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Draft CED 2025 Hourly & Peak Forecast

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December 17, 2025

Use cases

- Input to system and reliability modeling
- Monthly system peak days serve as a system-level benchmark for Resource Adequacy
- Detailed planning use cases outlined in Single Forecast Set agreement published in each IEPR

For IOU planning areas, peak loads are derived from hourly load modeling

Hourly Forecast Framework

1. Apply base load profile to annual “unadjusted consumption” forecast
2. Adjust hourly consumption using profiles for load modifiers
   - Electric vehicle charging
   - Behind-the-meter PV generation and storage
   - “Additional Achievable” efficiency and electrification
   - Data centers
3. Calibrate to weather-normal base-year peak load

Changes from CED 2024

- **No change** to base hourly consumption profiles
- Lower unadjusted consumption forecast
- Overall higher peak starting point for CAISO
  - EMS loads indicate increased weather-normal peak for PG&E
  - Corrected bias in climate data lowered the peak for SDG&E
- Refreshed AAEE and AAFS scenarios
- Updated data center accounting
- New “known loads” data set and impact analysis
- Proposed revisions to Planning and Local Reliability scenario definitions
  - Lower AATE and AAFS scenarios
  - Include known loads in Planning Forecast (?)

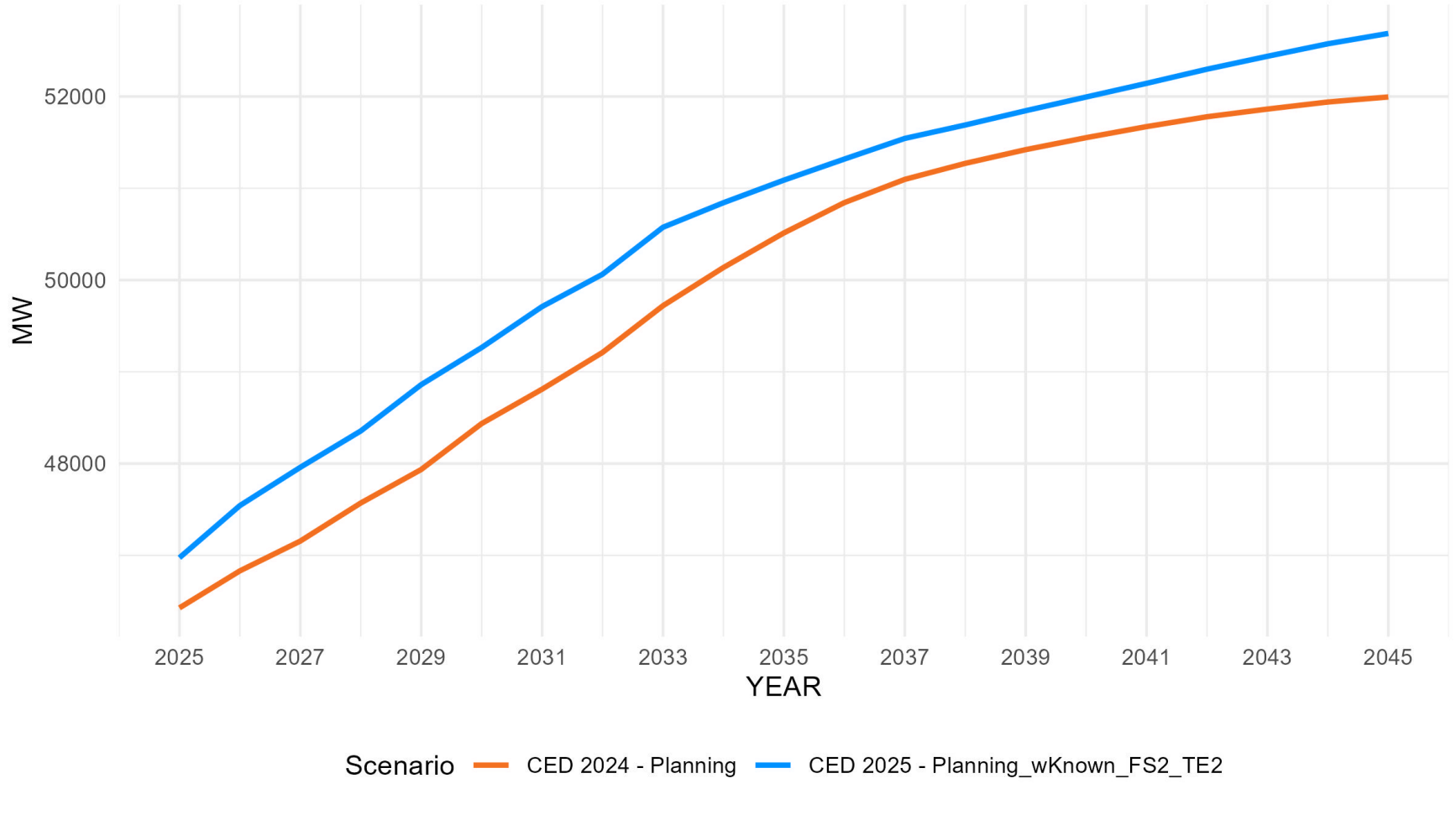
Scenario Definitions

	Scenario	PV/Storage	Data Centers	Known Loads	AAEE	AAFS	AATE
Original Definitions	Planning	Mid	Mid	None	3	3	3
	Local Reliability	Low	High	Included	2	4	4
Proposed Alternatives	Planning_noKnown_FS2_TE2	Mid	Mid	None	3	**2**	**2**
	Planning_wKnown_FS2_TE2	Mid	Mid	**Included**	3	**2**	**2**
	Local_wKnown_FS3_TE3	Low	High	Included	2	**3**	**3**

Load Modifiers

Unadjusted Consumption

CAISO – September Peak Day, Hour 18

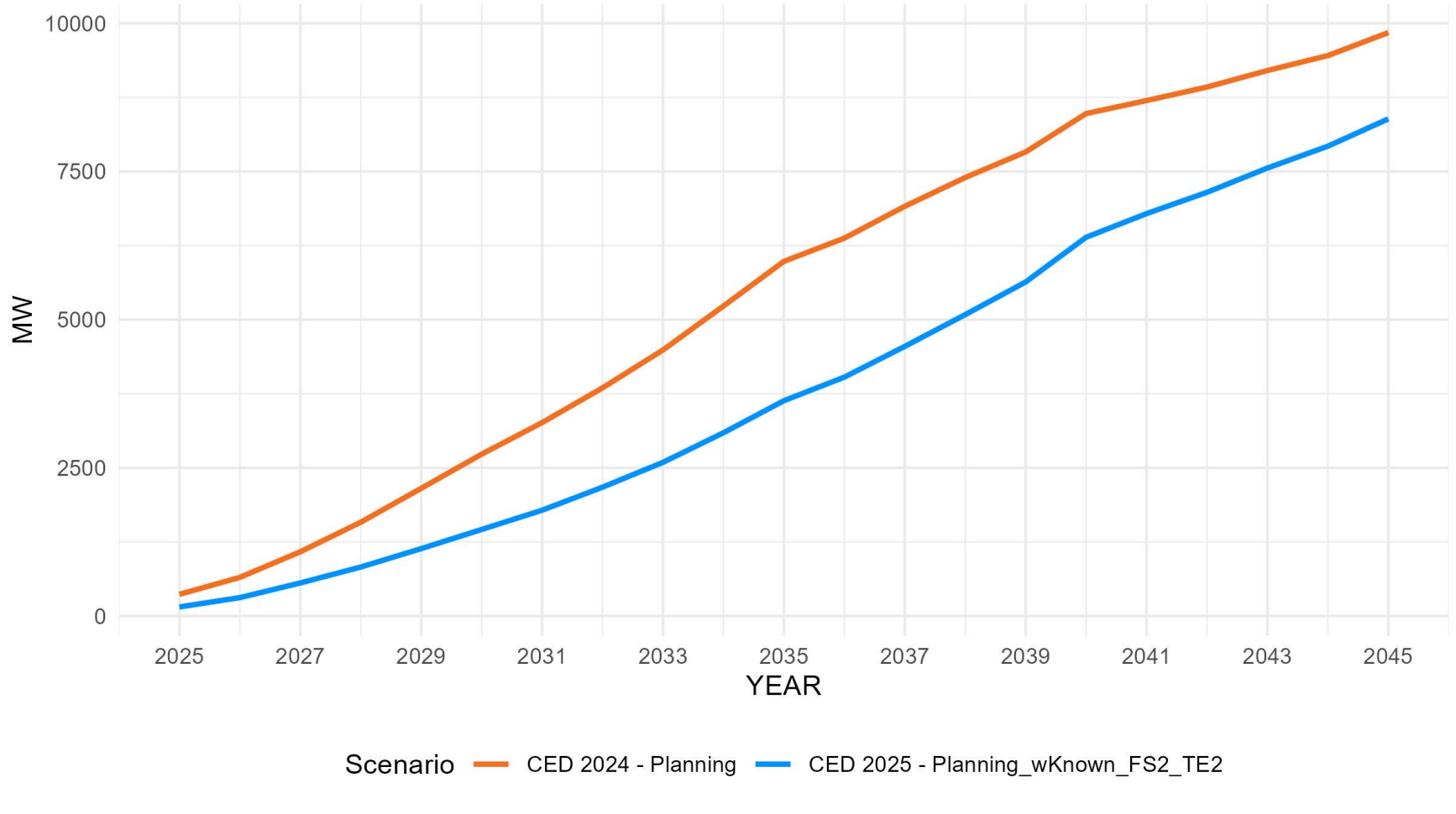


- Does not include the effects of individual load modifiers
- Largely comprised of sector model output, driven by econ/demo
- Change from CED 2024 is attributable to an increased peak starting point

Source: CEC staff

Transportation Electrification

CAISO – September Peak Day, Hour 18

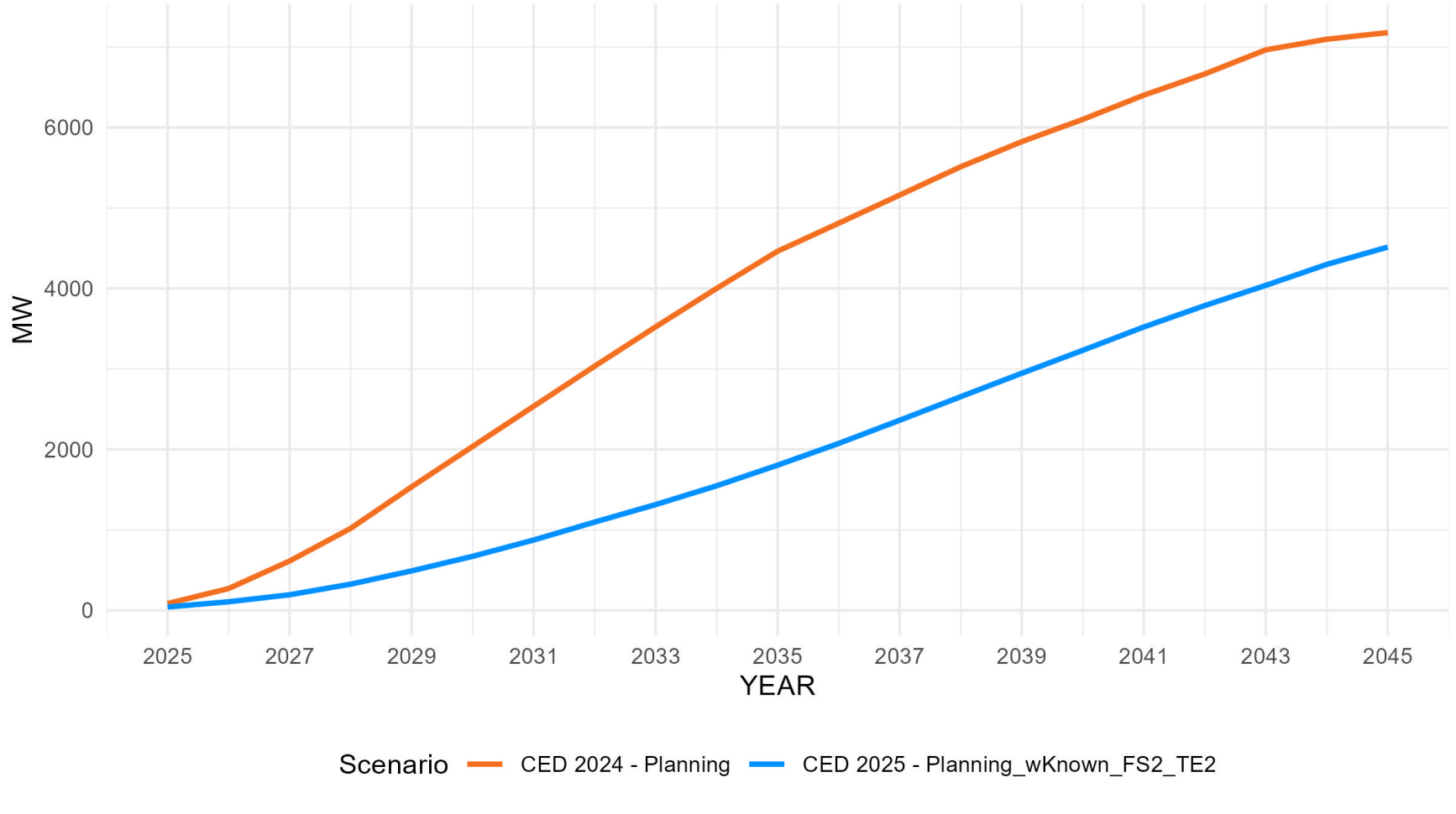


- Reflects the impact of shifting from AATE3 to AATE2 in the Planning Scenario
- Growth in “additional achievable” light-duty vehicle load follows a similar trajectory, but deferred roughly five years
- No growth in medium or heavy-duty vehicle load beyond baseline

Source: CEC staff

Additional Achievable Fuel Substitution

CAISO – September Peak Day, Hour 18

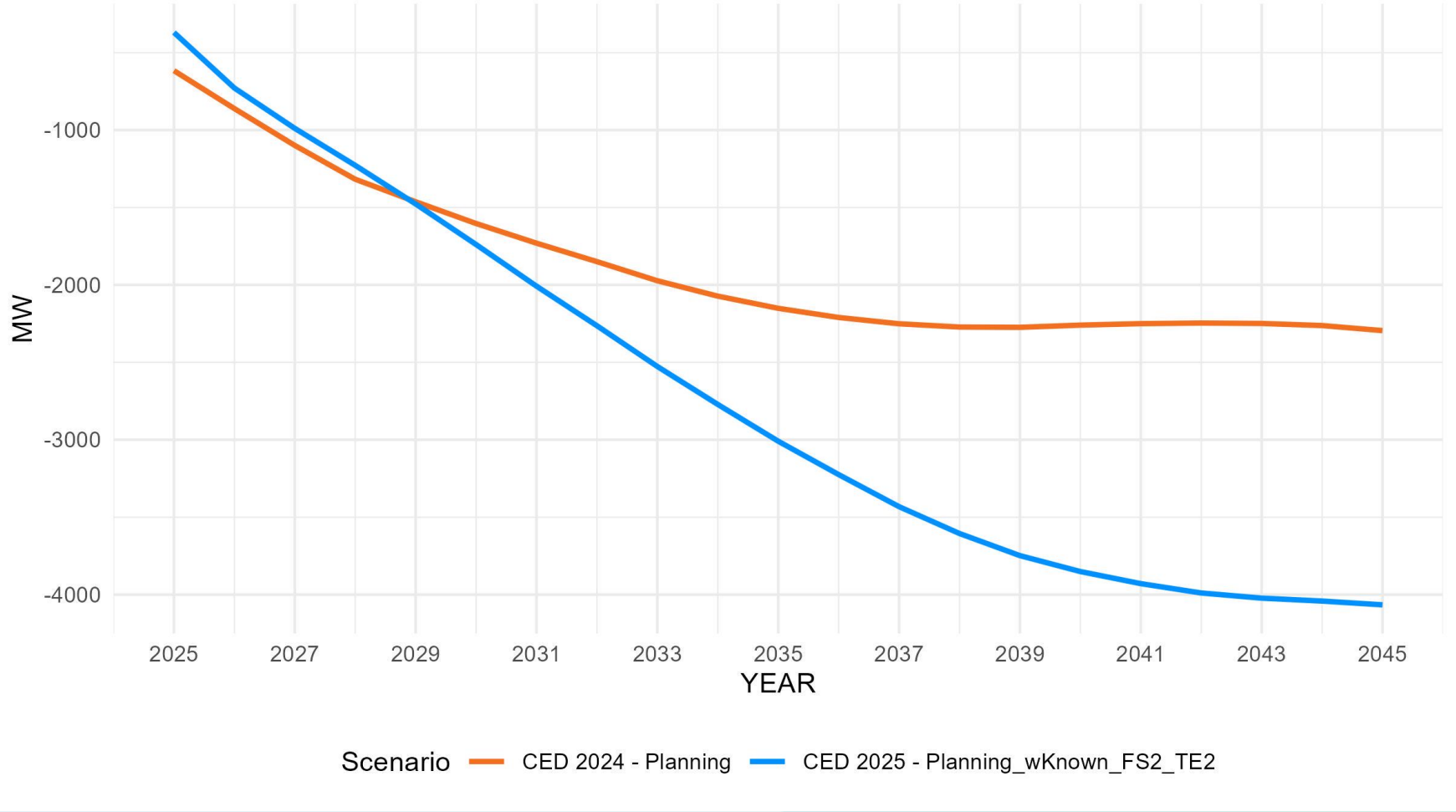


- Within AAFS 2, impacts from utility programs and codes and standards have increased relative to CED 2024
- The decline in total AAFS impacts is caused by the shift from AAFS 3 to AAFS 2, which has more conservative assumptions around adoption of zero-emission appliances

Source: CEC staff

Additional Achievable Energy Efficiency

CAISO – September Peak Day, Hour 18

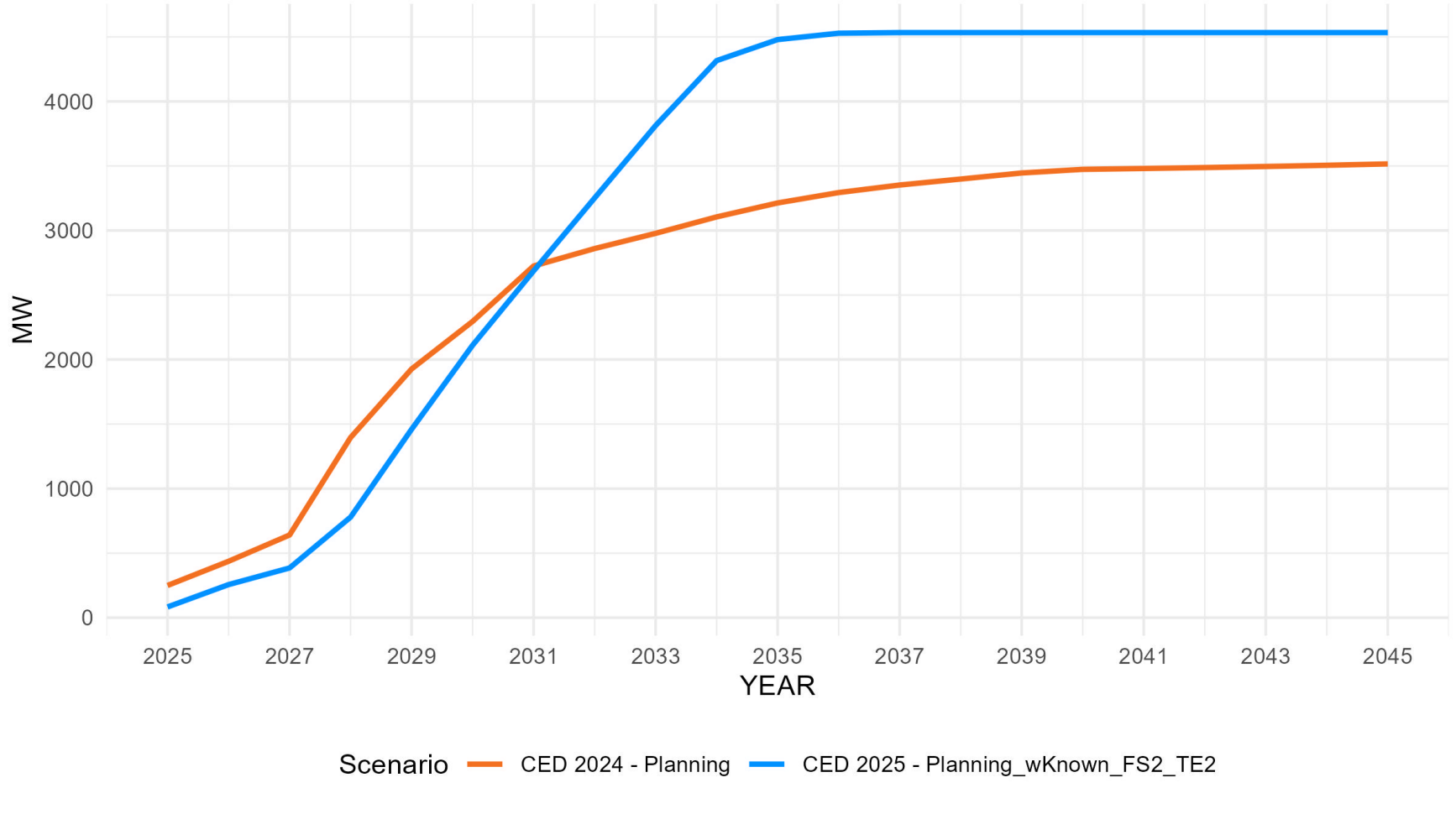


- Increase in efficiency impacts is driven primarily by codes and standards
- Updated analysis considers a broader range of Federal and Title 20 standards
- Improved accounting considers the impact of Title 24 standards beyond 2030

Source: CEC staff

Data Centers

CAISO – September Peak Day, Hour 18

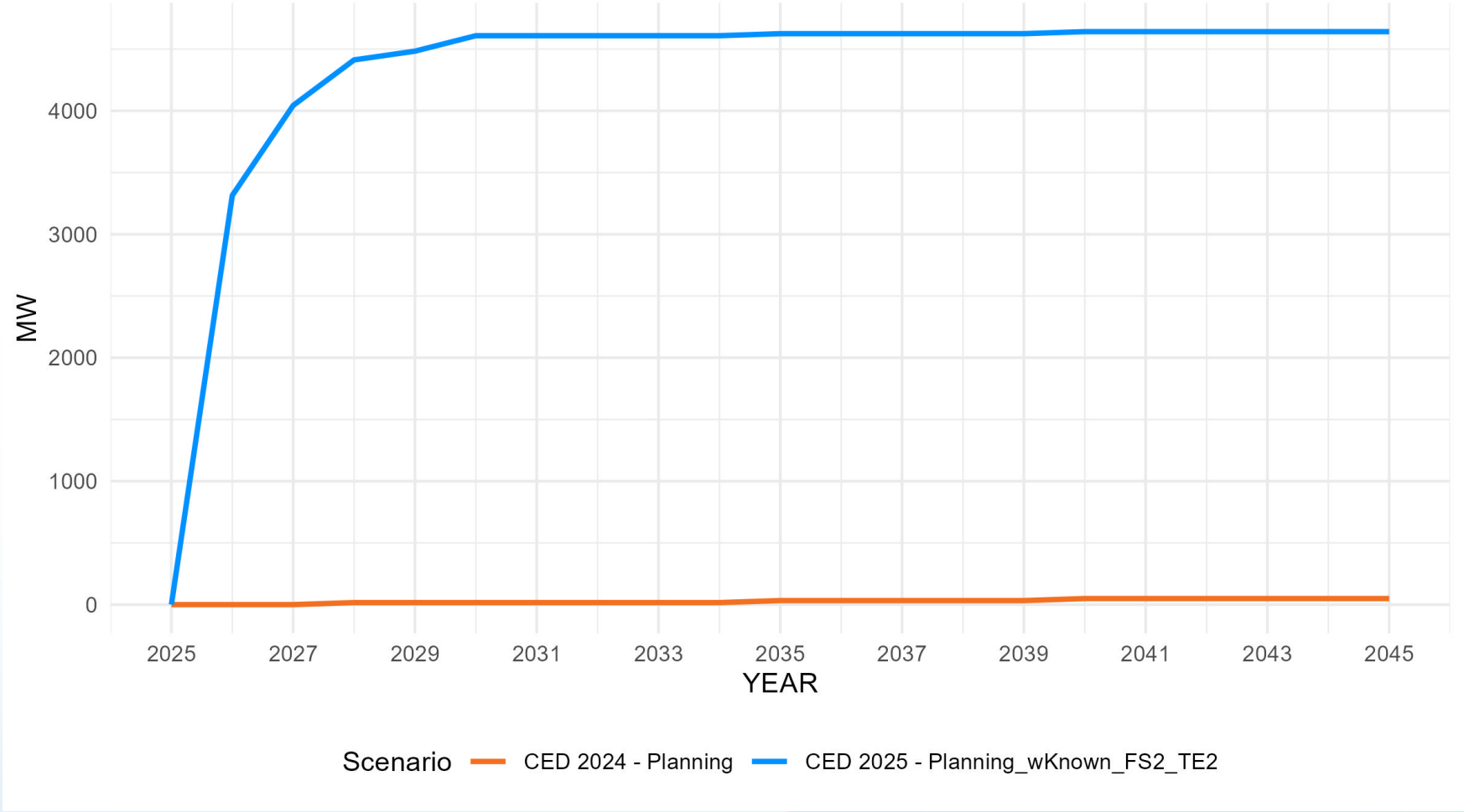


- Increased growth includes the impact of large projects expected in the VEA service territory
- Preliminary impacts will be revised to account for recently provided utility data

Source: CEC staff

Known Loads

CAISO – September Peak Day, Hour 18

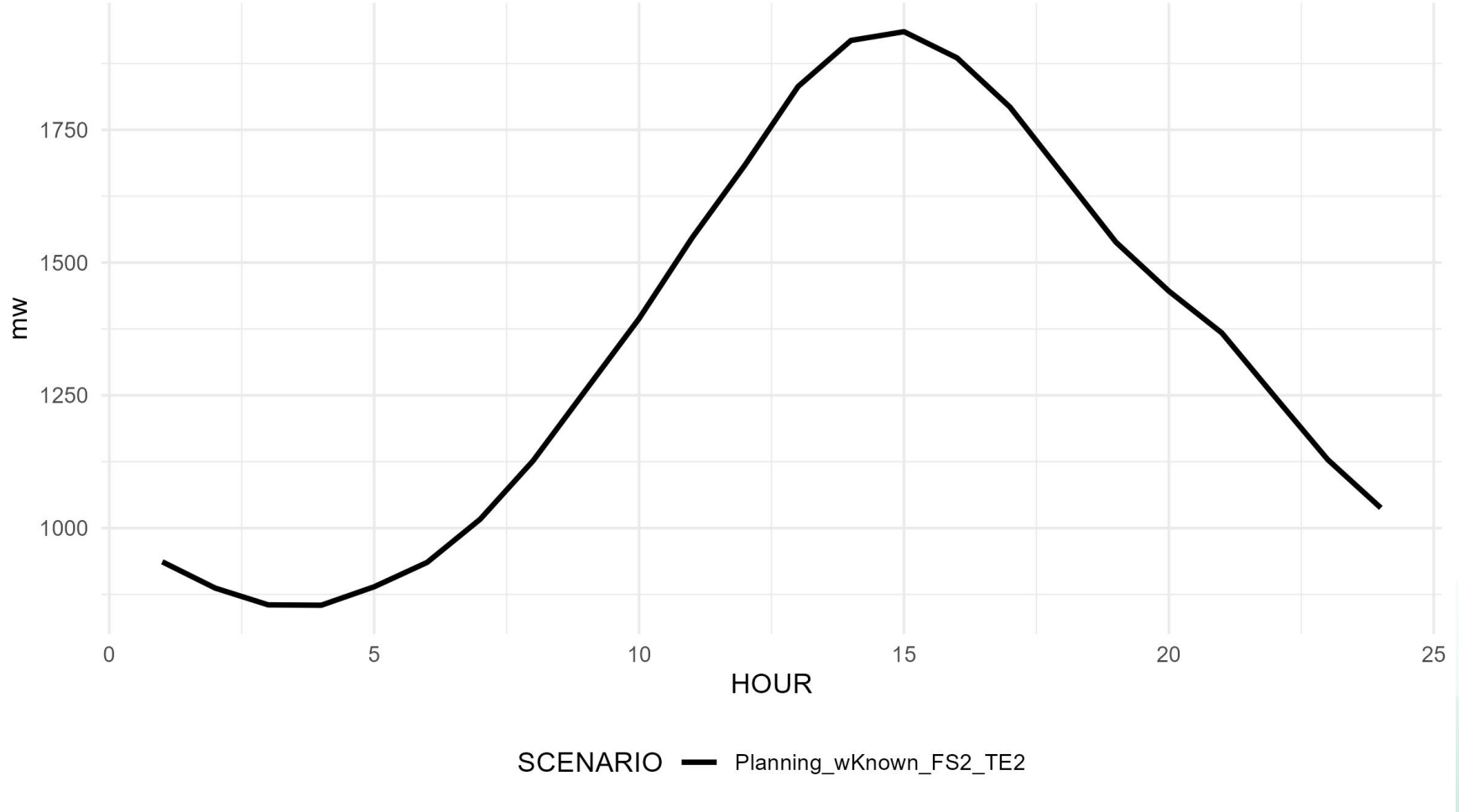


- Growth in peak impact follows cumulative annual energy accounting
- Majority of projects are assumed to be online by 2027
- Does not reflect PG&E feedback on energization dates and ramp rates

Source: CEC staff

Peak Day Known Loads Profile

SCE Planning Area – Peak Day Known Loads – Year 2027

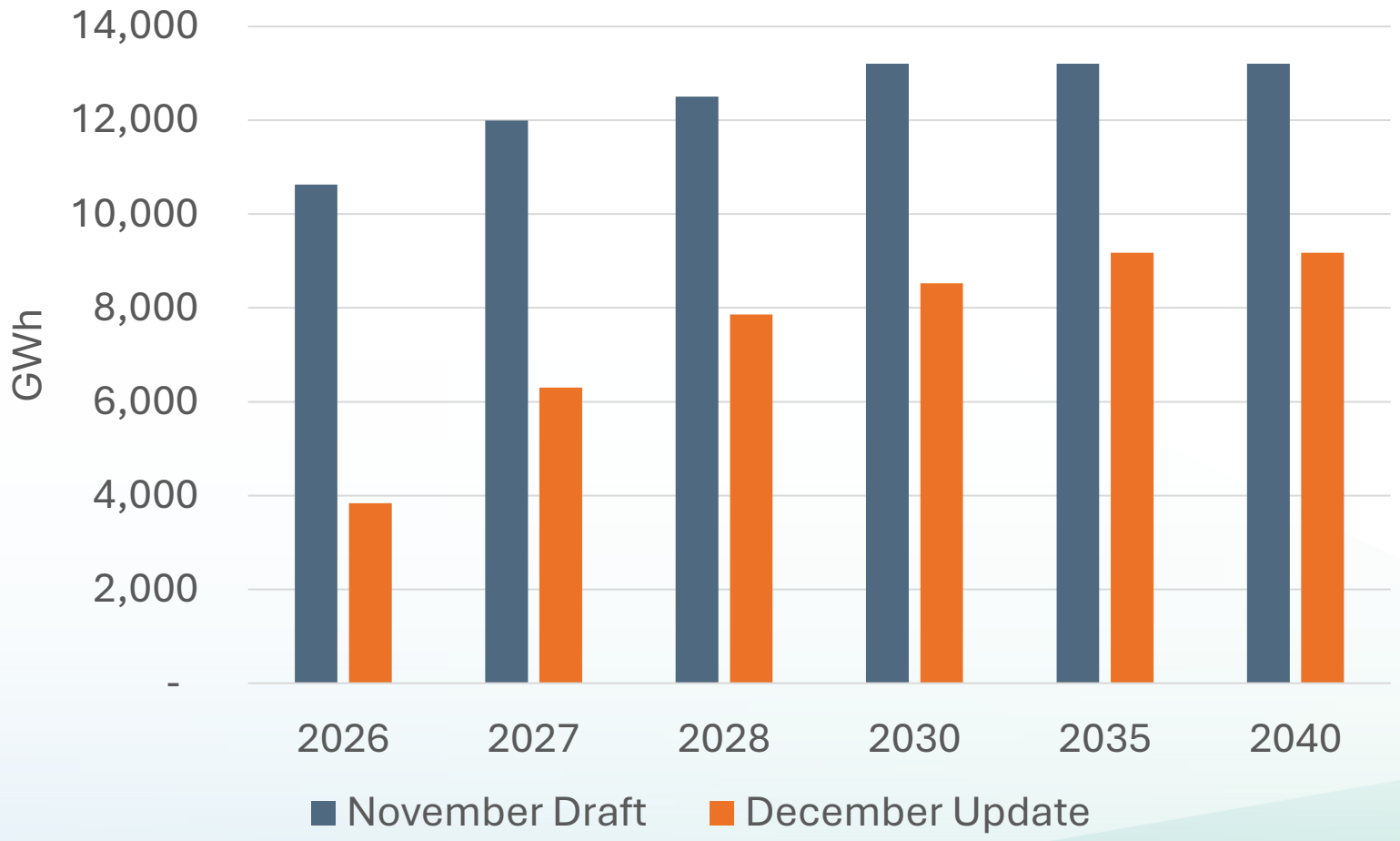


- Annual energy estimated for known loads is added to the annual consumption forecast
- Implicitly, the base consumption profile is applied to this load
- Greatest impact occurs in the summer afternoon hours

Source: CEC staff

Preliminary Known Load Impacts from Updated Methodology for PG&E

PG&E Planning Area

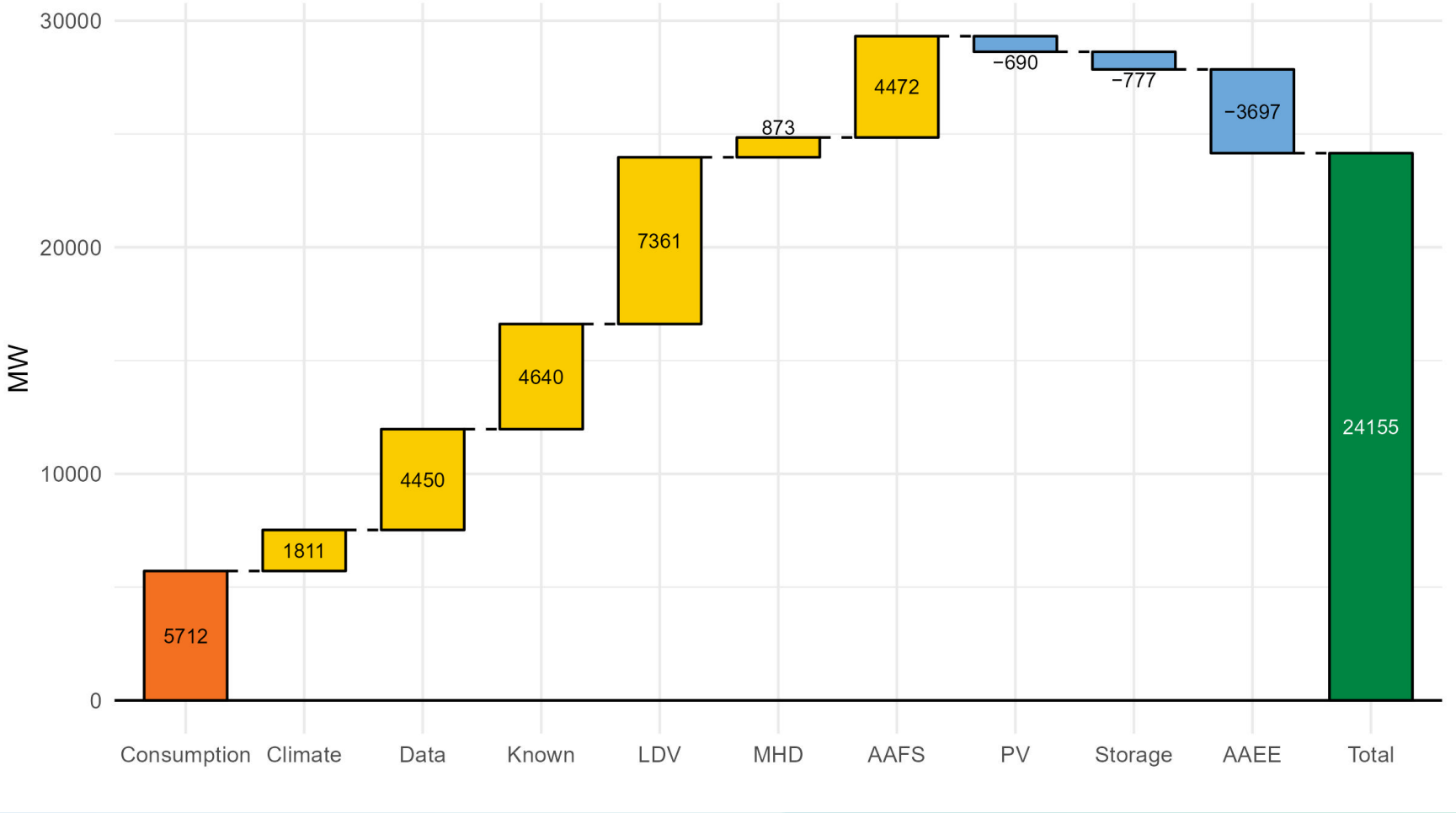


- Because a single profile is applied to the known loads energy in aggregate, percent changes would translate directly to peak
- A 50 percent reduction to the November draft impacts would lead to a 50 percent reduction in corresponding peak impacts

Source: CEC staff

Relative Impact by 2045

CAISO – September Peak Day, Hour 18, Change from 2045 to 2025



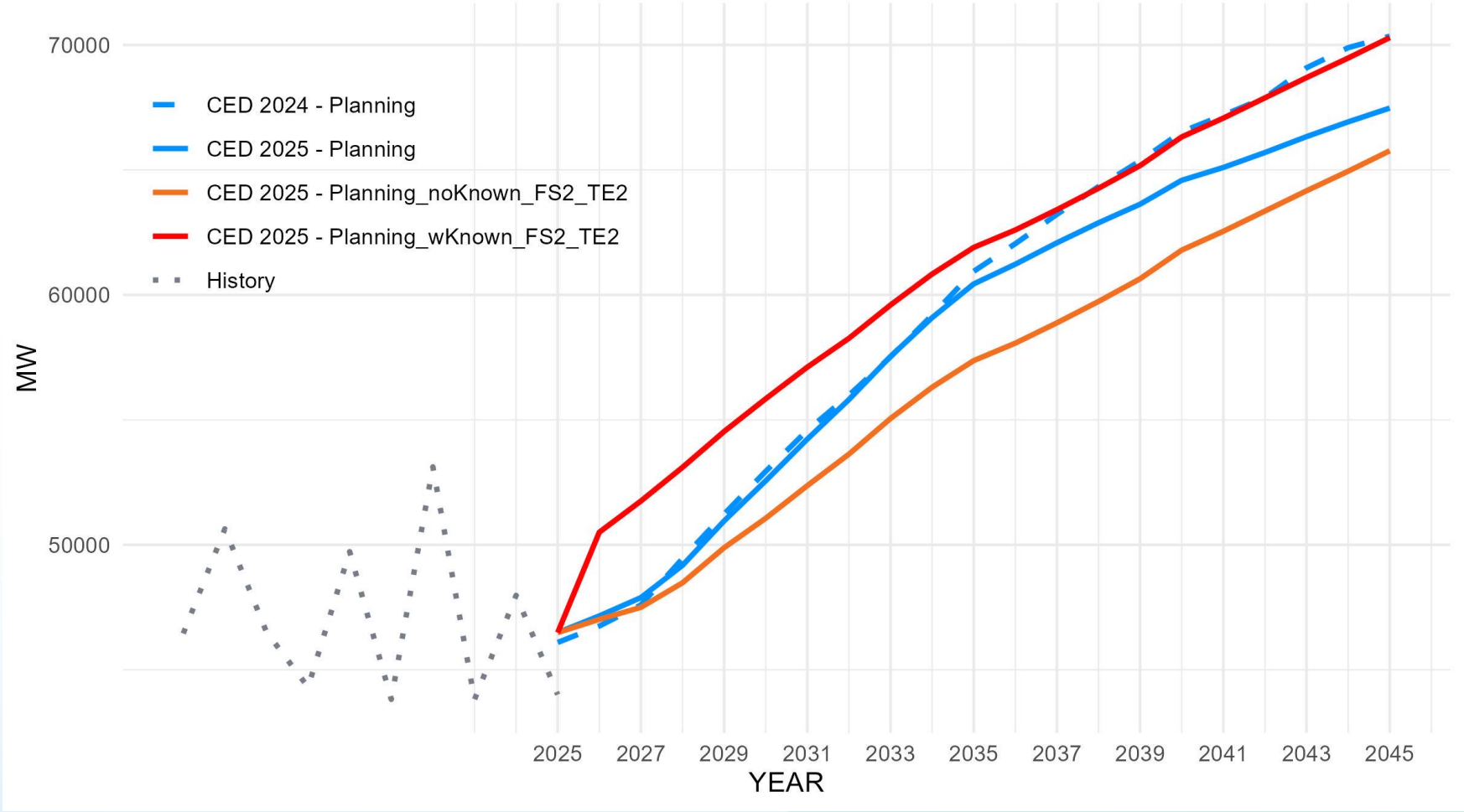
- Planning forecast with AATE2, AAFS2 and known loads
- Even with the switch to AATE2, transportation electrification remains the largest single driver of growth
- PV and storage impacts are marginal at hour 18

Source: CEC staff

Results

Annual Peak Forecast – Planning

CAISO – Annual Coincident Peak

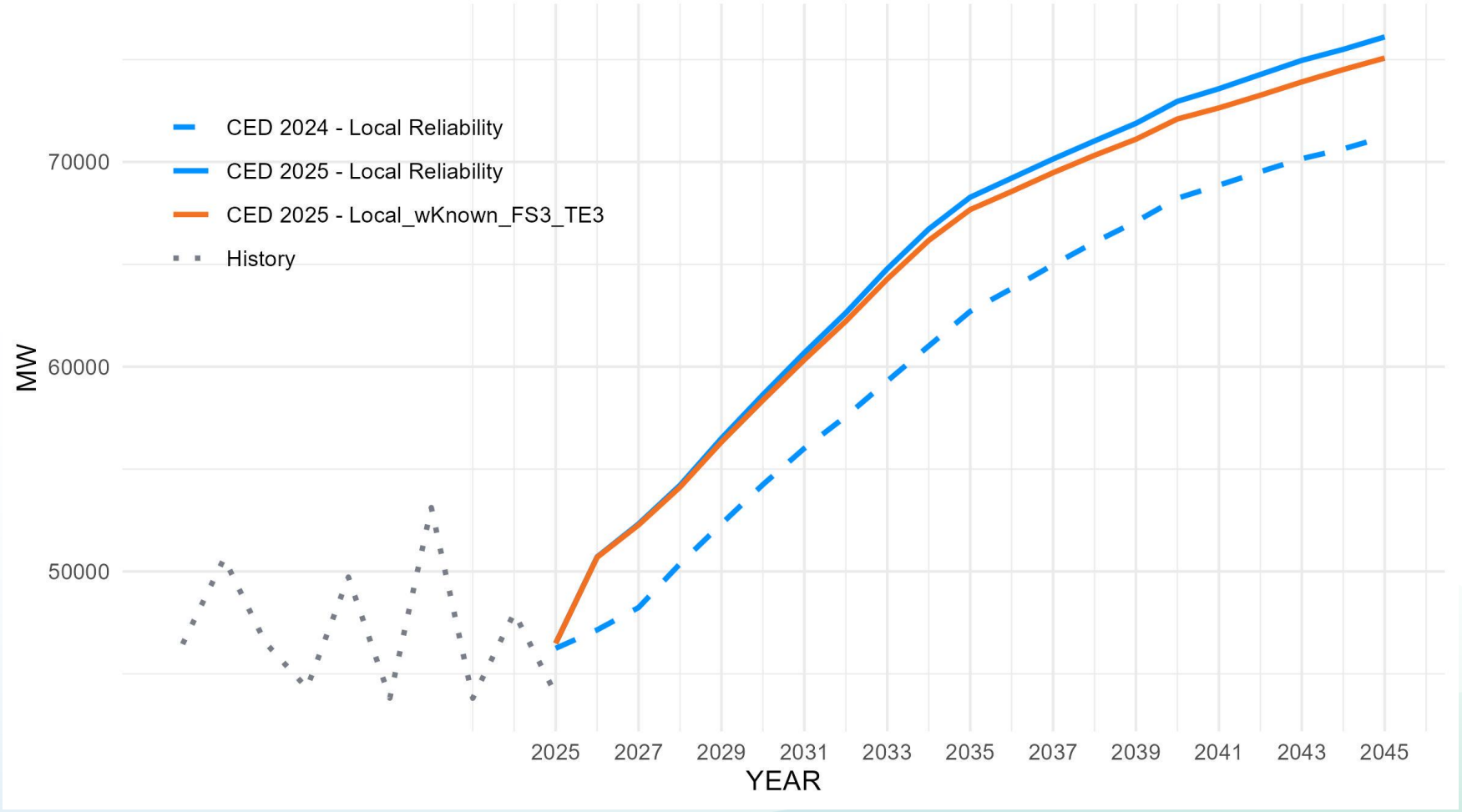


- Increased AAEE drives down the planning forecast beyond 2035
- Moving from AATE 3 to AATE 2 defers aggressive TE load growth to later years
- The bulk of known load impacts occur by 2027

Source: CEC staff

Annual Peak Forecast – Local Reliability

CAISO – Annual Coincident Peak



- The transition from AATE and AAFS scenarios 4 to 3 is less impactful in the Local Reliability case than shifting from scenarios 3 to 2 in the Planning case

Source: CEC staff

Annual Peak Hours and Magnitude

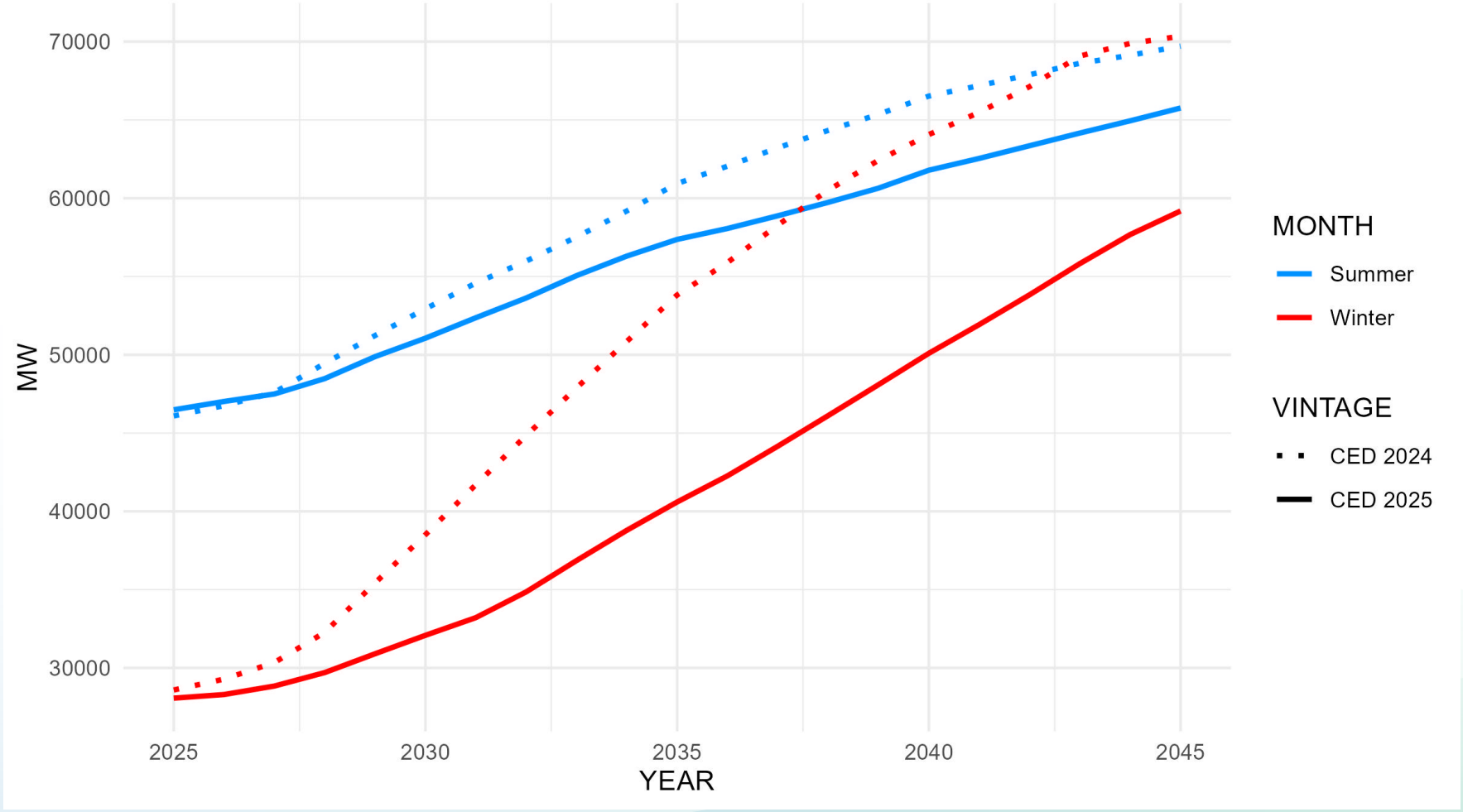
CAISO – Annual Coincident Peaks for Select Scenarios

Year	Planning_noKnown_FS2_TE2			Planning_wKnown_FS2_TE2			Local_wKnown_FS3_TE3		
	Month	Hour	Peak	Month	Hour	Peak	Month	Hour	Peak
2025	9	17	46,487	9	17	46,487	9	17	46,487
2026	9	17	47,019	9	17	50,503	9	17	50,693
2027	9	17	47,497	9	17	51,751	9	17	52,271
2028	9	17	48,479	9	17	53,099	9	17	54,119
2029	9	17	49,883	9	17	54,533	9	17	56,324
2030	9	17	51,062	9	17	55,843	9	17	58,361
2031	9	18	52,366	9	17	57,108	9	17	60,338
2032	9	18	53,626	9	17	58,261	9	17	62,220
2033	9	18	55,053	9	17	59,595	9	18	64,280
2034	9	18	56,304	9	18	60,832	9	18	66,166
2035	9	18	57,370	9	18	61,898	9	18	67,672
2036	9	18	58,067	9	18	62,595	9	18	68,557
2037	9	18	58,880	9	18	63,408	9	18	69,474
2038	9	18	59,735	9	18	64,264	9	18	70,322
2039	9	18	60,644	9	18	65,172	9	18	71,110
2040	9	18	61,790	9	18	66,318	9	18	72,099
2041	9	18	62,543	9	18	67,071	9	18	72,639
2042	9	18	63,353	9	18	67,881	9	18	73,257
2043	9	18	64,163	9	18	68,691	9	18	73,908
2044	9	18	64,946	9	18	69,474	9	18	74,510
2045	9	18	65,763	9	18	70,291	9	18	75,073

- Transition to hour 18 peak is delayed across all planning scenarios
- Addition of known loads further delays the transition
- No scenarios see a winter peak

Summer vs Winter Peak

CAISO – Summer Evening Peak vs Winter Morning Peak

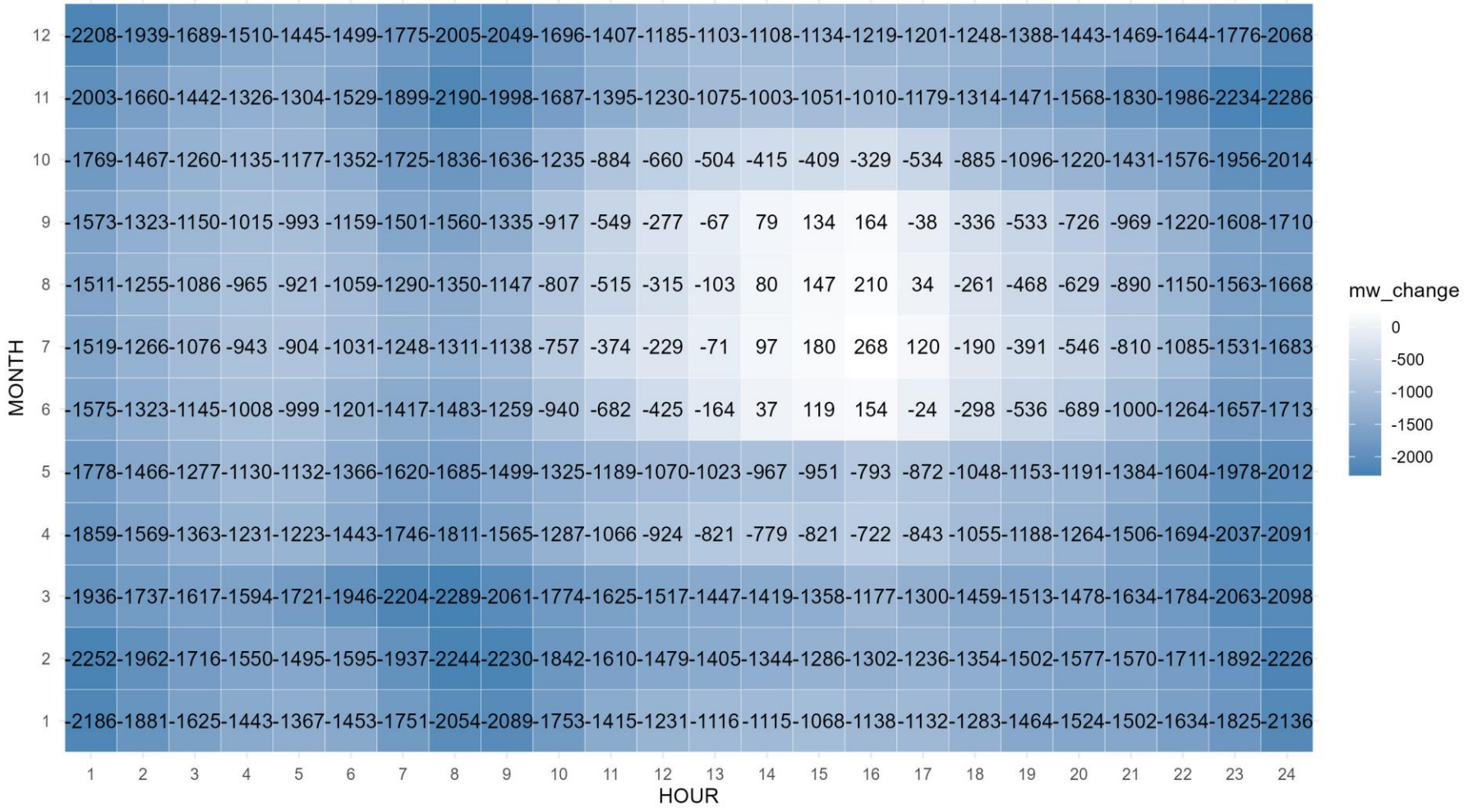


- Compares planning forecasts
- Here, CED 2025 includes AATE2 and AAFS2 but no known loads
- Reduced building electrification leads to less aggressive winter peak growth relative to CED 2024

Source: CEC staff

Change in Monthly Peak Day Loads (Without Known Loads)

CAISO – Monthly Peak Days, Year 2027

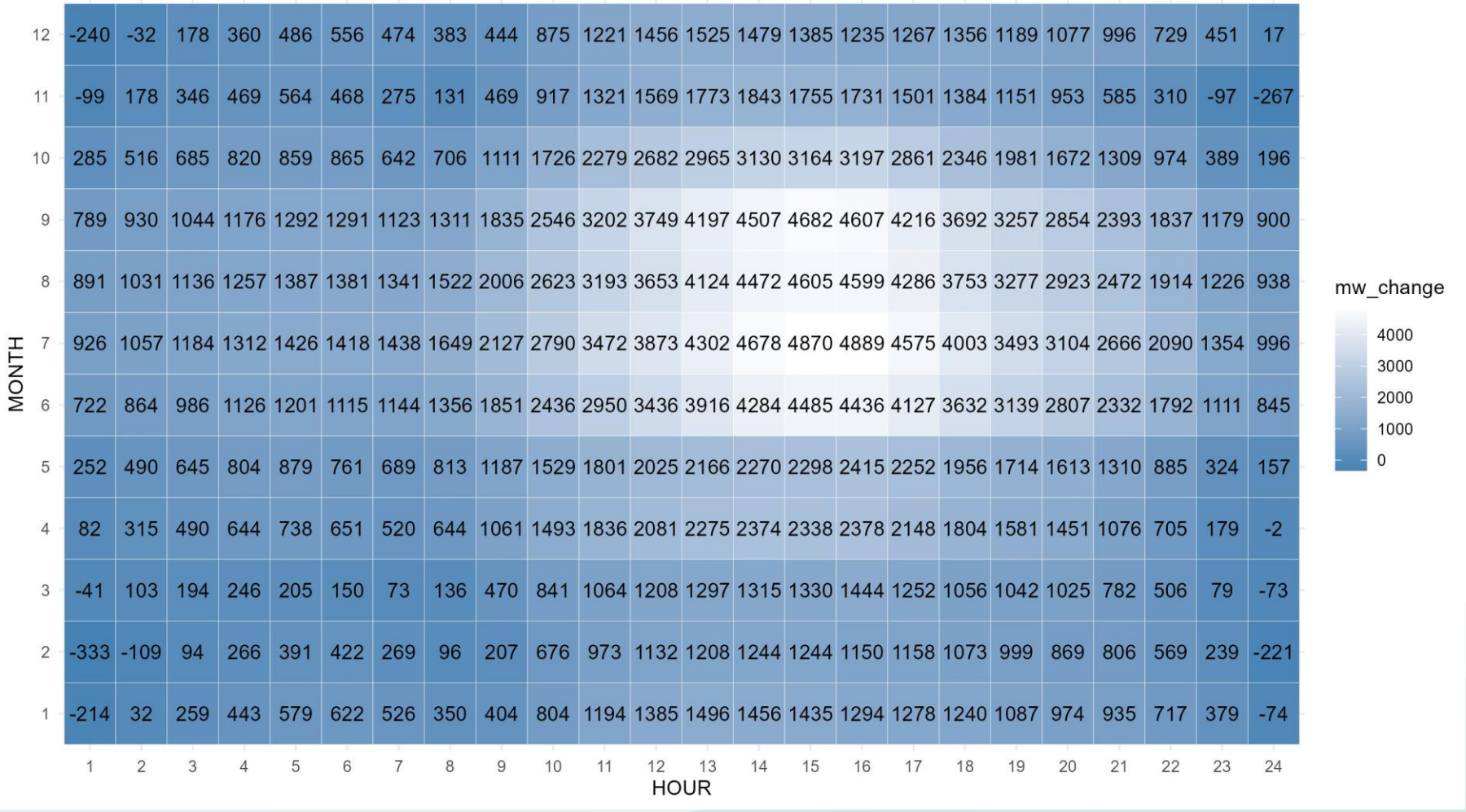


- Compares change in coincident peak-day loads between Draft CED 2025 and CED 2024 Planning Forecasts
- Here, CED 2024 includes AATE2 and AAFS2
- Reduction in the baseline annual energy forecast is absorbed by lower-load hours

Source: CEC staff

Change in Monthly Peak Day Loads (With Known Loads)

CAISO – Monthly Peak Days, Year 2027

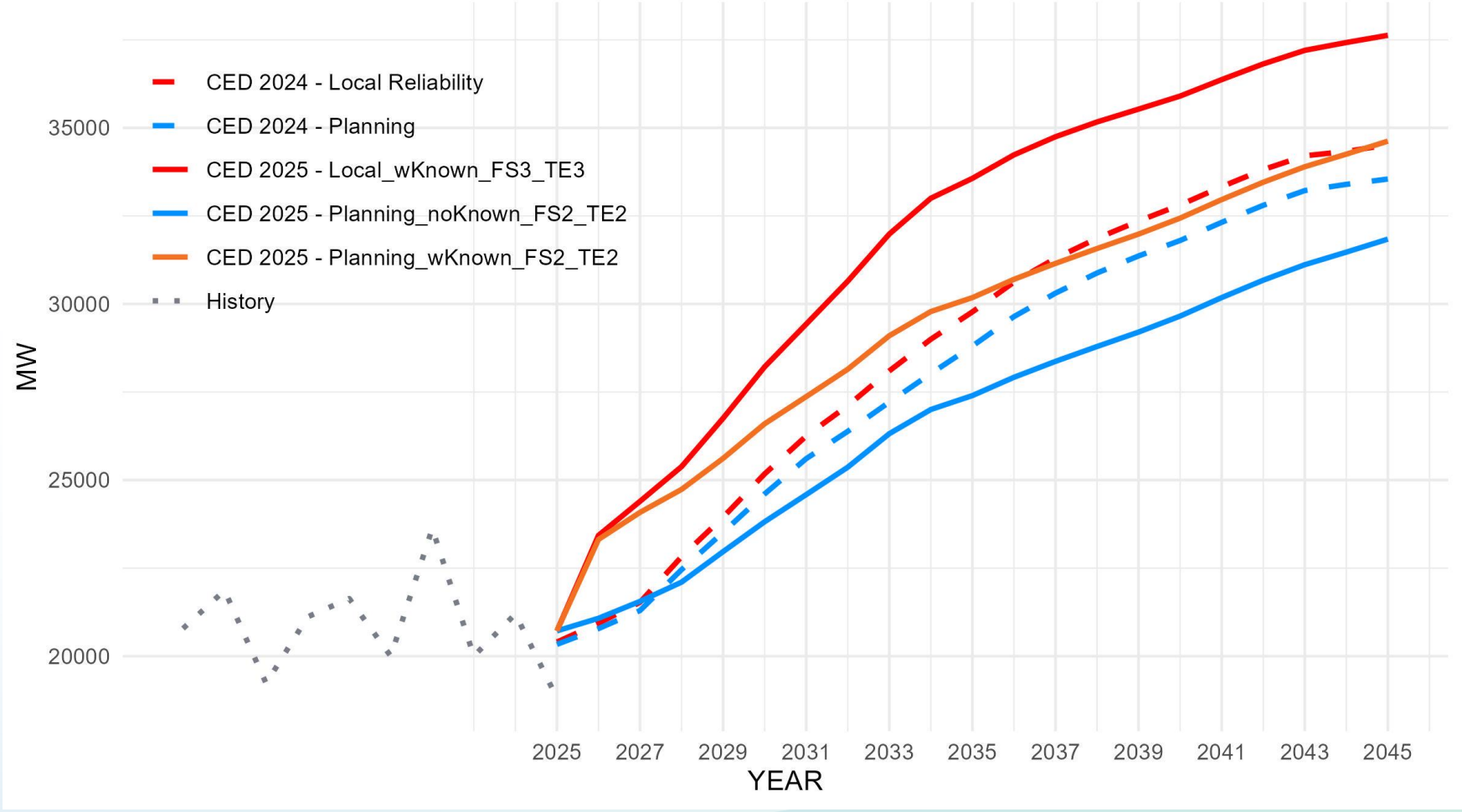


- Annual energy from known loads is distributed across hours according to the hourly base consumption profile
- More load is added around hours of peak consumption than to off-peak hours

Source: CEC staff

Annual Peak Forecast – PG&E Planning Area

PG&E Planning Area – Annual Non-Coincident Peak



Year	Planning_FS2_TE2	
	No Known	With Known
2025	20,718	20,718
2026	21,076	23,315
2027	21,556	24,083
2028	22,102	24,735
2029	22,969	25,616
2030	23,817	26,599
2031	24,587	27,369
2032	25,365	28,147
2033	26,316	29,098
2034	27,004	29,785
2035	27,399	30,180
2036	27,918	30,699
2037	28,370	31,152
2038	28,792	31,573
2039	29,202	31,983
2040	29,656	32,437
2041	30,181	32,962
2042	30,675	33,456
2043	31,114	33,896
2044	31,472	34,253
2045	31,841	34,623

Source: CEC staff

Annual Peak Forecast – SCE Planning Area

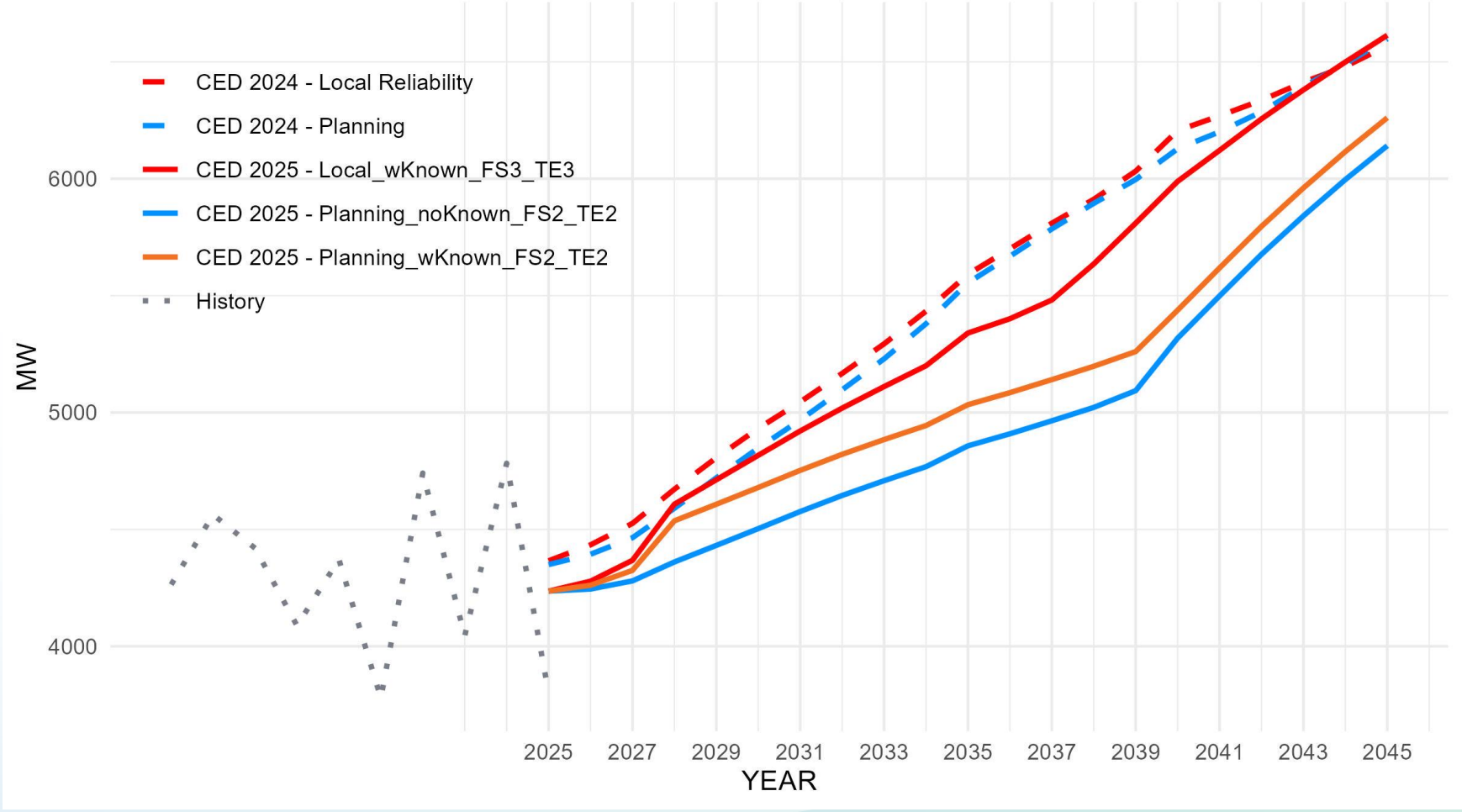
SCE Planning Area – Annual Non-Coincident Peak

Year	Planning_FS2_TE2	
	No Known	With Known
2025	23,617	23,617
2026	23,647	25,036
2027	23,662	25,548
2028	23,903	25,924
2029	24,243	26,307
2030	24,509	26,573
2031	24,900	26,964
2032	25,254	27,318
2033	25,559	27,622
2034	25,954	28,018
2035	26,389	28,453
2036	26,592	28,656
2037	26,922	28,986
2038	27,273	29,337
2039	27,653	29,717
2040	28,213	30,277
2041	28,487	30,551
2042	28,785	30,848
2043	29,098	31,162
2044	29,408	31,472
2045	29,775	31,839

Source: CEC staff

Annual Peak Forecast – SDG&E Planning Area

SDG&E Planning Area – Annual Non-Coincident Peak

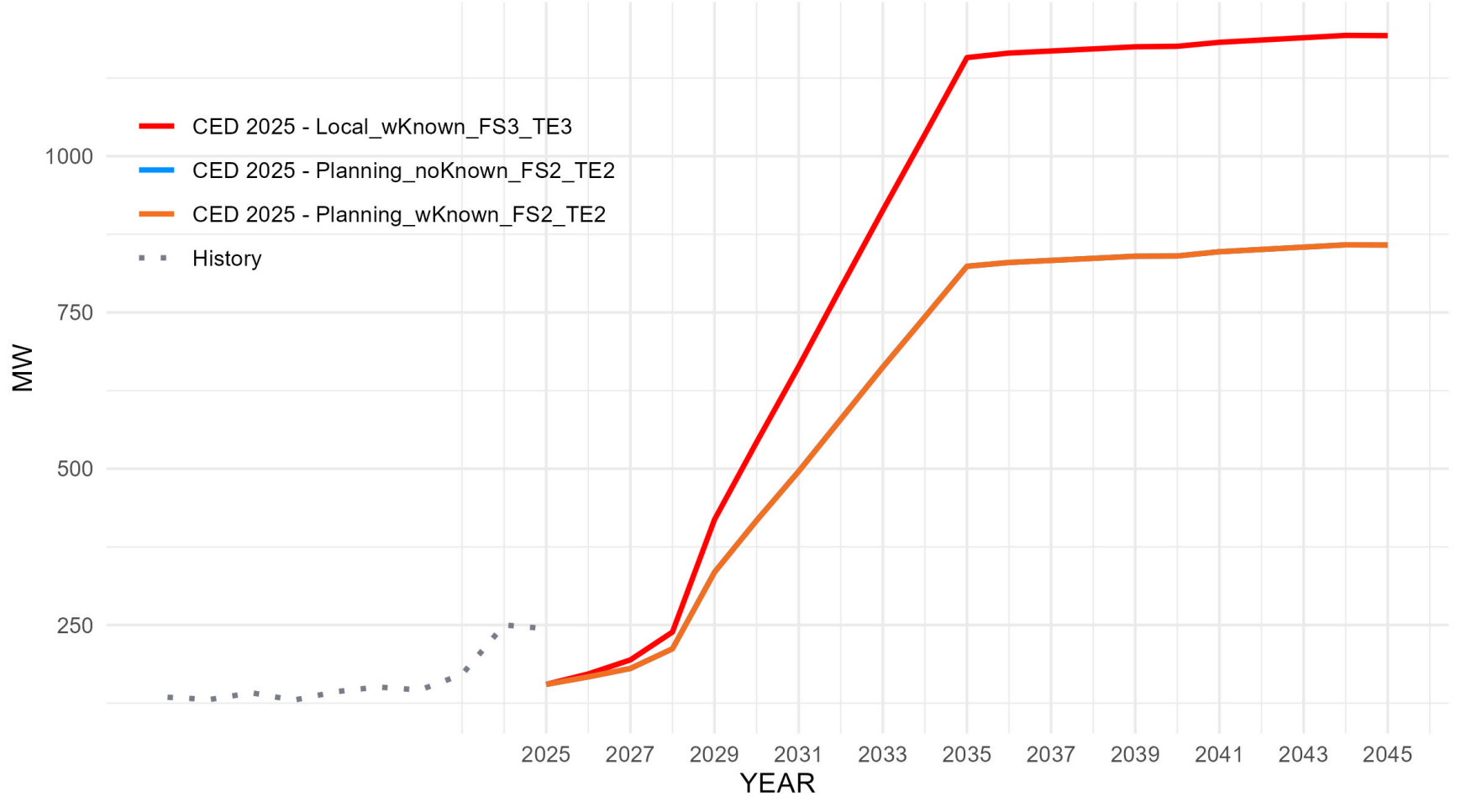


Year	Planning_FS2_TE2	
	No Known	With Known
2025	4,236	4,236
2026	4,245	4,261
2027	4,280	4,325
2028	4,361	4,537
2029	4,432	4,608
2030	4,503	4,679
2031	4,577	4,753
2032	4,645	4,821
2033	4,708	4,884
2034	4,768	4,944
2035	4,858	5,034
2036	4,909	5,085
2037	4,965	5,141
2038	5,022	5,198
2039	5,094	5,261
2040	5,318	5,438
2041	5,499	5,618
2042	5,677	5,796
2043	5,841	5,961
2044	5,997	6,116
2045	6,141	6,261

Source: CEC staff

Annual Peak Forecast – Valley Electric Association (VEA)

VEA Service Territory – Annual Non-Coincident Peak



- New this cycle, the VEA hourly service territory forecast is being adjusted to account for large projects, including the Osprey data center complex
- Staff will post distinct hourly forms for the VEA TAC area showing these adjustments

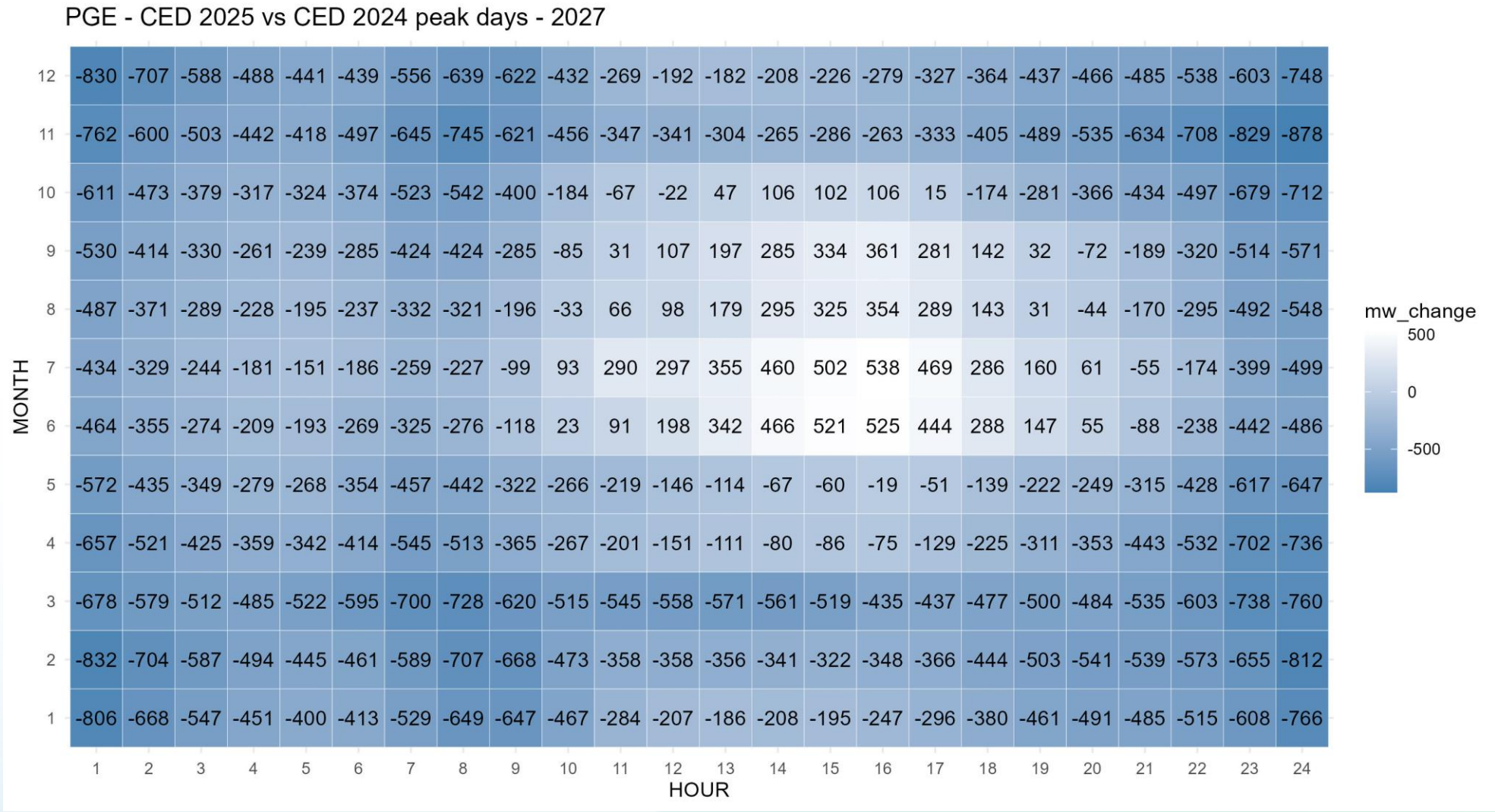
Source: CEC staff

Next Steps

- Docket detailed draft hourly and peak summary forms
- Review and consider comments and feedback on the forecast
- Jan 9, 2026: Post final forecast results
- Jan 21, 2026: CEC Business Meeting – propose final forecast results for adoption

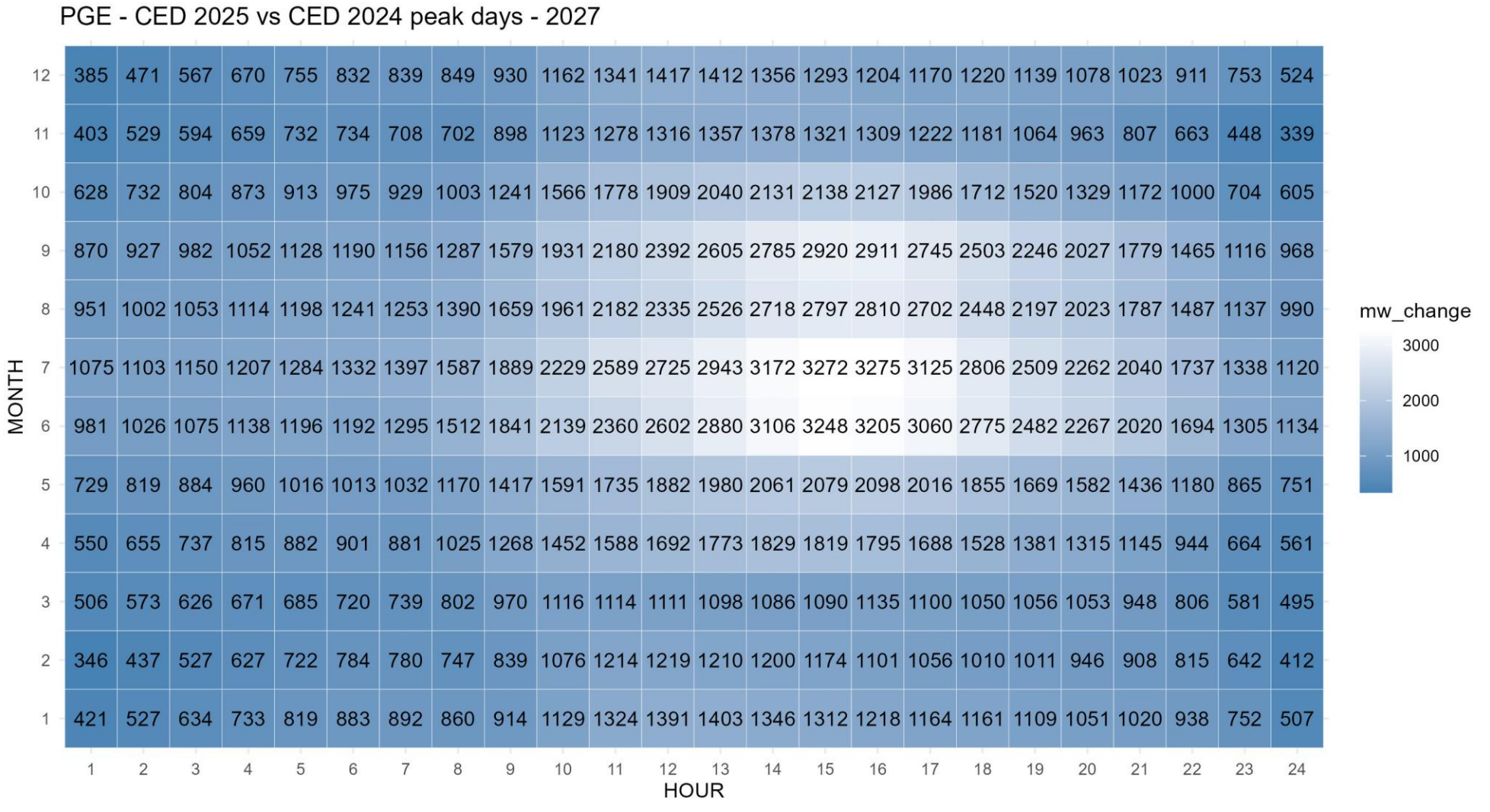
Appendix

PGE TAC – Peak Days – No Known Loads



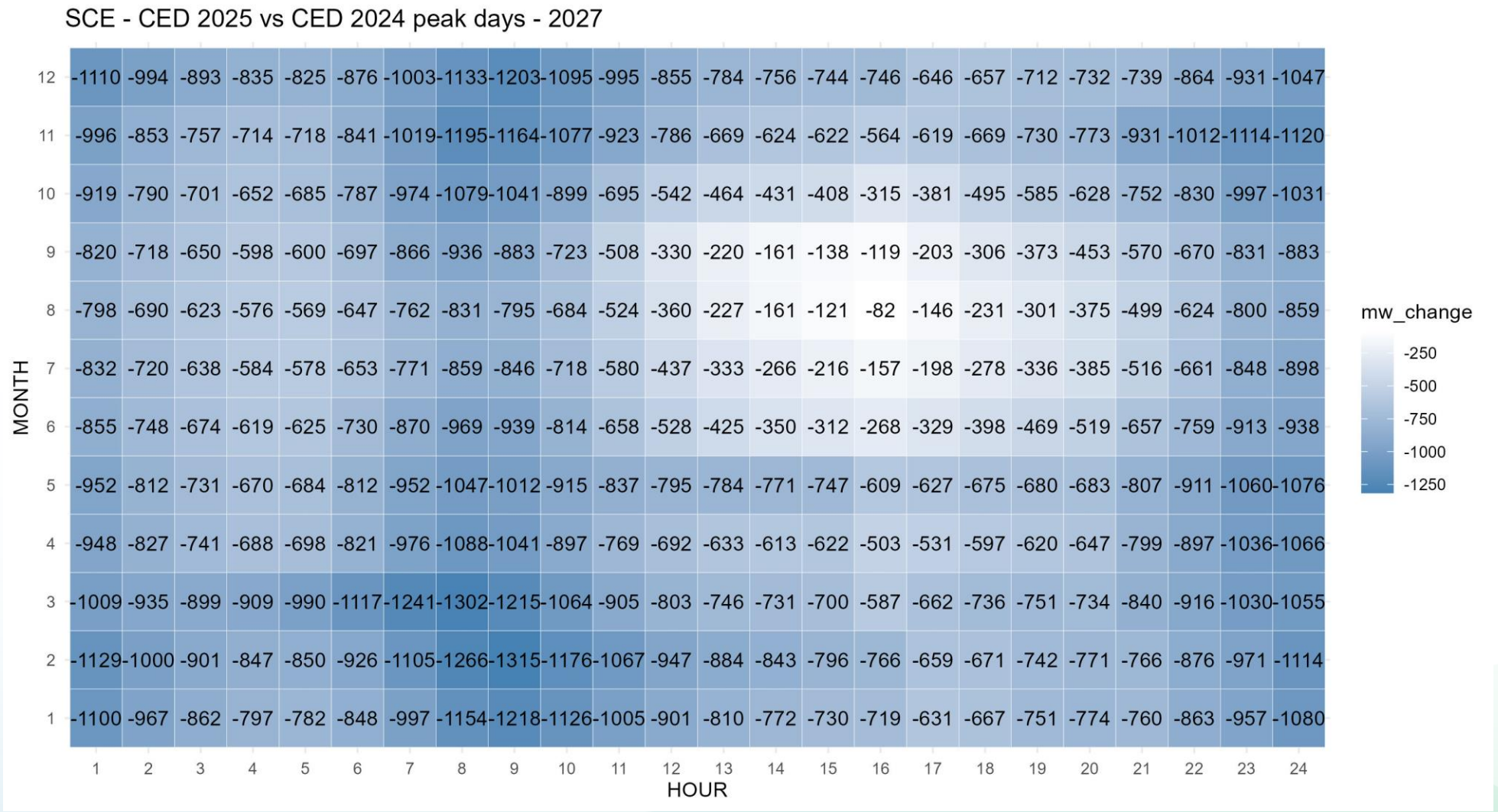
Source: CEC staff

PGE TAC – Peak Days – With Known Loads



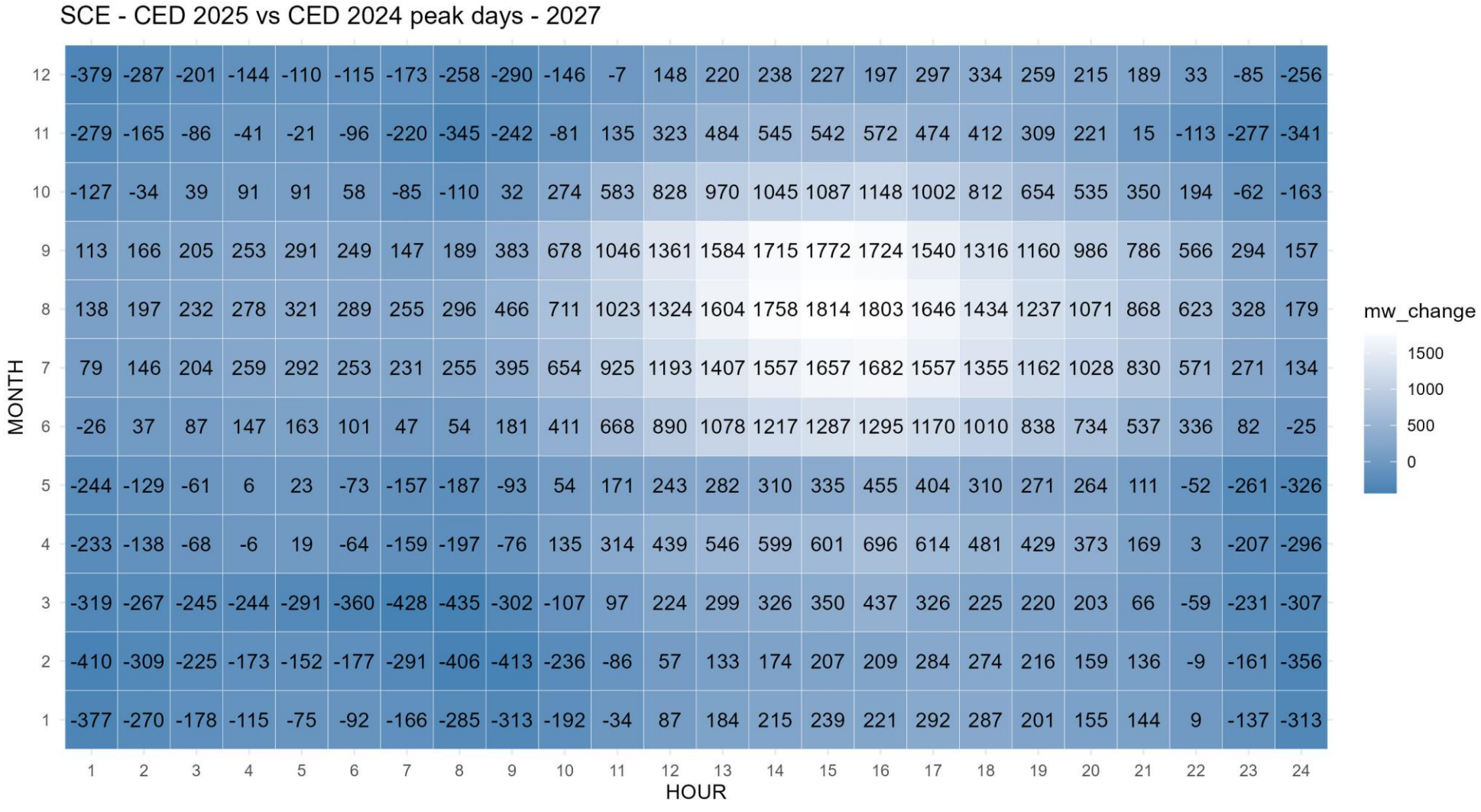
Source: CEC staff

SCE TAC – Peak Days – No Known Loads



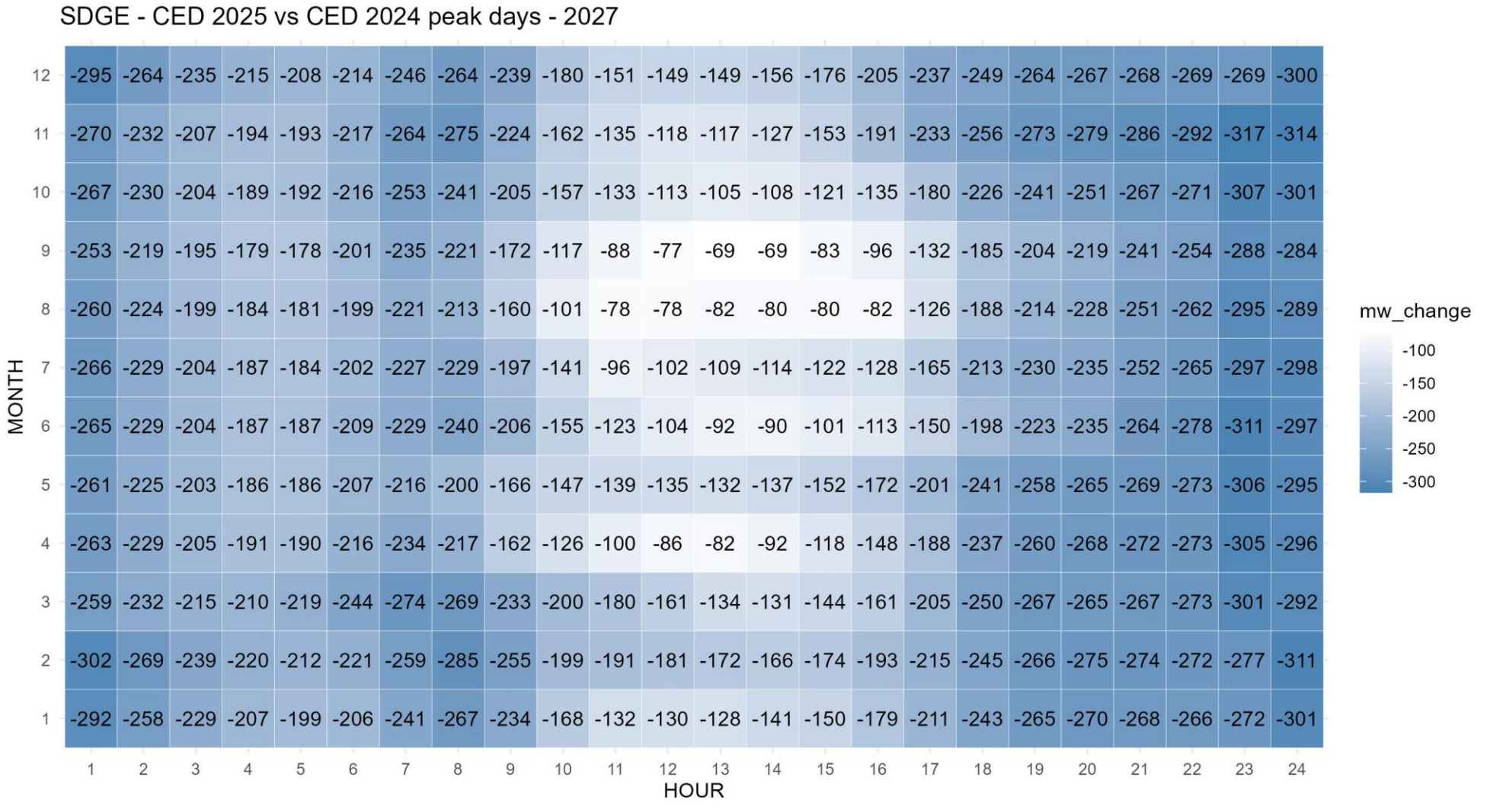
Source: CEC staff

SCE TAC – Peak Days – With Known Loads



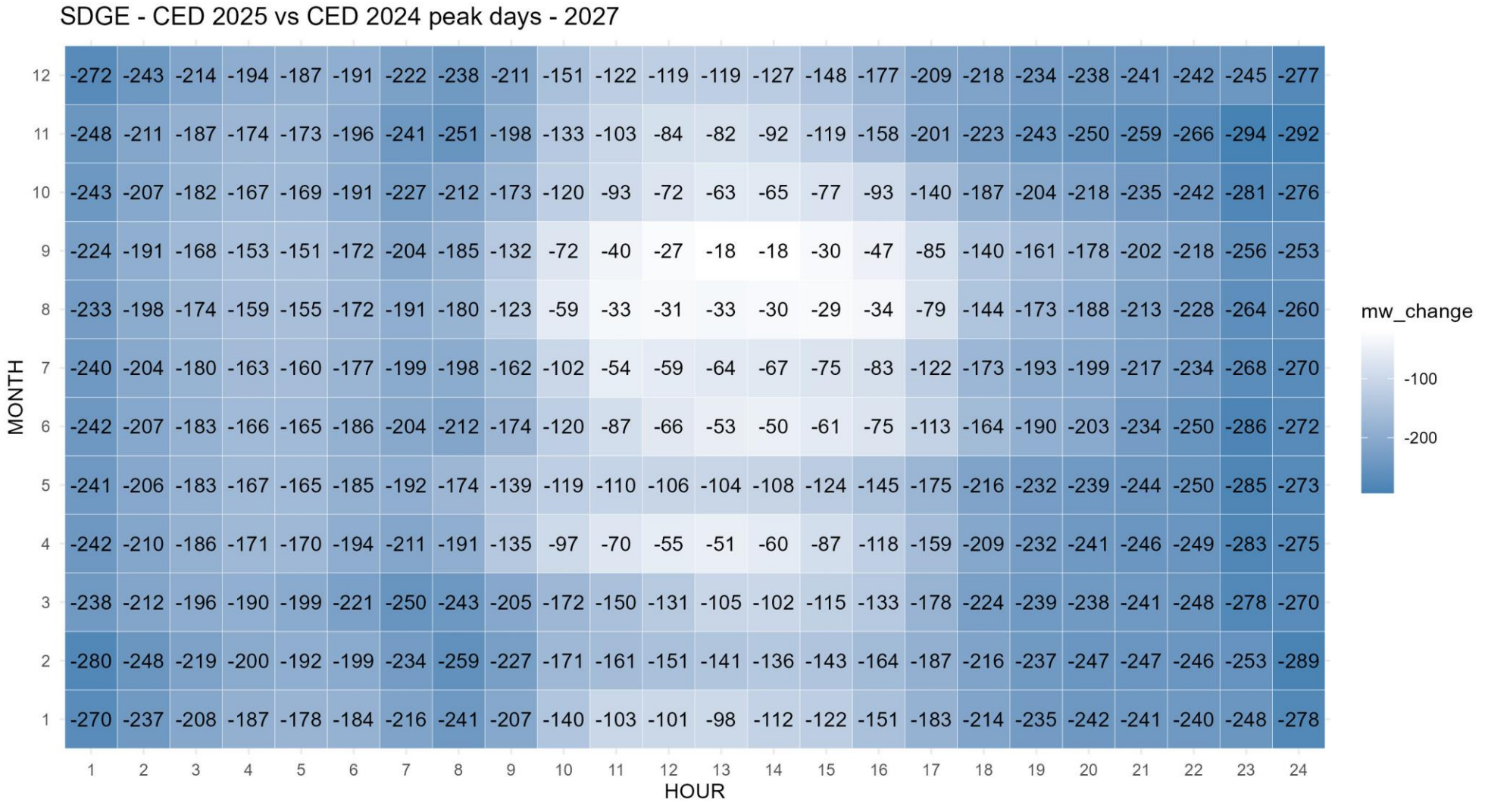
Source: CEC staff

SDGE TAC – Peak Days – No Known Loads



Source: CEC staff

SDGE TAC – Peak Days – With Known Loads



Source: CEC staff