Item 6: Load Forecasting Overview

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Board of Directors Meeting

ERCOT Public
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Load Forecasting Overview

- ## Short-Term Load Forecast (STLF)

    5-minute forecast for the next 2 hours

    Updated every 5 minutes

    1 vendor model and 1 internally-developed model

- ## Mid-Term Load Forecast (MTLF)

    Hourly forecast for the next 7 days

    Updated hourly

    2 vendor models and 5 internally-developed models

- ## Long-Term Load Forecast (LTLF)

    Hourly forecast for the next 10-30 years

    Updated annually

    1 internally-developed model

Mid-Term Load Forecast (MTLF)

- Previous hours' actual load values
- Weather variables*
- Error correction techniques
- Day of week
- Holiday
- Season

→ **MTLF** →

Committed Capacity — **Demand** — **Quick Start Capacity**
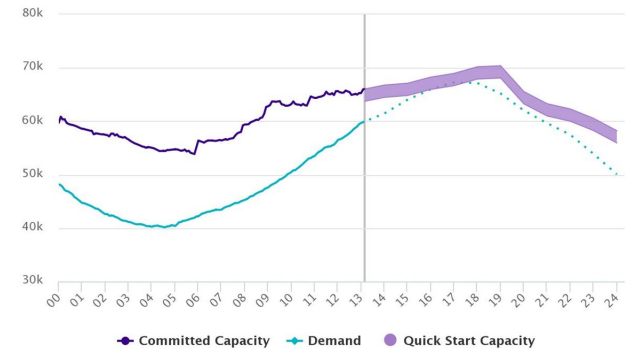
Operations
- Outage Coordination
- Reliability Unit Commitment
- Risk Assessment

* 2 weather vendors provide 7 total weather model results for 47 weather stations
- Models include European (Euro), Global Forecast System (GFS), Global Forecast System Ensemble (GENS), North American Model (NAM), and three vendor developed forecasts
- Weather variables include dry bulb temperature, wind speed, cloud cover, dew point, and solar irradiance

MTLF Challenges

Weather Forecast

- Multiple weather forecast models
- Two staff meteorologists

4 Coincident Peak Response

- Analyze past 4CP occurrences
- Recent initiative to develop 4CP forecast

Controllable Load Resource and Other Price Responsive Demand Behavior

- New initiative to predict behavior
- Large Flexible Load Task Force

Rooftop Solar

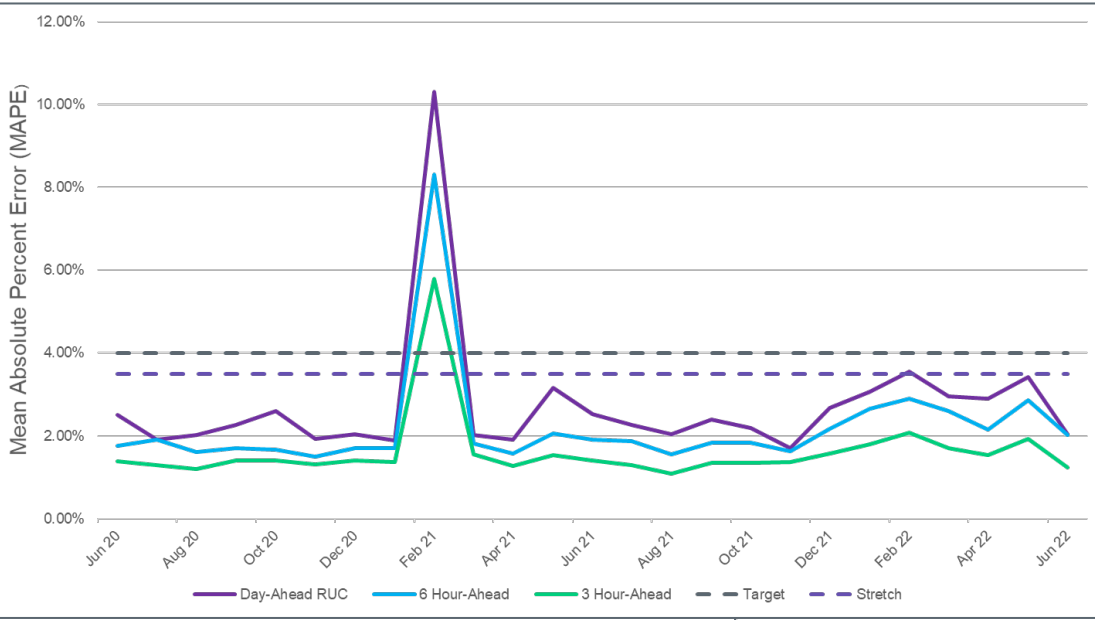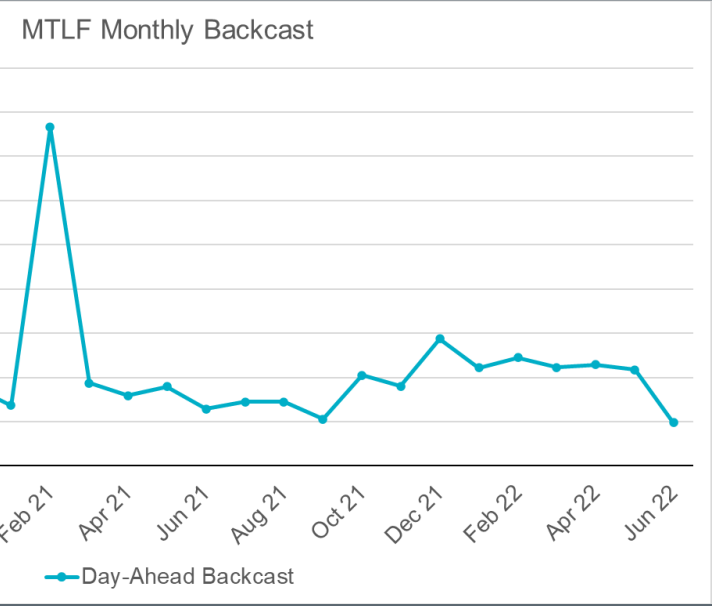- Recent initiative to develop rooftop solar forecast

August 19, 2021

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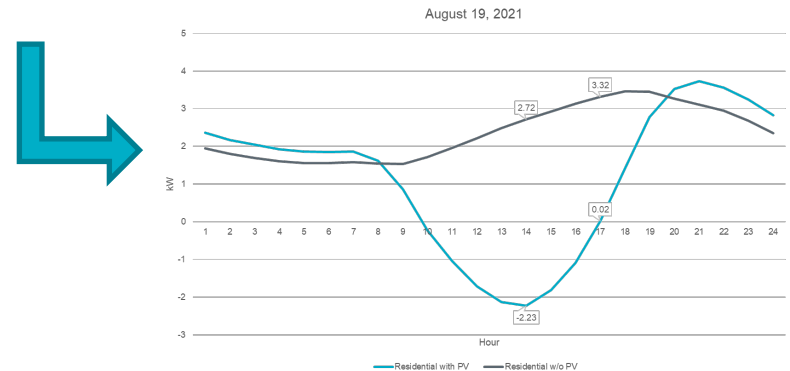
MTLF Performance

Mean Absolute Percent Error (MAPE) is a standard industry metric for tracking overall forecast performance

A backcast analysis uses actual weather to provide insights into the load forecast model performance

MTLF Monthly Backcast

For more MTLF performance metrics see: https://www.ercot.com/gridinfo/load/forecast

Long-Term Load Forecast (LTLF)

- Historic weather year variables
- Post-processing growth adjustments

Vendor-provided economic forecast:
- Non-farm employment
- Housing stock
- Population

- Residential, Business (Commercial), and Industrial premise count forecast

LTLF

Finance
- Future year budget planning

Resource Adequacy
- Capacity Demand and Reserves (CDR) Report
- Seasonal Assessment of Resource Adequacy (SARA)

Transmission Planning
- Reliability and economic transmission planning studies

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LTLF Challenges

Load drivers that do not follow typical growth patterns are accounted for by way of post-processing adjustments

Crypto Currency Mining Load Growth

- ERCOT-TDSP engagement
- Large Flexible Load Task Force

Industrial Load Growth

- ERCOT-TDSP engagement

Electric Vehicle Load Growth

- Consultant hired to develop EV load growth forecast methodology
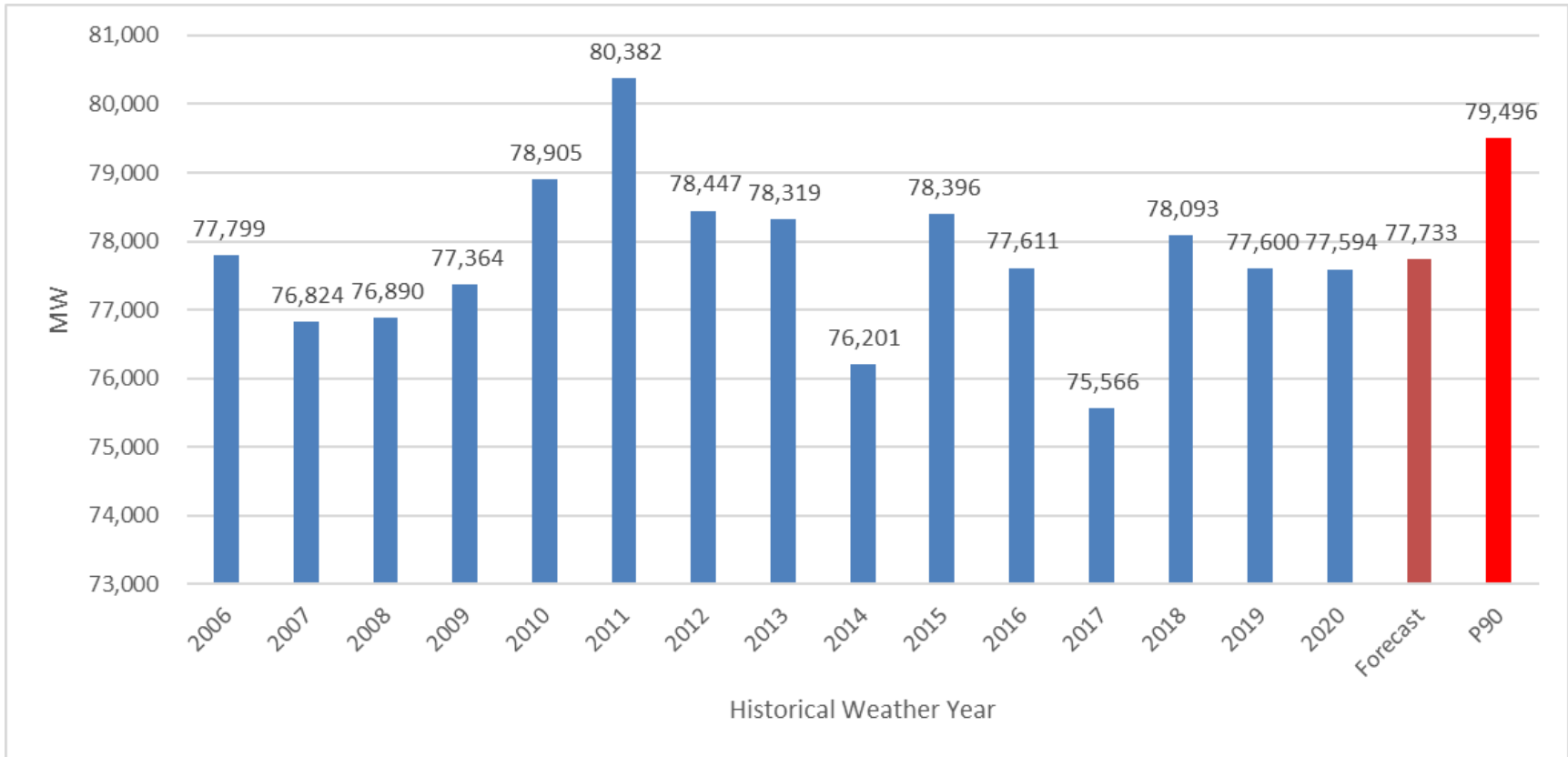
Oil and Gas Load Growth

- Oncor-IHS Markit study
- ERCOT-Bureau of Economic Geology study
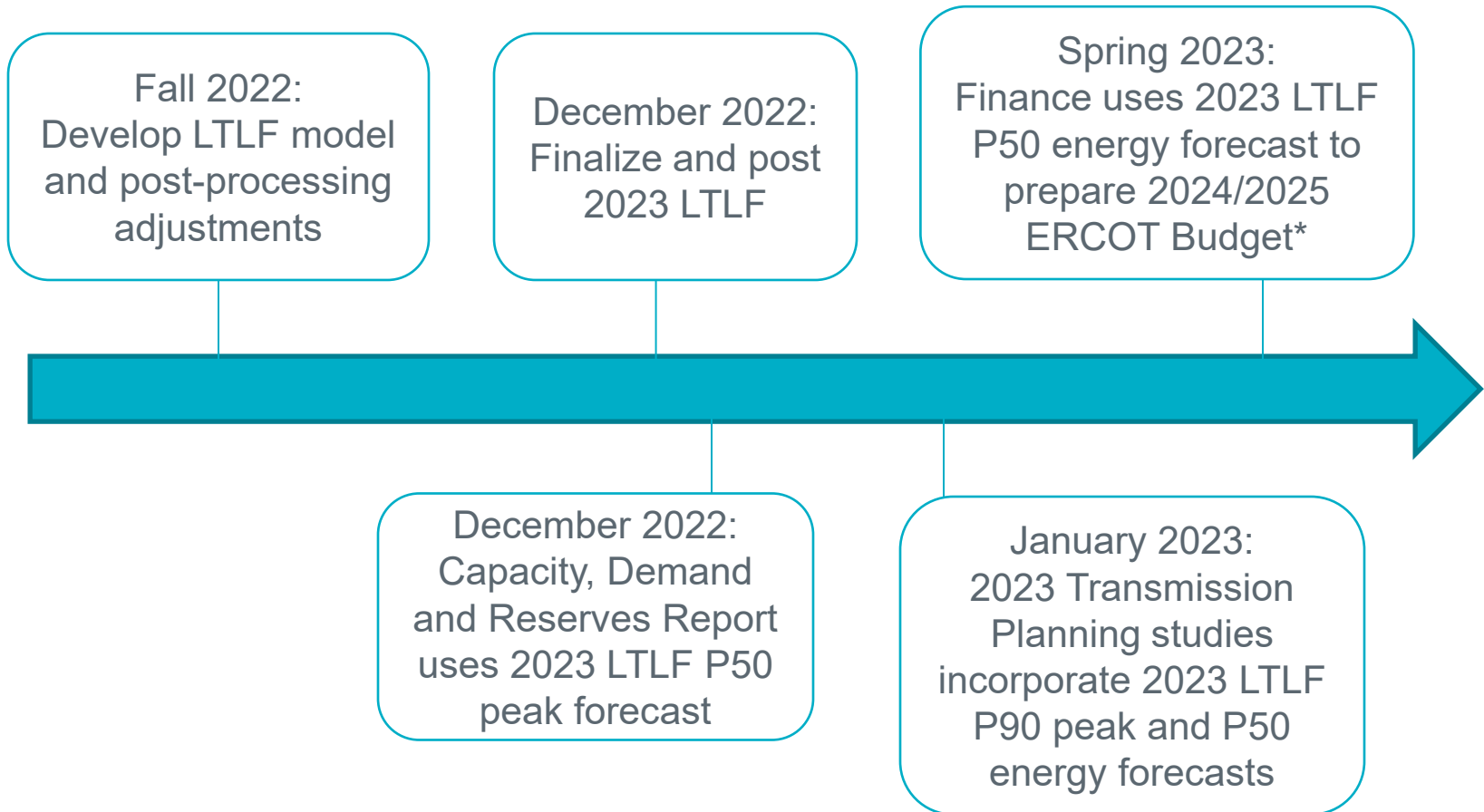- ERCOT-TDSP engagement

Rooftop Solar Growth

- Supply Adequacy Working Group engagement for capacity growth

2022 Long-Term Load Forecast Peak Demand Results

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2023 Long-Term Load Forecast Timeline

Fall 2022:
Develop LTLF model and post-processing adjustments

December 2022:
Finalize and post 2023 LTLF

Spring 2023:
Finance uses 2023 LTLF P50 energy forecast to prepare 2024/2025 ERCOT Budget*

December 2022:
Capacity, Demand and Reserves Report uses 2023 LTLF P50 peak forecast

January 2023:
2023 Transmission Planning studies incorporate 2023 LTLF P90 peak and P50 energy forecasts

* May update intra-year revenue projections based on recent meteorological information

Questions?