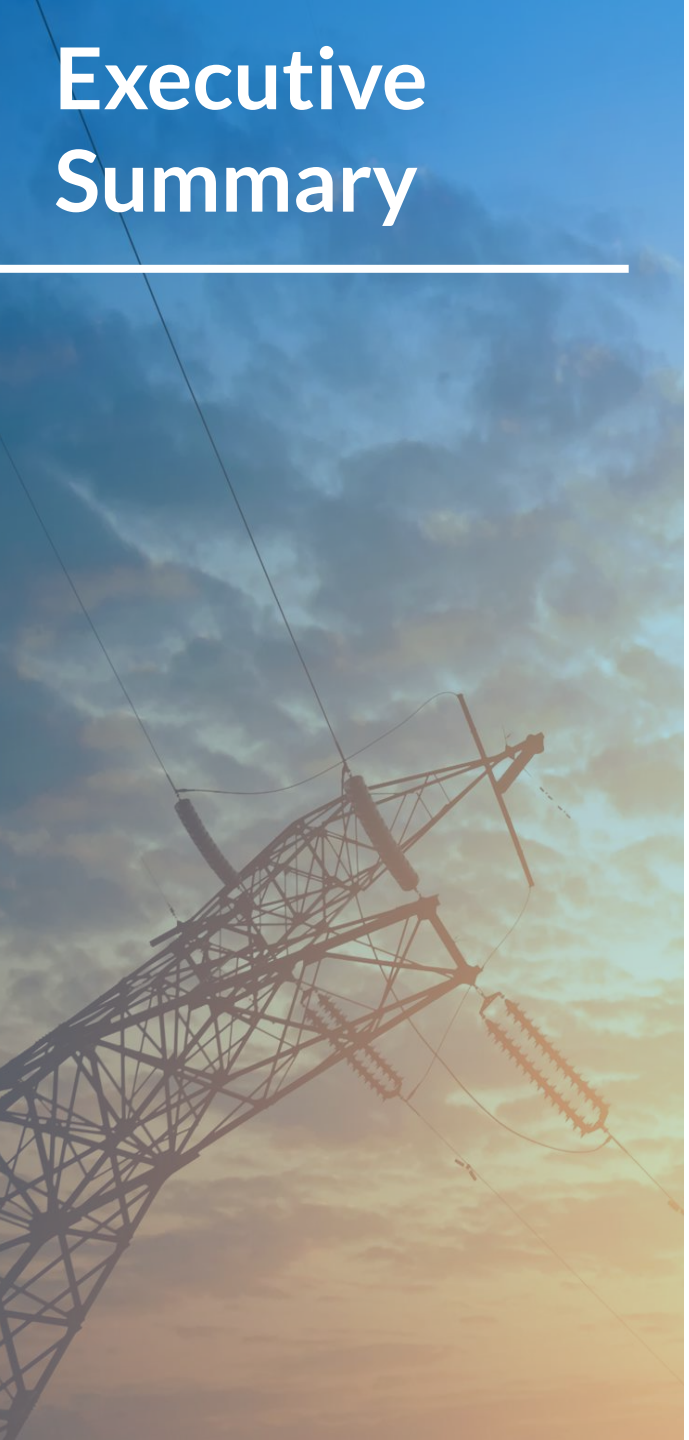
2026 Long-Term Load Forecasting (LTLF) Results Summary

Methodology Overview and Results

Updated: Slide 18 (4/13)

April 13, 2026

Executive Summary



- The MISO region is undergoing rapid and sustained load growth at levels not seen in decades
- As part of its Reliability Imperative, MISO is enhancing long-term load forecasting to inform long-lead decisions
- The 2026 Long Term Load Forecast indicates significant new load growth driven primarily by large, concentrated loads, and affirms Series 2 Futures growth ranges
- Results and formal stakeholder feedback will inform and refine MISO's long-term forecasting process

The 2026 Long-Term Load Forecast (LTLF) is one of several resource and adequacy-related processes MISO is engaged with in the 2025–2026-time frame

Today's Focus

2025 NERC LTRA
Jan. 2026

- NERC-driven assessment for projecting future (years 2-11) resource adequacy and reliability risks

LTLF Pilot Survey
Feb. 2026

- Collects 20-year stakeholder load outlooks, with uncertainty and drivers
- **Informs the 2026 LTLF and upcoming LRTP load siting**

2026 LTLF
Apr. 2026

- Supports long-lead (20-yr) decisions through long-term, scenario and driver-based regional load outlooks
- **Informs a Series 2 Futures sensitivity**

2026-27 PRA
Apr. 2026

- Facilitates procurement of capacity to meet prompt-year reliability requirements at an economically efficient price

2026 OMS-MISO Survey
Q2-2026

- Survey of all market participants to establish 1-5 year regional resource adequacy projections

Series 2 Futures
Q2-2026

- 20-year resource and adequacy outlooks to inform Long-Range Transmission Planning and state/member long-lead planning

The LTLF provides regional visibility into long-term load growth to help ensure long-term reliability in the MISO region

States and Utilities

Make resource decisions – additions and retirements

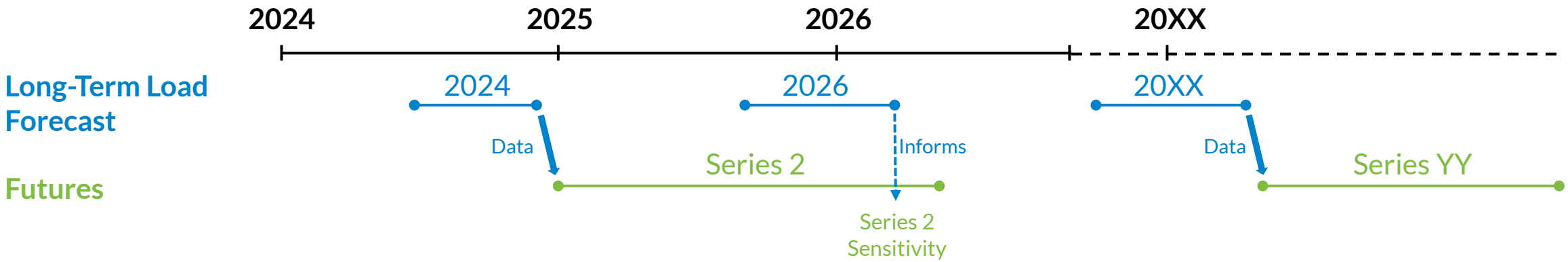
MISO

Enable Member plans; ensures timely grid connections and efficient regional transmission

The Long-Term Load Forecast:

- **Provides regional visibility** into load growth trends across the MISO footprint to complement member views
- **Represents emerging drivers** of load growth to assess expected impacts of a changing grid
- **Includes multiple scenarios** to address the inherent uncertainty in load outlooks
- **Provides 20-year views** to inform long-lead investment and strategic decisions

MISO's Futures provide the foundation for long-term planning, and their development begins with the most recent LTLF data; **2024** LTLF data informed the Series 2 Futures and the 2026 LTLF release does not change these scenarios



- The Long-Term Load Forecast (LTLF) **process** supports MISO Futures, but the 2026 LTLF will **not** be used to develop Futures.
- The 2026 LTLF informed a Series 2 sensitivity and the LTLF Pilot Survey will support load siting in the upcoming LRTP.
- The goals of the 2026 LTLF release are to provide updated information in a period of accelerating load growth, provide an opportunity to collect feedback and refine the LTLF process, and the release is consistent with a transition to a predictable LTLF release cadence.
- We expect upcoming LTLF updates will be used to develop upcoming Futures.

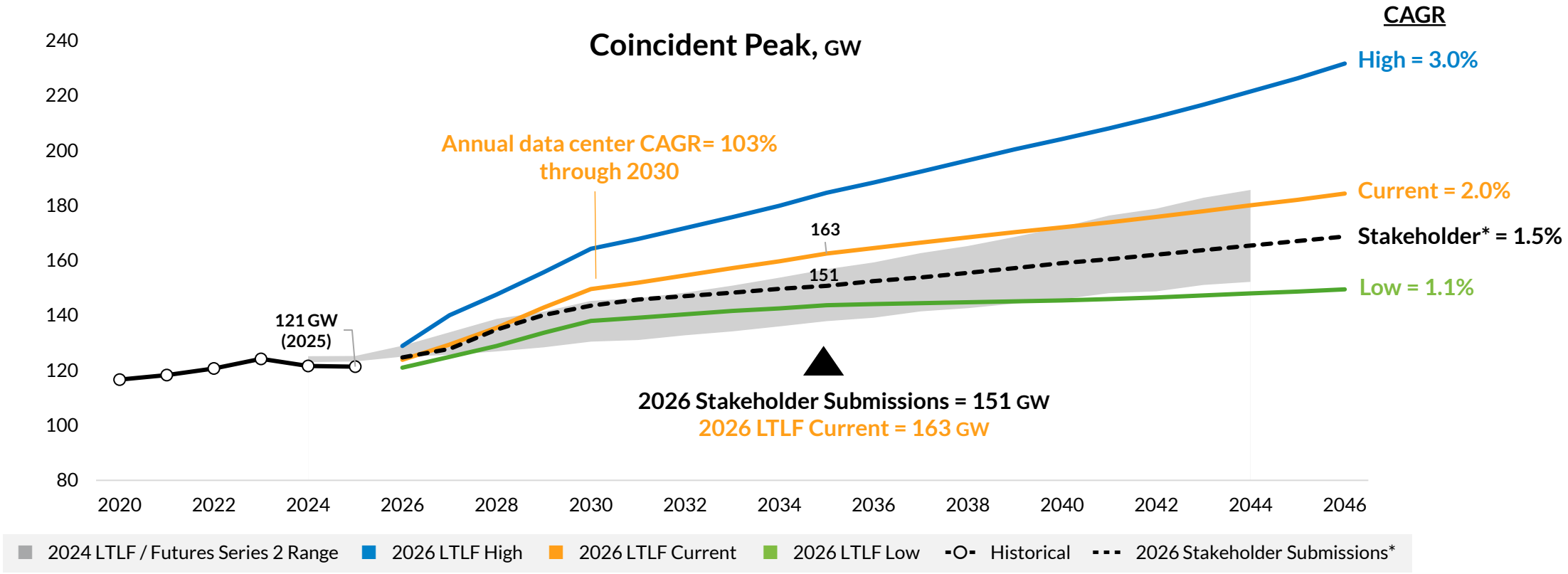
MISO has received substantial stakeholder feedback since the 2024 LTLF was released and has taken several steps to incorporate this feedback into the 2026 LTLF

Stakeholder Feedback Theme	Progress
Incorporate more stakeholder data	LTLF Pilot Survey enabled MISO to obtain member and other stakeholder information about load drivers and levels of confidence, which informed the 2026 LTLF. It also allowed us to develop experience requesting this type of information.
Improve documentation	Expanded descriptions of data sources, modeling, and assumptions supporting the load forecast scenarios and published driver-level forecast data.
Enhance data center forecasting	Improved data center forecasting using LTLF Pilot Survey data, enhanced public announcement tracking, and improved integration with MTEP data.
Enhance geographic resolution by driver	Integrated county-level geospatial allocation methods informed by population distribution.
Clarify role of DERs	Partnered with Kevala for bottoms-up DER forecasting and requested for insights from stakeholders through the pilot survey.

Evolving dynamics have shifted the outlook for load forecast drivers since the 2024 Long-Term Load Forecast was released

Headwinds/Tailwinds		2026 Load Forecast Dynamics
AI, Cloud, and Digital Infrastructure		• **Upward revisions to load forecasts** driven by gigawatt-scale data center campuses, higher rack power densities from AI compute, and accelerated investment in strategic domestic compute infrastructure. • As seen in stakeholder submissions, stakeholders are increasingly modeling concentrated load additions of 100 to 1000+ MW. Observations of actual demand impacts are not yet available
Strategic Manufacturing		• **Upward revisions to industrial electricity demand** as reshoring, tariffs, and supply-chain security drive domestic semiconductor fabs, battery plants, and electrified industrial processes. • Large anchor loads significantly increase regional demand projections.
Electrification & DERs (EVs, Heat Pumps, Water Heaters, and Rooftop PV)		• **Moderated or slightly reduced growth expectations** due to policy uncertainty, potential rollback of incentives, and slower rate of technology adoption relative to earlier projections. • Electrification remains a growth driver but contributes less near-term load than previously forecast. • The termination of 2022 IRA tax credits has limited access to widespread DER adoption, like rooftop solar PV.
Energy Policy Regime (OBBBA, IRA, Permitting)		• **High uncertainty and regional divergence in forecasts.** Policy changes affect the pace and location of electrification, generation buildout, and transmission expansion, leading utilities to model multiple scenarios rather than a single load trajectory.
Growing Uncertainty		• **Actual-to-forecast variance** remains challenged by limited visibility into Distributed Energy Resources and weather impacts

The 2026 LTLF shows an increase in growth expectations relative to the 2024 LTLF, mostly driven by large loads; the 2026 LTLF "current" scenario roughly corresponds to the "high" scenario from 2024



Key Insights

- Annual growth rate in the 2026 LTLF current trajectory increased to 2%, up from 1.6% in 2024 LTLF, driven largely by data center expansion.
- 2024 and 2026 LTLF forecast ranges overlap in the long term, with 2026 LTLF Current scenario aligned with the High end of the 2024 LTLF range.
- The high scenario reflects robust economic growth that enables some reported low-confidence large loads, while the low scenario captures potential delays or cancellations in major spot-load projects.

*2026 Preliminary Module-E Capacity Tool Stakeholder submissions; extrapolated post 2036 based on LTLF Pilot Survey submission rate of growth. Futures Series 2 definitions.

Methodology

Statistical end-use forecasting enables MISO to continuously monitor how load drivers are affecting the system

Today's Focus

Collect & Acquire Load Demand Data

- **Stakeholder inputs**: LSE energy and demand growth projections, including prospective demand from large spot loads
- **Moody's and NREL**: Geographic and economic factors
- **LandGate:** Data center siting and development tracking
- **Historical actuals:** energy and peak demand
- **Kevala:** DER penetration

Inform geographic driver-based penetration model

- Perform bottom-up estimates at the county, and state levels, then aggregate results using a GIS-based mapping framework.
- Incorporate technology efficiencies and industry market maturation through penetration model
- Produce 20-year forecast scenarios of annual net-load peak and volumetric load

Allocate across historically-based weather models

- Leverage historical LBA weather patterns to generate hourly load shapes

Produce forecast outlooks

- Produce ***monthly*** and ***hourly*** net and gross 20-year forecast scenarios that account for DERs and transmission losses to meet modeling needs*

* May result in minimal allocation variances

Stakeholder submissions provide a benchmark to ensure that state and regional trends are appropriately reflected, while other sources are leveraged

STAKEHOLDER SUBMISSIONS

Total Peak & Energy

- Benchmark MISO's total peak and energy outlook and are used to ensure the accuracy of state and regional load growth trends

Large Loads

- Reported projects, by confidence level, are combined with internal research, public disclosures, and third-party research (Landgate) to produce best-available large load estimates
- Duplicates are removed and timing and efficiency assumptions applied

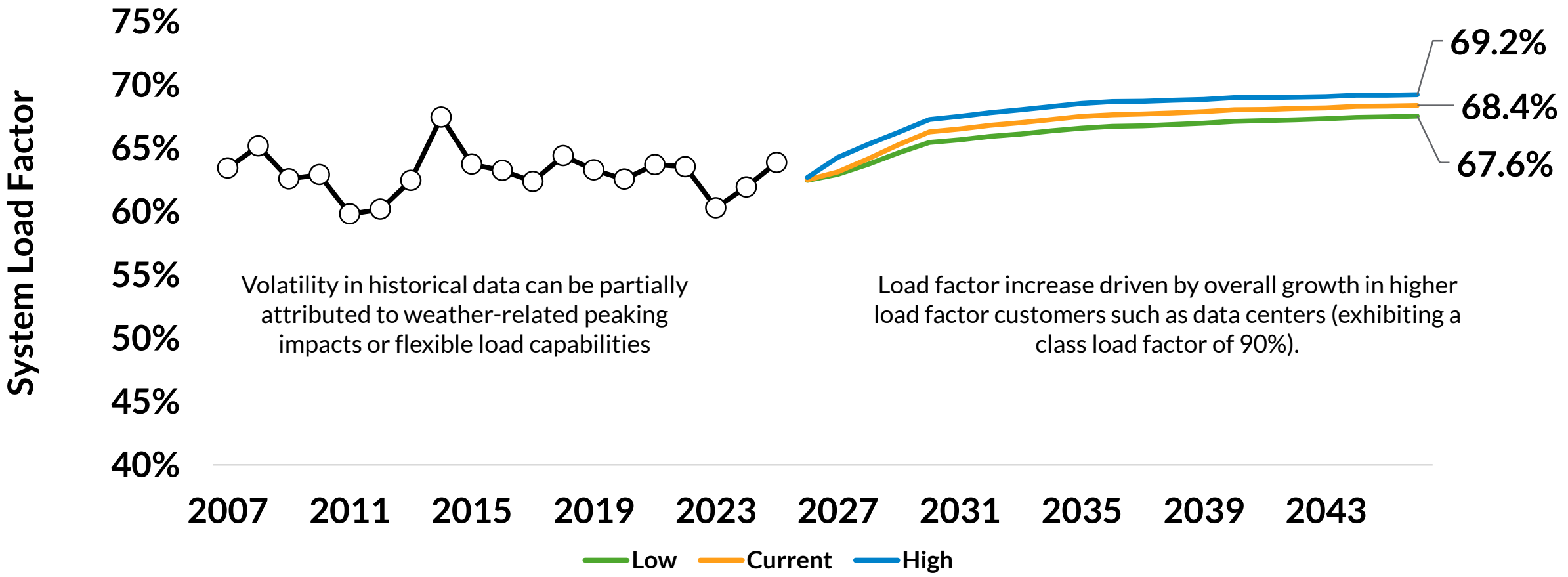
Electric Vehicles

- Benchmark against MISO's EV adoption model, which is informed by publicly available forecasts (Dept. of Energy) and updated policy assumptions
- Adjustments made for state-level adoption and charging behavior

OTHER SOURCES

- **Complementary sources** are integrated to develop a complete and internally consistent set of forecast assumptions
- **Third-party research** is used to generate load forecast outlooks that account for uncertainty

MISO's System Load Factor is projected to increase from an average of ~63% to nearly 70% by 2040



Volatility in historical data can be partially attributed to weather-related peaking impacts or flexible load capabilities

Load factor increase driven by overall growth in higher load factor customers such as data centers (exhibiting a class load factor of 90%).

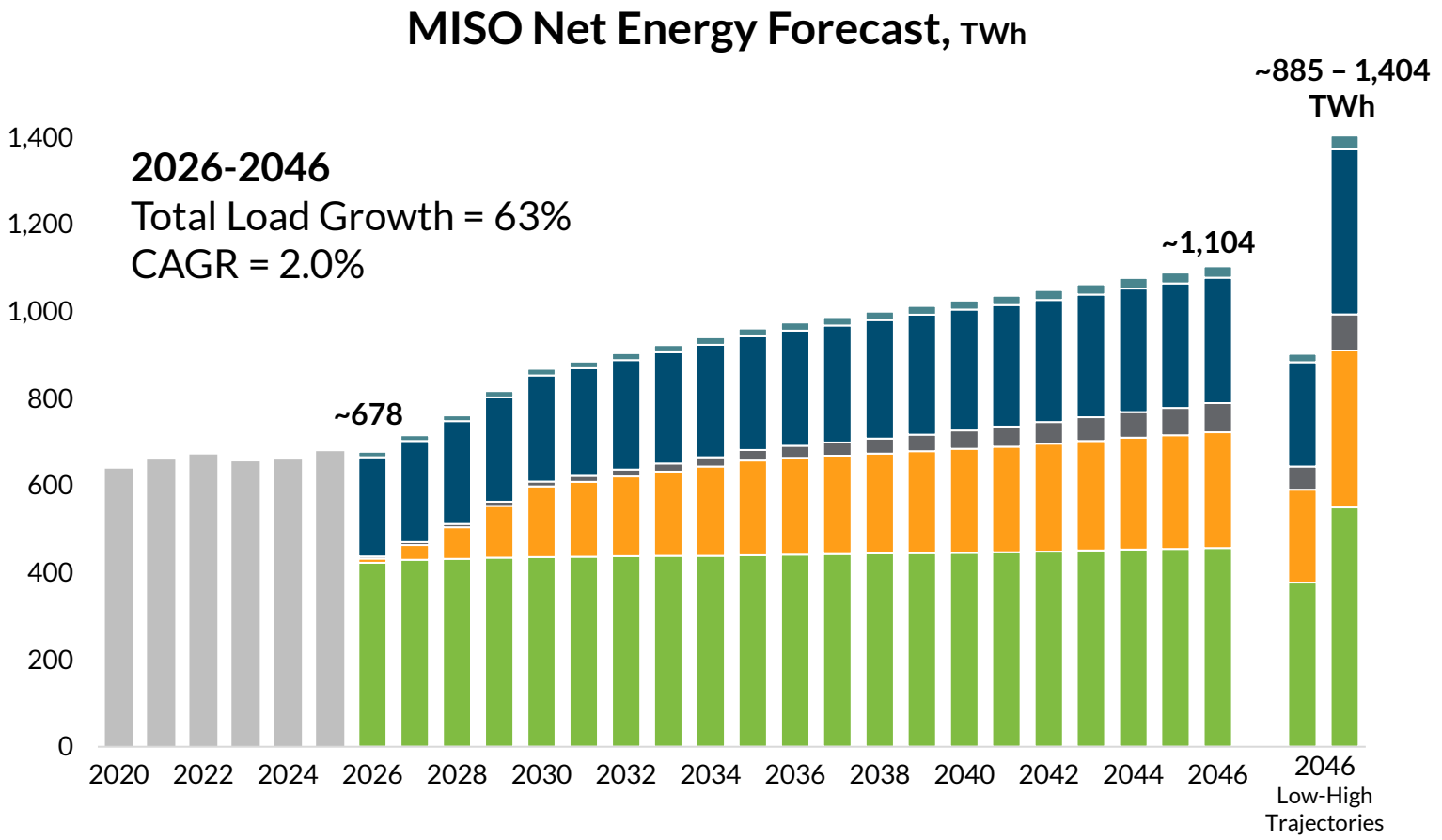
Load Factor and Coincidence Factor are used as control variables in MISO's hourly forecasting. System Load Factor measures how efficiently electricity is used over time by comparing the average load to the peak load. Coincidence Factor (not shown) compares the peak demand of individual systems to the overall system's peak demand.

Results

Categories have been refined to support continuous monitoring and to track emerging and spotlight sectors

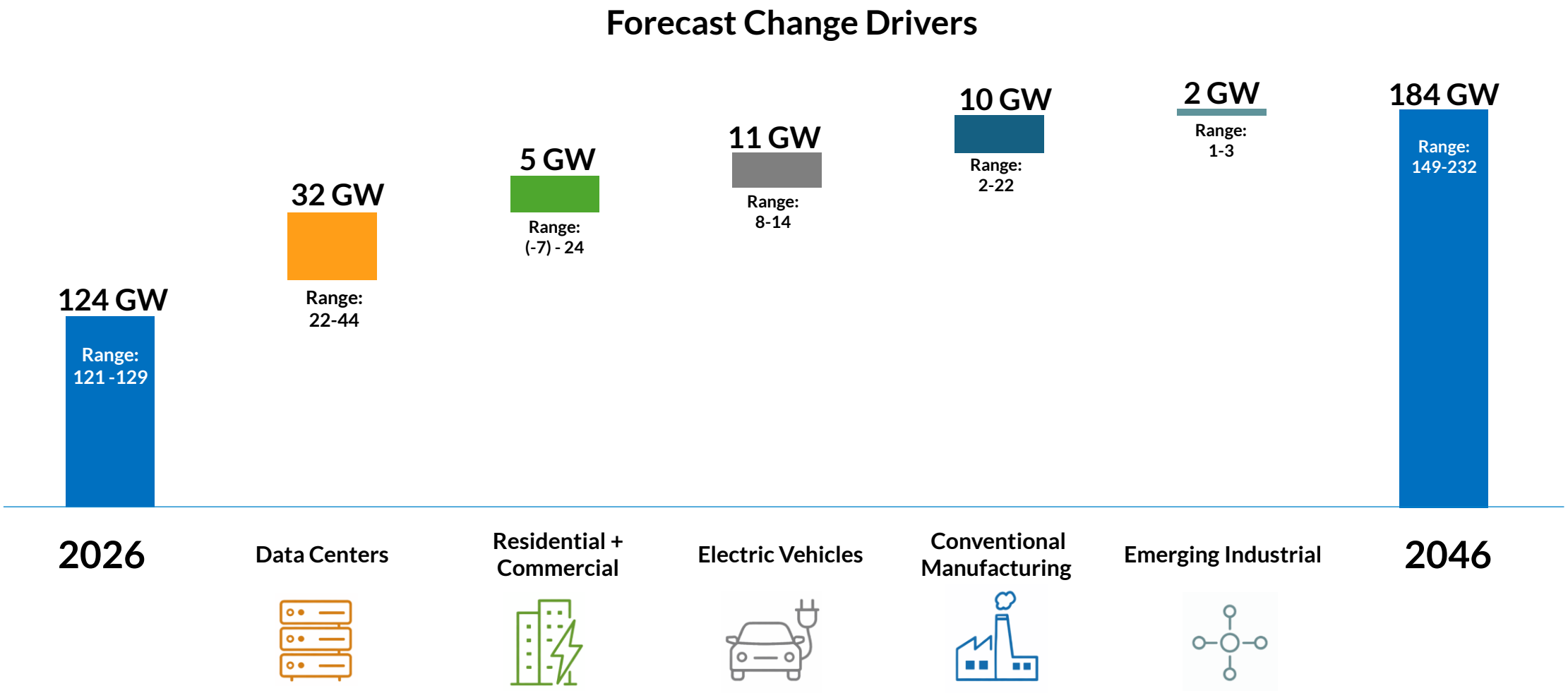
2024 Load Drivers		2026 Load Drivers
Hydrogen (now merged with Emerging Industrial)		**Emerging Industrial**
Industry Development and Reshoring		**Conventional Manufacturing**
Electric Vehicles		**Electric Vehicles**
Data Centers		**Data Centers**
Building Electrification		**Residential + Commercial**

The MISO region is expecting load growth rates not seen in decades, driven largely by unprecedented large load activity and accelerating announcements



	CAGR Low-High (2026-46)	Growth (TWh) Low-High (2026-46)
Emerging Industrial	0.3% - 3%	7 - 19
Conventional Manufacturing	2% - 5%	15 - 180
EV	12% - 15%	47 - 78
Data Centers	17.9% - 18.2%	188 - 348
Residential + Commercial	[-0.6%] - 1%	[-36] - 113

Data centers and conventional manufacturing are expected to be the primary drivers of load growth through 2046 with associated ranges of uncertainty



Data center load in MISO is now anticipated to exceed twice the levels in the 2024 LTLF

2024 vs. 2026 LTLF MISO Level Drivers Comparison
(Current Trajectory)

Residential+ Commercial

- Reduced rollout of home electrification technologies.
- Expansion in the commercial sector.
- Shift represents change of primary data source (Energy Information Administration).

Data Centers

- Enhanced federal policy support for data center infrastructure.
- Sustained demand for AI and cloud computing.

Electric Vehicles

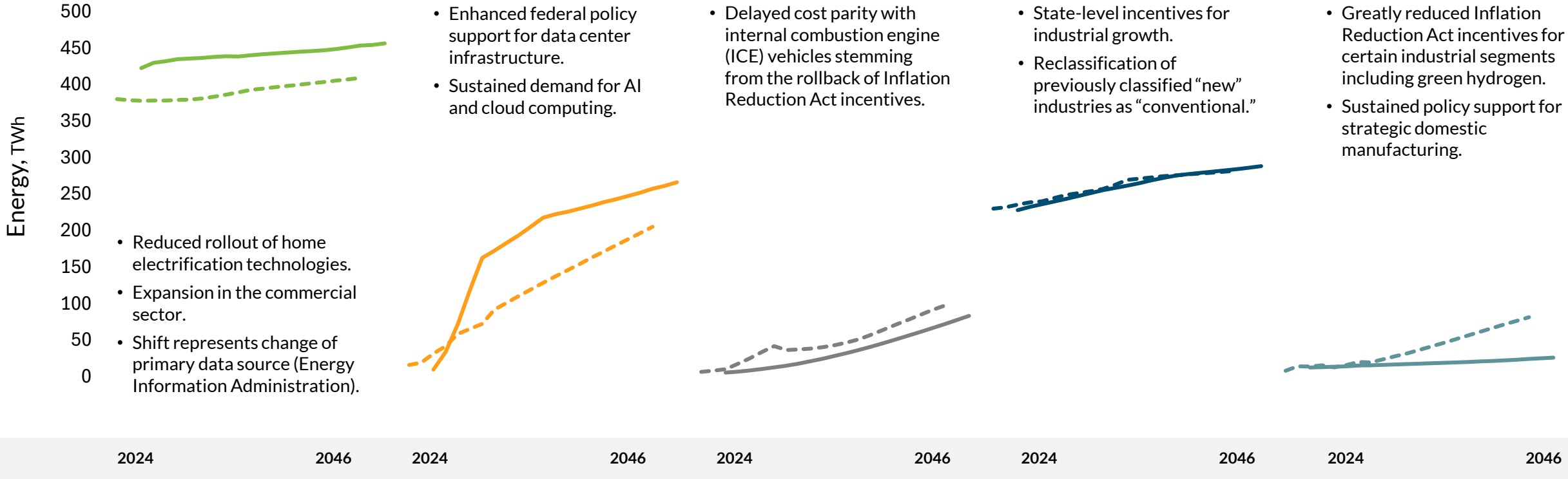
- Delayed cost parity with internal combustion engine (ICE) vehicles stemming from the rollback of Inflation Reduction Act incentives.

Conventional Manufacturing

- State-level incentives for industrial growth.
- Reclassification of previously classified "new" industries as "conventional."

Emerging Industrial

- Greatly reduced Inflation Reduction Act incentives for certain industrial segments including green hydrogen.
- Sustained policy support for strategic domestic manufacturing.



Data centers driven by rapid expansion in AI and cloud computing are becoming the primary drivers of load growth in MISO, with large, constant power needs and fast deployment timelines making them uniquely impactful

Data Center Snapshot

121 GW — 2025 MISO annual peak demand

20 GW — 2030 MISO data center demand

100+ GW — 2030 U.S. data center peak demand (approx.)

2,000 MW — Size of a large data center campus

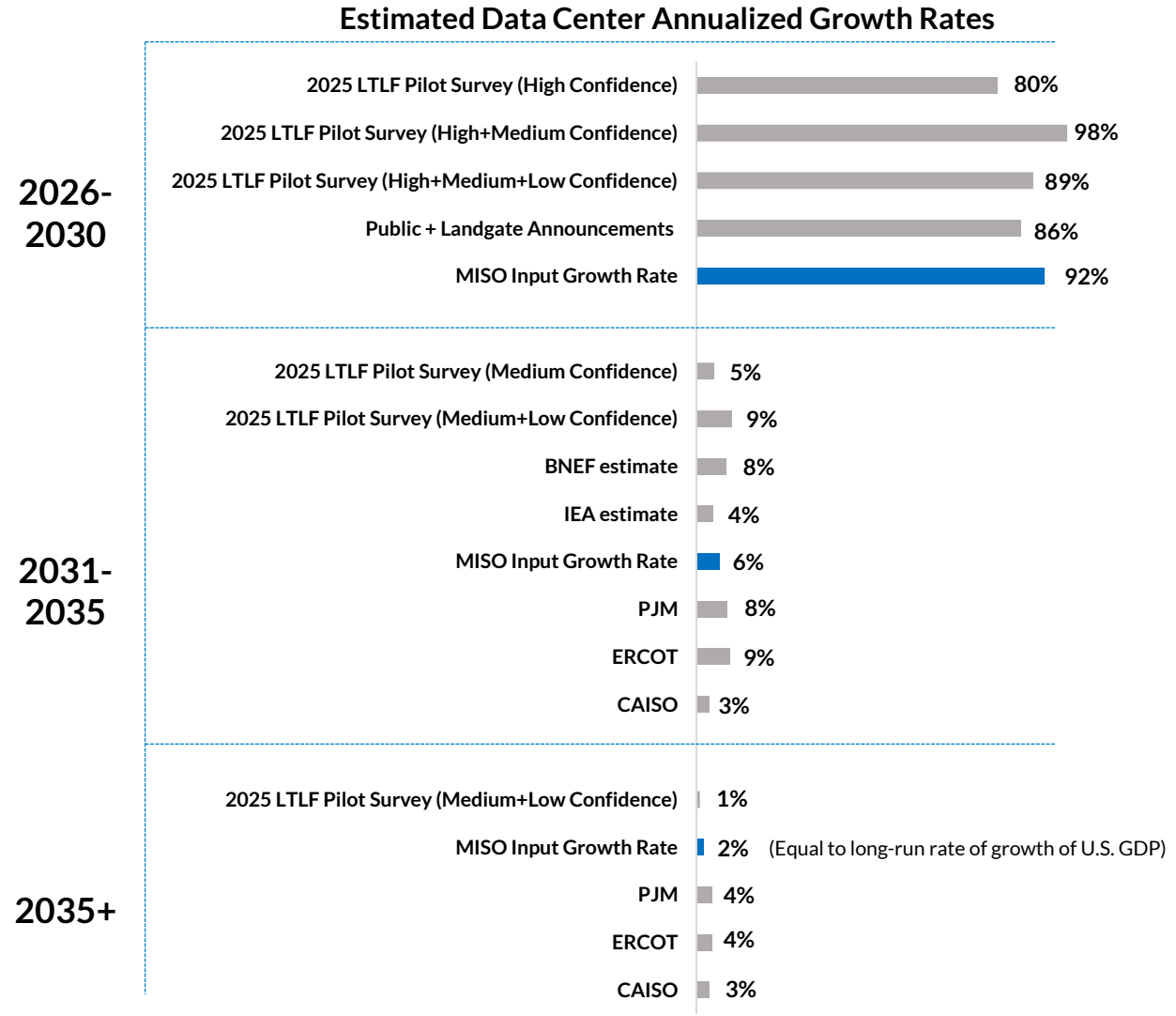
Equal to the power needs of metro area with 1 million people

- Data center power demand is highly dependent on successful AI monetization, with uncertainty driven by the pace of AI development and adoption.
- U.S. data centers could exceed 10% of total electricity demand by 2030 and potentially surpass 20% by 2045, making them a dominant load growth driver.
- Data centers offer consistent, high load-factor demand, but significant grid and infrastructure upgrades will be required to support this growth.
- Limited data transparency and planning visibility—including no centralized data clearinghouse, opaque project pipelines, lack of historical operational/metered data, uncertain project commitments, and rapid technological change—increase forecasting and execution risk.

Data center growth is expected to exceed 90% during the initial ramp through 2030, moderating to approximately 6% annually in the early 2030s

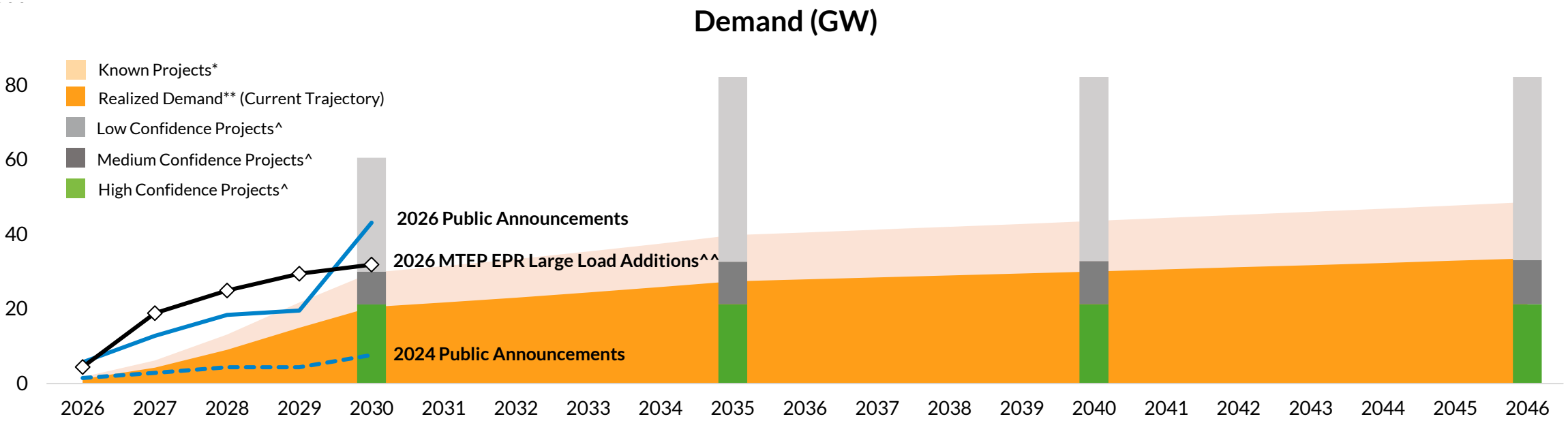
MISO is modeling three distinct growth periods for data centers:

- **Early AI supercycle (2026-30)**—period with information on individual potential/planned projects (phasing into growth rate approach post-2030)
- **Late AI buildout (2031-35)**—period with little visibility into distinct projects, but high expectations for continued growth
- **Continued long-term growth (2035+)—**based on forecast expectations for U.S. Gross Domestic Product



Notes: MISO Input Growth Rate reflects a blend of stakeholder survey submissions and project announcements collected publicly and through LandGate. This rate differs from the realized forecast estimates due to MISO's phase-in methodology in its data center model.
Data Sources: PJM Load Forecast Development Process; ERCOT Long-Term Load Forecast; CEC California Energy Demand Demand-Side Modeling; Bloomberg NEF; International Energy Agency

Rapidly rising announcements and project submissions widen uncertainty around both data center volume and realization timelines, although signs of "right-sizing" are appearing



Key Insights:

- MISO's expected 8–14 GW of data center growth in 2026–2027 will be a key indicator of how quickly data center–driven demand can materialize.
- Current trajectory is driven mainly by high-confidence projects, with gradual incorporation of medium-confidence additions and minimal low-confidence inclusion; the high trajectory reflects widening uncertainty, while the low trajectory remains conservative.
- Rapid growth in announcements and MTEP spot load additions since 2024 increase uncertainty around both the scale and timing of large loads

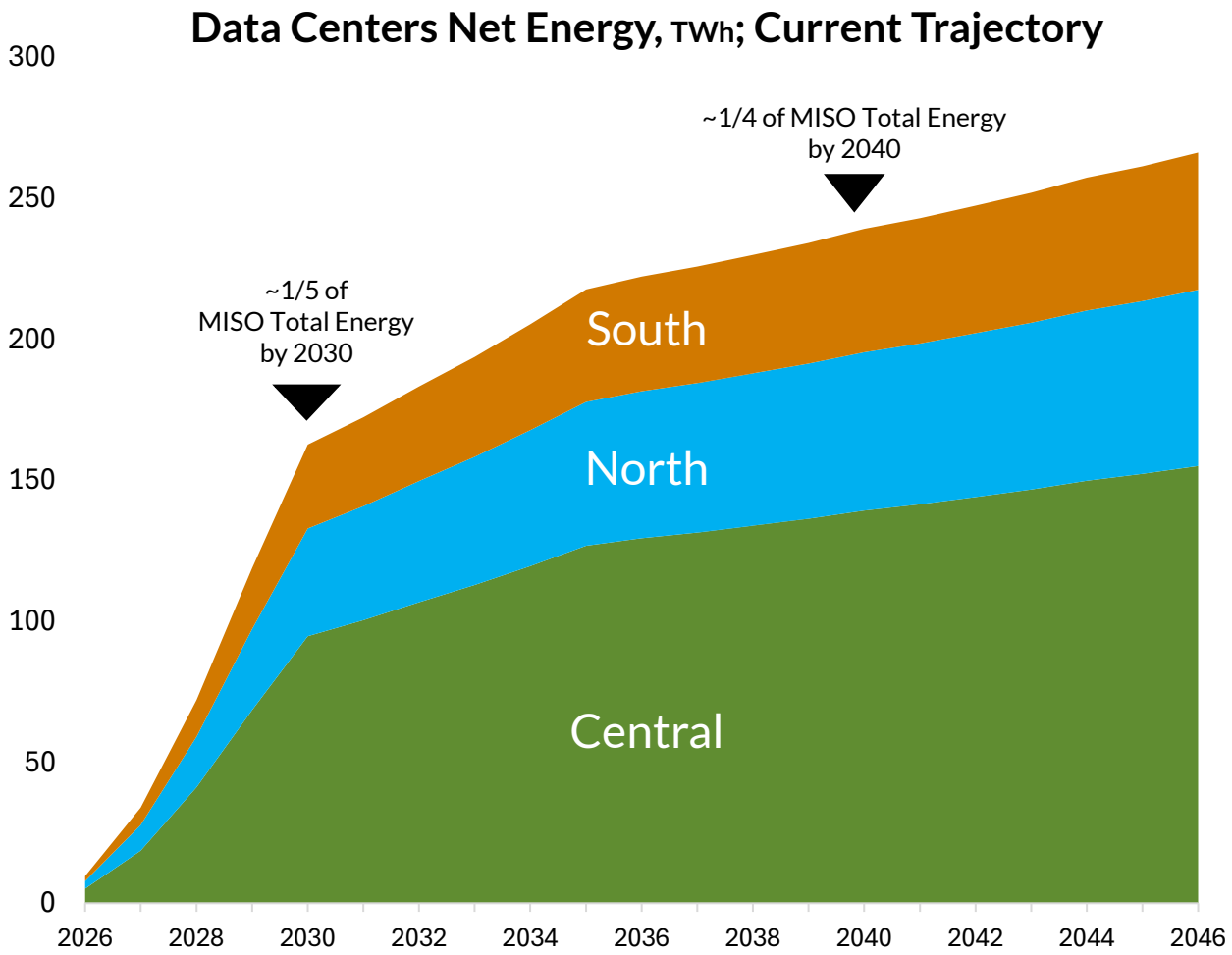
Low Confidence: Project has not been submitted through a MISO planning process; it may be reflected IRPs or remain at a conceptual stage

Medium Confidence: Project has been submitted through a MISO planning process, or has been publicly announced, but construction has not yet begun

High Confidence: Interconnection agreements are in place, regulators are aware, and project construction is underway.

*Public Announcements tracked by MISO, Landgate and 2025 LTLF Pilot Survey submissions, fundamental growth rates for long term. **Realized rates, phase-in assumptions applied to Projected Capacity. ^ Submissions received for all large loads through 2025 LTLF Pilot Survey. ^^2026 Expedited Project Review Requests for Large Loads as of 3/27/2026

Regional incentives, land availability and policy support drive differentiated growth patterns across MISO regions

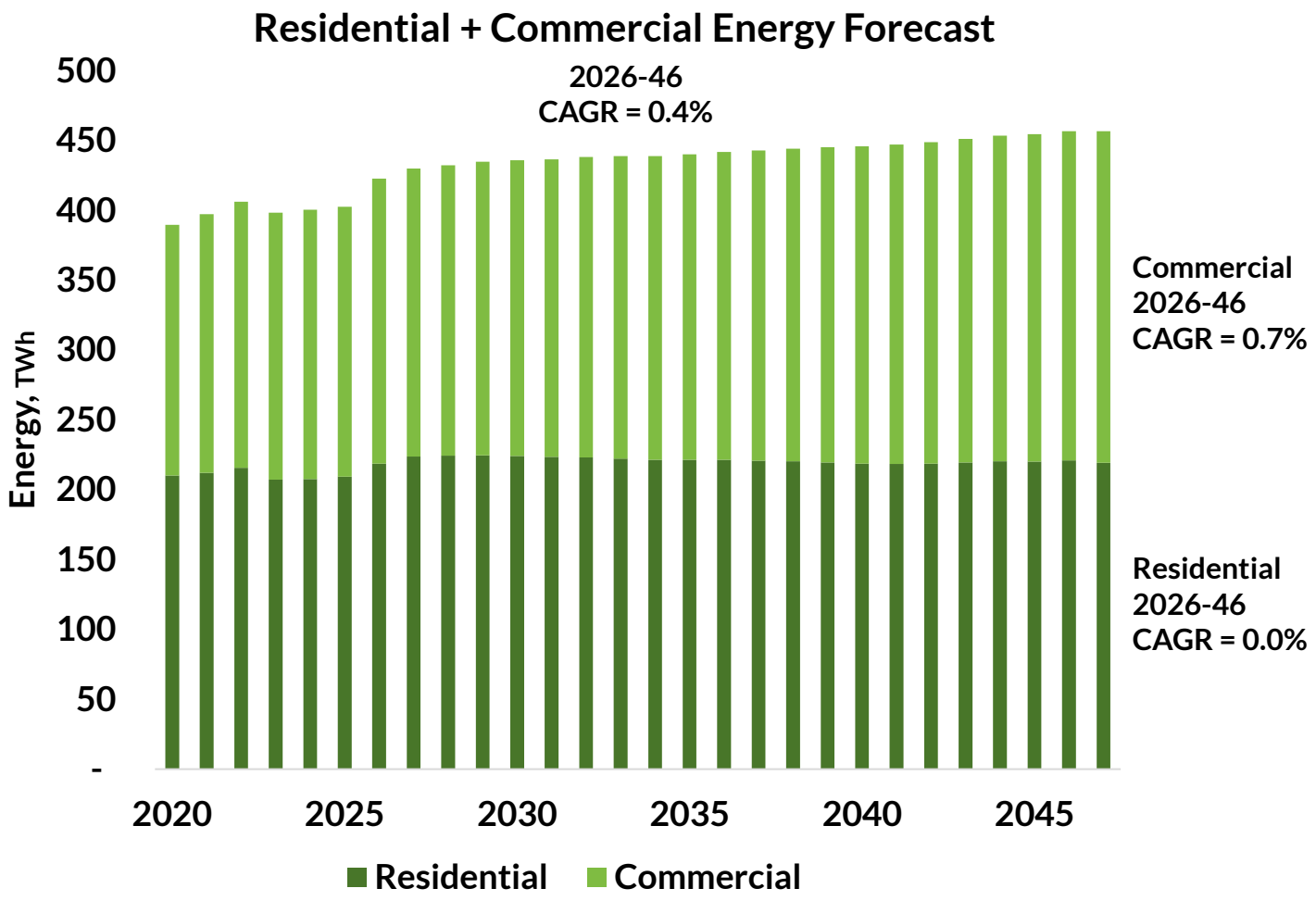


Key Insights

- MISO's data center forecast assumes an average load factor of ~93%, based on a blend of hyperscale and enterprise facilities.
- Approximately 90% of new capacity is hyperscale, operating at ~95% load factor. The remaining 10% is enterprise, with a lower ~75% load factor.
- Central region growth is driven by abundant low-cost land and industrial-focused incentives that attract large hyperscale campuses.
- North region growth benefits from state-level incentives, favorable zoning and cold-climate efficiency advantages.
- South region growth is supported by competitive land costs, economic development programs, and expanding industrial corridors that enable new siting opportunities.

North: LRZs 1, 3
Central: LRZs 2, 4, 5, 6, 7
South: LRZs 8, 9, 10

The Residential + Commercial segments currently make up approximately 62% of MISO's energy sales and are anticipated to grow at an average rate of 0.4% per year

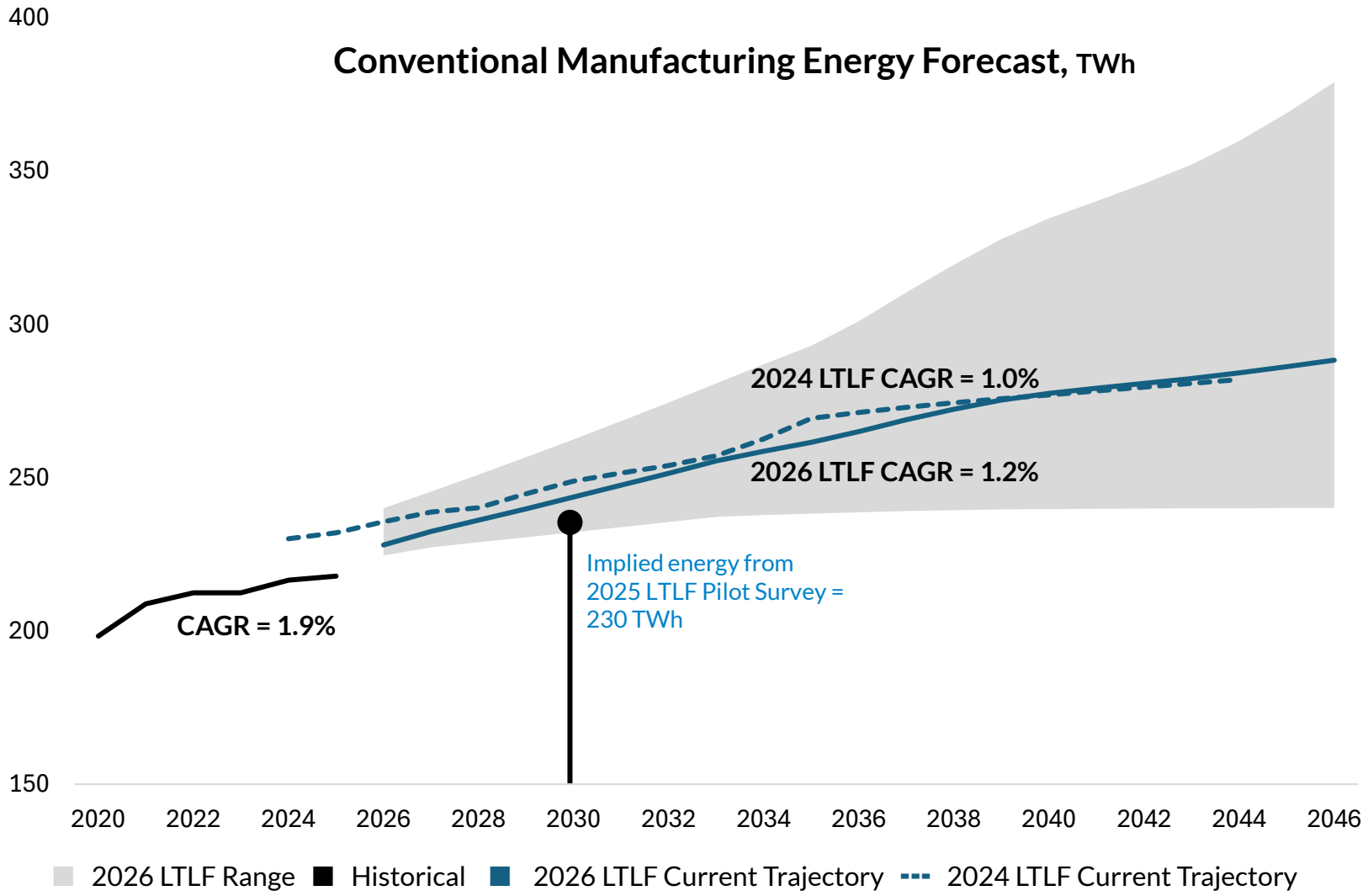


Key Insights:

- Commercial load growth (~0.7% annually) is based on EIA's 2024 Annual Energy Outlook, with upper Midwest states in Zones 1-4 expecting the highest rates of growth.
- IN, MN, ND, SD, and TX are projected to grow population through 2046; other states are expected to decline.
- Residential use per customer is projected to increase by ~0.2% annually.
- Residential customers tend to adopt energy-saving technologies at higher rates than commercial customers.

Expected growth trends by end-use:	2026-46 CAGR
Space cooling	-0.1%
Space heating	0.7%
Lighting	-0.7%
Water Heating	0.2%

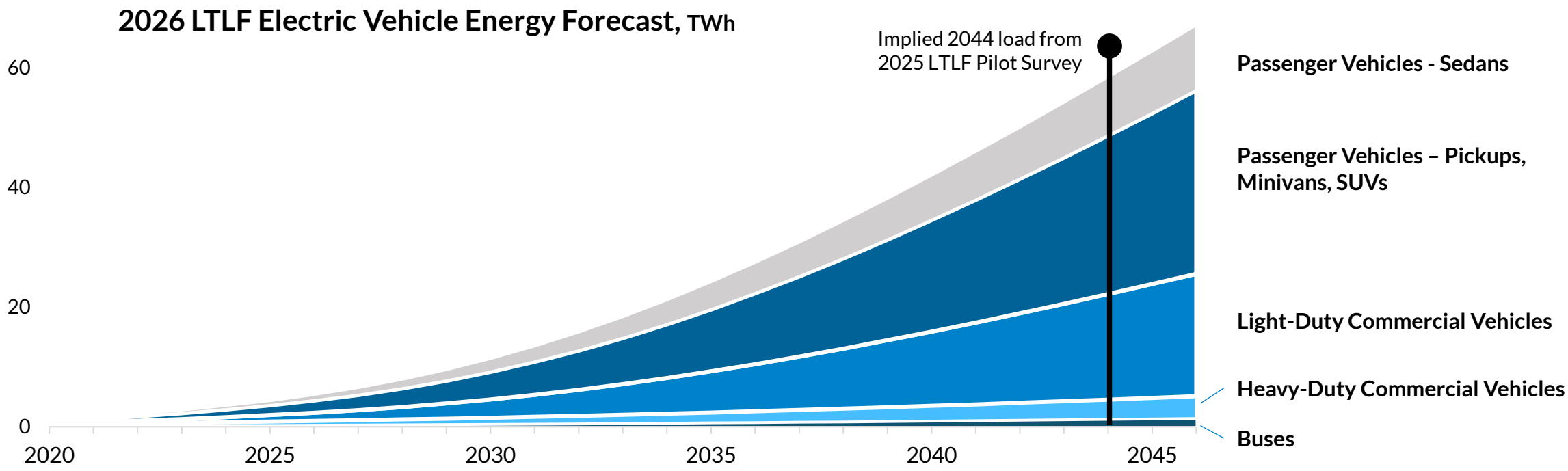
The Conventional Manufacturing segment currently makes up approximately 29% of MISO's total load and is anticipated to grow at an average rate of 1.4% per year



Key Insights:

- Manufacturing load growth in MISO is expected to strengthen after years of relatively flat demand, contributing roughly ~1.4% annual electricity growth through the 2040s.
- Competitive costs in the Midwest, combined with U.S. reshoring, tariffs, and supply-chain security, are driving manufacturing investment and near- to medium-term load additions across the MISO Footprint.
- However, manufacturing growth remains uneven and subject to uncertainty from policy shifts, electrification pace, and project realization risks.
- Manufacturing in MISO is expected to be an important contributor to load growth, complemented by faster growing sectors, such as data centers.

Changes to IRA incentives under the OBBBA are expected to moderate EV adoption and reduce MISO's expected electrification load growth

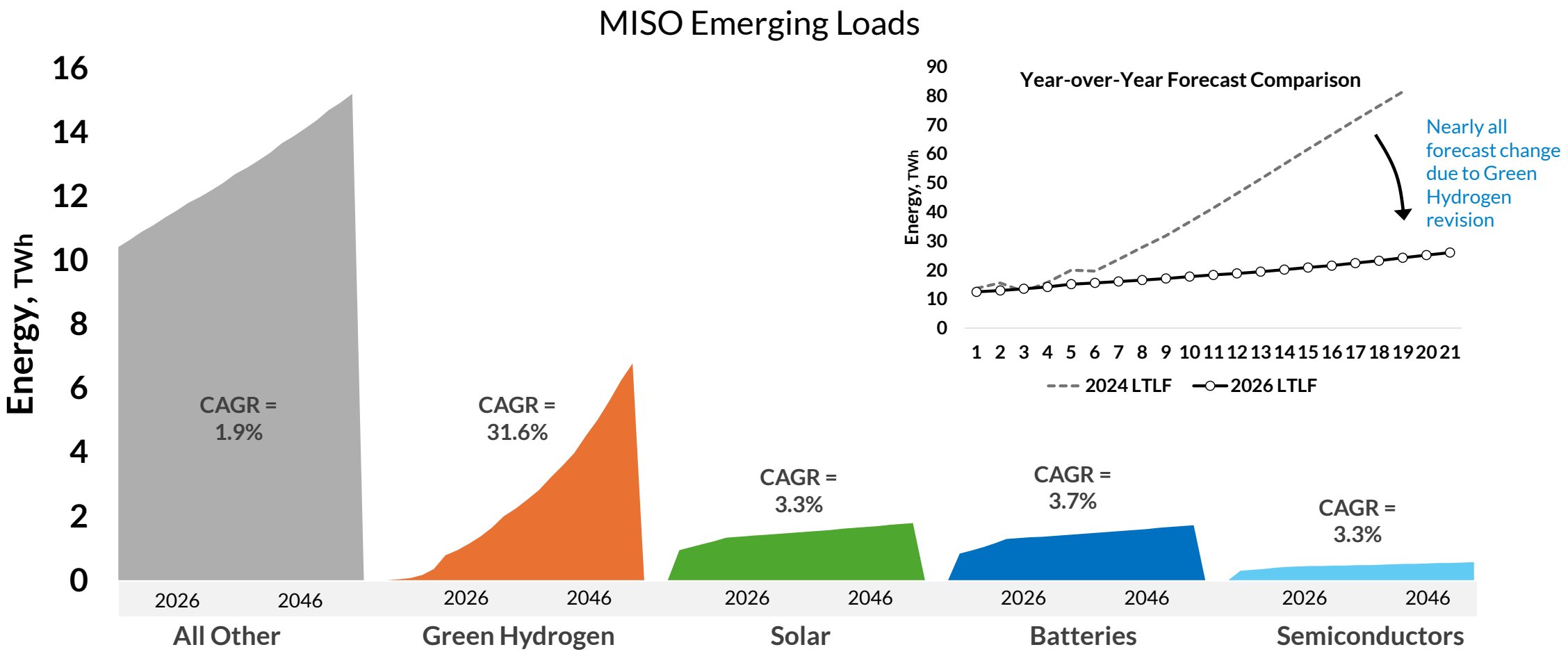


Key Insights

- Automakers face weaker-than-expected EV demand, potentially ~50% below last year, driving price cuts, write-downs, scaled-back investments, and a near-term shift toward hybrids.
- Projected EV energy in 2044 is roughly aligned between the 2025 LTLF Pilot Survey (accounting for expected policy changes and response rates) and MISO's internal models.
- MISO estimates LBA-level EV penetration by combining vehicle sales forecasts with sigmoid adoption curves and uses NREL/DOE charging profiles to assess peak load impacts.

Notes: Vehicle categories derived from Federal Highway Safety Act reporting systems; 2025 LTLF Pilot Survey yielded 61% response rate

Power costs, infrastructure and policy support continue to drive reindustrialization

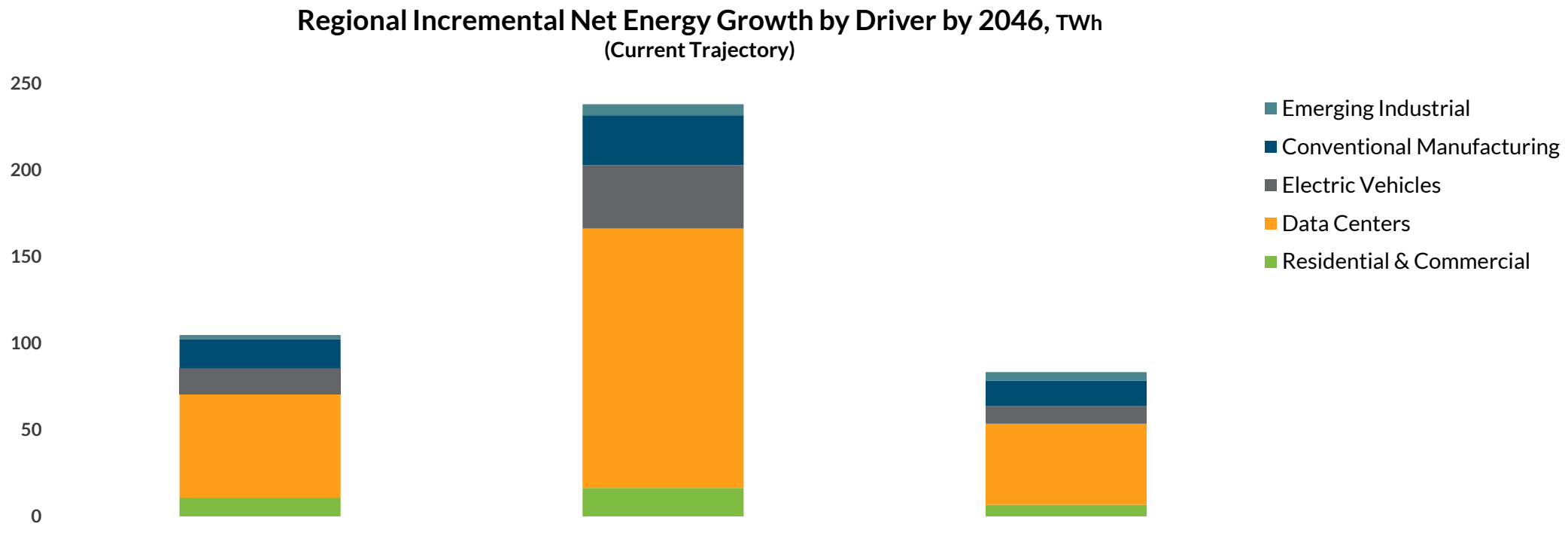


Key Insights

- Through 2046, large loads will grow in MISO's service area but still represent just 2.3% of MISO's total load by 2046.
- MISO's forecast methodology segments data by Local Balancing Authority (LBA) and focuses on targeted growth industries under NAICS Code 33.

Note: MISO survey yielded 61% response rate

Rates of energy growth across MISO's North, Central and South Regions range from 1.9% to 2.7% from 2026 to 2046



	MISO North	MISO Central	MISO South
CAGR	2.6%	2.7%	1.9%
Share of MISO	23%	51%	25%

North: LRZs 1, 3
Central: LRZs 2, 4, 5, 6, 7
South: LRZs 8, 9, 10

MISO has partnered with Kevala to update DER forecasts, and early results suggest reduced adoption assumptions with varied impacts across the footprint

Indications of current DER inventories in MISO:	2021 AEG Max Capacity Forecast for 2026	2025 OMS DER Survey (Registered & Non-Registered)	2025 Summer MISO PRA (Registered)	2025 LTLF Pilot Survey[1] (2026 Non-Registered Data)	2025 LTLF Pilot Survey[1] Implied CAGR (2025-45)
Behind-the-Meter Generation	1.6 GW	11.3 GW	4.6 GW	3.3 GW	8.3%
Demand Response	5.5 GW	5.4 GW	8.2 GW	0.8 GW	1.4%
Energy Efficiency	4.9 GW	N/A	0.025 GW	N/A	N/A

Headwinds / Tailwinds:

- Growing data-center activity is increasing interest in backup and distributed generation, with uncertainty around whether these resources will be registered.
- Policy remains the dominant driver of distributed solar adoption—loss of subsidies could increase LCOE by roughly 20–40% and reduce adoption by 50–60%.
- Energy efficiency is no longer modeled as a standalone resource; its effects are now embedded in load-driver penetration assumptions, and demand-side management has limited visibility.

2021 Applied Energy Group study
2025 OMS DER Survey
2025 PRA results

[1] Includes responses from the 2025 MISO LTLF Pilot Survey, which only asked for resources not registered in MISO PRA.

Next Steps

Forecasting methodology has progressed, while stakeholder collaboration and feedback will continue shaping the roadmap for further improvements

The 2026 LTF White Paper will be posted late April

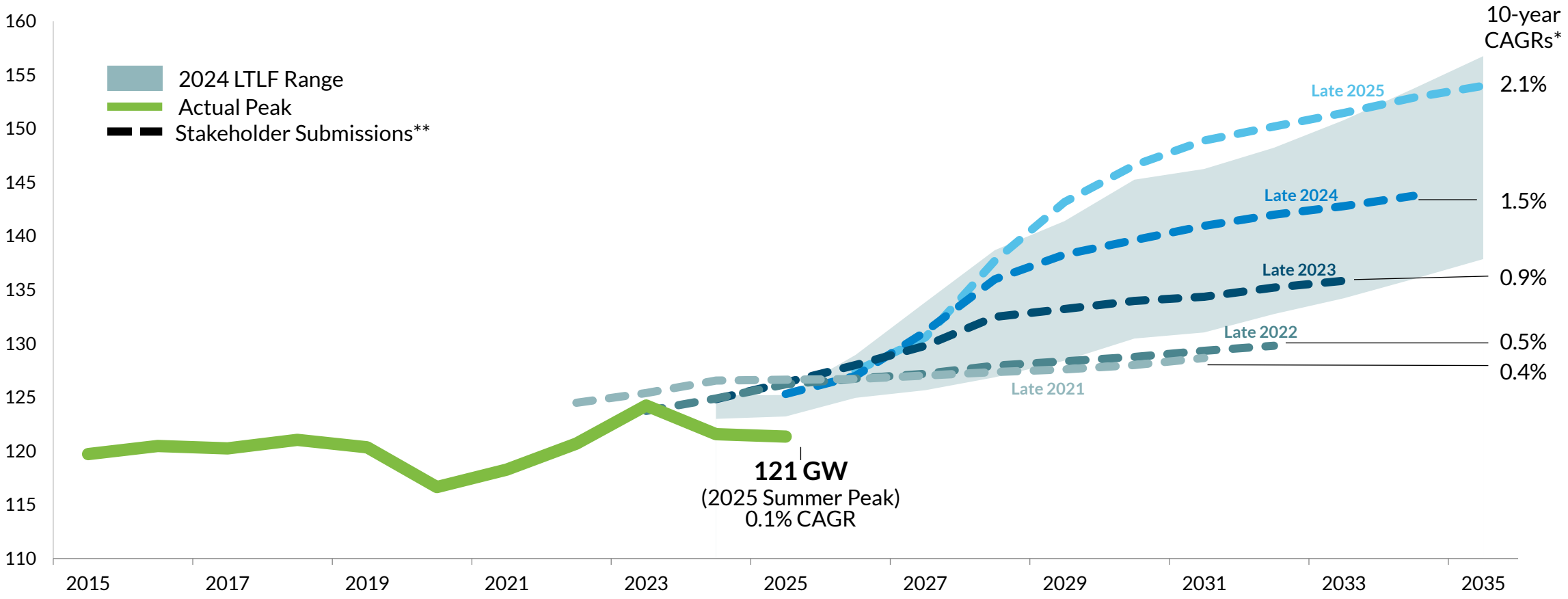
	Accomplishments	Planned Enhancements
Data Needs	✓ Assess stakeholders' ability to provide more granular data sets to better inform forecasts ✓ Procure and ingest external data sources to inform internal data analytical capabilities	• Document load requirements to drive more consistent stakeholder data collection and extend to longer-term horizon • Improve stakeholder data collection experience
Driver Penetration	✓ Improve large-load forecasting through MTEP enhancements, public announcement tracking, and confidence criteria introduced via the load-forecast pilot survey	• Strengthen forecasted vs actual deviances • Improve manufacturing segmentations • Incorporate weather-driven variability in non-conforming loads • Enhance visibility and forecasting for DERs • Enhanced visibility into data-centers with on-site generation
Modelling	✓ Establish a statistically adjusted end-use model for residential, commercial, and industrial segments ✓ Develop hourly shaping and allocation models ✓ Build a modular framework linking top-down strategic drivers with bottom-up hourly load-shape forecasting	• Automate modeling with integrated end-to-end validation • Strengthen geospatial allocation to improve locational accuracy • Establish an approach for modeling extreme-weather impacts • Refine the energy (TWh) modeling method • Enhance reporting capabilities

2024 Medium and Long-Term Load Forecast Stakeholder Feedback

Since 2021, stakeholders have indicated increasing load growth and heightened timing uncertainty, yet actuals have remained relatively stable. Enhancements will focus on strengthening the variance analysis between forecast and actual outcomes.

Net Coincident Peak Load (GW)

Historical Stakeholder Submissions and 2024 LTLF Range Leveraged in Futures Series 2



LTLF: Long-Term Load Forecast, 2024 Long-Term Load Forecast White Paper. *CAGR: Compound Annual Growth Rate. ** Historical stakeholder submissions from Module-E Capacity Tool (MECT) for previous years

Stakeholder Feedback Request

- MISO requests feedback on the **Long-Term Load Forecast** by May 8th, 2026
  - Please provide feedback on the following:
    - What improvements would make the forecast outputs more actionable or transparent?
    - Which areas of the load forecast should MISO prioritize for enhancement?
    - Are there emerging trends or technologies in your footprint that MISO should explicitly incorporate?
    - What additional collaboration opportunities could strengthen alignment between MISO and stakeholders?
    - What aspects of MISO's uncertainty approach need greater transparency, including any areas where forecasts may consistently over- or under-estimate expected conditions?
    - Are there any timing considerations we should be aware of as MISO establishes a predictable cadence for releasing load forecasts?

  Feedback requests and responses are managed through the Feedback Tool on the MISO website: https://www.misoenergy.org/engage/stakeholder-feedback/