

DOCKETED

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California Energy Commission

2022 California Energy Demand: Consumption and Sales Forecast Results

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2022 California Energy Demand Forecast Framework & Products



2022 California Energy Demand Revised Forecast Framework

Table 1: Revised Forecast Framework

Forecast Name	Old Forecast Name	Use Case	Econ/Demo Assumptions	AATE	AAEE	AAFS
Baseline Forecast	Mid Baseline Forecast	Reference Forecast	Mid	N/A	N/A	N/A
Planning Forecast	Mid-Mid Managed Forecast	Planning Studies	Mid	Mid	Mid	Mid
Local Reliability Forecast	Mid-Low Managed Forecast	Local Planning Studies	Mid	Mid	Low	High

Source: CEC staff

- AATE = Additional Achievable Transportation Electrification
- AAEE = Additional Achievable Energy Efficiency
- AAFS = Additional Achievable Fuel Substitution



2022 California Energy Demand Forecast Products

- For 2022 CED, we've refined our annual baseline demand forms to include the following data:
 - Annual electricity consumption and sales forecast by planning area (PA) and sector
 - Total energy to serve load by PA
 - Historic and Extreme Temperature Peak Demand
 - Includes 1-in-2, 1-in-5, 1-in-10, and 1-in-20 extreme temperature probabilities
 - Econometric and demographic assumptions by PA
 - Electricity rates by PA
- Annual and hourly managed forecast product details remains the same



Econometric and Demographic Forecast Comparison



Statewide Econometric and Demographic Drivers Comparison

- Key econometric and demographics drivers in the CED 2022 baseline forecast are well-aligned with 2021 CED in terms of annual growth rates.

Table 2: Average Annual Percent Growth in Econometric and Demographic Drivers, 2021-2035

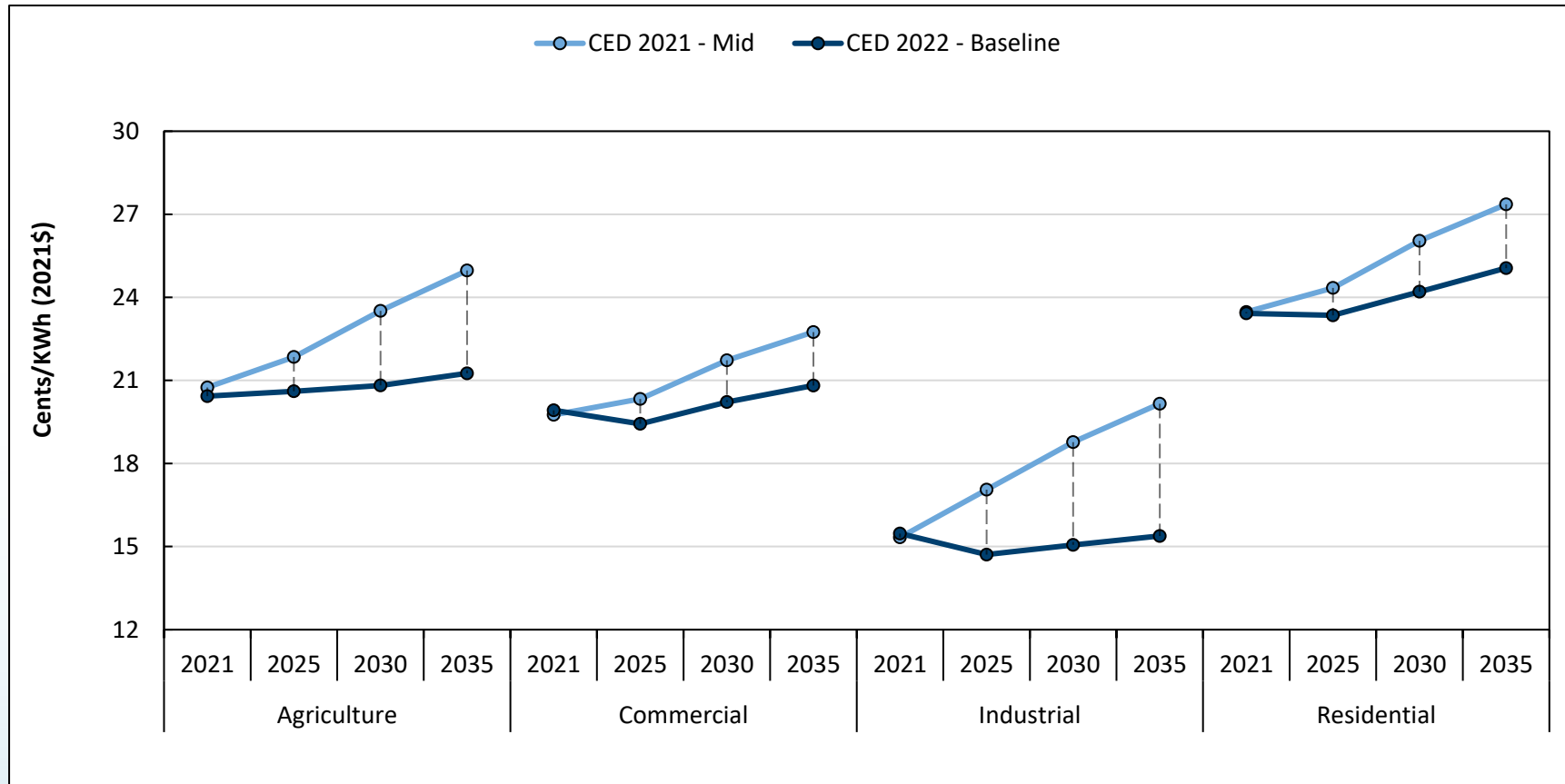
Econometric/Demographic Driver	CED 2021 – Mid Baseline	CED 2022 - Baseline
Gross State Product	2.4%	2.5%
Per Capita Personal Income	1.8%	1.7%
Commercial Employment	1.0%	1.0%
Population	0.5%	0.5%
Number of Households	0.8%	0.9%

Source: CEC staff



Statewide Average Electricity Rates Comparison

- Rates are calculated using updated revenue requirement projections and the sales forecast from the previous demand forecast iteration (CED 2021).
- CED 2022 rates are based on the Additional Transportation Electrification scenario adopted in May 2022.



Source: CEC staff

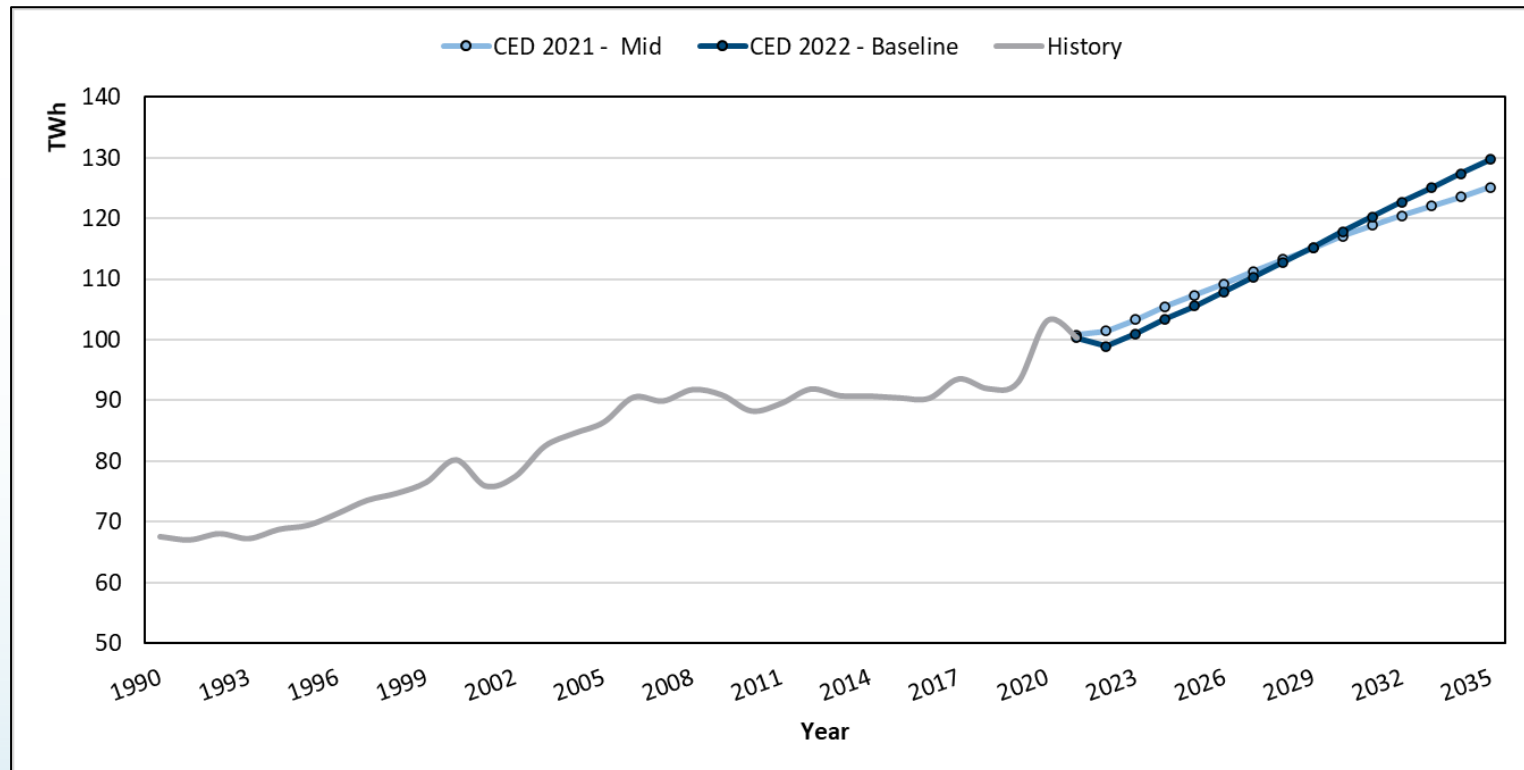


Baseline Demand Forecast: Electricity Consumption Results



Statewide Residential Electricity Consumption

- Residential electricity consumption is down in the near term relative to CED 2021 mid forecast.
- The CED 2022 mid baseline average annual growth rate is 0.3% points higher than CED 2021, resulting in long term gains in forecasted electricity consumption.
- Changes to forecasted consumption is a product of:
 - Calibration to 2021 Quarterly Fuel and Energy Report data.
 - Revised transportation electricity demand forecast for CED 2022.
 - Changes to econometric and demographic drivers, including electricity rates.

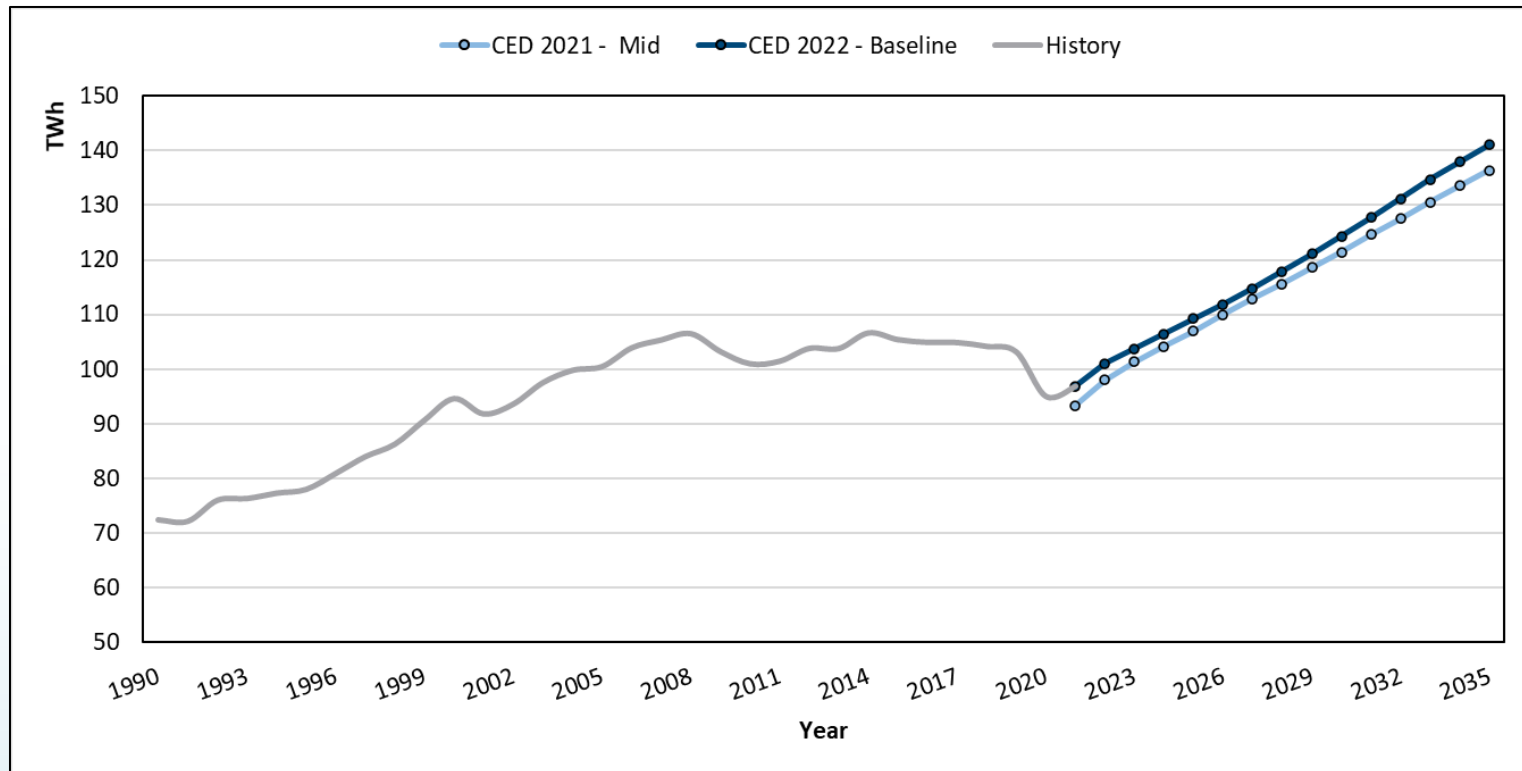


Source: CEC staff



Statewide Commercial Electricity Consumption

- Overall, forecasted commercial electricity consumption is greater than CED 2021 mid baseline.
- The average annual electricity consumption growth rate remains unchanged.
- Increased annual consumption can be attributed to calibration with 2021 QFER consumption data.

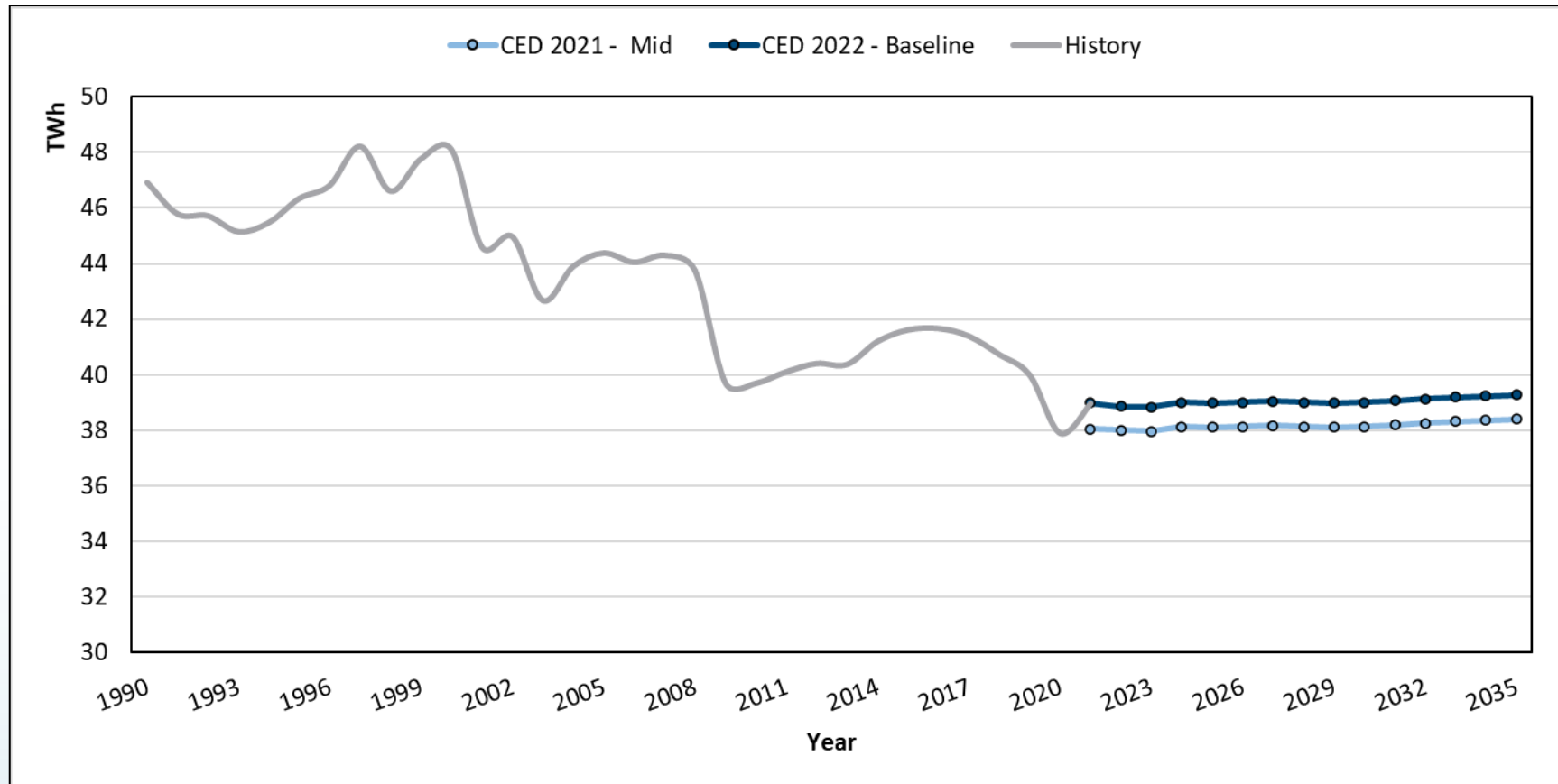


Source: CEC staff



Statewide Industrial Electricity Consumption

- Electricity consumption trend remains unchanged from the CED 2021 mid baseline forecast.
- Forecasted consumption values are calibrated to 2021 QFER.

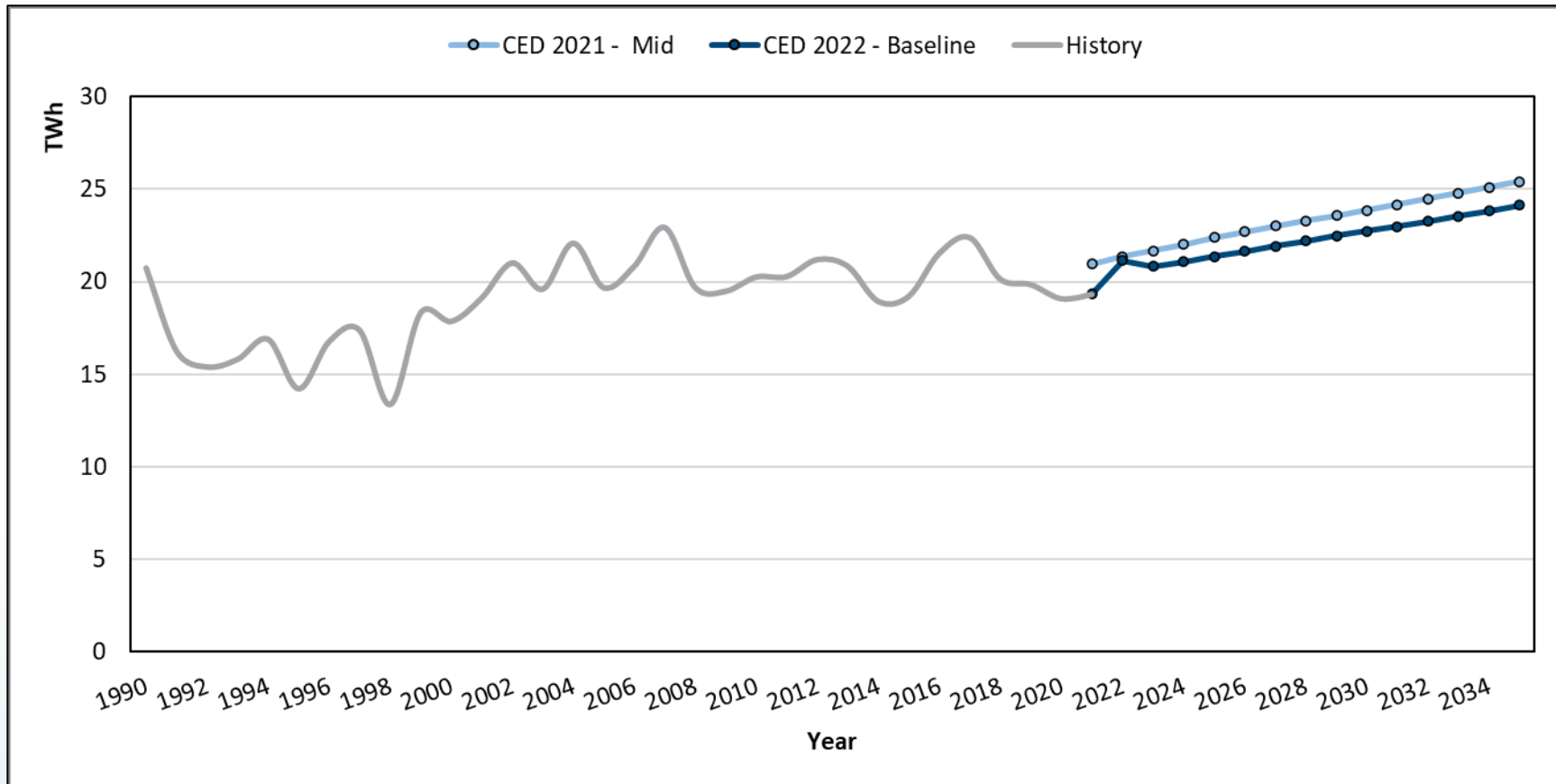


Source: CEC staff



Statewide Agriculture and Water Pumping Electricity Consumption

- 2022 CED baseline agriculture and water pumping forecast is slightly lower than the 2021 CED mid baseline forecast.
 - The annual average growth rate is approximately 0.2% points higher in the CED 2022 baseline.

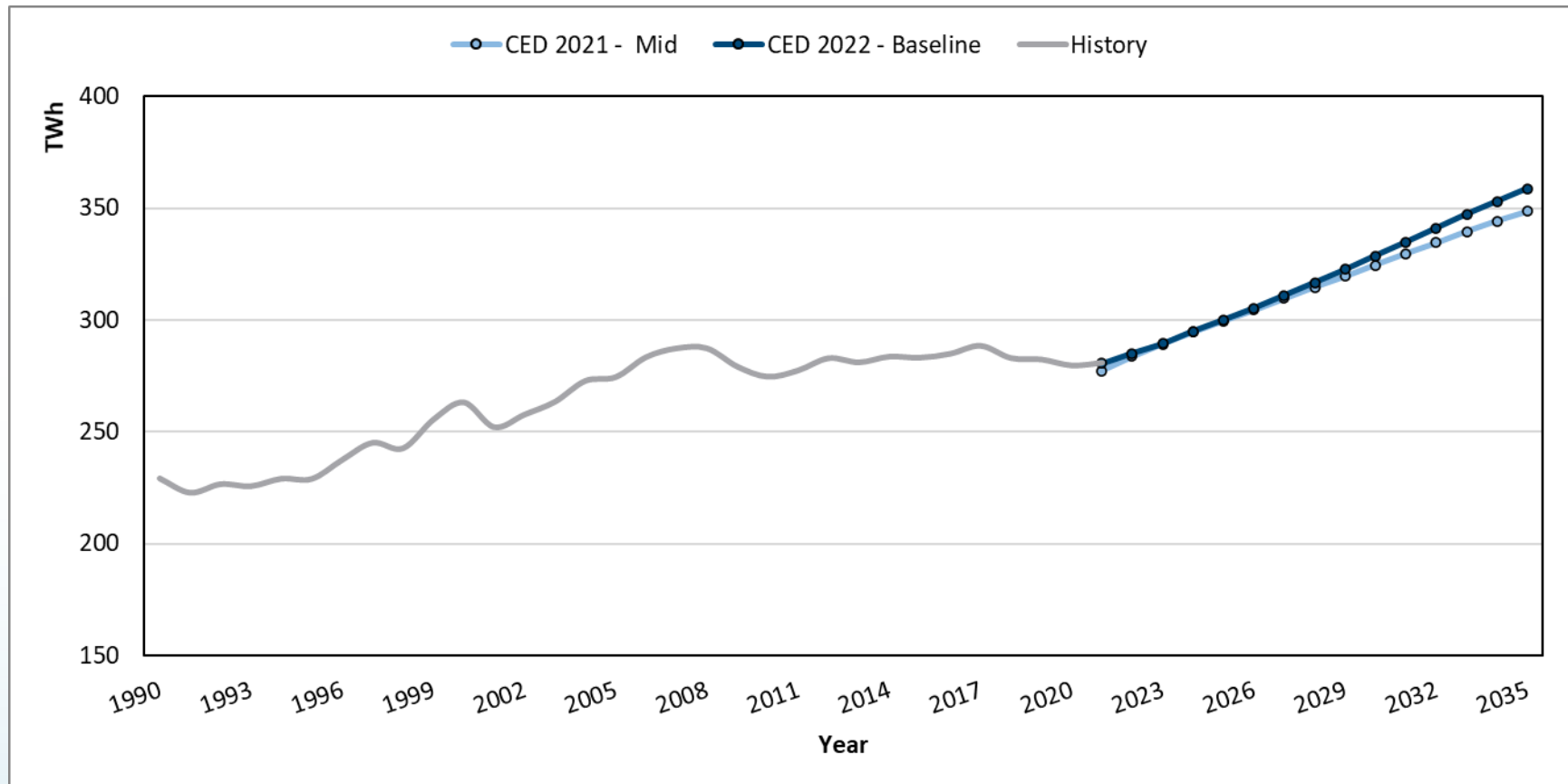


Source: CEC staff



Statewide Electricity Consumption

- Higher electricity consumption is attributed to differences in each respective electricity sector forecast including transportation electrification.
 - The difference in annual average growth rate is approximately 0.1% .

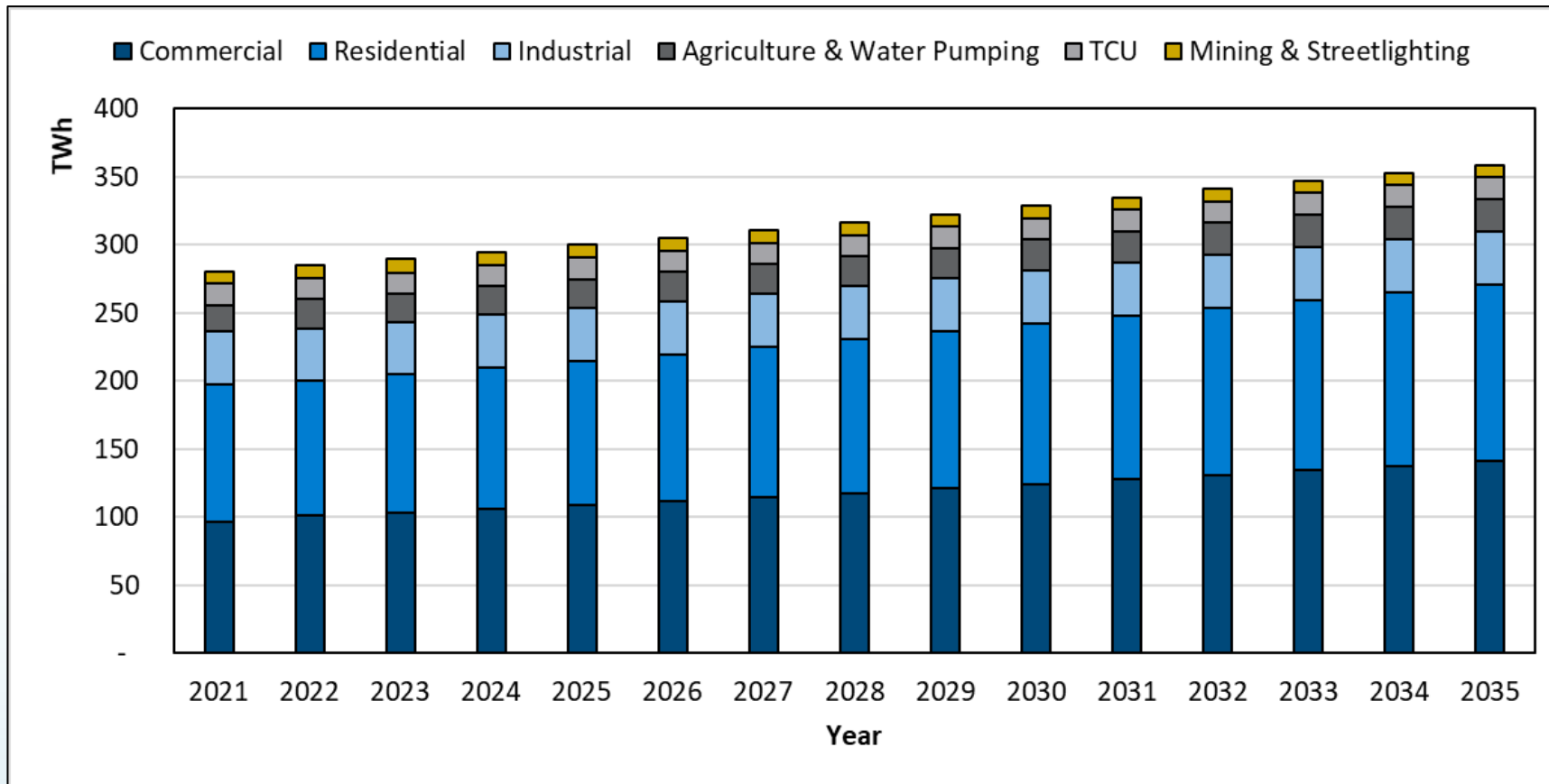


Source: CEC staff



Statewide Electricity Consumption Forecast by Sector

- For CED 2022, the share of electricity consumption by sector remains relatively constant.
- Commercial electricity consumption share grows the most from 34.5% in 2021 to 39.3% in 2035.



Source: CEC staff



Self-Generation and Electricity Sales Forecasts



Self-Generation Forecast

Table 3: CED 2022 Baseline Self-Generation Energy (GWh) by Planning Area

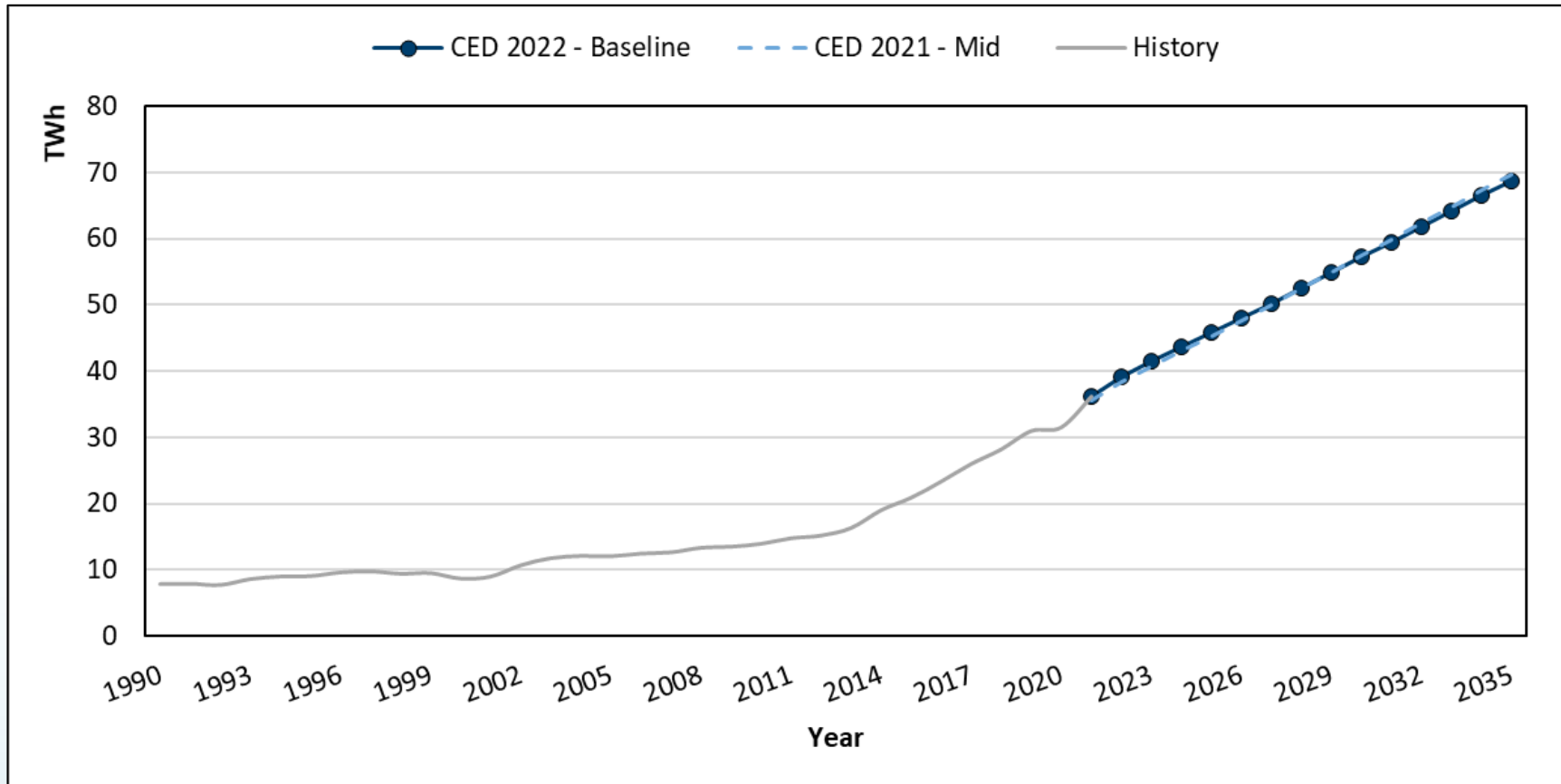
Planning Area	2021	2025	2030	2035	Average Annual % increase (2021-2035)	CED 2021 Average Annual % increase (2021-2035)
Statewide	36,203	45,595	56,912	68,306	4.6%	4.9%
PGE	18,050	22,779	28,289	33,277	4.5%	4.6%
SCE	11,669	14,367	17,723	21,619	4.5%	4.7%
SDGE	3,484	4,440	5,622	6,768	4.9%	5.4%
LADWP	1,967	2,488	3,092	3,527	4.3%	4.9%
NCNC	742	1,112	1,607	2,309	8.4%	8.9%
IID	174	253	361	521	8.2%	8.8%
BUGL	65	103	166	235	9.6%	11.2%

Source: CEC Staff



Statewide Electricity Self-Generation Forecasts

- In addition to average growth rates, total forecasted electricity generated is very similar to last year's forecast.

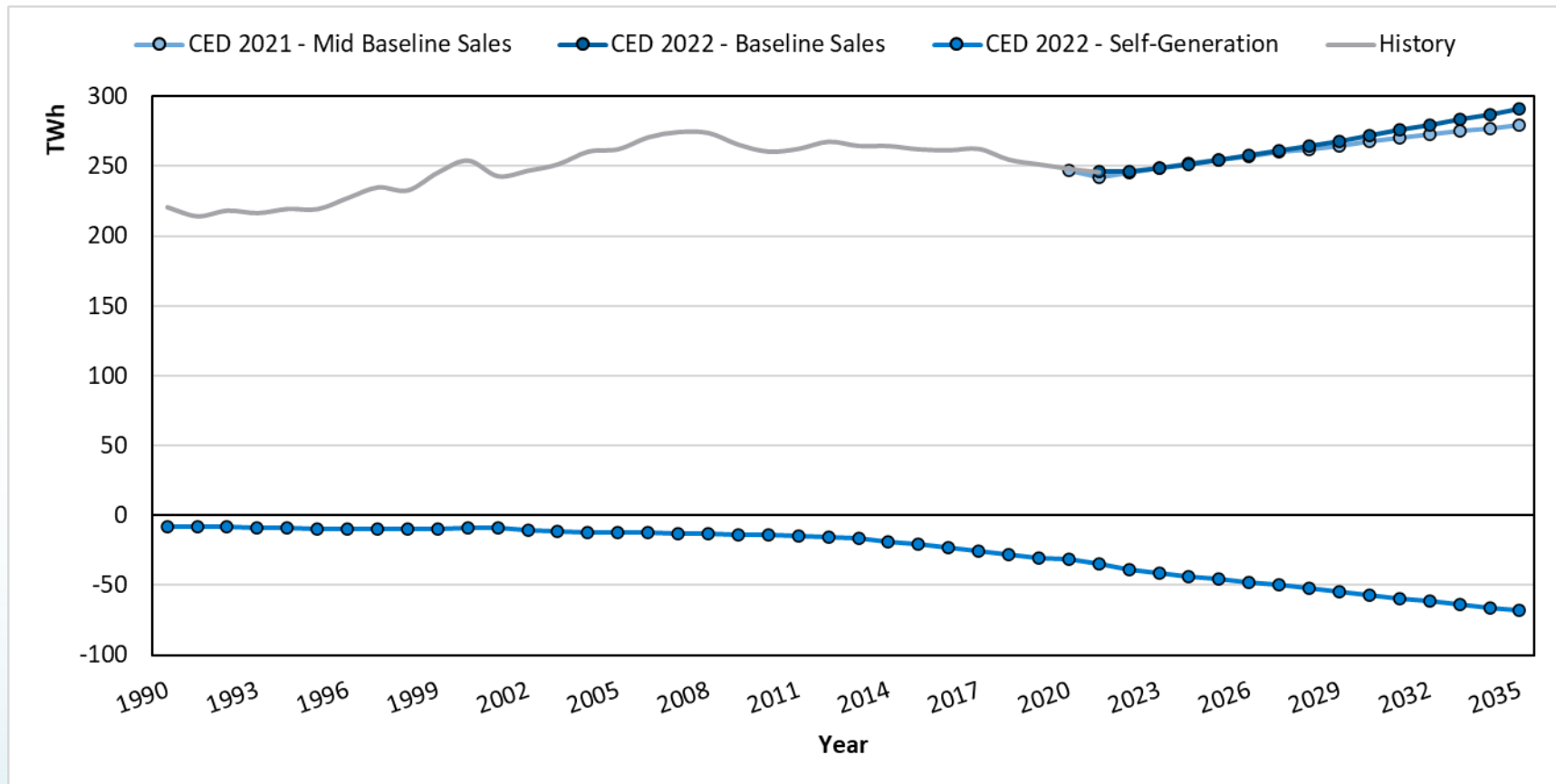


Source: CEC staff



Statewide Electricity Forecasts: Sales

- Without self-generation, forecasted sales in 2035 would be 68.3TWh or about 23.4% higher than what's currently projected.
- In 2035, statewide sales are up by about 4.0% relative to the CED 2021 mid baseline forecast.

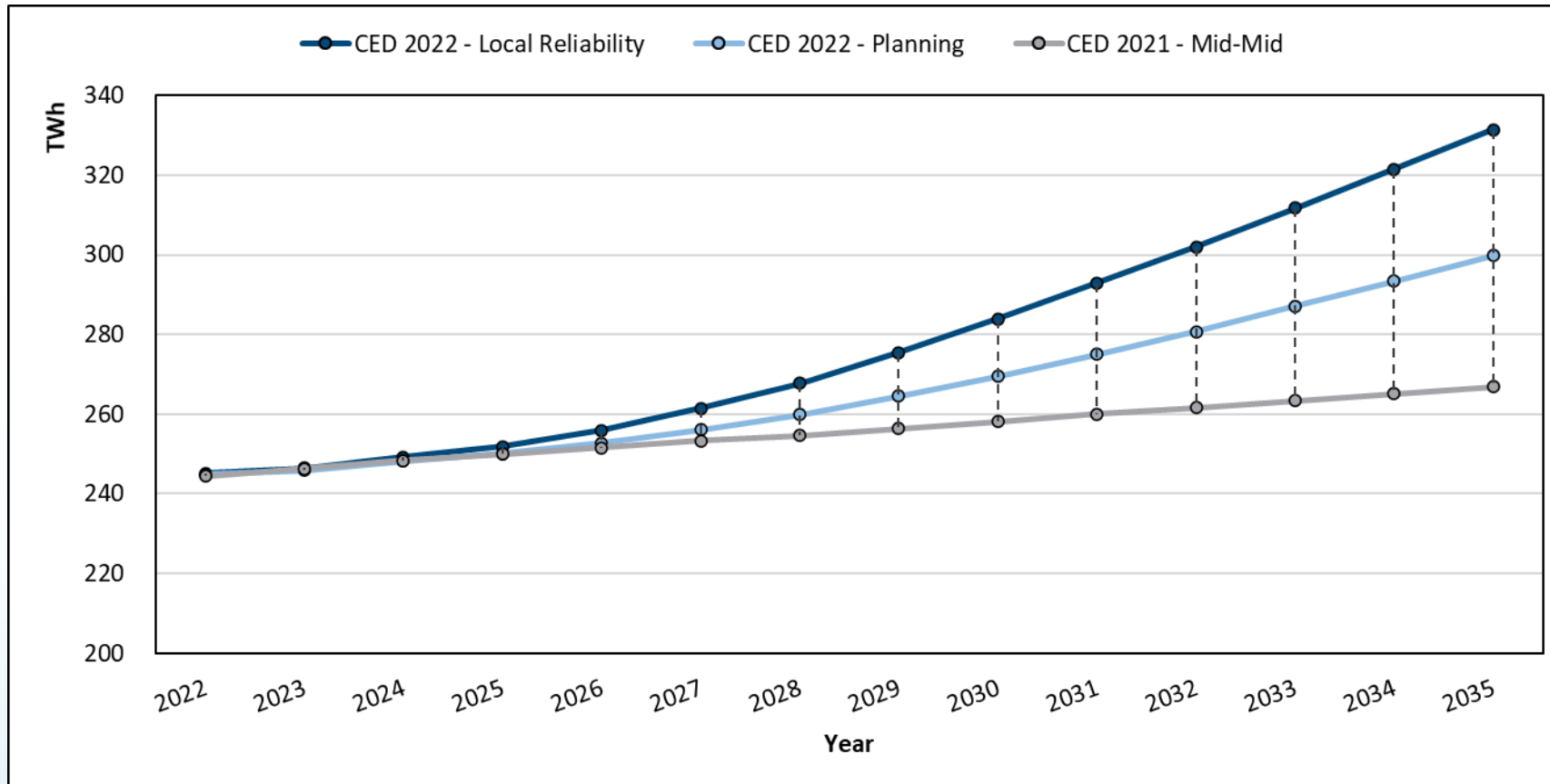


Source: CEC staff



Statewide Electricity Forecasts: Managed Sales

- The addition of AATE to our managed forecast framework results in increased electricity sales from transportation relative to baseline sales.
- In 2035, the CED 2022 Local Reliability and Planning managed sales projections reach 331.3TWh and 299.8TWh respectively. To put things in perspective, the Local reliability managed sales are 24.2% higher than the CED 2021 mid-mid managed sale forecast in 2035.



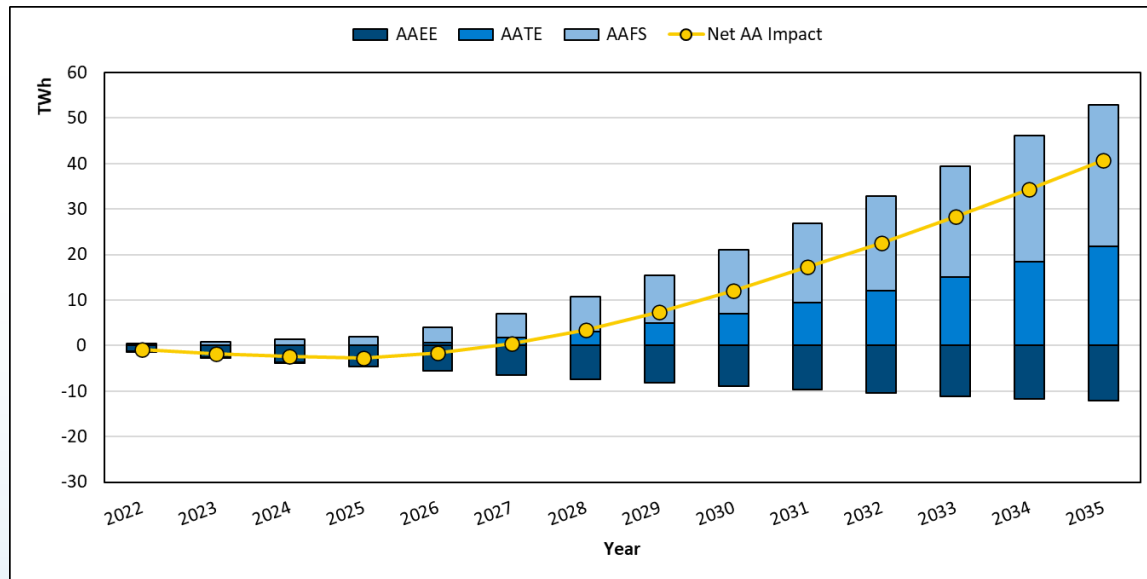
Source: CEC staff



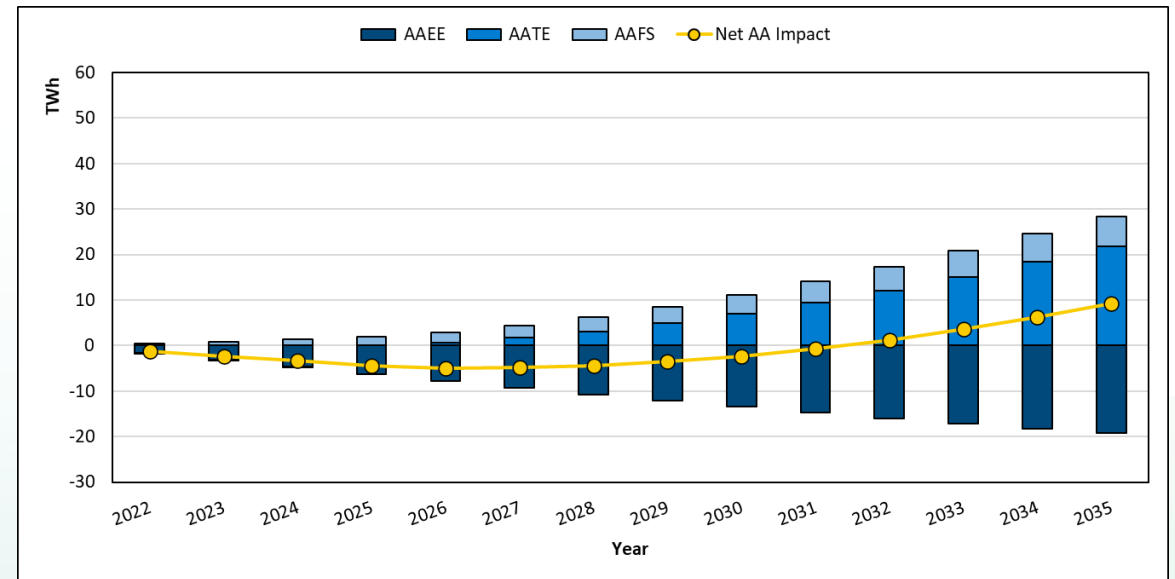
Statewide Electricity Forecasts: Load Modifiers

- Local Reliability scenario net AA impacts reach about 40.7TWh in 2035. That's about 14.0% of the total baseline electricity sales or 59.7% of the electricity generated by self-generation.
- The Planning Forecast net AA impacts are about 9.3TWh in 2035.

CED 2022 Local Reliability Forecast



CED 2022 Planning Forecast



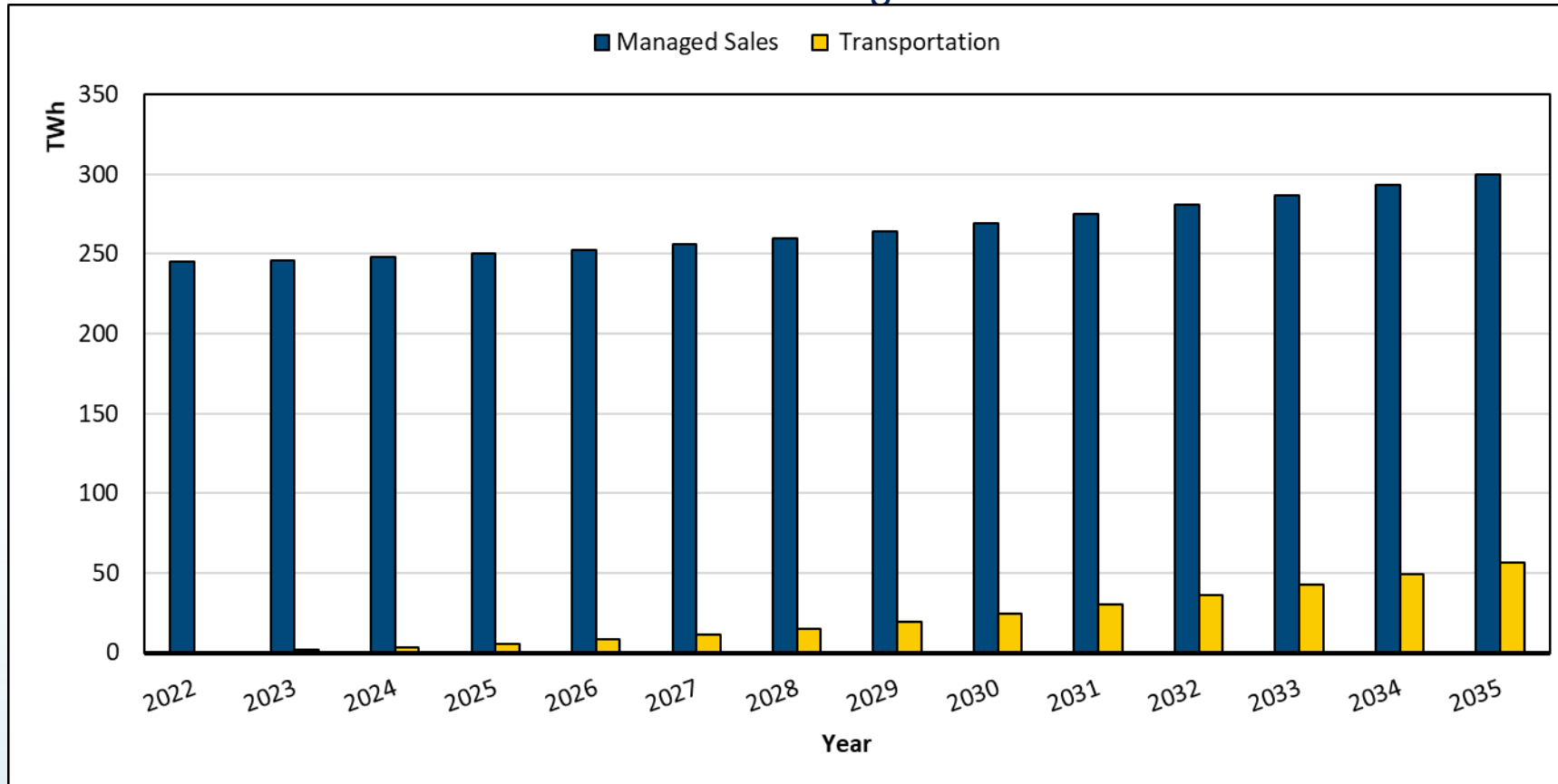
Source: CEC staff



Statewide Transportation Electrification Impacts

- In 2035, the forecasted incremental impact of transportation electrification is approximately 56.5TWh.
- That's about 18.8% of managed sales in 2035.

CED 2022 Planning Forecast

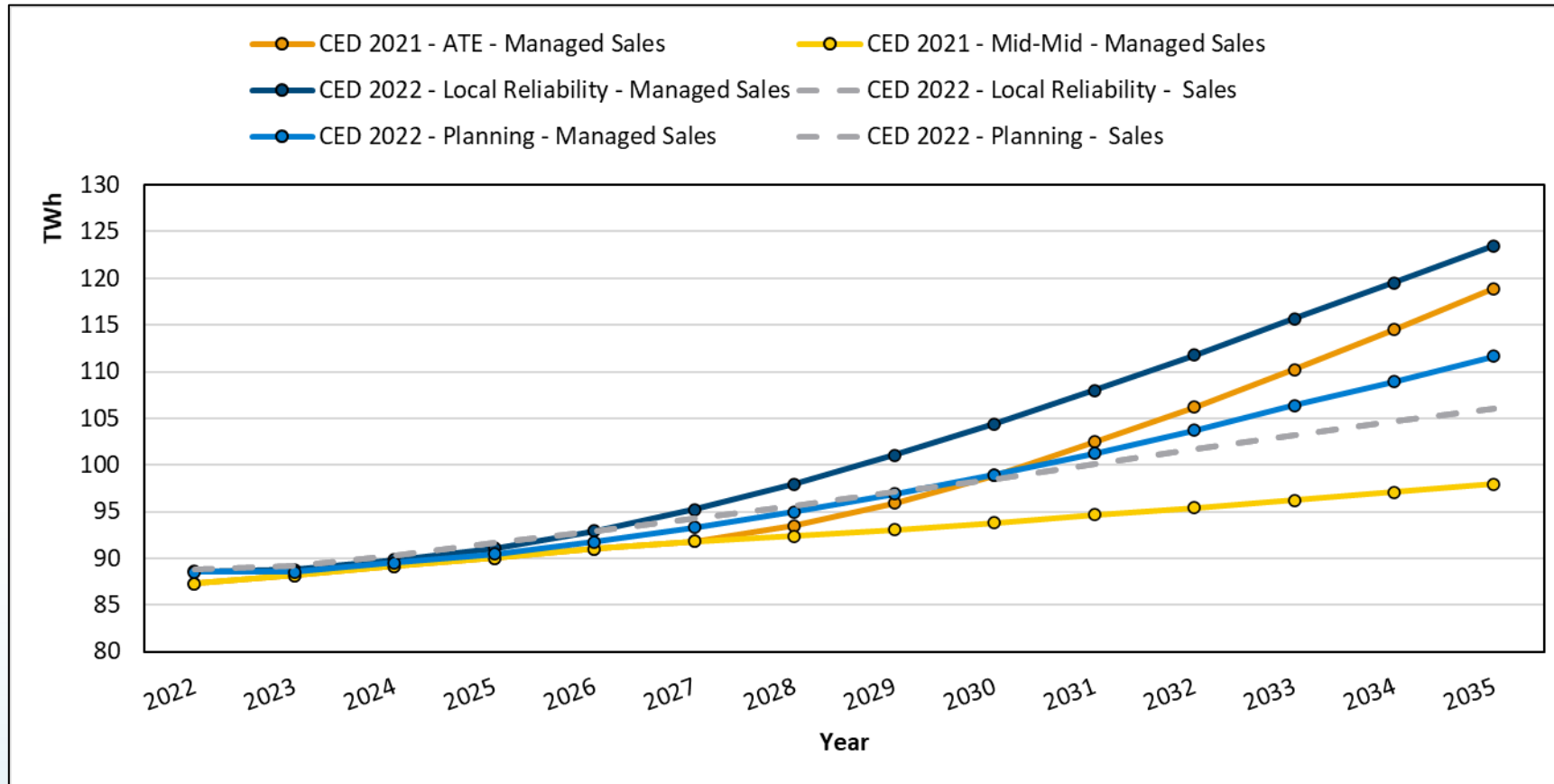


Source: CEC staff



Electricity Sales Forecasts: PG&E Planning Area

- In the near-term, CED 2022 managed sales forecast are less than baseline sales.
- By 2031, CED 2022 managed sales surpass baseline sales.

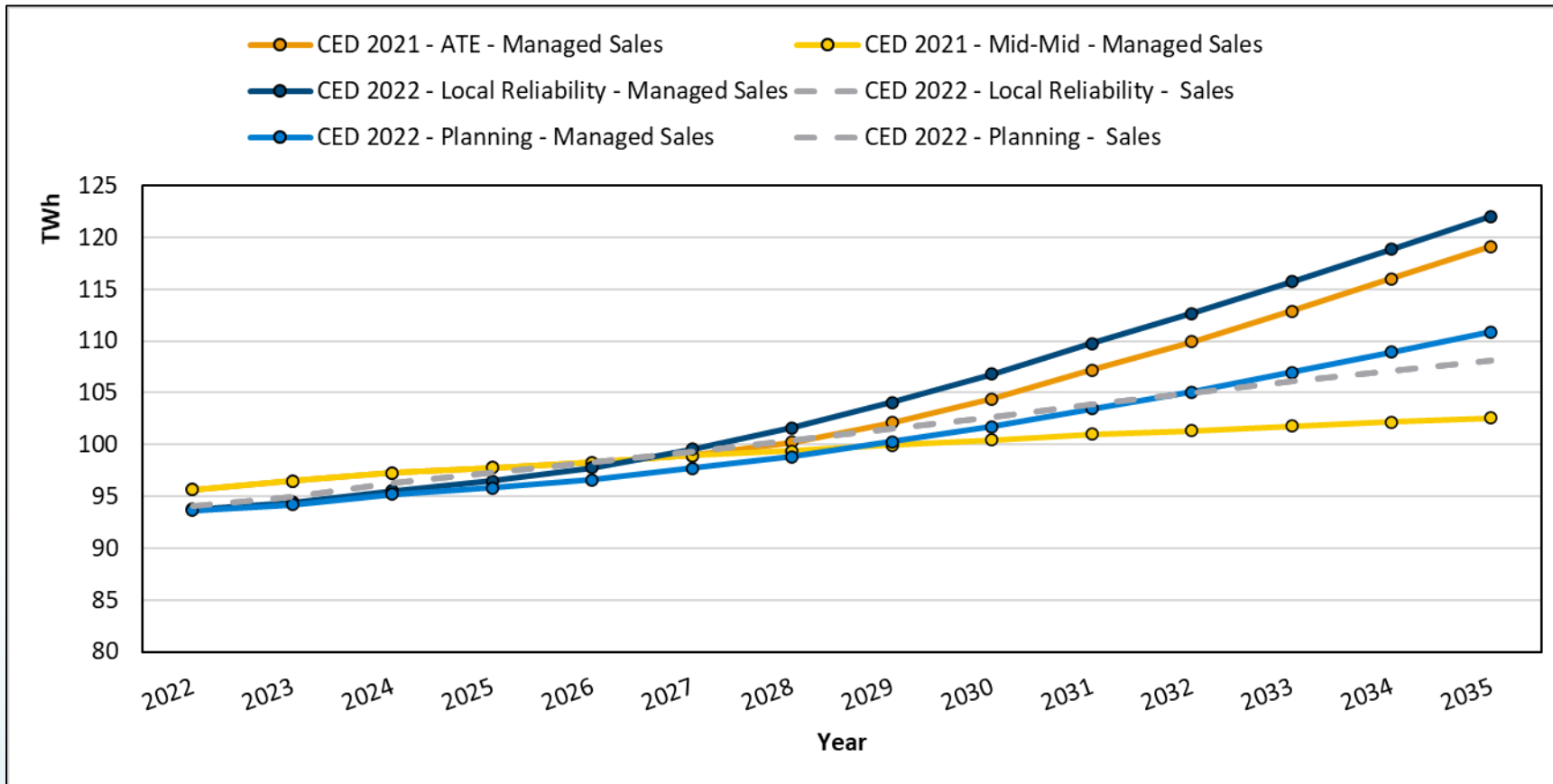


Source: CEC staff



Electricity Sales Forecasts: SCE Planning Area

- CED 2021 managed sales are about 1.2% greater than CED 2022 baseline sales from 2022 to 2025.
 - Lower baseline sales in CED 2022 relative to CED 2021 managed sales is a product of calibration to 2021 QFER reported sales.
- Long-term trends in CED 2022 managed sales forecasts are consistent with statewide projections.

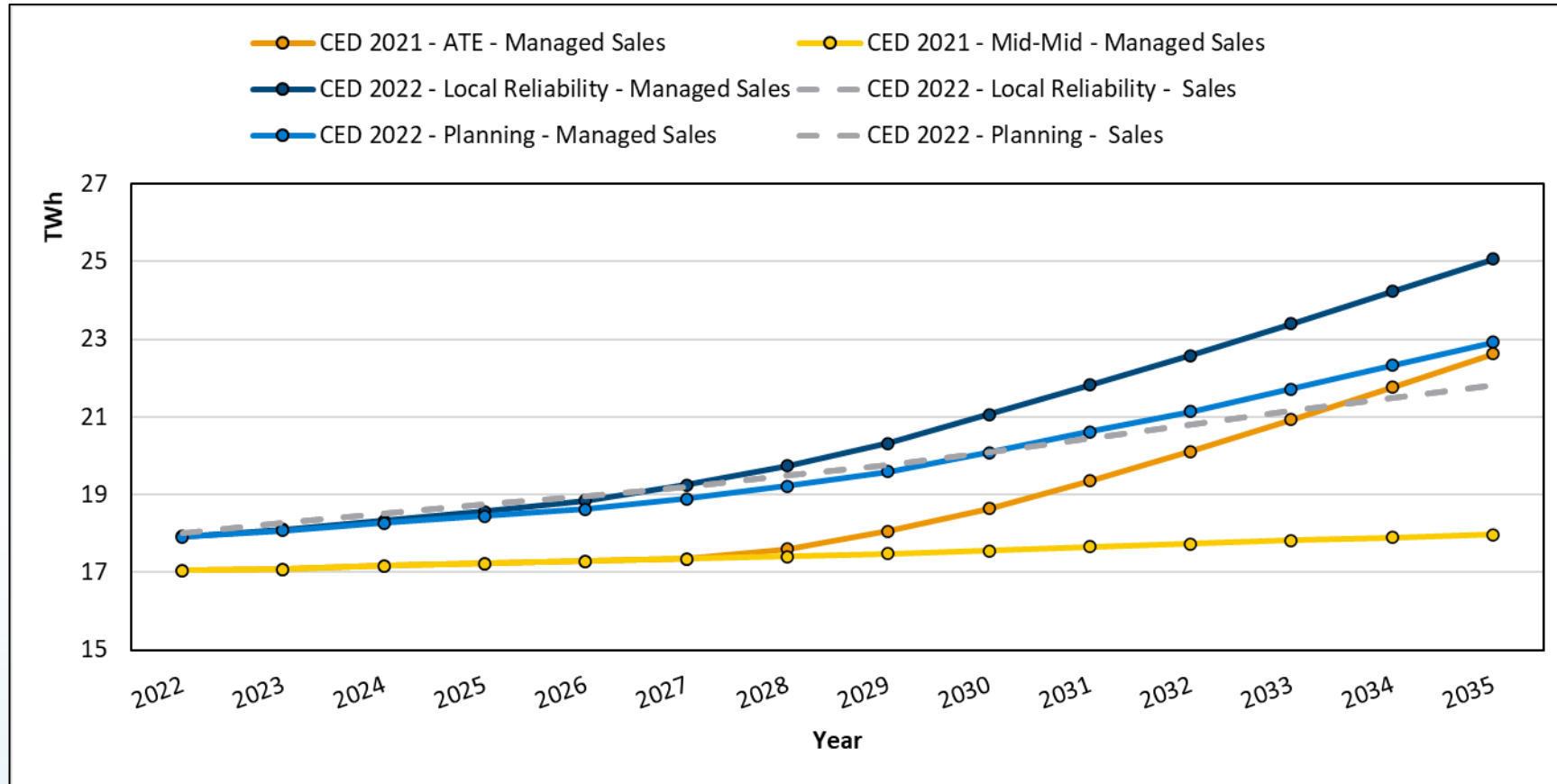


Source: CEC staff



Electricity Sales Forecasts: SDGE Planning Area

- The percent difference between the CED 2022 Planning Forecast and CED 2021 Mid-Mid Forecast for managed sales is about 12%.
- Increased difference between these projections can be attributed to increased baseline sales projections as well as AATE.

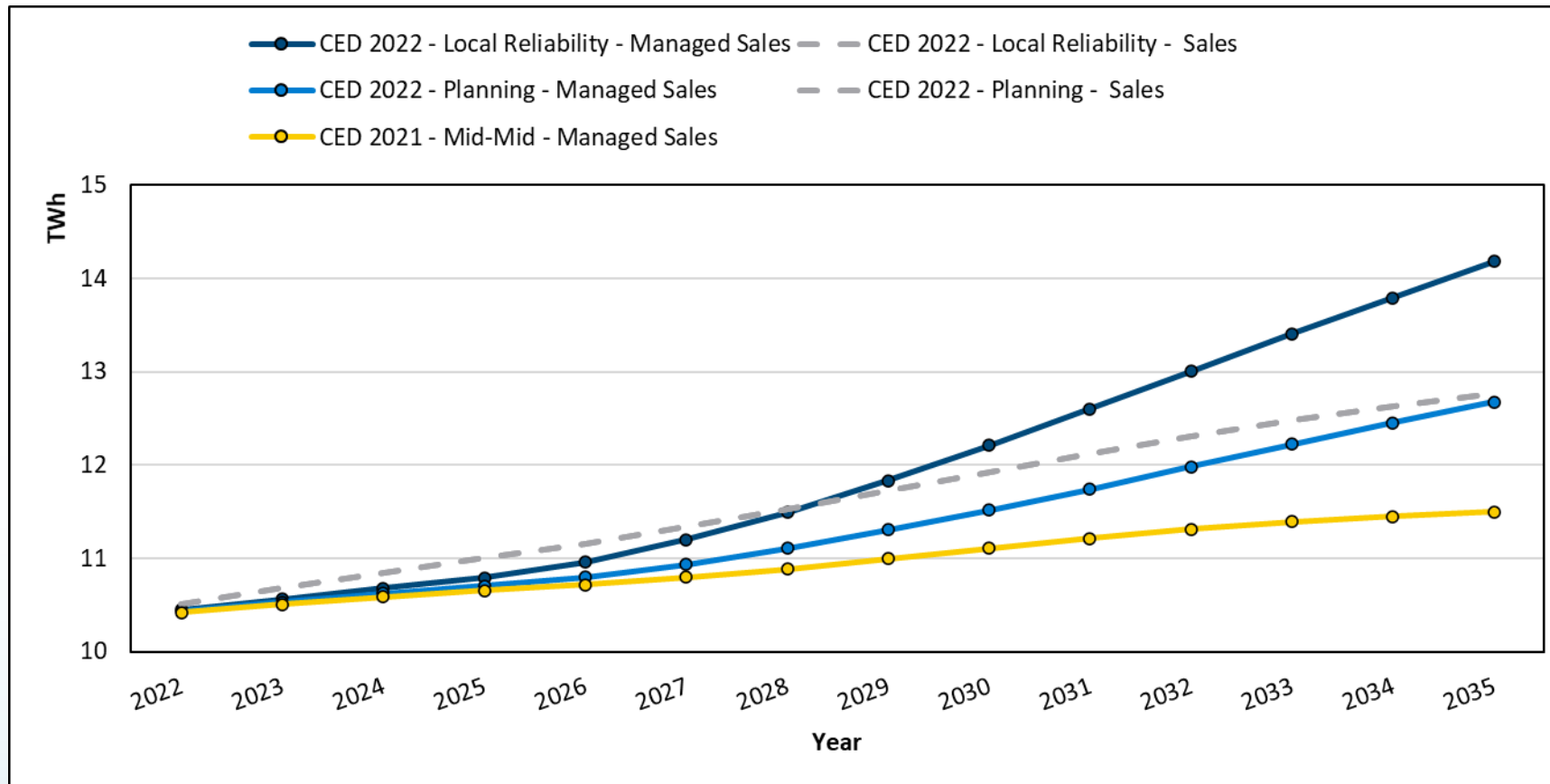


Source: CEC staff



Electricity Sales Forecasts: SMUD Planning Area

- Less managed sales relative to baseline sales is a result of more AAEF impact compared to AATE and AAFS.

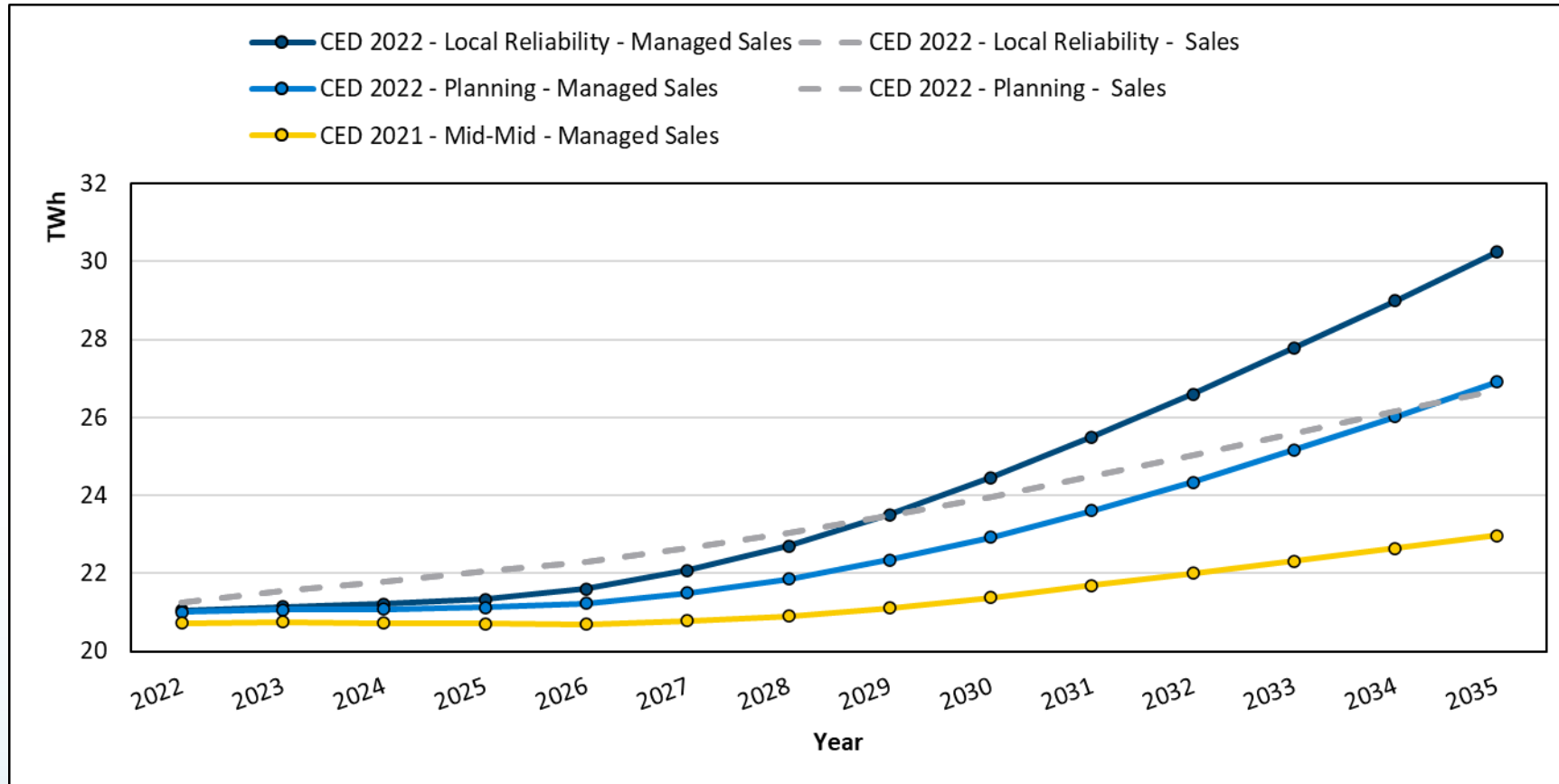


Source: CEC staff



Electricity Sales Forecasts: LADWP Planning Area

- Like SMUD, CED 2022 Planning Forecast managed sales are lower than baseline sales.



Source: CEC staff



Thank You!

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