






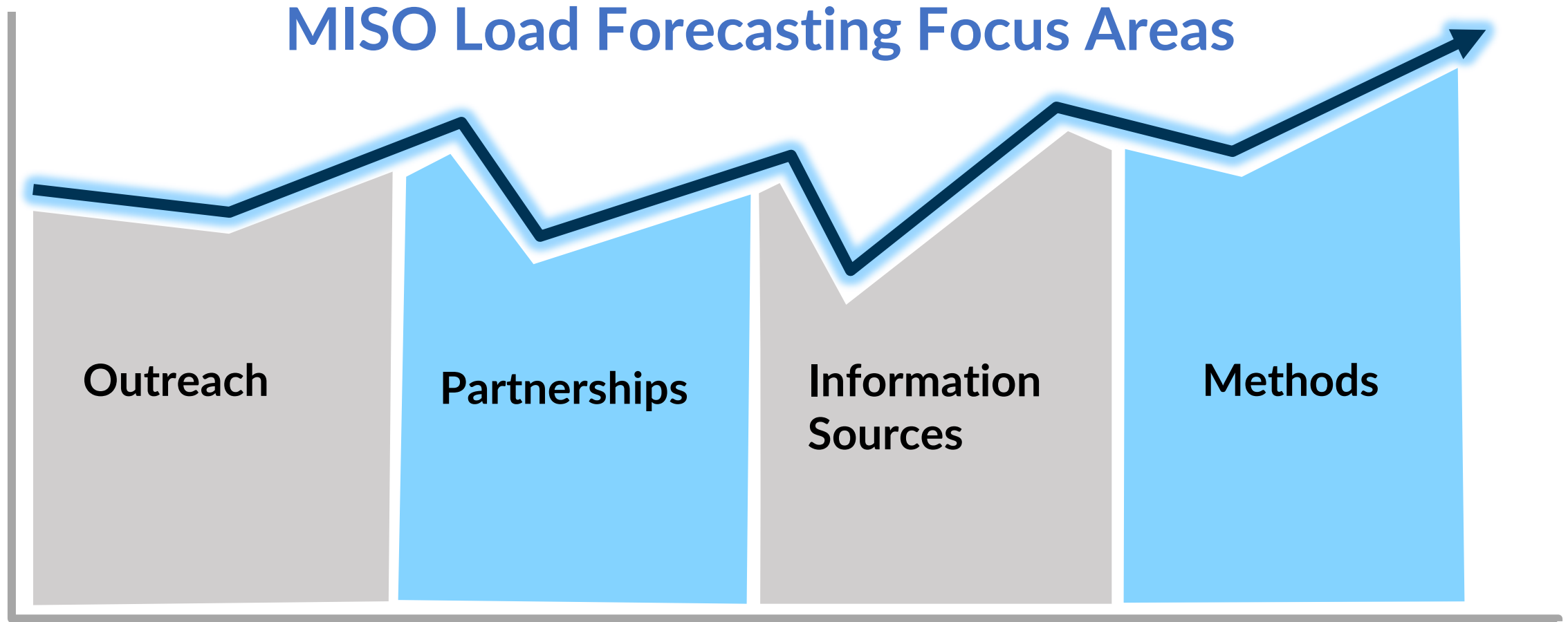
# Discussion on 2024 ESIG Forecasting & Markets Workshop

June 2024

# Existing MISO Processes are Segmented by Timeframe and Leverage Varying Inputs

	 Short-term	 Near-term	 Long-term
Time frame	Multi-day	2-5 years	5-20 years
Inputs/ Assumptions	Load Serving Entity submissions and weather data	Member Submissions	Macroeconomics, Historical loads and weather, Energy policy goals
Use case	Informs demand requirements for real-time balancing	Informs planning reserve for reliability needs	Informs demand requirements for planning studies

# Developing Lasting and Adaptable Best-Practices Approaches



# Shifting towards a More Balanced Methodology

## Traditional Forecasting

- Econometric-based evaluation of gross load
- Driven by standard economic indicators

## Transitional Forecasting

- Innovative techniques to better capture emerging growth sectors
- Driven by reconstituted load

## Future Focus

- Enhancements including customer segmentation and advanced end-use and net-load analytics.
- Driven by observed net-load
- Incorporate extreme weather events

# Segmenting to Better Assess Consumer Behavior and Electric Demand across Customer Types

Loads by customer class are *roughly* distributed by thirds.

**1/3**

**Residential**

Residential loads are anticipated to increase

**End-Use  
focus**

**1/3**

**Commercial**

Commercial loads are expected exhibit a mixture of residential and industrial growth

**Econometric  
focus**

**1/3**

**Industrial**

Industrial loads are anticipated to increase greatly but indeterminately

**Industry Classification  
focus**

**ILLUSTRATIVE—For discussion purposes only**

# Evolving Customers Making Classification Needs More Vital than Ever

Residential	Small Commercial	Large Commercial	Small Industrial	Large Industrial	Data Center
2 kW	20 kW	200 kW	2,000 kW	20,000 kW	200,000 kW
<ul style="list-style-type: none"><li>▪ Typical residential customer</li></ul>	<ul style="list-style-type: none"><li>▪ Convenience Store</li><li>▪ Dentist Office</li></ul>	<ul style="list-style-type: none"><li>▪ Large pharmacy</li><li>▪ Small grocery</li></ul>	<ul style="list-style-type: none"><li>▪ Hospital</li><li>▪ Large warehouse retailer</li></ul>	<ul style="list-style-type: none"><li>▪ Medium/Large university</li><li>▪ Semiconductor manufacturing plant</li></ul>	<ul style="list-style-type: none"><li>▪ Future hyperscale data centers</li></ul>

# Bridging Historical Data with Forward-Looking Load Projections

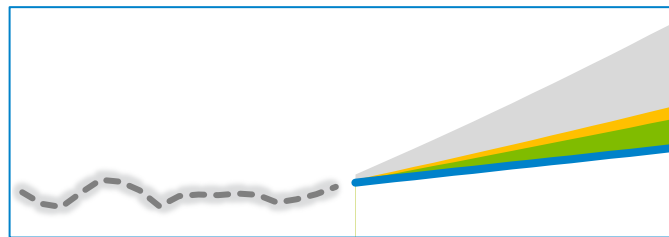
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**Gather Driver Penetration and Forecast Compendium by Customer Class**

- Technology Penetration
- Load Determinants
- End-Usage Profiles
- Evolutionary Behavior

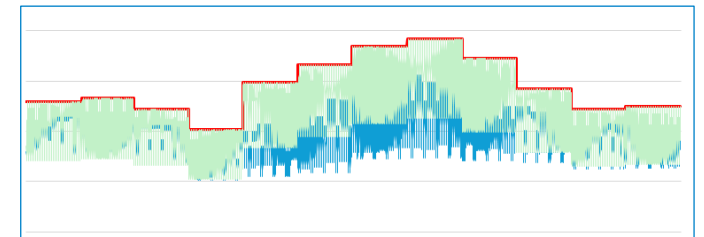
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**Develop Long-Term Monthly Projections**

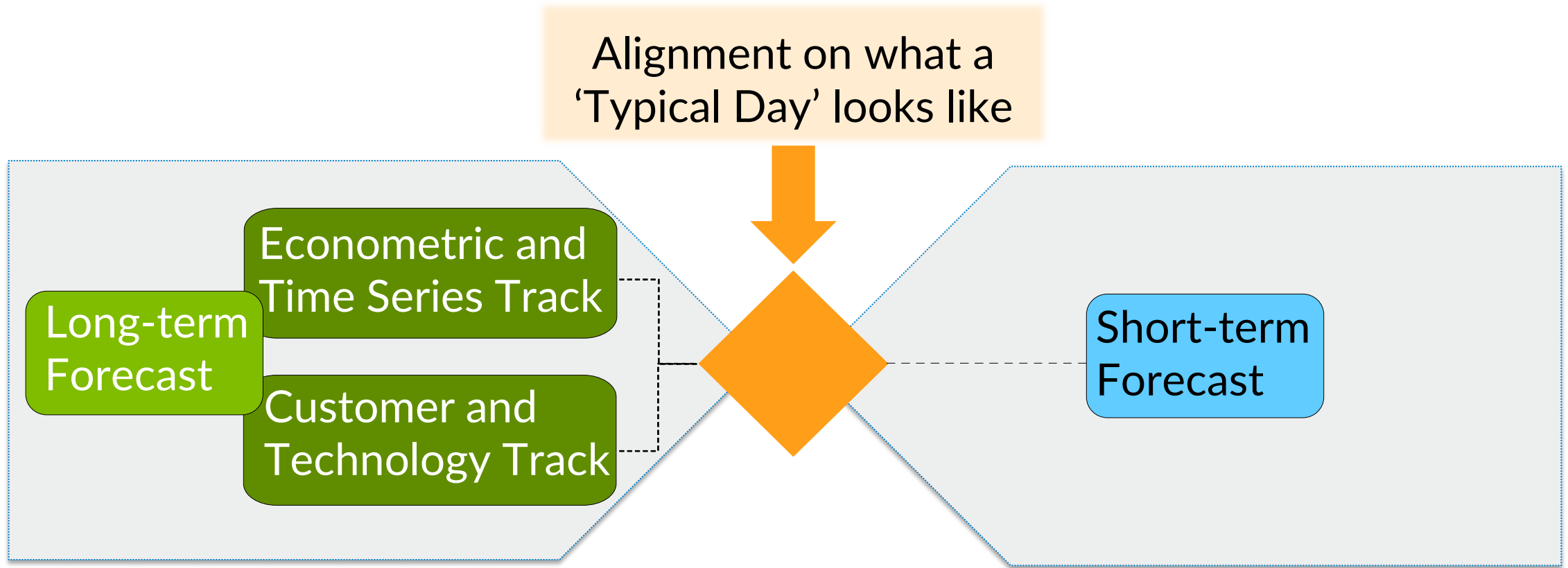


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**Allocate and Rehash Hourly Locational Load Forecast**



# Internally Cascading Load Forecast Processes in a Streamlined Manner



**Hourly load shapes are the “knot in the bow tie” that help unifying MISO’s various forecast processes**



# Thank you