CAISO’s TOU period analysis to address “High Renewable” grid needs

March 12, 2015
TOU period analysis scope parameters

- Weekdays can be different than weekends
- Time blocks can differ by up to 4 seasons
- Maximum of 3 to 4 time blocks per day
- Needs will be based on system needs and not geography
Questions for TOU period analysis

• Does the time of the CAISO’s coincident demand vary by season?
• Does the time of the CAISO’s coincident peak coincide with the PTOs’ peak demand?
• Is there a noticeable difference between weekdays and weekends/holidays?
• Is there a need for IOU specific TOU periods?
• Can all three IOUs establish common TOU periods based on the CAISO’s needs?
• Should TOU periods be grouped by months?
Actual 2014 Monthly WeekDAY Load vs. Net Load profiles
Actual 2014 Monthly WeekEND Load vs. Net Load profiles

- January 2014
- February 2014
- March 2014
- April 2014
- May 2014
- June 2014
- July 2014
- August 2014
- September 2014
- October 2014
- November 2014
- December 2014

Load vs. Net Load profiles for each month.
Forecast 2021 Monthly WeekDAY Load vs. Net Load profiles

- Jan 2021
- Feb 2021
- Mar 2021
- Apr 2021
- May 2021
- Jun 2021
- Jul 2021
- Aug 2021
- Sep 2021
- Oct 2021
- Nov 2021
- Dec 2021

Load
Net Load

California ISO
Shaping a Renewed Future
Net load distribution 2014 vs. 2021 WeekDAY comparison

Comparison of 2014 vs. 2021 Net Load Distribution --- Weekdays

Potential negative RTD prices
Forecast 2021 WeekDAY Monthly Net Load Distribution

- **Off-Peak**
- **Peak**
- **Super Off-Peak**
- **Super Peak**
Forecast 2021 WeekEND Monthly Net Load Distribution

- Off-Peak
- Peak
- Super Off-Peak
Identified TOU time periods that align with expected grid conditions

**WEEKDAYS**

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California ISO

Slide 12
Summary

• The CAISO’s coincident peak demand varies by season.
• The CAISO’s peak demand generally coincides with the three PTOs during spring, fall and winter and is 1-hour ahead of PG&E during the summer.
• Over-generation and real-time negative energy prices are expected to increase as more variable renewable resources are integrated into the system.
• The CAISO’s summer coincident net load peak shifts from 4:00 - 5:00 pm to 6:00 - 7:00 pm.