

Submitted by	Company	Date Submitted
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Stepped Reduced Transmission Constraint Relaxation Parameter

The current penalty price for relaxing a transmission constraint, independent of voltage level, is \$1500/MW (reduced to that level from \$5000/MW on May 10, 2013).

The CAISO observed that the higher penalty price resulted in more expensive re-dispatch, which increased Real-Time Congestion Offset (RTCO) uplift. The CAISO offers that lowering the constraint relaxation parameters and implementing stepped constraint relaxation prices will avoid large amounts of relatively ineffective re-dispatch that yield small amounts of congestion relief without materially degrading system reliability.

The CAISO now proposes implementing the following “stepped” transmission constraint relaxation:

- 230kV and above:
 - \$750 scheduling parameter for below 2% in exceeding the original limit
 - \$1500 scheduling parameter for 2% or more in exceeding the original limit
- 115kV and lower
 - \$500 scheduling parameter for below 2% in exceeding the original limit
 - \$1000 scheduling parameter for 2% or more in exceeding the original limit

NRG comments: NRG supports differentiating the penalty price for relaxing transmission constraints based on the voltage of the constraint. It is rational to have higher penalty prices for relaxing higher voltage constraints, because the supply of counter-flow is greater and the system impact of the constraint is greater.

NRG agrees that adopting a “reliability at any cost” approach is not appropriate. However, further relaxing transmission constraint penalty prices – which, in theory, will result in paths being operated above their limits more frequently – also does not seem like an appropriate approach. Much more information is needed to allow market participants to understand the nature and magnitude of the tradeoffs in the CAISO’s proposal. NRG requests that the CAISO provide the following additional information in or with the straw proposal:

- The CAISO should provide information to allow market participants to understand how the frequency and cost of relaxation and re-dispatch has changed since the relaxation parameter was lowered from \$5000/MW to \$1500/MW.
- The CAISO should project (or back-cast) what the cost savings from implementing its proposal would be over a period of time.

- To what extent does the CAISO's market model show transmission paths being operating above their rated transfer capabilities because of differences between the modeled and actual flows? To what extent does the CAISO's use of transmission biasing address this problem?
- Relaxing a transmission line constraint rather than engaging in relatively ineffective re-dispatch makes sense when the line limit is exceeded due to a transient condition. However, re-dispatch seems the far more prudent approach when the condition giving rise to the overload is not transient. The CAISO should provide information to market participants to help them estimate how often relaxation would be used relative to re-dispatch.

Lower the Shift Factor Effectiveness Threshold

The CAISO proposes to reduce the current shift factor effectiveness threshold from 2% to 0.1%. The CAISO reported that using a 0.1% effectiveness threshold in a test conducted 12/1/14 increased the market solve time only from 58 minutes to 64 minutes.

NRG comments: NRG supports lowering the effectiveness threshold if doing so does not materially and adversely impact solve times. However, it seems possible that the expected results of lowering the effectiveness threshold (more re-dispatch) would conflict with the expected results of the proposal to lower the transmission constraint relaxation parameters (more relaxation and less re-dispatch). NRG asks the CAISO to provide additional information as to what the combined effects of these two proposals would be.

Stepped Power Balance Constraint Relaxation Parameter

The CAISO seeks feedback on whether to implement a stepped power balance constraint relaxation parameter that would allow it to relax the constraint a smaller amount at a lower price. The CAISO reports that power balance infeasibilities of between 1/2% and 1% are not unusual.

NRG comments: A principle that seems implicit in the CAISO's consideration of this topic is that it is reasonable to "dip" into operating reserves for short periods of times - not explicitly, by dispatching energy from those reserves to achieve power balance, but implicitly, by relaxing the power balance constraint. It would seem far more transparent to actually dispatch energy from those reserves to achieve power balance (when the system is short energy) than to relax the power balance constraint at some steeply discounted penalty price. If this dispatch happened frequently, it would suggest the CAISO should be carrying higher levels of "load following" reserves. In any case, relaxing the power constraint - and leaning on the interconnection - is something that should not be done lightly or cheaply. NRG looks forward to further discussion of this proposal but views this proposal with some skepticism.

EIM Transfer Limit When Resource Sufficiency Test Fails

The CAISO reports that it currently performs a resource sufficiency evaluation that hourly tests power balance, capacity and ramping for each balancing authority area within the EIM area. If the sufficiency test is fails, the CAISO "freezes" EIM transfers into or out of the affected area. Noting that this transfer

“freezing” reduced the use of transmission that was made available to support EIM transfers, the CAISO proposes that, rather than freezing transfers when a sufficiency test is failed, the EIM entity will be penalized at some value (a percentage of the system marginal energy cost or a fixed adder prices was suggested) and allocating this penalty collection to other EIM balancing areas that did not fail the sufficiency test.

NRG comments: As noted immediately above, NRG does not support any mechanism that allows for relatively low-cost “leaning on the interconnection”. NRG looks forward to more discussion on this topic.

Lowering the bid floor

Noting that California has increased its RPS target to 50% by 2030, the CAISO seeks input on:

- Lowering the bid floor from the current level of $-\$150/\text{MWh}$ (approved 12/19/13);
- Whether the current asymmetry between the bid floor ($-\$150/\text{MWh}$) and bid cap ($\$1,000/\text{MWh}$) causes problems that should be addressed. The CAISO posits that the current asymmetry creates a bias to overschedule demand in the DA market because the cost of serving demand that was not scheduled DA in the RT market could be $\$1,000/\text{MWh}$, while the cost of over-generating in RT could be $-\$150/\text{MWh}$.

NRG comments: First, NRG struggles with the notion that the current asymmetry between the bid floor and the bid cap creates a “bias” towards overscheduling demand in the DA market. The number of intervals in which the real-time market clears at or beyond the bid cap or the bid floor seems small enough to wonder whether this bias really affects load scheduling. Even if this purported bias did exist, NRG would not find this an objectionable bias because there are benefits to fully scheduling demand in the DA market, leaving the real-time market only for deviations due to things like forecast errors and not as a preferable alternate arbitrage market.

Lowering the bid floor would have the beneficial effect of creating sharper price signals to address oversupply, but has the detrimental effect of pushing more cost recovery into bid cost recovery. NRG supports a full examination of this topic in this process, but asks that the examination be supported by as much data and analytics that consider all of the effects as possible.

Scope of this initiative

NRG comments: no comment.