

Frequently Asked Questions regarding CTS MISO

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1. Transmission service / eTag / transaction FAQ

- a. What happens if I create a CTS bid, but do not create an associated eTag?

Each CTS bid is assigned an Expiration Time as well as a unique CTS Bid ID. If the bid is not linked to an eTag (using the assigned CTS Bid ID) prior to the Expiration Time, the bid status will be changed to Expired. Bids in Expired status will not be considered for economic clearing.

- b. What is the earliest request timing associated with submitting CTS transactions?

There is no restriction on how far in advance a market participant can submit a CTS bid. The bid will eventually need to be linked to a NERC eTag which requires a confirmed transmission service reservation. See PJM's [Regional Transmission and Energy Scheduling Practices](#) for details related to the earliest request time of each transmission service type.

- c. What validations are used to process/accept bids?

ExSchedule validates bid submissions for a number of different criteria. Prior to assigning Requested status to a bid, and providing the user with a CTS Bid ID, ExSchedule will ensure:

- Bid is submitted at least 75 minutes prior to the bid's Start Time
- Bid is at least 15 minutes in duration, and no longer than 25 hours in duration
- Bid Start Time and Stop Time fall on quarter clock hours (XX:00, XX:15, XX:30, XX:45)
- Bid From Market - To Market must be entered as PJM-MISO or MISO-PJM
- Each bid interval must contain at least one MW/\$ pair, and no more than ten pairs
- Bid MW values must be integer values
- Bid MW values must be ≥ 0 MW
- Bid MW values must be ≤ 1500 MW
- Bid \$ values must be $\geq \$0.01$
- Bid \$ values must be $\leq \$1,000.00$
- Bids must be in monotonically increasing order (Price and MW must both increase so the slope of any segment is always positive)

- d. Can traditional transactions still be used if just willing to flow (i.e. price takers)?

Yes, traditional fixed MW (i.e. price taking) transactions are still available to market participants. However, those transactions should not be implemented as CTS transactions. CTS is an optional product.

- e. How ramp reservations prioritized and granted for CTS transactions are compared to traditional transactions?

Traditional transactions will flow at a MW amount chosen by the market participant (assuming no reliability-based curtailments are issued). CTS transactions will flow at a MW amount based on a market clearing process utilizing projected LMPs and economic bid data submitted by the market participant. Ramp reservations are granted on a first-come-first-served basis regardless of transaction type.

f. How will CTS curtailments work?

CTS are a part of interchange transactions and PJM will use standard Transmission Curtailment methodology for interchange transactions per section 2.5 of Regional Transmission and Energy Practices – [Click for link](#).

g. For CTS transactions, what will be the frequency of schedules received for cleared bids (would 4 - 15- minute intervals lead to 4 schedules)?

CTS bids will be cleared in 15 minute intervals, and the associated e-Tags will be adjusted in 15 minute intervals. Therefore, yes, a 1 hour long CTS bid would receive 4 separate 15 minute market clearing results (and associated tag adjustments).

h. Will CTS be suspended during emergency system conditions?

Yes, under certain emergency conditions, PJM or MISO may suspend the CTS clearing process to maintain adequate control of area interchange. Shown at the end of this document is a diagram (taken from PJM and MISO's operating procedures) which indicates when each entity plans to suspend CTS as part of emergency conditions.

2. *Markets related FAQ*

a. When and how far into the future will PJM-MISO LMP estimates be provided for use with CTS?

Prior to PJM-MISO CTS go-live, MISO interface forecasted LMP from ITSCED was posted manually on a monthly basis. The data can be found at this link: <http://www.pjm.com/markets-and-operations/energy/real-time/it-sced-forecasted-lmps.aspx> As part of the PJM-MISO CTS process, the MISO interface forecasted LMP from ITSCED has been made available in real-time, and will be posted for up-to 2 hours ahead in DataViewer at this link: <https://dataviewer.pjm.com/dataviewer/pages/public/itsced.jsf>

b. How will transactions be settled (i.e. when will we transition to 5-minute settlements)?

CTS transactions will be settled consistent with PJM's settlement practices at the time the transaction takes place. The PJM-MISO CTS project is targeting an October 2017 go-live date, at which point PJM markets will still be settled using hourly-integrated LMPs. When PJM markets begin utilizing 5-minute settlement practices, CTS transactions will be settled using the new 5-minute settlement rules.

c. Will the bid price spreads have any bearing on the settlement (i.e. real-time LMP will be used to settle transactions – CTS bid price spreads are simply used in the PJM and MISO engines for clearing estimates)

The bid price spreads that included on the CTS transaction offers are used solely for the purpose of clearing the transactions. All cleared CTS transactions will be settled at the real-time LMPs. CTS transactions will not be eligible for make-whole payments.

d. Is there a limit to the number of CTS MWs which can clear?

Yes. Similar to the operational limit imposed by NYISO on the PJM-NYISO CTS product, there is a cap on the number of PJM-MISO CTS MWs that can be cleared in any given 15-minute interval. The number is configurable, and will initially be set to 500MW. PJM and MISO will re-evaluate this limit as both ISOs gain experience with the product and evaluate forecast engine accuracy.

e. Will the format/structure of the existing PJM Market Result files be changing?

No

f. Will any new PJM Market Result files be introduced?

The results of the PJM-MISO CTS clearing process will be viewable via the CTS page within the ExSchedule application. There will also be several new XML downloads available which are related to the PJM-MISO CTS product, including the market clearing results. These files will be sourced by PJM's ExSchedule application. The following link provides the necessary technical specifications. After downloading the .zip file contained within the link below, go to the 'docs' folder and open the CLI_User_Guide.pdf. Page 15, under the ExSchedule section of the guide, shows several new files related to PJM-MISO CTS.

<http://www.pjm.com/-/media/etools/exschedule/pjm-command-line-interface-java-6.ashx?la=en>

g. Will PJM be posting 4 or 8 intervals of ITSCED forecast LMP for CTS?

4 intervals as detailed below

- ITSCED 1st interval LMP will compare with MISO's CTS LMP for 1st interval;
- ITSCED 2nd interval LMP will compare with MISO's CTS LMP for 2nd, 3rd, and 4th intervals;
- ITSCED 3rd interval LMP will compare with MISO's CTS LMP for 5th, 6th, and 7th intervals;
- ITSCED 4th interval LMP will compare with MISO's CTS LMP for 8th interval

ITSCED LMP	1st Interval (15 min)	2nd Interval (45 min)			3rd Interval (45 min)			4th Interval (120 min)										
MISO CTS LMP	1st Interval (15 min)	2nd Interval (15 min)	3rd Interval (15 min)	4th Interval (15 min)	5th Interval (15 min)	6th Interval (15 min)	7th Interval (15 min)	8th Interval (15 min)										

h. Other than system conditions described under question 1h, are there other reasons PJM-MISO CTS may be suspended?

Yes, other possible reasons for CTS suspension may include but not limited to:

- Scheduled outage / maintenance of applications by either PJM or MISO lasting more than certain period (typically over an hour);
- Inability to send or receive accurate forecast LMP data to/from partner RTO for a duration beyond defined threshold (typically over an hour);

3. General FAQ

- a. What are the pricing points used for MISO CTS transactions in Settlements?

In the PJM market, PJM-MISO CTS transactions will be settled at the 'MISO' interface pricing point (pnode ID 40523629).

- b. When are dates for Sandbox testing expected to be announced?

They will be announced via Tech Change Forum in Q2 2017. At this point, we are expecting Sandbox to be available August 2017.

- c. Will the sandbox provide cleared market results (schedules) and settlement files or will it be limited to bid submission only?

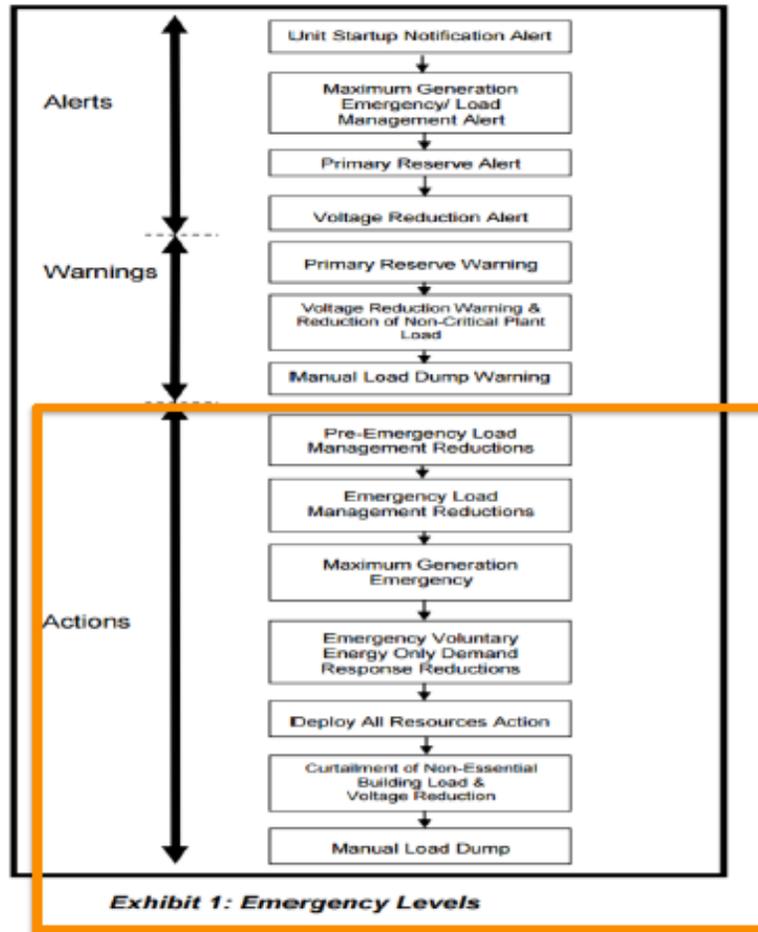
The sandbox environment will be limited to bid submission functionality. However, training materials and documentation will be developed which address all aspects of the PJM-MISO CTS process.

- d. Is there any impact to Transmission Products (such as new Transmission Type, Firmness etc) for CTS transactions?

There is no impact from a transmission product perspective, meaning there are no new transmission service reservations types being introduced. Transmission service reservations used to support traditional interchange transactions are the same reservations used for CTS transactions, and they will be treated with the same priority (firmness).

(continued from Section 1h above)

CTS Suspension System Conditions - PJM



PJM will suspend CTS at: Actions; Pre-Emergency Load Management Reductions (and beyond)

CTS Suspension System Conditions - MISO

