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Hybrid Resources – Phase 1 (Co-located Resources) Training

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Lead Client Trainer
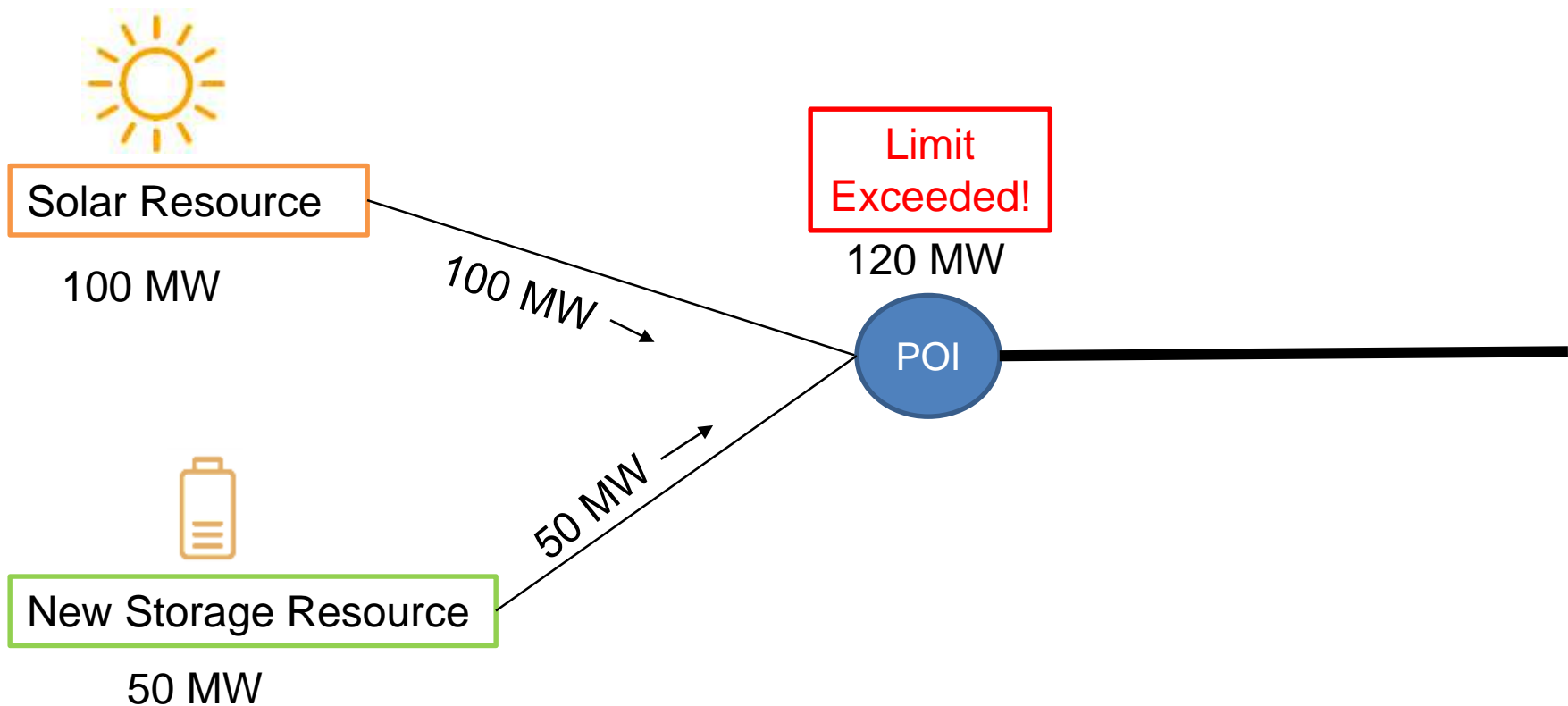
October 20, 2020

Agenda

- Background

- Market processes

- Key information

- Resources

What is the problem that we are trying solve?

Solar Resource

100 MW

100 MW

New Storage Resource

50 MW

50 MW

Limit Exceeded!

120 MW

POI

New resource implementations that involve energy production from different technologies at the same **Point of Interconnection** (POI) may have arrangements where their combined capabilities exceed the maximum approved capability at their shared POI.

Hybrid Resources Phase 1 introduces a new market model

- Allows individual resources, with potentially different SCs and technologies, to share a common POI to the transmission grid

- Managed by the market as a congestion management constraint for all associated resources (i.e. "co-located") while energy dispatch is optimized

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Hybrid Resources Phase 1 – <u>Co-located resources</u>*

Metering configurations must be approved by the ISO.
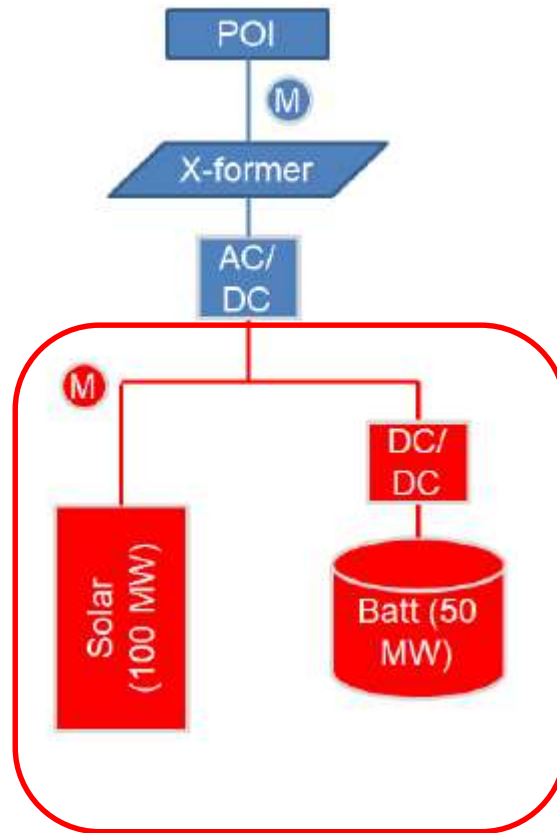

- Resource ID
- Meter
- Telemetry
- Forecast
- Bid
- Schedule
- Outage
- Settlement
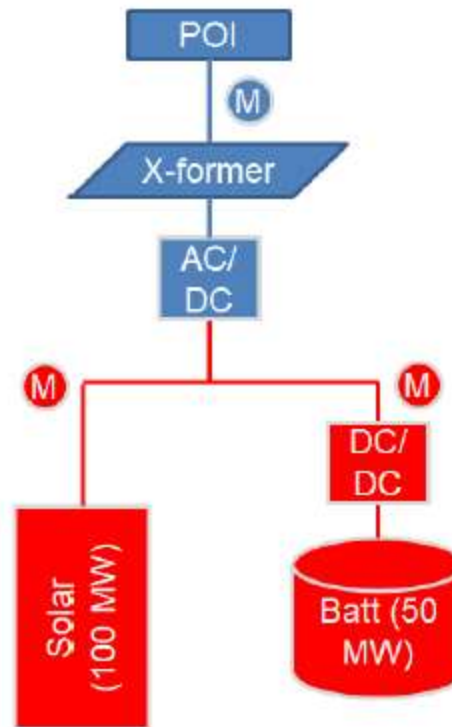
- Resource ID
- Meter
- Telemetry
- Forecast
- Bid
- Schedule
- Outage
- Settlement

* Energy only

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Hybrid Resources Phase 2 – Hybrid resources*
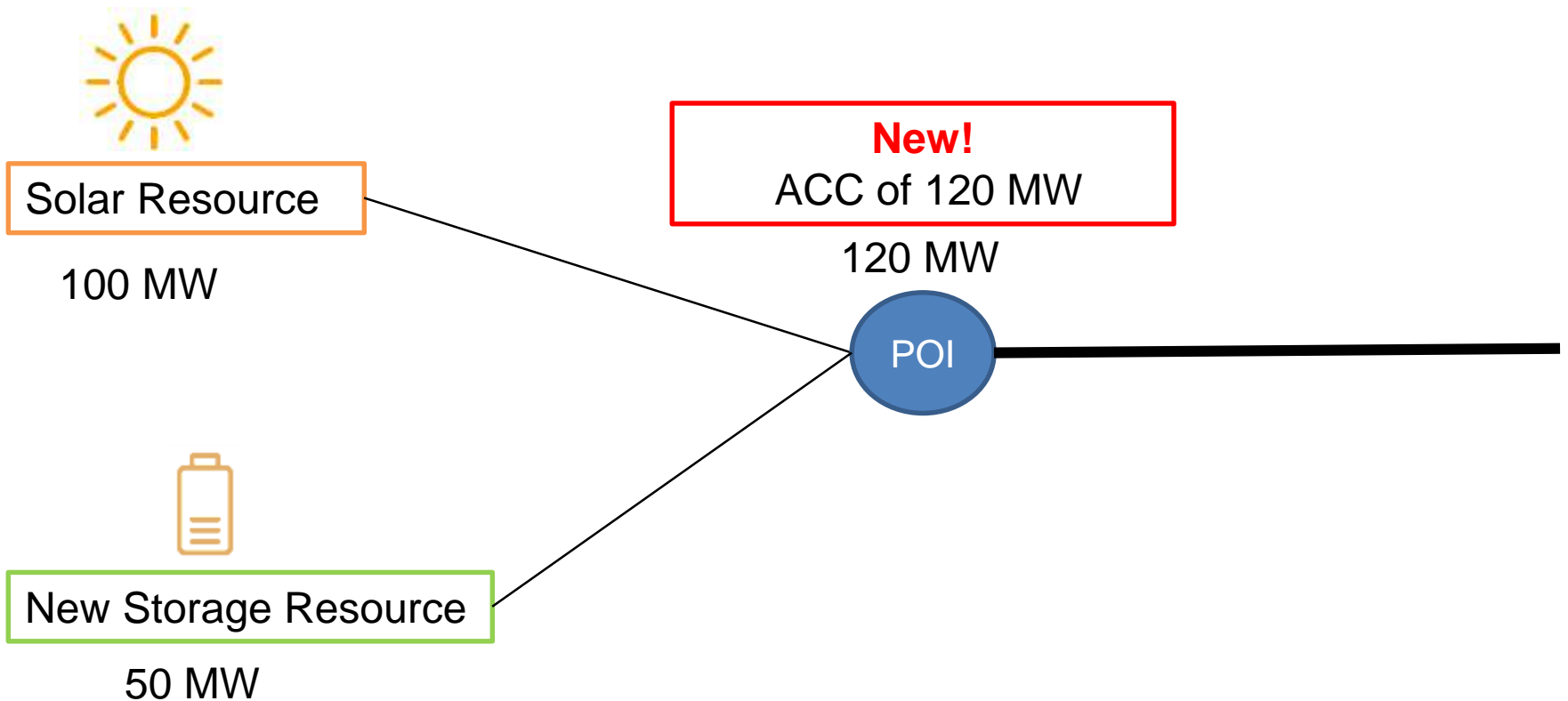

- Resource ID
- Meter
- Telemetry
- Forecast
- Bid
- Schedule
- Outage
- Settlement

* Energy, ancillary services, flex ramp

New Term – Aggregate Capability Constraint (ACC)

An energy production constraint that sets minimum and maximum limits for co-located resources

Solar Resource

100 MW

New!
ACC of 120 MW

120 MW

POI

New Storage Resource

50 MW

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Market Processes

- Each day the IFM and RTM will receive model data for all active ACC and their co-located resources

- For each market run the system will optimize unit commitment and economic dispatch while enforcing the ACC for co-located resources
  - Combined dispatch of co-located resources will not exceed the ACC min or max limits
  - One resource at a co-located facility may produce energy while another consumes energy at the same co-located facility

- Dispatch instruction for all resources will continue to be based on submitted bids

Applicable for both ISO BAA and EIM BAAs
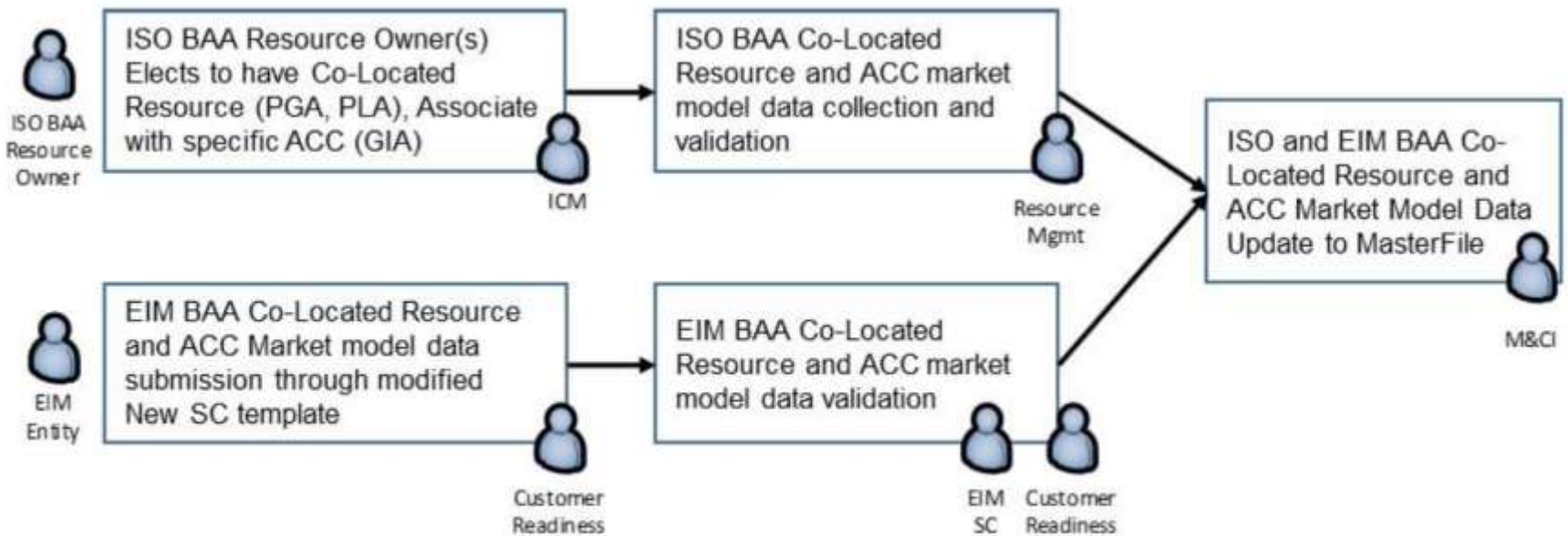

Figure 4.2.1 Co-Located Resource and Aggregate Capability Constraint (ACC) Market Model Election and Submission Processes
Note: ICM, Resource Management, Customer Readiness, and M&CI are all business units internal to the ISO.

Other key information

- EIM
  - EIM BAA operators will only interact with co-located resources in their own BAA
  - BAAOP will provide ACC info that can be viewed, filtered and revised; EIM Operators will be able to overwrite ACC max and min values

- No convergence bidding will be allowed on Pnodes with co-located resources

- Resource adequacy for co-located resources may be reduced to account for the aggregate capability constraint
  - Generally co-located resources will count for the same resource adequacy capacity as independent resources

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Recap

- Hybrid Resources Phase 1 is a new market model for co-located resources

- Uses the Aggregate Capability Constraint (ACC) to optimize unit commitment and dispatch

- Master File will store co-located status and ACC information

Questions

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Wrap Up

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Market Sim Window

- October 26 – November 13

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BPMs that will be updated

BPM	Description of Impact(s)
Definitions & Acronyms	Define Aggregate Capability Constraint, Co-Located Resource
Energy Imbalance Market (EIM)	EIM Co-Located Resource election process, ACC notification via SC Selection Letter; EIM Operator override of ACC limits within BAA; Energy Only capability (no AS or FRU) for EIM co-located resources during Phase 1 (will support in Phase 2)
Generator Management	ISO Co-Located Resource election process, ACC notification through PGA / PLA
Market Instruments	VER co-located resources will not have training data sent to FSP forecast models for time periods when DOT_FOLLOW flag set = Y;
Market Operations	Market model of directional ACC max and min limits, co-located resources; curtailment of economic bids/self-schedules of co-located resources behind a binding ACC constraint; CISO Operator override of ACC limits within BAA; Prioritization of ACC limits over Outage Pmin/Pmax de-rates, Exceptional Dispatches (Listed Penalty Prices)

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Resources – Stakeholder Process Page

- Draft Final Proposal and presentation

- Board of Governors Decision

- Draft Tariff Language

Home>Stay Informed>Stakeholder Hybrid Resources

https://stakeholdercenter.caiso.com/StakeholderInitiatives/Hybrid-resources

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Resources - Release Planning Page

- Business Requirements (BRS)

Home>Stay Informed>Release Planning>Hybrid Resources

http://www.caiso.com/informed/Pages/ReleasePlanning/Default.aspx

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Final Questions

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For more detailed information on anything presented, please visit our website at:
www.caiso.com

Or send an email to:
CustomerReadiness@caiso.com

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