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RPAC Meeting #3: Load Forecasting and LTCE

January 22, 2026

Agenda

1. Opening/Introductions
2. Aurora License Update
3. Customer Energy & Load Forecast Methodology
4. Long Term Capacity Expansion Modeling Inputs
5. Menti Survey Update
6. Wrap-Up

Introductions

- Your name
- Who you represent

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Aurora License Update

Aurora Licensing

The anticipated cost of stakeholder licenses for Energy Exemplar's Aurora during the 2026 IRP cycle is $7,000 per license.

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Customer Energy and Load Forecast Methodology

James Elliott, Kyle Kennedy, Jesus Samaniego, Amanda Duron

Forecast Objectives

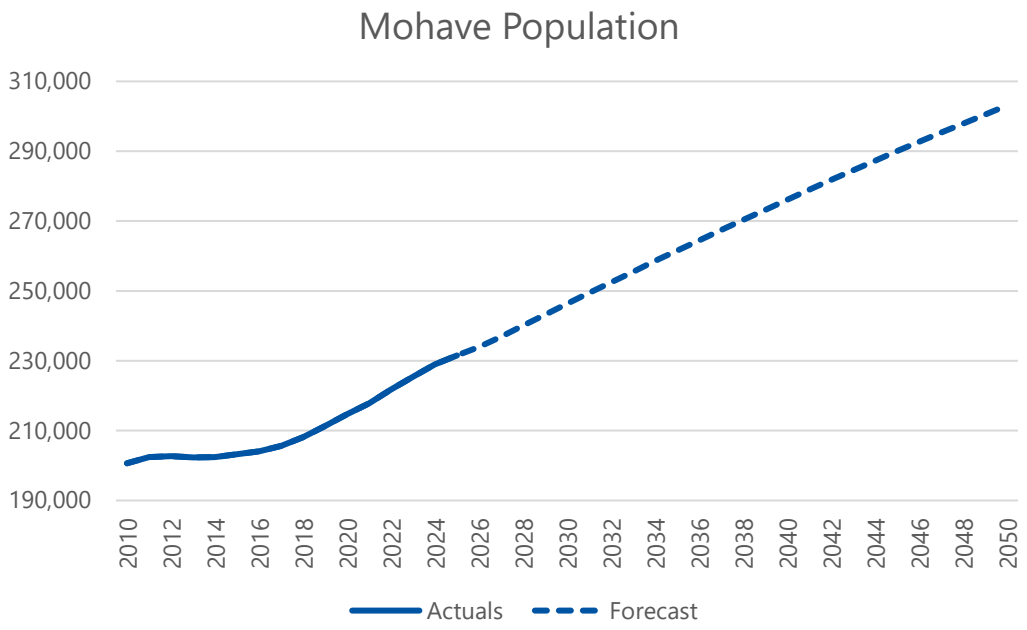
Objective:

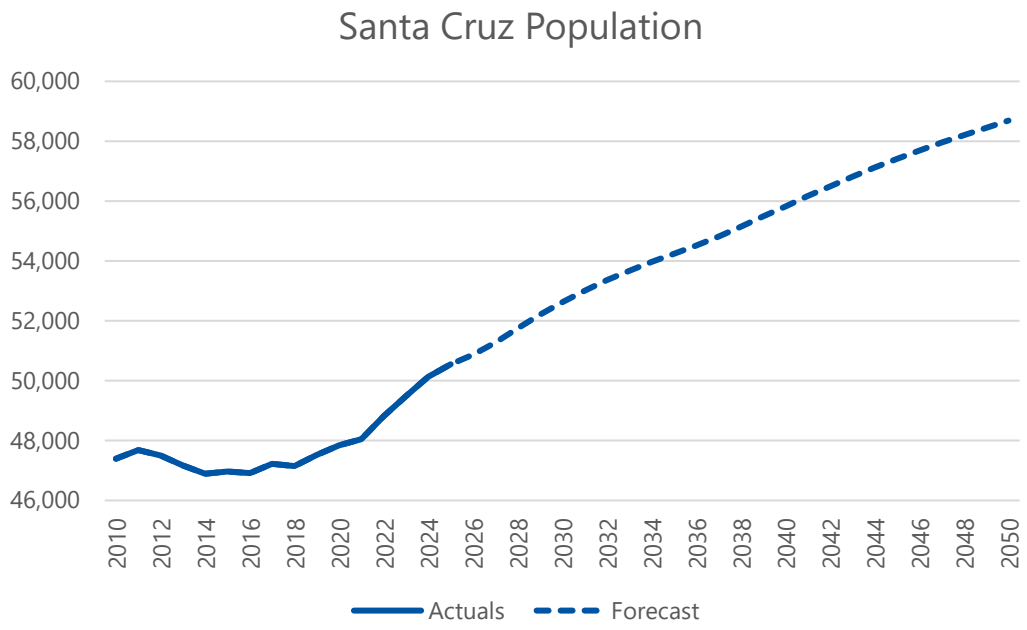
- Provide accurate and defensible monthly customer sales and peak forecasts across the next 25 years.
- The forecast evaluates various factors shaping the market landscape in addition to our historic customer usage and growth patterns.

Data Sources:

- Weather Data
  - National Oceanic and Atmospheric Administration (NOAA)
  - Supplemented with data from Visual Crossing
- Historic Data
  - Monthly customers and MWH sales
  - Monthly peak MW load
- Economic Data
  - The Economic and Business Research Center at the University of Arizona
  - S&P Global demographic and economic data

Customer Forecast





Residential, Commercial, and Industrial

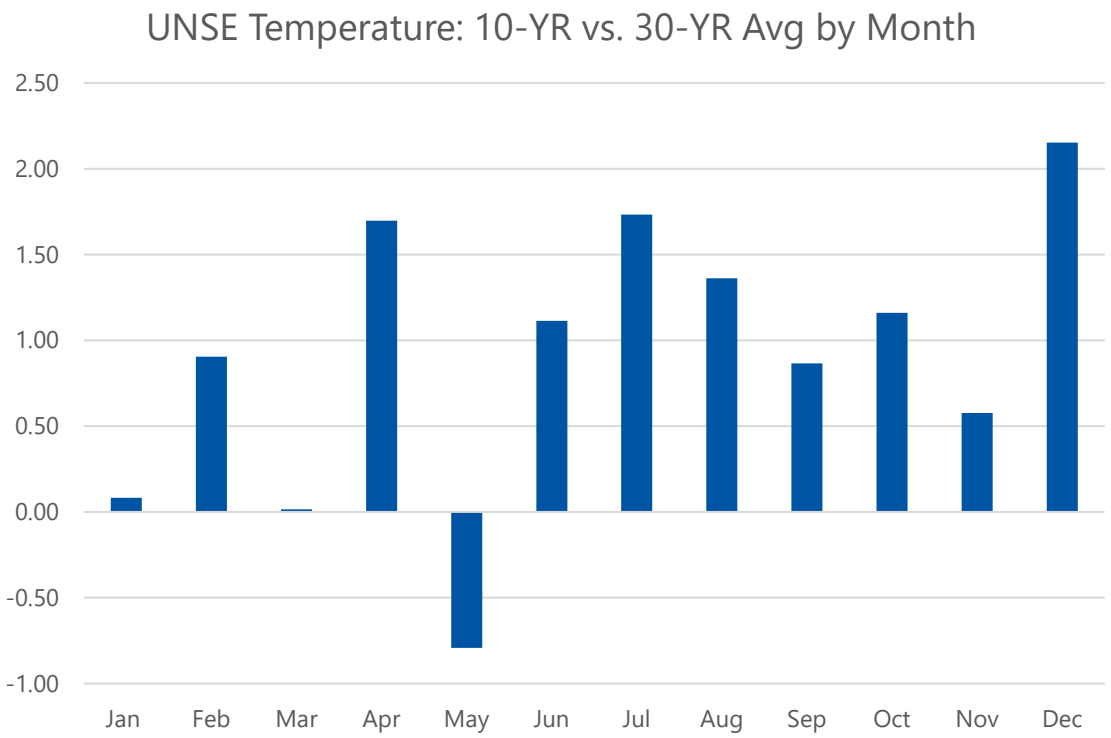
- ARIMAX model
- Variables: population history and demographic forecasts

Use per Customer (UPC) Forecast

Residential, Commercial, and Small Industrial

- ARIMAX model
- Variables: historic usage, normal weather assumptions, demographic forecasts, and economic conditions
- Separate forecasts for Energy Efficiency, Distributed Generation, and Electric Vehicles are layered on

Historic Weather



- Average Temperature and Dew Point are incorporated into the UPC forecasts as explanatory variables
- Temperatures have been trending above historic averages
- Forecasts use a trend adjusted 10-year rolling average of weather datapoints

Large Customers

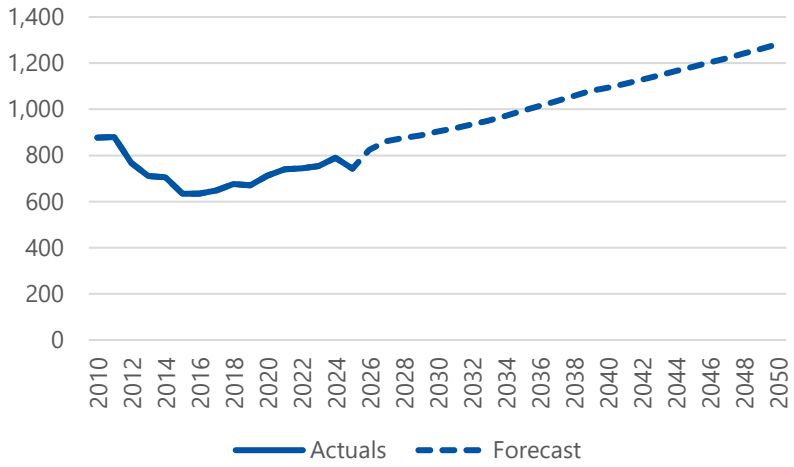
Large Commercial, Industrial, Mining

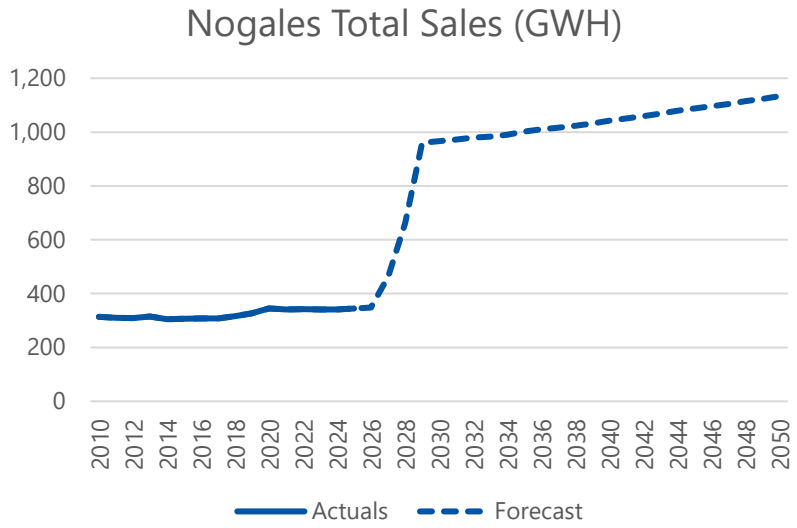
- Sales forecasts are done on a per customer basis
- Key account managers provide market intelligence that helps shape individual forecasts
- Historical usage patterns are considered and incorporated where appropriate

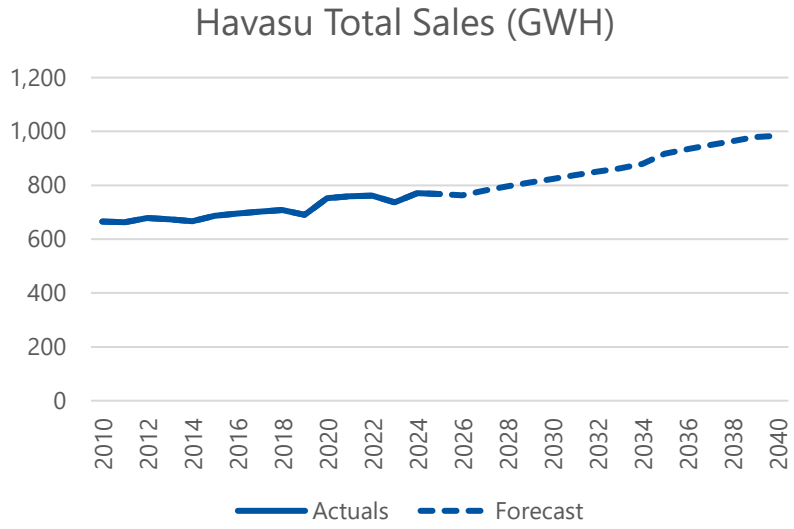
Assessing New Large Customers

- New large customers are included in the forecast once contracted or advanced enough such that service delivery is highly probable or certain
- Assessed on a case-by-case basis

Sales

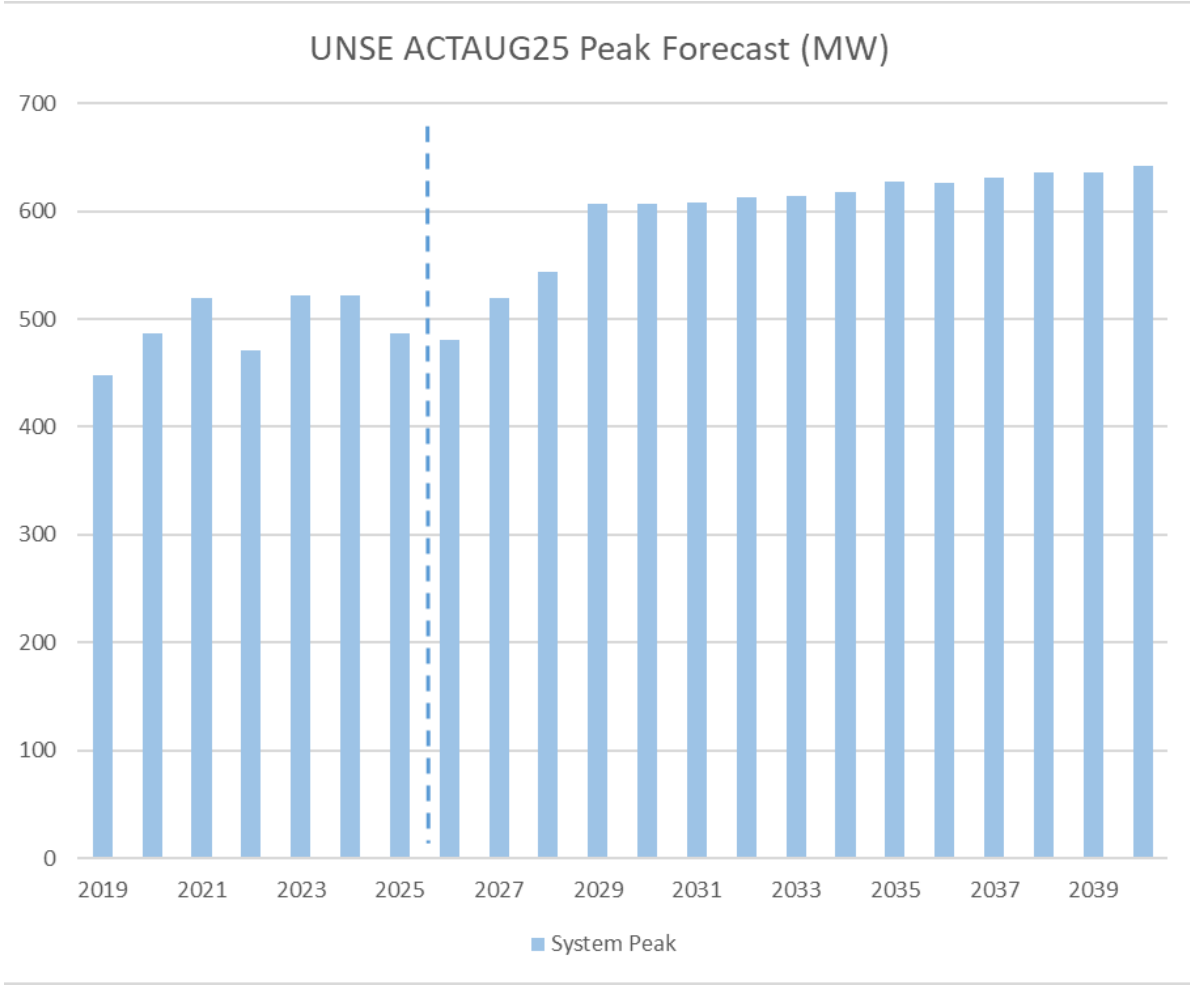






- Residential, and Commercial sales forecasts are a product of the Customer and UPC forecasts
- Forecasts for Large Commercial, Industrial, and Mining customers are layered on

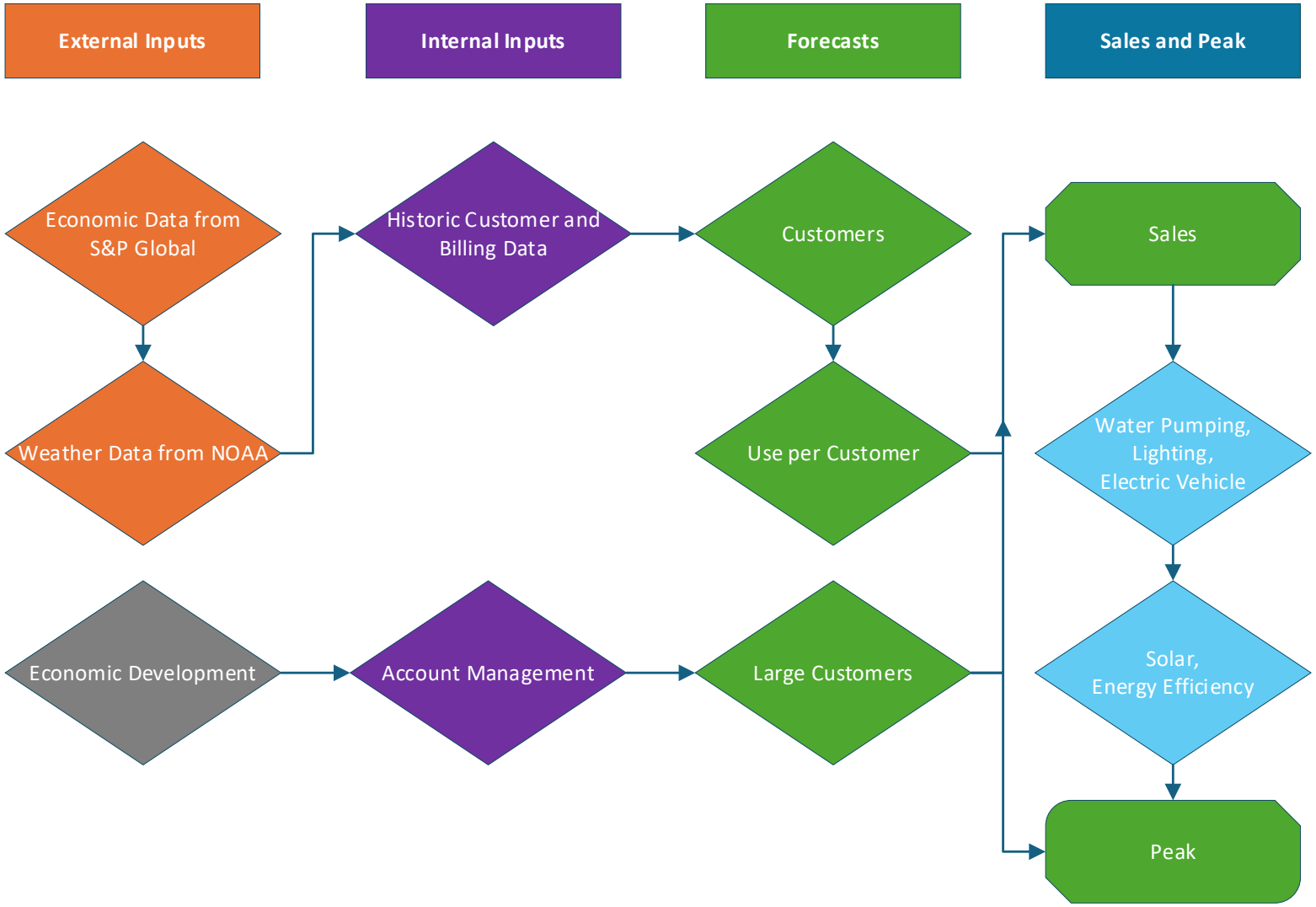
Peak



Methodology:

- Regression models measure historical relationships between hourly load, weather, and sales growth
- Large commercial, industrial, and mining peak forecasts are layered on

Appendix: Forecast Process Flow



Break - 5 minutes

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Long Term Capacity Expansion Modeling Inputs

Siemens PTI's Power Market Outlook

Prepared for: TEP

Date: October 2025

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Agenda

- Main Market Drivers
  - Natural Gas Forecast
  - Load Forecast
  - Levelized Cost for New Resources
- Power Price Outlook

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Market Drivers

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Natural Gas Forecast

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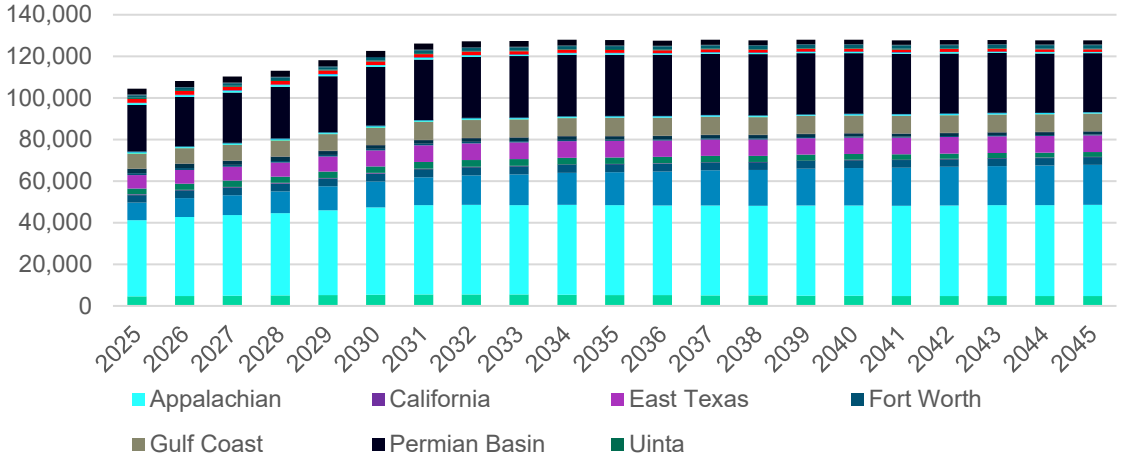
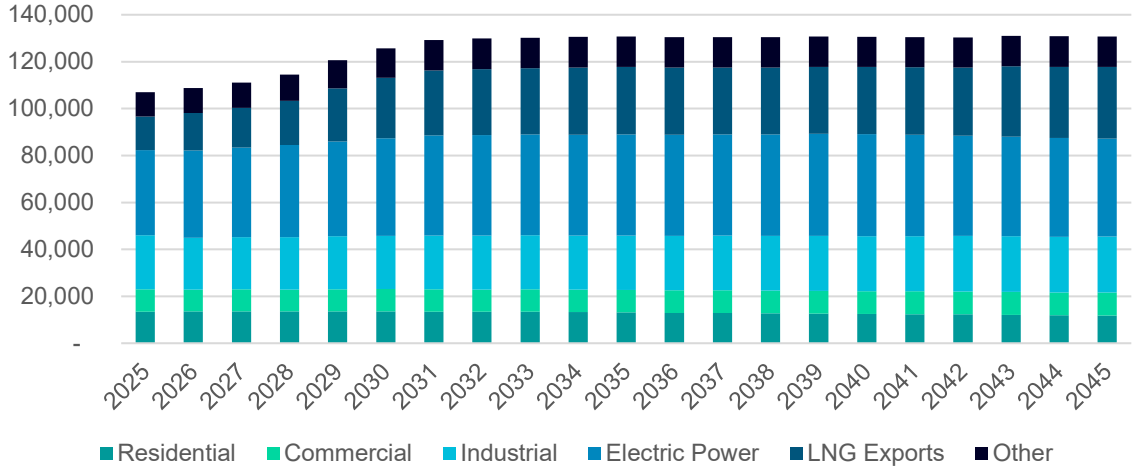
Key U.S. Gas Market Dynamics

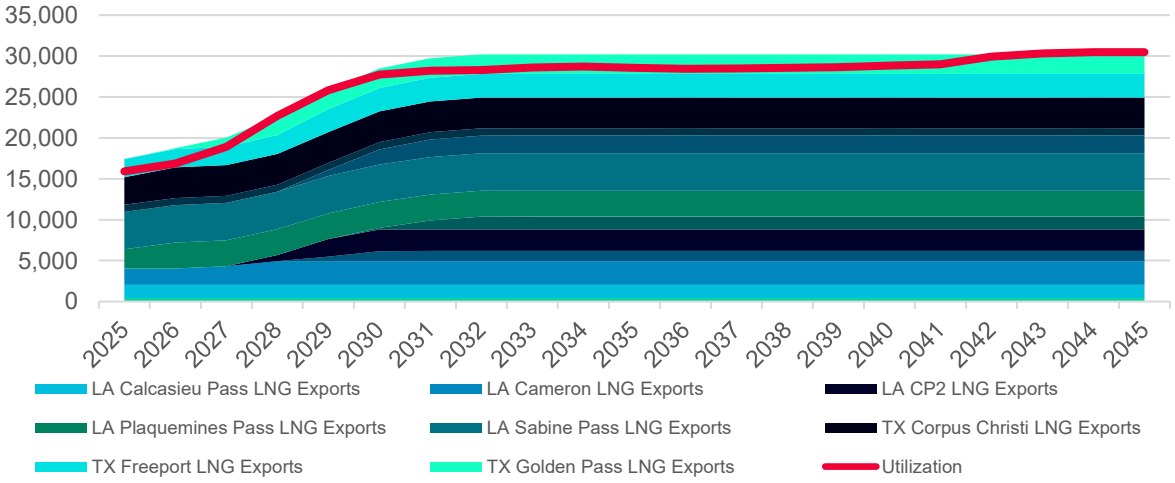
U.S. (L48) Gas Supply Outlook (MMCF/D)



U.S. Gas Demand Outlook (MMCF/D)



U.S. LNG Export Capacity and Export Outlook (MMCF/D)



Key Insights

- Gas production remains robust, led by the Permian Basin, supported by strong project economics and proximity to major demand centers.
- Natural gas continues to serve as a critical firming and dispatchable fuel, with its role reinforced by the removal of renewable incentives and growing reliability needs from rising data center demand.
- LNG exports are projected to expand through the early 2030s, driven by sustained global demand and ongoing geopolitical dynamics.

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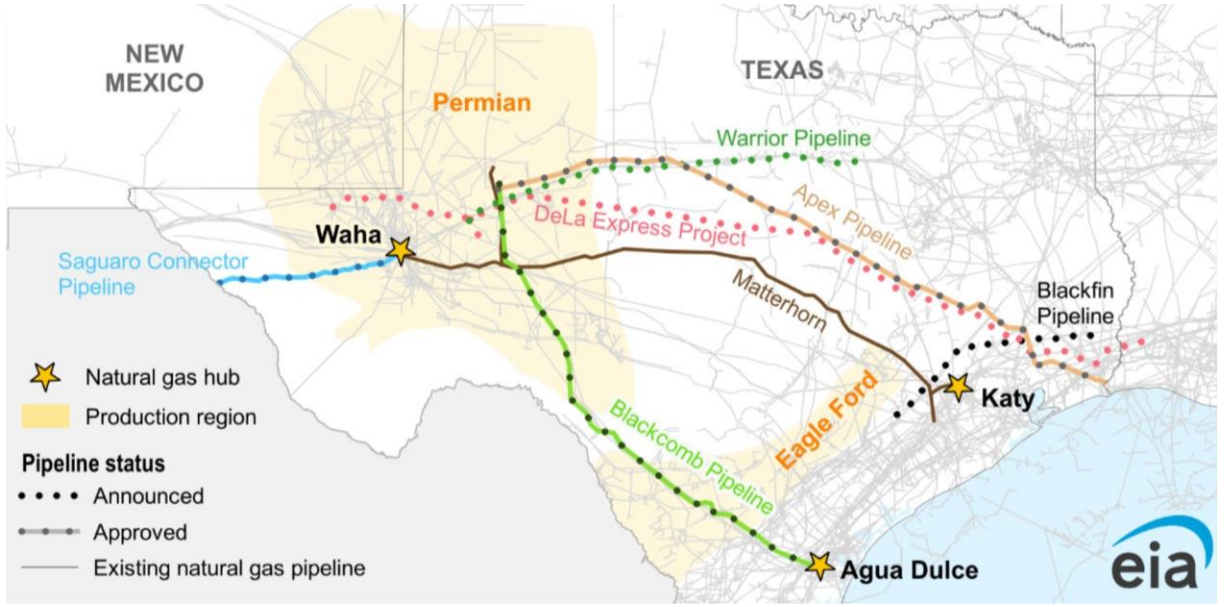
Strengthening TEP's Gas Supply Through Permian Midstream Growth

- Permian gas production is expected to increase from ~25.8 Bcf/d in 2025 to ~30 Bcf/d by 2030
- Gas pipeline takeaway capacity is expected to reach ~25.6 Bcf/d by YE2025
- Expansion projects being developed to increase takeaway capacity
- Desert Southwest Expansion Project is expected to transport 1.5 Bcf/d to New Mexico and Arizona, aiming to be operational by YE2029

New Natural Gas Pipelines



Source: EIA

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Near-Term Gas Prices Rise Driven by Demand Growth and Policy Shifts

Near-Term (through 2027)

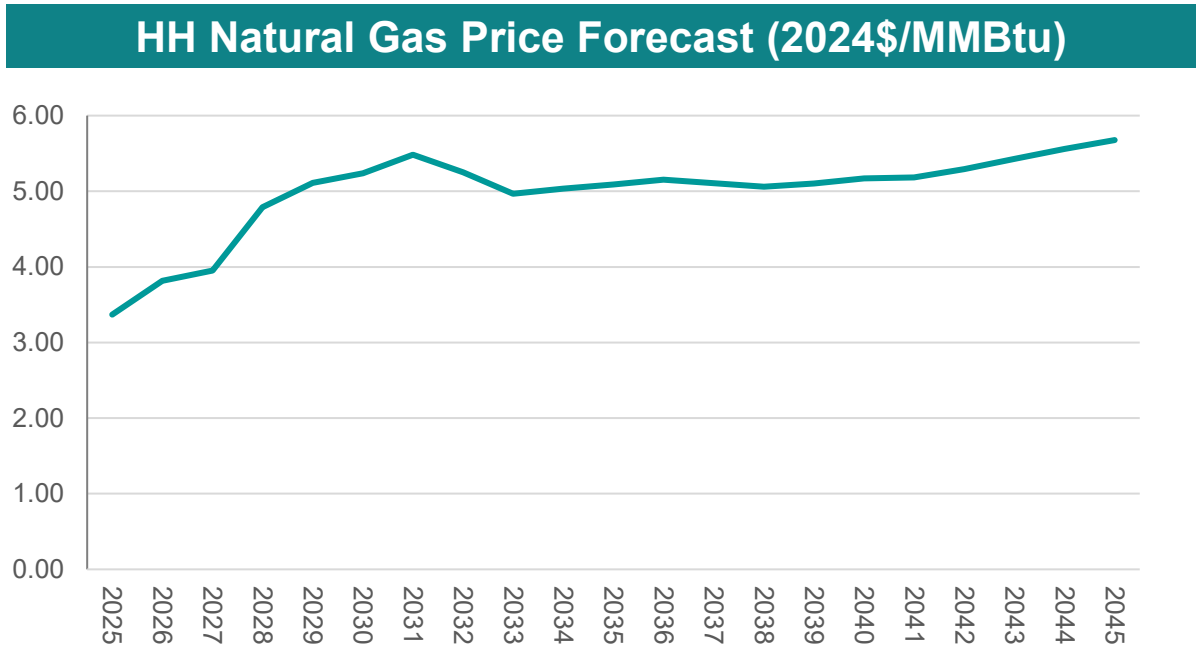
- Outlook blends recent history with market forwards through early 2027, supplemented by fundamentals through late 2028 for balance checks and risk bands.
- Data-center electricity demand is accelerating at a high clip in 2025, with strong regional concentration and 24/7 reliability needs that reinforce gas's firming role.
- Policy shifts slow post-2027 renewable buildout while streamlining gas infrastructure, reinforcing near-term dependence on dispatchable capacity and pipeline additions.

Mid-Term (2027-2035)

- Henry Hub is expected to soften as supply growth catches up, then firm again as export pull and structural demand tighten balances into the early 2030s.
- LNG capacity climbs materially through 2035, moving from mid-teens Bcf/d in the late 2020s toward the high-20s Bcf/d, establishing exports as a top demand pillar.
- New long-haul gas corridors and Permian egress projects relieve chokepoints and align supply with Gulf Coast demand centers tied to LNG.

Long-Term (2035-2050)

- Prices trend higher in real terms as marginal supply costs rise while total demand plateaus, with gas increasingly valued for reliability and seasonal flexibility as LNG volumes mature at a high level.



Note: Base case prices were developed using NYMEX forwards for Henry Hub for the first 18 months starting Oct 2025, Mix of forward and fundamentals for next 18 months; fundamentals Oct 2028 onwards

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Load Forecast

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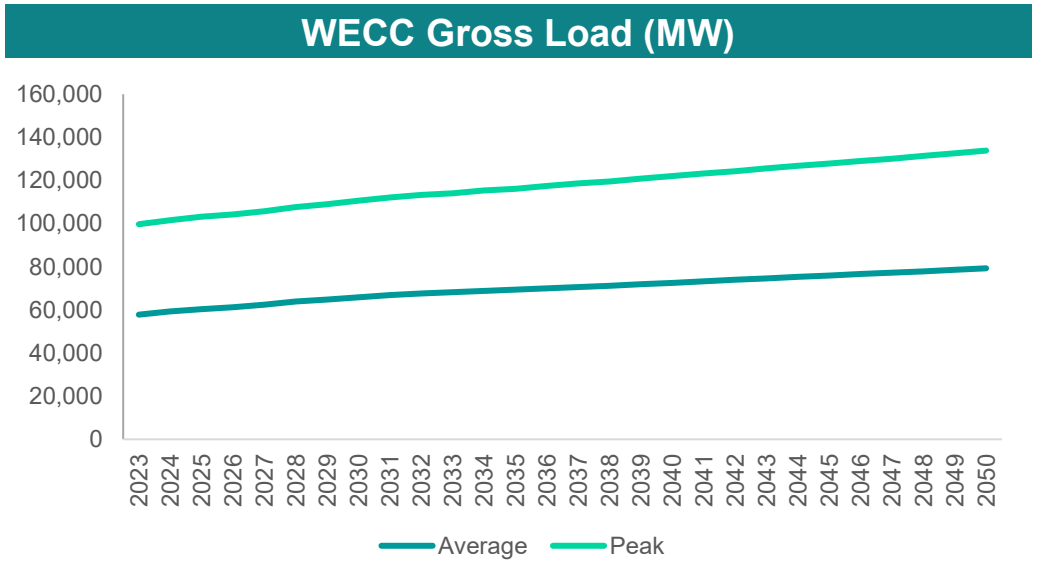
Accelerating Load Growth in WECC Driven by Large New Customers

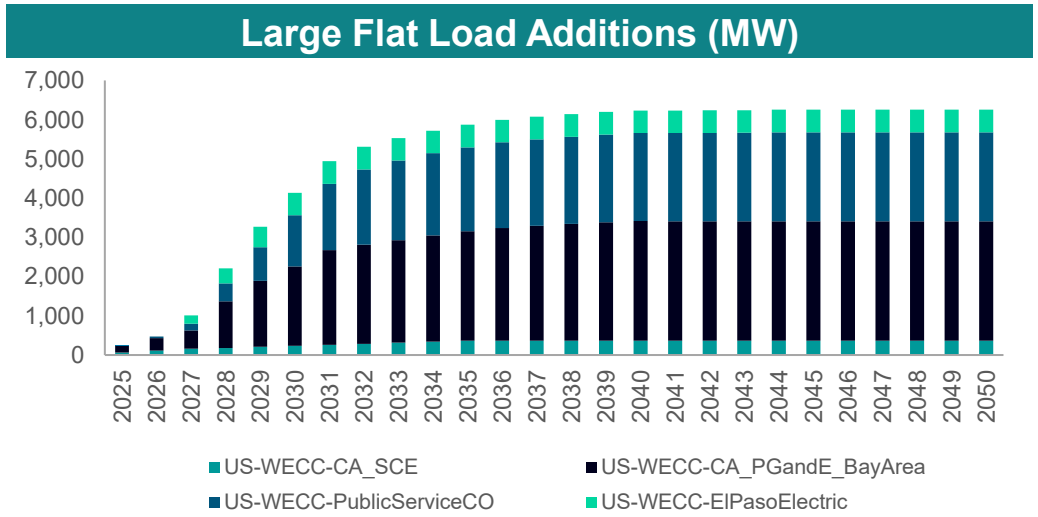
Siemens PTI's Load Forecast Overview

- Siemens PTI integrates ISO outlooks and integrated resource plans (IRP) into its baseline demand forecast.
- Baseline demand includes energy efficiency and demand side management programs, but exclude DG solar and EVs (modeled separately at their respective hourly shape).
- New large loads modeled separately under current methodology. Regions with separate flat load modeling include: PSCO , CAISO, and El Paso Electric.

Key drivers in Q3 2025 Outlook

- Increase is near term demand driven by large loads throughout WECC, specifically:
  - El Paso Electric
  - Nevada
  - CAISO (Bay Area)
  - Colorado
  - SPP South (AEP West & OGE)





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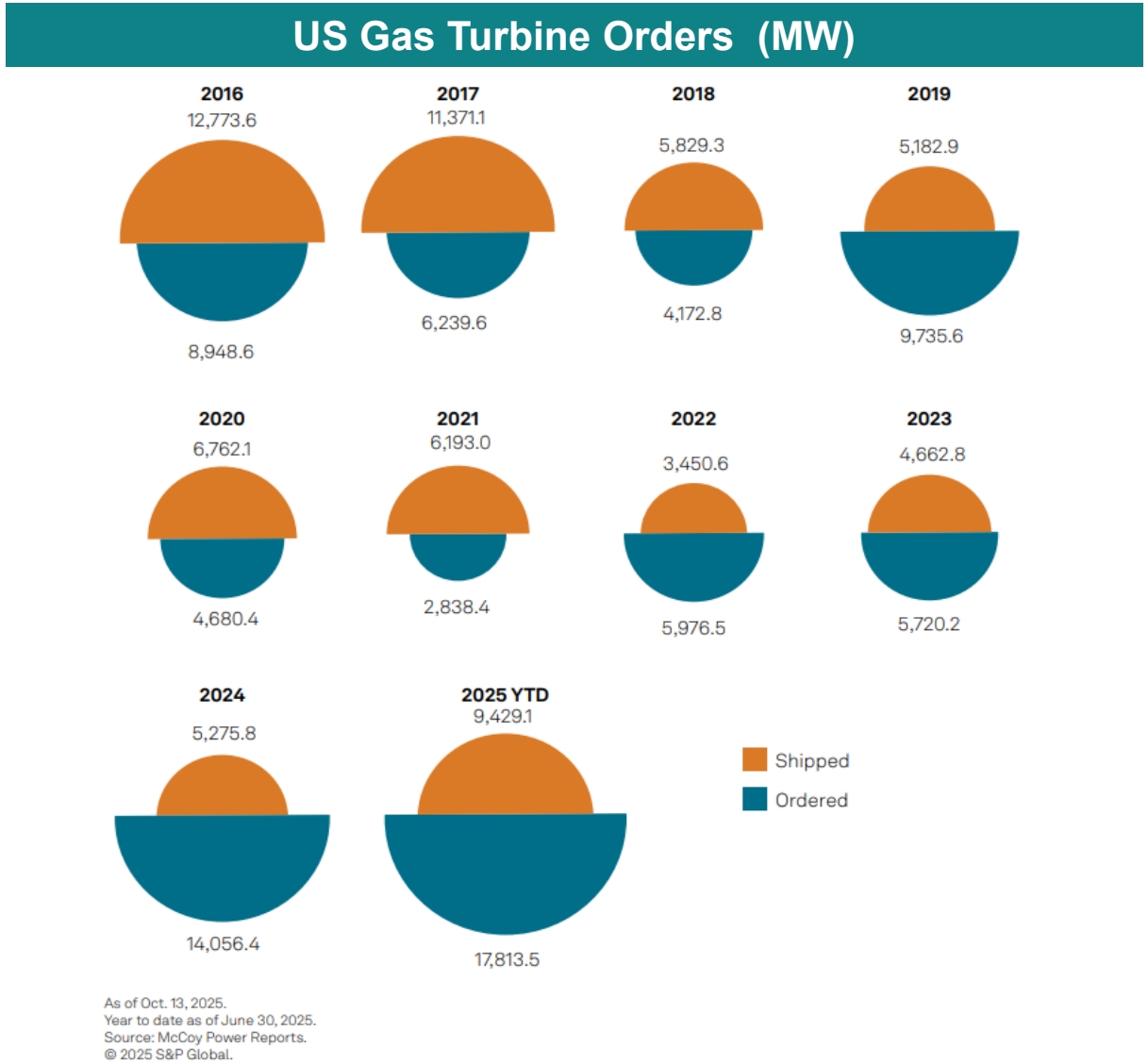
Levelized Cost of New Resources

How the One Big Beautiful Bill Act Reshapes Levelized Cost of New Technologies

Category	Affected Item	Detail	Expected Impact
Utility Scale Solar and Wind	Solar/Wind PTC	No credit after 2027	Safe Harbor expected to result in some projects still receiving PTC through 2029, increased front loaded wind/solar additions, decreased long term
Hydrogen	Clean H2 PTC	No credit after 2027	Decreased H2 adoption, both baseload and peaking. Higher power prices in high demand hours for regions with strict environmental goals
Clean Fuels	Clean Fuel PTC	Credit extended through 2029	No Change
Carbon Capture	CCUS Tax Credit	Lowered rate for direct capture, EOR and CCS rates unchanged	No Change
Advanced Manufacturing	Advanced Manufacturing PTC	No credit for wind components produced after 2027 Introduced phase out for critical minerals	Increased capital cost

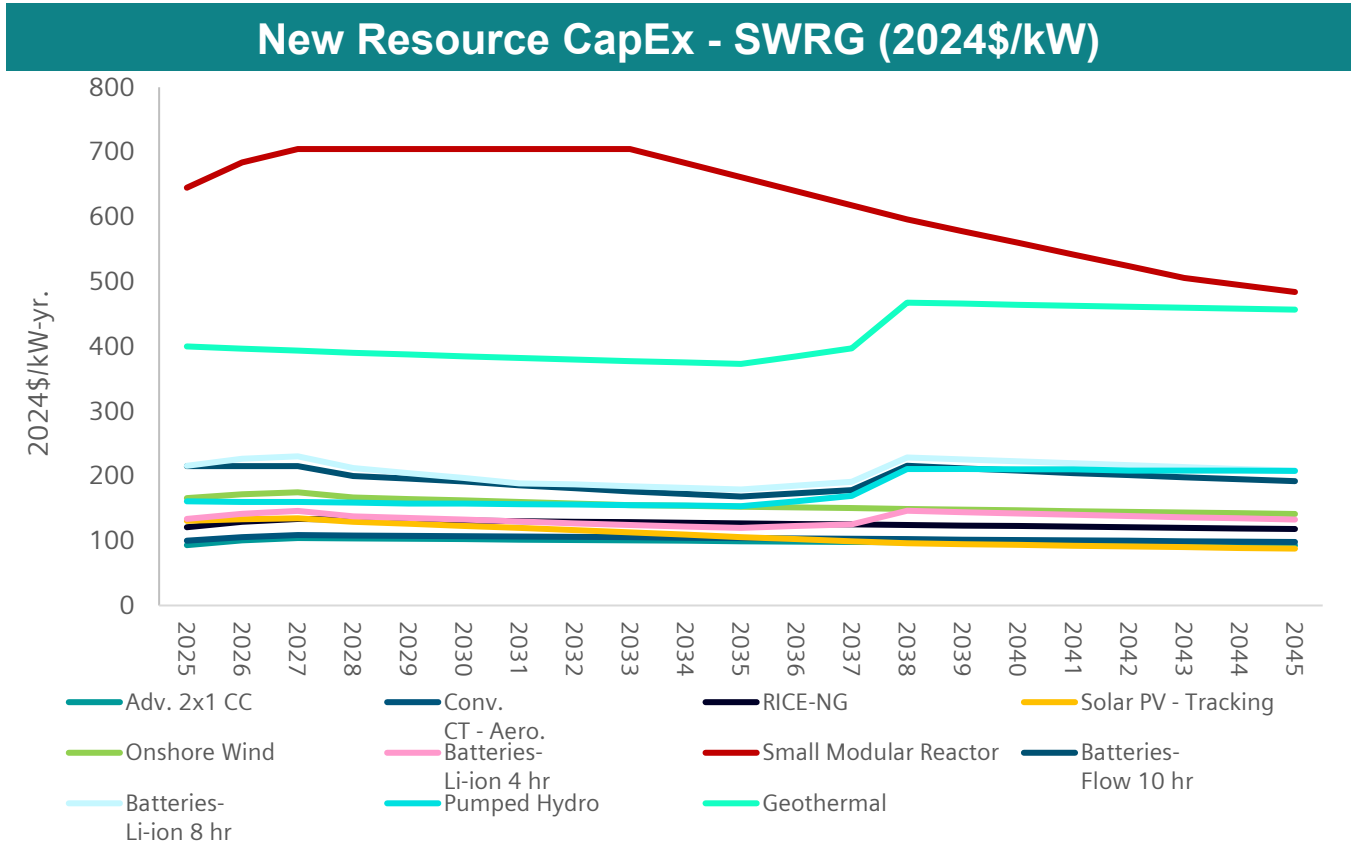
Gas Turbine Orders Climb Sharply as Grids Face Rapid Demand Growth

- **Extended lead times persist** (often 24–36+ months) due to supply-chain constraints, component bottlenecks, and OEM production queues.
- **CAPEX remains elevated,** reflecting inflationary pressure on materials, labor scarcity, and continued OEM pricing discipline.
- Demand driven by reliability and peak-shaving needs as **grids face rapid load growth from data centers,** industrial additions, and electrification.
- **Gigawatt-scale thermal additions expected** in high-growth areas (ERCOT, PJM, Southeast) despite long-term decarbonization commitments.



Near-Term Capital Costs Rise Across Technologies Due to Broad Market Pressures

- **Higher equipment costs:** Increased demand has driven up prices for key components such as turbines, panels, and transformers.
- **Tariff impacts:** New and expanded tariffs on imported equipment (e.g., solar modules, steel, electrical components) further raise upfront capital costs.
- **Project delays:** Supply chain bottlenecks lengthen construction timelines, increasing carrying costs and financial risk.
- **Financing pressure:** Rising capital expenditures make projects harder to finance, especially for developers with thin margins.
- **Technology-neutral effect:** Impacts are observed across renewables, storage, and thermal generation, creating broad upward pressure on supply-side resource costs.



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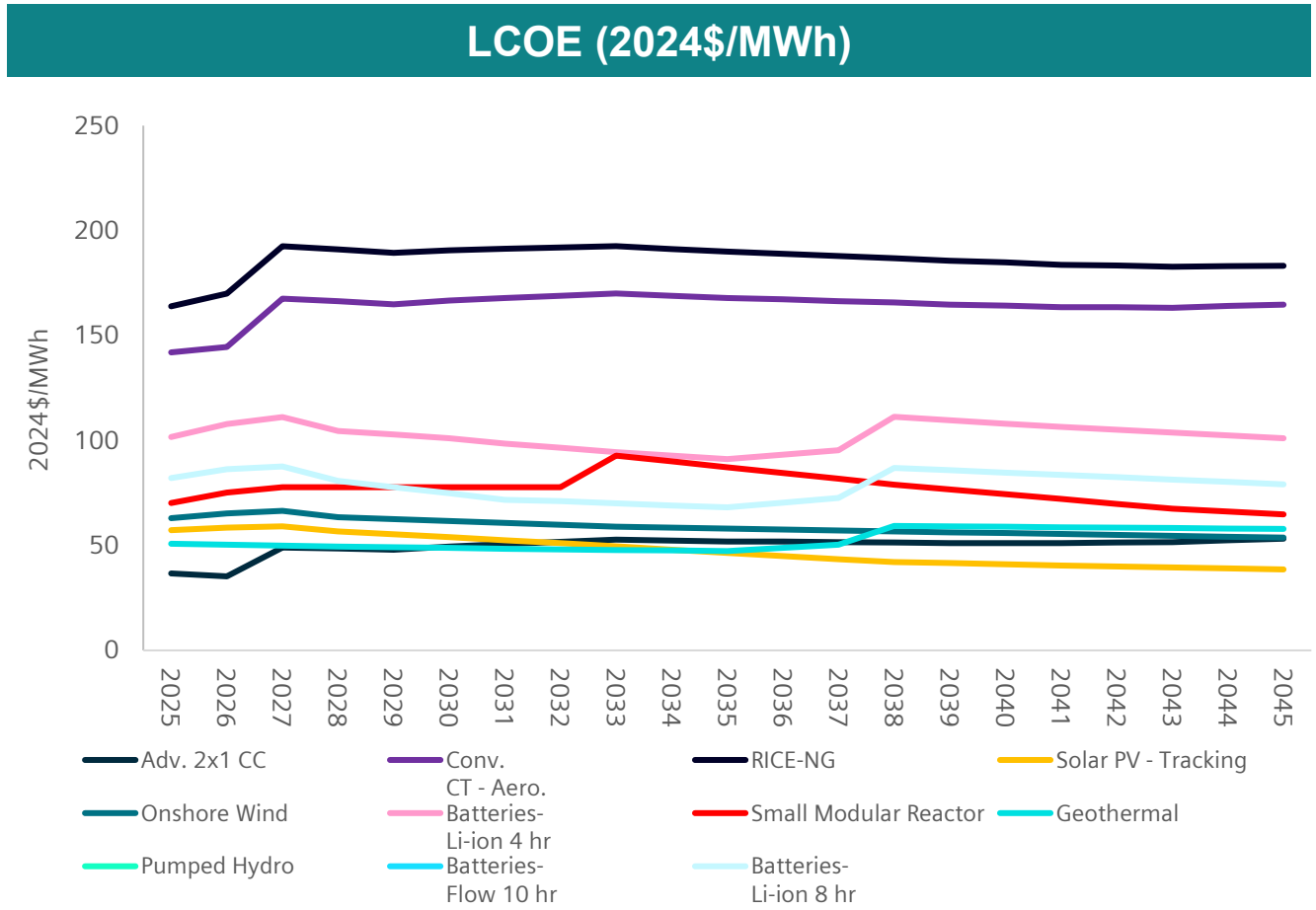
WECC Generic Levelized Cost of Energy

- **Peaking units have highest LCOE** due to minimal annual energy output (low capacity factor).
- **IRA Expiration:** Expected steep LCOE increases for storage, SMRs, and Geothermal as key tax credits phase out.
- **Natural Gas:** Flat LCOE trajectory; decreased long-term CAPEX offset entirely by rising fuel prices.



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Power Price Outlook

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Increased Load and Limited Buildout Elevates Southwest Reserve Prices Compared to Previous Outlook

Near Term

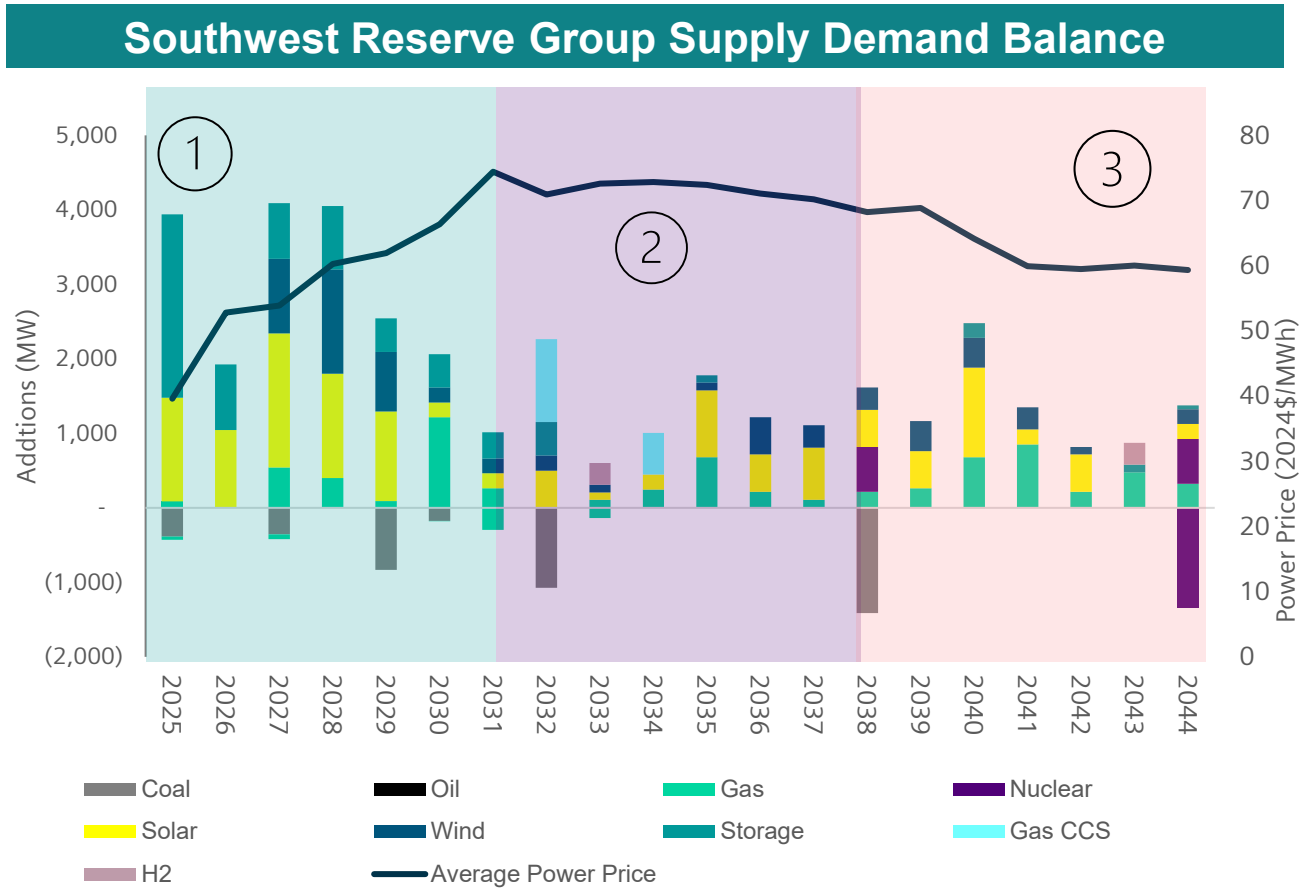
- Steep near term price increases observed due to:
  - Increased gas prices
  - Firm capacity retirements
  - Large load increases throughout the region and surrounding areas
- Front loading of renewable resources through 2029 to capture PTC benefits through safe harbor laws

Mid Term

- Power price stabilization as load growth and gas prices begin to stabilize
- Limited renewable additions as high capital cost and lack of PTC benefits deem new projects uneconomic

Long Term

- RPS regulations throughout New Mexico and California drive adoption of renewable resources, despite potential negative economics
- Increased renewable penetration begins to drive prices down, offsetting long term gas price increases



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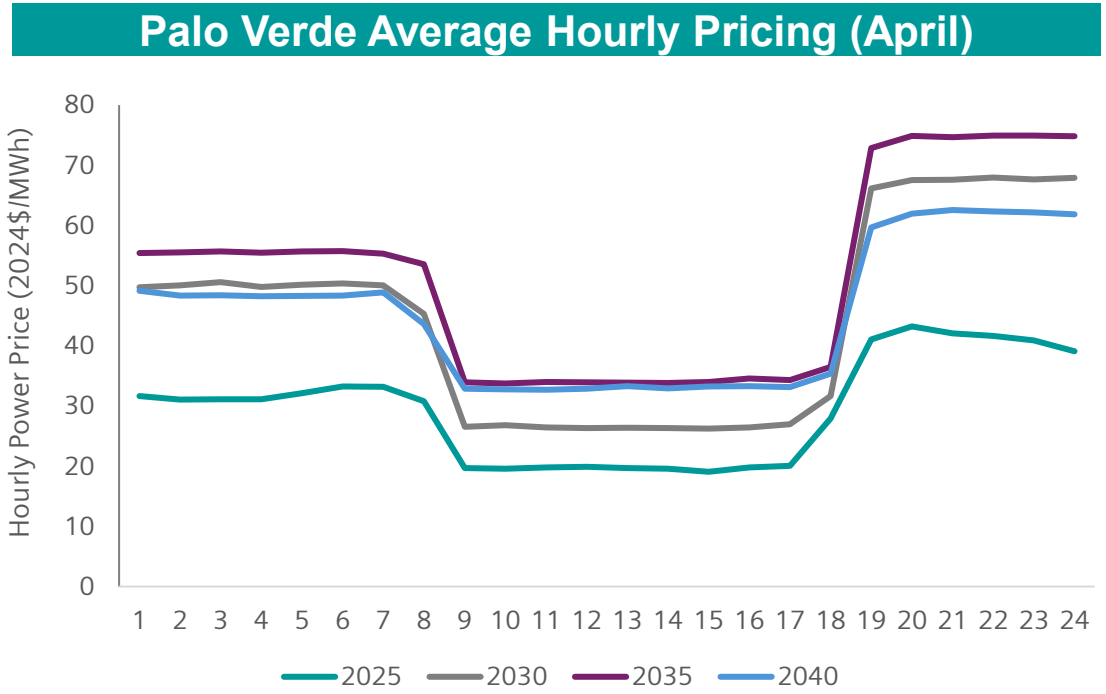
New Large Loads and Increased Gas Prices Shift Hourly Price Curve Upward

- Although renewable capacity is expected to increase, increased load growth and gas prices are expected to offset this new load, resulting in gas resources remaining on the margin and overall shift upwards in shape until rapid adoption occurs towards late 2030's to meet state environmental compliance goals
- Peak solar hours, from 8 A.M. to 5 P.M., currently do and will continue to experience price drop while the balance of peak power hours are expected to see higher prices.



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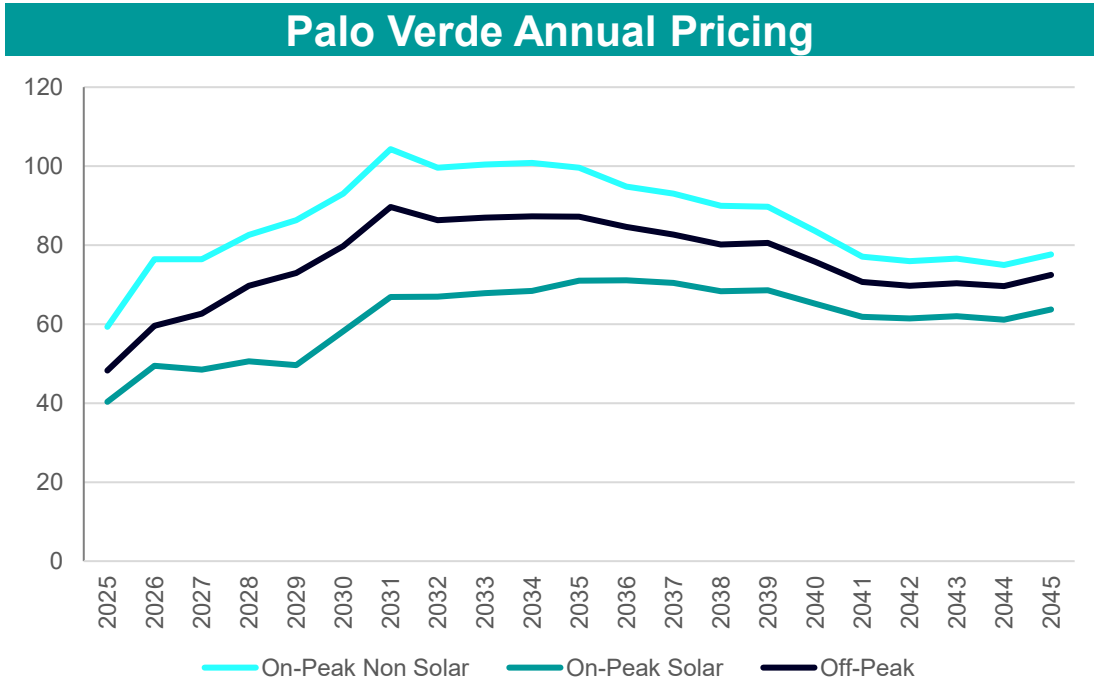
On Peak Solar Hours Realize Highest Power Prices

- **Near Term** – High pricing reflected in recent and forward market pricing supported by higher natural gas prices and scarcity pricing due to supply chain issues
- **Mid-Term** – Consistent increasing trend in line with gas price increases as new large loads keep gas units on the margin for non-solar hours
- **Long-Term** – Wide range between solar and non-solar hour pricing tightens in Palo Verde as wind, storage, and SMR help support solar in long-term environmental compliance goals for non-solar hours, specifically in lower California.



*On-peak solar defined as the hours of 8 A.M. to 5 P.M.

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Contact

Chelsea Cupit
Nodal & Zonal Fundamentals Expert
Mobile +1.346.224.3602
E-mail Chelsea.laricci@siemens.com

Anuj Patel
Fuels Expert
Mobile +1.936.900.4631
E-mail Anuj@siemens.com

Holt Bradshaw
Emerging Technologies and Electrification SME
Mobile +1.703.539.1135
E-mail Holt.bradshaw@siemens.com

Angelina Martinez
Power Market Analysis Lead
Mobile +1.713.673.9037
E-mail Angelina.martinez@siemens.com

Carlos Fuentes
Commercial & Regulatory Expert
Mobile +812.622.1474
E-mail Carlos.fuentes-martin@siemens.com

Art Holland
Power Market Expert Senior Advisor
Mobile +1.571.423.8781
E-mail Arthur.hollland@siemens.com

For further information: https://www.siemens.com/us/en/products/energy/grid-software/pti-consulting.html

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Menti Survey Update

RPAC Feedback on UNSE Portfolios

- UNSE will be sharing a survey for RPAC participants through Menti.com
- What kinds of portfolios is the RPAC interested in?
- Potential kinds of portfolios:
  - Focus on technology type
  - Focus on policy
  - Focus on energy mix
- Review feedback at the next meeting

Next Meeting:
February 25
10am – 12pm