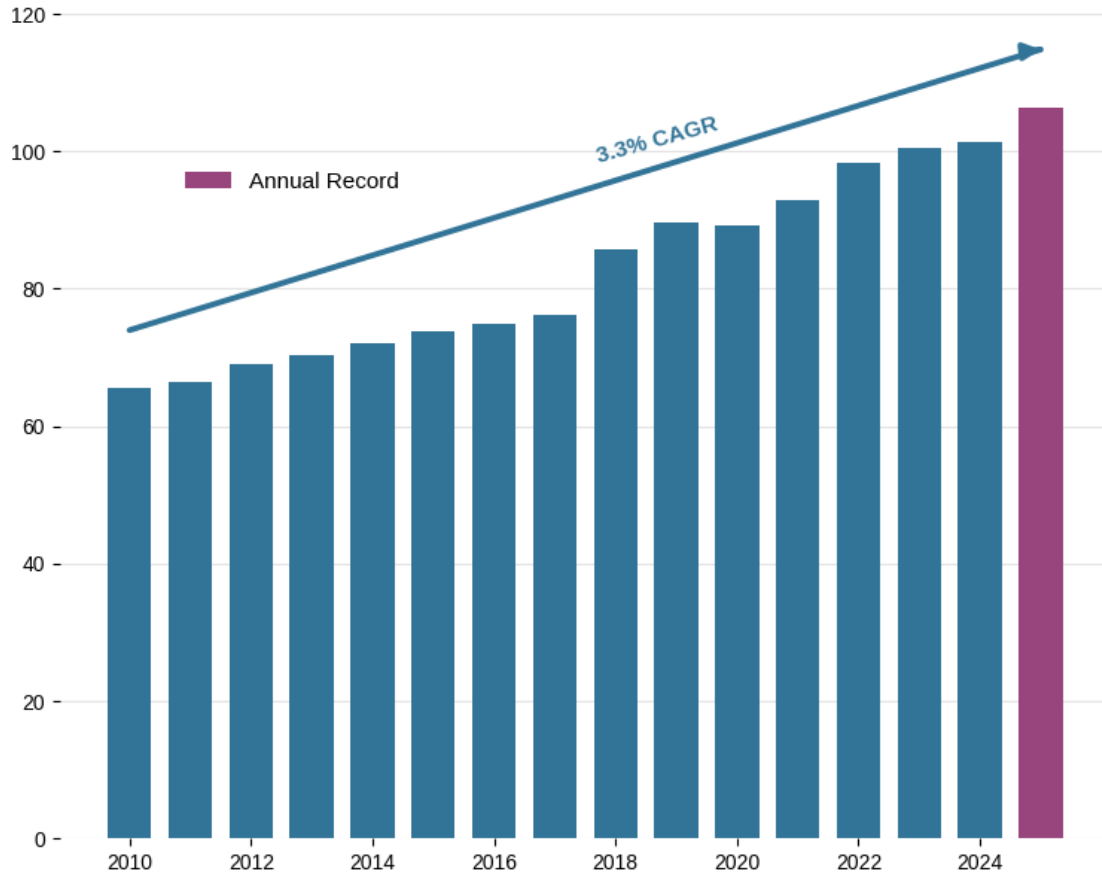
Regional Pipe Divide

New infrastructure is concentrated in the Gulf Coast while Western and Mountain regions expect modest gains

Natural gas demand and production set record highs in 2025, are trending higher year-to-date

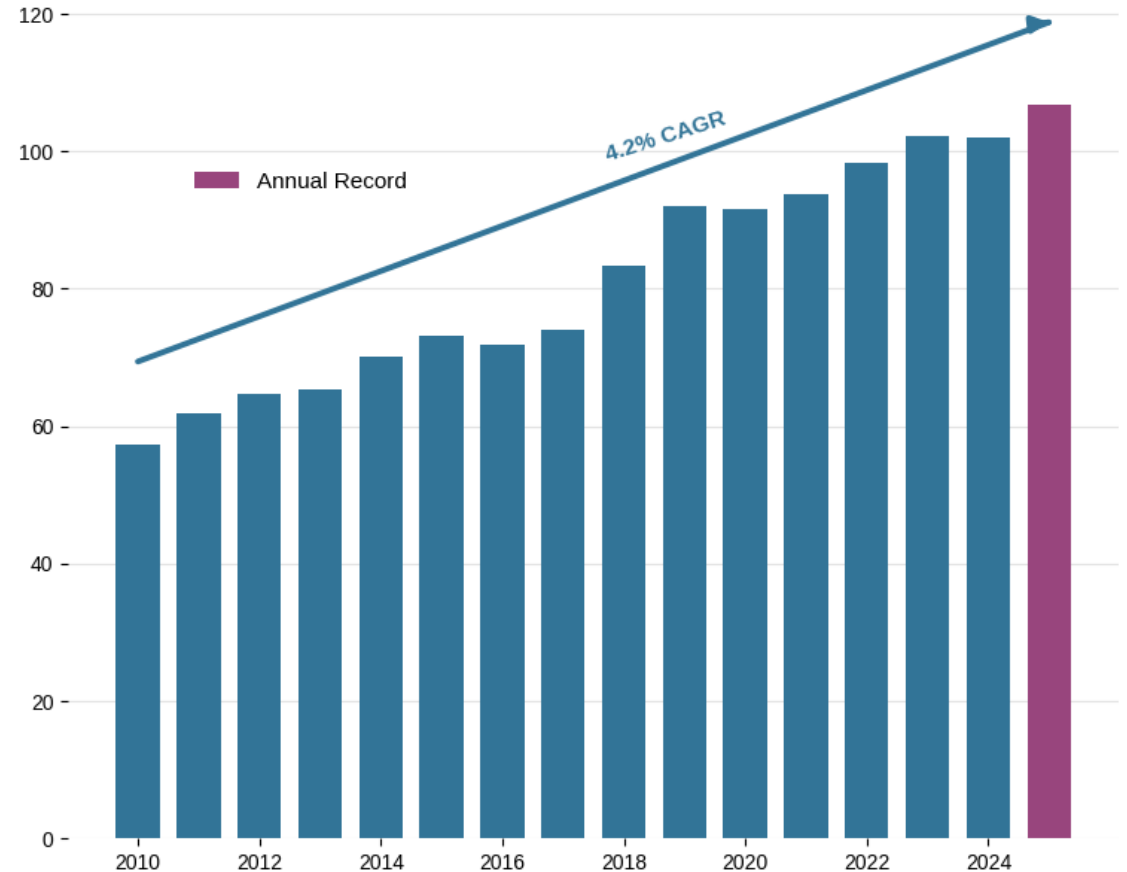
Lower 48 Natural Gas Demand

Calendar-Year Average, Bcf/d



Lower 48 Dry Natural Gas Production

Calendar-Year Average, Bcf/d

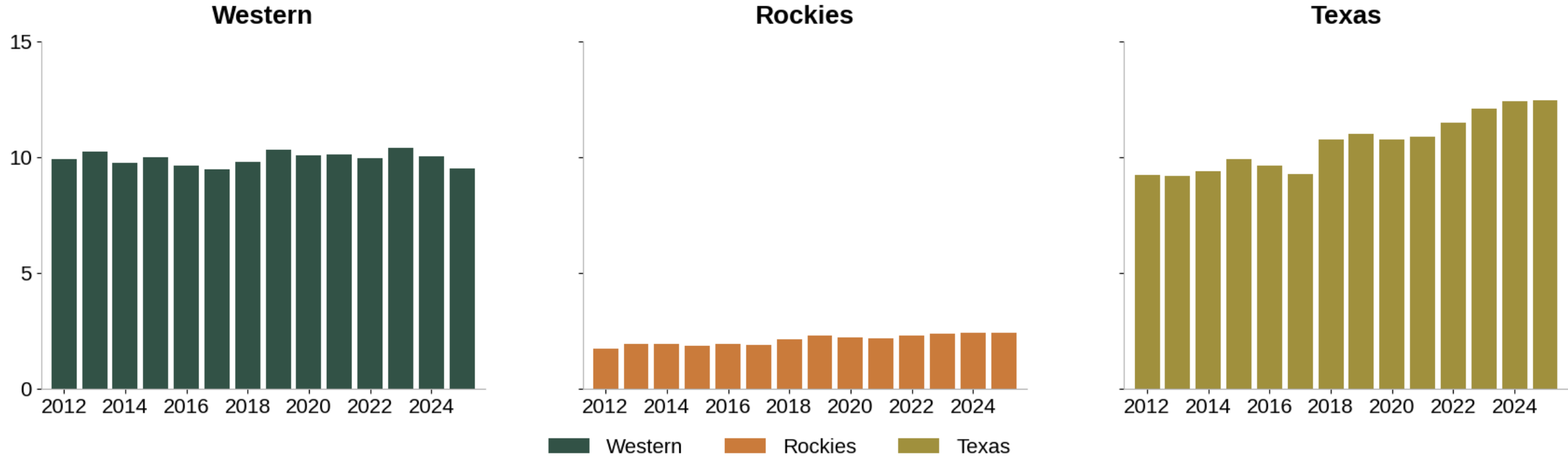


Source: S&P Global Energy, Inc., ©2026 by S&P Global Energy. Chart: American Gas Association. Data as of May 26, 2026. Subject to revision. 2026 reflects data through May 26, 2026.

Rockies, Texas domestic consumption grows while Western demand contracts modestly

Domestic Natural Gas Demand for Select Regions

Annual average, Bcf/d



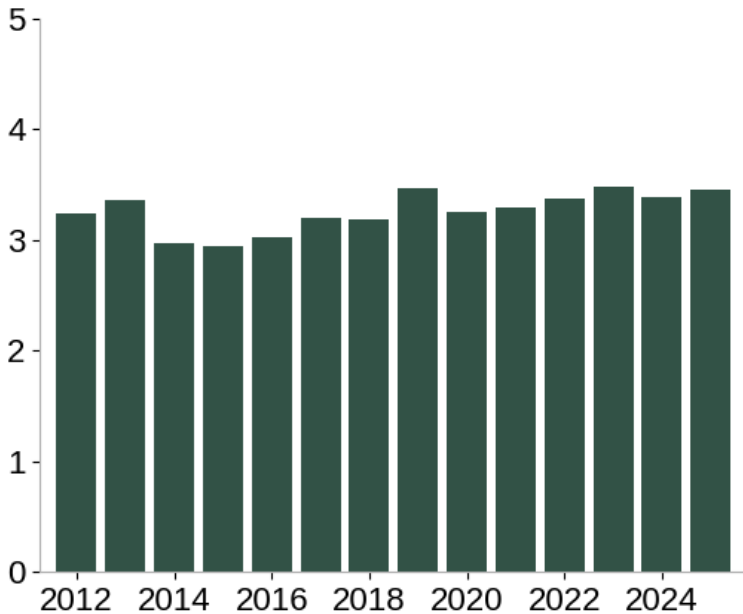
Source: S&P Global Energy, Inc., ©2026 S&P Global Energy. Chart: American Gas Association. Data as of May 26, 2026. Subject to revision.

Residential/Commercial demand on the rise since 2012

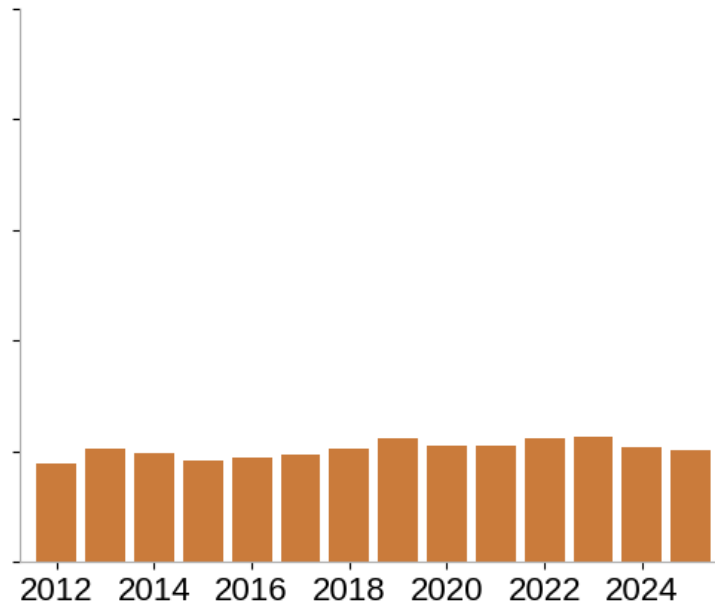
Residential and Commercial Natural Gas Demand for Select Regions

Annual average, Bcf/d

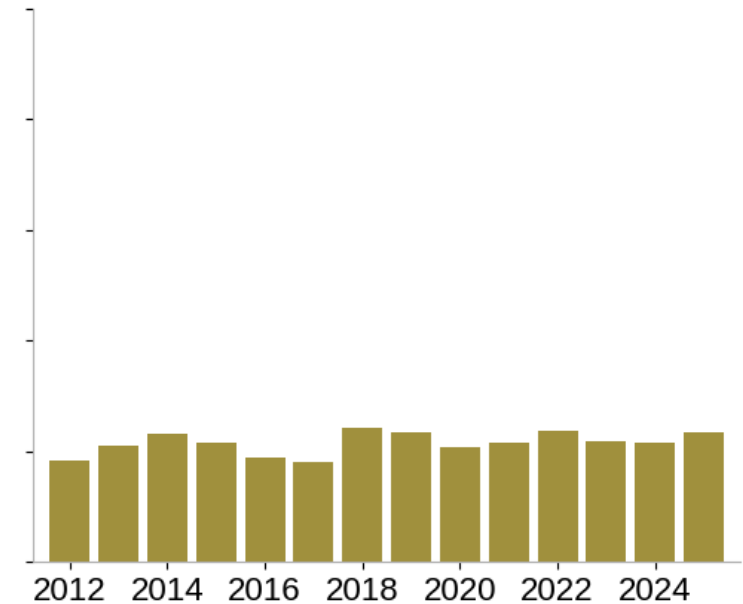
Western



Rockies



Texas



Western Rockies Texas

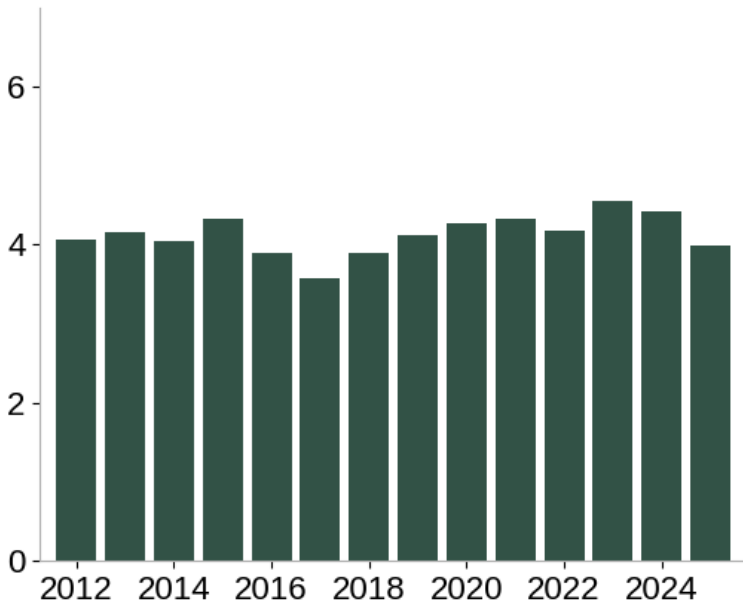
Source: S&P Global Energy, Inc., ©2026 S&P Global Energy. Chart: American Gas Association. Data as of May 26, 2026. Subject to revision.

Power demand for natural gas flat in Western states, rising in Texas and the Rockies

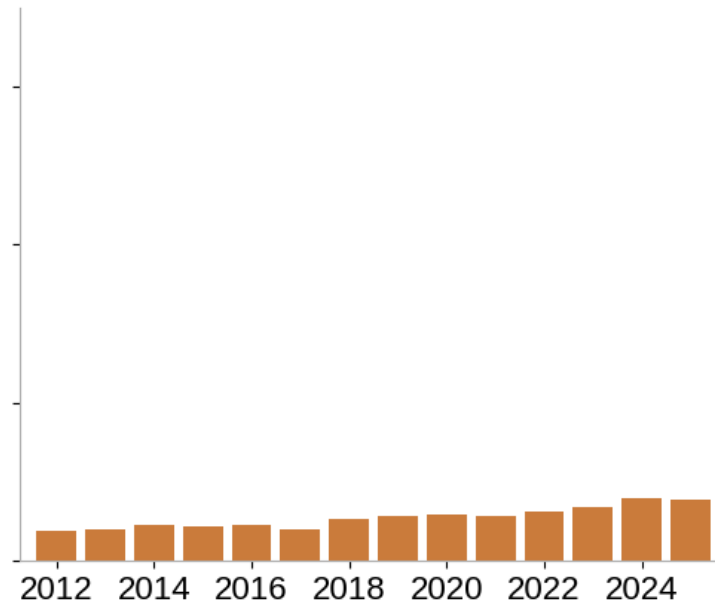
Electric Power Natural Gas Demand for Select Regions

Annual average, Bcf/d

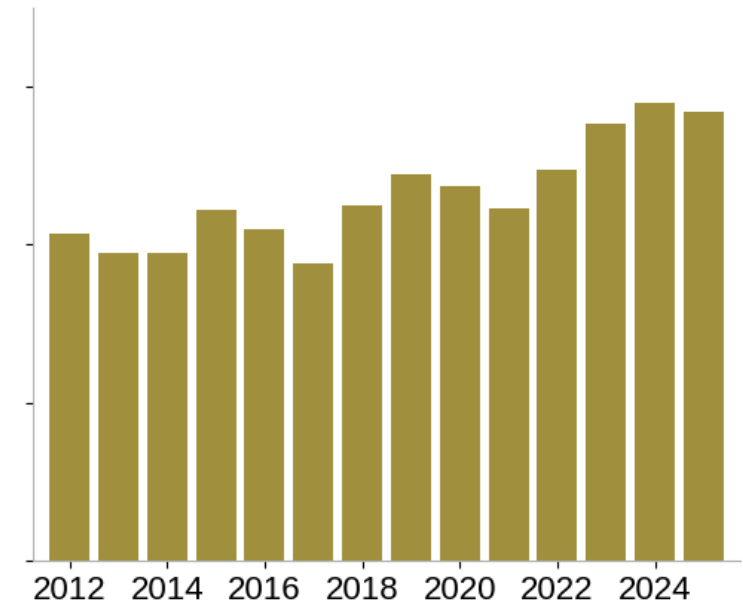
Western



Rockies



Texas



Western Rockies Texas

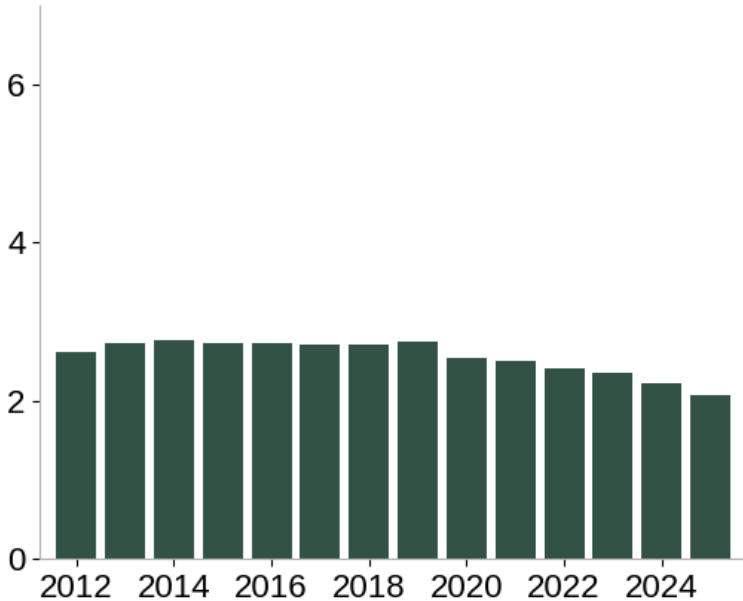
Source: S&P Global Energy, Inc., ©2026 S&P Global Energy. Chart: American Gas Association. Data as of May 26, 2026. Subject to revision.

Industrial demand trends mixed

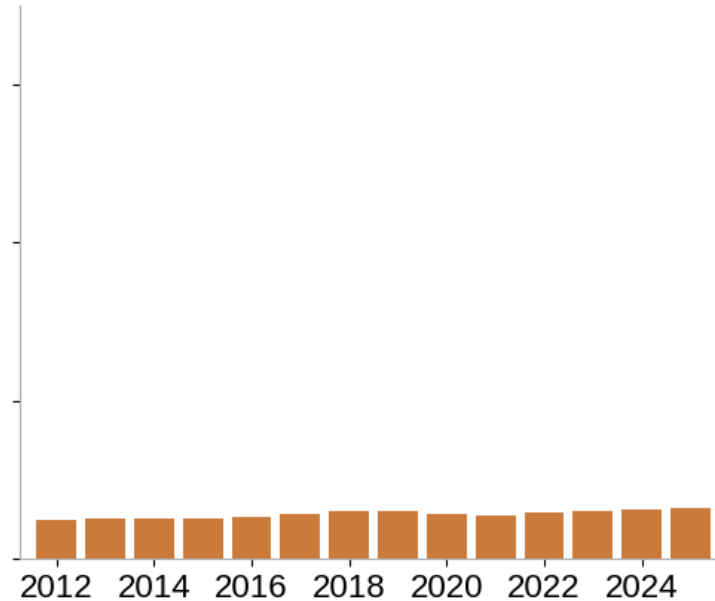
Industrial Natural Gas Demand for Select Regions

Annual average, Bcf/d

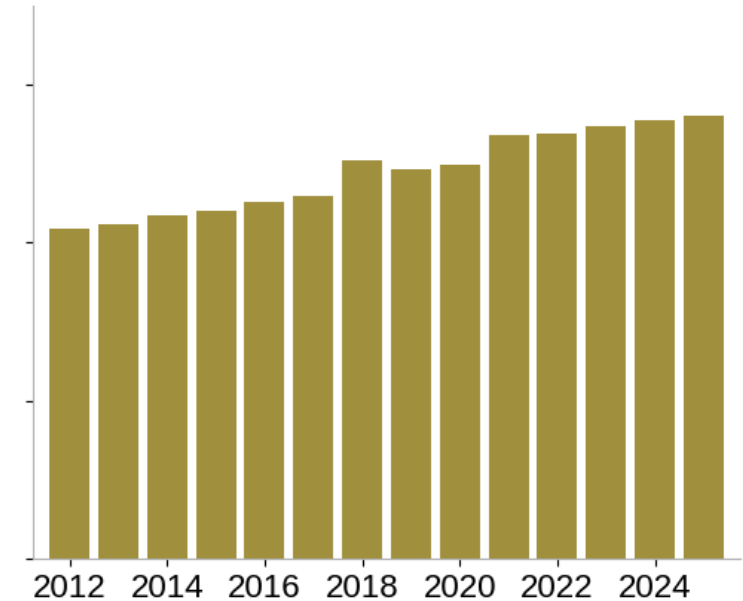
Western



Rockies



Texas



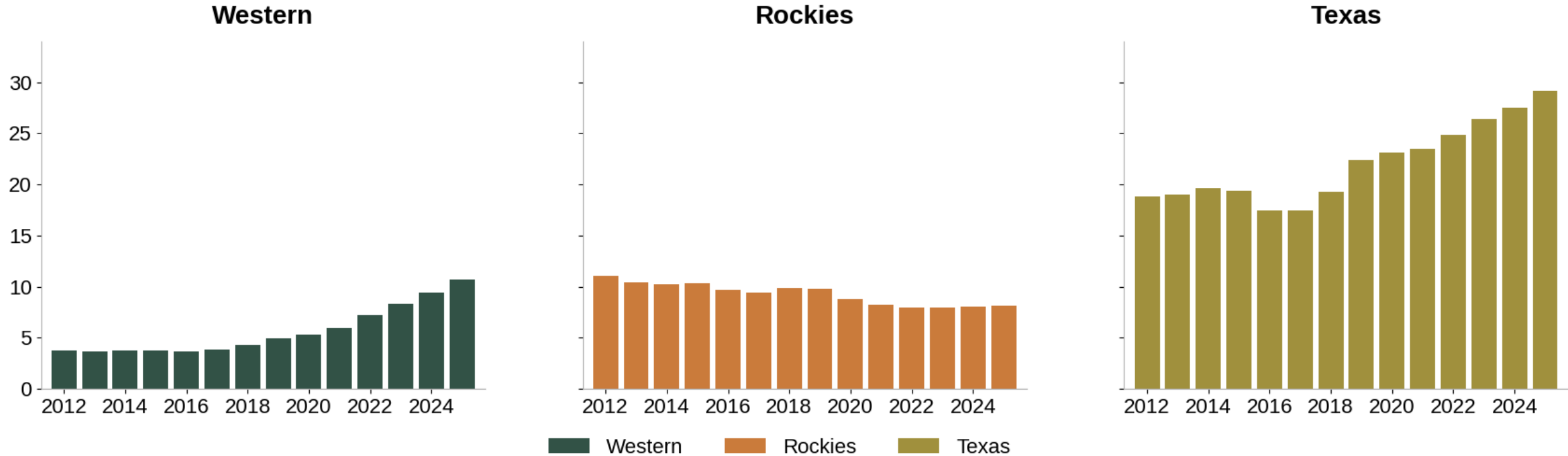
Western Rockies Texas

Source: S&P Global Energy, Inc., ©2026 S&P Global Energy. Chart: American Gas Association. Data as of May 26, 2026. Subject to revision.

Historical production up in Texas and Western states while Rockies output falls 2.4%

Dry Natural Gas Production for Select Regions

Bcf/d



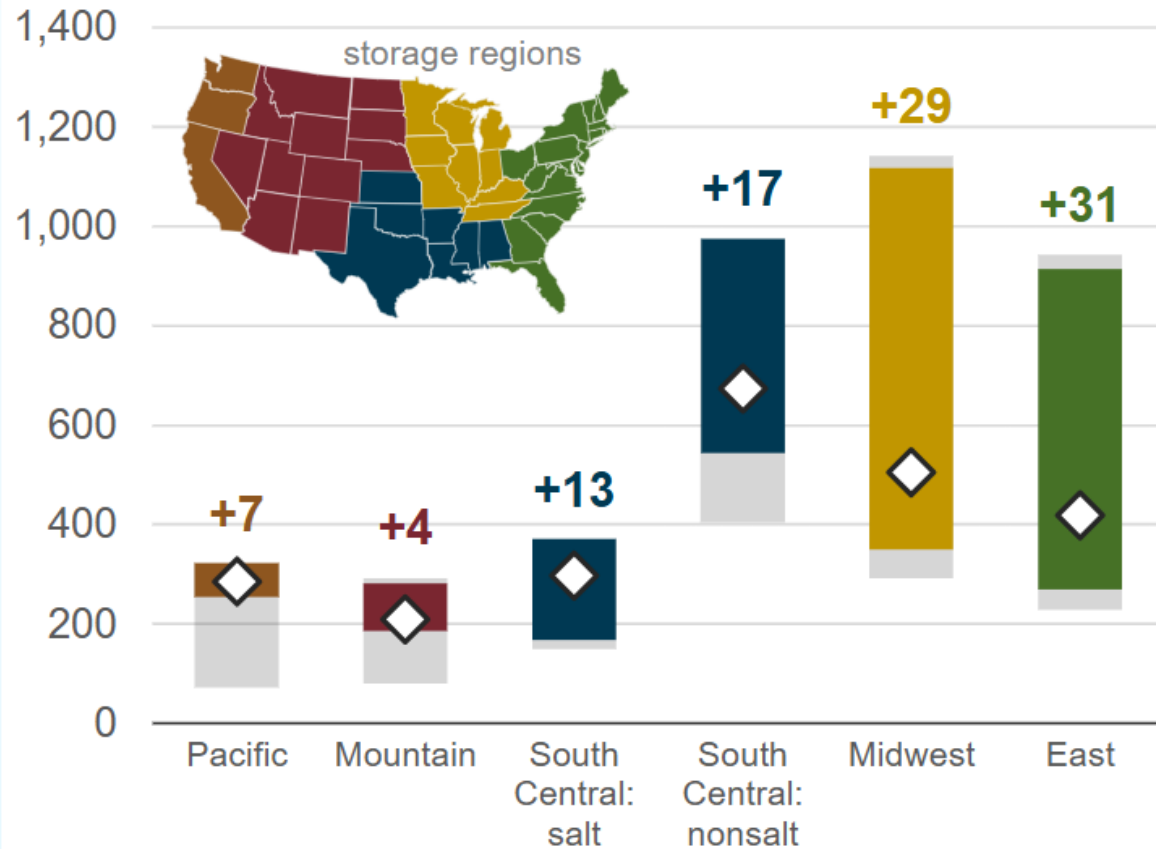
Source: S&P Global Energy, Inc., ©2026 S&P Global Energy. Chart: American Gas Association. Data as of May 26, 2026. Subject to revision.

Regional Underground Storage Trends

for the week ending May 15, 2026



Working natural gas in storage by region
billion cubic feet (Bcf)



data value:
change from
previous week

diamond:
latest weekly
value

color portion:
previous
52 weeks

gray portion:
previous
5 years

Data source: U.S. Energy Information Administration, Form EIA-912, [Weekly Natural Gas Storage Report](#)

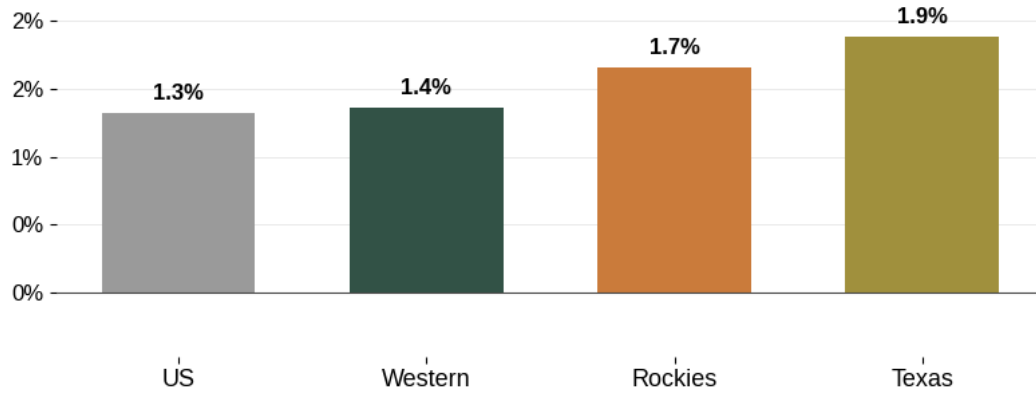
Note: Totals may not equal sum of components because of independent rounding.

Demand growth is generally positive, but drivers vary by region

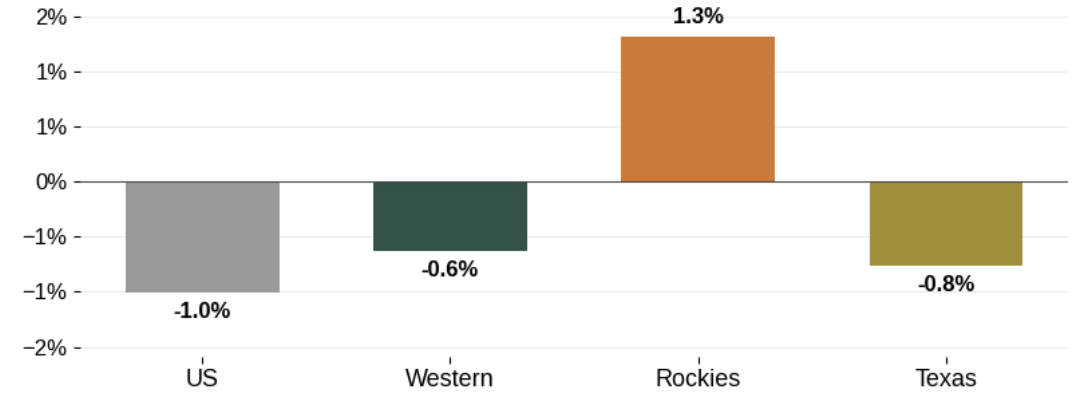
Demand Outlook by Sector for Select Regions and the U.S., 2025-2028

Compound Annual Growth Rate (CAGR)

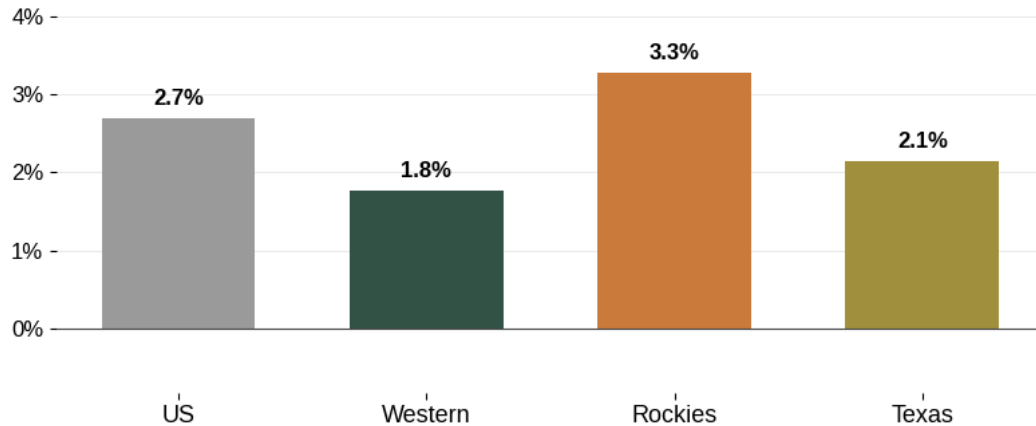
Domestic Demand



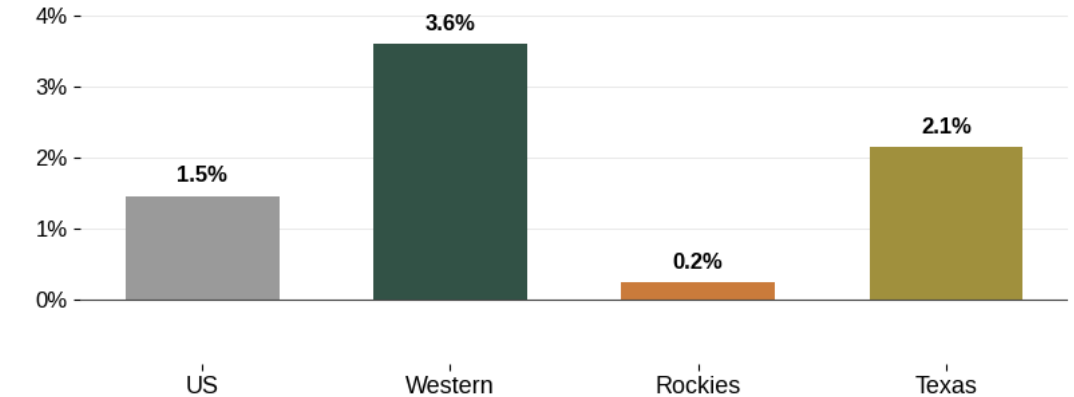
Residential/Commercial



Electric Power



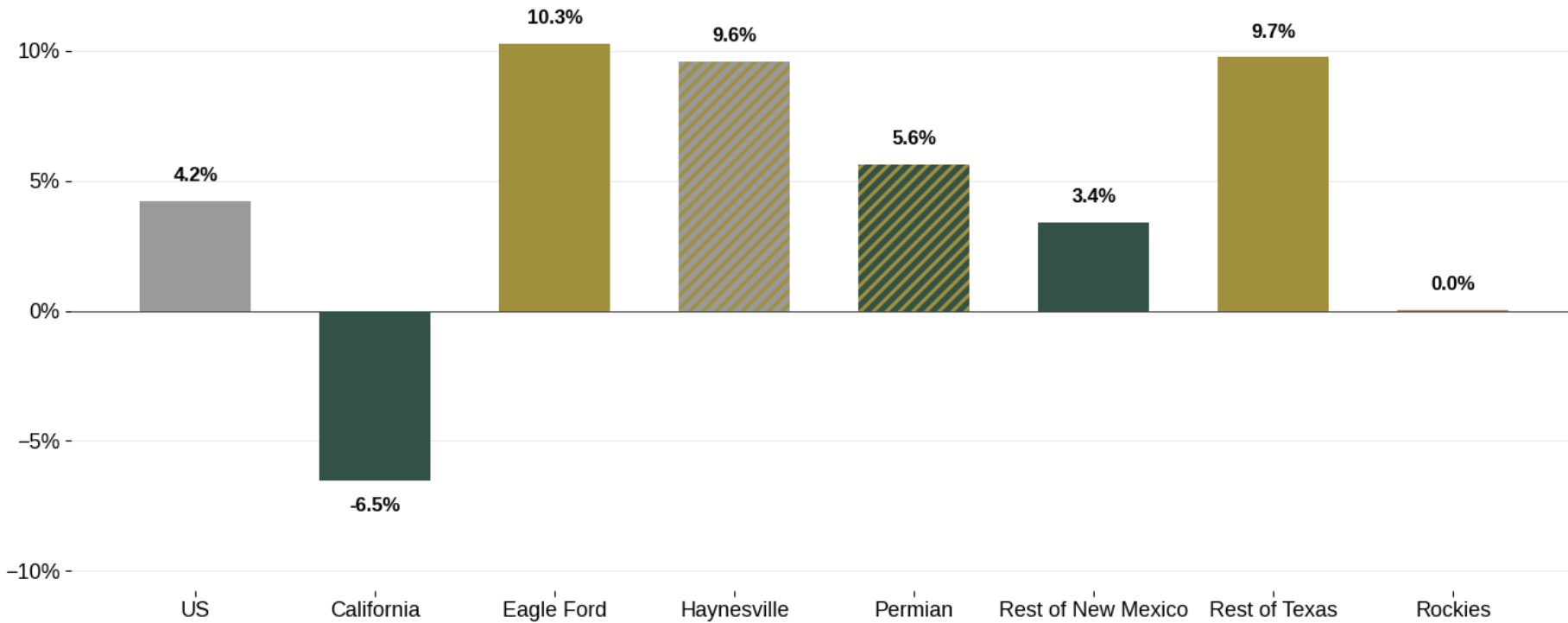
Industrial



Gulf Coast basins lead growth expectations, while Permian scale anchors outlook

Production Outlook by Select Region/Basin and the U.S.

Compound Annual Growth Rate 2025-2028



2025 Production Base

Annual average production and share of U.S.

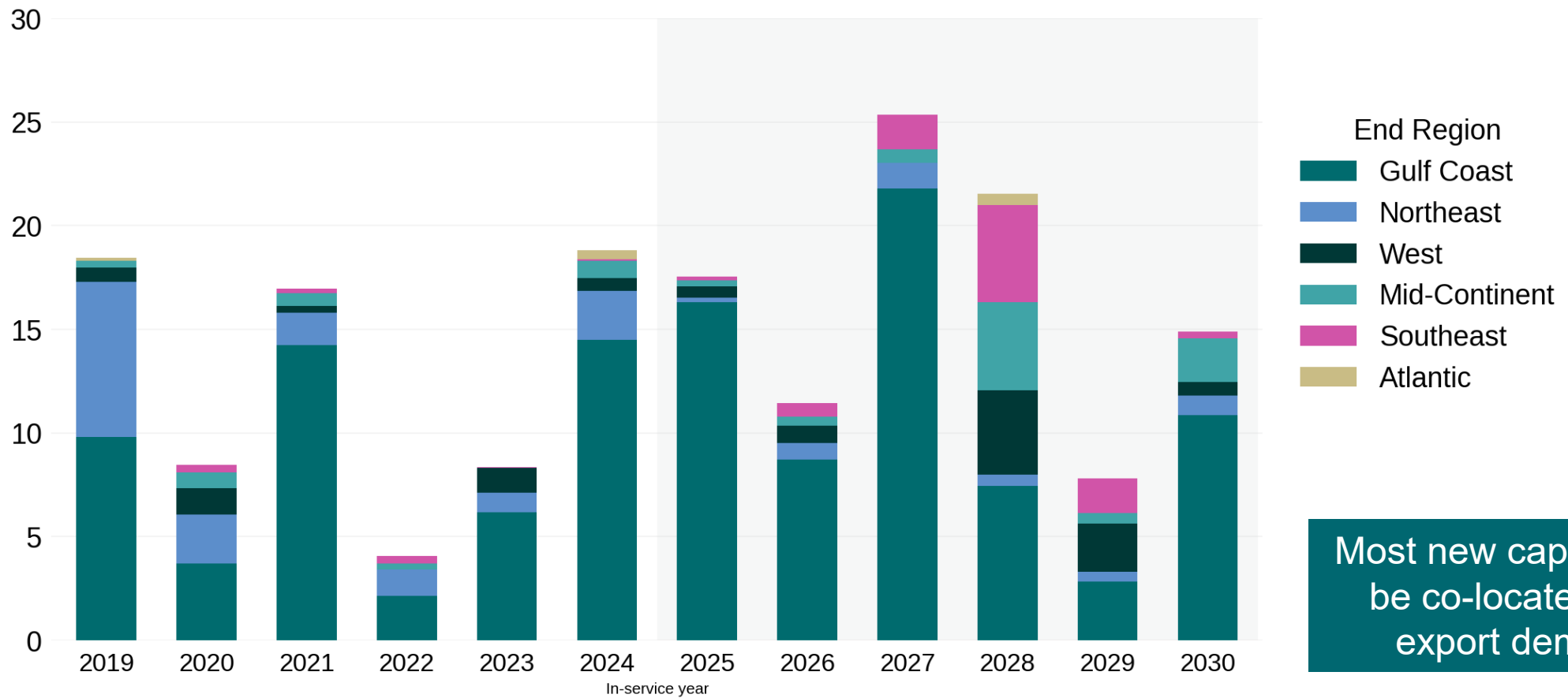
Region/Basin	Bcf/d	Share
U.S.	108.0	
Permian	22.9	21.2%
Haynesville	15.2	14.1%
Rockies	7.8	7.2%
Eagle Ford	6.4	6.0%
Rest of Texas	3.6	3.3%
Rest of NM	1.4	1.3%
California	0.3	0.3%

Source: Rystad Energy. Chart: American Gas Association. Data as of May 25, 2026. Subject to revision. Annual averages calculated from monthly production values; CAGR based on annual averages.

New pipeline capacity is expected, largely intrastate projects located in the Gulf Coast. Interstate projects outside of the South remain a challenge.

U.S. Natural Gas Pipeline Capacity Expansions, 2019-2030

Bcf per day



Most new capacity will be co-located with export demand

Recurring AGA Projects



Scan this QR code to receive AGA's Natural Gas Market Indicators in your inbox.



Energy Insights

AGA's Energy Insights dive into topics and trends relevant to the natural gas market, member utilities, and consumers. Visit <https://www.aga.org/topics/energy-insights/> for more information.



Natural Gas Market Indicators (NGMI)

NGMI is a biweekly publication focused on natural gas market trends such as supply, demand, prices, imports and exports, and storage inventories. Visit <https://www.aga.org/topics/ngmi/> for more information.



Surveys and Data Collection

AGA distributes and analyzes responses from several surveys throughout the year. As one example, the Winter Heating Season Performance Survey collects data on winter heating planning from members to track trends on preparedness.

Contact

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WESTERN GAS/ELECTRIC COORDINATION INITIATIVE



TRICIA JOHNSTONE
DIRECTOR, OPERATIONAL READINESS
CALIFORNIA INDEPENDENT SYSTEM
OPERATOR (CA ISO)



California ISO

Western Gas – Electric Coordination

Tricia Johnstone, Director Operational Readiness
California Independent System Operator

Western Regional NGRF
May 31, 2026

Agenda

- California ISO Overview
- Gas – Electric Coordination Overview
- 1 to 7 Day Outlook Processes

California ISO

Within its balancing authority area, the California ISO:

- Maintains reliability on the grid
- Manages the flow of energy
- Oversees the transmission planning process
- Operates the wholesale electric market

For much of the western U.S., the ISO:

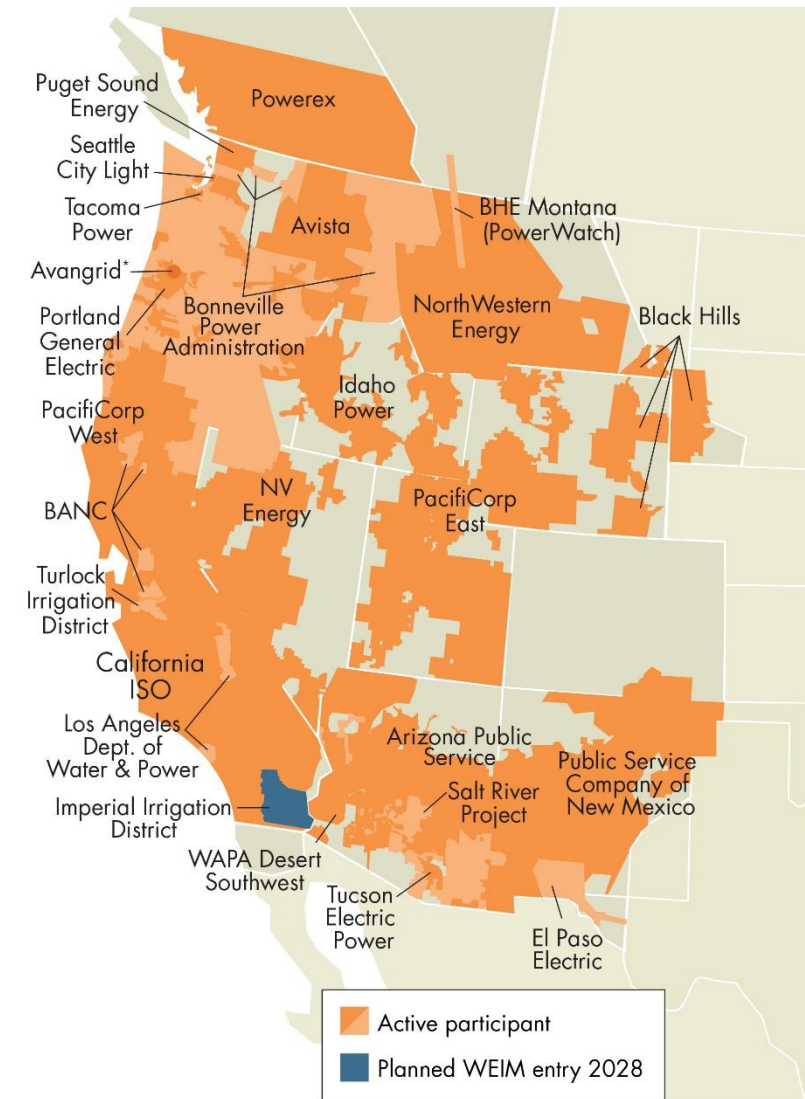
- Operates the Western Energy Imbalance Market (EIM)
- Serves as Reliability Coordinator (RC West)



Western Energy Imbalance Market (WEIM)

Since its launch in 2014, the WEIM has enhanced grid reliability, generated billions of dollars in benefits for participants, and improved the integration of renewable energy resources.

- 24 participating entities
- Gross benefits over \$8.6 billion
- Reduced over 1 million metric tons of CO₂ emissions



For more information visit:
[Western Energy Imbalance Market \(WEIM\) | Western Energy Markets](#)

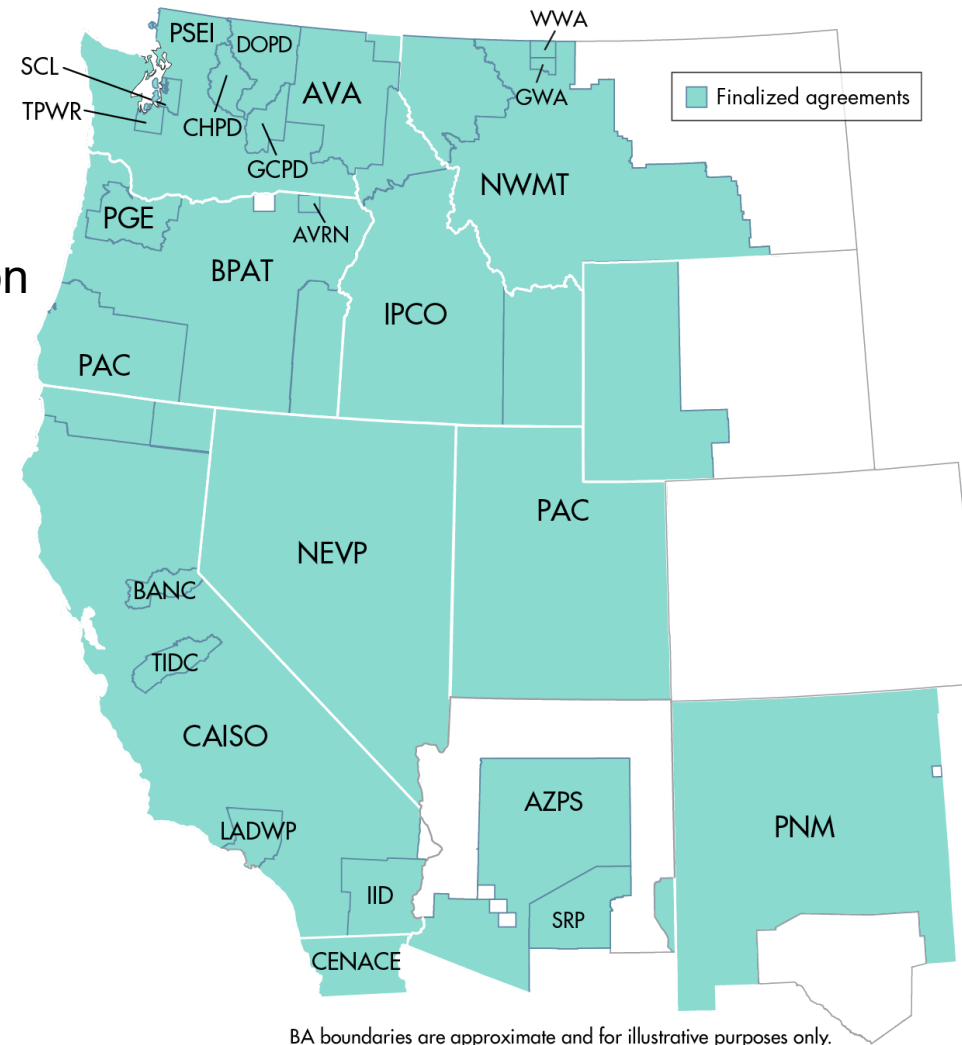
**Avangrid office; generation only BAA with distribution across multiple states. Map boundaries are approximate and for illustrative purposes only. Copyright ©2026 California ISO*

RC West

The ISO became the reliability coordinator for the majority of the Western Electricity Coordinating Council (WECC) in 2019 – 24 Balancing Authorities, 40 Transmission Operators.

Reliability coordinators:

- Have authority and responsibility for grid stability
- Monitor the interconnected grids in the West for compliance with federal and regional standards
- Authorize measures to prevent or avoid system emergencies in day-ahead or real-time operations
- Lead system restoration following major incidents



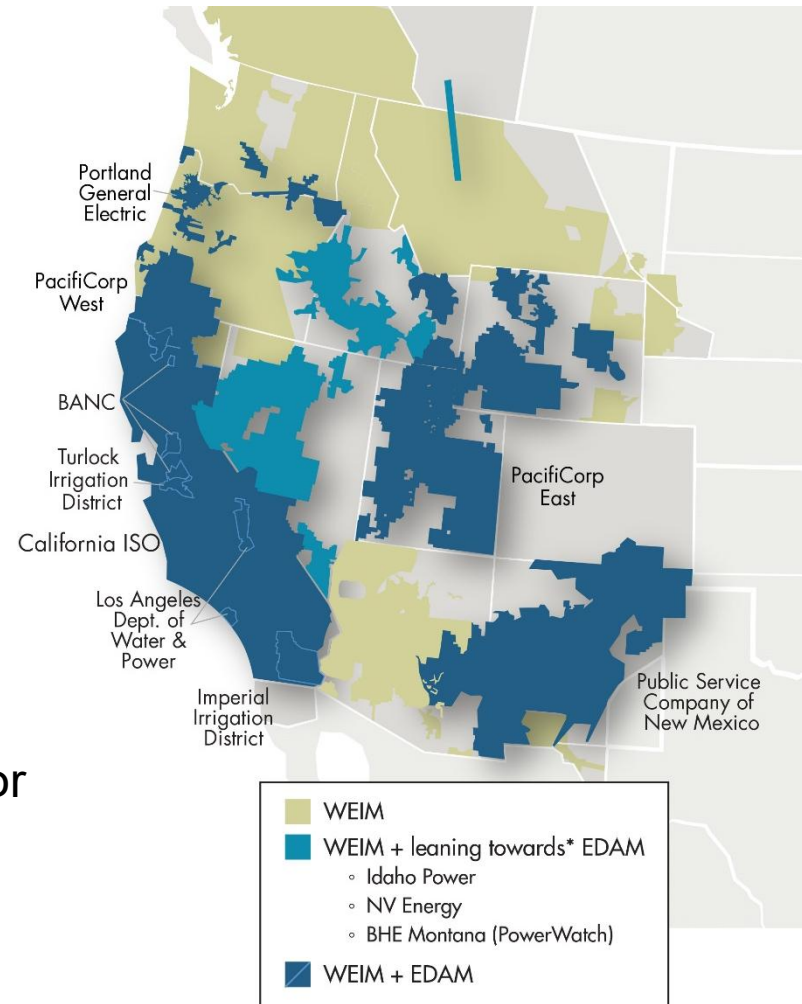
For more information visit: [RC West | California ISO](#)

Extended Day Ahead Market (EDAM)

EDAM is a voluntary day-ahead electricity market designed to deliver reliability, economic, and environmental benefits to utilities throughout the West. Building on the success of the Western Energy Imbalance Market, EDAM increases regional coordination, supports states' policy goals, and meets demand cost-effectively.

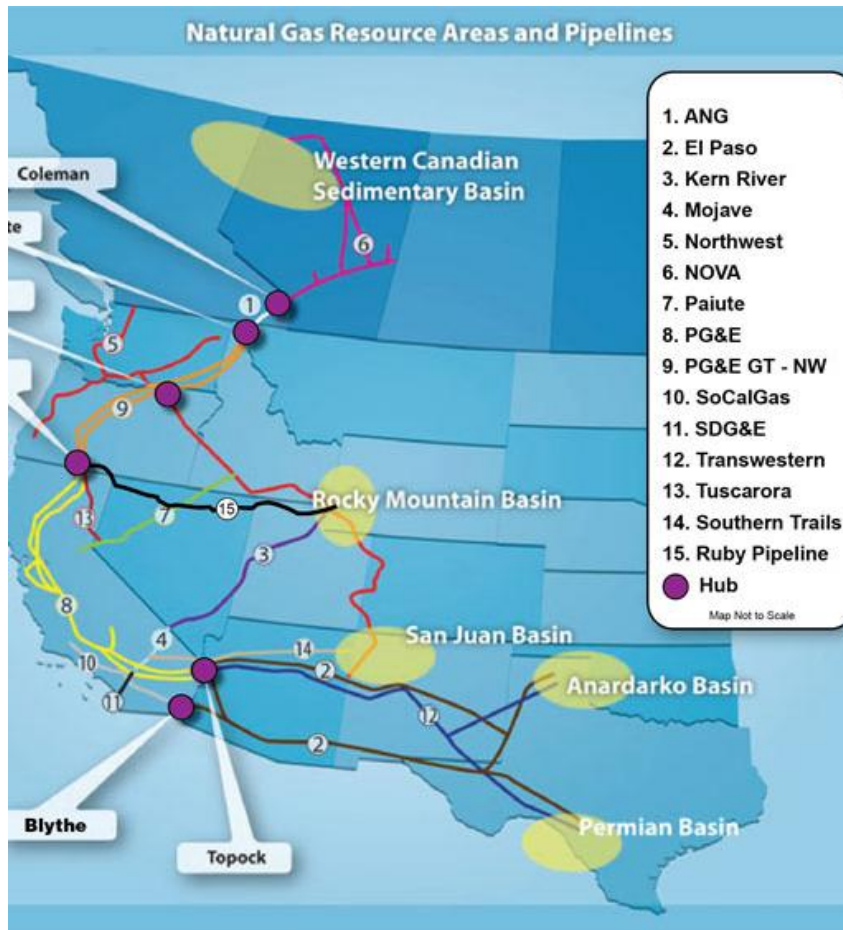
- Market launched May 1, 2026
- Seven entities committed to join
- Three additional entities signal intent to join or prefer EDAM for their day-ahead market

For more information visit: [Extended Day-Ahead Market \(EDAM\) | Western Energy Markets](#)



**These entities have publicly indicated a leaning towards EDAM as their preferred day-ahead market. Map boundaries are approximate and for illustrative purposes only. Copyright ©2026 California ISO*

Electric – Gas Coordination History



- Informally almost 20 years ago - CAISO started sharing gas burn information with PG&E, Kern River and SoCalGas
- Started formally coordinating in 2010 and 2011 due to significant pipeline outages, inspection and maintenance activities
- Many lessons learned during extreme weather events
 - February 2011
 - February 2014
 - January 2017
- Issues vary by region

CAISO Internal Daily Operations Information

Manually review 12 different Gas Pipelines every weekday morning

8 Interstate

2 Intrastate

2 International

Daily report sent to Operations

Current gas system conditions

Gas Prices for
CA and Henry
Hub

Intrastate Reporting

- Maintenance impacting generation
- Maintenance impacting capacity
- Current capacity availability in CA LDCs
- Thermal generation demand in CAISO BA per LDC
- Storage Inventory
- OFO notices

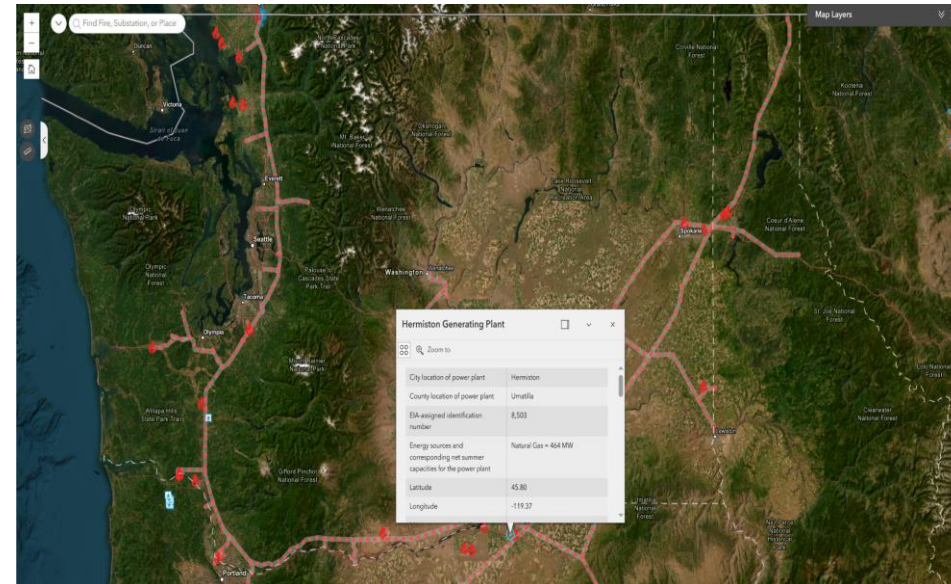
Interstate Reporting

- Maintenance impacting generation
- Maintenance impacting capacity
- Force Majeure

RC West and Western Energy Market Gas Coordination

- Pacific Northwest Mutual Assistance Agreement
- Western Region Mutual Assistance Group
 - Prairie Canyon Storage Facility Jan 2024
- RC West Winter and Summer Assessments
- Joint Operator electric – gas coordination training
- Geospatial maps that show relationships between gas pipelines, compressor stations and thermal generators (ArcGIS)
- FERC Order 787 - Communication of Operational Information Between Natural Gas Pipelines and Electric Transmission Operators
 - Purpose of promoting reliable service or operational planning on either the public utility's or pipeline's system Continuing to reach out to gas pipeline to create contacts to maintain system reliability
- RC West – Real Time Operations Working Group
 - Collaborative working group that keeps all participants informed of upcoming events that may impact gas and electric system reliability, providing an opportunity for each participant to discuss their concerns.

RC West Geospatial maps (ArcGIS)



California ISO BA Gas Coordination

- Normal, abnormal and emergency coordination processes
- Information typically shared pursuant to non-disclosure agreements (NDAs)
- Daily estimated gas burn profiles available to pipeline companies
 - Thermal generation in each Local Distribution Company (LDC) territory used to forecast Egen demand
- Weekly meetings to discuss outage impacts, and more frequently as needed
 - Real-Time to > 1 year out
- Abnormal Operations – publicly posted procedure
 - [OP 4120 - Gas Transmission Pipeline System Limitations or Outages](#)
 - Nomogram (SoCalGas) -
 - Curtailment watch or limitation
 - Specify affected gas zones and/or specific generation resources
 - Max use or limitation, fixed volume per hour or per day
 - » Notice in Envoy
 - » Forward Nomograms (utilized in Day-Ahead Market)
 - » Real Time Nomograms (after DA results)
 - Curtailment procedure
- CAISO Electric Emergency Operations - [OP 4420 - System Emergency](#)

Example: Responsibilities in procedure OP 4120

Gas System Operator

- Notify affected Generating Station(s) of OFOs, Curtailment Watch, Curtailments, Gas Nomogram activation and potential impact to market dispatches. (Envoy)

Generator Operator (GOP)

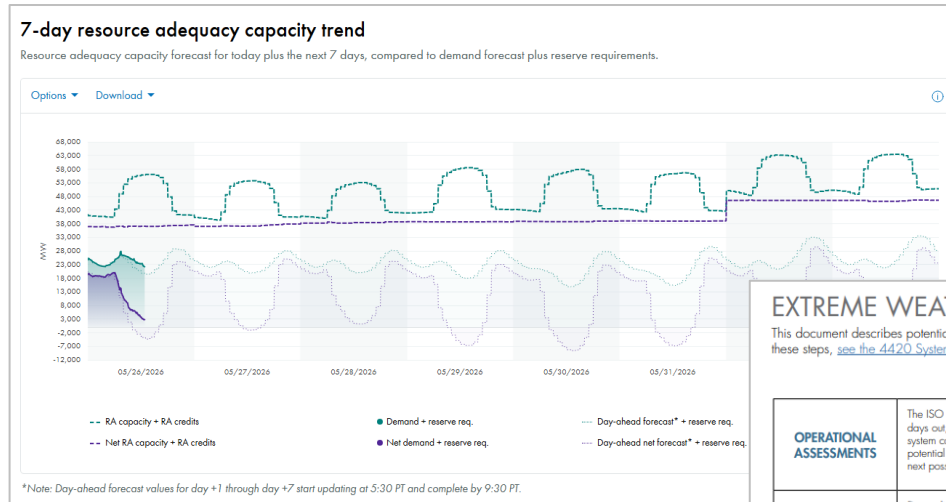
- Notify Scheduling Coordinator of OFOs, Curtailment Watch, Curtailments, Gas Nomogram activation and potential impact to market dispatches.

Scheduling Coordinator (SC)

- Update resource availability/limitations (outage management system)
- Follow CAISO dispatch instructions.



Extreme Weather Event process – looks ahead 7 days



EXTREME WEATHER EVENT — PROCESS AND COMMUNICATIONS

This document describes potential actions taken by the California ISO before and during an extreme weather event. For more detailed information on these steps, [see the 4420 System Emergency operating procedure](#). To learn about various communication methods, visit the [ISO Subscriptions page](#).

	4 – 7 DAYS OUT	1 – 4 DAYS OUT	1 DAY OUT	OPERATING DAY
OPERATIONAL ASSESSMENTS	The ISO monitors demand forecast 7 days out, assesses resource adequacy, system conditions, weather, and other potential grid impacts, and plans for next possible steps.	The ISO reviews and validates most current information on actual and potential system conditions, resource adequacy, weather, and other potential factors impacting the grid.	The ISO reviews and validates day-ahead market results and most current information on actual and potential system conditions, resource adequacy, weather, and other potential factors impacting the grid.	The ISO reviews actual and potential system conditions and takes actions in accordance with OP 4420.
OPERATIONAL COORDINATION WITH EXTERNAL ENTITIES	Depending on actual and potential system conditions, the ISO conducts outreach and coordination of a possible extreme event to: <ul style="list-style-type: none"> • Governor’s Office (GO) • Longstart strategic reserve resource scheduling coordinators (LSRR SCs) The ISO may initiate communication to water agencies. The ISO considers need for Department of Energy (DOE) 202c Orders and whether other government agency assistance may be needed.	To prepare entities for possible conservation efforts and free up additional supply, the ISO may take the following actions: Initiate communication to: <ul style="list-style-type: none"> • Neighboring Balancing Areas (BAs) • Demand Response (DR) Event Board • Utilities • Reliability Coordinator West (RC West) • Regulatory agencies Coordinate the following: <ul style="list-style-type: none"> • Requests for DOE 202c Orders • Emergency supply above approved permits • GO Proclamation of a State of Emergency and/or GO Executive Orders 	Operational coordination with: <ul style="list-style-type: none"> • Utilities • Neighboring BAs • DR Event Board • RC West 	Operational coordination with: <ul style="list-style-type: none"> • Utilities • Neighboring BAs • DR Event Board • RC West
PUBLIC COMMUNICATIONS	The ISO may issue Temperature heads ups during heat events via: <ul style="list-style-type: none"> • ISO Website • ISO social media X (formerly Twitter) handles: <ul style="list-style-type: none"> • @California_ISO • @ISONotices • @FlexAlert The ISO may issue an Extreme Weather Bulletin during heat events via: <ul style="list-style-type: none"> • ISO Website • News release • Notice (Daily Briefing) • ISO social media 	The ISO may issue Restricted Maintenance Operations (RMO) notifications via: <ul style="list-style-type: none"> • Today’s Outlook & ISO Today mobile app • Market notification system (MNS) • Emergency notifications email Department of Energy (DOE) Emergency Orders available here . GO Proclamation of a State of Emergency and GO Executive Orders will be publicly available.	The ISO may issue Flex Alert and/or Energy Emergency Alert (EEA) Watch notice via: <ul style="list-style-type: none"> • Today’s Outlook & ISO Today mobile app • MNS • Emergency notifications email • News release • Notice (Daily Briefing) • ISO social media Learn more about emergency notifications . Flex Alert only: <ul style="list-style-type: none"> • FlexAlert.org • Flex Alert subscription lists • Flex Alert and ISO social media 	The ISO may issue EEA notices as needed based on system conditions: <ul style="list-style-type: none"> • Today’s Outlook & ISO Today mobile app • MNS • Emergency notifications email • News release • Notice (Daily Briefing) • ISO social media De-escalate/all-clear notices issued via: <ul style="list-style-type: none"> • Today’s Outlook & ISO Today mobile app • MNS • Emergency notifications email • ISO social media

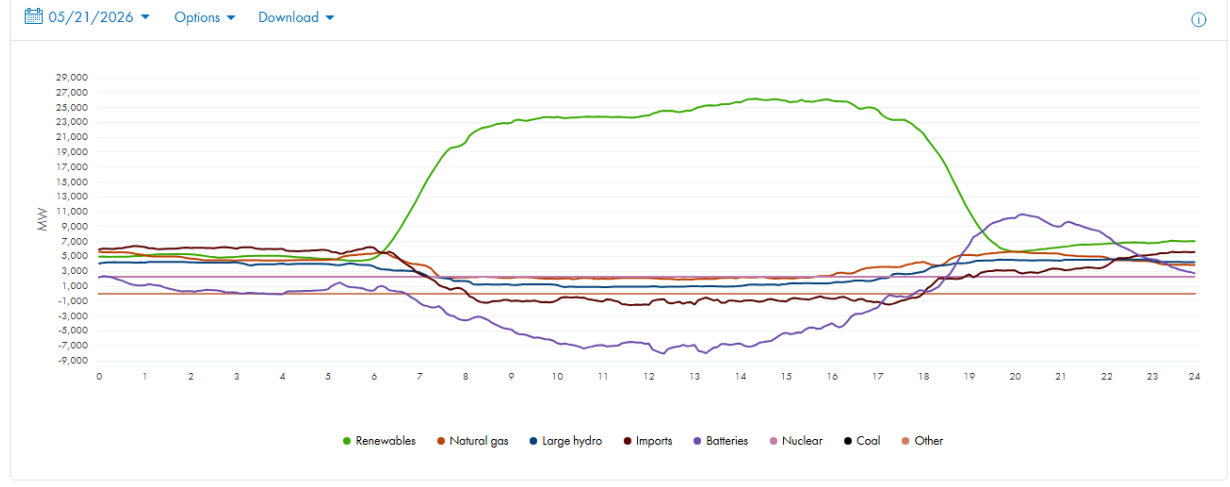
¹ The ISO generally issues Flex Alert and EEA Watch notices in the day-ahead timeframe, but may issue EEA Watch notices day-of depending on system conditions.

For more information visit: [extreme-weather-event-process-and-communications.pdf](#)



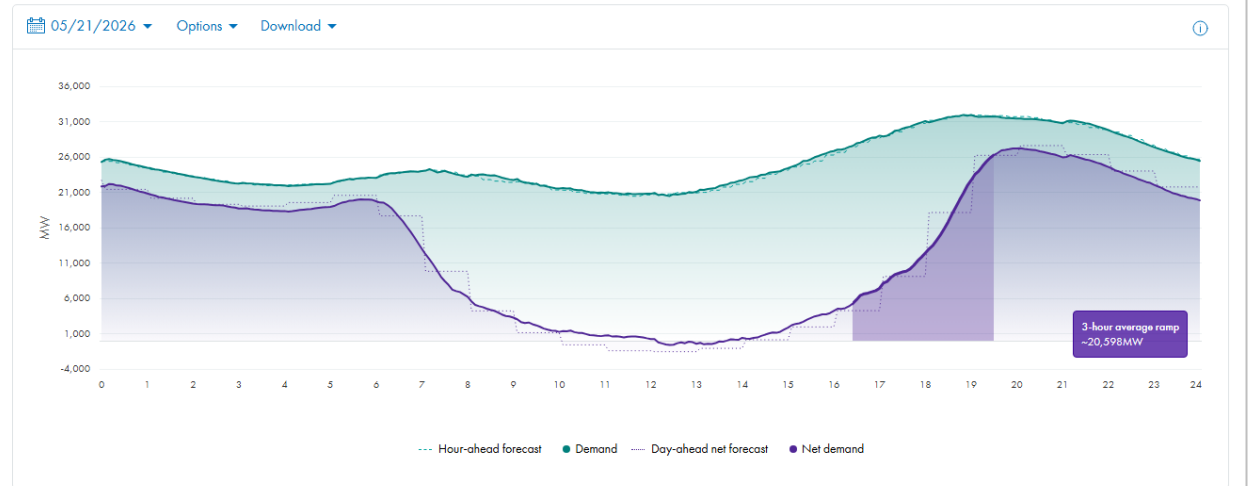
Supply trend

Power separated by resource, on a 5-minute average.



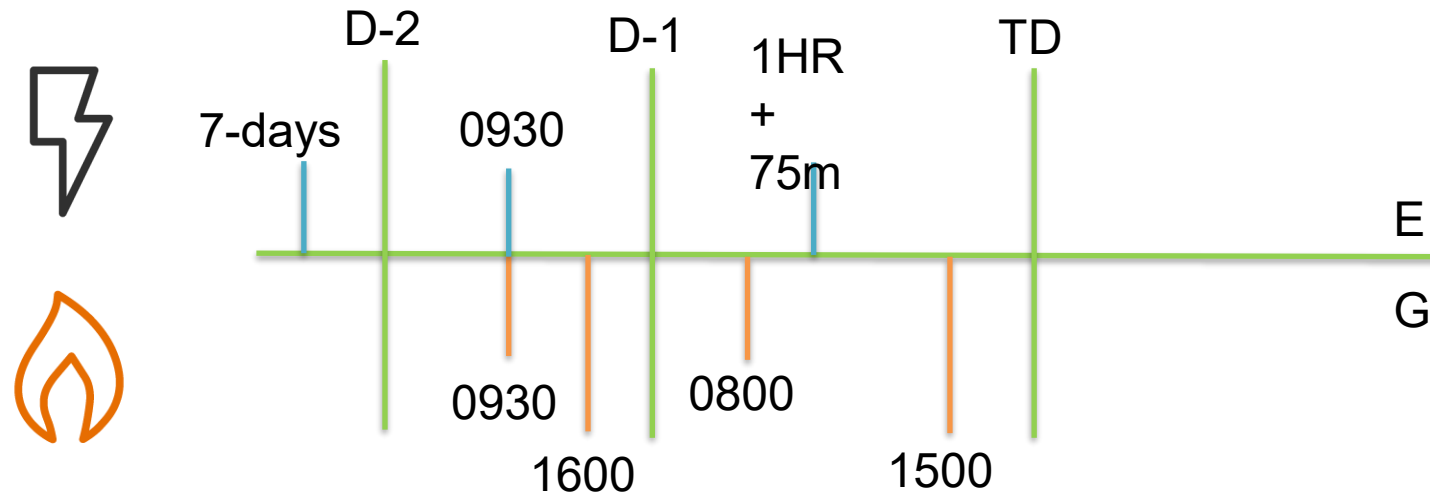
Net demand trend

System demand minus wind and solar, on a 5-minute average, compared to system and forecasted demand.



Gas - Electric Scheduling Coordination Challenges

- Different flow rates
- Different true up methodology
- Different timelines



Electric Day: 0000 – 2359

Gas Day*: 0700 - 0659

* - May vary by business

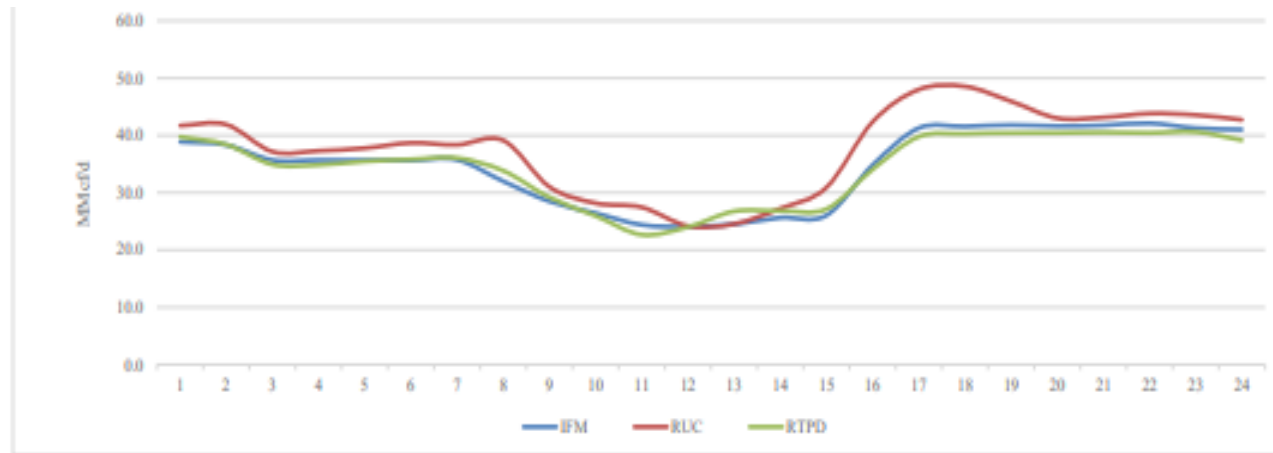
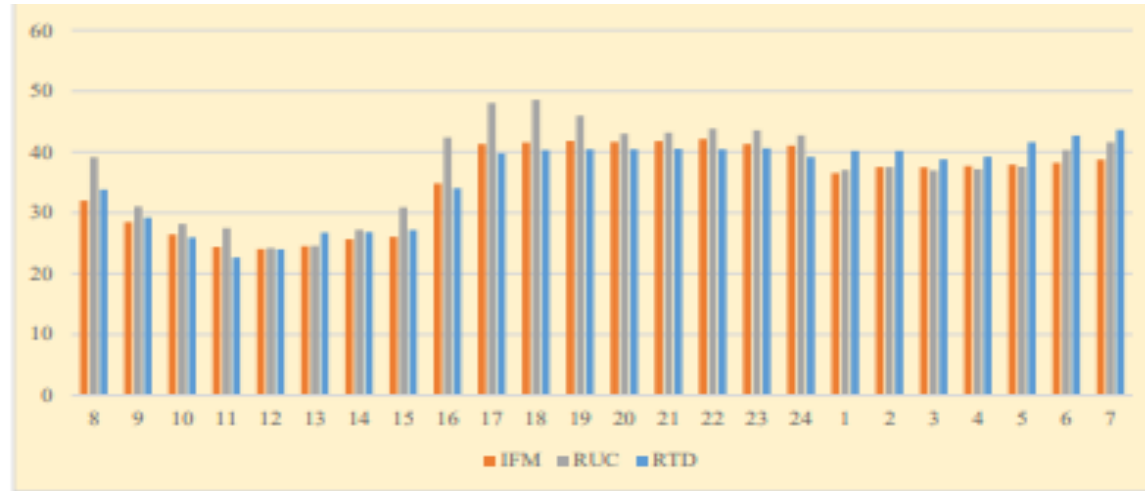
Gas Burn Report - Profile Gas Day



- Gas operational zones
- Hourly load profiles by zone

Hour	IFM	RUC	RTPD	IFM	RUC	RTPD	IFM	RUC	RTPD	IFM	RUC	RTPD	IFM	RUC	RTPD	IFM	RUC	RTPD	IFM	RUC	RTPD	IFM	RUC	RTPD	IFM	RUC	RTPD
8	27.15	32.45	25.54	22.77	25.97	21.03	26.23	28.68	19.82	33.26	37.89	26.47	5.78	13.24	11.92	15.09	17.02	13.49	25.52	31.37	21.73	23.43	29.37	24.69	23.47	29.32	22.71
9	26	27.32	24.06	17.28	17.67	18.82	25.6	24.64	19.53	32.56	34.37	27.01	3.85	5	9.38	11.04	11.5	12.2	16.75	19.8	16.12	12.63	15.65	18.94	22.45	28.73	22.42
10	26.31	25.81	22.98	10.03	12.34	15.2	24.95	23.11	18.98	32.77	35.04	26.69	3.25	3.76	8.29	11.69	12.13	12.03	12.52	12.91	13.19	6.03	6.97	14.1	21.94	27.87	22.69
11	25.99	23.97	21.37	7.92	8.63	14.36	24.65	24.14	18.32	32.6	37.02	28.42	3.25	3.84	7.73	10.58	11.08	8.86	5.9	6.15	13.07	4.53	4.78	11.76	16.94	21.96	19.4
12	20.07	16.17	19.6	7.44	8.2	11.87	23.63	23.38	21.24	32.66	36.38	29	2.96	3.6	7.67	10.24	10.75	7.6	4.86	4.99	8.52	4.53	4.78	10.43	16.88	20.43	18.67
13	18.72	16.48	19.37	7.44	8.26	12.98	22.48	22.23	22.8	32.03	36.45	31.37	2.81	3.48	7.7	5.92	6.35	7.56	4.86	4.98	6.61	4.53	5.7	9.85	16.33	20.36	18.96
14	16.97	17.1	17.53	6.86	7.7	13.39	21.98	21.66	26.58	31.95	35.66	33.51	2.81	4.36	7.76	5.45	5.84	10.23	4.84	4.97	7.68	4.53	6.64	8.99	15.65	20.13	17.99
15	15.39	15.52	16.49	6.86	8.23	15.23	23.62	23.11	28.22	32.65	32.79	33.73	2.81	6.85	7.76	5.45	5.85	8.57	4.85	4.98	7.64	4.53	13.09	10.04	15.66	20.1	18.67
16	15.27	15.41	16.28	7.44	8.29	16.91	25.55	25.55	27.26	32.8	32.12	33.23	3.5	4.29	8.45	10.06	10.57	11.44	4.86	5	8.8	5.61	12.78	11.53	18.38	21.05	19.75
17	20.18	23.22	19.57	9.62	14.7	18.26	26.02	25.88	26.71	32.87	33.81	33.1	8.67	11.24	12.36	11.7	14.6	11.18	6.7	9.46	12.37	10.94	22.31	14.93	23.98	27.21	21.71
18	26.2	33.12	24.95	18.38	26.1	23.71	26.47	25.93	22.52	32.89	33.86	32.31	10.92	13.32	15.32	12.34	15.13	11.61	14.2	19.13	16.94	15.54	24.1	15.74	28.17	31.54	23.31
19	27.59	34.42	28.79	19.49	25.9	24.05	26.91	27.55	23.1	33.7	36.85	32.6	11.47	17.01	15.09	12.83	18.38	13.4	15.01	20.72	18.19	16.44	25.51	17.17	28.38	32.8	25.4
20	27.57	34.36	30.05	19.1	25.55	23.84	26.5	27.92	22.58	33.71	37.68	32.6	11.47	16.88	15.53	12.83	19.78	13.43	15.07	20.8	17.07	16.46	25.58	18.23	28.26	31.86	24.71
21	27.32	34.33	30.15	18.84	28.6	25.75	26.51	29.31	22.59	34.04	37.69	32.54	11.47	18.63	15.22	12.83	20.11	14.7	15.08	22.4	17.09	16.11	27.28	19.31	28.27	35.19	26.51
22	27.26	32.41	30.19	18.71	27.29	27.57	26.09	30.7	22.97	33.44	37.71	31.54	11.47	18.69	15.24	12.83	20.11	14.98	15.1	22.27	18.59	16.07	26.29	18.48	28.12	33.64	25.61
23	26.63	32.43	29.65	18.45	26.74	27.23	24.12	30.72	22.54	33.09	37.57	29.01	11.47	18.69	16.23	12.77	21.4	18.49	14.71	21.8	19.15	15.81	26.58	20.72	28.13	33.22	24.65
24	23.81	31.19	29.64	18.27	25.84	24.55	20.63	26.9	22.46	28.29	37.39	25.49	11.35	18.68	18.45	12.77	21.84	18.6	14.69	22.21	18.98	15.75	28.9	25.23	28.28	34.12	24.3
1	16.64	18.07	22.26	29.37	36.73	27.47	30.64	31.24	29.23	33.82	36.12	35.53	37.98	42.34	47.3	47.41	51.12	39.05	44.55	46.44	38.92	49.63	52.45	35.33	41.33	45.51	26.56
2	18.36	19.8	22.24	28.82	34.12	27.77	30.55	32.85	29.21	33.78	35.76	35.28	37.94	42.31	44.87	43.24	43.93	38.97	44.67	48.1	38.58	49.79	51.87	34.44	41.45	44.03	24.97
3	18.36	19.05	22.65	29.05	36.07	29.49	30.55	32.85	28.94	33.66	35.03	36.11	38.03	38.09	44.67	43.89	46.37	38.23	46.68	47.08	38.16	50.35	52.07	32.13	41.29	42.97	24.45
4	18.41	19.15	23.71	29.08	36.09	29.32	30.54	31.68	29.3	33.56	36.03	36.15	38.04	38.24	46.48	43.24	45.33	38.25	46.74	46.19	38.28	50.21	50.7	34.22	41.48	42.89	24.24
5	18.42	18.75	24.74	29.21	36.07	29.36	30.55	31.68	29.53	35.11	37.25	35.87	37.99	39.46	45.76	43.88	50.42	38.37	46.81	46.65	39.27	50.26	51.18	32.65	41.42	44.87	24.4
6	18.5	19.16	27.01	34.04	37.69	29.92	31.24	33.4	29.55	35.13	36.4	35.88	38.01	40.56	45.43	42.82	51.07	38.78	48.64	48.11	38.79	50.48	50.39	34.49	43.41	47.47	25
7	19.27	20.24	30.51	34.93	38.13	32.19	33.9	36.66	29.88	35.73	35.04	37.45	38.22	41.69	46	46.26	61.17	42.77	49.37	50.75	39.52	55.41	55.22	37.42	45.07	48.09	25.28
Total	526.39	579.9	579.3	449.4	560.9	540.3	639.91	671.8	593.9	796.1	861.9	770.9	385.52	464.3	520.6	497.16	591.9	482.8	522.98	587.3	513.3	549.6	670.2	510.8	684.74	785.4	552.4

Gas Burn Profile Gas Day vs Electric Day



On Going Efforts

- Ongoing processes
 - Bi-Annual Meetings with Local Distribution Companies (LDCs) in CA
 - Yearly Meetings with Interstate Gas Companies
 - BA and RC Winter and Summer Assessments
 - Continued outreach to Gas companies with generation in WEM
- Future system changes (Planning)
 - Pipeline retirements
 - Thermal Generation retirements
 - Storage changes

QUESTIONS?

NATURAL GAS CASE STUDY



DAN ENGLISH
LEAD EPNG GAS
CONTROLLER
KINDER MORGAN



JASON KETCHUM
VICE PRESIDENT OF
COMMERCIAL
ONE GAS



Delivering Energy to Improve Lives

El Paso Natural Gas Pipeline Winter Preparedness

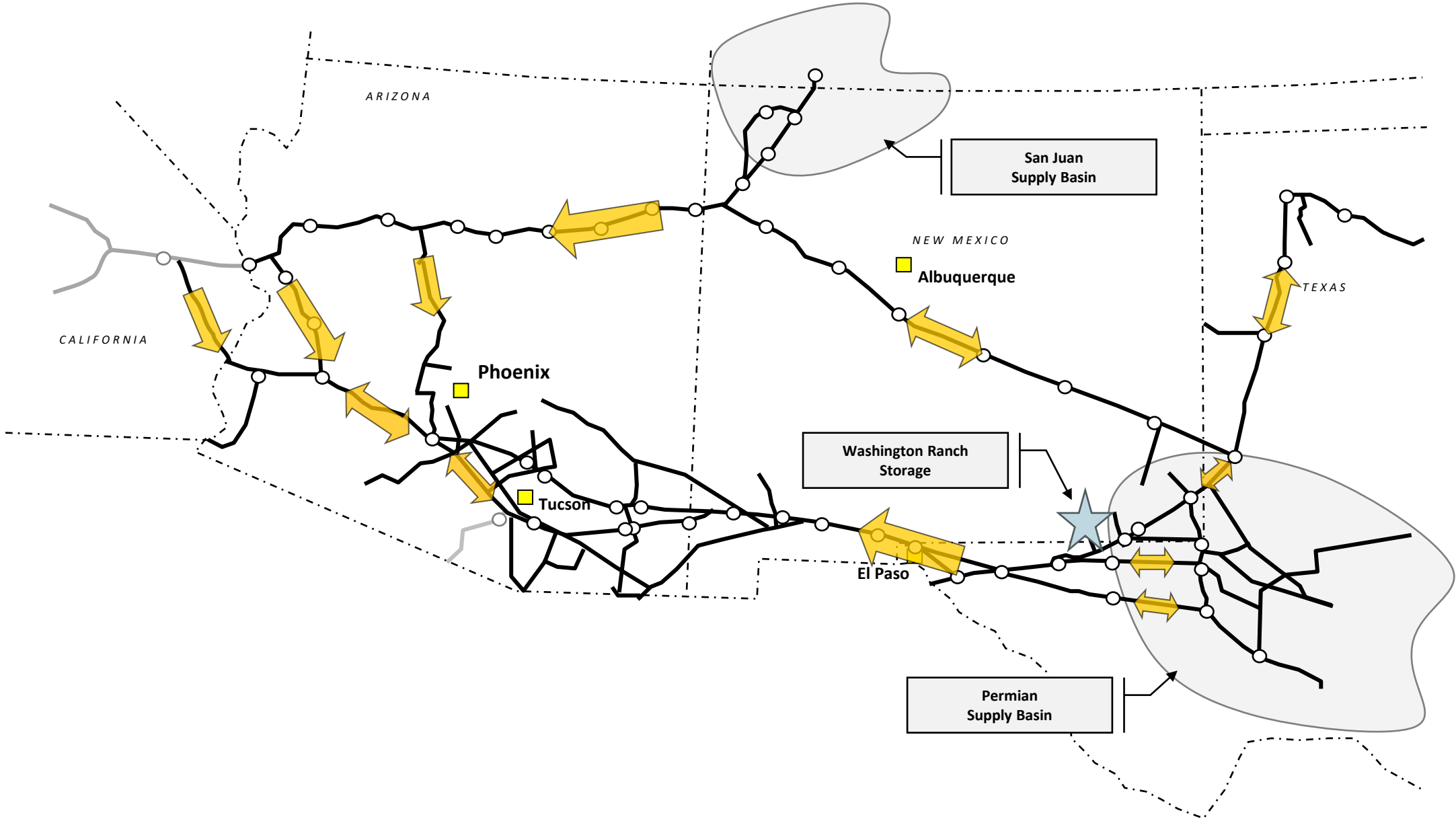
May 31, 2026

Dan English
Lead Controller, Gas Control
(EPNG/Mojave/Sierrita)

Operations Overview

EPNG System Overview

Supply Locations and Flow Direction



Winter Preparedness

- Staffing
 - Gas Control is 24 x 7 x 365.
 - Field technicians are on-site or on-call.
- Communication and Coordination
 - Customer-specific winter preparedness meetings or communications.
 - Monitor Weather Forecast.
 - Conference Calls between Gas Control and Operations to discuss preparations.
 - Shipper and Stakeholder Mass Communication via EBB notices.
 - Shipper-Specific Communications.
 - Over communicate regarding Weather Forecasts.
- Operational Response
 - Multiple flow paths for supply to reach the market.
 - Access to supply area storage: Washington Ranch, Keystone Gas Storage and Merchant Ranch Storage.
 - EPNG has developed excellent working relationships with both affiliated and non-affiliated interconnecting pipelines which provide additional layers of contingency management in responding to emergency situations.

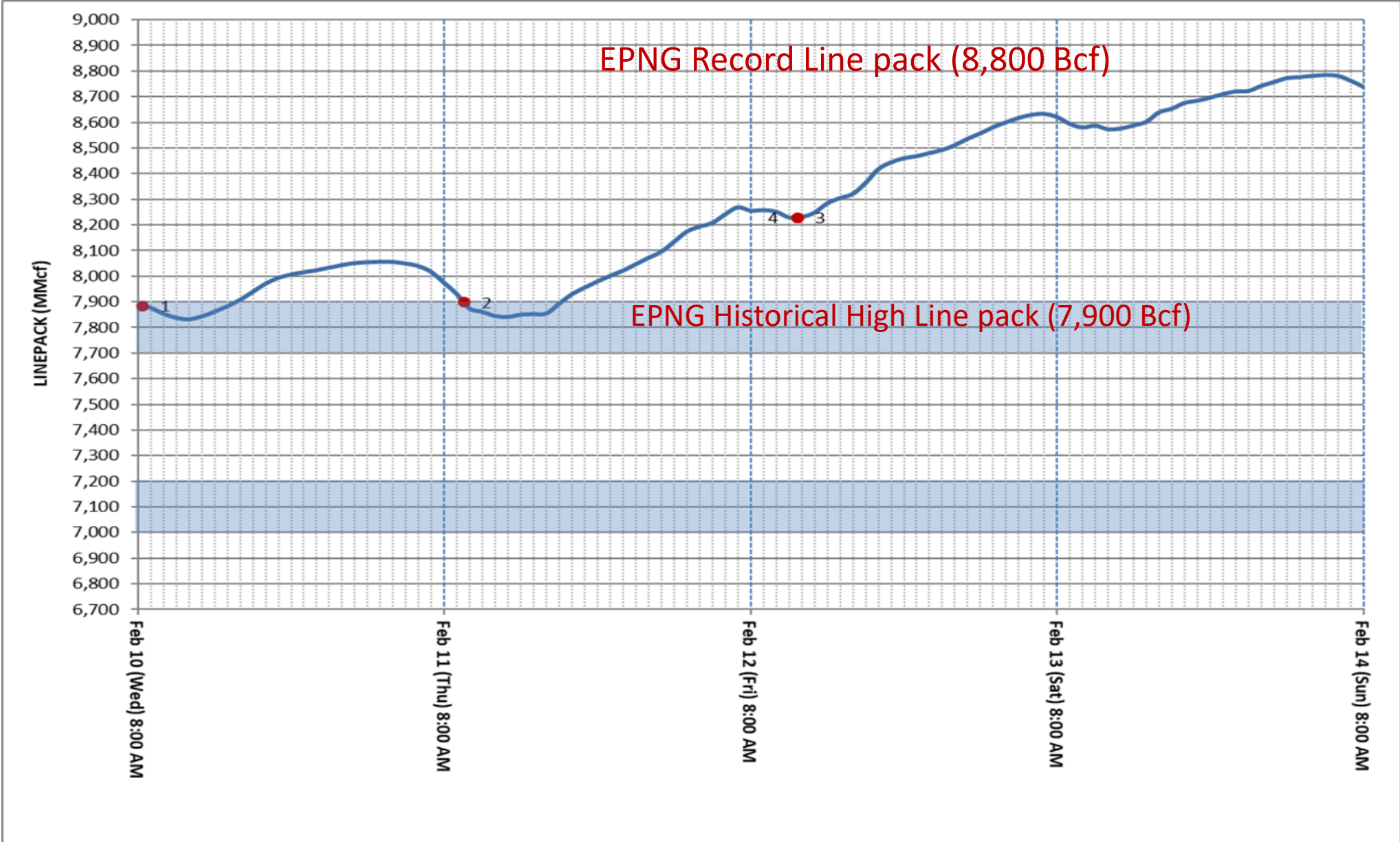
Case Study: Winter Storm Uri February 2021

Case Study- Winter Storm Uri (February 2021)

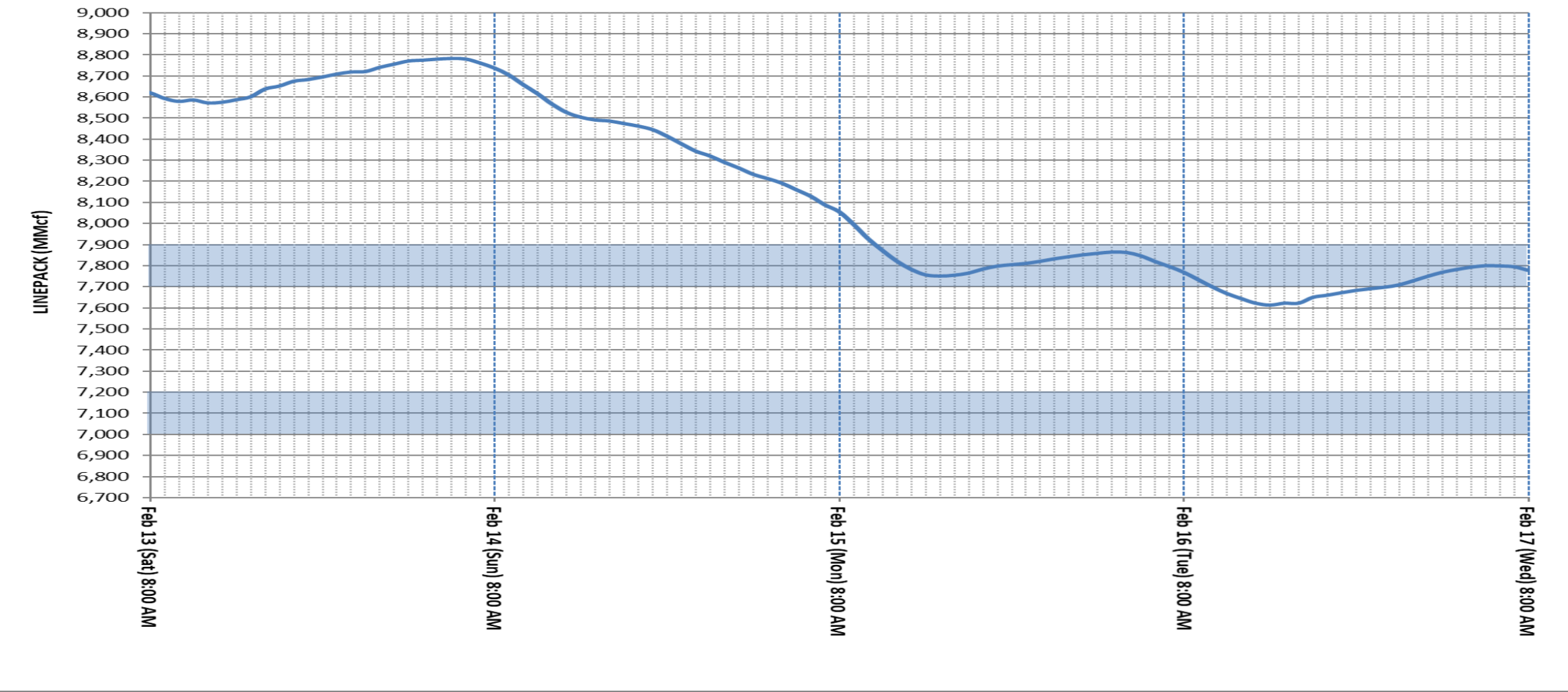


- February 10, 2021, EPNG issued Pipeline Condition Notice (intent to raise linepack a week prior to storm). Withdraw from Washington Ranch Storage.
- February 11, 2021, EPNG issued Warning of SOC (concern of weather forecast & potential supply loss and drafting of the system).- Operations man key facilities, exercised emergency generators at stations. (manned from Feb 12-16)
- February 14, 2021, EPNG Updates SOC Warning.
- February 14, 2021, Extreme winter weather affecting supply in Permian.
- February 15, 2021, EPNG declared Critical Operating Condition (COC).
- Extreme winter weather affecting supply in Permian.
- EPNG Linepack decreased >680 MMcf in 24 hr. (Feb 14- Feb 15).

Case Study- Winter Storm Uri (February 2021)



Case Study- Winter Storm Uri (February 2021)



Thank You

NATURAL GAS CASE STUDY



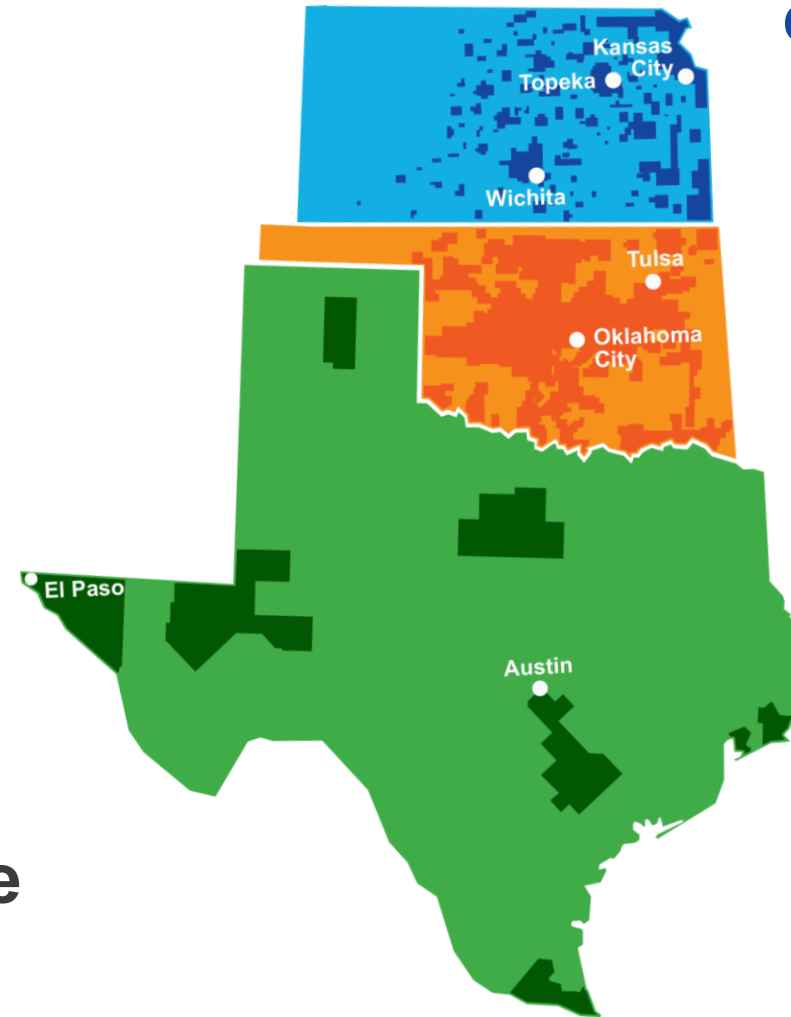
DAN ENGLISH
LEAD EPNG GAS
CONTROLLER
KINDER MORGAN



JASON KETCHUM
VICE PRESIDENT OF
COMMERCIAL
ONE GAS

ONE Gas Overview

- **100%** regulated natural gas utility
- **2.3 million** customers in Kansas, Oklahoma and Texas
- **3,900** employees
- **44,800** miles of pipeline
- One of the **largest** publicly traded natural gas distribution companies
- More than **120 years of experience** in the natural gas industry



Our Divisions

Kansas Gas Service
*71% market share,
the largest in Kansas*

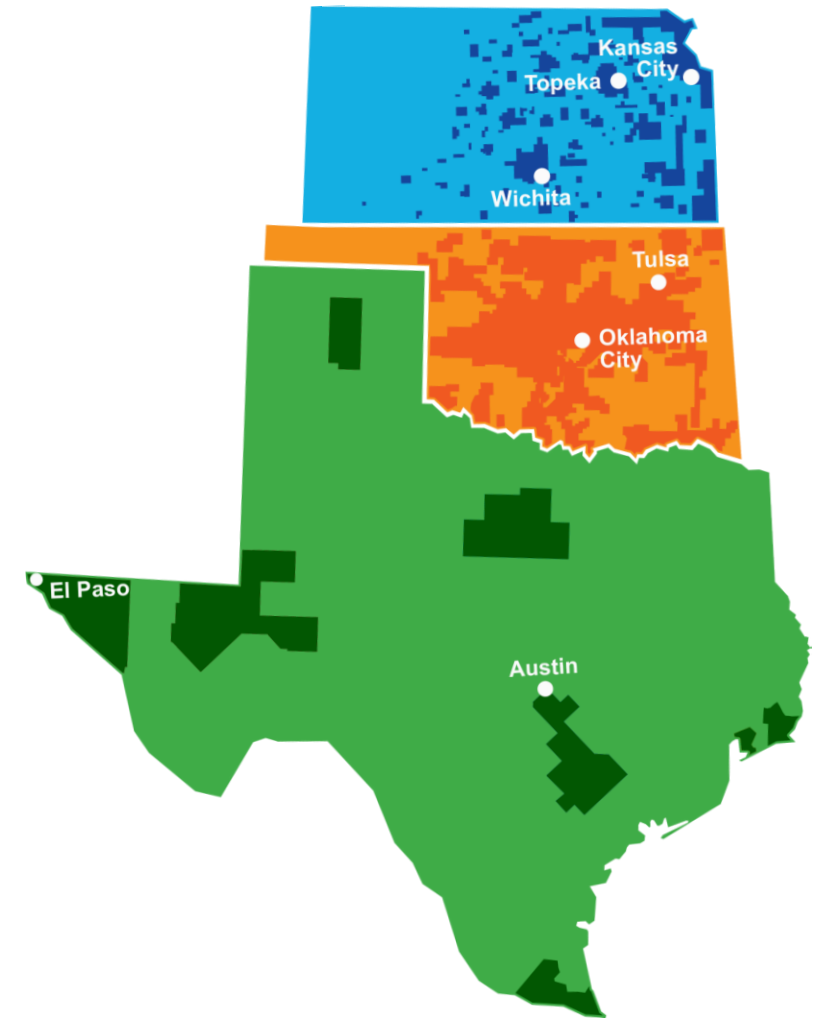
Oklahoma Natural Gas
*89% market share,
the largest in Oklahoma*

Texas Gas Service
*13% market share,
the third largest in Texas*



System Reliability

- **Storm Uri:** less than 800 customers lost service and all were restored in under 24-hours
- **Emergency Response:** Goal is less than 30 minutes and we achieve that 65% of the time (annual improvements)
- **Challenges:**
 - Demand is changing – Winter AND Summer Peaks (generation)
 - Very large and spread out service areas



CLOSING REMARKS



DAN KIRSCHNER
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NORTHWEST GAS ASSOCIATION