



# **CEDU 2020: Preliminary Consumption and Sales Results**

Prepared for DAWG

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# Update CED 2019 forecast to account for new data/assumptions

- CEDU 2020 will update the CED 2019 forecast to account for changes to economic and demographic drivers and updated demand modifier forecasts
- Econometric models by sector and planning are used to estimate the impacts of economic and demographic drivers
- % difference between model projections using the previous and new inputs are used as adjustment factors for the CED 2019 forecast
- Electric vehicle and self-generation forecasts will be updated through the typical forecast process



# Data that is updated

- Additional years of historical data (2019 sales, 2020 WN peak)
- Newer economic and demographic projections including commercial floorspace
- Update electricity rate forecasts
- Finalized consumption/sales forecasts will be used as inputs for hourly model
- No update for AAEE



# Energy demand scenarios capture forecast uncertainty

## High Energy Demand

- Higher economic growth; Higher EV adoption
- Lower electricity rates; Lower PV/storage adoption
- Higher climate change impacts

## Low Energy Demand

- Lower economic growth; Lower EV adoption
- Higher electricity rates; Higher PV/storage adoption
- No climate change impacts

## Mid Energy Demand

- Mid case assumptions between high and low
- Expected climate change impacts



# Scenario data

## **Moody's scenarios for key economic drivers (June 2020):**

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

## **Department of Finance (June 2020):**

- Households
- Population

## **Commercial Floorspace:**

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



# Scenario data

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## Electricity Rates:

- Forecasts developed by staff with the latest information from utility advice letters, GRCs, and other data sources

## Climate Change

- Global climate models downscaled to California were developed by Scripps Institute of Oceanography
- Scripps climatologists along with ERDD staff selected extreme (high) and expected cases (mid) as temperature adjustments for weather sensitive sectors



# New Input Highlights

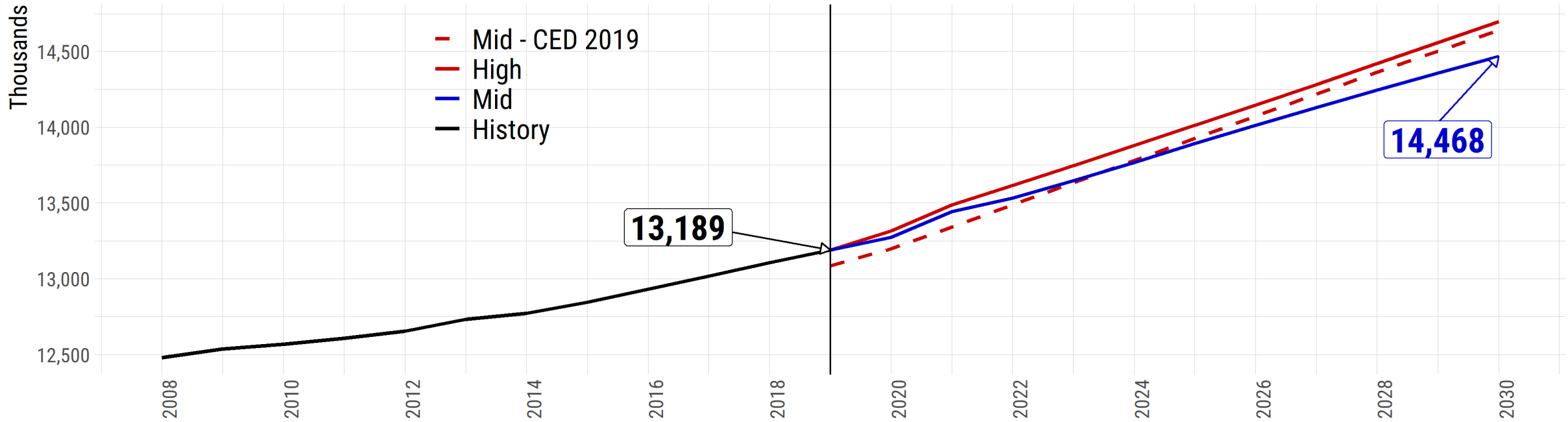
- Population and household forecasts from DOF have been lowered
  - Lower birth rate, increase deaths, and lower net migration
  - Household formation is delayed for millennials due to affordability in the near-term
- On average electricity rate growth is similar to CED 2019
  - PG&E res and commercial is somewhat higher compared to CED 2019 while SDG&E and SCE have lower expectations
- Major economic drivers see a decline in 2020 due to COVID-19 with a recovery beginning partway through 2021 and continuing through 2023; Uncertainties: reliable vaccines, federal stimulus...
- CEDU 2020 electricity forecasts will not include assumptions regarding potential structural changes in electricity usage resulting from COVID-19



# 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

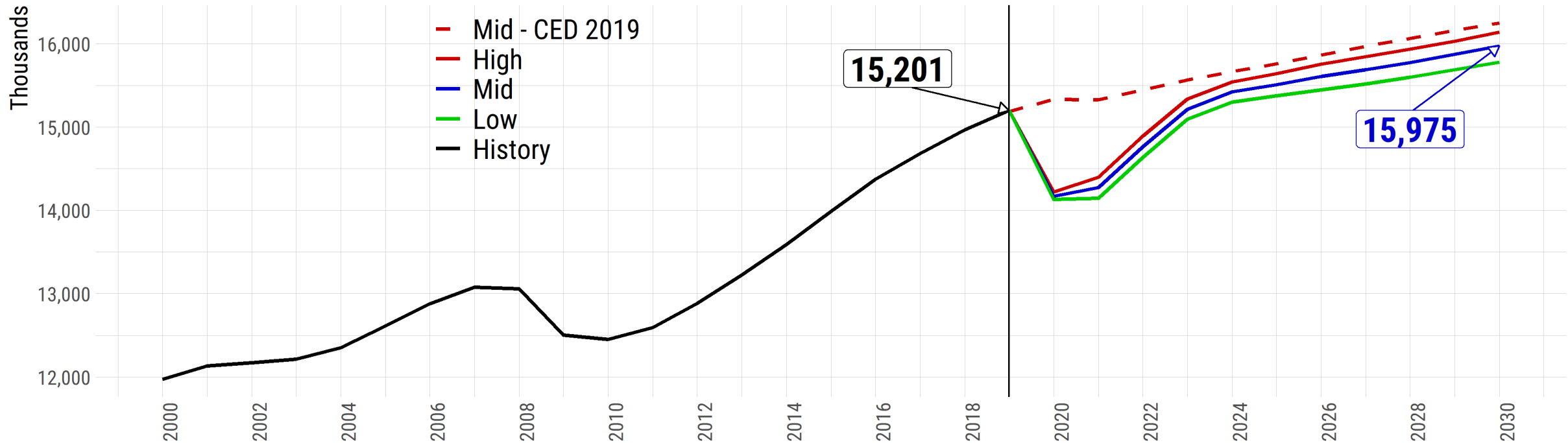




# Commercial Employment

- -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



# Another look at employment

## Total employment relative to 2019 levels

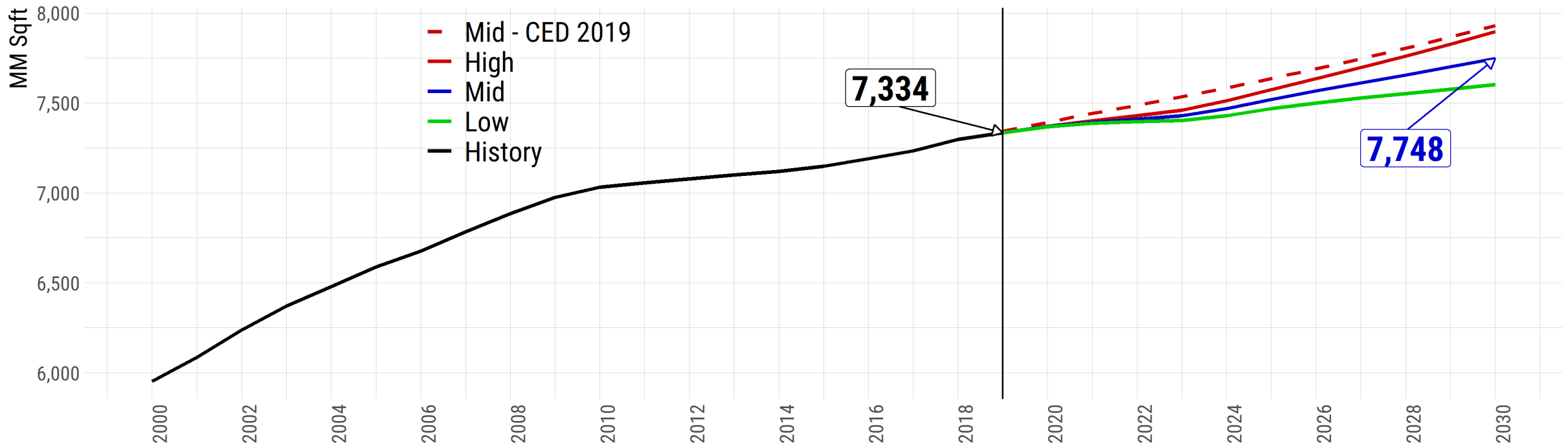
Year	PG&E	SCE	SDG&E	NCNC	LADWP
2020	-6.7%	-6.8%	-6.6%	-6.2%	-6.4%
2021	-6.5%	-6.5%	-6.3%	-5.9%	-6.3%
2022	-3.2%	-3.2%	-3.0%	-2.7%	-3.1%
2023	-0.2%	-0.2%	-0.1%	0.0%	-0.3%
2024	1.0%	1.0%	1.2%	1.3%	0.8%
<b>2025</b>	1.4%	1.5%	1.6%	1.7%	1.0%
<b>2030</b>	3.4%	3.7%	3.8%	4.2%	2.2%



# 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**



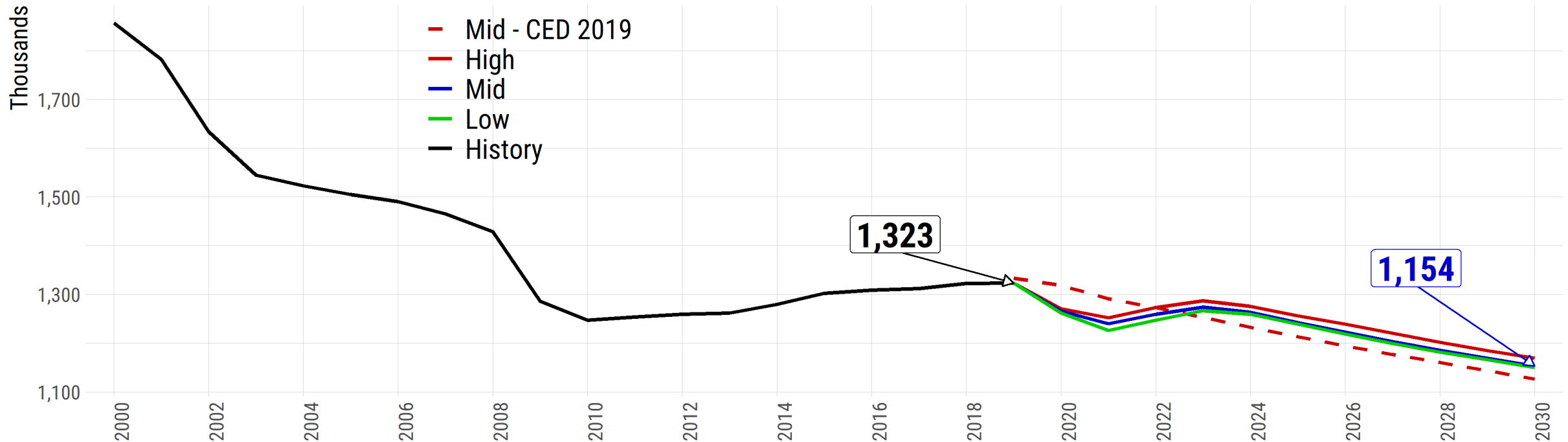
Source: CEC Demand Analysis Office, August 2020



# 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

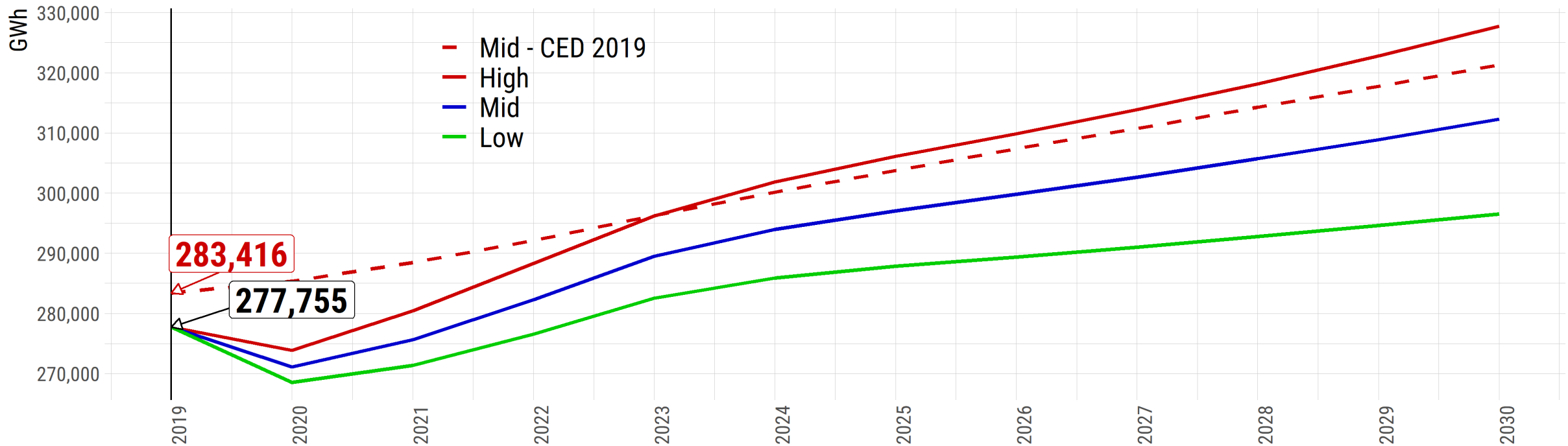


# Statewide Impacts

- Total 2019 consumption/sales were 2% lower than forecasted
- 2020-2030 growth of 1.4% compared to 1.1% CED 2019
- 3% lower in 2030

## Statewide - Preliminary Total Electricity Consumption

Using CED 2019 EV and self-gen forecasts



Source: CEC Demand Analysis Office, Oct 2020



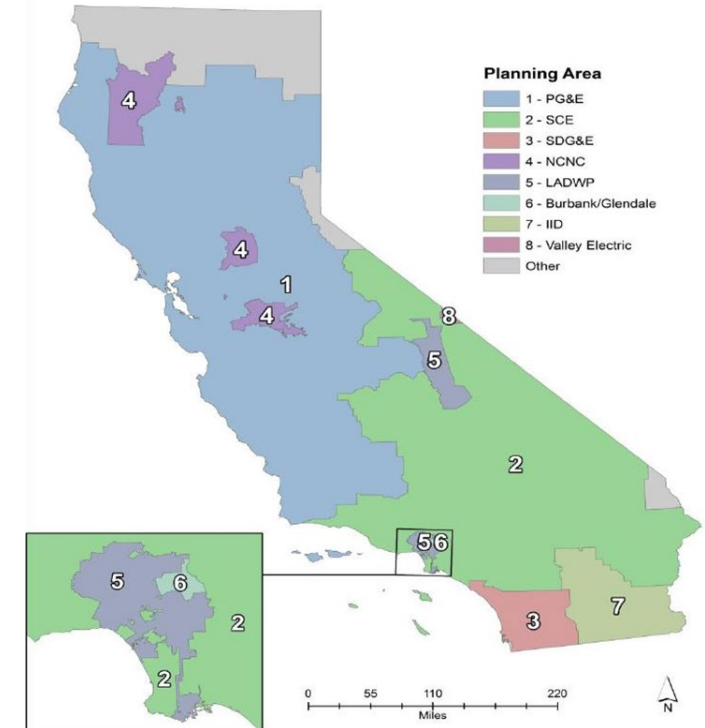
# Major Planning Area Summaries

- Summaries prepared ahead of finalized CEDU 2020 EV and self-generation forecasts
- Results here use CED 2019 EV and self-generation forecasts as placeholders
- Still highlight the impact of changes to our economic and demographic inputs

## Key takeaways:

- Impacts from COVID-19 were abrupt but current inputs suggest a recovery quick compared to previous economic shocks
- Employment recovery still takes several years to return to normal
- Consumption / sales forecasts will be lower than previous forecast for most planning areas

1. PG&E
2. SCE
3. SDG&E
4. NCNC
5. LADWP



\*NCNC = Northern California Non-CAISO  
(BANC + TID)



# Comparing Inputs: IOUs

## Mid Case Comparison - Economic Driver Average Annual Growth (2020-2030)

Planning Area	Forecast	Households	Total Employment	Commercial Floorspace	Manufacturing Employment	GSP
PG&E	CED 2019	1.1%	0.4%	0.6%	-1.6%	2.0%
	Update	0.9%	1.0%	0.7%	-0.9%	2.6%
SCE	CED 2019	1.1%	0.4%	0.6%	-1.5%	1.9%
	Update	0.9%	1.1%	0.8%	-0.9%	2.5%
SDG&E	CED 2019	0.9%	0.5%	0.4%	-1.6%	2.0%
	Update	0.8%	1.1%	0.6%	-1.0%	2.6%

- SCE sees the largest decreases in expected households among the IOUs
- Everyone is hurt by employment and recovers somewhat similarly
- Commercial floorspace is reduced more significantly for SoCal planning areas



# Comparing Inputs: POUs

## Mid Case Comparison - Economic Driver Average Annual Growth (2020-2030)

Planning Area	Forecast	Households	Total Employment	Commercial Floorspace	Manufacturing Employment	GSP Per Capita
NCNC	CED 2019	1.3%	0.5%	0.4%	-1.5%	1.9%
	Update	1.1%	1.1%	0.7%	-0.9%	2.5%
LADWP	CED 2019	0.9%	0.9%	0.1%	-1.6%	1.6%
	Update	0.5%	0.2%	0.4%	-0.9%	2.2%

- NCNC does not see as much of a decrease in households likely due to Sacramento area migration
- Employment in LA County doesn't recover as strongly as other areas – employment mix





# PG&E Consumption by Sector

## End-use Electricity Consumption Average Annual Growth (2020-2030)

Sector	Mid	Mid CED 2019	High	Low
Residential	2.0%	2.2%	2.5%	1.5%
Commercial	1.2%	0.9%	1.7%	0.7%
Manufacturing	0.2%	-0.1%	0.6%	-0.2%
Mining / Resource	0.4%	-1.3%	0.9%	0.0%
Ag and Water Pumping	3.4%	1.8%	3.7%	3.1%

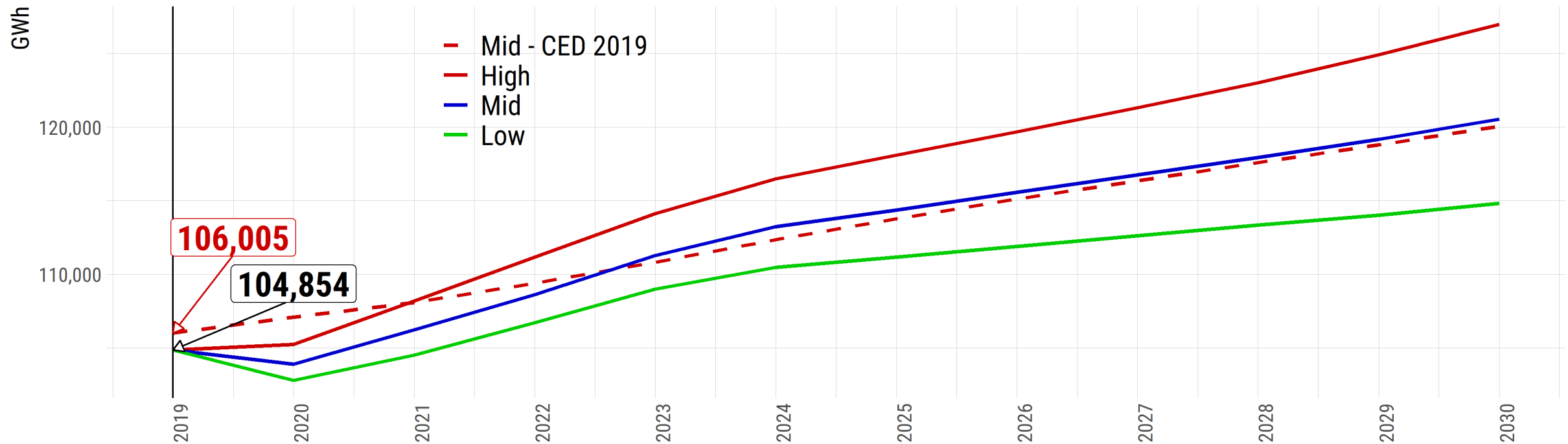


# PG&E Consumption Comparison

- 2020-2030 growth at 1.5% vs 1.2% in CED 2019
- 2030 forecast relatively unchanged
- 2019-2020 decline of ~1%

## PG&E - Preliminary Total Electricity Consumption

Using CED 2019 EV and self-gen forecasts



Source: CEC Demand Analysis Office, Oct 2020

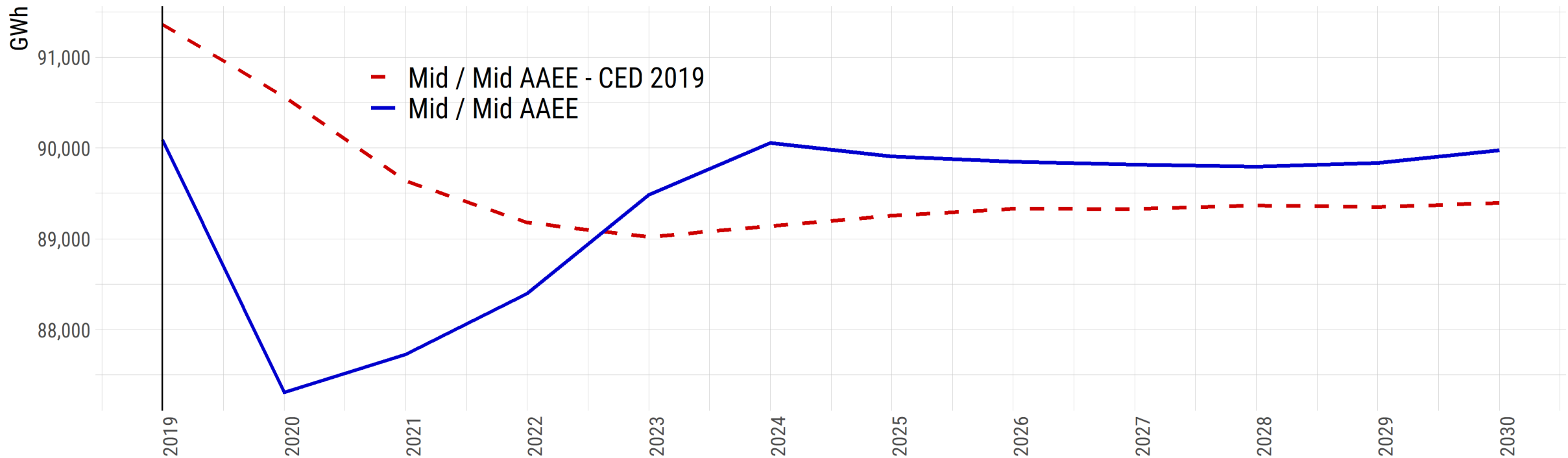


# PG&E Managed Sales Comparison

- 2020-2030 growth of 0.7% vs. 0.3% in CED 2019
- 2020 sales down by 2.6%

## PG&E - Preliminary Managed Total Electricity Sales

Using CED 2019 EV and self-gen forecasts



Source: CEC Demand Analysis Office, Oct 2020



# SCE Consumption by Sector

## End-use Electricity Consumption Average Annual Growth (2020-2030)

Sector	Mid	Mid CED 2019	High	Low
Residential	2.4%	2.4%	2.9%	2.1%
Commercial	1.1%	0.7%	1.5%	0.3%
Manufacturing	0.8%	0.4%	1.2%	0.2%
Mining / Resource	-0.4%	-1.1%	-0.2%	-0.7%
Ag and Water Pumping	0.7%	1.0%	0.7%	0.7%

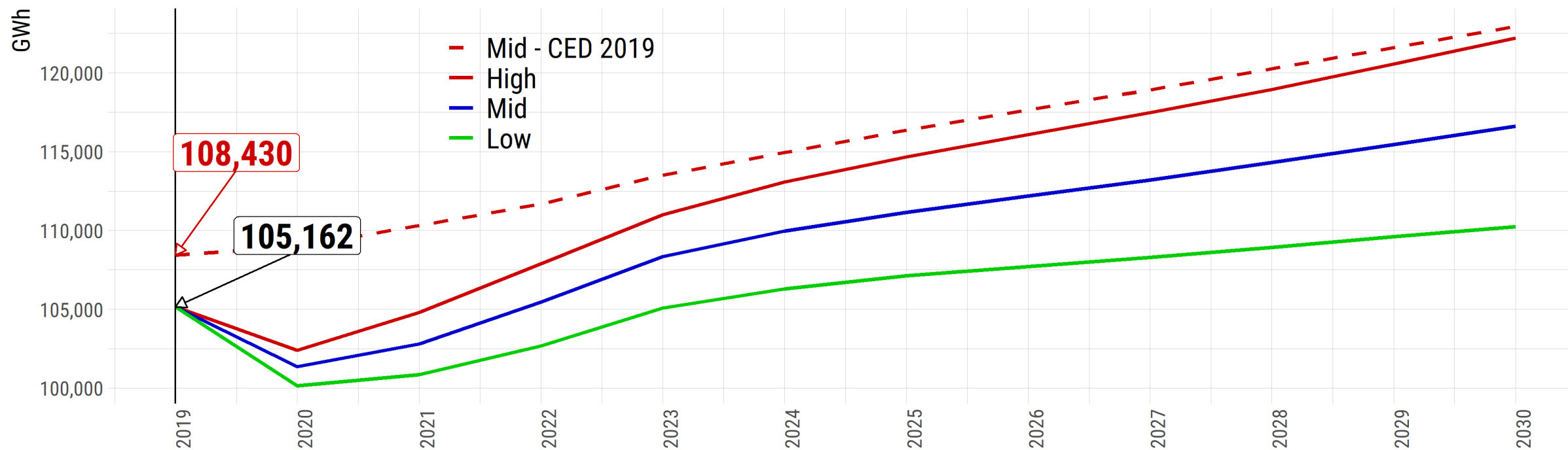


# SCE Consumption Comparison

- 2020-2030 growth at 1.4% vs 1.2% in CED 2019
- 5% lower in 2030
- 2020 decline of ~4%

## SCE - Preliminary Total Electricity Consumption

Using CED 2019 EV and self-gen forecasts



Source: CEC Demand Analysis Office, Oct 2020

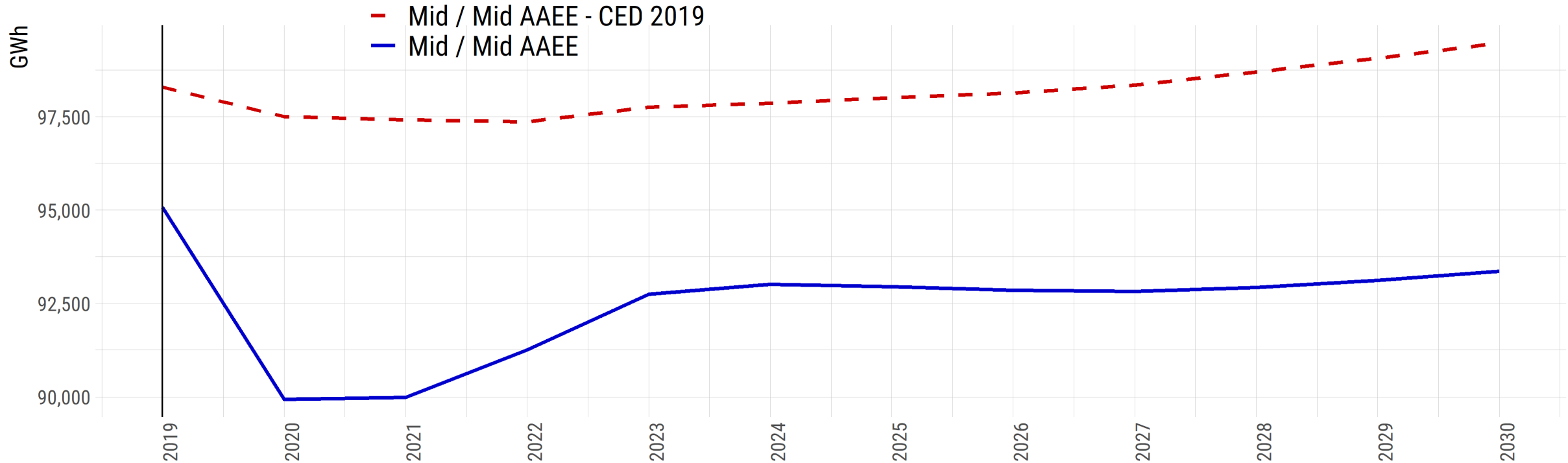


# SCE Managed Sales Comparison

- 2020-2030 growth at 0.8% vs 0.6% in CED 2019
- 6% lower in 2030

## SCE - Preliminary Managed Total Electricity Sales

Using CED 2019 EV and self-gen forecasts



Source: CEC Demand Analysis Office, Oct 2020



# SDG&E Consumption by Sector

## End-use Electricity Consumption Average Annual Growth (2020-2030)

Sector	Mid	Mid CED 2019	High	Low
Residential	2.5%	2.5%	2.8%	2.1%
Commercial	1.2%	0.9%	1.7%	0.5%
Manufacturing	0.2%	-0.3%	0.5%	-0.3%
Mining / Resource	-0.1%	-0.1%	0.0%	-0.1%
Ag and Water Pumping	3.3%	2.4%	3.4%	3.3%

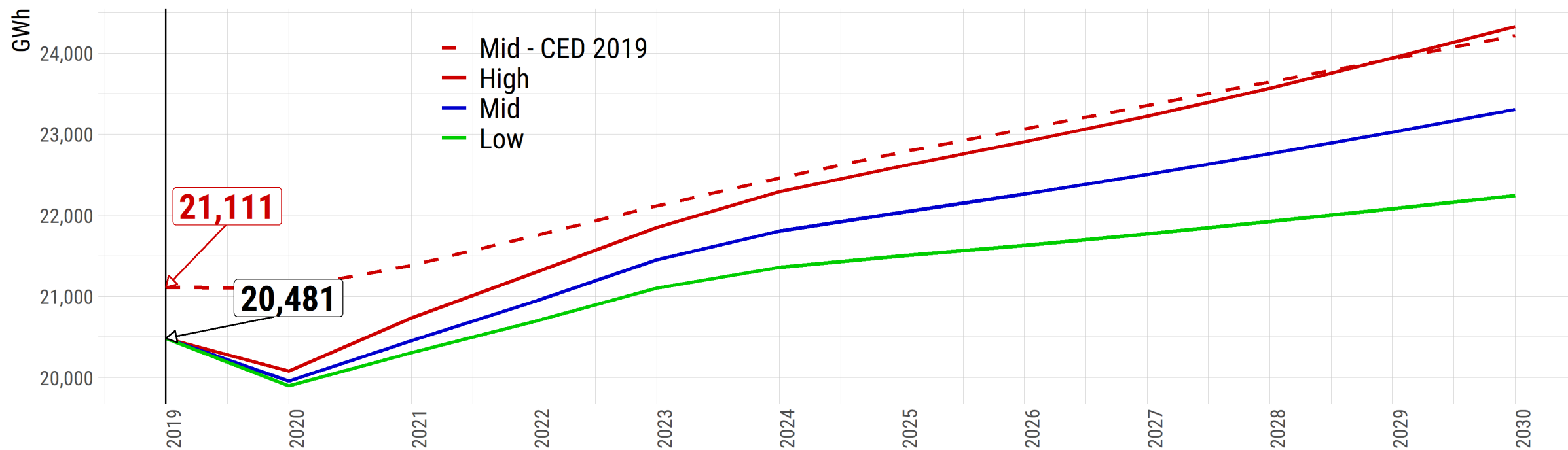


# SDG&E Consumption Comparison

- 2020-2030 growth of 1.6% vs 1.4% in CED 2019
- 2030 forecast reduced by 4%
- 3% decline for 2020

## SDGE - Preliminary Total Electricity Consumption

Using CED 2019 EV and self-gen forecasts



Source: CEC Demand Analysis Office, Oct 2020



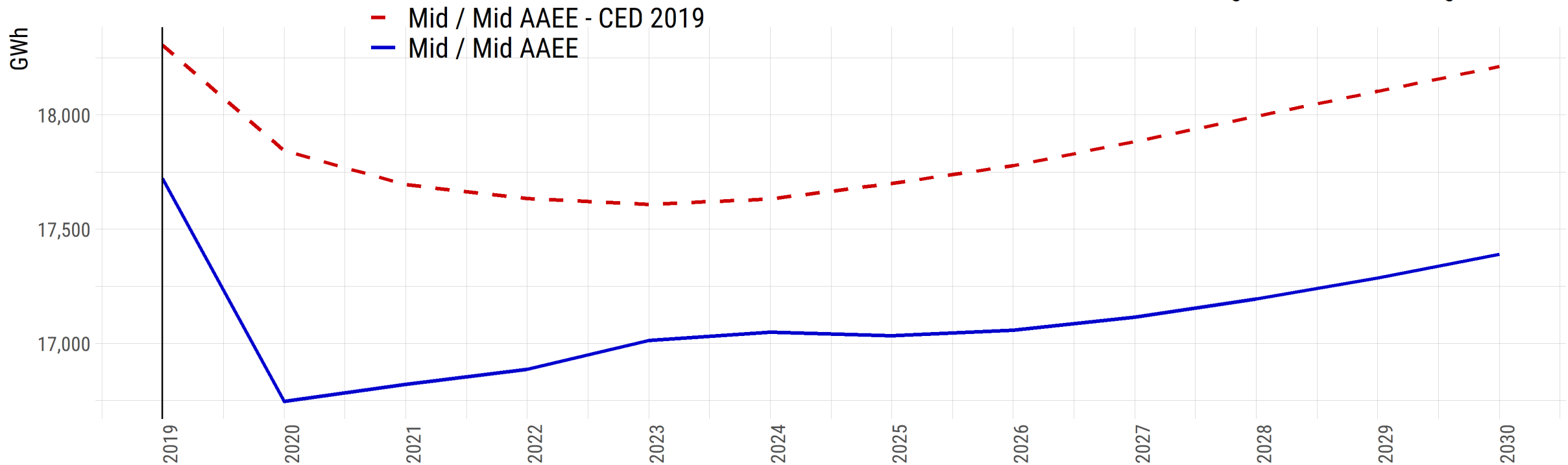


# SDG&E Managed Sales Comparison

- 2020-2030 growth of 0.8% vs 0.6% in CED 2019
- 4% lower in 2030

## SDG&E - Preliminary Managed Total Electricity Sales

Using CED 2019 EV and self-gen forecasts



Source: CEC Demand Analysis Office, Oct 2020



# NCNC Consumption by Sector

## End-use Electricity Consumption Average Annual Growth (2020-2030)

Sector	Mid	Mid CED 2019	High	Low
Residential	1.8%	1.8%	2.1%	1.5%
Commercial	1.1%	0.9%	1.7%	0.5%
Manufacturing	0.5%	0.2%	0.9%	-0.1%
Mining / Resource	0.0%	-0.1%	0.2%	-0.4%
Ag and Water Pumping	2.1%	2.2%	2.0%	2.2%

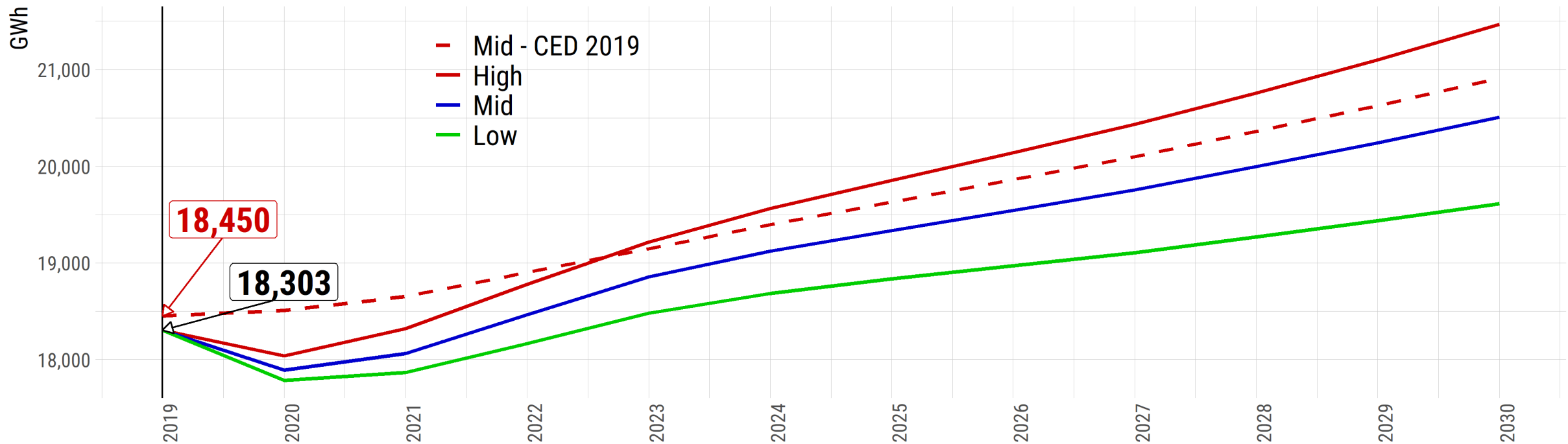


# NCNC Consumption Comparison

- 2020-2030 growth at 1.4% vs. 1.2% in CED 2019
- 2% lower in 2030
- 2% reduction 2019-2020

## NCNC - Preliminary Total Electricity Consumption

Using CED 2019 EV and self-gen forecasts



Source: CEC Demand Analysis Office, Oct 2020

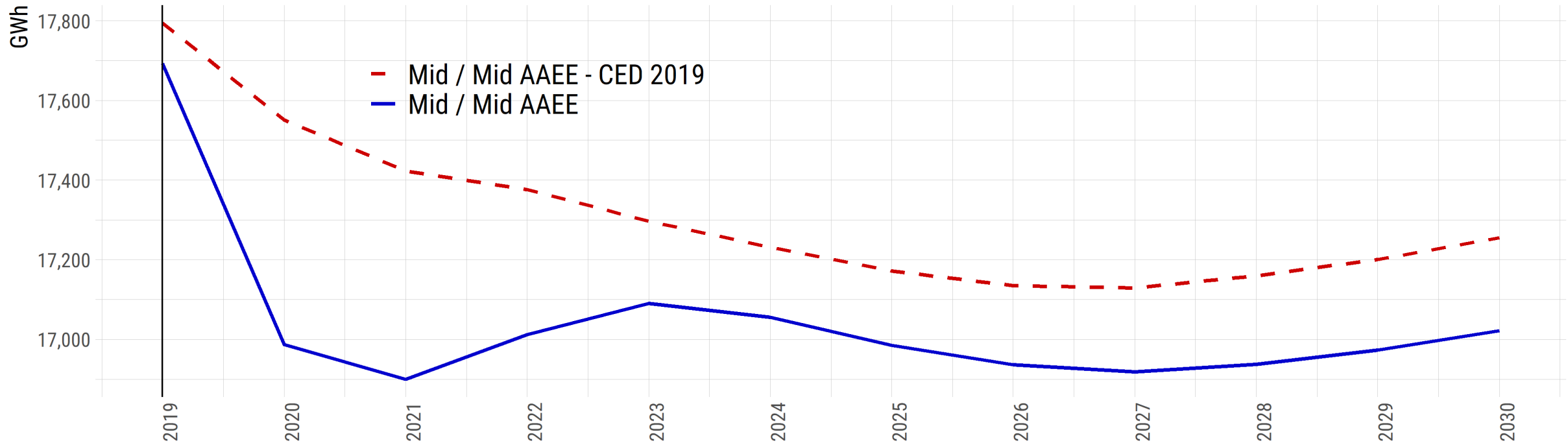


# NCNC Managed Sales Comparison

- 2020-2030 growth of 0.9% vs 0.7% in CED 2019
- 1% lower in 2030

## NCNC - Preliminary Managed Total Electricity Sales

Using CED 2019 EV and self-gen forecasts



Source: CEC Demand Analysis Office, Oct 2020



# LADWP Consumption by Sector

## End-use Electricity Consumption Average Annual Growth (2020-2030)

Sector	Mid	Mid CED 2019	High	Low
Residential	1.3%	1.9%	1.8%	0.7%
Commercial	0.8%	0.5%	1.2%	0.3%
Manufacturing	-0.1%	-0.3%	0.3%	-0.5%
Mining / Resource	0.6%	-0.3%	0.7%	0.4%
TCU	1.4%	1.0%	1.6%	0.9%

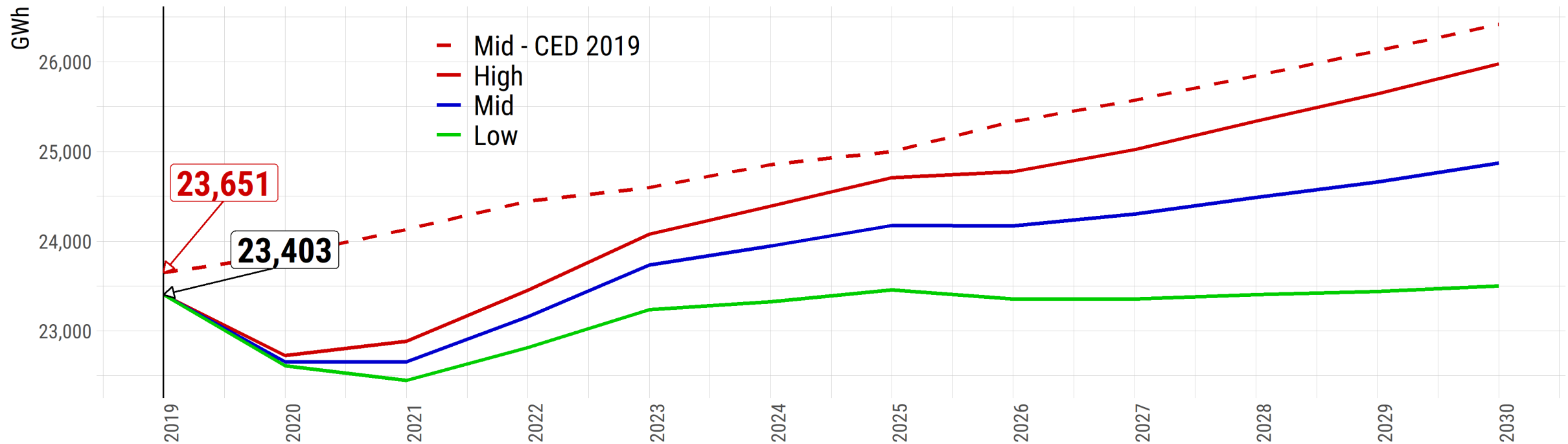


# LADWP Consumption Comparison

- 2020-2030 growth of 0.9% vs 1% in CED 2019
- 6% lower in 2030
- 3% reduction 2019-2020

## LADWP - Preliminary Total Electricity Consumption

Using CED 2019 EV and self-gen forecasts



Source: CEC Demand Analysis Office, Oct 2020

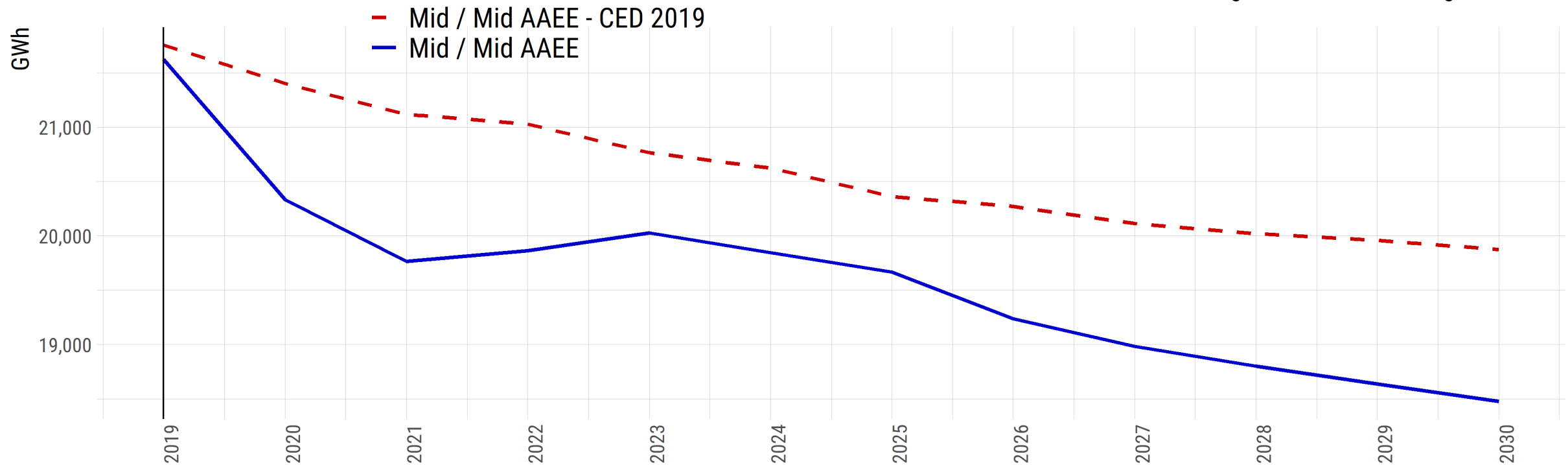


# LADWP Managed Sales Comparison

- 2020-2030 growth of 0.7% vs 0.8%
- 6% lower in 2030

## LADWP - Preliminary Managed Total Electricity Sales

Using CED 2019 EV and self-gen forecasts



Source: CEC Demand Analysis Office, Oct 2020



# Next Steps

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- Welcome any additional questions/discussion as we finalize our forecast update
- More complete consumption and sales forecast results will be shared through DAWG – **Mid November**
- Finalized results presented at 2020 IEPR Update workshop – **December 3, 2020**
- Formal adoption at CEC Business Meeting – **January 2021**

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