

Comments on Powerex Response to our Paper on Day-Ahead Markets in the WECC

We appreciate Powerex's [response](#) to our [whitepaper](#) on differences in the design of the proposed day-ahead markets in the WECC. The Powerex response focuses mostly on the market efficiency benefit of fast-start pricing and the magnitude of impact it may have on market participants. As stated in our whitepaper, we agree with Powerex that fast start pricing can improve the efficiency of price formation in wholesale power markets,¹ as the experience in U.S. RTO markets has shown, although we continue to disagree on the likely magnitude of that impact.

Before further discussing the likely impact that fast-start pricing might have if implemented by CAISO, we would like to emphasize some key points to make sure they are not lost in the broader discussion:

- Both Markets+ and EDAM offer substantial benefits compared to the status quo, by making more efficient use of resources.
- Most of the market-related benefits will be driven by the transmission capabilities and diversity of loads and generation resources of market participants. That is, enabling trade has the greatest value among entities with the greatest diversity and connectivity with each other.
- We recognize that the estimated cost savings offered by EDAM or Markets+ are not the only factor (and perhaps not even the most important factor) affecting market participation decisions. Differences in governance and some of the specific market design elements will be important considerations for many potential participants.
- As we have noted in our whitepaper, we find some of the market design elements we reviewed to be more attractive in Markets+ while others are more attractive in EDAM. For example, we noted that Market+'s fast-start pricing offers more efficient market pricing and its mandatory inclusion of intertie trading is likely to improve customer outcomes for participants in that market.
- The availability of (and competition between) two market options has benefitted the development of both EDAM and Markets+ as both markets have worked harder to offer an attractive and efficient market design. The benefit of this competition is expected to continue as both markets continue to evolve over time.

¹ Brattle whitepaper at 10.

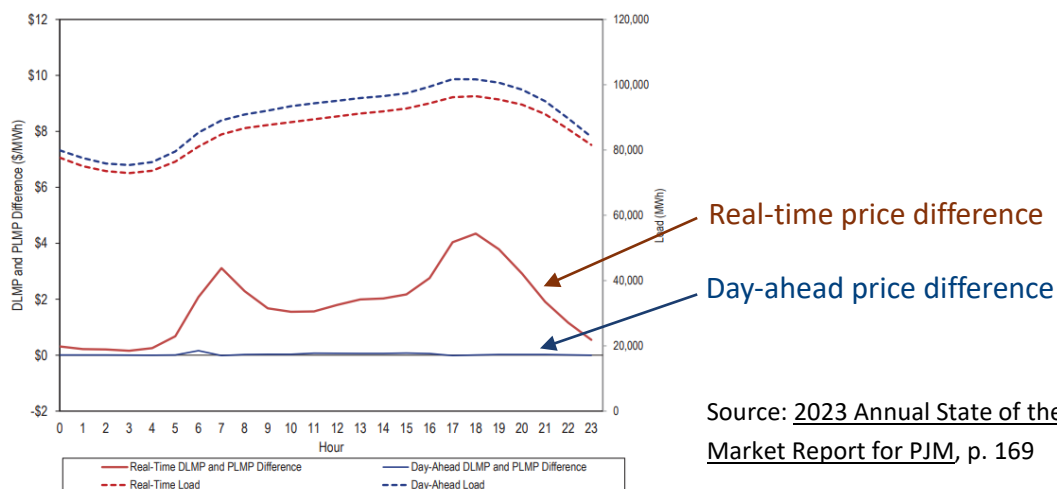
Fast Start Pricing

We appreciate Powerex’s clarification that its [2022 fast-start analysis](#) (performed with EnergyGPS) estimated that, had fast-start pricing been implemented in CAISO between 2017 and 2020, CAISO market price would on average have been approximately \$23/MWh higher in SP15 and \$15/MWh higher in NP-15 between 6 p.m. and 7 p.m. every day. As a result of these estimated price impacts, which average \$3–9/MWh over the entire year, Powerex’s 2022 analysis calculated that the absence of fast-start pricing might mean that (1) “California loads benefit by approximately \$1.3 billion per year”; (2) “market revenues for wind resources in northern California were suppressed by approximately 9%, whereas revenues for a four-hour battery storage resource were suppressed by approximately 34%”; and (3) “Northwest and Southwest ratepayers are harmed by receiving \$188–420 million per year.” While we agree that fast-start pricing can improve market efficiency, we continue to conclude that these results significantly overstate its likely impacts.

Powerex also provided helpful additional data from RTO markets, such as from MISO’s 2021 and PJM’s 2023 state of the market reports. Powerex replicated a chart from the recent PJM report, showing that fast-start pricing had an impact on PJM’s real-time of up to \$4–8/MWh during the morning and evening hours. We note, however, that:

- PJM’s \$4–8/MWh morning and evening price impacts are well below the \$15–23/MWh evening price impacts estimated in Powerex’s 2022 analysis. Importantly, these PJM impacts only apply to PJM’s real-time prices. As the PJM chart replicated on page 4 of Powerex’s response additionally shows, the maximum fast-start price impacts are less than \$0.25/MWh during the corresponding hours in the day-ahead market.

Figure 3-26 Hourly average load and LMP difference: 2023



- As the PJM report further notes, while fast-start pricing resulted in an \$1.97/MWh average annual impact on PJM’s 2023 real-time prices, it only had a \$0.04/MWh average annual impact on PJM 2023 day-ahead prices.² The distinction between real-time and day-ahead price impacts is significant because the large majority of market participants’ loads and generation settle based on day-ahead prices. The much smaller impact on day-ahead prices means that the overall market-wide impacts of fast-start pricing should be expected to be quite limited.
- MISO’s most recent State of the Market report does not provide hourly price impacts and does not report impact on day-ahead prices, but notes that in 2023 the average annual *real-time* impact of fast-start pricing was only \$0.74/MWh³—well below the \$3–9/MWh average annual CAISO price impacts calculated by Powerex on page 8 of its 2022 analysis.
- MISO’s finding of the limited impact of fast-start pricing is consistent with SPP’s, which concluded in 2023, a year after fast-start pricing was first implemented, that “there was very little change in the revenues to fast-start units due to the new fast-start pricing. The fast-start pricing appeared to have created [a] 1.5% increase in day-ahead revenues to fast-start resources and a 0.5% increase in real-time revenues. All else equal, the increase in revenue would cause a negligible reduction in make-whole payments.”⁴
- In its most recent State of the Market report published earlier in 2024, SPP continues to conclude that “[s]ince implementation, there has been very little change in the revenues to fast-start units due to the new fast-start pricing. All else equal, the increase in revenue would cause a negligible reduction in make-whole payments.”⁵

Thus, while we agree with Powerex that fast-start pricing can improve market efficiency, we continue to conclude that the overall impact of fast-start pricing should be expected to be limited. This finding does not, however, affect our conclusion that both market options provide substantial benefits compared to the status quo and that the competition between the two options has improved (and will continue to improve) the design, efficiency, and attractiveness the markets offer to participants.

² [2023 Annual State of the Market Report for PJM \(monitoringanalytics.com\)](https://monitoringanalytics.com), March 14, 2024, pp. 21 and 169.

³ [2023 STATE OF THE MARKET REPORT \(potomaceconomics.com\)](https://potomaceconomics.com), June 2024, p. 35.

⁴ [2022 annual state of the market report.pdf \(spp.org\)](https://spp.org), May 15, 2023, p. 92.

⁵ [2023 annual state of the market report v2.pdf \(spp.org\)](https://spp.org), May 31, 2024, p. 82 (emphasis added).