

**DCE Analysis of Proposed Change to
Marginal Loss Calculation Methodology**

Presentation to PJM MRC

March 17, 2010

DC ENERGY
QUANTITATIVE TRADING

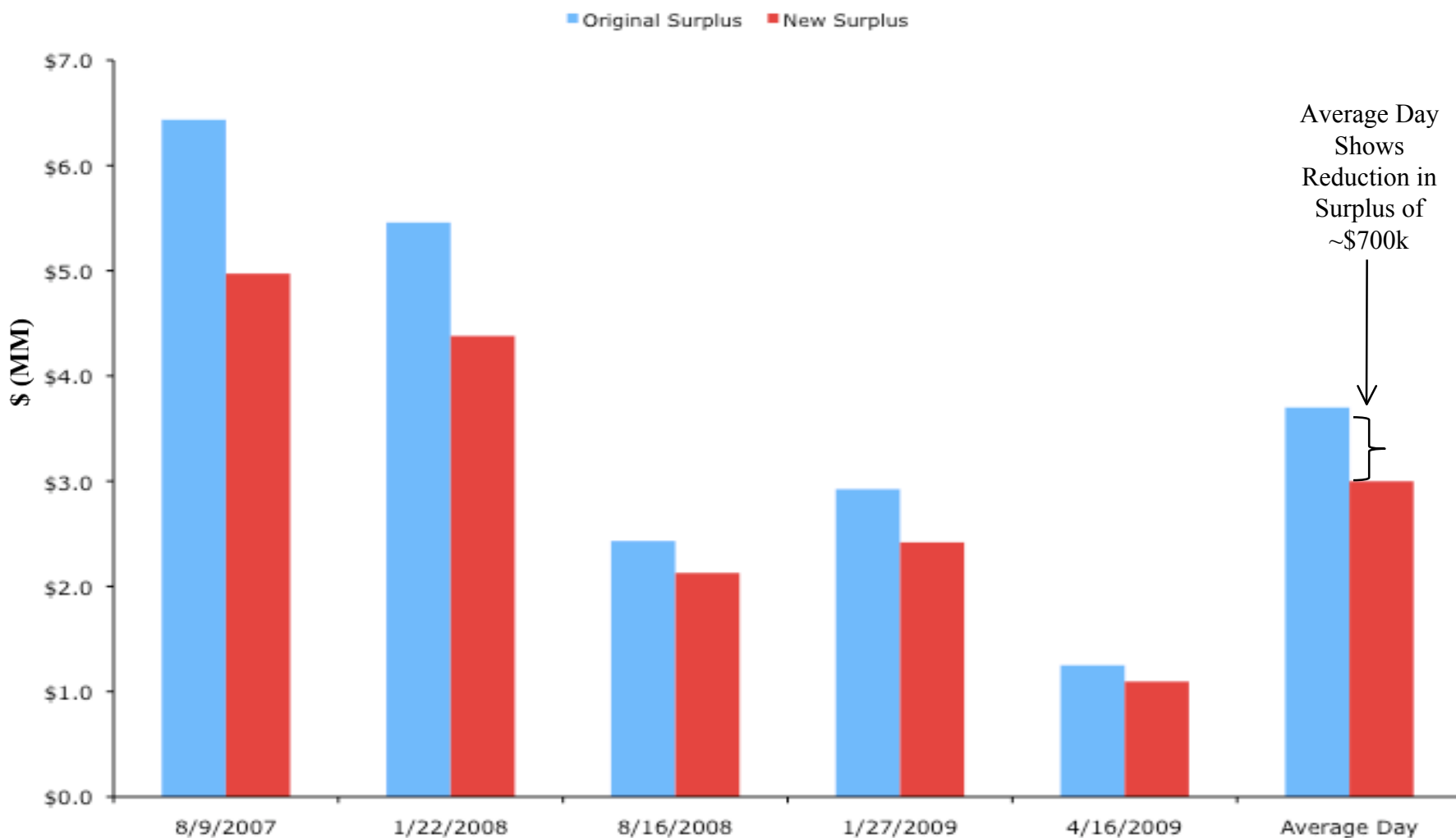
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Summary

- **Proposed changes to marginal loss calculation would lead to higher costs to load**
 - For the five days modeled by PJM, load would pay on average ~\$1MM more per day under the current alternate marginal loss proposal
 - This compares to an average daily increased cost to load of ~\$620k for the previous alternate marginal loss proposal (limit to <100kv).
- **The alternate marginal loss proposal will lead to less efficient dispatch and will result in increased revenue to generators at the expense of load**
 - Even if this is a small change on a percentage basis for the five days studied, the reduced efficiency can nevertheless be significant on an absolute basis
 - Further, incorrect / inefficient price signals will be sent to generators in the future (i.e., so long as I'm in a non-monitored area of the network, there's little incentive to site at the end of a line with no losses vs. at the end of a line with huge losses; any detrimental effect I may have will just be averaged away) -- which will tend to progressively worsen dispatch efficiency over time
- **Far from bringing more consistency, the proposed alternate method for calculating marginal loss would introduce an inconsistency in the way that the loss and congestion components of LMP are calculated**
- **We also believe a Tariff change is necessary and as such should be brought to the Members Committee if passed at the Markets and Reliability Committee**

Under the new proposal, the marginal loss over-collection is reduced. The vast majority of this surplus is distributed to load, so a reduction in the surplus is detrimental to load

Change in Marginal Loss Over-Collection Surplus

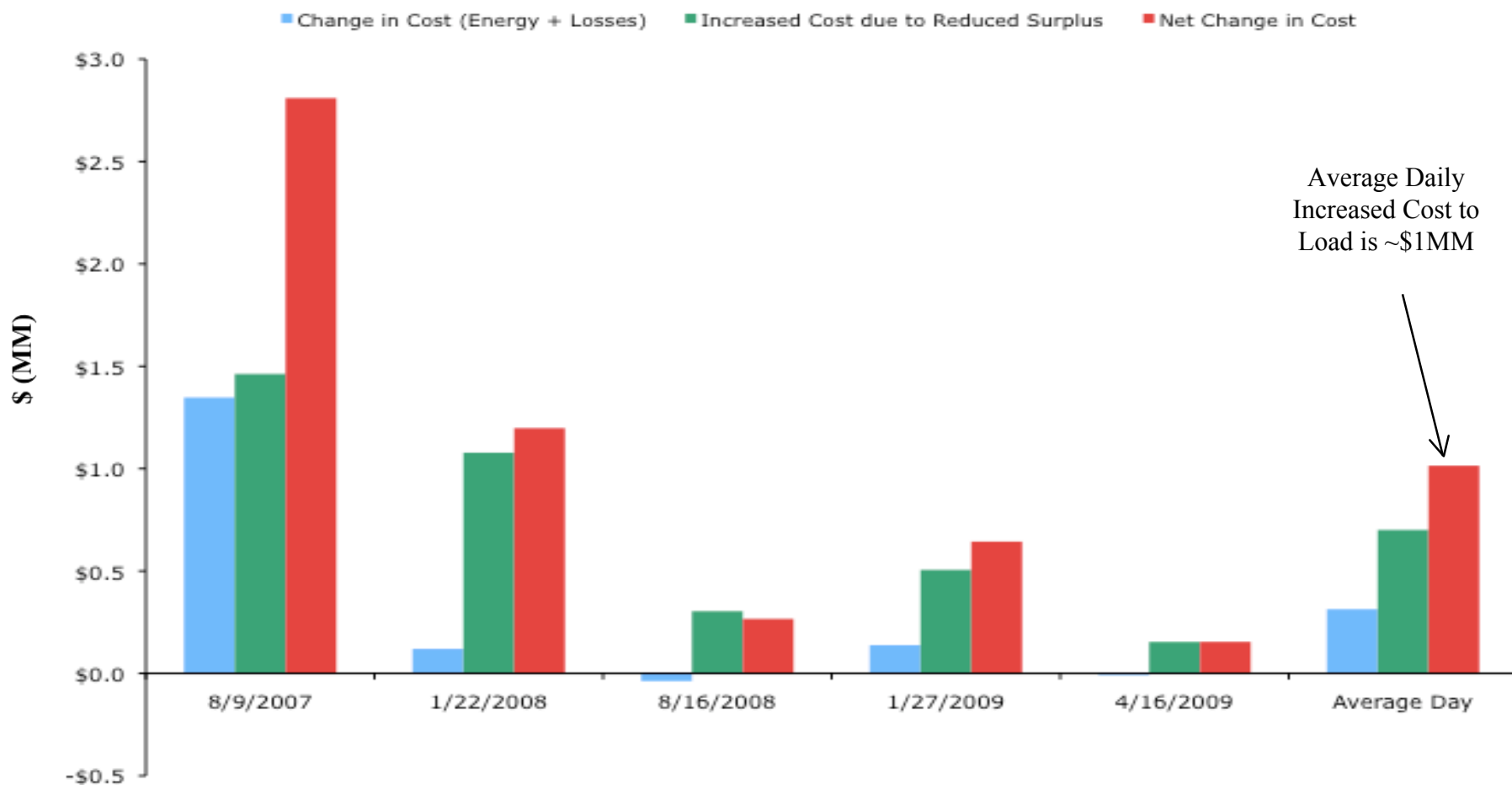


Note: Data taken from PJM spreadsheet (20100309-item-12-summary-zonal-load-data-monitor-facility)

Note: Virtual activity is not considered

Once the effect of the reduced surplus is considered, load costs increase by an average of ~\$1MM per day for the days studied, or in excess of \$370MM on an annualized basis

Change in Load Costs
- Including Cost Associated with Reduction of Surplus-



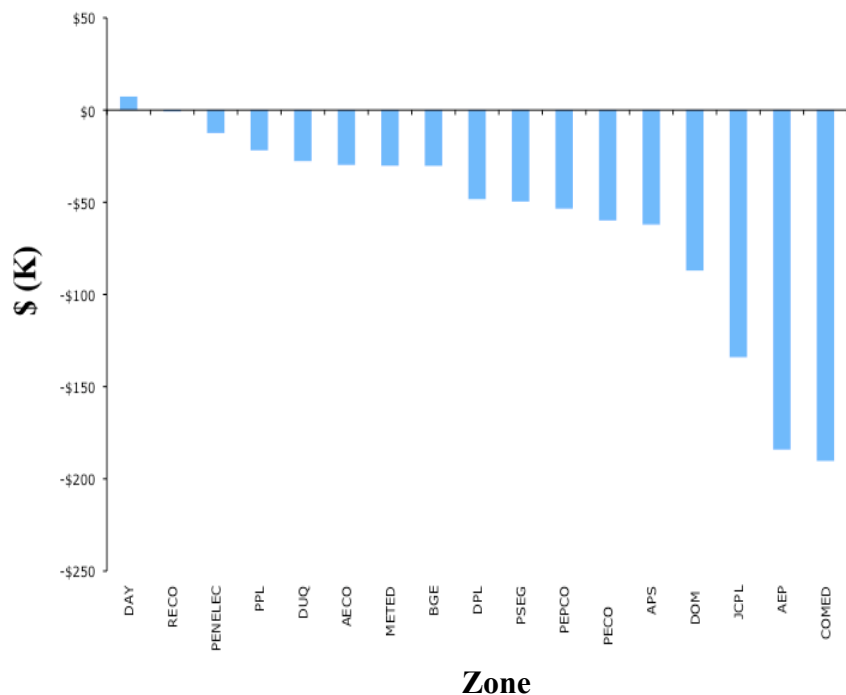
Note: Data taken from PJM spreadsheet (20100309-item-12-summary-zonal-load-data-monitor-facility)

Note: It is assumed that entire over-collection surplus is distributed to load. In practice, a small amount is distributed based on exports

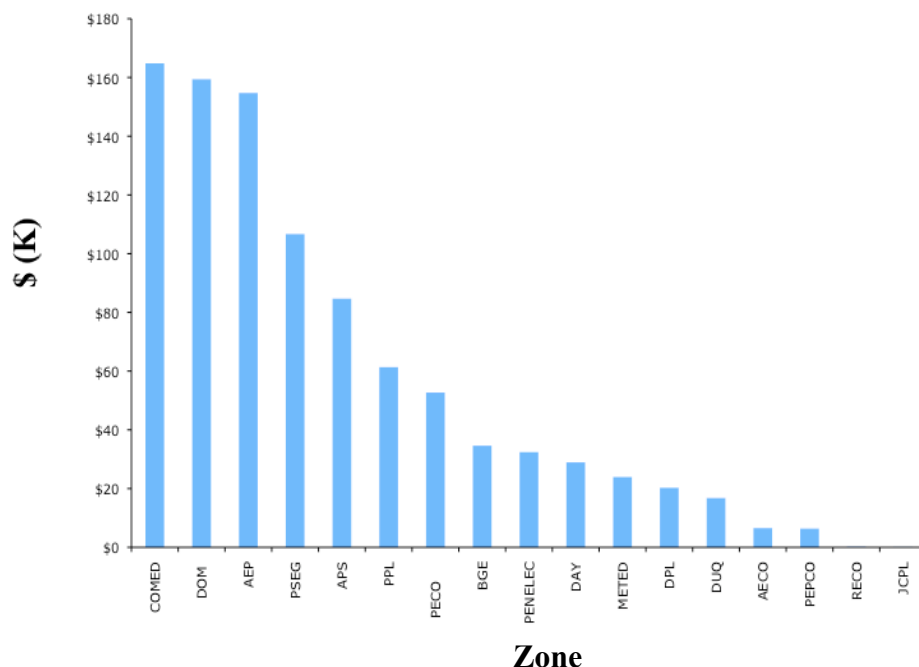
Note: Virtual activity is not considered

The alternate proposal for calculating marginal loss results in increased revenue to generators at the expense of load

Net Effect for Load (incl. reduced surplus allocation)
 - Average Day for Five Example Days-



Net Effect for Generation
 - Average Day for Five Example Days-



Average Daily Transfer of ~\$1MM for 5 days studied

Note: Data taken from PJM spreadsheet (20100309-item-12-summary-zonal-load-data-monitor-facility)

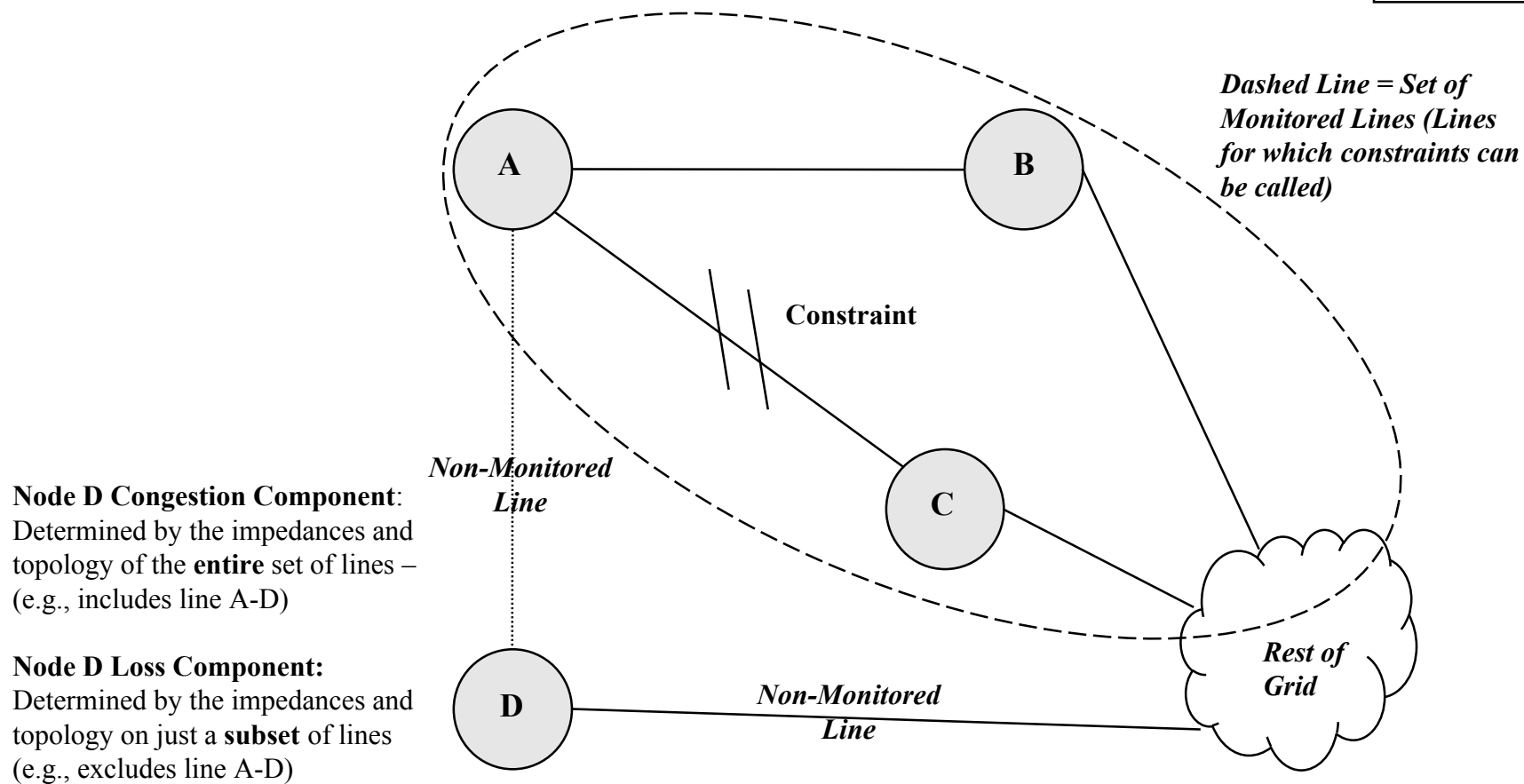
Note: It is assumed that entire over-collection surplus is distributed to load. In practice, a small amount is distributed based on exports

Note: Virtual activity is not considered

The proposed alternate method for calculating marginal loss would introduce a clear inconsistency between the methodologies for calculating the congestion and loss components of LMP

Inconsistency in PJM's Proposed LMP Calculation

Conceptual



The proposed alternate marginal loss calculation would ignore losses over non-monitored line A -D even though the congestion component calculation accounts for line A-D. **This introduces a clear inconsistency between the methodologies for calculating the congestion and loss components of LMP**

A manual change to implement PJM's proposal is insufficient as it is contrary to FERC direction on material changes to the filed rate

Manual vs. Tariff Change

- **While PJM believes that a Tariff change is not required (i.e., a manual change is sufficient), DC Energy disagrees. There are two pertinent sections of the PJM Tariff.**
- **First, OATT § 3F.2/OA § 14.2/Attachment K § 1.2A.2: “Inclusion of State Estimator Transmission Losses states:
Whenever in this Tariff transmission losses are included in the determination of a charge, credit, load (including deviations), or demand reduction, it is explicitly so stated and such included losses shall be those losses incurred on facilities included in the PJM network model and determined by, and reflected in, the PJM State Estimator. Absent such explicit statement, such losses are not included in the determination. (emphasis added)**
- **DC Energy disagrees with the PJM position that it can include or exclude losses on *any* facilities in the network model. This interpretation would allow PJM to calculate and charge losses on *any* permutation from one facility to all facilities in the network model. This would render the OATT defectively vague and meaningless. Moreover, PJM's proposed change has a persistent and material affect on the resulting rates PJM charges its customers. FERC has concluded that such material rate provisions must be included in the filed rate.**

A manual change to implement PJM's proposal is insufficient as it is contrary to FERC direction on material changes to the filed rate

Manual vs. Tariff Change

- Second, OATT § 3F.3/OA § 14.3/Attachment K § 1.2A.3: “Other Losses” states:**
Losses incurred on facilities not included in the PJM network model and therefore not reflected in the PJM State Estimator may be included in the determination of charges, credits, load (including real-time deviations), or demand reductions, as determined by electric distribution companies, unless this Tariff explicitly excludes such losses. (emphasis added)
- These two sections of the OATT together provide a logical, closed system in which (a) PJM calculates and settles losses on facilities in the network model through use of the State Estimator; and (b) EDCs may determine and settle losses on facilities that are not. PJM's proposal creates an inconsistent third category of losses – losses on facilities in the network model, but which PJM will not settle. This, in our view, would be contrary to the intent of the OATT and create a defectively vague tariff on a material rate provision. Such unchecked (no MC vote nor FERC filing/approval) discretion in the filed rate creates uncertainty for all market participants and is bad for markets.**