

Has FERC Identified a Path to Monetize Dynamic Line Rating?

The January 25, 2016 Supreme Court ruling affirming FERC Order 745 firmly established demand response (DR) and generation as resources equally capable of balancing supply and demand. The Order requires providers of DR be compensated at the same locational marginal price (LMP) as providers of traditional generation. Therefore, DR, which is essentially a virtual negative generator, is treated and financially compensated on the same basis as a generator producing real power.

DR IS ALSO A NON-TRANSMISSION ALTERNATIVE

DR is also an example of a non-transmission alternative (NTA). NTA's are resources that can defer or replace the need for additional transmission. In this light, if an incremental load can be cost effectively served by a DR resource, the need for a transmission line to carry real power from a remote generator is eliminated. Alternatively, should cost effective remote generation be available but is trapped due to constrained transmission, then the DR resource can be viewed as either eliminating the need to upgrade the transmission path, or effectively relieving the constraint. In this light, FERC Order 745 may be viewed as qualifying an NTA for financial compensation as they can function to balance supply and demand

CONGESTION GREATLY AFFECTS LMPs

The congestion component of an LMP is often quite significant. This can be seen in the chart to the right of zonal LMPs (NYISO LBMPs in the chart). Note the portion of the bar height above the reference price (the roughly horizontal line) is almost all due to congestion. In this chart, the congestion component is seen to make up half of some of the LMPs.

VIRTUAL TRANSMISSION WITH DLR

A dynamic line rating (DLR) system instruments a transmission line, and combined with weather information, provides the true power handling capacity of a transmission line on both real-time and forecast bases. Numerous studies have

demonstrated DLR provides 10 – 25% or greater transmission line capacity increase above static ratings. DLR is noted in a recent FERC Policy Statement as a technology that creates “additional incremental capacity without significant construction.” This again is characteristic of an NTA.

Just as DR acts as a virtual negative generator, DLR can be seen acting as a virtual transmission path. As a resource it will have the effect of reducing congestion on a line¹ and impact nodal LMPs. Since remote generation or DR cannot be used to balance supply and demand if behind a constrained line, the virtual transmission path provided by DLR can now make these resources available. This capability can be argued to be worth the difference between the constrained and unconstrained² LMPs. Therefore:

- If an entity, possibly even a 3rd party “DLR-resource provider,” deploys DLR on lightly to heavily constrained lines, it is therefore reasonable to project that such a path to financial compensation is possible.
- The use of DLR in such a fashion should reduce LMPs, therefore reducing the cost of energy to consumers. This should be appealing to public regulators.

¹Under certain circumstances, DLR can reduce a transmission path's capacity, thereby increasing congestion
²Or between the change in the level of constraint.

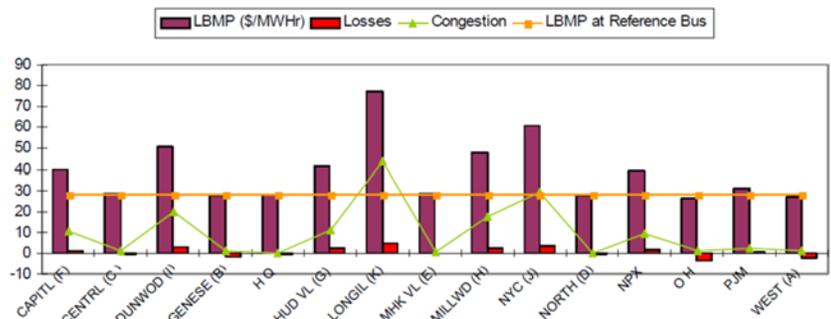


Chart of NYISO Zonal LBMPs (Locational Bus Marginal Prices, i.e., LMPs) for June 5, 2002, Hour 14.

Note LBMP components are Energy, Congestion, and Losses

