California ISO

Department of Market Monitoring Extended Day-Ahead Market Metrics

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Prepared by: Department of Market Monitoring

California Independent System Operator

Description

The following is a draft catalog of metrics the Department of Market Monitoring (DMM) plans to build for monitoring the ISO's implementation of the Extended Day-Ahead Market (EDAM) and Day-Ahead Market Enhancements (DAME). DMM will publish reports and analysis based on many of the described metrics in public reports after EDAM and DAME implementation. However, some of the metrics will only be used for internal monitoring. DMM will use its discretion to determine which non-confidential metrics to publish publicly. This determination will be informed by the metrics that the ISO publishes publicly as well as by ongoing stakeholder feedback.

The purpose of posting this draft catalog of metrics is to receive stakeholder feedback on the EDAM and DAME issues that DMM plans to monitor and report on. In particular, DMM would appreciate feedback on:

1) Issues that stakeholders think would be important for DMM to monitor but which do not seem to be covered in this draft catalog; and
2) Metrics described in this catalog that stakeholders think would be particularly important for DMM (or the ISO) to report on publicly.

DMM has scheduled a stakeholder web conference on December 15, 2025 to discuss this draft catalog of metrics. The stakeholder web conference should include some time for questions and comments. However, DMM encourages stakeholders to submit any comments or feedback on the catalog in writing to the email address DMM@caiso.com. Please include "EDAM metrics comments" in the subject line. All comments submitted in writing will be considered by DMM as it designs and implements its metrics for internal monitoring and public reporting.

	Policy	ID	Product/Area	Metric Type	Metric
1	DAME	D1	IRP/RCUD	Available capacity	Energy and rampable capacity from units with any DAM award, broken out by 1) Energy, IRU, RUC, no award; and 2) Amount of capacity in excess of energy award that resource can ramp to within 30/60/90/120 minutes.
1	DAME	D1	IRP/RCUD	Available capacity	Estimate impact of not enforcing constraints in IRP deployment scenario on allowing IRP awards that are ultimately infeasible in RT: Identify constraints not enforced in IRP case that bind in RT, and estimate undispatched IRP flow on those constraints.
2	DAME	D2	IRP/RCUD	Available capacity	Quantify IRP capacity that was available in excess of what the DAM procured, both when the IRP requirement is relaxed and when it is not relaxed.
3	DAME	D3	IRP/RCUD	Available capacity	Quantify IRU that was upstream of a RT binding constraint and not dispatched in RT.
4	DAME	D4	IRP/RCUD	Available capacity	RT availability of capacity from resources with any DAM award, compared to type and quantity of DAM award (Energy, IRU, RUC, or no award). Break out by resource type, in particular VERs and batteries. Breakout battery unavailability due to SOC.
5	DAME	D5	IRP/RCUD	Available capacity	Quantify (1) how often resources have real-time upper limit that does not support DA energy + RCU awarded; and (2) what would the penalty have been if the resource had been charged the real-time FRU price for unprovided capacity?
6	DAME	D6	IRP/RCUD	BAA actions	Use of load biasing by BAA in RUC, HASP, FMM.
7	DAME	D7	IRP/RCUD	Market behavior	Analyze DAM energy bidding behavior before and after IRP, and IR bidding behavior as function of conditions such as uncertainty level and IRP prices. Analyze RT energy bids of resources that received IRP awards.
8	DAME	D8	IRP/RCUD	MPM	Frequency of constraints deemed competitive and non-competitive in the IFM energy scenario, the upward and downward IRP deployment scenarios, and RUC MPM.
9	DAME	D9	IRP/RCUD	MPM	Quantify IRP and RUC bids that would be subject to potential mitigation because non-competitive congestion component > 0. Quantify the subset of these that bid above the competitive LMP, and therefore may have had bids lowered due to mitigation.
10	DAME	D10	IRP/RCUD	Net load uncertainty	Compare DAM modeled distribution of net load uncertainty to distribution of realized net load uncertainty in FMM and RTD. Include both the quantity and location in analysis.
11	DAME	D11	IRP/RCUD	Prices/costs	Analyse frequency of IRP and RC price caps binding.
12	DAME	D12	IRP/RCUD	Prices/costs	Compare average constraint prices in IFM deployment scenarios to FMM/RTD shadow prices. Include comparison of how frequently constraints are binding.
13	DAME	D13	IRP/RCUD	Prices/costs	IRP prices vs. FRP prices and net revenues at resource level, breaking out intervals when FRP prices are higher than DAM IRP cap.
14	DAME	D14	IRP/RCUD	Prices/costs	Quantify procurement costs of IRP and reliability capacity. Attempt to compare to RUC costs prior to EDAM.
1	EDAM	E1	CRA	Market behavior	Trends in contract reference number (CRN) submissions that qualify schedules in one BA for congestion rent on another BA's constraints. Breakout by whether OATT rights are new vs. existing or rolled over. Includes monitoring for wash trades that counter flow the qualifying CRN submissions.
2	EDAM	E2	CRA	Market behavior	Trends in self-scheduling vs. economic bids, broken out by whether or not the schedules would qualify for cross BA congestion rent allocation (firm PTP and NITS) and if the schedule is generation, load, import, or export.
3	EDAM	E3	CRA	Market results	Average impact of each constraint's shadow prices on all EDAM load aggregation point prices.

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4	EDAM	E4	CRA	Market results	Trends in binding constraints in all BAs, including shadow prices and flow limits. Break out estimate of flows over each constraint by injection or withdrawal source BA, self-schedule eligible or ineligible for cross-BA rent allocation, or economic bid.
5	EDAM	E5	CRA	Market results	Trends in congestion rent allocation. Emphasize congestion rent allocated to a BA from schedules in other BAs creating "parallel" flows on first BA's paths; and congestion rent on a BA's paths allocated to other BAs. Include quantification of congestion rent on the BA's paths from schedules within the BA. Break out the proportions of these congestion rents from self-schedules eligible for cross-BA rent allocation, self-schedules ineligible for cross-BA rent allocation, and economic bids.
6	EDAM	E6	Gas Nomogram	Market results	Trends in gas nomogram usage and results, including frequency of NGs binding, shadow prices, price impacts, and estimates of reduction in available capacity. Monitor for how these are used in tighter conditions, if they are used in place of derates, and how they are treated in the RSE.
7	EDAM	E7	GHG	GHG export constraint	Trends in GHG export constraint, including frequency the constraint is binding, limits, and shadow prices by balancing area. Quantify the extent to which each BA's limit is based on a reduction in net imports or an increase in net exports relative to the GHG reference pass.
8	EDAM	E8	GHG	Market behavior	Compare bidding behavior of resources in GHG areas to resources in non-GHG areas. Break out by resource type.
9	EDAM	E9	GHG	Market behavior	Compare DAM energy bids to RT energy bids for non-GHG area resources that receive GHG attributions. Emphasize low emissions resources. Also emphasize resources with RT energy and GHG attributions in excess of DAM energy and GHG attributions. This is to assess possibility of low emission resources strategically bidding above marginal cost in IFM in order to decrease dispatch in IFM GHG reference pass in order to increase potential GHG attribution in the IFM or RT.
10	EDAM	E10	GHG	Market results	Quantify frequency and magnitude of binding constraints that limit GHG attribution to resources in non-GHG area: GHG bid MW, resource-specific allowable GHG award from the counterfactual run, GHG net export constraint.
11	EDAM	E11	GHG	Market results	Trends in greenhouse gas market results, including GHG constraint shadow prices and quantities deemed delivered, broken out by source BA and resource type. Compare DAM and RT prices and quantities.
12	EDAM	E12	Net export constraint	BAA actions	Trends in net export constraint settings by BA. Break out hourly. Analyze as a function of market parameters such as load (at the BA and system level), prices, imports, VERs, transfer capability, and BA competitiveness (using a metric such as RSI).
13	EDAM	E13	Net export constraint	Market results	Trends in net export constraint shadow prices and impacts on energy and IRP prices.
14	EDAM	E14	Resources	BAA actions	Trends in out-of-market dispatches.
15	EDAM	E15	Resources	Market behavior	Monitor participant bidding behavior in EDAM and RT as a function of market conditions and results such as EDAM awards, RSE status, and bilateral prices. Monitor for participants adjusting bid prices and adherence to dispatch to potentially arbitrage price differences between markets.
16	EDAM	E16	Resources	Market behavior	Trends in intertie resources participating in EDAM. Quantify hourly and seasonal bid quantity and cleared quantity and proportion of schedules that e-Tag. Monitor for correlation with bilateral prices. Monitor intertie schedules across BAs for circular schedules used to arbitrage locational price differences.

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17	EDAM	E17	Resources	Transmission access	Trends in types of transmission (point to point firm, NITS, etc.) used to participate in EDAM. Break out by self-schedule vs. economic bid and resource type.
18	EDAM	E18	RSE	Available capacity	Estimate capacity used to pass EDAM RSE that is not available due to transmission constraints.
19	EDAM	E19	RSE	Available capacity	Quantify RSE capacity that receives DAM award but does not bid or deliver in real-time.
20	EDAM	E20	RSE	Available capacity	Quantify the impact of policy to count VER forecast towards meeting EDAM RSE instead of bid-in VERs. Trends in EDAM VER forecast vs. VERs bid into EDAM.
21	EDAM	E21	RSE	Available capacity	Trends in capacity counted towards passing EDAM RSE. Break out by BA, hour, month/quarter, resource type. Look for correlations in available capacity and RSE requirement. Quantify as a function of each resource's Pmax.
22	EDAM	E22	RSE	Available capacity	Trends in excess available capacity in adjacent BAs. Break out by whether or not the BA has failed EDAM RSE. Break out by whether or not transmission between the BAs is constrained.
23	EDAM	E23	RSE	Available capacity	Trends in imports that count towards EDAM RSE: Break out by imports that receive DAM awards, and whether or not they bid and tag in real-time. Quantify imports that do not tag in time for WEIM RSE and STUC. Monitor the market participants not tagging. Quantify non-resource specific imports that ultimately tag from an EDAM BA and monitor such market participants.
24	EDAM	E24	RSE	Available capacity	Trends in VER capacity counted towards EDAM RSE vs. real-time VER forecasts. Monitor for differences based on which entity's forecast is being used.
25	EDAM	E25	RSE	Available capacity	Trends in wheels counted as EDAM RSE capacity: Break out by hour, month/quarter, source and sink BA, and which BA has responsibility for a non-resource specific wheel ultimately not tagging.
26	EDAM	E26	RSE	Available capacity	Quantify RSE obligations traded between BAs. Break out by buying and selling BA, hour, month/quarter.
27	EDAM	E27	RSE	Available capacity	Trends in demand response counted towards EDAM RSE: Quantify its DAM availability and estimate how much delivers in real-time.
28	EDAM	E28	RSE	Market results	Monitor liquidity at trade hubs used for RSE penalties.
29	EDAM	E29	RSE	Market results	Quantify/estimate EDAM energy from potentially unreliable sources -- such as virtuals and VERs -- that support EDAM transfers. Break out by whether or not BA receiving EDAM transfers failed the EDAM RSE.
30	EDAM	E30	RSE	Market results	Trends in outcomes for BAs that fail EDAM RSE and are subsequently removed from EDAM pool for WEIM RSE. Quantify failures and penalties paid, and correlate with tolerance band. Quantify real-time outcomes such as RT RSE failures, price spikes, power balance constraint violations, emergencies, assistance energy transfers, available real-time capacity above load.
31	EDAM	E31	RSE	Market results	When there are real-time power balance constraint violations in EDAM BAs, monitor and evaluate the implemented prioritization of power balance violations relative to EDAM transfers into or out of the EDAM BA that had the PB violation.
32	EDAM	E32	Transmission	Availability	Trends in bucket 2 transmission availability and utilization. Quantify bucket 2 transmission made available and not made available for EDAM. Break out by BA, transmission customer (for monitoring), hourly, monthly/quarterly. Quantify and monitor entities utilizing rights only after EDAM runs, including the associated uplift, and review the implementation of the uplift allocation by BA.

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33	EDAM	E33	Transmission	Availability	Trends in transmission capacity availability. Break out by bucket, BA, hourly, and month/quarter. Include quantification of total transfer capacity made available. Attempt to quantify transmission not made available to EDAM (pending data availability). Compare DA and RT transfer capacity made available.
34	EDAM	E34	Transmission	Market behavior	Monitor transfer capacity made available by BA or transmission customer for actions that may be intended to inflate congestion rent allocation. Break out transmission availability by various market conditions, including prices and competitiveness. Include analysis of internal transmission path limits that may limit transfers.
35	EDAM	E35	Transmission	Market results	Trends in RTCIO. Quantify RTCIO by constraint for each EDAM BA and non-EDAM WEIM BA. Estimate impact of EDAM schedules on RTCIO of WEIM BAs not in EDAM.
36	EDAM	E36	Transmission	Market results	Trends in transfer constraint congestion rent allocation. Break out by BA, hour, month/quarter.
37	EDAM	E37	Transmission revenue recovery	Market results	Trends in transmission revenue recovery. Breakout by BA, type of foregone transmission sale, etc.
38	EDAM	E38	Virtual bidding	Market behavior	Quantify load underscheduling by BA, monitoring for differences between BAs with and without virtual bids.
39	EDAM	E39	Virtual bidding	Modeling issues	Monitor virtual bidding activity and associated market results for modeling issues that could be exploited by virtual bids, including loss factor and transmission constraint limits between DAM and FMM. Monitor RTCIO by constraint and trends in profitability by node to identify modeling issues.