



APS RPAC Follow-up Load Forecast  
Session  
10/28/2021



Welcome/Meeting Objectives  
Jeff Burke  
Resource Planning



Review RPAC Load Forecast  
Jess Hankins  
Resource Planning



Load Forecast Sensitivities  
Ross Mohr  
Manager Energy & Revenue  
Forecasting



Discussion/Housekeeping/Next Steps  
All

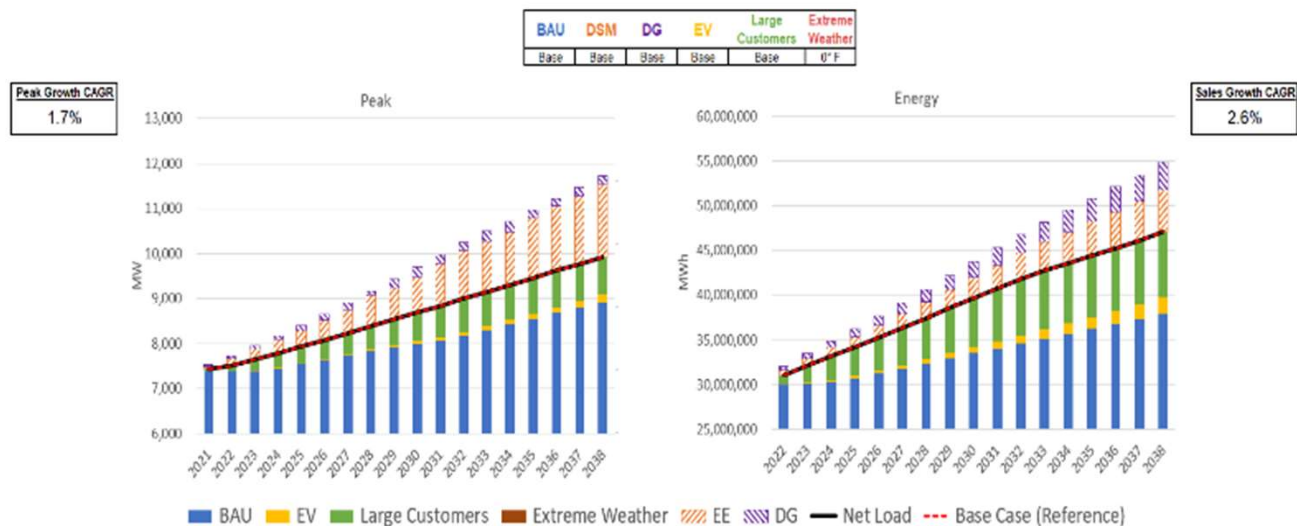


# Meeting Objective

- Provide APS load scenarios: Base, No Peak growth, Low Growth, High Growth
- Review RPAC forecast driver selections from September 15<sup>th</sup> meeting
- Discussion on RPAC load forecast

## Load Forecast Tool

Instructions: Change the sensitivities for each input to view changes for Total Peak and Total Energy  
Please Note: Total Peak = BAU - EE - DG + EV + Large Customers + Extreme Weather  
Please Note: Total Energy = BAU - EE - DG + EV + Large Customers





# Proposed Energy Rules

- Prepare alternative (15-year) load forecasts and needs assessments showing:
  - Load growth expected by the Load-serving Entity
  - No load growth
  - Lower than expected load growth
  - Higher than expected load growth
  - Load growth expected by the RPAC





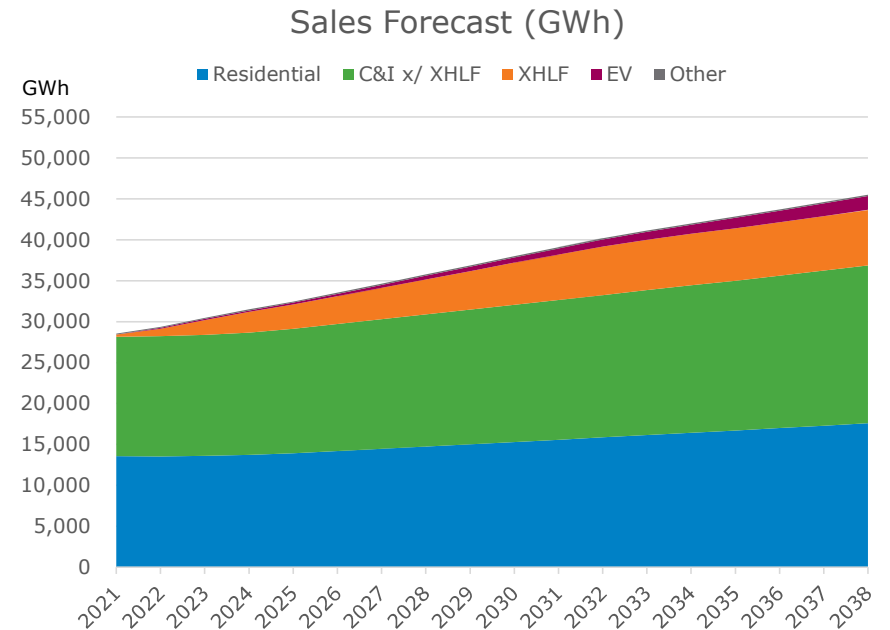
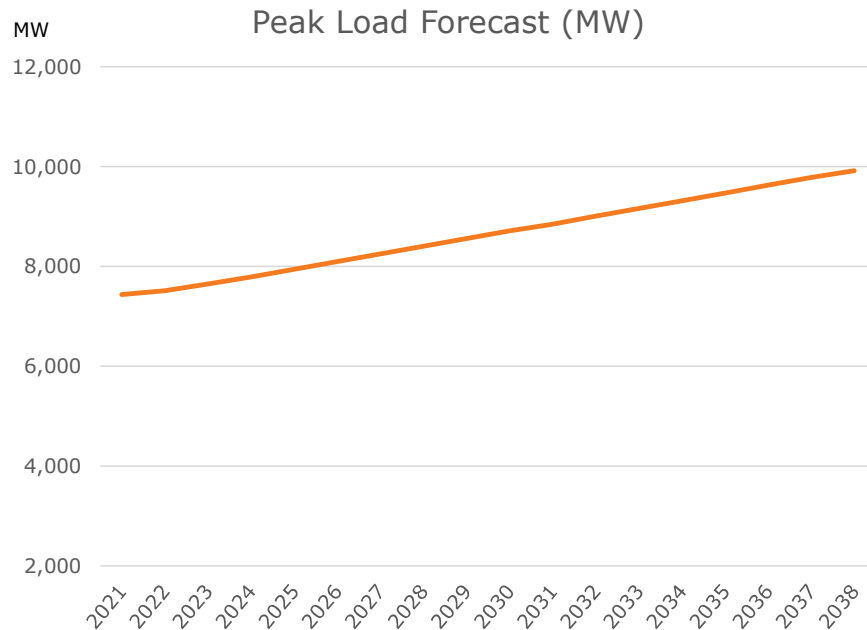
# APS Forecast Sensitivities

Ross Mohr



# APS Base Load Forecast (1.7%)

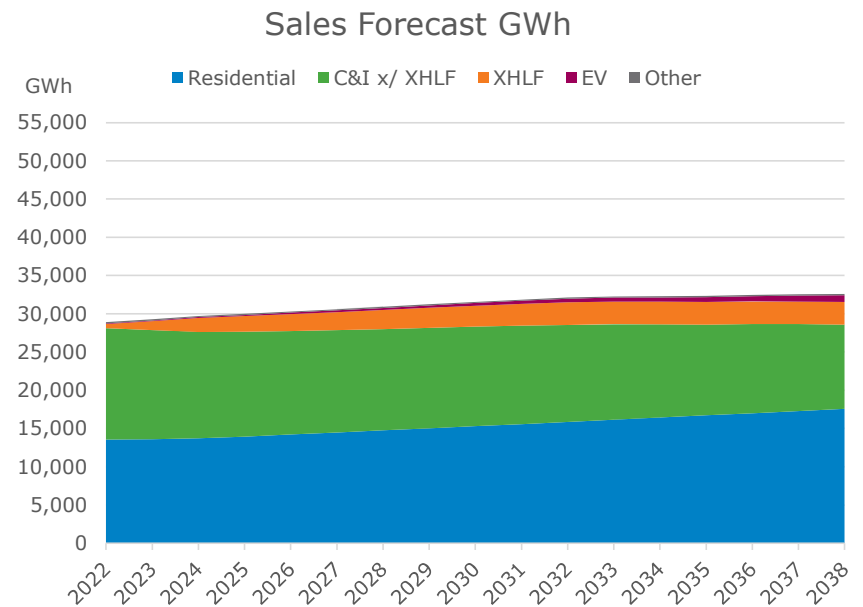
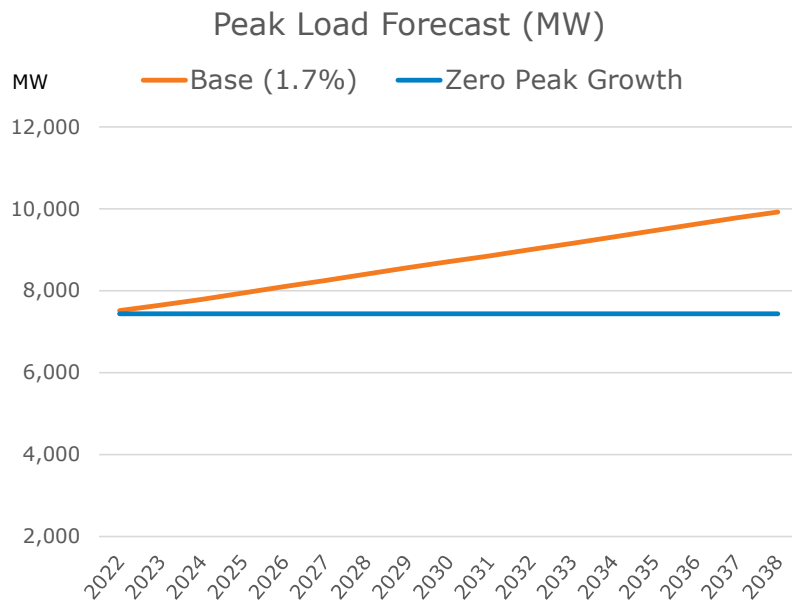
*Includes DSM & Distributed Generation*





# Forecast with Zero Peak Growth

*Includes DSM & Distributed Generation*

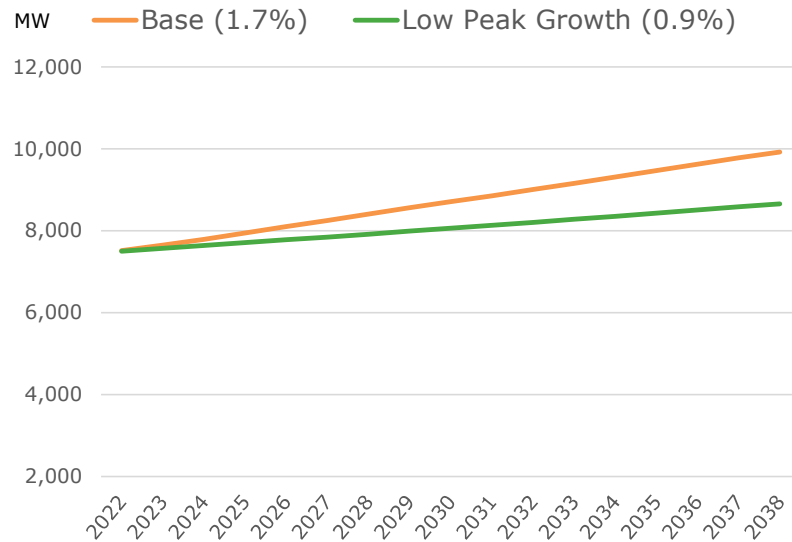




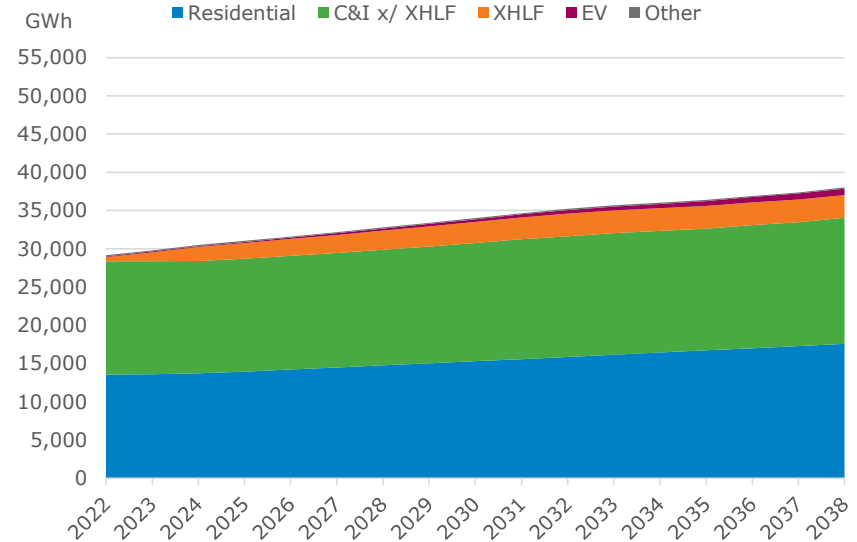
# Forecast with Low Peak Growth (0.9%)

*Includes DSM & Distributed Generation*

Peak Load Forecast (MW)



Sales Forecast GWh

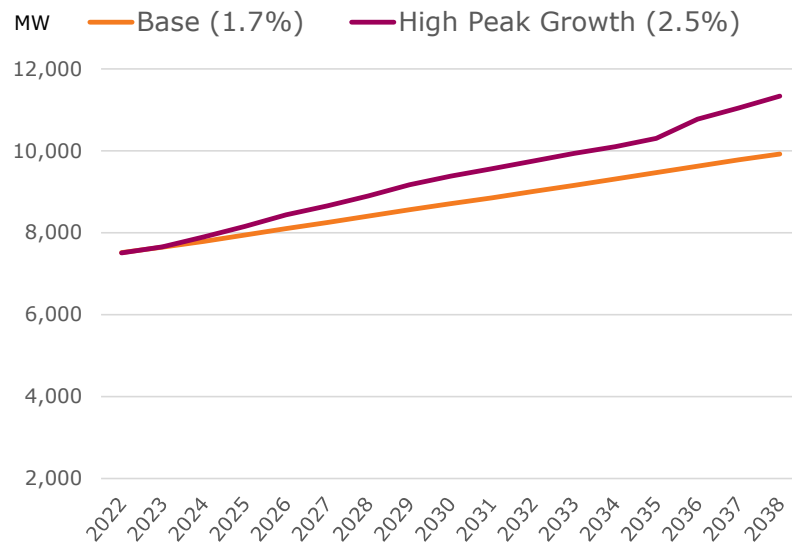




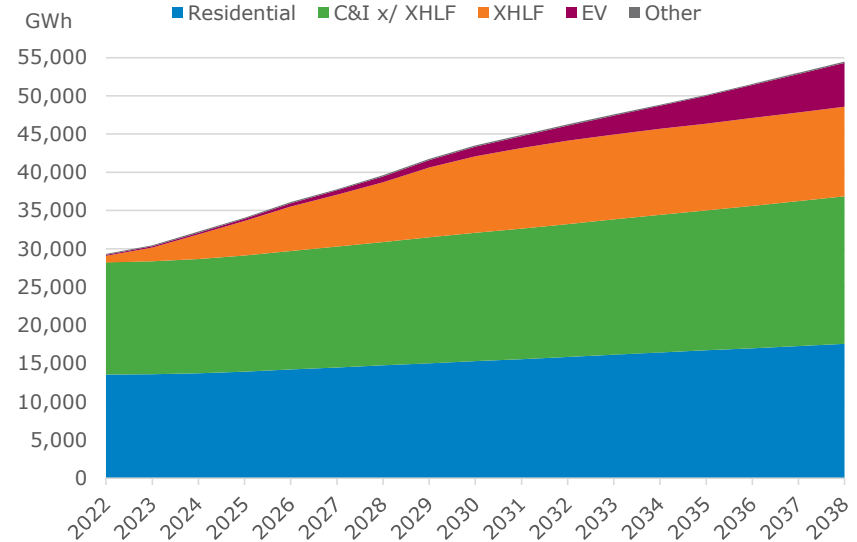
# Forecast with High Peak Growth (2.5%)

*Includes DSM & Distributed Generation*

Peak Load Forecast (MW)



Sales Forecast GWh

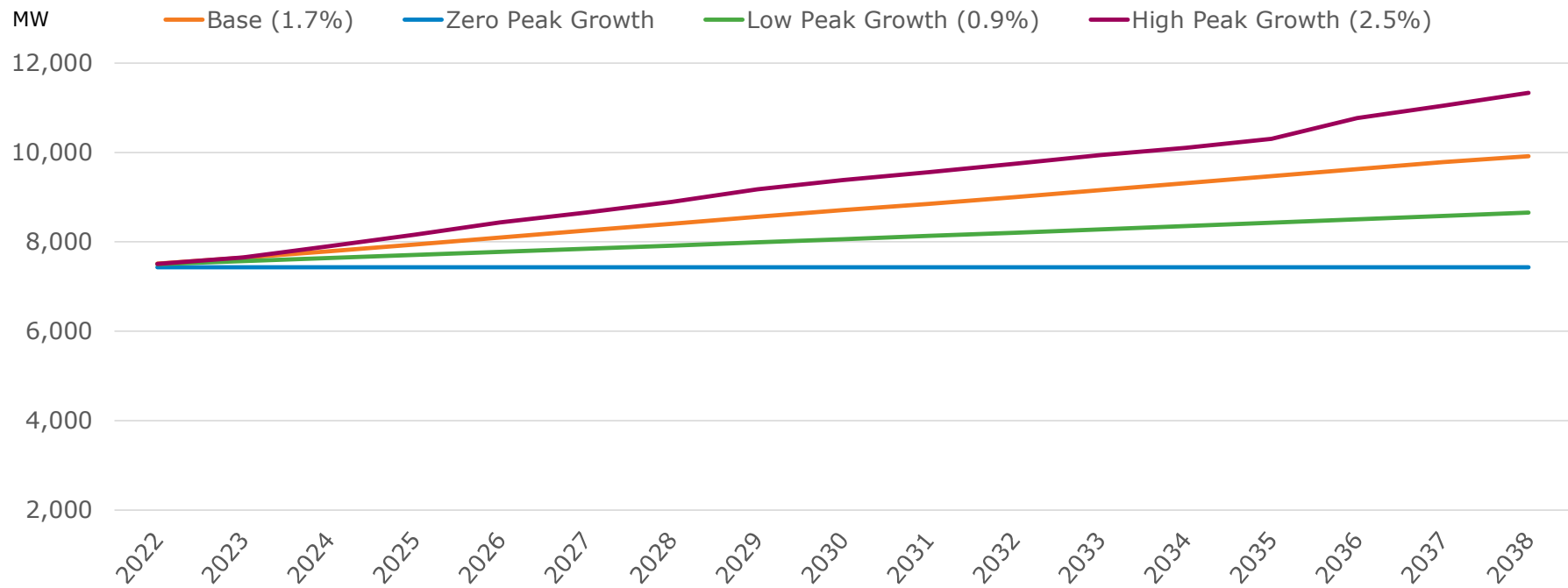




# APS Peak Comparison

*Includes DSM & Distributed Energy*

Peak Load Forecast (MW)





# RPAC Model Review

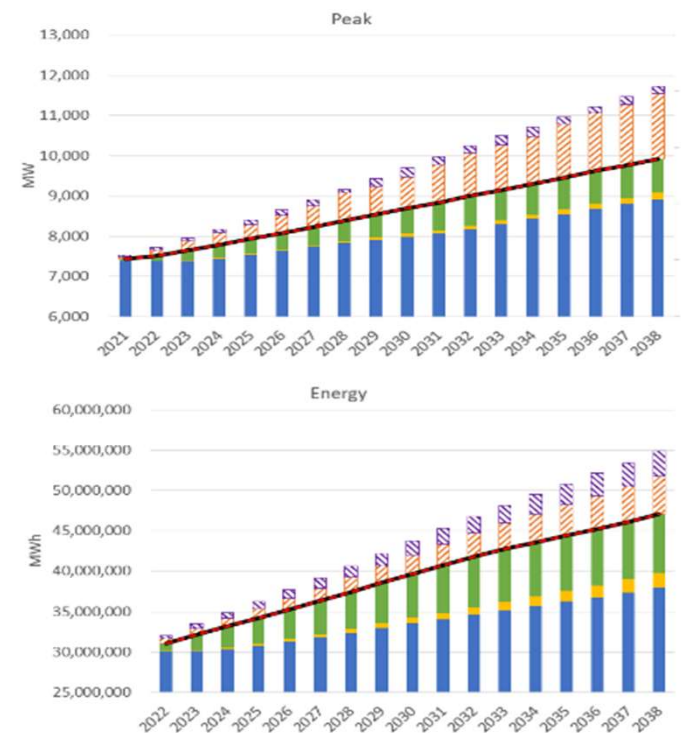
Jessica Hankins

# RPAC Load Forecasting Tool



- The load forecasting tool was designed with sub forecast sensitivities (base, low, medium, high)
- Intended to narrow the key areas of the forecast that interest the RPAC
- Tool is envisioned to promote discussion amongst stakeholders
- Prior to the meeting we ask that you consider elements of the forecast that are most relevant to the development of the IRP
  - **Base forecast**
  - **Distributed Energy**
  - **Weather**
  - **DSM**
  - **Electric Vehicles**
  - **Large Customers**
- We plan to start off with a poll to show how the tool works and will move into discussion with the group
- Designed to compile subcomponents of the forecast and report on impacts to MW, GWhs, and associated growth rates

BAU	DSM	DG	EV	Large Customers	Extreme Weather
Base	Base	Base	Base	Base	0° F





# Load Forecasting Assumptions

	Low		Medium		High	
<b>DSM:</b> % of previous year total customer energy usage	+0.8%		+1.3%		+1.8%	
<b>DG:</b> rooftop solar additions per year	8,000 – 10,000 systems per year		13,000 – 17,000 systems per year		18,000 – 25,000 systems per year	
<b>EV:</b> total electric vehicle additions by 2038	~225,000		~650,000		~1.7Million	
<b>Large Customers:</b> specifically high load factor customers like data centers	Nominal economic development		Moderate economic development		Expansive economic development	
<b>Extreme Weather:</b> degrees above normal assumptions	0°F	1°F	2°F	3°F	4°F	5°F





# RPAC Selection Results

- Based on available options from September 15<sup>th</sup> Meeting:
  - DSM %: High (1.8%)
  - Electric Vehicle additions: High (~1.7M vehicles by 2038)
  - Rooftop Solar additions per year: Tie between
    - Medium (13,000-17,000 systems per year)
    - High(18,000-25,000 systems per year)
  - Large Customer Growth: Moderate large economic development
  - Extreme weather (degrees above normal weather assumption): Tie between:
    - 2° Fahrenheit
    - 3° Fahrenheit

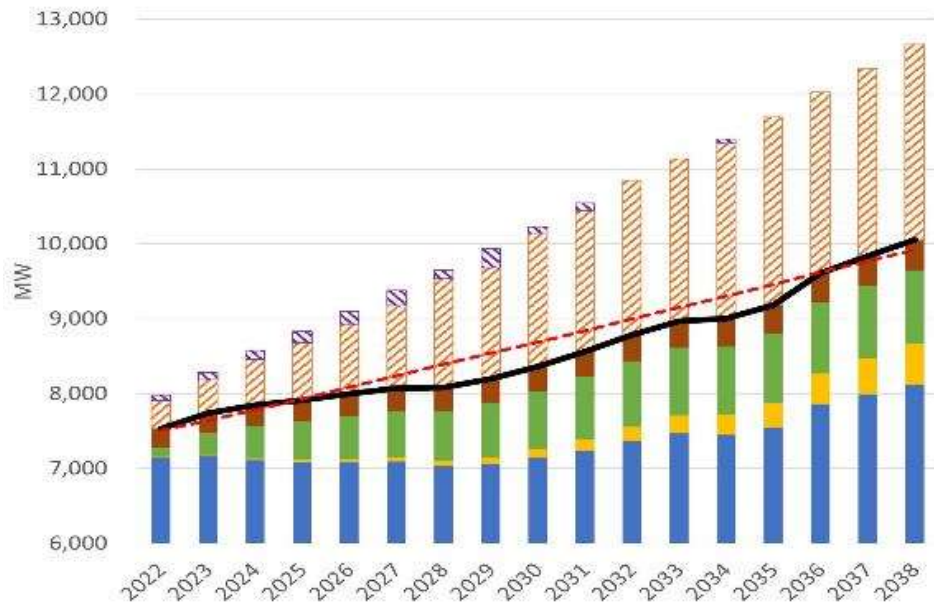




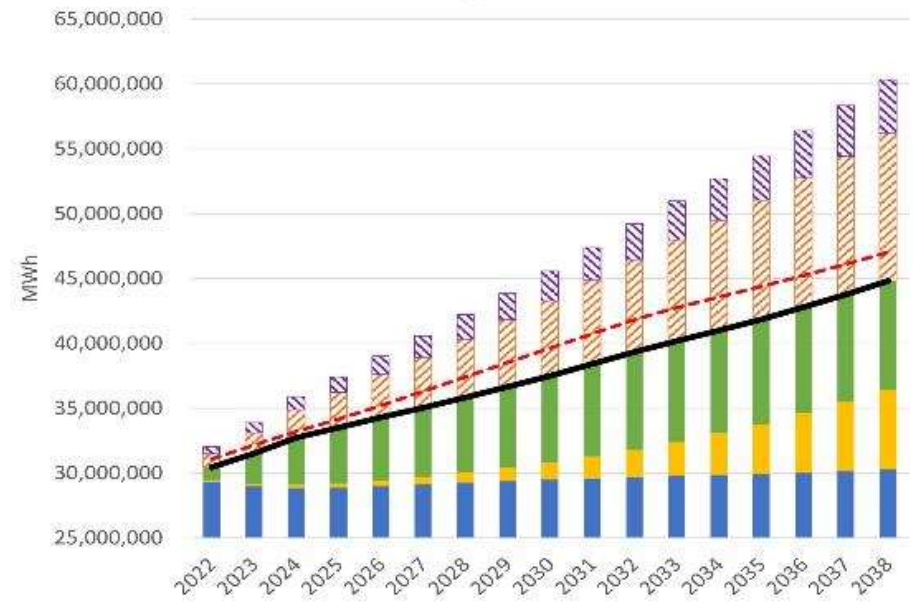
## RPAC Model Results – Medium (1.8% Peak Growth)

BAU	DSM	DG	EV	Large Customers	Extreme Weather
Base	High	Medium	High	Medium	2° F

Peak



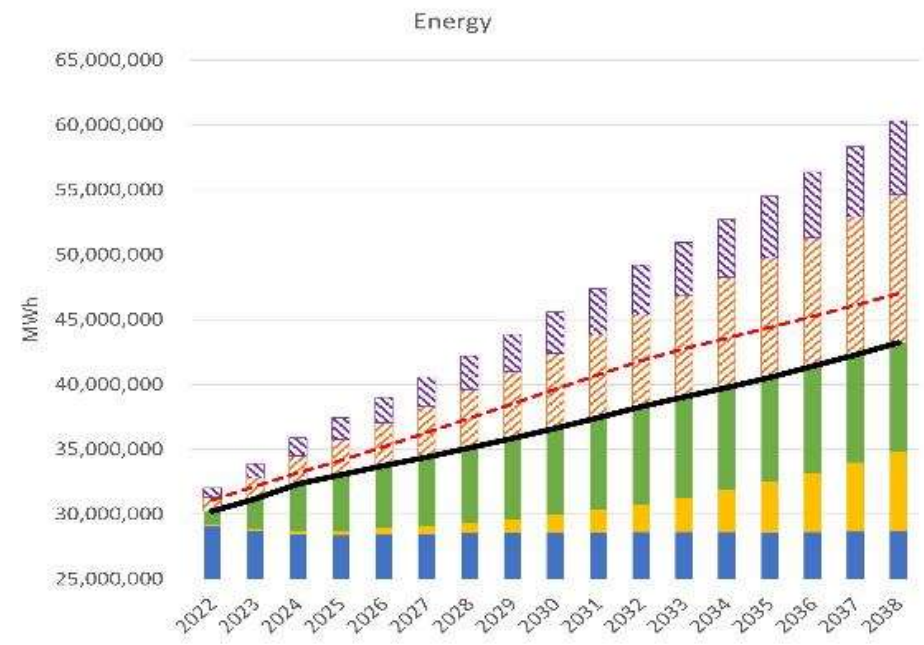
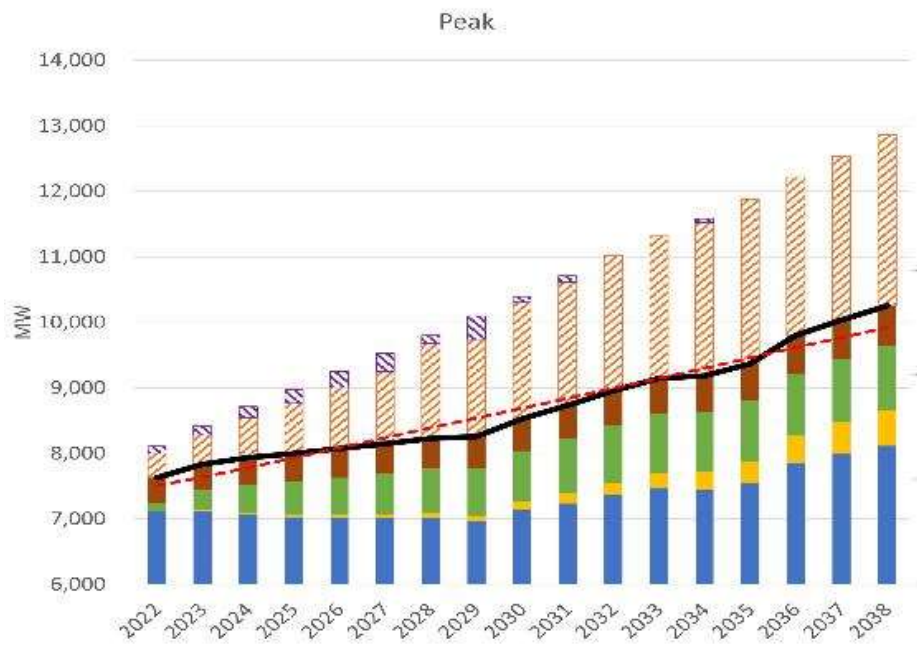
Energy





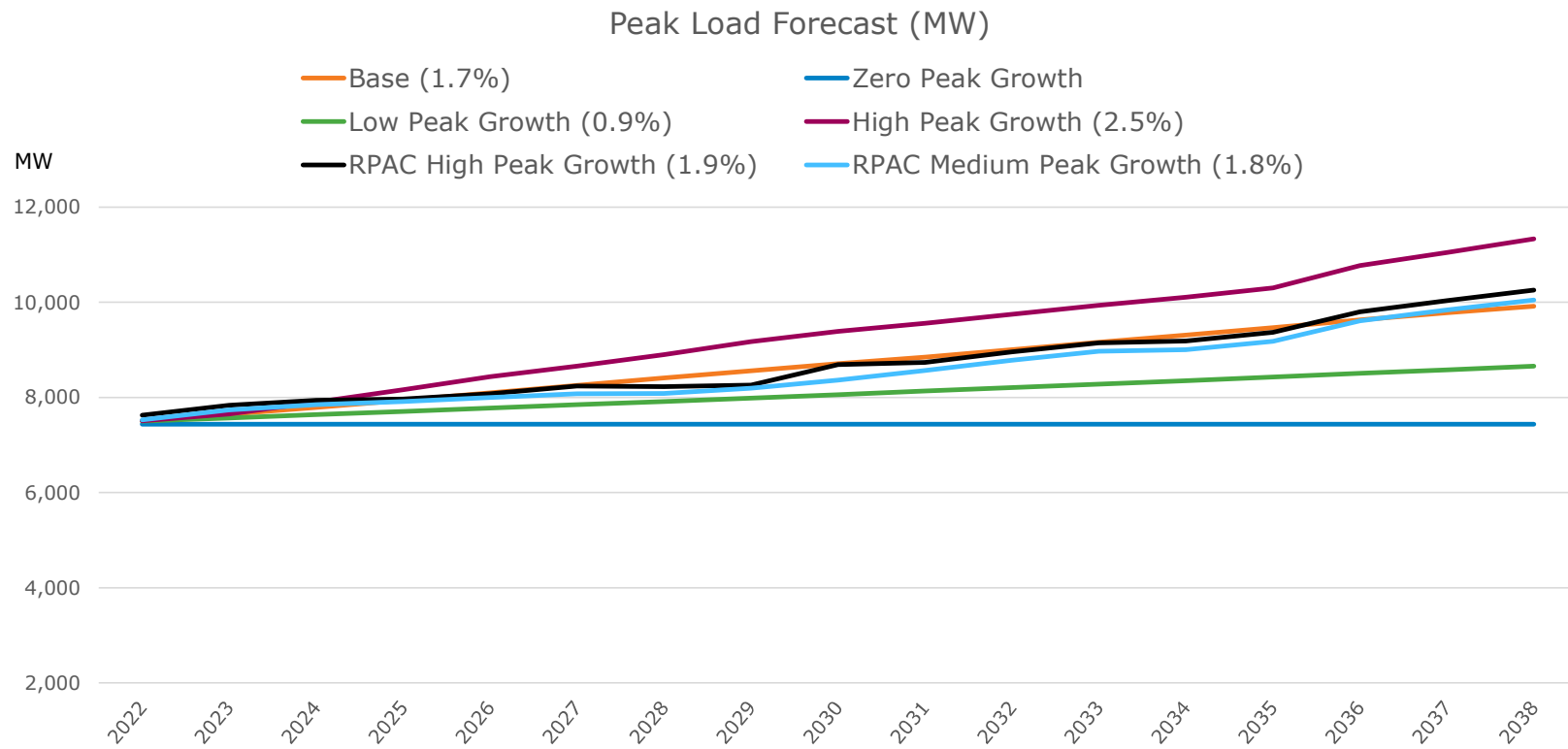
## RPAC Model Results – High (1.9% Peak Growth)

BAU	DSM	DG	EV	Large Customers	Extreme Weather
Base	High	High	High	Medium	3° F





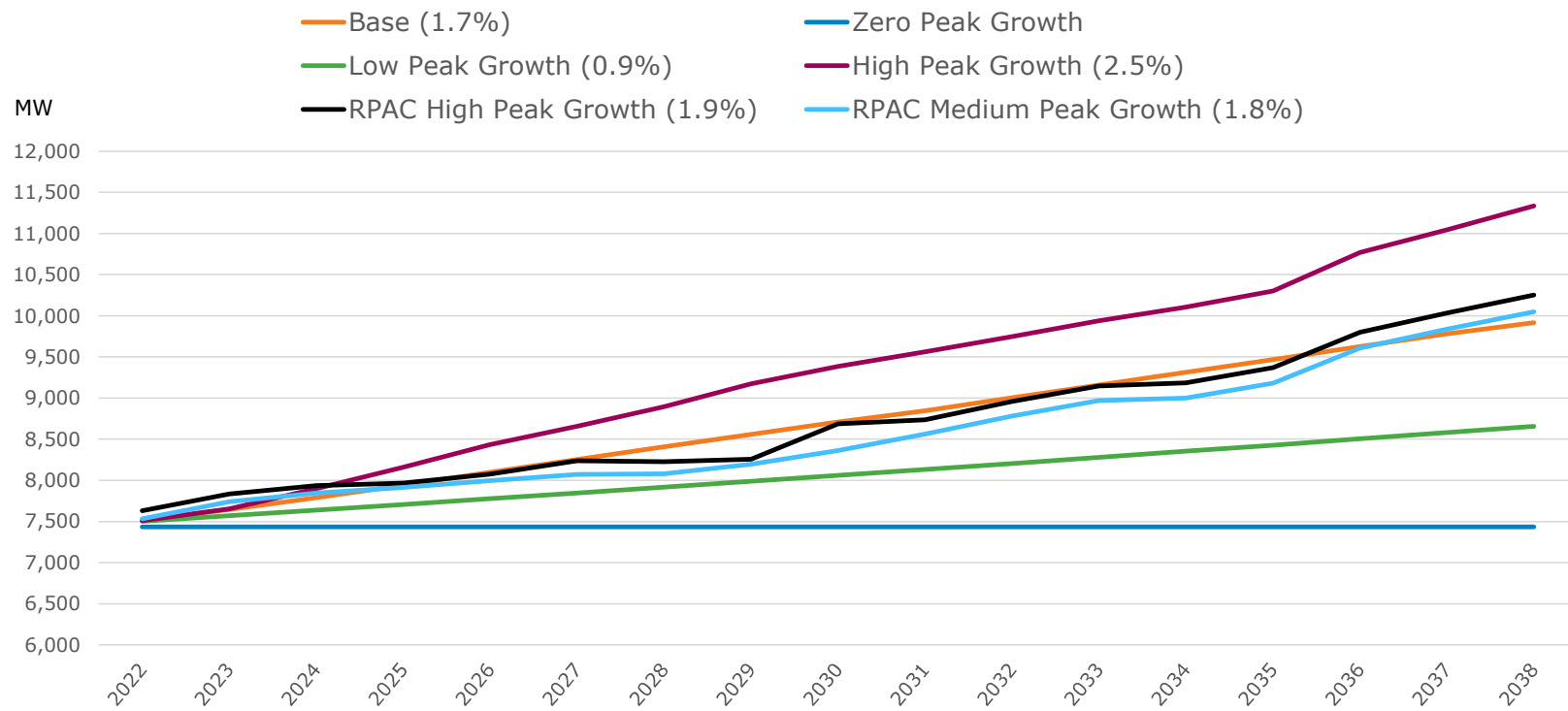
# Peak Growth Comparison





# Peak Growth Comparison

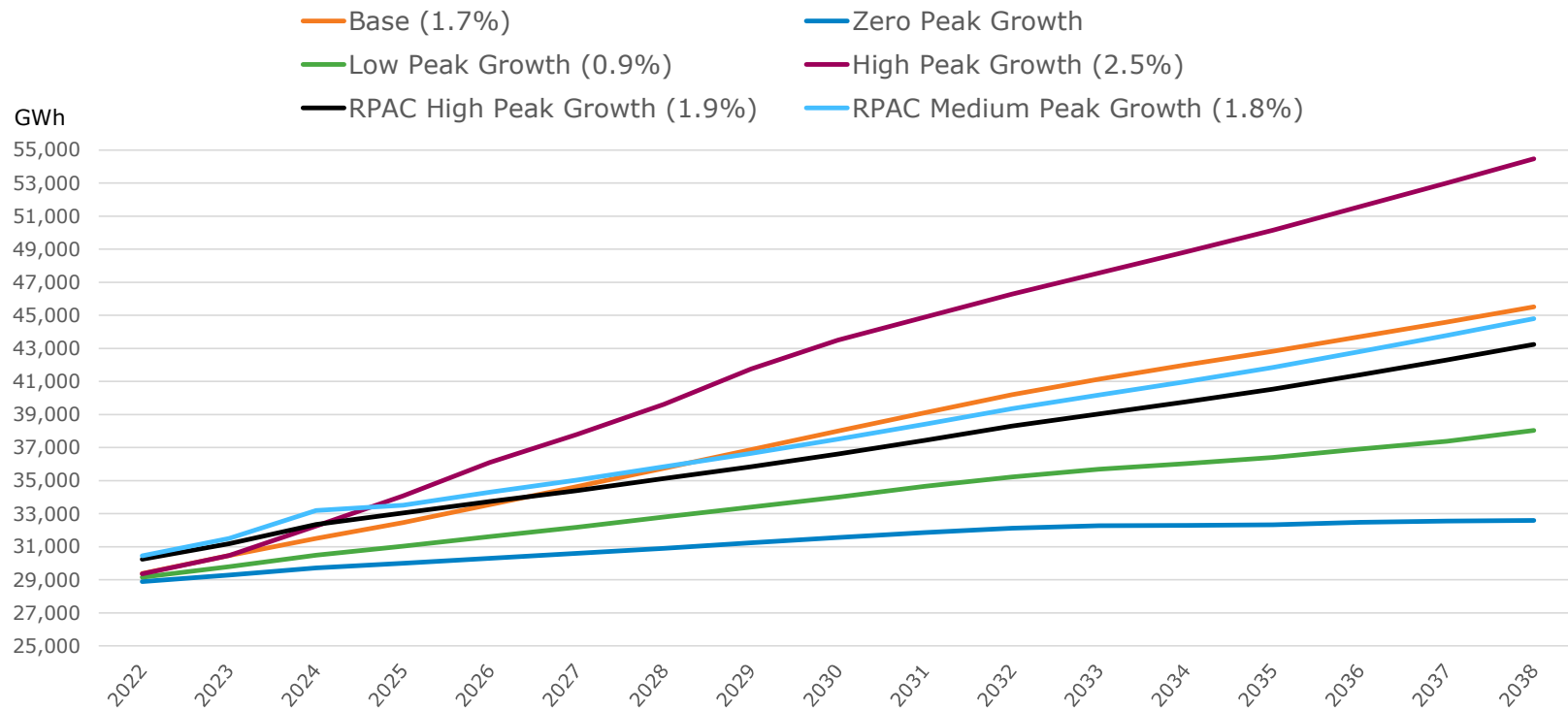
Peak Load Forecast (MW)

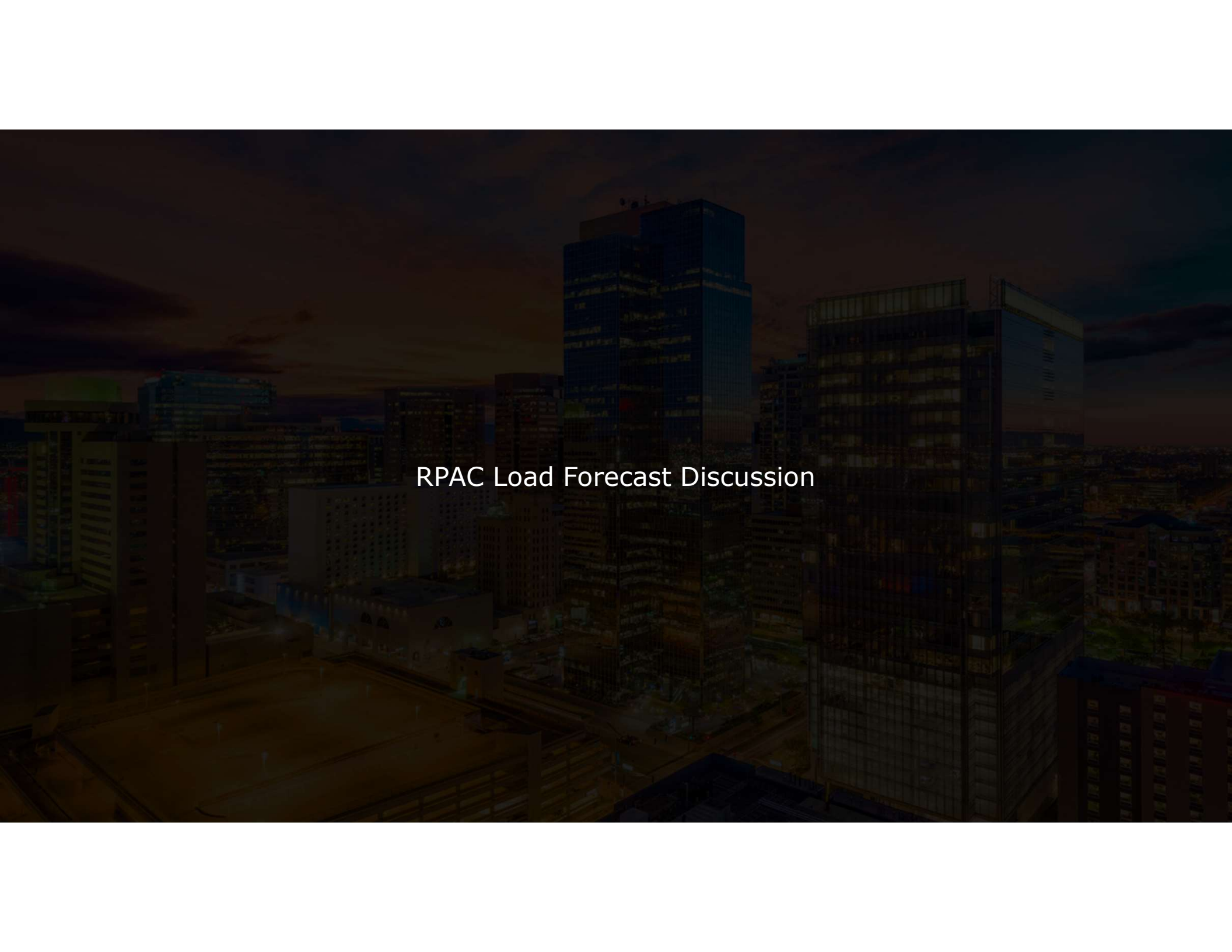




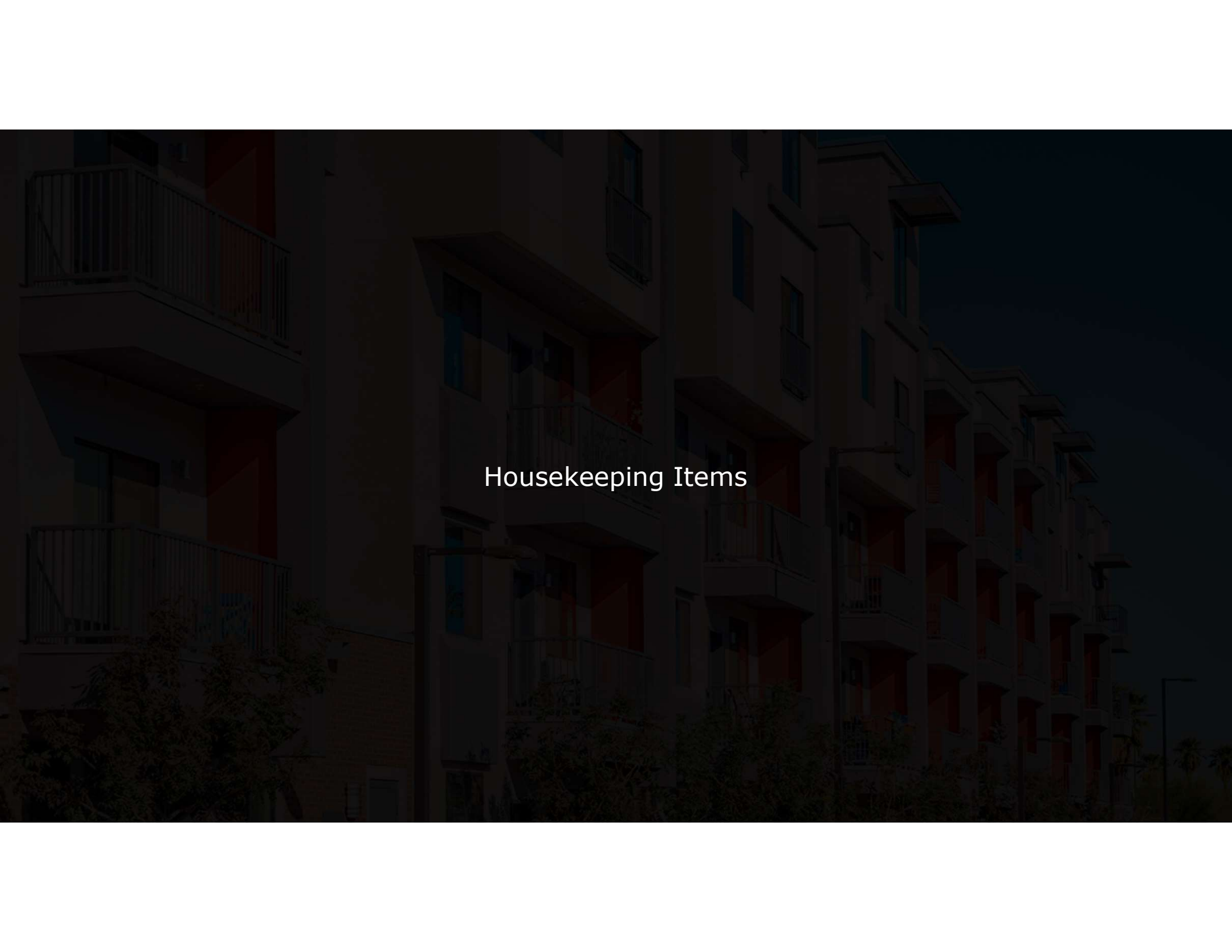
# Sales Growth Comparison

Sales Load Forecast (GWh)



An aerial photograph of a city skyline at dusk or dawn. The sky is a mix of dark blues and oranges. Several tall skyscrapers are visible, with some windows glowing. The foreground shows a large, flat, brownish area, possibly a construction site or a large parking lot. The entire image is covered with a semi-transparent dark overlay.

## RPAC Load Forecast Discussion



## Housekeeping Items