

WESTERN ENERGY IMBALANCE MARKET (WEIM)

Briefing by WEIM Governing Body market expert
on fast-start pricing

Susan L. Pope

WEIM Governing Body Market Expert

WEIM Governing Body Meeting

General Session

March 19, 2024



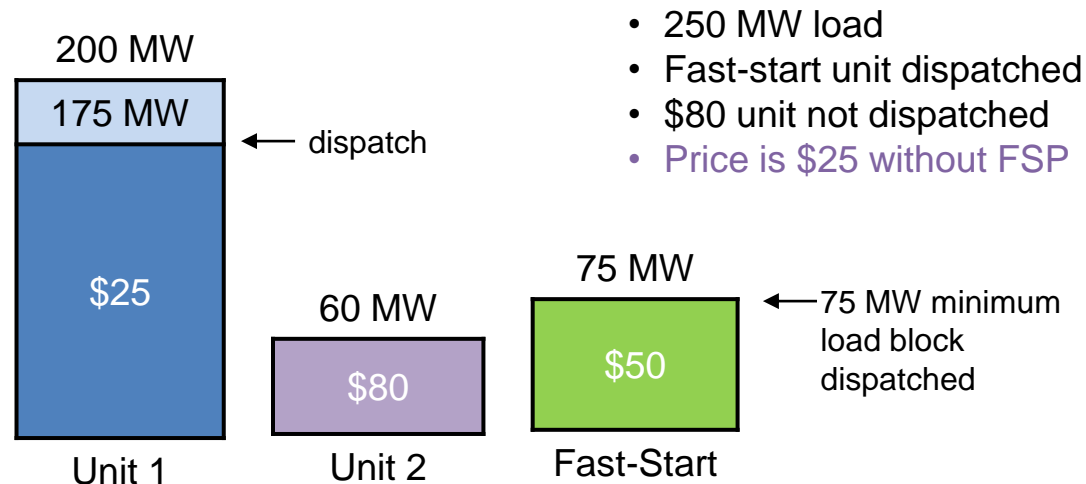
This presentation provides information about fast-start pricing (FSP) to support ongoing discussion in the Price Formation Enhancements initiative.

- Topics:
 - Why is FSP being considered for the WEIM?
 - Can FSP objectives be fulfilled by the Flexible Ramping Product (FRP) or Shortage Pricing?
 - What can be learned from other FSP experience?
 - Can the WEIM use an existing FSP design?
 - What are takeaways from CAISO's analyses of the potential impact of FSP?
 - How would FSP impact the WEIM?
- Q&A with Governing Body and Stakeholders

Overview of the main points of this presentation:

TOPIC	TAKEAWAY
Objective of FSP	➤ To provide a more efficient price signal when fast-start units dispatched to meet load
FSP vs. FRP and shortage pricing	➤ Fast-start price signal not always provided by FRP or shortage pricing
FSP in other regions	➤ Current FSP designs might or might not be easily added to the WEIM market pricing design ➤ Useful info provided by other FSP experience
CAISO's work on FSP	➤ Shows potential impact of FSP design choices on CAISO; WEIM results expected ➤ Suggests earlier study substantially overstated potential price impact (due to data limitation)
WEIM Impact	➤ Higher LMPs when fast-start resources used to meet incremental load - changes BCR payments ➤ Possibly reduced costs and emissions

The objective of FSP is to fix price anomalies that can occur when the least-cost dispatch starts up block-loaded fast-start units.

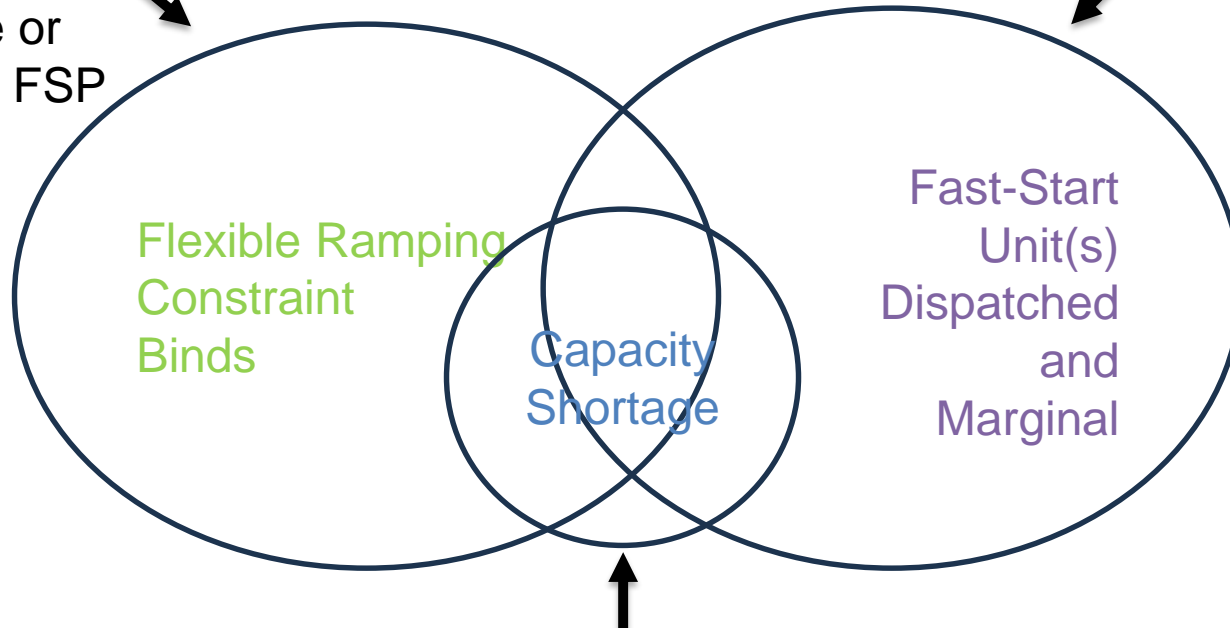


- Absent FSP, prices may not reflect the cost of meeting incremental load
 - Price paid for incremental real-time energy may fall below the value in the scheduling model run; impacts imports scheduled hour-ahead or in RTPD
 - Cost of buying incremental energy may be understated, as well as the value of demand reductions and incremental supply

FRP and shortage pricing do not fix the FSP pricing issue; the three designs address pricing for overlapping but different grid conditions.

FRP price could be above or below FSP

FSP may affect prices



Shortage pricing could be above or below FSP

Illustration is conceptual; size of circles has no meaning

Price enhancements also have different objectives.

OBJECTIVE	
Fast-Start Pricing	<ul style="list-style-type: none">➤ Equity: Price better reflects cost of meeting load when fast-start units dispatched to meet load➤ Efficiency: Increase in real-time offers from importers and other resources (not already offering)
Flexible Ramping Product	<ul style="list-style-type: none">➤ Equity: Pay for ramping capability➤ Reliability: Increase availability of ramping capability➤ Efficiency: Least cost ramping scheduled (instead of out-of-market action)
Shortage Pricing	<ul style="list-style-type: none">➤ Equity: Increased pay to supply available during shortage and increased cost for load➤ Reliability: Price signal increases available supply and decreases demand during shortage➤ Efficiency: Increase in offers from higher-cost supply; decrease in low-value load

A substantial amount of experience with FSP designs in other regions provides useful information.

- Improved results from refining the definition of resources eligible to set prices under FSP
 - Shortened start-up time and minimum run time cut offs
 - Excluded offline fast-start resources
- Improved results from refining the pricing pass used to calculate prices with FSP
 - Modeling of ramp constraints
 - Methodology for inclusion of start-up costs (or not)
- FSP design needs to fit with a region's resource mix and dispatch treatment of fast-start resources

FSP designs like those used in other regions might or might not be easily added to the WEIM dispatch model.

- MISO and SPP have both FRP and FSP
- Possible FSP-related design changes needed for WEIM:
 - Redesign of pricing model run(s)?
 - Steps to prevent unintended pricing outcomes related to interactions with FRP and ancillary services schedules
 - Modifications to settlement system and BCR payment calculations

Independent Market Monitor views on FSP are divided. FERC supported it.

MISO IMM

FSP “changes have significantly improved real-time price formation in MISO” -- referring to change to units defined as fast-start and relaxation of down ramp rate in price formation

(Potomac Economics, 2022 SOM)

CAISO DMM

FSP “is inconsistent with the features of locational marginal pricing that maximize market surplus and provide incentives for units to operate at the most efficient, socially optimal dispatch level.”

(DMM, Comments on Price Formation Enhancements October 12, 2023 Working Group, November 2, 2023)

NYISO IMM

FSP “has led market price signals to better reflect system conditions and provide better performance incentives for flexible resources when fast-start units are deployed”

(Potomac Economics, 2021 SOM, p. 41)

PJM IMM

FSP is a distortion to “the correct signal for efficient behavior” that incorrectly pays higher prices to inflexible generators

(Monitoring Analytics, 2021 SOM, Vol. 1, p. 31)

CAISO analyses of the possible impact of FSP are preliminary.

- Results to date only for the CAISO; WEIM forthcoming
 - Estimated price impacts are material but relatively low across different FSP design assumptions; higher impacts during high load periods
 - Price impacts similar for fast-start unit definitions that would appear to be reasonable for CAISO
- Would be helpful to look at:
 - FSP impacts for 30-minute start-up time and 1 hour minimum run time
 - How consideration of EDAM schedules would change impact estimates
 - Extent to which FSP price impact might be expected to continue across multiple FMM intervals, enabling efficiency gains from responsive changes to bids and offers
 - Extent to which increased prices paid to suppliers might be offset by reductions in BCR payments
 - Extent to which fast-start units are dispatched due to local constraints and any implications for understanding study results

Summary: How would FSP impact the WEIM?

- Higher LMPs when fast-start resources are used to meet incremental load, which may be EIM-wide or in a constrained region
 - Improved price signal for efficient real-time imports, exports, and price responsive load
 - More efficient performance incentive for supply resources and imports scheduled day-ahead
- Decreased costs and emissions due to fewer starts of fast-start units, to the extent that bids and offers and respond to improved price signal
- Changes in bid cost recovery payments (primarily decreases, but also increases)