



Changes to Operating Reserve Accounting Frequently Asked Questions

Revision 2 (October 31, 2008)

Parameter-Limited Schedules

- 1) If I have a cost and price schedule defined currently, do I need to define a new schedule?**
 - a. You will need a price-based parameter-limited schedule in addition to the currently defined cost and price schedules. In addition, the currently defined cost based schedule must be parameter limited.

- 2) What would happen if the cost schedule that I enter is not parameter limited?**
 - a. eMKT will reject entry of these schedules if they are not parameter limited. Members will be in violation of the PJM Tariff if they do not submit parameter limited schedules. This is consistent with today's requirement to submit cost-based schedules.

- 3) If Max Emergency is in Day-ahead Market, what schedule is used?**
 - a. Parameter-limited Price schedule if the unit passes the TPS.

- 4) Will PJM reimburse unit for any damages incurred by following parameter limited schedules?**
 - a. No. Unit owner has the opportunity to submit period and daily exceptions based on unit's physical characteristics.

- 5) When will specific parameter limits be posted for generation owners to see?**
 - a. PJM posts unit class specific parameter limits 30 days prior to bi-annual enrollment period.

- 6) Do I still need to submit a parameter limited schedule if I get an exception?**
 - a. Yes, you still need to enter the schedule with the accepted exceptions. eMKT will adjust it's logic to allow entry of these exceptions.

- 7) Is the timeline for the period exception process in business days or calendar days?**
 - a. Business days

- 8) Can I change my parameter-limited schedules on a daily basis?**
 - a. Yes, as long as those parameters are within the default values.



- 9) I thought that when the Parameter Limited Schedule rules were developed, they were designed to mitigate Operating Reserve Credits. And that the result would be that only those units that failed the mitigation screen would have their operating reserve credits forfeited.**
- a. Rather than awarding Balancing Operating Reserve credits that are later forfeited, the rules developed through the stakeholder process provide that a unit committed for constraint control whose owner fails the market power mitigation screen will be committed on a schedule that respects the applicable parameter limitations. Therefore, all units' cost-based schedules will be subject to the applicable parameter limitations. In this way, units committed for constraint control and for which their owner fails the market power mitigation screen will have any Balancing Operating Reserve credits calculated based on parameters that meet the limitation requirements, and no after-the-fact forfeiture will be necessary.
- 10) If I have an exception that lasts indefinitely, must I submit an exception every 6 months?**
- a. Yes, this is the way the current rules are set up.
- 11) How are generators notified they are being placed on parameter-limited schedule?**
- a. Generators are currently notified when they are cost-capped; which will, by definition, also be parameter-limited.
- 12) If running on a Parameter Limited schedule raises my operating costs, can I adjust the costs on my cost-based schedule that resulted from these exceptions?**
- a. Cost-based schedules must continue to conform to the requirements of the CDTF Manual (M-15). If there are costs that would be incurred that do not meet current CDTF requirements, then changes may be proposed to the CDTF manual, and an exception request may be made while proposed CDTF changes are in process. Any such exception request will be reviewed by PJM for acceptance as with any other such request.
- 13) If my unit is committed by PJM prior to a Max Emergency Alert being issued and my unit is running, then PJM declares a Max Emergency Alert, would my unit be swapped to a parameter limited schedule?**
- a. No. But any generation scheduled while the Max Emergency Alert is in affect would be Parameter Limited (price-based).
- 14) If I have an outage which changes my turn-down ratio, do I also need to submit a Daily Exception.**
- a. PJM will evaluate streamlining this process to prevent the need for both an eDART ticket and a daily exception.



15) Are Parameter Limited Schedules required for hydro, wind and nuclear units?

- a. No, since these type of units typically don't receive BOR credits, parameter limited schedules are not required. Cost schedules (not parameter limited) would still be required.

16) When will eMKT accept the new Parameter Limited Schedules?

- a. It is anticipated that by the end of October, 2008, eMKT will be able to accept these schedules. Notifications will be made to members when this functionality becomes effective.

17) Can a unit be switched to a Parameter Limited Schedule after it has been committed by PJM on a non-parameter limited schedule?

- a. Once a unit is committed on a schedule, it may not be switched due to a failure of TPS or declaration of max emergency. However, once the unit's min run time has been exhausted, the unit's schedule may be switched depending on its continued need for a constraint and the outcome of the associated TPS test. If a Max Emergency Alert or Max Emergency is declared, only units committed subsequent to the declaration would be placed on a Parameter Limited Schedule.

18) Is there a 90 - 110% threshold around the parameters in the PJM matrix? If we are within 90 - 110% of these limits, do we not have to request exceptions?

- a. It depends on the specific parameters. Some parameters (i.e. Turn down ratio, Minimum Down Time) allow for a 10% threshold around the published parameters in the matrix. Other parameters do not. See business rules 10-20 for details.

19) Do the PLS schedules (both cost and price) have to have certain schedule ID numbers? What should the schedule IDs for existing cost and price schedules be as well as the new PLS cost and price schedules?

- a. All cost schedules must be parameter-limited and can be any schedule ID between 1-69 or 80-89. Existing price-based non-parameter limited schedules (schedules 90-99) will not need to be modified. Parameter-limited price schedules will need to be created using Schedule ids 70-79.

20) The rules state that the parameter limited schedules have to be submitted to eMkt 7 days prior to Dec 1. Just to confirm, that is 11/23/08 (seven calendar days prior)? Will we be able to submit/update these fields between 11/23 and 11/30? And what is the earliest date we can submit these fields?



- a. Parameter-limited schedules can be entered in eMKT as soon as the software changes become available (by end of Oct in a sandbox environment, mid-Nov in production). November 23, 2008 is the deadline for initial submittal of the Parameter-Limited schedules. Updates to these fields can be made daily as long as the parameters still meet the requirements specified in the matrix. eMKT will reject parameters outside the requirements of the matrix; parameter exceptions will be required in these cases.

21) Which parameters will be locked for the period?

- a. Updates to these fields can be made daily as long as the parameters still meet the requirements specified in the matrix. eMKT will reject parameters outside the requirements of the matrix; parameter exceptions will be required in these cases.

22) Which Econ Min and Econ Max is used to determine the Turn Down Ratio?

- a. Validation against the matrix parameters will be on an individual schedule basis.

Ramp-Limited Desired

23) Do we look at the DA versus RT limits comparison on an hourly basis?

- a. Yes

24) How is the deviation calculated for a CT that had a DA schedule but was not called on in real time?

- a. As the case today, there would be no deviation for operating reserve since the unit is following dispatch by not coming on in real time.

25) What values will be shown related to Ramp Limited Desired on Market Settlements reports?

- a. All the necessary details needed to determine generator deviations will be on the MSRS Operating Reserve Generator Deviations report. This includes the UDS Basepoint MWh, Ramp Limited Desired MWh, % Off Dispatch, etc. MSRS report design details can be found at <http://www.pjm.com/markets/settlements/msrs-report-formats.html>

26) How often is the unit actual MW looked at to determine the hourly integrated value?

- a. The actual MW value is calculated every 5 minutes and integrated over the hour.

27) If limits in RT are more restrictive than DA, a unit's deviation is RT- UDS LMP. Is there a 10% bandwidth around the UDS LMP to determine if the unit is deviating?

- a. No



28) If a CT has a DA schedule of 50 MW and in real-time is running at 56 MW due to cold ambient air conditions, is this unit assessed BOR charges? I.e. is it deviating?

- a. Typically, CTs are dispatched to their Eco Max limit. In this case, if the Eco Max has been updated to 56 MW and the unit is running at 56 MW then there should be no deviation for BOR and thus no BOR charges. There would be an additional RT energy market payment to the CT based on the 6 MW deviations above DA schedule.

29) This structure seems to set up incentives for generators not to tell PJM if their limits change in RT to become more restrictive. What is the downside to the generator if they don't adjust their limits in real-time?

- a. A generation owner is required to provide PJM with an accurate representation of the unit's capability. Not do so still exposes the gen owner to the risk of deviation charges, and may be reported to the Market Monitor if purposely providing PJM with inaccurate data.

Supplier Netting

30) How do you determine which units get netted?

- a. Units must be owned by the same market participant and their output have the same electrical impact on the system.

31) Can PJM supply a list of "equivalent generators" that can be used for supplier netting?

- a. Yes. PJM will make this list available to generation owners.



Segmented Make – Whole

- 32) If a unit is started more than one time per day, how will I be made whole?**
- A unit will be made whole for each segment of each synchronized start per the rules. Any synchronized start can have two segments.
- 33) Are there segmented make-whole payments in the Day-ahead Market?**
- No. Day-ahead Operating Reserves are not impacted by the segmented make-whole rules and will be credited as they are today.
- 34) If the unit's DA schedule and real-time operation do not overlap (in time) and the min-run time is less than the DA schedule, do we still look at the DA schedule to determine the segments?**
- PJM would evaluate which is greater – the RT operation hours which the unit had a DA schedule or the Min-run time to determine the segments.
- 35) Are excess revenues from one segment used in the evaluation of BOR credits for the other segment?**
- No. Each segment is evaluated independently to determine possible BOR credits.
- 36) If a unit has a 6 hour day-ahead schedule and PJM calls the unit on 2 hours early and keeps it on 2 hours late, how would the operating reserve segments be calculated if the unit was switched to a higher price fuel schedule after the 6 hour run time?**
- PJM would calculate 2 segments; one for the DA scheduled hours, and one for the combination of the 2 hour early start and the 2 hour holdover. The operating reserve credit calculation would be based off of whatever schedule is active during that hour.
- 37) For a unit that comes on 1 or 2 hours prior to their day-ahead schedule due to ramping or “soak” time issues, how are operating reserves handled? And how would this affect the segments.**
- PJM would calculate 2 segments; one for the DA scheduled hours, and one for the 1 or 2 hours prior to the day-ahead schedule. PJM will continue to provide a unit a buffer around expected on-time for real-time Operating Reserve credit eligibility. Anything that falls out of the DA scheduled hours would be a different segment from DA.
- 38) If my unit is run past midnight, how are the segments determined?**
- The current segment would end at midnight, and a new segment would begin at midnight to be included in the next days operating reserve.
- 39) Is it possible to only have one segment for an operating day?



- a. Yes. If the unit only ran equal to or less than the hours of its DA schedule or MinRun time

40) If CT has DA schedule, but is not requested to run in RT, are there any segments? How is CT guaranteed to be made-whole?

- a. The CT would receive DA Operating Reserve credits and be eligible for Balancing Operating Reserve Lost Opportunity Cost Credit. The unit would not incur deviations.

41) Will the Market Settlement reports show the BOR credits for a generator for each of the 2 segments?

- a. Report formats for Market Settlement reports in MSRS can be found at <http://www.pjm.com/markets/settlements/msrs-report-formats.html>

Locational Netting of Deviations

42) What hubs are wholly contained within zones for the purpose of netting deviations?

- a. When this was discussed and agreed upon by the stakeholders, the following hubs were identified: Ni Hub, Comed Hub, Comed Gen Hub, and AEP Gen Hub (see presentation below).
<http://www.pjm.com/committees/mic/downloads/20080508-item-02-or-netting-at-hubs.pdf>



Balancing Operating Reserve Cost Allocation (BORCA)

- 43) How much data transparency will there be in the reasons for unit commitments?**
- a. There will be different BOR rates based on the reasons for the commitments.
- 44) Is PJM changing the amount or the process of committing generation due to the BORCA?**
- a. No. There will be some additional logging responsibilities for PJM dispatchers to capture the reasons for the unit commitment.
- 45) What is the test for determining in the Reliability Assessment what costs are allocated to load?**
- a. If the unit is called on due to conservative operations (i.e. Hot Weather Alert, Cold Weather Alert, and Security event) any operating reserve owed to those units will be allocated to load plus exports.
- 46) Will the cost to load be higher after the BOR changes are implemented?**
- a. It is difficult to predict the effect of these changes. Some of the changes in the package could increase costs, others could reduce costs and others will spread the costs over more participants.
- 47) Which manual will these operating reserve rules be found in?**
- a. Manual M-28
- 48) Do you have historical percentages of BOR that has been procured for reliability that will be allocated on a load ratio share basis as opposed to the BOR that has been acquired for managing deviations?**
- a. Not at this time. The dispatchers never differentiated the reasons for committing generation for reserves in the past so PJM cannot model the impacts. Also, due to the real-time operational basis for committing resources, it is difficult for PJM for model the financial impacts of BORs on a forward basis.
- 49) Why are we letting deviations net by zone but allocating deviation by region? This seems inconsistent.**
- a. This was the agreement that was developed by the Reserve Market Working Group and approved by PJM membership. Allocating BOR charges by zone instead of region could lead to higher charges per MW of deviation since costs would be spread over a smaller amount of deviation.