**ERCOT STEEL MILLS**

**COMMENTS REGARDING CHANGES TO THE ORDC**

January 4, 2016

Nucor Steel, Commercial Metals Corporation, and Gerdau (“ERCOT Steel Mills”), submit that no changes to the Operating Reserves Demand Curve (ORDC) are necessary or appropriate at this time. We believe that the ORDC pricing mechanism is working as assigned and is fulfilling its intended function well.

The only problem, if there is a one, is the failure of some market participants and observers to fully appreciate the difference between the PRC and ORDC reserve measures. PRC and ORDC are not functional equivalents and were never designed to correlate closely in situations where significant Quick Start capability is available to be used but has not been started and actually placed into on-line service. Nor should they be. The fact that the PRC and ORDC reserve calculations do not always correlate closely does not mean that a deficiency exists with respect to either calculation.

To the extent that there exists some confusion over the reliability and market signaling functions of PRC and ORDC, there may be some value in reviewing the relationship between the definition of reserves used in the ORDC calculation and the measurements monitored by system operators when considering whether the system is approaching scarcity conditions. It may also be worthwhile to undertake a review ERCOT’s procedures for interpreting and responding to declining PRC values, especially when significant Quick Start capacity is available but for some reason the market has not yet responded to the capacity need.

**There Was Not a Scarcity Problem on August 13th**

During the afternoon of Thursday, August 13, 2015, conditions certainly suggested the possibility that a scarcity problem could arise. The summer system peak had been set on the previous Monday. Generating unit outages and continued hot temperatures contributed to a drop in PRC on August 13th to less than 2500 MW, which led ERCOT’s system operators to implement a Control Room Watch for part of the afternoon and to announce a Conservation Alert from 3 p.m. to 7 p.m. [[1]](#footnote-1) These actions in themselves should have prompted QSEs to bring additional Quick Start capacity into service to take advantage of higher prices. An ample amount of off-line Quick Start capacity was available to be placed on line on August 13th, and an amount sufficient to avoid the declaration of an EEA did in fact come on line without need of any out of market action by ERCOT.

No capacity shortage existed on August 13th, notwithstanding that PRC dropped to 2371 MW. PRC is a measurement of the quantity of generating capacity on governor response, and as such is a measurement of spinning reserve as opposed to total additional reserves that can be brought on line quickly (Quick Start capacity) to meet system demand. Although PRC on August 13th had declined to levels warranting vigilance by system operators, ample generating capacity remained available to avert any reliability problems. Over 1,500 MW of generating capacity from Quick Start units was available to come on-line.[[2]](#footnote-2) Given all of the off-line generating capacity available to the system, ORDC properly recognized a low Loss of Load Probability (LOLP) and correctly indicated the absence of scarcity conditions.

Consequently, a low PRC on August 13th did not imply, and should not be interpreted as implying, the existence of scarcity conditions on August 13th. Nor does the lack of close correlation between the low PRC that the ORDC on August 13th suggest that the ORDC in any way failed to properly reflect the presence of scarcity conditions. Both the PRC and the ORDC properly conveyed the information they are designed to convey to the system operator and market participants.

An interesting observation from the August 13th data worth noting is that a significant amount of the available but off-line Quick Start generating units on August 13th was available for SCED dispatch but was not dispatched because market prices did not reach the offer prices submitted for those units. As early as 2:50 p.m. on the 13th, ERCOT’s Real Time Dispatch price projections showed that LMPs would be around $1,500 over the following 15 to 20 minutes under the prevailing generation capacity and load projections. An inspection of information contained within the 60 day generation data disclosure report shows offer prices from some Quick Start generation that was reported to be on-line and available to the Security-Constrained Economic Dispatch (SCED) model (but not actually on line)[[3]](#footnote-3) ranging from $1,504 to $1,634 – just slightly above projected market prices.[[4]](#footnote-4)

The high offer prices from those off-line Quick Start units treated as on-line for purposes of enabling their dispatch via SCED resulted in that capacity not being dispatched and consequently remaining off-line. These Resources were not counted in the PRC calculation monitored by ERCOT’s system operators and used to declare Conservation Alerts and EEA events because no “governor response” could be provided by units which were not generating. Yet, this Quick Start capacity was properly included in the broader reserve calculation used to adjust market prices through the ORDC mechanism.

The Quick Start units with the high offer prices were indeed “ready, willing, and able” to provide generation at slightly higher market prices than those which were anticipated. Given the declining PRC, the likelihood of a price spike and that the time of day was several hours before peak, QSEs should have self-committed more of their Quick Start units instead of passively relying upon dispatch by SCED. In fact, some QSEs did so. Market reaction to existing system conditions was more than sufficient to avoid the occurrence of an EEA event.

From the system operator standpoint, tools available to the ERCOT Real Time Operators would have revealed declining PRC on the 13th, but other tools surely available to the operators would also have shown over 1500 MW of Quick Start capacity ready to come on-line if committed. A failure to consider this additional Resource capacity may well have been a precipitating factor in the ERCOT decision to call a Conservation Alert that likely was not necessary given the absence of a scarcity situation. However, a Conservation Alert may have been the only tool available to ERCOT to notify QSEs of the current state of the system (wake-up call).

The bottom line is that there was a great deal of off-line generation available on the 13th that could have been brought on-line via self-commitment in response to the Conservation Alert from ERCOT, which would have brought that capacity into the PRC calculation. The ORDC reserve calculations properly reflected the lack of need for scarcity pricing because sufficient capacity was available and the pricing mechanism in ORDC worked as designed indicating such.

**No Change in the ORDC Calculation is Necessary**

On August 13, 2015, the ORDC performed properly. No scarcity condition existed and ORDC communicated that fact correctly. ORDC is functioning as designed and is fulfilling its intended purpose well. No change in the ORDC calculation is therefore necessary or warranted.

The difference between: 1) the Real-Time On-Line Reserve Capacity(RTOLCAP) calculation, used in the ORDC mechanism, and 2) the PRC calculation, used to trigger Conservation Alerts and EEAs, might conceivably leave a casual observer with the misimpression that in certain instances inconsistent scarcity signals are being conveyed to the market. There is, however, no inconsistency in the messages being signaled, given the difference in intended purpose of the two measurements. As noted in Resmi Surendran’s presentation to TAC on October 29, 2015,[[5]](#footnote-5) RTOLCAP includes capacity that is considered in the PRC calculation up to 100% of the High Sustained Limits (HSL) of generating units, as well as capacity from Quick Start units.[[6]](#footnote-6) On August 13, 2015, these two measures of system reliability deviated from one another, but the two measures were not inconsistent with each other due to the fact that on-line capacity was declining but at the same time sufficient off-line capacity was available for system use within the time frame of the need.

In light of the events of August 13th, it may be useful to review whether Conservation Alerts should be declared in situations where Quick Start generation is readily available to start yet for some reason is being held off-line and not contributing to PRC. A simple notice to the market may be all that was needed, in which case ERCOT might wish to consider implementing an additional notice requirement to QSEs in that circumstance

If any significant change is seen to be necessary or warranted, perhaps the one most worth further examination would be the removal of off-line generation from SCED, which would arguably result in a closer perceived alignment of calculated PRC and ORDC reserves and the encouragement of proactive Quick Start self-commitment rather than passive reliance on SCED dispatch of off-line Quick Start units.

1. See ERCOT press release at: <http://www.ercot.com/news/press_releases/show/73261>; <http://www.ercot.com/news/pres_releases/show/73270> [↑](#footnote-ref-1)
2. Based on a review of 60-day generation data disclosure reports, the amounts available from 2 p.m. to 3:15 ranged from 1,647 MW to 1,809 MW. The amounts available later in the afternoon were lower, but always exceeded 1,000 MW. This was calculated by summing the HSL values of the quick start units and then subtracting the sum of the telemetered net output of those units. [↑](#footnote-ref-2)
3. Some Quick Start units were providing active offers to SCED and telemetering on “On” status, though they were not generating electricity. [↑](#footnote-ref-3)
4. Some Quick Start units offered generation at much lower prices. Generation from some of the older Quick Start units was offered at less than $50, and these units were self-committed by their QSE during this time. [↑](#footnote-ref-4)
5. Resmi Surendran (ERCOT Staff), *Review of August 13, 2015*. TAC, October 29, 2015. [↑](#footnote-ref-5)
6. Under some circumstances, some wind generation capacity might also be included in RTOLCAP. [↑](#footnote-ref-6)