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September 5, 2018

### **MEMORANDUM**

**TO: Power Committee**

**FROM: Massoud Jourabchi**

**SUBJECT: Mid-term assessment of Load Forecast**

### **BACKGROUND:**

**Presenter:** Massoud Jourabchi, Manager Economic Analysis

**Summary:** Presentation compares economic drivers for the 7<sup>th</sup> Power Plan with the Mid-term update on these drivers. Presentation will also show a draft updated load forecast. The new long-term load forecast for energy is within the range of the 7<sup>th</sup> Plan. Winter peaks are in the lower range, and summer peaks are in the higher range of 7<sup>th</sup> Plan forecast.

**Relevance:** Impact on load

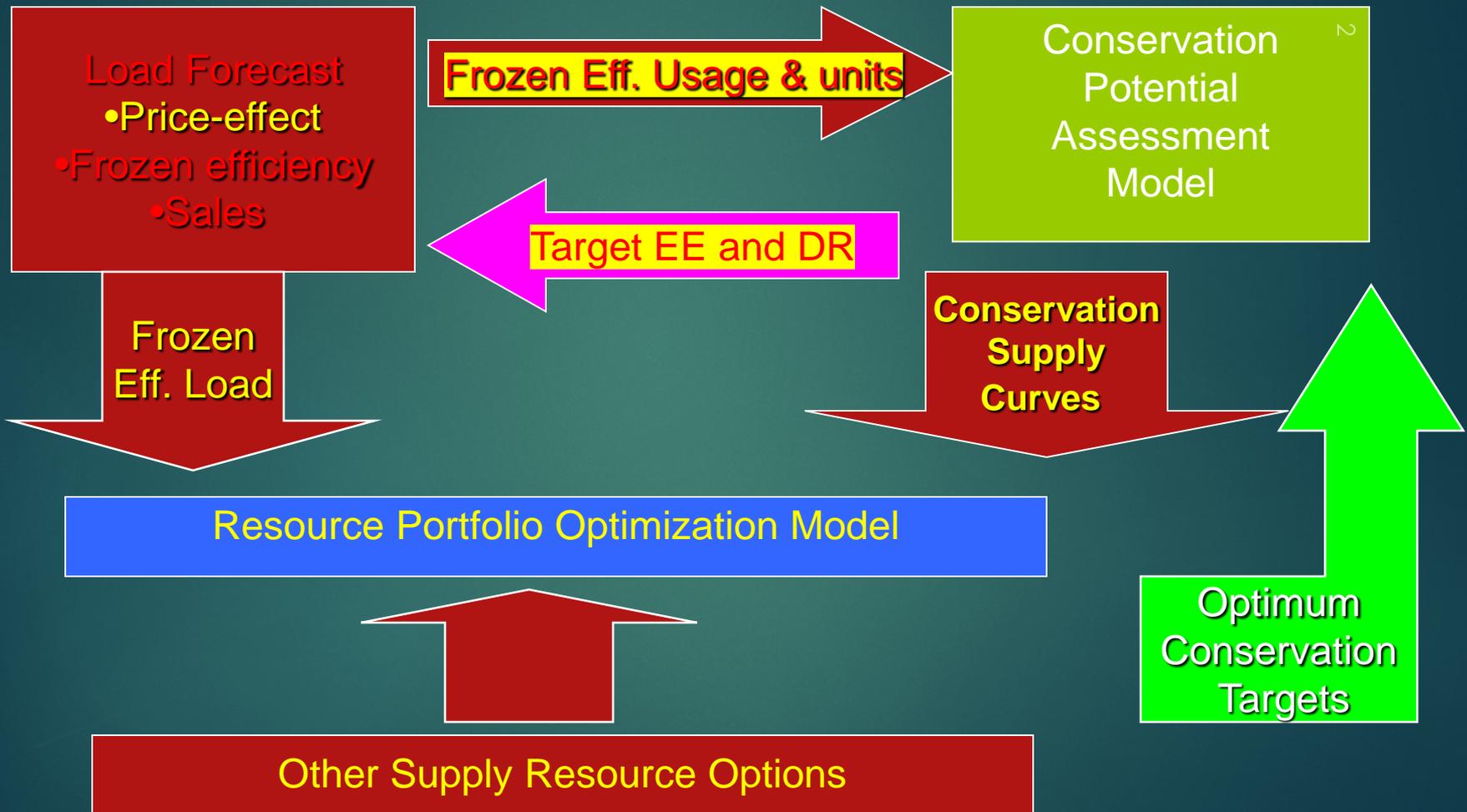
**Workplan:** NA

**Background:** As a continuing effort, Council staff monitors change in economic drivers for the long-range load forecast. Population, stock of housing, commercial building activities, manufacturing activities impact regional load. In the mid-term assessment of the load forecast, we have updated several key drivers. We then forecast load under these new future drivers. Presentation will compare the revised forecast with the 7<sup>th</sup> plan forecast.

# Load Forecast Mid-term Assessment

SEPTEMBER 2018

# Council's Planning Process



# Updates since the 7<sup>th</sup> Plan

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- ▶ Model enhancements
  - ▶ Transportation modeling
  - ▶ Better treatment of temperature and peak loads
  - ▶ Calibration to actual loads for 2012-2016
  - ▶ Incorporation of Solar and Battery logic
- ▶ Economic Drivers updates
  - ▶ Population, Residential , Commercial, Industrial, Transportation, Agricultural sectors
- ▶ Market Prices- retail rates
  - ▶ Wholesale Natural Gas Prices
  - ▶ Wholesale Electricity Prices

# Key Economic Drivers (Population)

- ▶ One of the key driver of demand for energy is growth in population.
- ▶ In the 7<sup>th</sup> plan population of the four states was projected to reach 16.4 million people by 2035.
- ▶ Mid-term assessment forecast is for the population to reach over 16.7 million people.
- ▶ An increase of about 300,000 people.

# Residential Sector

- ▶ Mid-term forecast of new residential units are higher than 7<sup>th</sup> Plan.
- ▶ Between 2016 and 2035, region is expected to add 981,000 single family, 536,000 multifamily and about 46,000 manufactured homes.

**Additional Homes (1000) 2016-2035**

	Mid-term	7th Plan
Single Family	981	976
Multi Family	536	502
Manufactured Homes	46	40

# Economic Drivers Commercial and Industrial

## ▶ Commercial Sector

- ▶ Over the next 20 years commercial floorspace would increase from 3.47 billion square feet in 2016 to over 4.3 billion square feet by 2035.

## ▶ Industrial Sector

- ▶ Industrial production is projected to slow down and stay rather flat.

# Economic Drivers Sector Growth Summary

Average Annual Growth Rate	7th Plan 2015-2035	Mid-term 2015-2035
Residential	1.19%	1.21%
Commercial	1.20%	1.41%
Industrial	1.06%	0.70%
Agriculture	0.81%	1.02%

# Outlook for inflation and Retail Electricity Prices

- ▶ Long-term inflation rate is expected to be about half a percent over the 7<sup>th</sup> plan.
- ▶ 7<sup>th</sup> plan ~1.7
- ▶ 7<sup>th</sup> plan mid-term ~2.2
- ▶ Over the past 5 years, electric retail rates increased between 1% to 1.9% per year (after adjustment for inflation).
- ▶ In the forecast period, electric retail rate is forecast to increase annually at 1.3% per year in real terms.

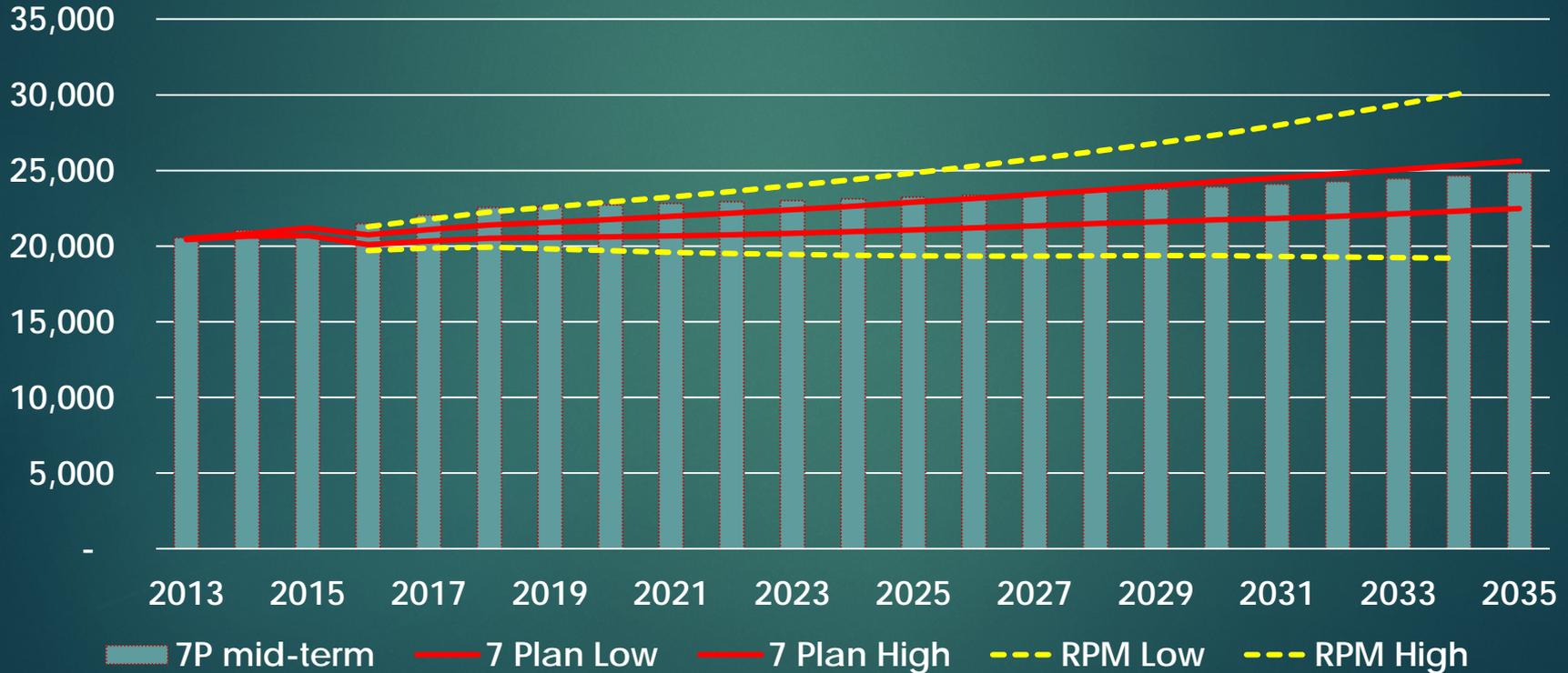
# Caveats on the forecast

- ▶ This forecast is preliminary
  - ▶ Key Data, on appliance saturation rates from RBSA, Commercial building stock from CBSA and industrial consumption are not available yet.
  - ▶ Forecast of sales for Electric Vehicles, Data Center, Cannabis is not updated.
  - ▶ Impact of Solar plus battery is not fully incorporated into the forecast.

# Mid-term Price-Effect Forecast is within Range of the 7<sup>th</sup> Plan

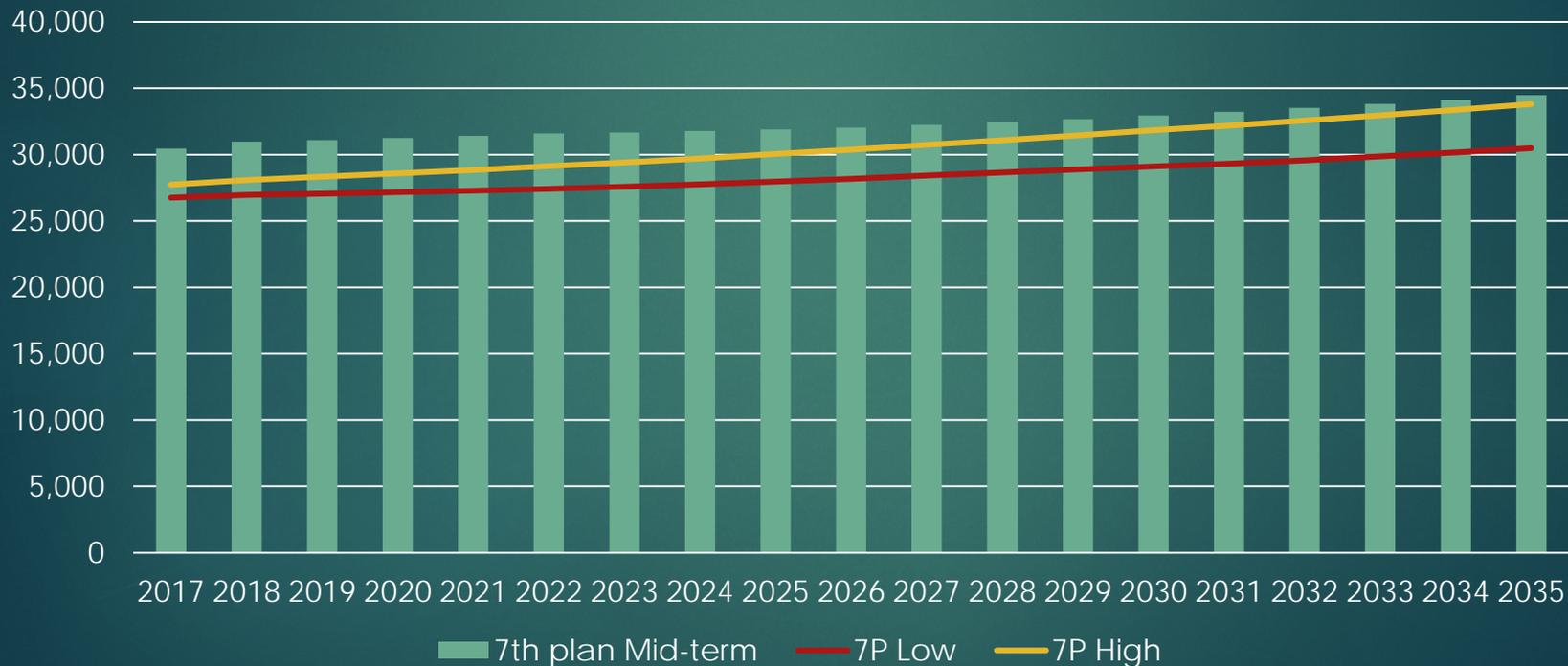
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## Comparison of Price-Effect and Frozen Efficiency Load Forecasts aMW



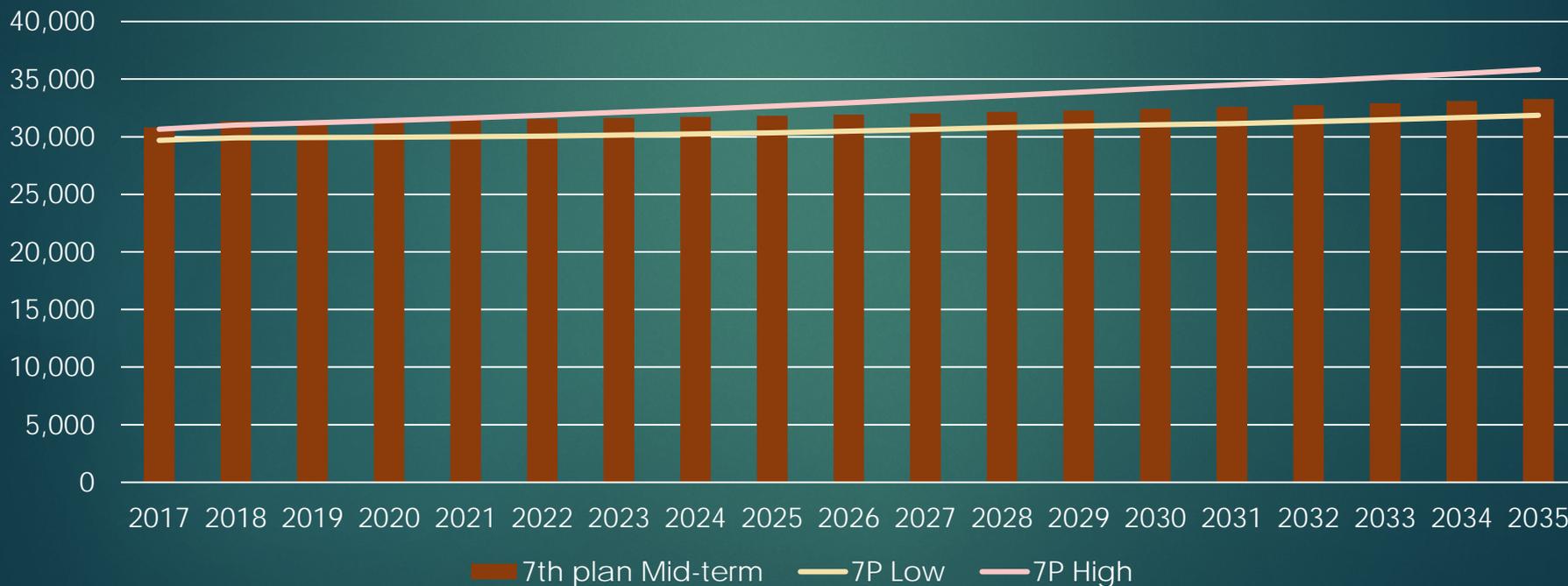
# Summer Peak Forecasts are slightly higher than 7P

Summer Peak (MW)  
Price-effect forecast (prior to Energy Efficiency and  
Demand Response)



# Winter Peak Load Forecast is within range of 7<sup>th</sup> plan forecast

Winter Peak (MW)  
Price-effect forecast (prior to Energy Efficiency and Demand Response)



# Summary

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- ▶ Key Economic drivers
  - ▶ Population increasing faster than 7P.
  - ▶ More residential units are being built.
  - ▶ Commercial floor space is growing.
  - ▶ Industrial sector output growth is flat
- ▶ Price-effect load forecast, with preliminary updates on key economic drivers indicates
  - ▶ Energy is within the 7<sup>th</sup> plan range
  - ▶ Winter peak is within the 7<sup>th</sup> plan range
  - ▶ Summer peak is in the high range of 7<sup>th</sup> plan