

<b>DOCKETED</b>	
<b>Docket Number:</b>	20-IEPR-03
<b>Project Title:</b>	Electricity and Natural Gas
<b>TN #:</b>	234489
<b>Document Title:</b>	Presentation - CEDU 2020-2030 Background, process, demand cases, and preliminary analysis
<b>Description:</b>	S1. 2 Garcia, Cary, CEC - Method, Scenarios, and Preliminary Results
<b>Filer:</b>	Raquel Kravitz
<b>Organization:</b>	Energy Commission
<b>Submitter Role:</b>	Commission Staff
<b>Submission Date:</b>	8/25/2020 11:53:50 AM
<b>Docketed Date:</b>	8/25/2020



# California Energy Demand Update Forecast, 2020-2030 (CEDU 2020)

Background, process, demand cases, and preliminary analysis

Cary.Garcia@energy.ca.gov  
Demand Analysis Office



# Notes on COVID-19

---

- The forecast update process can account for changes to economic drivers induced by COVID-19 but remains a long-term projection
- Potential structural impacts on energy demand are still uncertain and continue to be studied as with any sudden shocks to our economy
- More appropriate for potential structural impacts to be examined in the next full demand forecast
- True-up of 2020 forecast with actual sales (2020 Jan-Sept.) will provide a better picture of the impacts on electricity demand
- Today we will be providing a preliminary and partial analysis on the impact of new economic projections on electricity consumption; results will continue to be revised in the coming months and discussed through DAWG



# Update Process

---

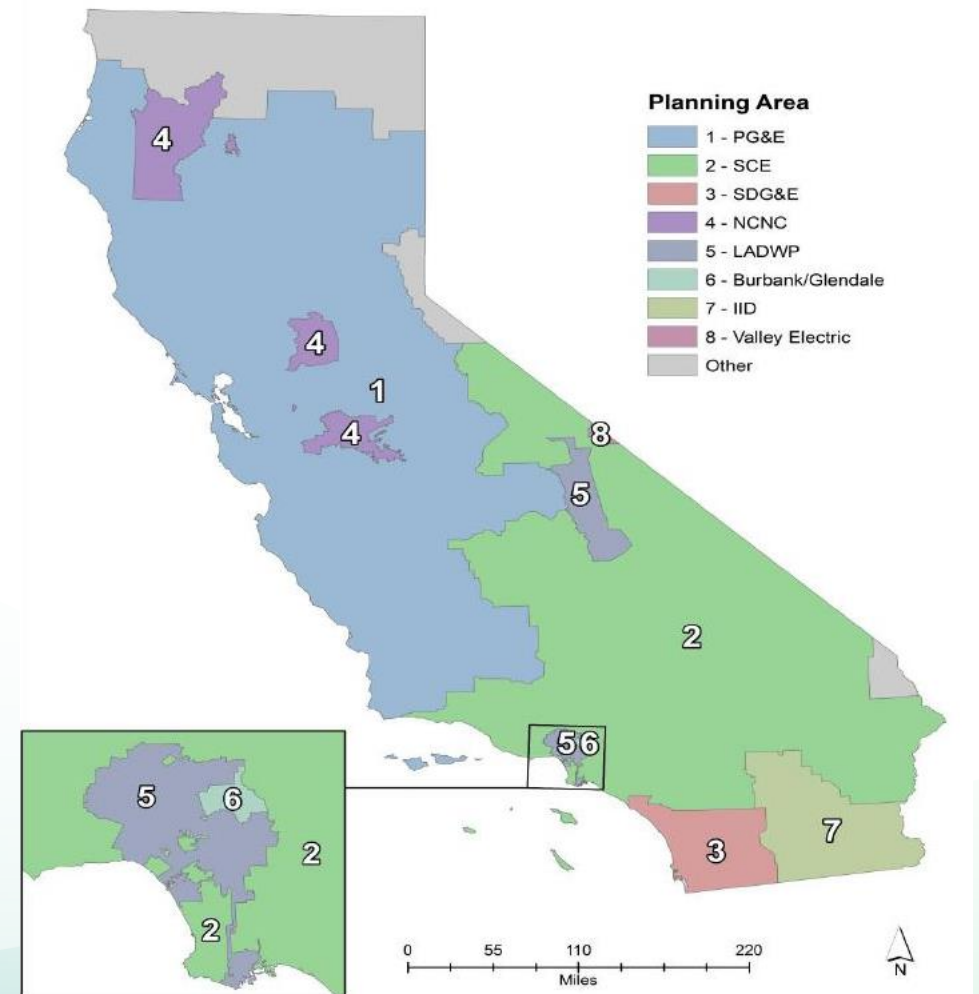
- During full forecast cycles econometric models are run alongside detailed end-use sector models for comparisons
- These models have performed similarly to the end-use models at the aggregate sector level
- Electric vehicle and self-generation forecasts will be updated separately



# Update Process

## Step 1: Consumption models by sector and planning area

- Residential
- Commercial
- Manufacturing
- Resource Extraction
- Agriculture/Water Pumping
- Transportation, Communications, and Utilities (TCU)





# Update Process

---

## Step 2: Calculate and apply forecast adjustment factors

- Compare model runs using the previous (June 2019) and current (June 2020) economic drivers plus updated rates and floorspace
- The percent difference in econometric runs are used as forecast adjustment factors
- Apply factors to the previously adopted consumption forecast before adjustments (efficiency, vehicle electrification, and climate change)



# Update Process

---

## Step 3: Finalize updated forecasts

- Prepare updated consumption forecasts by adding committed EE, climate change, and new electric vehicle forecasts
- Update sales forecasts by applying new estimates of self-generation
- Hourly forecasts are re-estimated using the new consumption and demand modifier forecasts as inputs (weather normalize 2020)
- Previously developed AAEE is applied to sales and hourly forecasts to create the updated managed forecasts



# Economic/Demographic Scenarios

## Moody's scenarios for key economic drivers:

- Custom High Scenario – High Energy Demand
- Prolonged Lower Growth – Low Energy Demand
- Baseline (50/50) – Mid Energy Demand

## Department of Finance:

- Households
- Population

## Commercial Floorspace:

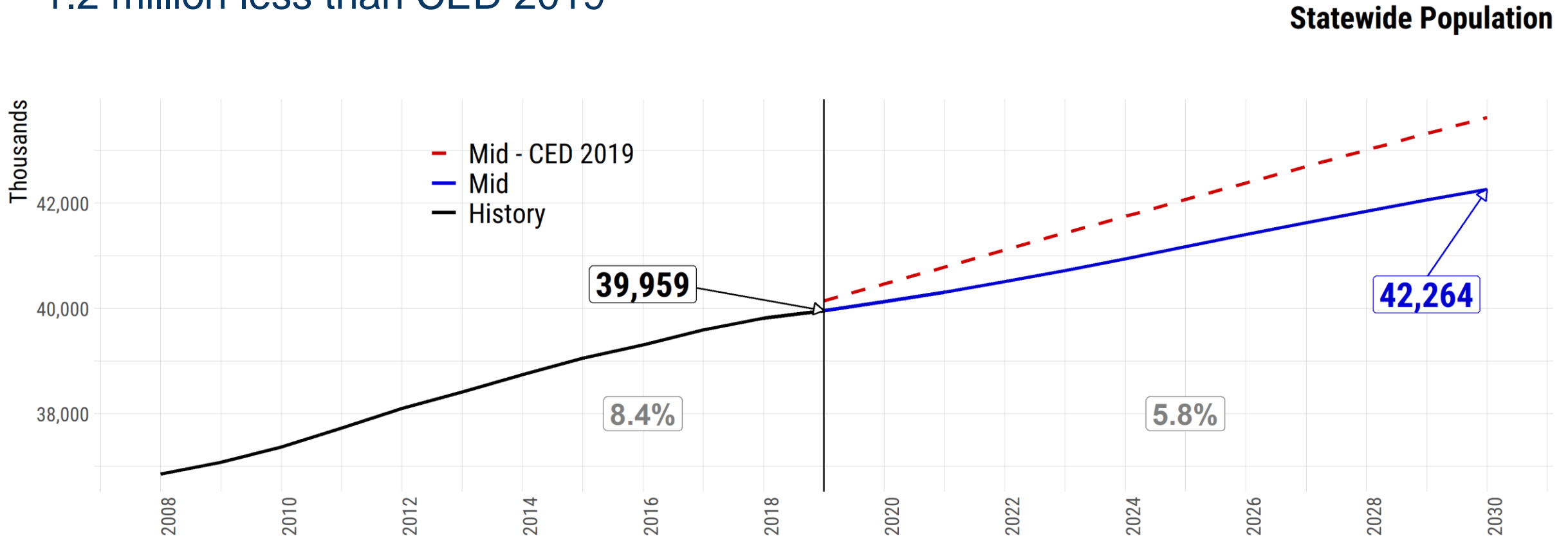
- Forecasts developed in house using historical commercial permit data and employment/population segment forecasts





# Population

- Growth reduced to 0.5% annually from 2020-2030
- Reaches 42+ million by 2030
- 1.2 million less than CED 2019



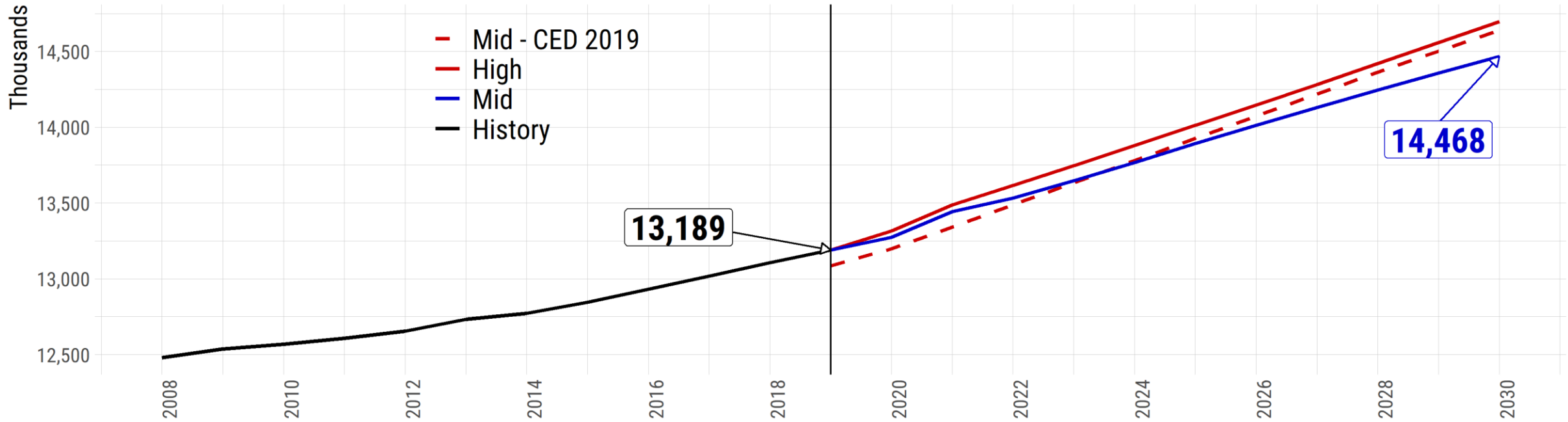
Source: CA Department of Finance, June 2020



# Households

- More households in 2019 than previously expected
- Modest decrease in growth, now at 0.9% annually
- Reaches 14+ million by 2030; 140k less than CED 2019

Statewide Total Households



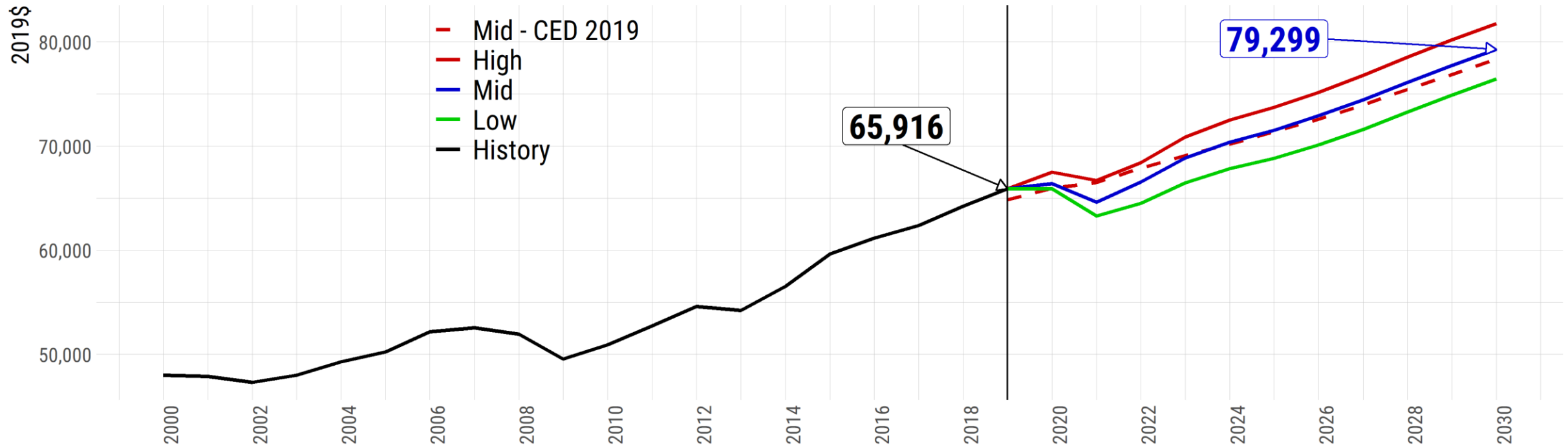
Source: CA Department of Finance, June 2020  
High scenario developed by DAO staff



# Income

- -2.7% decline in 2020
- 2.3% average growth 2021-2030
- Recovery period leads to slightly higher long-term growth

Statewide Per Capita Personal Income



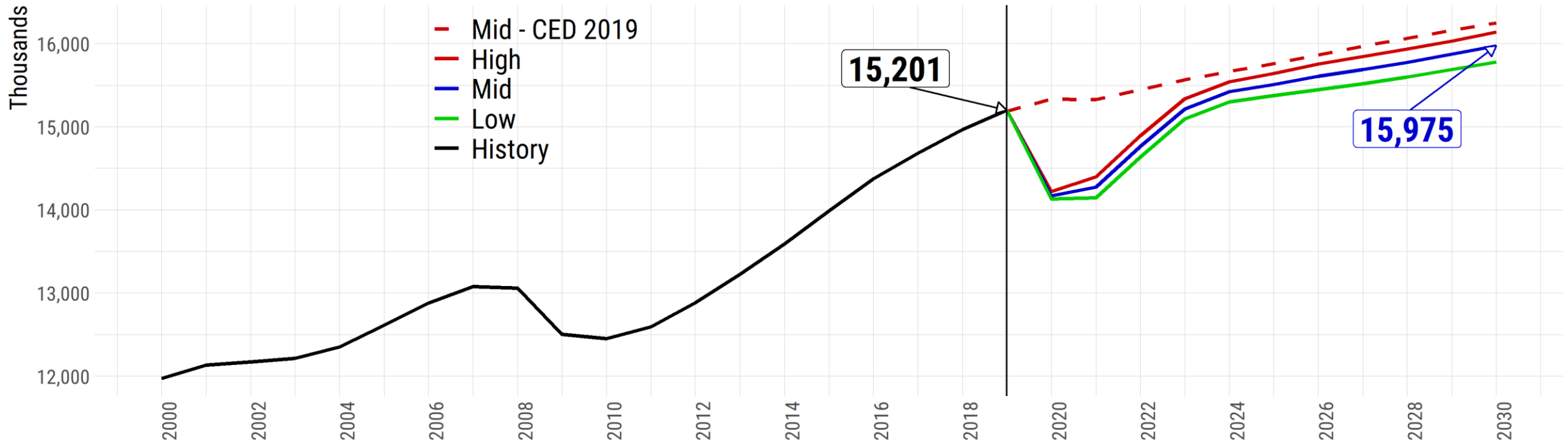
Source: Moody's Analytics, June 2020 & CA Department of Finance, June 2020



# Commercial Employment

- -7% decrease in 2020; 12% total unemployment rate
- Recovery of ~2% annually through 2023
- Slightly lower long-term growth; 2% below previous mid case forecast by 2030

### Statewide Commercial Employment



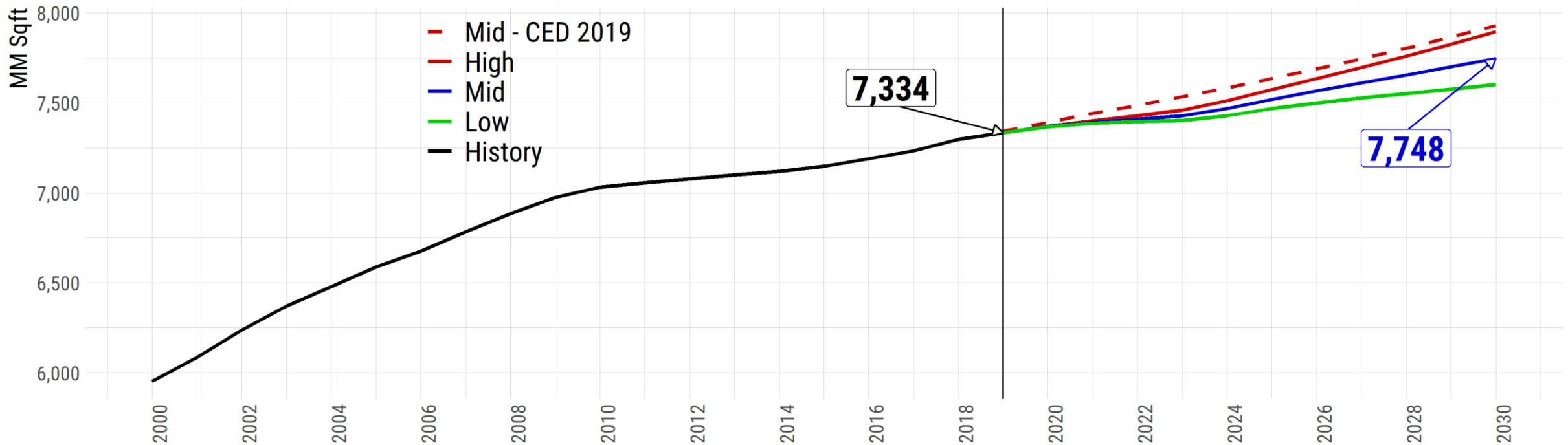
Source: Moody's Analytics, June 2020



# Commercial Floorspace

- Projected total floorspace reduced by over 60% through 2023
- Annual average growth of 0.3% through 2023; 0.6% in CED 2019
- 2020-2030 average annual growth of 0.5%

Statewide Commercial Floorspace



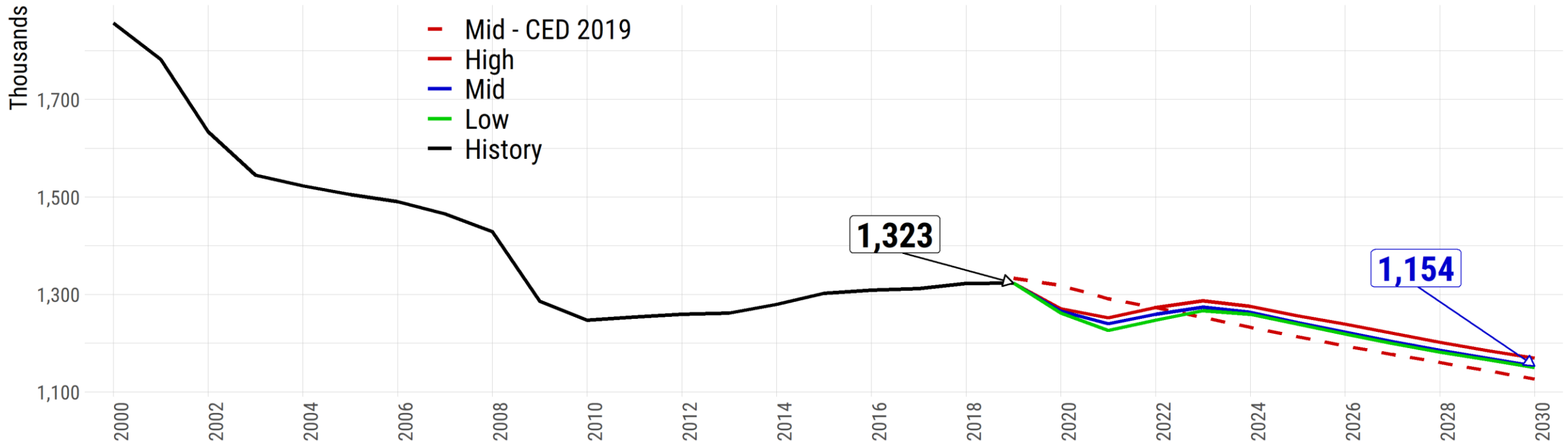
Source: CEC Demand Analysis Office, August 2020



# Manufacturing Employment

- Employment trend continues for this sector
- 4x less employed than previously expected in 2020
- Some bounce-back in 2022-2023

Statewide Manufacturing Employment



Source: Moody's Analytics, June 2020



# Preliminary Consumption Analysis

---

- Run update process to account for changing economic and demographic expectations plus rates and floorspace
- Does not include any changes to electric vehicles; using EV forecasts from CED 2019
- The following results are preliminary and meant to inform stakeholder questions and discussion over the coming weeks as staff continue to develop the forecast update

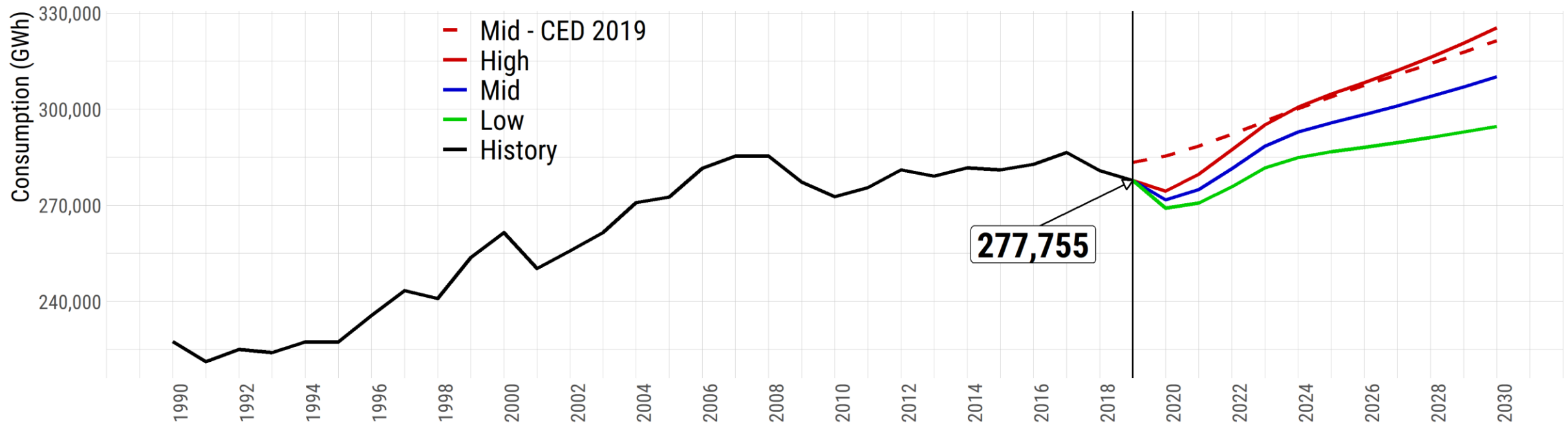


# Statewide Impacts

- Total 2019 consumption/sales were 2% lower than previously expected
- Consumption through 2023 reduced by 2% on average, ~1% for remaining years

## Preliminary Statewide Total Electricity Consumption

Includes committed efficiency, no AAEE  
No changes to CED 2019 EV forecast assumptions



Source: CEC Demand Analysis Office, Aug 2020





# Statewide Impacts

## Residential

- Higher level of households but total growth is slightly slower
- Continued growth at 2% annually, similar to CED 2019

## Commercial

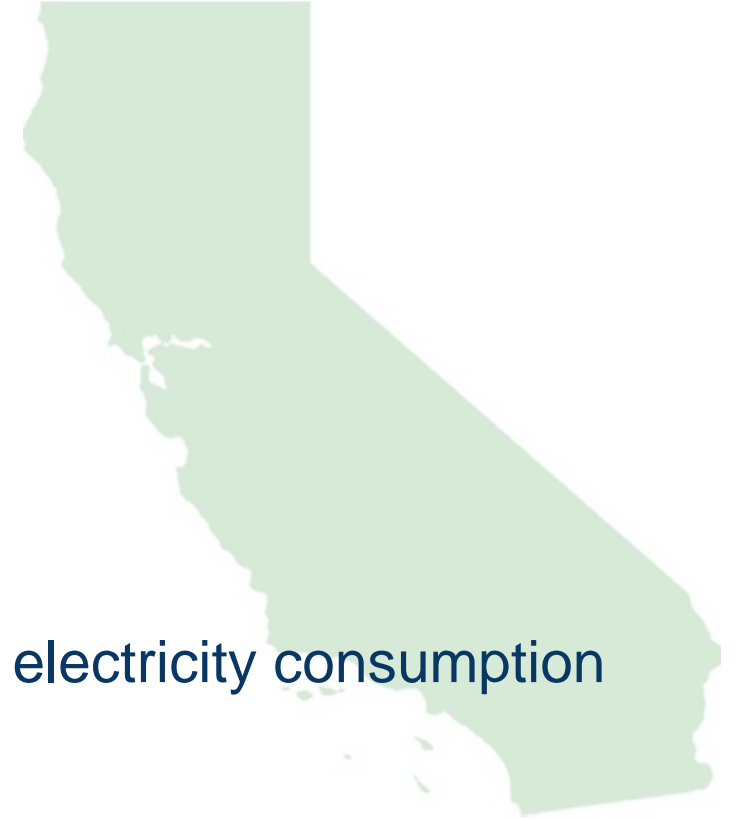
- -4% reduction in commercial consumption for 2020
- +2% annually in recovery from 2021-2024

## Industrial / Mining

- -3% reduction through 2022
- Some recovery but historic trend of declining manufacturing electricity consumption continues

## North / South

- Northern regions sees slightly more growth in households compared to South but long-term residential consumption trends appear similar
- Southern California to sees somewhat larger impacts to non-residential sectors - differing mix of industry and employment





# Next Steps

---

- Preliminary analysis does not account for changes in vehicle electrification
- Finalized consumption and sales forecast results will be shared through Demand Analysis Working Group – **November**
- Formal adoption of forecast update - **January 2021**