



California ISO

Final Availability Assessment Hours

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Short-Term Forecasting

May 17, 2022

Availability assessment hours: Background and purpose

- Concept originally developed as part of the ISO standard capacity product (SCP)
 - Maintained as part of Reliability Service Initiative – Phase 1 (i.e. RA Availability Incentive Mechanism, or RAAIM)
- Determine the hours of greatest need to maximize the effectiveness of the availability incentive structure
 - Resources are rewarded for availability during hours of greatest need
 - Hours determined annually by ISO and published in the BPM
 - See section 40.9 of the ISO Tariff

Methodology overview of system/local availability assessment hours

- Used CEC IEPR data described in previous slides to obtain:
 - Hourly Average Load
 - By Hour
 - By Month
 - Years 2021-2025
- Calculated:
 - Top 5% of Load Hours within each month using an hourly load distribution
 - Years 2023 - 2025

Change to AAH Seasons

Previous years

<u>Month</u>	<u>Season</u>
Jan	winter
Feb	winter
Mar	winter
Apr	summer
May	summer
Jun	summer
Jul	summer
Aug	summer
Sep	summer
Oct	summer
Nov	winter
Dec	winter

2023-2025

<u>Month</u>	<u>Season</u>
Jan	winter
Feb	winter
Mar	spring
Apr	spring
May	summer
Jun	summer
Jul	summer
Aug	summer
Sep	summer
Oct	summer
Nov	winter
Dec	winter

Forecast and actual data supports change in top 5% of load hours for March and April

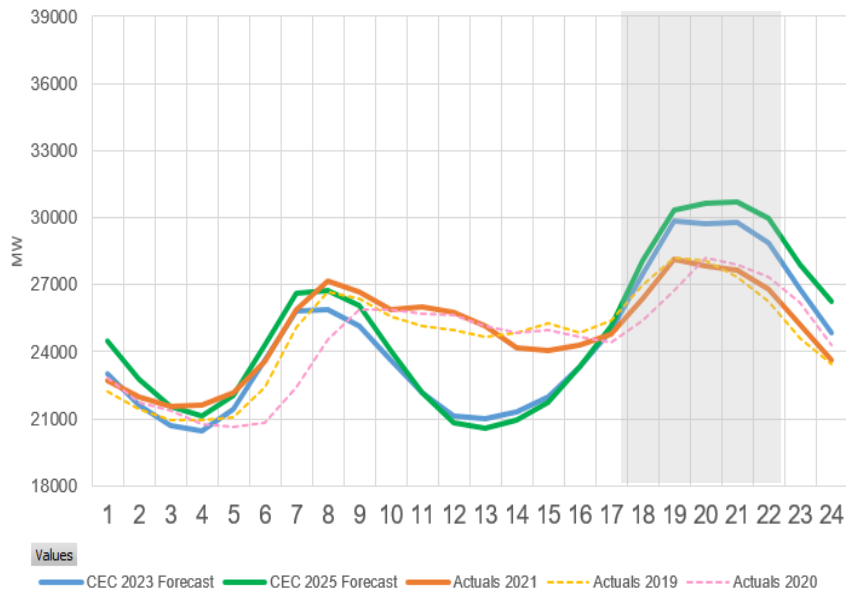
- CEC Forecast for 2023-2025 and load actuals from 2019-2021 show for March and April the top load hours have shifted to HE 18-22
 - Historically these months had HE 17-21 as their AAH
- CAISO proposes addition of Spring season to better align with actual and forecast data, which are consistent in their trends

Number of times each hour was in the top 5% of load hours for each month – 2021 Actual

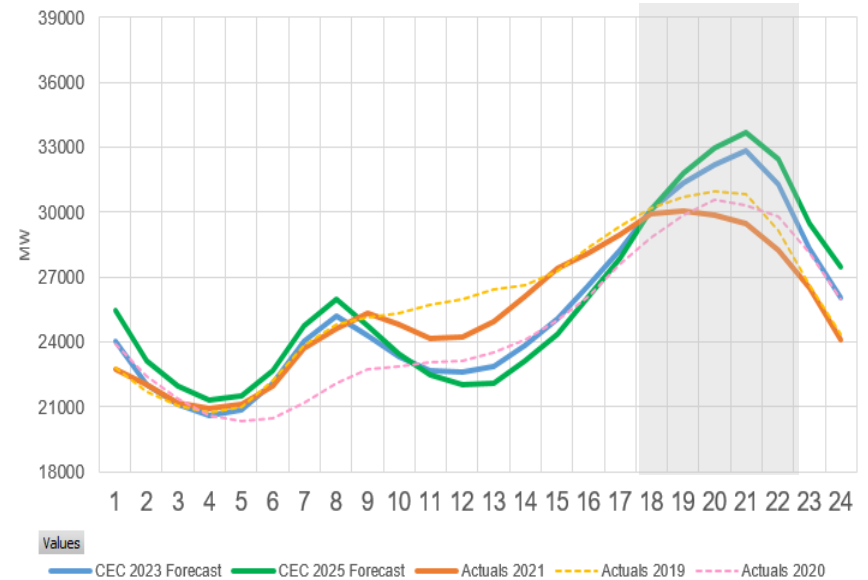
Row Labels		8	9	14	15	16	17	18	19	20	21	22	23
MONTH	Jan	1						10	17	7	2		
	Feb							2	19	12			
	Mar	2	2						11	14	7	1	
	Apr				1	1	2	3	4	8	13	3	1
	May						2	5	9	9	11	1	
	Jun				2	3	6	7	8	5	4	1	
	Jul				1	3	8	10	9	6			
	Aug				1	4	7	11	9	5			
	Sep				2	6	7	8	8	3	2		
	Oct			1	1	5	5	6	7	7	5		
	Nov				1	1	3	13	15	3			
	Dec						1	14	13	6	3		
Grand Total		3	2	1	9	23	41	89	129	85	47	6	1

CEC forecast and previous 3 years of actuals indicate a shift in top load hours for March and April

March 2019-2021 Actuals and 2023, 2025 Forecast



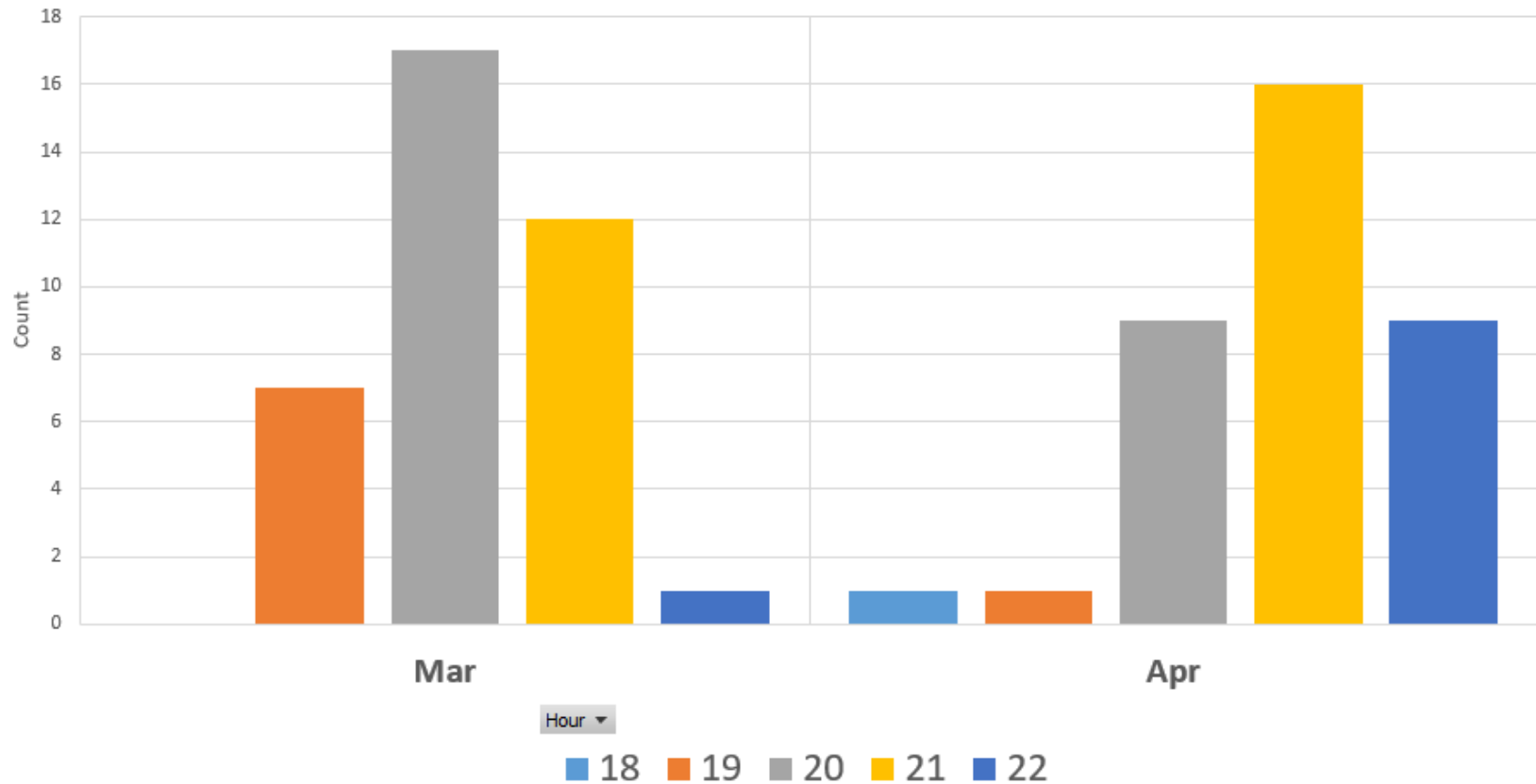
April 2019-2021 Actuals and 2023, 2025 Forecast



Spring Season

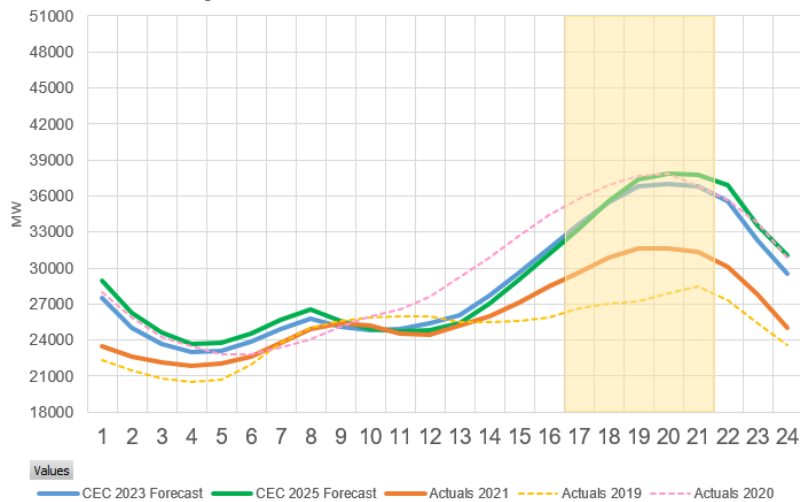
2023 top 5% of load hours (HE)

Spring Season: Frequency of top 5% of Load Hours by Month (Hour Ending)

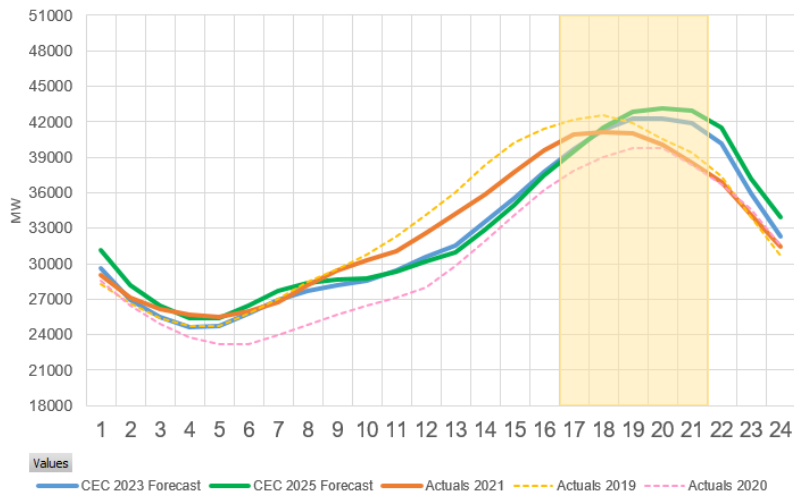


Expected load shape evolution: Summer season

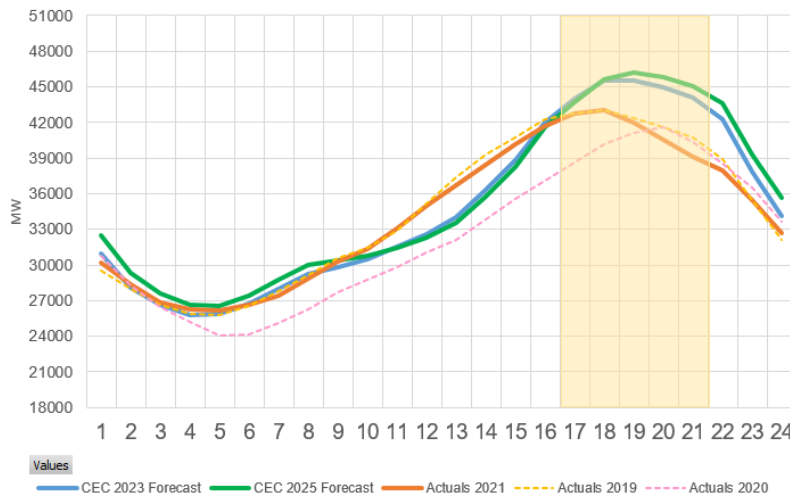
May 2019-2021 Actuals and 2023, 2025 Forecast



Jun 2019-2021 Actuals and 2023, 2025 Forecast

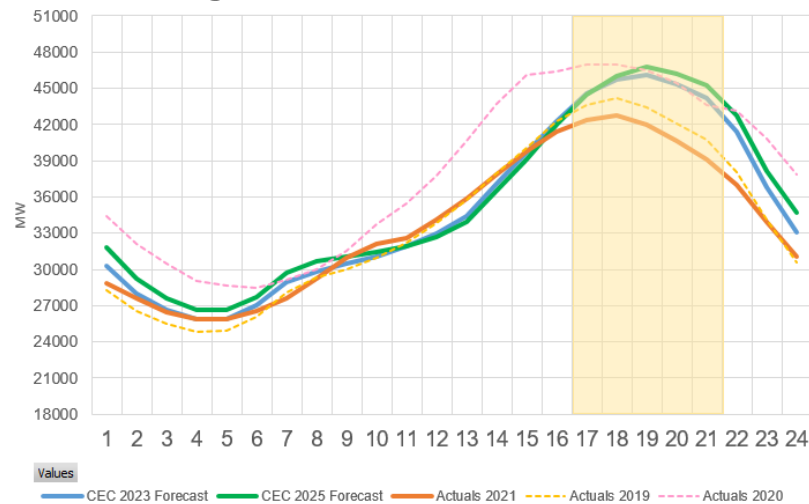


Jul 2019-2021 Actuals and 2023, 2025 Forecast

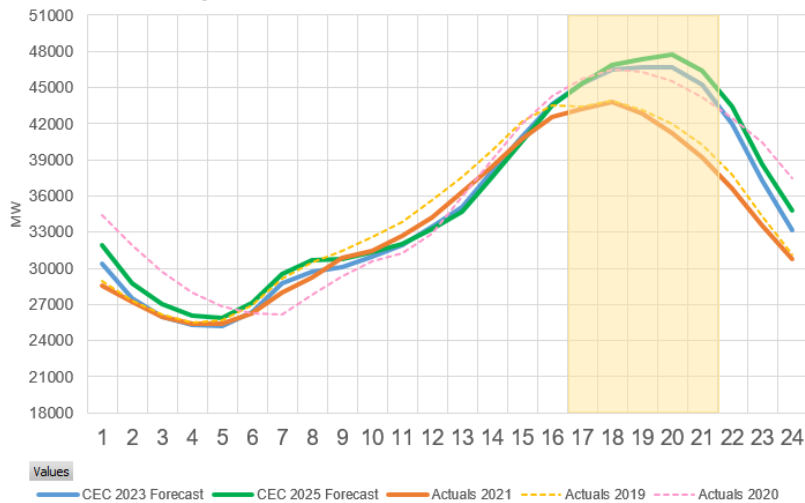


Expected load shape evolution: Summer season

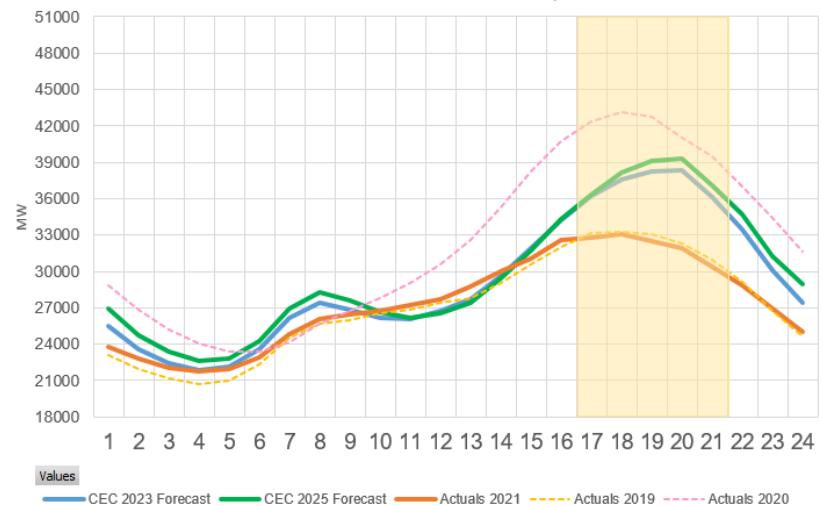
Aug 2019-2021 Actuals and 2023, 2025 Forecast



Sep 2019-2021 Actuals and 2023, 2025 Forecast



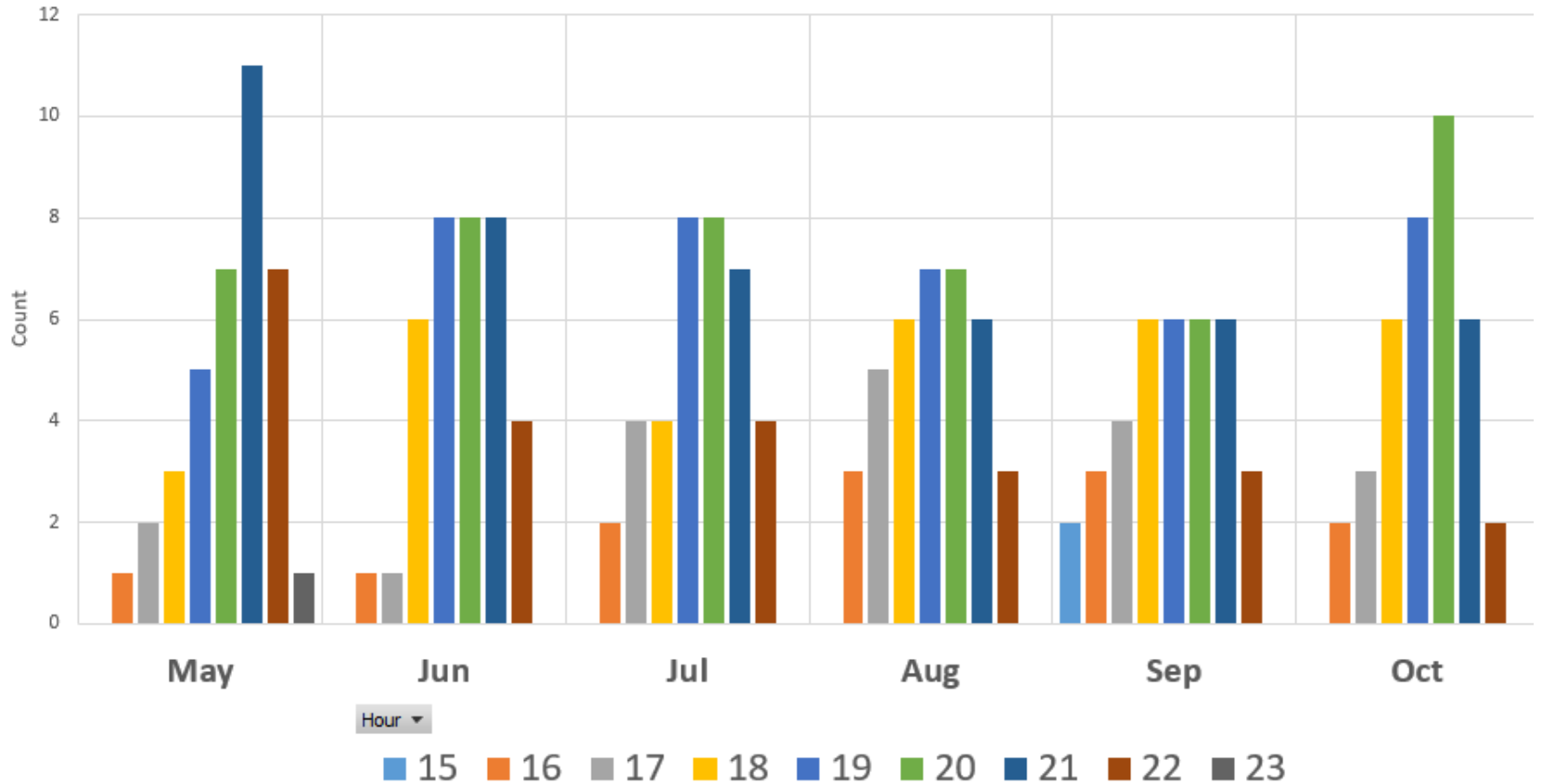
Oct 2019-2021 Actuals and 2023, 2025 Forecast



Summer Season

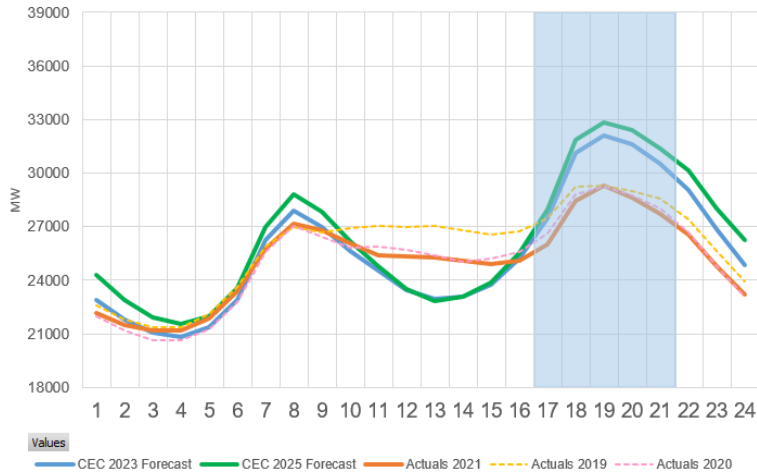
2023 top 5% of load hours (in HE)

Summer Season: Frequency of top 5% of Load Hours by Month (Hour Ending)

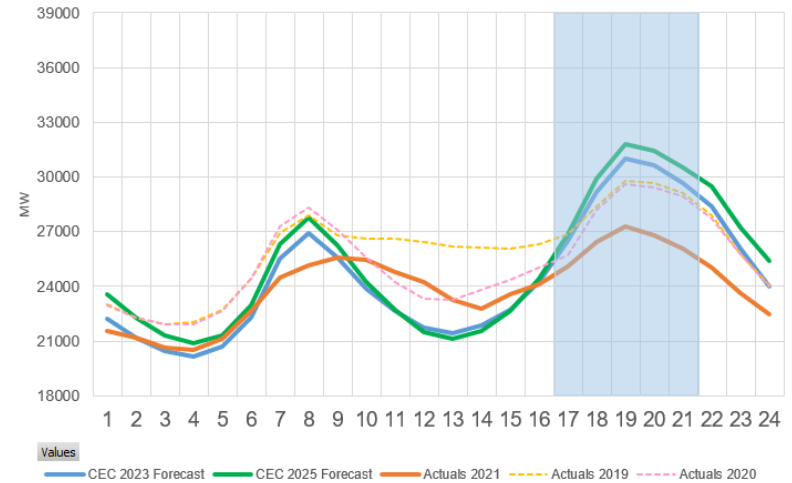


Expected load shape evolution: Winter season

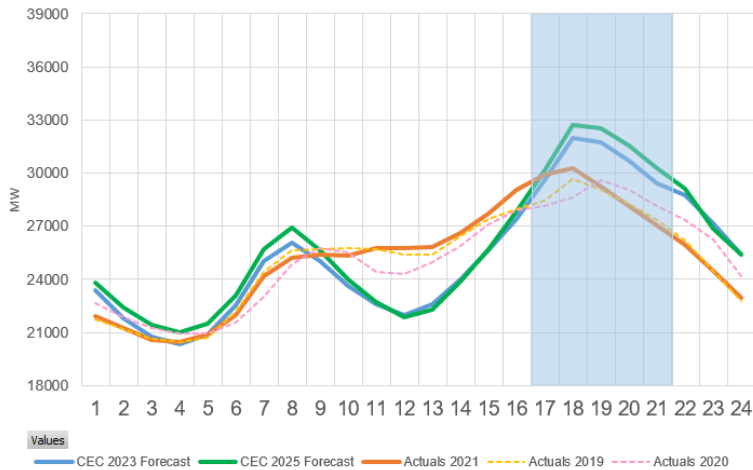
Jan 2019-2021 Actuals and 2023, 2025 Forecast



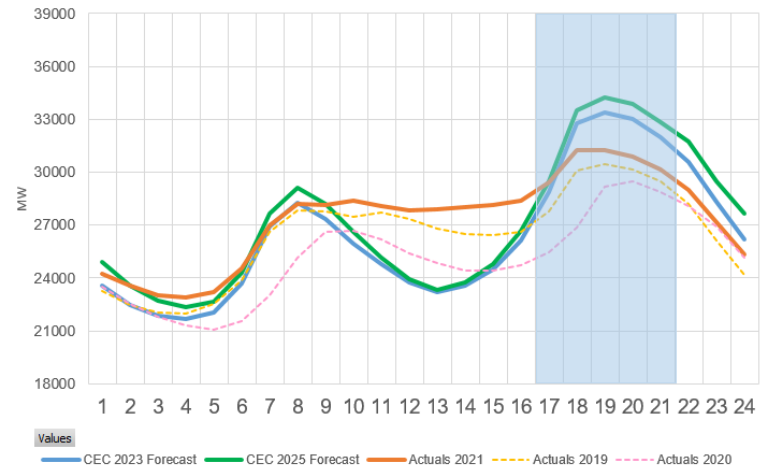
Feb 2019-2021 Actuals and 2023, 2025 Forecast



Nov 2019-2021 Actuals and 2023, 2025 Forecast



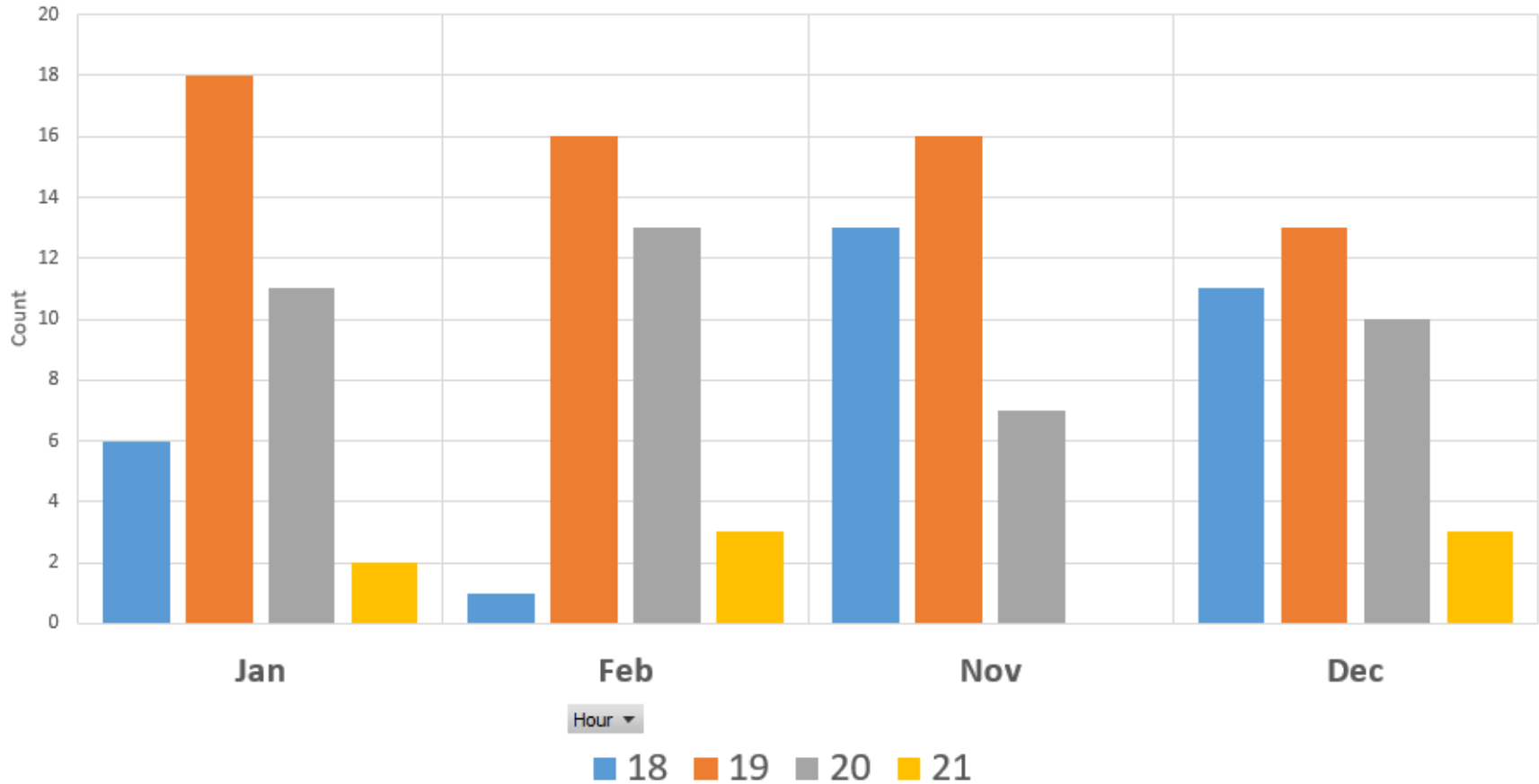
Dec 2019-2021 Actuals and 2023, 2025 Forecast



Winter Season

2023 top 5% of load hours (HE)

Winter Season: Frequency of top 5% of Load Hours by Month (Hour Ending)



Availability assessment hours final recommendation

Winter and Summer Season Recommendation

Jan-Feb, Nov-Dec; May-Oct

Year	Start	End
2022 (Final)	HE 17	HE 21
2023 (Final)	HE 17	HE 21
2024 (Estimate)*	HE 17	HE 21
2025 (Estimate)*	HE 17	HE 21

Spring Season Recommendation

Mar-Apr

Year	Start	End
2022 (Final)	HE 17	HE 21
2023 (Final)	HE 18	HE 22
2024 (Estimate)	HE 18	HE 22
2025 (Estimate)	HE 18	HE 22

* Monitoring May for potential shift to Spring season for 2024-2025

Reliability Requirements; Section 7 – BPM Updates Needed

2023 System and Local Resource Adequacy Availability Assessment Hours

Analysis employed: Top 5% of load hours using average hourly load

Spring: March 1 – April 30

Availability Assessment Hours: 5pm – 10pm (HE18 – HE22)

Summer: May 1 - October 31

Availability Assessment Hours: 4pm – 9pm (HE17 – HE21)

Winter: November 1 - February 28

Availability Assessment Hours: 4pm – 9pm (HE17 – HE21)

2023 Flexible Resource Adequacy Availability Assessment Hours and must offer obligation hours

Flexible RA Capacity Type	Category Designation	Required Bidding Hours	Required Bidding Days
January – February			
November – December			
Base Ramping	Category 1	5:00am to 10:00pm (HE6-HE22)	All days
Peak Ramping	Category 2	2:00pm to 7:00pm (HE15-HE19)	All days
Super-Peak Ramping	Category 3	2:00pm to 7:00pm (HE15-HE19)	Non-Holiday Weekdays*
March – August			
Base Ramping	Category 1	5:00am to 10:00pm (HE6-HE22)	All days
Peak Ramping	Category 2	4:00pm to 9:00pm (HE17-HE21)	All days
Super-Peak Ramping	Category 3	4:00pm to 9:00pm (HE17-HE21)	Non-Holiday Weekdays*
September – October			
Base Ramping	Category 1	5:00am to 10:00pm (HE6-HE22)	All days
Peak Ramping	Category 2	3:00pm to 8:00pm (HE16-HE20)	All days
Super-Peak Ramping	Category 3	3:00pm to 8:00pm (HE16-HE20)	Non-Holiday Weekdays*