

## UPDATED: Explanation of PJM Proposals

### Energy Market Uplift Senior Task Force

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#### **Abbreviations:**

*DAOR = Day Ahead Operating Reserves*

*BOR = Balancing Operating Reserves*

*DAM = Day Ahead Market*

*DA = Day Ahead*

*CT LOC = Combustion Turbine Lost Opportunity Cost*

#### **PHASE 1 PROPOSALS**

##### **Proposal A:**

This proposal seeks to make some minor changes to the current credit methodology to address issues that PJM feels are important. In general, the changes by themselves will likely not greatly reduce or increase the amount of uplift being paid in PJM. PJM feels that the most appropriate vehicles to reduce uplift costs is to continue to ensure that scheduling protocols for resources are as efficient as possible and to implement pricing solutions to recognize the need for specific resources either locally or across the footprint. These changes will however address what PJM feels are inconsistencies in the way the current rules are applied today, unintended consequences of the rules that are currently in place and/or shortcomings where PJM has had to deny credits to a resource that may have legitimately expended costs at PJM's request due to limitations of the current language.

In PJM's opinion, the three most significant changes proposed in Proposal A are:

1. Clear definition on the handling of revenues and shortfalls for the hours in a segment where a pool scheduled resource is not following PJM's dispatch and therefore ineligible to receive a BOR payment in that hour (Design Component 4a).
2. Inclusion of startup and no load in the DA Offer term for the CT LOC equation (Design Component 5a).
3. Consistently handling hourly make whole payments to generators whose output is manually raised for a reliability reason (Design Components 5 and 6).

Proposal A assumes the preservation of the current methodology of having a DAOR uplift payment for the cost of scheduling a resource in the DAM and a BOR uplift payment for the actual expended costs in real-time.

Proposal A allows for a more granular allocation of uplift charges based on whether they were “incurred” in the DAM or in real-time operations due to the preservation of the separate uplift payments should that be desired. However, should a single allocation methodology be desired, the two buckets can be summed.

***Proposal B:***

Like Proposal A, Proposal B seeks to address some concerns that PJM has brought up with the current rules used to calculate DAOR, BOR and reactive uplift payments. In Proposal B PJM is also proposing an additional change which is to make whole pool scheduled resources based on real-time operating costs, only (Design Component 4). This change would result in the removal of the DAOR payment and associated cost allocation. Removing DAOR does not impact whether or not a resource is made whole to its operating costs. The existence of the BOR mechanism guarantees that a resource will be made whole to the cost it expends in real-time. What this change will do is shift a majority of the DAOR costs that are incurred today into real-time while eliminating scenarios where resources that receive a DAOR credit end up profiting from that credit in real-time. As stated above, this proposal contains many of the solutions that are contained in Proposal A but with conforming changes for the proposal to remove DAOR.

In PJM’s opinion, the three most significant changes proposed in Proposal B are:

1. A change in make whole methodology to make resources whole to real-time operating costs only. This proposal would remove the calculation of DAOR and resources would be made whole to actual operating costs (Design Component 4).
2. Clear definition on the handling of revenues and shortfalls for the hours in a segment where a pool scheduled resource is not following PJM’s dispatch and therefore ineligible to receive a BOR payment in that hour (Design Component 4a).
3. Inclusion of startup and no load in the DA Offer term for the CT LOC equation (Design Component 5a).

Proposal B would result in one bucket of uplift dollars that will require rules for cost allocation. Should there be a desire to continue to allocate uplift credits associated with the DAM solution differently from those in real-time, additional rules would be required to determine the appropriate apportionment of such credits into each bucket. This could be accomplished if desired.

**Proposal Impacts on Uplift Causes:**

As stated previously, neither PJM proposal is intended to reduce uplift payments on its own. PJM feels that better scheduling and pricing methodologies are the best way to reduce out-of-market payments. The intention of these proposals is to make the current calculations more comprehensive and robust.

Below is a table that in general describes the impacts of the PJM proposed solution components on the causes of uplift provided in the response to question #30 in the “EMUSTF Action Items Responses” document. The table below is intended to generally capture the impacts of both proposals as most components between the two are identical.

Cause #	Uplift Cause	General PJM Proposal Impact
1	<b>Resources with high Eco min on for a constraint</b>	Adding the eligibility to set price will reduce uplift caused by this.
2	<b>Resources with longer min run times than needed</b>	No change
3	<b>System Restoration Requirements</b>	No change
4	<b>CT LOC payments</b>	Inclusion of startup and no load into offer calculation will reduce uplift caused by this.
5	<b>Real-time LOC payments</b>	Potential increase due to additional provisions for make whole payments when dispatching a generator up.
6	<b>Economic DA resources that are uneconomic in RT</b>	No specific change related to this. Changes to #1 and #4 will likely indirectly reduce this.
7	<b>Uplift paid to emergency demand response</b>	No change
8	<b>Uplift paid to emergency purchases</b>	No change (may eventually be addressed at ERPIV)
9	<b>Uplift due to interchange volatility</b>	No change (being addressed at ERPIV)

**\*\*NOTE\*\*:**

The major difference between Proposals A and B is that the latter contains a solution component to remove the DAOR calculation. Doing this will further decrease the impacts on uplift from causes 1-4. Removing the DAOR calculation will reduce their impacts on day ahead uplift to zero but it will shift a majority of those costs into real-time. This shift will however not be one-to-one. Under the current rules, a resource scheduled in the DAM may receive a DAOR payment if the scheduling cost of the units exceeds the credits it is paid based on the DAM clearing prices. If this resource then does not require a further real-time BOR payment (this would be paid if the total operating cost of the resource in real-time exceeded the credits it was paid inclusive of all day ahead and real-time markets), then it has the potential to profit from its DAOR payment. This ability to profit from a DAOR payment would be removed under Proposal B therefore resulting in an overall reduction in uplift payments. All resources

scheduled by PJM and operating at PJM's direction would still be made whole to their real-time operating costs as the real-time make whole mechanisms would remain in place.

More information on the impacts of this can be found at the following links:

The link below simulates the dollar impacts of the removal of the DAOR calculation over several years.

<http://www.pjm.com/~media/committees-groups/task-forces/emustf/20140408/20140408-da-credit-removal-simulation.ashx>

The link below provides a unit-specific example.

<http://www.pjm.com/~media/committees-groups/task-forces/emustf/20140313/20140313-item-06a-remove-daor-proposal.ashx>

***Other Changes Required to Make Proposals A and B Viable:***

Notwithstanding the solution option in Proposal B to remove the DAOR calculation, Proposals A and B are generally aimed at a clarifying and improving the current rules regarding how resources are made whole. They are not alone intended as mechanisms to reduce uplift payments. However, both proposals contain a solution to allow generation resources with higher economic minimum levels than is required to control a transmission to set LMP at their minimum output level. PJM believes that implementing this in conjunction with binding more transmission constraints in the Real-Time and Day Ahead LMP calculations would lead to a significant reduction in uplift costs. However, doing this would also result in significant additional FTR underfunding. It is PJM's opinion that the value of this solution option is largely dependent on whether or not its impacts on FTR underfunding are addressed. Absent some corresponding change in FTR rules, the full value of this solution option will likely not be realized.

Proposal B contains the solution option to remove the DAOR calculation. This change necessitates modifications to the allocation of uplift costs as the uplift costs associated with scheduling a majority of the supply in PJM used to serve real-time load would fall under the current method allocating real-time uplift costs. This was likely not envisioned at the time the current rules were put in place and will potentially result in an inappropriate allocation of costs.

## **PHASE 2 PROPOSALS**

### **Proposals G & H**

Proposals G and H are put forward by PJM and focus on making minor changes to the existing DAOR and BOR uplift allocation methodology. The proposed changes common to both G and H are listed below.

Changes from the status quo in Proposals G and H:

- **UTCs are included in the allocation of BOR charges as a deviation.** It is proposed that they be allocated a share of the deviation charges based on their cleared MWh in the DAM and their deviation against real-time. PJM feels that because these transactions can impact the dispatch and commitment of resources for constraint control that they should be allocated a BOR charge like other virtual transactions that deviate.
- **The ability to offset deviations by using IBTs is removed.** PJM is not proposing to charge IBTs a deviation charge, only to disallow them to offset another deviation. IBTs do not impact the dispatch or commitment of resources on the system and therefore should not be permitted to offset transactions that can such as an INC or a DEC.
- **Change in the allocation of real-time LOC for congestion management to mimic that of the allocation for reactive.** That is, allocate the LOC incurred by resources reduced (or increased) uneconomically for congestion management to RTO load if the constraint is  $\geq 500$  kV or to the benefitting zone if the constraint is  $< 500$  kV. Manually dispatching resources uneconomically is done to maintain reliability and therefore it seems intuitive that the allocation of its cost should follow a reliability allocation which under today's rules goes to load. This could also be accomplished allocated based on the existing BOR regions today and not like reactive.
- **Change the rules regarding generator deviation netting such that generator deviations are fully netted when a generator trips and the replacement unit follows PJM's dispatch and incurs no deviations.** Under today's rules if a generator with a DA schedule of 400 MW in an hour fails to start and does not run but is replaced by a similar unit that perfectly follows PJM's dispatch, the deviations incurred by the original and the replacement unit do not offset at all. Today's rules net the deviations of both units such that if the replacement unit does not deviate, it will never offset the deviation caused by the first unit thus making the rule's use somewhat limited.

The only difference between Proposals G and H is the allocation of DAOR. Proposal G presumes that resources are only made whole to their actual operating cost in real-time and therefore the allocation of DAOR is not required. Proposal H assumes that pool scheduled resources in the DAM are still eligible for a DAOR payment and proposes to allocate those costs based on the status quo. Therefore, PJM's Phase 2 Proposal G is intended to be paired with its Phase 1 Proposal B and Phase 2 Proposal H is intended to be paired with Phase 1 Proposal A.