UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Pat Wood, III, Chairman;
Nora Mead Brownell, and Joseph T. Kelliher.

PJM Interconnection, LLC

Docket Nos. RT01-2-015
ER03-738-003
RT01-2-016

ORDER ON REHEARING AND COMPLIANCE FILING

(Issued March 29, 2005)

1. In this order, the Commission denies a request for rehearing of an order accepting the methodology proposed by PJM Interconnection, LLC (PJM) for its Regional Transmission Expansion Program (RTEP), on the basis that PJM's methodology correctly measures unhedgeable congestion. The Commission also accepts PJM's compliance filing, but requires additional technical information. This order benefits customers by ensuring that PJM's RTEP appropriately identifies the transmission expansions needed to support competition.

Background

2. By order dated December 20, 2002, the Commission granted PJM full regional transmission organization (RTO) status, but ordered PJM to provide additional explanation of how its planning process would identify transmission expansions that are needed to support competition.[1] On July 24, 2003, October 24, 2003, and October 18, 2004, the Commission accepted further changes to PJM's RTEP process.[2]

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[1] *PJM Interconnection, LLC*, 101 FERC ¶ 61,345 (2002) (December 20 Order).

[2] *PJM Interconnection, LLC*, 104 FERC ¶ 61,124 (2003) (July 24 Order); *PJM Interconnection, LLC*, 105 FERC ¶ 61,123 (2003) (October 24 Order); *PJM Interconnection, LLC*, 109 FERC ¶ 61,067 (2004) (October 18 Order).

3. Under the tariff provisions proposed by PJM and accepted by the Commission in these orders, PJM will first identify areas that are experiencing unhedgeable congestion (*i.e.*, the increased generation costs incurred because of a transmission constraint). PJM will then initiate a one-year period (the market window) for the market to provide a solution for areas experiencing unhedgeable congestion, such as a merchant developer proposing to construct an upgrade. If the market does not bring about a solution during this period, PJM will determine the costs and benefits of constructing an upgrade, and if it determined that the benefits of constructing an upgrade would outweigh the costs, PJM would propose construction of a transmission upgrade. PJM would also make a determination as to the parties who would bear the costs of constructing the upgrade (*i.e.*, the upgrade's beneficiaries).

4. In its October 18 Order, the Commission provided further elaboration of the way in which PJM should measure unhedgeable congestion. The Maryland Office of People's Counsel (MPC) filed a request for rehearing of one aspect of the October 18 Order.

5. Additionally, the Commission required PJM to make a compliance filing providing further information. PJM made that compliance filing on November 17, 2004.[3]

Discussion

A. Request for Rehearing

6. In the October 24 Order, the Commission stated that, when determining whether an area is suffering from unhedgeable congestion, it is appropriate to exclude economic local generation from the calculation of total affected load, because economic generation represents capacity that alleviates congestion.[4] In the October 18 Order, in response to a request for rehearing by the Joint Consumer Advocates (one of which was MPC), the Commission stated:

> Economic local generation reduces the congestion that would otherwise occur. Congestion occurs when load within an area cannot be met with the lowest-cost set of available generation and, as a result, higher-cost local generation (inside the constrained area) must be dispatched in place of

[3] PJM's compliance filing was noticed in the *Federal Register*, 69 Fed. Reg. 71,029, with motions for intervention, protests or comments due on or before December 8, 2004. None was filed.

[4] October 24 Order at P 47.

> lower-cost remote generation. Congestion can be measured by the amount of out-of-merit generation. Out-of-merit generation (and thus, congestion) can be reduced either by expanding transmission capacity or by building more low-cost generation in the local area. Locating low-cost, in-merit generation near load reduces congestion because such local generation does not use constrained transmission facilities to reach local load. [5]

7. The Commission recognized that, as Joint Consumer Advocates had argued on rehearing, when congestion is present, the prices for economic local generation would rise to the locational marginal pricing (LMP) level, but found that this fact did not invalidate the Commission's view that the amount of economic local generation within a load pocket is a necessary part of the measurement of total unhedgeable congestion:

> Of course, as long as congestion exists, the energy price inside the constrained area will be higher than outside the area, and both in-merit and out-of-merit local generators will receive this higher price. But that observation is irrelevant in determining how much additional transmission capacity would eliminate the congestion. In the example in the October 24 Order, if there is local in-merit generation of 25 MWs (with total FTRs of 100 MWs), there will be no congestion over the line as long as demand does not exceed 125 MWs. But if demand were to grow to, say, 130 MWs, then 5 MW of local out-of-merit generation would be needed to be dispatched. In this instance, congestion could be fully relieved by expanding transmission capacity by 5 MWs, *i.e.*, by the amount of out-of-merit generation.[6]

8. In its request for rehearing of the October 28 Order, MPC states that the Commission's decision to include economic local generation in PJM's calculation of unhedgeable congestion does not accurately reflect the costs of congestion to load within a load pocket. In the above example, MPC argues that, in a situation in which there were 130 MW of demand within a load pocket, 100 MW could be hedged with FTRs, and there was 25 MW of economic local generation, the Commission is wrong to state that there is only 5 MW of unhedgeable congestion, and that load would be willing to pay only up to $200 (*i.e.*, the congestion charge associated with 5 MW) to get additional transfer capability.

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[5] October 18 Order at P 25.

[6] *Id.*

9. MPC posits that, if the LMP within the load pocket is $60 (*i.e.*, the bid of the highest cost generator inside the pocket), whereas generation outside the load pocket would be available for $20,[7] the LMP would fall by $40/MWh – from $60/MWh to $20/MWh. MPC states that the $40/MWh reduction in price would apply to more than the 5 MW of out-of-merit generation; rather, it would apply to all 30 MW of energy produced from local generation. Thus, *all* 30 MW of load within the pocket that purchases from local generation would benefit from the lower price, because the clearing price within the load pocket would drop to $20. Load would save $40 (*i.e.*, would pay $20/MWh rather than $60/MWh for generation) for all 30 MW of local generation purchased, for a total of $1,200 in savings, which is the total benefit to load from relieving the constraint. Therefore, MPC argues, as PJM measures "unhedgeable congestion," this $1,200 savings benefit, rather than the $200 posited by the October 18 Order, is the amount that PJM should consider as it decides whether to require a transmission upgrade.

10. The Commission denies MPC's request for rehearing. As we noted in the October 18 Order, congestion would be fully removed by expanding transmission capacity by the amount of out-of-merit generation – 5 MW in the example. By expanding capacity by that amount, 5 MW of cheaper generation ($20/MWh in the example) would displace 5 MW of expensive out-of-merit generation ($60/MWh in the example), for a reduction in cost of $40/MWh associated with each these 5 MW, or a total cost reduction of $200. Thus, the market as a whole would not benefit from a transmission expansion that cost more than this $200 cost reduction.

11. The inquiry here should be what is the efficient amount of transmission expansion, not whether such expansion has an effect on the actual bills of customers. For example, MPC contends that loads' bills would fall by $1,200,[8] but this argument assumes that all purchases occur in the spot market. If all 30 MWs of inside-the-load-pocket generation is under contract, the transmission expansion would have no effect on load's bills, but an expansion costing $200 or less would still be an efficient investment decision.

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[7] *See* example in the October 24 Order at P 41, to which MPC cites.

[8] The $1200 reflects the $40/MWh reduction in the price paid by loads for all 30 MWs produced by generation in the load pocket, including the 25 MW of economic generation. (The LMP within the load pocket would have been set by the 5 MW of out-of-merit generation, thus forcing even the purchasers of economic local generation to pay that price.)

12. In determining whether it is economically efficient to expand transmission, PJM should identify the net costs and benefits to all market participants; PJM should not merely identify potential costs and benefits to loads as MPC recommends. The real cost to society is the fact that 5 MW of inefficient $60 generation is being used in place of 5 MW of efficient $20 generation. This means that $200 more of natural gas or other input costs are being used to generate electricity. If transmission could be built for $100, society would gain $100 from the transmission expansion because less overall resources would be used to produce electricity. However, if the transmission expansion cost $300, building the transmission would cause society a net loss of $100. It would cost $300 in materials to replace only $200 of increased generation expenses.

13. PJM should only institute a construction process when the market is failing to build economic transmission. PJM should not be intervening in the market to deal with transfer payments between load and generators, which do not have societal effects. Negotiations with respect to transfer payments should be left to the market.[9]

B. Compliance Filing

14. The Commission will accept PJM's compliance filing, but will require PJM to submit additional information.

15. In the October 18 Order, we accepted PJM's proposal to use the applicable powerflow distribution factor (DFAX) in its formula for calculating estimated unhedgeable congestion cost savings to the affected load. However, we stated:

> [W]e believe that PJM has not described with enough specificity how it will determine the appropriate powerflow distribution factors to be used in the

[9] For example, in a competitive market, with no transaction costs involved in the negotiations between the parties, transmission would not be built if the cost of the transmission upgrade exceeded $200. Load is willing to pay up to $1200 to eliminate the congestion, while at the same time, the efficient, in-merit generation owner is willing to pay up to $1,000 to stop the construction (the amount of money it would lose if the construction was built). If the parties could freely negotiate, transmission construction would take place only where the transmission construction is less than $200. If the cost is greater than $200, the transmission owners would be willing to pay more to stop construction than load would gain from having the construction take place. *See* Ronald Coase, *The Problem of Social Cost*, 3 Journal of Law and Economics 1 (Oct. 1960). The way in which the $1,000 is distributed between load and the efficient generation owner should be left to the market.

> formula. Thus, we will require PJM to make one change in its tariff relating to the powerflow distribution factor. It is our understanding that the percentage of power injected at a bus that flows on a transmission facility depends on both the source and the sink. We presume that PJM intends that the source would be the location of the additional lower cost generation that would serve that affected load once the transmission expansion is completed, and that the sink would be the location of the load. However, PJM's compliance filing does not specify the source or sink used in determining the value for DFAX in the above formula.[10]

16. The Commission therefore stated:

> We direct PJM to revise its Operating Agreement to clarify, in a compliance filing filed with us within 30 days, the source and sink intended to be used in determining the value for DFAX. If our presumption about the locations of the source and sink are incorrect, we also direct PJM to include in the compliance filing a justification for the source and sink that it intends to use each time it calculates DFAX for a particular constrained transmission facility.[11]

17. In its compliance filing, PJM states in its transmittal letter that it calculates DFAX using the location of the affected load as a sink.[12] PJM states that the source used is a proportional increase of all generation sources external to the affected load area. PJM explains that it does not use specific locations of lower-cost generation as the source because the locations of the lower-cost generation may vary hourly. PJM states that it has made these clarifications by modifying section 1.5.7(c)(2)(C)(iii) of its tariff to identify the source and sink that it uses for DFAX determinations. The modified section 1.5.7(c)(2)(C)(iii), as presented in PJM's compliance filing, reads as follows:

> (iii)'Powerflow distribution factor' shall mean the percentage of power injected at a bus that flows on the constrained transmission facility relative to a system reference bus located outside the affected load area.

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[10] October 18 Order at P 53.

[11] *Id.*

[12] Transmittal letter to PJM compliance filing at 3-4.

18. PJM's submission has not complied sufficiently with our direction in this matter. We find that the method for determining the source and sink, as described in PJM's transmittal letter, would be reasonable. However, the specific tariff language proposed by PJM for section 1.5.7(c)(2)(C)(iii) does not adequately state the method as described in the transmittal letter, in that it does not identify the location of either the source or the sink. The tariff language refers to a "system reference bus outside the affected load area," but this term is not defined in the filing, nor is it clear whether this system reference bus would be used as a source or a sink.

19. The Commission therefore requires PJM to file, within 30 days of this order, specific additional language, to be placed in its Operating Agreement, that identifies the source and sink to be used in determining the value of DFAX when calculating estimated unhedgeable congestion cost savings to the affected load.

The Commission orders:

(A) MPC's request for rehearing is denied.

(B) PJM's compliance filing is accepted.

(C) PJM is required to make an additional compliance filing regarding the value of DFAX, as discussed above, within 30 days of the date of this order.

By the Commission. Commissioner Kelly not participating.

(S E A L)

Linda Mitry,
Deputy Secretary.