Energy Storage and Distributed Energy Resources Phase 2 ("ESDER 2")

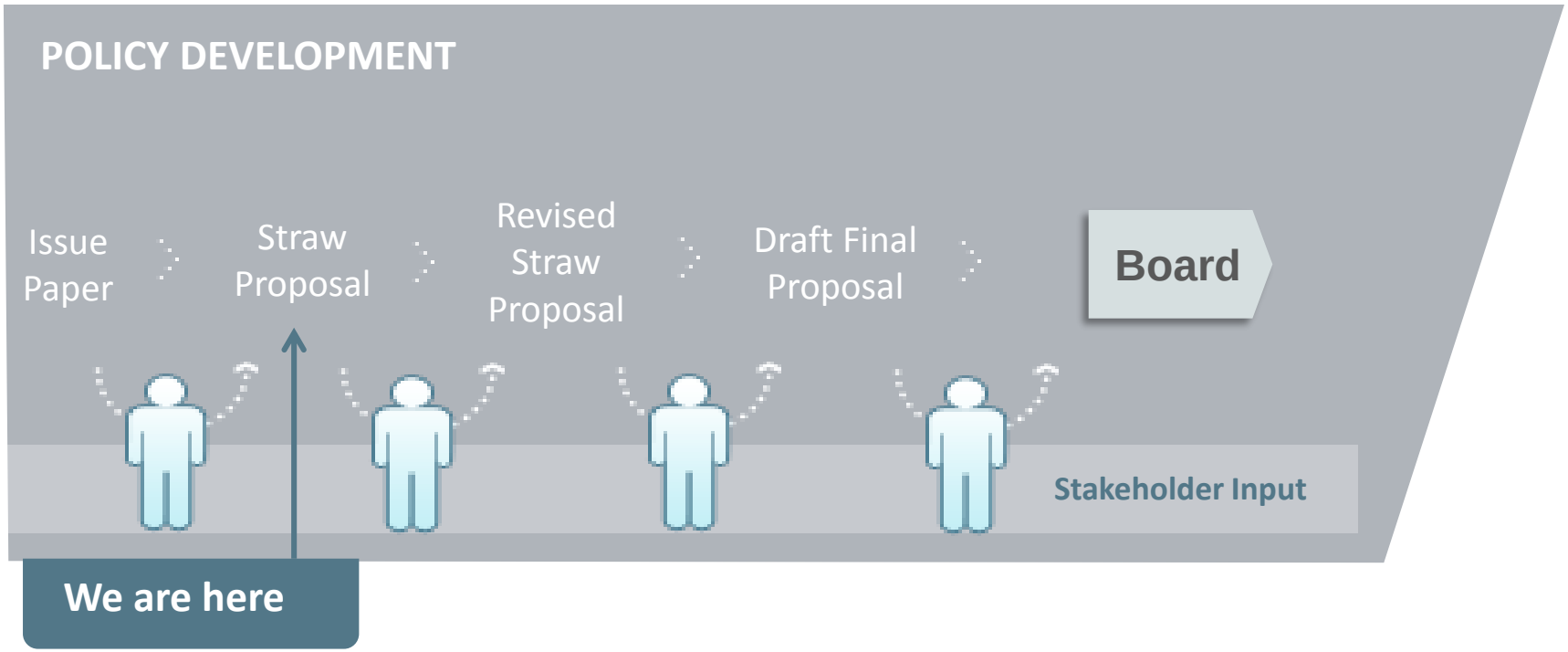
Straw Proposal

Stakeholder web conference
May 31, 2016
1:00 – 4:00 (Pacific Time)

Agenda

Time	Agenda Item	Speaker
1:00-1:10	Introduction, Stakeholder Process	Tom Cuccia
1:10-1:40	NGR Enhancements	Peter Klauer
1:40-2:10	Demand Response Enhancements	John Goodin
2:10-2:30	Multiple-Use Applications	Lorenzo Kristov
2:30-2:50	Station Power	Bill Weaver
2:50-3:10	Allocation of TAC to Load Served by DER	Lorenzo Kristov
3:10-3:15	Next Steps	Tom Cuccia

ISO Stakeholder Initiative Process



Stakeholder process schedule

Step	Date	Event
Issue Paper	March 22	Post issue paper
	April 4	Stakeholder web conference
	April 18	Stakeholder comments due
Straw Proposal	May 24	Post straw proposal
	May 31	Stakeholder web conference
	June 9	Stakeholder comments due
Revised Straw Proposal	July 12	Post revised straw proposal
	July 19	Stakeholder web conference
	August 2	Stakeholder comments due
Draft Final Proposal	September 8	Post draft final proposal
	September 15	Stakeholder web conference
	September 29	Stakeholder comments due
Board Approval	October 26-27	Board of Governors meeting

NGR Enhancements

Represent use limitations in the NGR model

- The industry is learning how different storage technologies behave and are best managed
- It is likely that all storage technologies can not be expected to have the same limitations and constraints
- Storage providers can ‘tune’ storage for specific applications and services
- The ISO would like to consider NGR modeling enhancements that may better reflect resource use limitations that can not be accomplished through bidding strategy alone

Represent use limitations in the NGR model (cont.)

- Examples of potential use limitations
  - Maximum annual charge or discharge
  - Maximum or minimum numbers of charge/discharge cycles over time
  - Physical MW limits based on time of day
- The ISO invites stakeholders to provide storage technology specific examples and use-cases that could be considered for NGR modeling

Represent dynamic ramping in the NGR model

- Today's NGR modeling assumes that the resource performs consistently within its continuous charge and discharge operating regions
- This consistency may not apply for certain storage technologies or resource aggregations where the resource may perform significantly differently across operating regions
  - Ramping or rate of charge/discharge based on state of charge or other factors affecting the performance curve

Represent dynamic ramping in the NGR model (cont.)

- The ISO would like to explore dynamic ramping for a NGR modeled resource where ramp segments can be defined across the resources performance curve based on the state of charge
- Ramping segments could apply to charge and discharge modes differently

Demand Response Enhancements

Stakeholder-led Work Groups are Up and Running

Baseline Analysis Working Group (BAWG)

Leads: Kathryn Smith (SDG&E) and Cherish Balgos (SCE)

- Exploring additional baselines to assess the performance of PDR when application of the current approved 10-in-10 baseline methodology is sufficiently inaccurate.

Load Consumption Working Group (LCWG)

Lead: Spence Gerber (Olivine)

- Exploring the ability for PDR to consume load based on an ISO dispatch, including the ability for PDR to provide regulation service.

Baseline Analysis Working Group Update

Group Purpose:

To create specific recommendations for additional settlement methodologies to be incorporated into the CAISO settlement process for PDR and RDRR.

Major Areas of Research:

1. Alternative Traditional Baselines
2. Methodologies for Frequent Dispatch
3. Control Group

Baseline Analysis Working Group Update (cont.)

- Alternative Baselines
  - Identify accurate baselines for residential customers.
  - Verify accuracy of current baseline for emergency programs.
  - Verify accuracy of current baseline for agricultural customers.
- Frequent Dispatch
  - Investigate the number of days necessary to create an accurate baseline.
- Control Group
  - Investigate the control group methodology used by ERCOT in weather sensitive demand response pilot project.

Load Consumption Working Group Update

- Three areas of investigation and discussion
  - Straight up load consumption by PDRs
  - Daily load shift
  - PDR frequency regulation
- Currently in a formative state
  - Fairly broad stakeholder representation
  - Not yet consensus work product

Load Consumption Working Group Update (cont.)

- "Guiding Principles"
  - Leverage existing market functionality to the extent possible
  - Assess feasibility
  - Prioritize based on expected value and use
- Emerging Issues
  - Nexus of retail and wholesale compensation big challenge
  - Wholesale market product v rate design solutions
  - BTM measurement solutions likely overlap with Baseline Workgroup

Multiple-Use Applications

Multiple-Use Applications

- Multiple-use applications (MUA) are those where an energy resource or facility provides services to and receives compensation from more than one entity.
- DER could potentially provide and be compensated for many services to customers, the distribution system and the wholesale markets.

Multiple-Use Applications (cont.)

- ISO is reviewing stakeholder comments and reply comments following May 2-3 joint CPUC-ISO workshop.
- ISO has not yet identified specific MUA issues or topics that require treatment in ESDER 2.
- ISO proposes to continue its collaboration with the CPUC in this topic area through R. 15-03-011.
- If further review of comments reveals an issue that should be addressed within ESDER 2 the ISO can amend the scope and develop a response.

Station Power

Distinction between charging energy and station power

- Energy for resale is considered wholesale under the Federal Power Act, which means that charging a storage device is a wholesale, FERC jurisdictional activity.
- Station power is energy consumed to operate a generator. It is a retail, state jurisdictional activity.
- For station power purposes, storage resources will be treated similarly to generators.

The CAISO proposes to seek Board approval in two ways:

- To revise the CAISO tariff definition of station power to exclude explicitly charging energy (and any associated efficiency losses); and
- Permit the CAISO to revise its tariff later to be consistent with IOU tariffs, as needed, in the event that they revise their station power rates.

Allocation of Transmission Access Charge (TAC) to load served by DER

ISO will open a separate initiative to address this topic

- ISO agrees with stakeholders who commented this topic is more appropriately addressed in its own initiative rather than in ESDER 2.
  - Potential changes to the TAC billing determinant will be of interest and importance to many stakeholders who may not be concerned with the other ESDER 2 topics.
  - Leaving this topic in ESDER 2 could cause some stakeholders to inadvertently miss this important topic due to its reduced visibility within ESDER 2.
- ISO will issue a market notice in the near future to announce the launch of this new initiative and posting of the issue paper.

Next Steps

Request stakeholder comments by COB June 9

Be sure to use comments template provided

Submit to comments mailbox:
initiativecomments@caiso.com

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Thank you!