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CLR and ELR Implementation Under SMD2

Business Issues Committee

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ISSUE

- ✓ SMD2 bidding flexibility renders special balancing rules for CLR units unnecessary and they should be removed.
 - *SMD2 bidding flexibility, as described more thoroughly herein, should be added to the tariff.*
- ✓ Tariff treatment for ELR units should be clarified and updated to SMD2:
 - *ELR supplemental payment should be SMD2's Day-Ahead Margin Assurance Payment rather than the legacy system's Day-Ahead Margin Protection Payment;*
 - *Current definition of ELR units needs to be clarified;*
 - *Current requirement that CLR units justify their status to the ISO should be extended to ELR units; and*
 - *Article 5 DMNC rule should parallel ELR definition*
- ✓ Therefore the ISO recommends that tariff changes be approved.
- ✓ NYISO recommends that this come to the January BIC for a vote.



Capacity Limited Resource

- ✓ A Resource that is constrained in its ability to supply Energy above its Normal Upper Operating Limit by operational or plant configuration characteristics. Capacity Limited Resources must register their Capacity limiting characteristics with, and justify them to, the ISO consistent with ISO Procedures.



CLR in Legacy

- ✓ In the legacy system, only a single Upper Operating Limit (UOL) could be bid in but it could be a value less than the maximum point on the bid curve.
- ✓ Nonetheless, SCUC could commit a unit above its bid UOL – as high as the top of its bid curve.
- ✓ Ancillary Services could also be scheduled in the area above the bid UOL.
- ✓ Units generally used high bid-prices in the range between their bid UOL and the top of their curve to avoid commitment in that area. Using bid price, however, did not prevent a Day-Ahead commitment in this range.



CLR in Legacy, cont'd.

- ✓ Therefore, the tariff allowed a unit that was committed in this range, to request that the ISO reduce its UOL to a level equal to, or greater than, its bid UOL. These requests were normally granted although the energy above the bid UOL remained available to the real-time dispatch to prevent or address an emergency.
- ✓ Special settlement rules were also included for those units whose UOL for the real-time dispatch was reduced:
 - *Day-Ahead Energy, Operating Reserves and Regulation schedules above the bid UOL were balanced at the Day-Ahead price for Energy, Operating Reserves and Regulation Service.*



SMD2 Dual UOL Feature - DAM

- ✓ In SMD2, units no longer need to use bid-price to avoid operating in the area between their bid UOL and the top of their bid curve.
- ✓ SMD2 offers units the capability to bid both a normal and emergency UOL (UOL_N and UOL_E), provided that $UOL_E = UOL_N$.
- ✓ This offers certainty that, but for emergencies, a unit will not be committed Day-Ahead above its UOL_N .
 - *Normally, SCUC will solve using UOL_N .*
 - *If SCUC cannot meet reliability requirements (i.e. faces an emergency) the operator may select to solve to UOL_E .*
- ✓ SCUC will not schedule a unit for Energy, Reserves or Regulation, above the UOL selected by the operator.
 - *However, to prevent or manage an emergency, the ISO may raise the commitment and dispatch scheduling limits to UOL_E levels and may schedule any unit to its UOL_E if economic.*



CLR Settlement in SMD2

- ✓ Because units can designate a UOL_N , which will be honored by SCUC unless the SCUC operator selects otherwise because of an emergency, the need for special balancing rules for CLR is eliminated.
- ✓ Should the SCUC operator elect to solve to UOL_E and a unit discovers it cannot reach the schedule above its UOL_N :
 - *The unit must de-rate in real-time. There is no need for special balancing rules since ISO operations has not exposed the unit to unexpected financial harm.*



Energy Limited Resource

- ✓ Capacity resources that, due to design considerations, environmental restrictions on operations, cyclical requirements, such as the need to recharge or refill, or other non-economic reasons, are unable to operate continuously on a daily basis, but are able to operate for at least four consecutive hours each day.
- ✓ ELR resources differ from CLR resources in that an ELR resource may be limited in operating at its UOL_E level for four consecutive hours.
 - *The definition of ELR resources should be revised to (i) remove “design considerations” from the list of qualifying characteristics (ii) add a registration requirement and (iii) render the Article 5 DMNC requirement consistent with the ELR definition.*



ELR in Legacy

- ✓ The tariff allows an Energy Limited Resource to request relief from a Day-Ahead schedule above its bid UOL. The NYISO can request for the day the energy equivalent of its Unforced Capacity for four hours.
 - *The unit will balance normally (at the RT price).*
 - *The unit will be protected to its total Day-Ahead margin which is equal to the revenue it would have received for providing Energy, Operating Reserves and Regulation pursuant to its Day-Ahead schedule, minus its Bid to provide these services for the same twenty four hour day.*
- ✓ If its DA schedule is revised, the ISO may, in-day, re-schedule a unit to its DA schedule to resolve reliability issues.



ELR Bidding and Commitment in SMD2

- ✓ With dual UOLs, an ELR qualified unit can bid an hourly varying UOL_N .
- ✓ The UOL_E should establish the top of the unit's bid curve and should designate at least its available capacity.
- ✓ By varying UOL_N over the hours of the day, a unit can bid according to the hours they desire to be committed. The energy bid for the day using the UOL_N should be at least equal to the capacity sold as ICAP x four hours (its daily MWhr limit).
- ✓ Bid UOLs are subject to review by Market Monitoring.



ELR Settlement in SMD2

- ✓ Similar to Legacy settlements – If the SCUC operator elects to schedule to UOL_E , and the ELR qualified unit is scheduled beyond its UOL_N , it can request that the ISO reduce its commitment to a level equal to, or greater than, its UOL_N :
 - *The ISO will normally grant a requested reduction in the scheduled UOL,*
 - *The unit will balance at the RT price.*
 - *The ISO will expect the energy equivalent of its daily MWhr limit.*
- ✓ ISO Staff recommends that the Day-Ahead Margin Protection Payment in the legacy tariff be replaced by SMD2's DAMAP settlement rules for hours that the real-time schedule is reduced below the DAM schedule.
- ✓ The DAMAP protects a unit to its total Day-Ahead margin on a hourly basis. The DA margin is equal to the revenue a unit would have received for providing Energy, Operating Reserves and Regulation pursuant to its Day-Ahead schedule, minus its Bid to provide these services calculated hourly.
- ✓ The unit will be placed OOM for hours where the real-time schedule is increased above the DAM.



ICAP for ELR Units

- ✓ Article 5 eligibility standard for ELR units needs to match ELR definition by adding the word “consecutively”
 - *An Energy Limited Resource may qualify as an Installed Capacity Supplier if it Bids its Installed Capacity Equivalent into the Day-Ahead Market each day and it is able to provide the Energy equivalent of the Unforced Capacity for at least four (4) consecutive hours each day*



ICAP

- ✓ The changes proposed do not impact an ELR or a CLR unit's ICAP obligations. ICAP units are still required to bid their ICAP equivalent into the Day-Ahead Market.
- ✓ UOL_N and UOL_E levels should be bid to conform to these rules.
- ✓ Temperature dependent ICAP suppliers (e.g. gas turbines) must supply their temperature curves when registering their DMNC for ICAP purposes. Temperature dependency alone does not require them to register as ELR or CLR units.