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

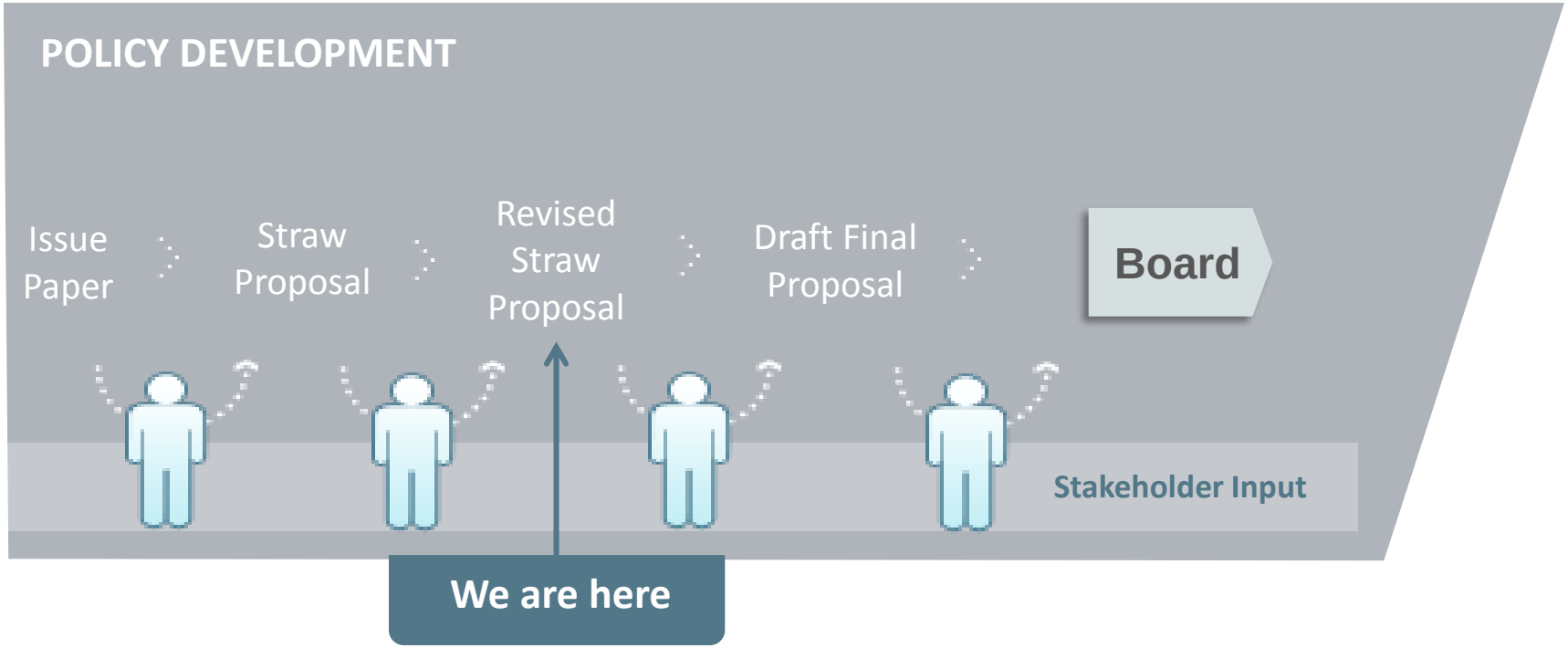
Revised Straw Proposal

Stakeholder web conference
July 28, 2016
1:00 – 3:00 (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
2:10-2:40	Multiple-Use Applications	Lorenzo Kristov
2:40-2:50	Station Power	Bill Weaver
2:50-3:00	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 21	Post revised straw proposal
	July 28	Stakeholder web conference
	August 11	Stakeholder comments due
Draft Final Proposal	TBD	Post draft final proposal
	TBD	Stakeholder web conference
	TBD	Stakeholder comments due
Board Approval	TBD	Board of Governors meeting

NGR Enhancements

Represent use limitations in the NGR model

- Use limitations within the NGR model remain a priority for many stakeholders.
- NGR modeled resources qualifying as use limited need methods to quantify start-up costs, minimum load costs and minimum MWh run-time for bid submission.
- The ISO proposes creating a working group to determine the preconditions for an NGR to qualify as use-limited, to begin meeting in August/September.

Represent use limitations in the NGR model (cont.)

- Reporting annual charge/discharge limitations, physical MW limits, and daily cycling limits also impacts NGR participation. Changing these throughput limiting parameters on a daily basis remains an area of interest to the ISO.
- The ISO believes these parameters are best tracked by the resource owners. This capability already exists for MW limits as SCs may submit operational profiles in the ISO Outage Management System.

Model Enhancements for high and low State of Charge

- Previously the ISO was investigating a dynamic ramping rate model based on a resource's State of Charge (SOC).
- A battery resource's ramping rate is not dependent on SOC. The challenge is in a resource's ability to sustain a MW output at a given SOC due to operating restrictions. MW throughput may already be managed in an NGR's bid.
- Some stakeholders suggested enabling of multiple bid stack submission for different SOC levels, but the ISO is not pursuing that option at this time. The issue may be reevaluated when more resources are participating.

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. Control Group
3. Frequent Dispatch

Baseline Analysis Working Group Update (cont.)

- First Round of Analysis is complete and includes:
  - AC cycling customers
  - BIP customers
  - Agricultural Customers

- Methods tested Include
  - Alternative Baselines
  - Control Groups

Calculations focus on accuracy and precision on non-event days for program participants.

Load Consumption Working Group Update

- Recommending modifications to PDR to allow bi-directional modelling.
  - Accommodates load consumption
  - No comingled wholesale/retail settlement
  - Bi-directional modelling foundational to frequency regulation.
- Abandoned a specific daily load shift wholesale product.
  - Bidirectional PDR product allows participant to bid daily load shift if that is economic for them.

Load Consumption Working Group Update (cont.)

- PDR Frequency Regulation two potential products
  - Recommending energy settlement for single hour directional (Reg Up or Reg Down) frequency regulation.
  - Bi-directional single hour frequency regulation w/o energy settlement
  - As with other the PDR participation, approach(es) do not attempt to comingle wholesale and retail energy settlement.

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.)

- In the context of CPUC Energy Storage Track 2 proceeding (R. 15-03-011) the ISO has collaborated with CPUC staff to
  - conduct workshop on this topic on May 3
  - review stakeholder comments and reply comments
- At this time the ISO has not identified MUA issues or topics that require separate treatment in ESDER 2.
- ISO will continue its collaboration with the CPUC.
- If the CPUC proceeding 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 ISO believes energy used to charge a battery for later resale – including efficiency losses – should be subject to a wholesale rate.

Clarifications on “Netting”

- The CAISO does not “net” retail consumption and wholesale generation as part of its settlement process.
- The generators themselves do the “netting” by self-supplying the energy for their station power load.
  - The CAISO thus sees slightly reduced output onto the grid, and the UDC sees reduced (or no) energy drawn from the grid.

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).
- 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.

Next Steps

Request stakeholder comments by COB August 11

Be sure to use comments template provided

Submit to comments mailbox:
initiativecomments@caiso.com

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Thank you!