

**CONCERNS WITH REGIONAL TARGETED MARKET EFFICIENCY PROJECT (TMEP)
CONSTRUCT MODELED ON INTERREGIONAL TMEP CONSTRUCT**

1. *Transitory nature of historical congestion costs attributable to a given constraint.* Out of the top 25 congestion constraints for 2016 only 9 reappeared in the top 25 list for 2017 (Monitoring Analytics State of the Market report for 2017, http://monitoringanalytics.com/reports/PJM_State_of_the_Market/2017/2017-som-pjm-sec11.pdf, Tables 11-25 and 11-26).

Thus, 16 of the top 25 constraints in 2016 did *not* reappear in the list for 2017. Congestion in 2017 for those 16 constraints could not have exceeded \$6.8 million (threshold for making the 2017 list), and may have been minimal or zero. If zero for 2017, averaging 2016 and 2017 congestion for each of these 16 constraints would be no less than about \$4 million (average of minimum of \$7.9 million and zero), and thus under the interregional TMEP construct these 16 constraints might justify 16 projects costing between \$16 million (\$4 million times 4) and \$20 million (cap) each. This represents a potential rate base capital cost to consumers of \$256-320 million, to be paid for at an annual carrying charge rate, currently 13%, for decades.

Similarly, looking at the top 25 constraints of 2017, only 8 had appeared in 2016, and 17 did not. The same sort of analysis suggests roughly another quarter billion dollars of potential rate base capital cost to consumers.

The annual potential rate base capital cost could be incurred every year indefinitely. Add to that the cost of projects to address constraints that did not make either the 2016 or 2017 top 25 lists, which could be in the hundreds (as one indicator there were 632 binding constraints in the 2018 FTR auction).

Triggering potentially enormous capital costs from as little as one year of historical congestion is not consistent with the Commission's expectation in its Order accepting the interregional TMEP proposal. That Order used the term "persistent" a number of times, even highlighting the term as quoted below, and tied it to a reasonable expectation that the congestion would continue absent a TMEP project:

"As noted, Filing Parties propose to measure those benefits based on the *persistent* historical congestion that the transmission project would be expected to alleviate. This requirement ensures that the identified congestion is unlikely to be otherwise remedied As a result, the RTOs can reasonably expect that the congestion would continue but for the development of the TMEP." *PJM Interconnection, L.L.C.*, 161 FERC ¶ 61,005, P 50 (2017) (emphasis original).

The data provided above involving the top 25 congestion constraints for 2016 and 2017 show that there can be no reasonable expectation that historical congestion in a given year is indicative of significant historical congestion in a second year, and it follows that such transitory congestion would not support a reasonable expectation of significant congestion in future years.

Thus, the Commission's premise for accepting the interregional TMEP construct is inapplicable to a regional TMEP construct modeled on the interregional TMEP construct.

2. *Gross congestion costs are not appropriate for measuring benefits.* Gross congestion costs are not an appropriate measure of cost to load. Congestion costs used in the interregional TMEP do *not* net the ARR/FTR offset of cost to load. As congestion has declined, ARR/FTRs hedge more and more congestion in PJM, and in one recent year 98% of congestion costs:

“Total ARR and self scheduled FTR revenue offset only 63.8, 86.5, 98.1, 50.7 and 84.7 percent of total congestion costs including congestion in the Day-Ahead Energy Market and the balancing energy market for the 2014/2015, 2015/2016, 2016/2017, 2017/2018 and the first four months of 2018/2019 planning periods.” (State of the Market report for 3rd Q of 2018, http://monitoringanalytics.com/reports/PJM_State_of_the_Market/2018/2018q3-som-pjm-sec11.pdf, page 524):

It is not appropriate to base benefits on gross congestion costs when up to 98% of such congestion costs overall are offset by ARR/FTRs. And, of course, for any given constraint ARR/FTRs could totally offset the congestion that is the basis for a project.

In its Order accepting the interregional TMEP proposal the Commission said that it was acceptable not to consider congestion hedging because of *unique interregional* coordination challenges:

“As Filing Parties explained, Reciprocal Coordinated Flowgates are the focus of the TMEP planning proposal at issue in this proceeding because they pose *unique interregional coordination challenges* that cannot be efficiently controlled by either RTO and, therefore, impair each RTO's ability to operate its system efficiently.” *PJM Interconnection, L.L.C.*, 161 FERC ¶ 61,005, P 55 (2017) (emphasis added).

For this reason the *interregional* justification for disregarding congestion hedging is inapposite.

3. *Historical versus forward-looking congestion.* Forward-looking models are of course not perfect, but they are inherently the best estimate we have of future congestion and other

potential benefit metrics. The GreenHat experience illustrates how unreliable historical congestion is as a predictor of the future.

According to PJM in support of using the interregional TMEP construct for a regional TMEP construct: “Must use historical model due to low or no congestion in the forward looking Market Efficiency models” (<https://pjm.com/-/media/committees-groups/task-forces/mepetf/20181026/20181026-item-03-regional-targeted-market-efficiency-projects-tmep.ashx>, slide 4).

This proposition has things backward. Projection of “low or no congestion” is a reason *not* to incur potentially enormous capital costs based on historical congestion, especially based on only one or two years of historical congestion.

In its Order accepting the interregional TMEP proposal the Commission said that it was acceptable to rely on historical congestion because the subject constraints are not identified in the RTOs’ processes “that use forward-looking production cost models”:

“As Filing Parties explained, studying actual historical congestion allowed the RTOs to identify transmission constraints that result from the “*unique* congestion coordination protocol” used to manage the MISO-PJM seam and that are *not* identified in the RTOs’ Order No. 1000 processes that use forward-looking production cost models.” *PJM Interconnection, L.L.C.*, 161 FERC ¶ 61,005, P 59 (2017) (emphasis added).

In other words, it is acceptable to use a second-best approach (historical congestion) when the best approach (forward-looking model) is not available.

For *regional* congestion PJM has a forward-looking model that *is* used for market efficiency projects generally. Thus, there is no basis for relying on historical congestion when a forward-looking model is available.

4. *Shifting congestion.* PJM has suggested that in a regional TMEP construct it could/would evaluate whether historical congestion was due to transmission outages, and whether hypothesized future congestion may be mitigated/relieved by future planned upgrades (it is not clear how PJM could do that without modeling future system conditions).

PJM has not indicated whether it would evaluate how much congestion is shifted to other facilities if a subject facility is upgraded.

The importance of this is illustrated by PJM’s recent simulation of using dynamic line ratings (DYL) to mitigate congestion on a 500 kV line causing frequent historical congestion. In the simulation, DYL fully mitigated the simulated annual congestion costs on the subject line of \$11.1 million, but increased congestion on nearby facilities by \$6.9 million for a net

congestion reduction of \$4.2 million

(<https://cdn2.hubspot.net/hubfs/4412998/CIGRE%20GOTF%202018%20NGN%20-%20PJM%20AEP%20LineVision%20-%20Final.pdf?t=1540927429509>, page 6).

In other words, more than half the simulated congestion was shifted to other facilities rather than reduced on an overall basis.

In order to ensure that a congestion benefit reflects an overall reduction in congestion it appears PJM would need to model the system. For that purpose a forward-looking model would be, of course, superior to an obsolete historical model.