

Objective: Help CAEECC Workshop Attendees Make an Informed Decision Regarding DEER Peak Period Definition

Three options:

1. Option A: Get Rid of “Static” Peak Period Concept
2. Option B: Adopt a New Peak Period Better Aligned with Stakeholder Priorities (e.g., 4- 9 PM on select days)
3. Option C: Don’t Change Basis of Peak Period Determination

This presentation is structured to

- Clarify concepts related with peak period and associated demand savings
- Then present each option along with its rationale and implications

Existing DEER Peak Period Definition (2-5 PM - specific days) Meant to Forecast When Highest End-User Demand Occurs

- Does not consider load modification impact of Distributed Energy Resources (DERS, i.e. rooftop solar, batteries, etc.)
 - Mainly weather dependent; explained by CPUC in Workshop-1
 - Reasonably successful at predicting when this “gross” peak end-user demand occurs
 - (DEER Peak Period Workshop-1 CPUC Presentation, slide 6)
- Demand savings are average savings during this peak period
- This method has worked well in the past, but may not meet CPUC, and other stakeholders’ current and future requirements

When are Energy Savings Most Valuable? Depends on Who You Ask

- From CPUC perspective, the CPUC hourly avoided costs identify at what hour energy efficiency savings are most valuable
 - Avoided cost calculations consider forecasted electricity demand, forecasted energy prices, CPUC & legislative priorities (GHG constraints, Renewable Portfolio Standard, etc.) among other factors to determine these hourly benefits of energy savings
- CAISO determined Availability Assessment Hours (AAH) define peak as 4 to 9 PM throughout the year
 - This feeds into the CPUC Resource Adequacy (RA) Proceeding
 - This RA definition applies to CAISO, CPUC Staff working on RA, and other RA Stakeholders
 - Avoided cost estimates are somewhat aligned with AAH per E3 presentation in Workshop 1
- IOU perspective varies depending on the exact use-case. Per Workshop 1 Presentations:
 - PG&E expressed preference for Critical Peak Pricing (CPP) period
 - SDG&E prefer when electricity price is highest, or load on the system minus renewable generation is the highest
 - Both align with a subset of the AAH (summer days); both requested consideration of Time of Use (TOU) schedule
- CEC determines hourly impacts of AEE; no static peak period definition preference for EE savings
- Customers care about when saving electricity when electricity is most expensive; i.e., TOU peak periods
 - Based on DEER Workshop 1 Presentation by PG&E, these align with CAISO AAH, but for a restricted (summer) period
- EE Implementers interest determined by TBD contract objectives for 3rd Party programs, and customers; seeking guidance
- Note: current DEER peak period definition not aligned with any of these use-cases

Measure's Hourly Savings Profile Determines It's Alignment With CPUC Objectives (and Grid Requirements)

- If the current peak-period were to be changed or eliminated, it wouldn't impact measure selection or prioritization
- CPUC cost-effectiveness constraints on EE programs (proposed TRC ≥ 1.25) ensure appropriate measure selection
 - Measure benefit determined by applying hourly measure savings profile to hourly CPUC avoided costs; i.e., measures need to save energy when energy savings are valuable to have a good chance to be cost-effective
- Definition of peak period has no impact on measure cost-effectiveness
 - Note: CPUC Integrated Resource Planning (IRP) proceeding, an umbrella proceeding where all energy resources are analyzed in accordance with state electric sector objectives, relies on hourly impacts of energy efficiency as well

A peak period concept could be eliminated altogether. But ...

Practical Considerations for (Possibly) Retaining a Peak Period and Demand Savings Concept

- Demand Savings applied in RA, and used by CAISO
 - Although CAISO and RA could calculate peak savings using load-shapes, it'll make their lives harder
- Demand savings provide directional guidance to program planners, and implementers
 - Demand savings help them determine what measures to prioritize and pursue; measures with higher demand savings per unit annual savings better aligned with CPUC objectives
 - Not all impacted parties have the infrastructure and systems set up to determine peak savings by conducting hourly calculations (yet)
- CPUC Goal Setting: CPUC sets peak savings goals to ensure that a measure mix in line with state priorities is pursued by programs.
 - Note: current peak period not aligned with when EE is most valuable per CPUC approved avoided costs

Option A: Get Rid of Peak Period Concept

- Measure's hourly savings profile (kWh saved in each hour) is what matters
 - A single demand savings estimate gives an imperfect signal of relative measure importance
 - A good indicator of a measure's value is a combination of a measure's lifetime savings and cost-effectiveness ratio
 - Getting rid of peak period shouldn't influence measure selection due to program cost-effectiveness constraints
 - If there is a concern regarding current avoided costs, then that should be dealt with in the relevant proceeding with urgency. An accurate avoided cost analysis is important!
- Demand savings update process is resource intensive. Due to the evolving nature of the modern grid, energy efficiency peak period requirements will evolve as well

Implications of Selecting Option A: Resource Intensive in the Short Term

- Will require a lot of change management.
 - Start by educating all stakeholders on hourly EE savings analysis concepts; unsure if all stakeholders have infrastructure for immediate transition
- Abrupt change may cause confusion. Some example issues:
 - How to integrate concepts of energy savings load-shapes in savings claims for non-DEER measures
 - Energy savings profiles for custom measures may be hard to develop
 - Other issues probably exist ...
- This exercise highlights the importance of accurate energy savings profiles. Key questions:
 - Are existing CPUC approved, DEER and non-DEER, hourly savings profiles calibrated/ validated by known data?
 - Are existing CPUC approved hourly savings profiles aligned with the CEC's?

Option B: Adopt a New Peak Period Aligned with Stakeholder Priorities

- Stakeholder priorities suggest that 4 – 9 PM on selected summer days would suffice; an exact definition needs to be developed
- Practical reasons for retaining peak period is “directional guidance” provided by demand savings estimates (Slide 5)
- Peak period definition should be broad enough to generally align with stakeholder priorities (CPP days, TOU schedule, CAISO’s AAH)
 - A precise and narrow definition is not necessary and may be overstate the importance of a single demand savings estimate
 - A proposal such as 4-9 PM on non-holiday weekdays, June 1st through September 30th would be the appropriate level of detail

Option B: Implications

- DEER would need to develop and publish new demand savings estimates
 - Requires effort in the short-term but may be feasible
- Requires effective change management by the CPUC and the IOUs
 - Integrate upcoming peak period change into existing bus-stop schedule
 - IOU Goals and savings claims should reflect the same peak period definition
- Any single demand savings estimate will provide a sub-optimal signal of a measure's importance
 - Even though this new peak period may be better aligned with hourly benefits of energy savings
 - Hard to adopt a single peak-period that meets all CPUC & stakeholder priorities
 - EE has multiple benefits (renewable supply, locational/ distribution, transmission, GHG emissions, bill reduction, among others); these benefits from EE vary based on time & location of EE impact

Option C: Don't Change Basis of Peak Period Determination

- Continue applying existing methodology
 - Exact dates may change as weather data are updated
- This period does not align with stakeholder priorities or with CPUC approved energy efficiency avoided costs estimates
- Any single demand savings estimate will provide a sub-optimal signal to the industry
 - Option C provides a more inaccurate signal than Option B due to misalignment of current peak period with CPUC approved energy efficiency avoided cost profile