Bid Normalized Load Impact Introduction

Aug 10, 2023

3:00 p.m. – 5:00 p.m. PT

Hosted by the Energy Division of the California Public Utilities Commission

With support from the California Energy Commission

California Public Utilities Commission

Agenda

Note that times are approximate. There will be a brief pause for questions after each section. Participants may raise their (virtual) hand to ask a question at any time.

#	Topic	Time
1	**Introductions, Logistics and Scheduling**	3:00 PM – 3:15 PM
2	**Review of Problem Space**	3:15 PM – 3:30 PM
3	**Review of Proposals and Potential Guardrails**	3:30 PM – 4:30 PM
4	**Next Steps**	4:30 PM – 4:45 PM

Introductions / Announcements

- **Host: Energy Division**
  - Eleanor Adachi
  - David Oliver
- **Co-Host: California Energy Commission**
  - Daniel Hills-Bunnell
  - Erik Lyon

Logistics

- Presentation will be uploaded onto DR Workshops website at a later time.
- All attendees are muted upon entry. Please stay muted unless you are speaking. Only one person should be speaking at a time.
- Please "raise your hand" if you would like to speak or use the chat.
- Safety: (1) Note surroundings & emergency exits, (2) Ergonomic check, (3) In case of emergency, call 9-1-1.
- Refrain from discussing any other proceedings in case Commissioners are present to avoid inadvertent ex-partes.

Mute/Unmute

Raise Hand

Participant List

Chat
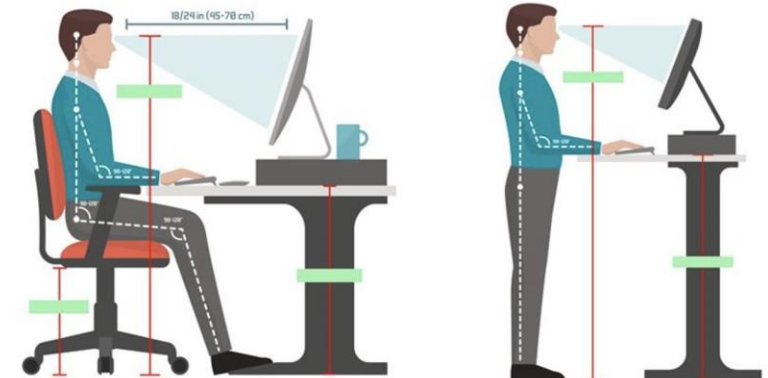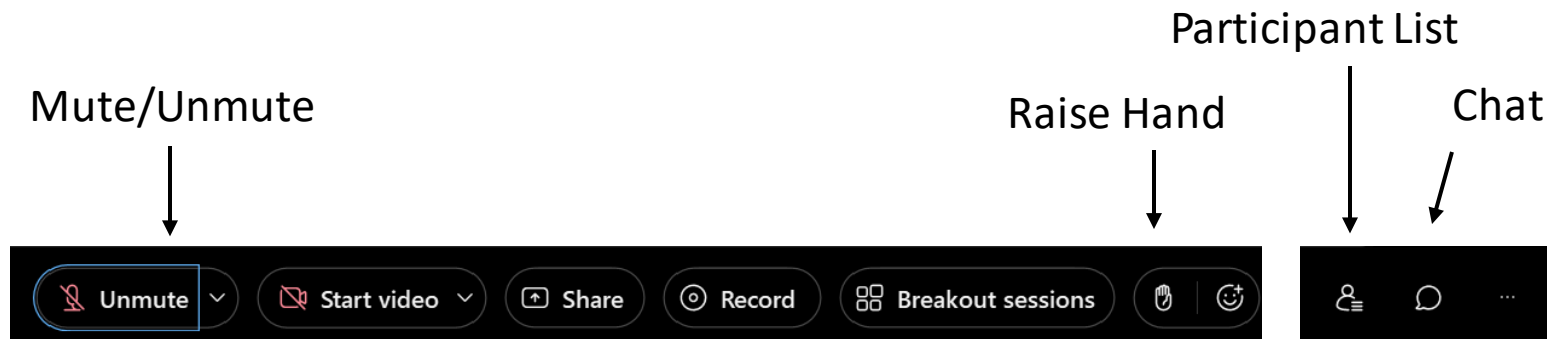
BNLI Schedule

Date	Topic	Outcome
August 10th Meeting	Bid Normalized Load Impact (BNLI) Introductions	Definition of Problem Space and Solicitation of Proposals from Working Group Participants
August 16th Due Date	Working Group Participants Submit Proposals Regarding BNLI	Staff and Participants can Review Suggestions from Larger Working Group
August 24th Meeting	Presentations and Discussions of Proposals Regarding BNLI	Understanding of Suggested Adjustments to Specific Element
August 30th Due Date	Comments from Working Group Participants on BNLI Due	Staff to reach consensus on BNLI proposals

Bi-Weekly Schedule through November

Workshop Schedule

Months	August		September		October		November	
	08/10	08/24	09/7	09/21	10/5	10/19	11/2	11/16
BNLI	Intro Discussion	Feedback and Proposals	Finalize Element					
CSP			Intro Discussion	Feedback and Proposals	Finalize Element			
Penalty Enforcement					Intro Discussion	Feedback and Proposals	Finalize Element	

Review of Problem Space

Defining Resource Performance

Metric Goals

- A fair metric to assess performance during a DR event
  - Consistent across DR resources
- Balance Actual Performance with Resource Availability
  - Delivered Load Impacts relative to Bids
  - Account for partial dispatches
- Incentivize meeting dispatches/resource schedules accurately
- Incorporates most accurate available estimate of load impacts

Load Impacts

- CAISO Settlement, Load Impact Protocol, or similar methods
- Resources effectively penalized for partial dispatch
  - May incentivize deviating from scheduled load impacts

Per-Customer Load Impacts

- Apply average load impact per dispatched customer to all customers

- Accounts for partial dispatch

- Does not account for heterogeneity in participant size and profile
 - May be addressed with weighting?

$$PCLI = \frac{LI}{Cust_{Disp}} Cust_{Enroll}$$

- LI: Load Impact
- $Cust_{Disp}$: Customers Dispatched
- $Cust_{Enroll}$: Customers Enrolled

Bid Normalized Load Impact

$$\text{BNLI} = \max\left(\text{Bid}\left(\frac{\min(\text{Delivered, Dispatch})}{\text{Dispatch}}\right), \text{Delivered}\right)$$

- Bid amount, scaled by percent of dispatch delivered
  - Control for partial dispatches
- May incentivize bidding unattainable amounts at high price to inflate value
  - Price adjustment/weighting?
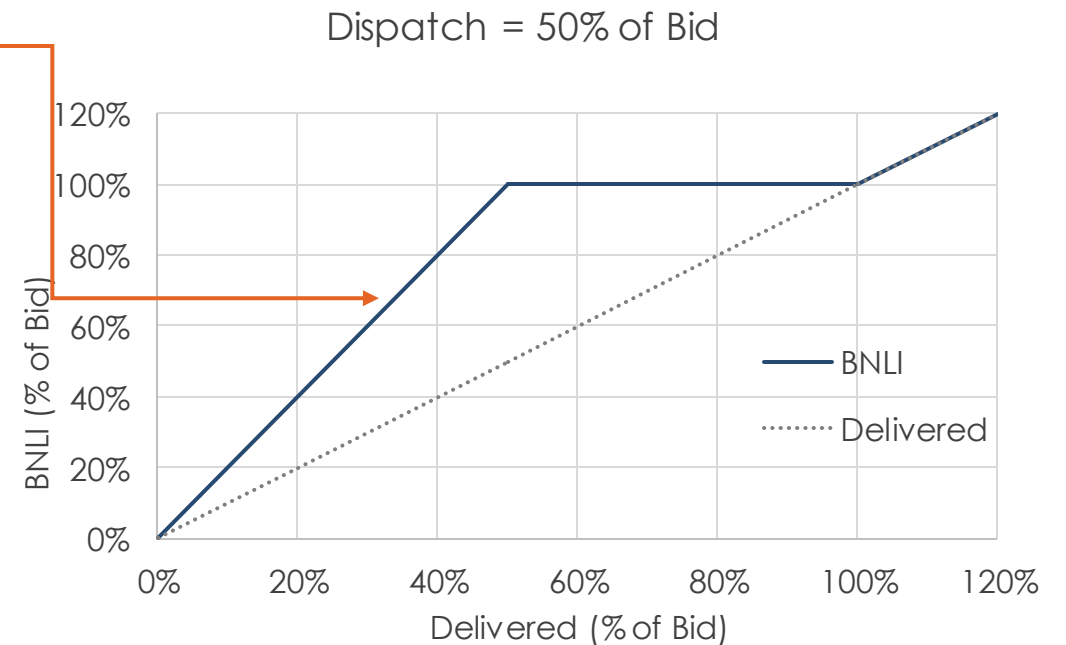
Dispatch = 50% of Bid

BNLI Proposed Guardrails

- Minimum Dispatch (OhmConnect)
  - Proposal: 20% of Bid
  - BNLI:Delivered ≤ 5:1
- BNLI Price Cap (CPUC)
  - Proposal: $600/MWh

"Elbow" will never be below 20%
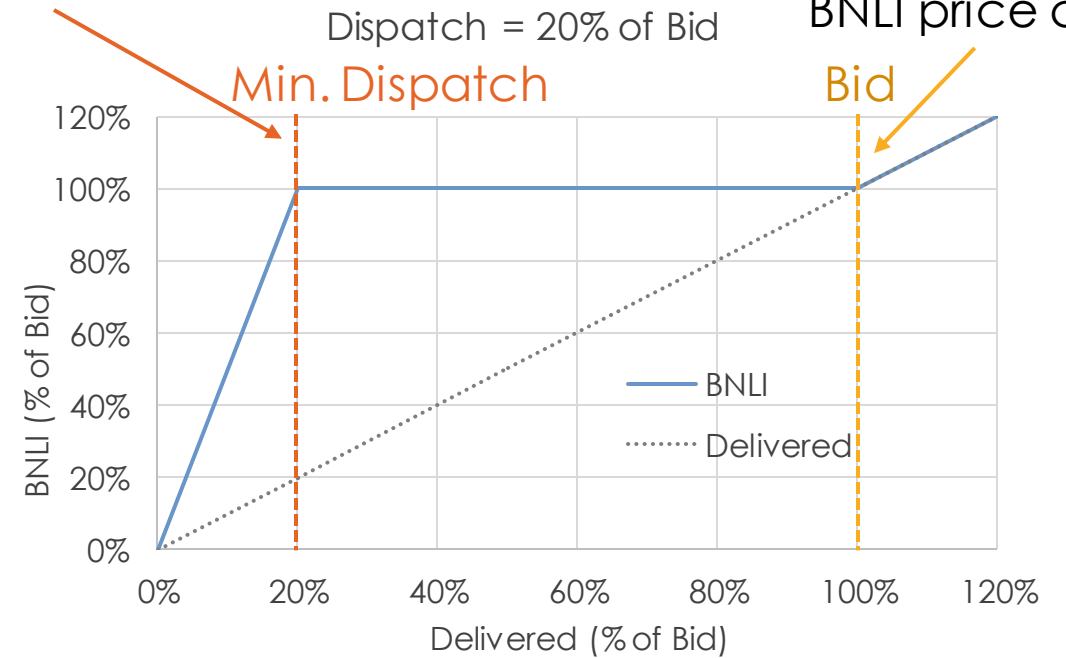
Bid amount only includes undispatched energy up to BNLI price cap

Dispatch = 20% of Bid

Min. Dispatch

Bid

Example: DSGS BNLI Definition Refinement

- Refined Variables:
  - Bid → Offer $= \sum_{r=1}^{n} Bid_{r,h} + SelfSched_{r,h}$

  - Delivered → CAISO Demand Response Energy Measurement (DREM)
  - Dispatch → Total Expected Energy (TEE)
- Real-Time Market Only
  - Problem for long-start resources?
- BNLI Price cap $600/MWh
- TEE ≥ 0.2 Offer

$$BNLI = \max\left(\text{Bid}\left(\frac{\min(\text{Delivered, Dispatch})}{\text{Dispatch}} \right), \text{Delivered} \right)$$

$$BNLI_h = \text{Max}\left(Offer_h \left(\frac{\text{Min}(DREM_h, TEE_h)}{TEE_h} \right), DREM_h \right)$$

Recommend relaxing DREM definition to allow alternative measurements
(LIPs, comparison groups)

Baselines

From CEC QC Report:

"Require DR providers to use the same baseline for settlement and ex post evaluation unless an alternative is more accurate but unable to be used for settlement.
Measurement consistency between settlement and ex post evaluation should be preferred by default. However, CEC staff realizes that feasible ISO-approved baselines are often insufficient, particularly for weather-sensitive resources." (p. 49)

Proposed Reframing:

Require the ex post evaluation baseline method to be used in CAISO settlement, *unless* it is not possible or practical to use that method for purposes of settlement.

- Anchor guidance on ex post evaluation methods, which are presumably more accurate
- Still communicates preference for consistency while recognizing practical constraints on settlement methods

Next Steps

Proposals and Next Meeting

Proposals on Bid Normalized Load Impact

- Written proposals and comments due on August 16th
- Should address concerns raised in this presentation
- Explain terminology if using language that departs from CAISO bid settlement

Format of Next August 24th Meeting

- Invitation to present adjustments from written comments
- 10 mins to present with 5 mins of Q&A (subject to reduction depending on number of presenters)
- Presentations Due August 22nd and will be shared during the August 24th meeting
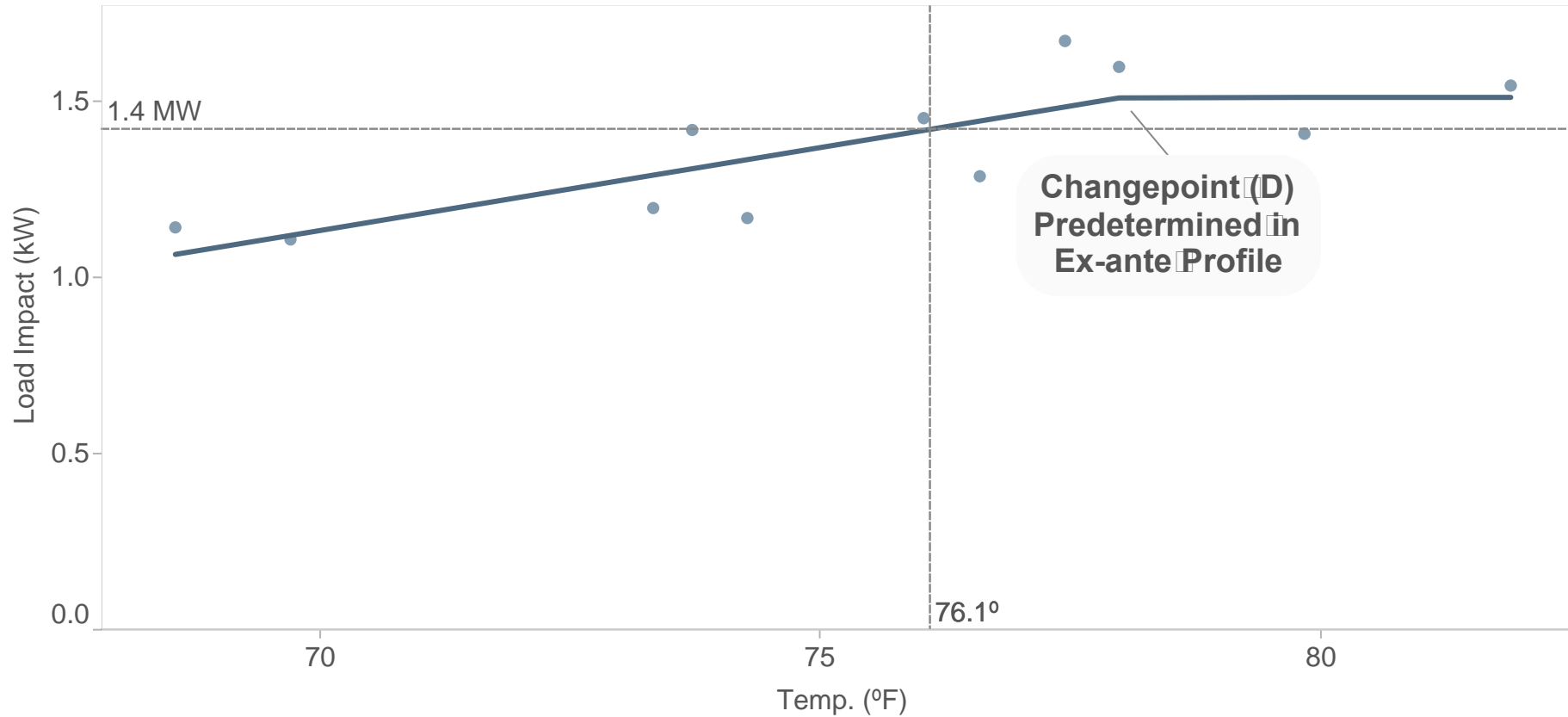
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Thank you!

Additional CEC Proposal Slides

[Presented Separately]

Ex-Post Capacity Calculation
Single Hour

Ex-Post Capacity Calculation
Multiple Hours