

125 FERC ¶ 61,042  
UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Joseph T. Kelliher, Chairman;  
Sudeen G. Kelly, Marc Spitzer,  
Philip D. Moeller, and Jon Wellinghoff.

Black Oak Energy, L.L.C.  
EPIC Merchant Energy, L.P. and  
SESCO Enterprises, L.L.C.

Docket No. EL08-14-001

v.

PJM Interconnection, L.L.C.

ORDER DENYING REHEARING IN PART  
AND GRANTING REHEARING IN PART

(Issued October 16, 2008)

1. This order addresses a request for rehearing filed on April 7, 2008, by Black Oak Energy, L.L.C., EPIC Merchant Energy, L.P., and SESCO Enterprises, L.L.C. (collectively, Complainants), of the Commission's March 6, 2008 order denying their complaint.<sup>1</sup> In their complaint, Complainants contended the allocation of transmission line losses to their financial arbitrage transactions via a marginal methodology was unduly discriminatory, because such transactions involve no actual physical flows of energy over transmission lines. Complainants maintained that arbitrageurs receive none of the inevitably over-collected surplus that is distributed to load-serving entities (LSE), even though arbitrageurs pay marginal transmission line losses (marginal line losses) on the same basis as the LSEs. As discussed below, the Commission will deny Complainants' request for rehearing in part and grant it in part.

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<sup>1</sup> *Black Oak Energy, LLC, et al. v. PJM Interconnection, LLC*, 122 FERC ¶ 61,208 (2008) (Complaint Order).

## I. Background

2. On March 3, 2006, in Docket No. EL06-55-000, Atlantic City Electric Company and others filed a complaint alleging that PJM Interconnection, L.L.C.'s (PJM) practice of recovering transmission line losses through an average cost method violated PJM's tariff. In that proceeding, the complaining parties asserted that PJM's tariff required that the transmission line losses be recovered through a marginal transmission line loss collection methodology (marginal loss method) when this became technically feasible, which it had become. They argued that PJM was unreasonably delaying implementation of the marginal loss method because of stakeholder disputes on how to allocate the over-collected surplus that necessarily would result. The complaining parties further argued that continued delay would result in misallocation of transmission line losses among load by as much as \$100 million per year and concluded that the average loss method then in use was inconsistent with the efficiency principles underpinning the locational marginal cost method that determines PJM wholesale prices. By contrast, most other parties urged that PJM retain the average loss method of recovering transmission losses, or that implementation of the marginal loss method be delayed until June 1, 2007.

3. In its May 1, 2006 order, the Commission concluded that PJM's tariff required use of the marginal loss method when it was technically feasible for PJM to do so and that this was now the case.<sup>2</sup> The Commission also affirmed that the marginal loss method was appropriate because that method would allow PJM to change its dispatch of generators (by considering the effects of losses) in a way that would reduce the total cost of meeting load.<sup>3</sup> The Commission found that the marginal loss method effectively imposes different loss charges to customers at different locations, as the loss component of the energy price varies for customers at different locations. That is, each spot market energy customer pays an energy price that reflects the full marginal cost—including the marginal cost of transmission losses—of delivering an increment of energy to the purchaser's location. Since losses vary in delivering energy to different locations, marginal losses increase as the number of megawatts (MW) of power moved increases.<sup>4</sup>

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<sup>2</sup> *Atlantic City Elec. Co. v. PJM Interconnection, L.L.C.*, 115 FERC ¶ 61,132, at P 19 (2006) (May 1, 2006 Order).

<sup>3</sup> *See* May 1, 2006 Order, 115 FERC ¶ 61,132 at P 22.

<sup>4</sup> It is a principle of mathematics that whenever any variable is continuously increasing, the marginal value of the last unit exceeds the average of all the units. Thus, where an average method considers all the units and produces an "average" transmission line loss (e.g., 2 percent is the average of an initial line loss of 1 percent that escalates as units increase to 3 percent), a marginal method would consider the losses incurred by the last unit(s) (e.g., 3 percent) and produces a "marginal" transmission line loss figure to be incorporated into the price of delivered energy. The marginal loss method, therefore, will always result in a higher figure than the average loss method.

As a result, charging for marginal line losses will result in collecting more revenues than needed to cover total loss costs.<sup>5</sup> The Commission further found that PJM would need to develop a method to allocate any such surplus.

4. Subsequently, various parties requested rehearing of the May 1, 2006 Order, asking the Commission to delay the effective date until June 1, 2007. PJM's August 3, 2006 filing modified its tariff to provide the necessary mechanics for utilizing the marginal loss method to recover transmission line losses. The Commission's November 1, 2006 Order addressed and resolved the allocation issue and affirmed that the marginal loss method would be implemented on June 1, 2007.<sup>6</sup>

## **II. The March 3, 2006 Complaint**

5. On December 3, 2007, Complainants filed a complaint challenging the marginal loss method and the related allocation methodology in PJM's tariff. They complained that arbitrageurs' financial transactions do not create the flow of physical energy and concomitant transmission losses and, therefore, they should not be assigned marginal line losses. Complainants alternatively argued that if arbitrageurs' financial transactions are assigned marginal line losses they should receive, as do the LSEs, a share of the surplus.

6. First, Complainants stated that arbitrageurs' financial transactions are "virtual" and, as such, do not cause transmission line losses because they "do not involve any actual transmission of power."<sup>7</sup> They maintained that PJM's tariff, therefore, is unjust and unreasonable insofar as it assigns marginal line losses to their financial transactions.

7. Complainants also stated that the Commission is obligated to follow cost-causation principles, and these principles preclude the assignment of marginal line losses to "virtual" transactions because such transactions play no role in creating these losses.<sup>8</sup>

8. In the event that the Commission did not exempt arbitrageurs from being assigned marginal line losses (i.e., "reimburse virtual Market Participants for the transmission line losses they are currently paying," Complaint at 3), Complainants alternatively argued that arbitrageurs should receive a share of the surplus, since their financial transactions are assigned marginal line losses in the same manner as LSEs but are not credited any of the

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<sup>5</sup> See May 1, 2006 Order, 115 FERC ¶ 61,132 at P 4-5.

<sup>6</sup> *Atlantic City Elec. Co. v. PJM Interconnection, L.L.C.*, 117 FERC ¶ 61,169 (2006) (November 1, 2006 Order).

<sup>7</sup> Complaint at 9; see also *id.* at 6, 11.

<sup>8</sup> *Id.* at 9-10.

surplus as are the LSEs.<sup>9</sup> Complainants contended that arbitrageurs are denied a share of the surplus that is made to other market participants making comparable physical transactions.<sup>10</sup> They concluded that such an allocation methodology amounts to financial transactions such as the ones they conduct paying a higher share of marginal line losses than is paid by physical load purchases made by LSEs.<sup>11</sup>

9. Complainants further contended that assigning transmission line losses to financial or “virtual” transactions harms the market by limiting arbitrageurs’ price convergence activities.

10. Complainants stated that they are not requesting a change in the marginal loss method or in the calculation of locational marginal price (LMP), but rather, they requested direct reimbursement. Further, Complainants contended that the total collection of marginal line losses was higher than anticipated.<sup>12</sup>

11. In the Complaint Order, the Commission found that Complainants had failed to show that the basis for adopting the marginal loss method (versus the average loss method) for recovering costs associated with transmission line losses had become unjust and unreasonable. The Commission explained that the higher prices now being charged for transmission line losses provide no basis for changing the proper determination of price.<sup>13</sup> Nor did the Commission find any basis to calculate different LMP prices for arbitrageurs than for other participants in the market, as Complainants seemed to suggest.

12. With respect to crediting the over-collections or surplus, the Commission reiterated that no party is entitled to receive any particular amounts through disbursement, since the price each is paying (based on marginal line losses) is the correct marginal cost for the energy each is purchasing.<sup>14</sup> The Commission did not find the current allocation system to be unduly discriminatory.

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<sup>9</sup> *Id.* at 15.

<sup>10</sup> *Id.* at 9; *see also id.* at 12.

<sup>11</sup> *Id.* at 10, 15; *see also id.* at 13.

<sup>12</sup> *Id.* at 17 & n.38.

<sup>13</sup> Complaint Order, 122 FERC ¶ 61,208 at P 29.

<sup>14</sup> *Id.* P 46.

13. On April 7, 2008, Complainants filed a request for rehearing of the Complaint Order. On April 22, 2008, Allegheny Energy Companies (Allegheny)<sup>15</sup> filed an answer to Complainants' request for rehearing.

### **III. Discussion**

#### **A. Procedural Matters**

14. Rules 213(a)(2) and 713(d)(1) of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.213(a)(2), 713(d)(1) (2008), prohibit an answer to a request for rehearing unless otherwise ordered by the decisional authority. We will accept Allegheny's answer because it has provided information that assisted us in our decision-making process.

#### **B. Request for Rehearing**

15. Complainants request rehearing of the Complaint Order, first contending that the Commission failed to reach its decision within the statutory framework of section 206 of the Federal Power Act (FPA),<sup>16</sup> which requires a two-step process. Complainants maintain that the Commission did not first analyze whether Complainants had made a *prima facie* showing that the existing rate is unlawful but rather focused on the flaws in Complainants' proffered remedy.

16. Complainants next contend that the Commission erred by finding that allocating costs to both physical and virtual transactions, but allocating benefits only to physical transactions, is consistent with the FPA.<sup>17</sup> Complainants argue that a finding that parties are not entitled to a specific refund amount of the transmission line loss surplus does not permit the Commission to uphold a discriminatory marginal loss refund method that denies arbitrageurs *any* refund benefits.<sup>18</sup>

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<sup>15</sup> Allegheny Energy Companies are: Allegheny Power (as the trade name for Monongahela Power Company, the Potomac Edison Company, and West Penn Power Company) and Allegheny Energy Supply Company.

<sup>16</sup> 16 U.S.C. § 824e (2006).

<sup>17</sup> Request for Rehearing at 9-12. The courts reject marginal loss methodologies that result in undue discrimination or "rate tilt." *Id.* at 10 (citing *Sithe/Independence Power Partners, L.P. v. FERC*, 285 F.3d 1, 4 (D.C. Cir. 2002) (*Sithe/Independence*); *Elec. Consumers Res. Council v. FERC*, 747 F.2d 1511, 1515 (D.C. Cir. 1984); *Wis. Pub. Power, Inc. v. FERC*, 493 F.3d 239 (D.C. Cir. 2007)).

<sup>18</sup> *Id.* at 12.

17. Complainants remark that the Commission found that virtual transactions are comparable to physical transactions in part of the Complaint Order, but found that virtual transactions are not comparable to physical transactions in another part of the order, which is not reasoned decision-making.<sup>19</sup> Complainants insist that “there is no legal support or rational basis for the decision to consider the allocation of marginal loss costs separately from the allocation of marginal loss benefits.”<sup>20</sup>

18. Complainants further contend that the Commission erroneously concluded that virtual market participants—i.e., those engaged in arbitrage transactions or “arbitrageurs”—cause transmission line losses to be incurred to the same extent as physical transactions. Complainants maintain that the Commission failed to apply cost causation principles as required by the FPA and upheld a rate that requires arbitrageurs to pay for transmission line losses that they do not cause (because they do not transmit energy).<sup>21</sup> Moreover, Complainants argue that the fact that arbitrageurs’ transactions may affect the costs of delivered energy is “wholly insufficient” to conclude that arbitrageurs cause transmission line losses comparable to physical loads.<sup>22</sup> “That virtual transactions can affect Day-Ahead LMP prices, including the loss component, does not mean that virtual transactions ‘cause’ transmission line losses,” according to Complainants.<sup>23</sup> Lastly, Complainants state that the FPA prohibits rates that assign the same cost responsibility to two sets of market participants who cause different costs to be incurred, as in the case with physical and virtual transactions.<sup>24</sup>

19. Next, Complainants state that the Commission erred in finding that the receipt of real-time marginal losses by arbitrageurs at settlement makes the PJM rate lawful; they state that, to the contrary, LSEs receive more in marginal line loss surplus disbursements than arbitrageurs receive in real-time loss payments.<sup>25</sup>

20. Complainants aver that arbitrageurs are entitled to receive a share of the marginal line loss surplus for the PJM transmission system, because they contribute to the fixed

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<sup>19</sup> *Id.* at 13.

<sup>20</sup> *Id.*

<sup>21</sup> *Id.* at 16-17; *see also id.* at 19-21 (discussing differences between virtual or financial and physical transactions).

<sup>22</sup> *Id.* at 18.

<sup>23</sup> *Id.*

<sup>24</sup> *Id.* (citing *Ala. Elec. Co-op, Inc. v. FERC*, 684 F.2d 27 (D.C. Cir. 1982)).

<sup>25</sup> *Id.* at 15.

costs of that system.<sup>26</sup> Complainants state that they pay up to forty percent—perhaps as much as \$400 million per year—in marginal line loss surplus, yet they are allocated none of the disbursements of these funds. They characterize this as an annual subsidy from arbitrageurs to the LSEs.<sup>27</sup>

21. Further, according to Complainants the Commission erred in finding that the relief they requested would require PJM to change its existing system of computing LMP prices. They reiterate that they requested either a share of the surplus or a credit for the marginal loss costs related to particular transactions.<sup>28</sup>

22. Finally, Complainants maintain that the Commission improperly concluded that line loss surplus should be disbursed to LSEs because such allocation would act to reduce retail rates.<sup>29</sup>

23. In Allegheny's answer to Complainants' request for rehearing, Allegheny addresses the Complainants' argument with respect to the legal standard under section 206 of the FPA (as applied to their complaint), Complainants' cost-causation argument, and Complainants' allegation of undue discrimination. In each case, Allegheny supports the conclusions found in the Complaint Order.

### **C. Commission Determination**

24. We will deny the request for rehearing in part and grant it in part, as discussed below. Complainant's rehearing request addresses two fundamental issues: whether arbitrageurs in the PJM market should be required to pay marginal line losses and, if they are required to pay marginal line losses, whether they should be entitled to a share of the over-collected amounts or surplus on an equal basis with other similarly situated customers. We deny rehearing on the first issue and grant rehearing on the issue of payment of over-collected amounts.

#### **1. Section 206 Findings**

25. Complainants maintain that the Commission failed to ground its decision in the two-pronged analysis of FPA section 206, which requires that the moving party first show that the existing "rate, charge, or classification ... is unjust, unreasonable, unduly

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<sup>26</sup> *Id.* at 21-24.

<sup>27</sup> *Id.* at 24.

<sup>28</sup> *Id.* at 26-27.

<sup>29</sup> *Id.* at 27-28.

discriminatory or preferential.”<sup>30</sup> Complainants contend that the Commission moved directly to the second prong, namely, analysis of the proposed remedy—to “determine the just and reasonable rate.”

26. In the Complaint Order and in this order, we properly apply the requirements of section 206. First, we again examine whether the application of marginal line loss prices to arbitrageurs is unjust and unreasonable and, as discussed below, conclude that it is not. We continue to find no basis to calculate different LMP prices for arbitrageurs than for other participants in the market, as Complainants seemed to suggest. Second, we again examine whether PJM’s method of distributing the surplus is unjust and unreasonable and find that in one aspect it may be, and establish a proceeding to examine it.

## 2. Marginal Line Loss Charges

27. In the Complaint Order, the Commission found no discrimination in requiring arbitrageurs to pay the same rate for energy as all other customers in PJM, which includes marginal line losses. We found that “LMPs including marginal losses continue to reflect the proper price of buying and selling power, because generation must be dispatched to account for marginal losses and keep the system in balance.” With respect to arbitrage transactions, we found:

The arbitrageur seeks to profit by buying and selling at the same local marginal price as all other market participants. Since marginal line losses are built into the LMP price at each node on its system, arbitrageurs should pay the same price as all other market participants. Such transactions do “cause” transmission line losses because they are cleared together with all transactions—“virtual” and physical—to generate LMPs in the Day-Ahead market. These financial transactions are integrated into PJM’s calculation of the day-ahead LMP on an identical basis as generators and load. Further, because all transactions in the Day-Ahead market (including arbitrageurs’ financial transactions at issue here) may affect the costs of delivered energy by affecting the scheduling of physical generation dispatch, these financial or “virtual” transactions necessarily should be assigned marginal line losses for their part in causing such loss.<sup>31</sup>

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<sup>30</sup> 16 U.S.C. § 824e(a) (2006).

<sup>31</sup> Complaint Order, 122 FERC ¶ 61,208 at P 33.

28. Although it is not entirely clear from their rehearing request, Complainants appear to be seeking rehearing of the Commission's determination that they are appropriately charged for marginal line losses.<sup>32</sup> But, as we found in the Complaint Order, arbitrageurs' transactions do "cause" transmission line losses because they are cleared together with all transactions—both "virtual" and physical—to generate LMPs in the Day-Ahead market.<sup>33</sup> PJM's open access transmission tariff (OATT) defines the LMP as consisting of the sum of three prices: the system energy price, the congestion price, and the "Loss Price, which is the effect on transmission loss costs (whether positive or negative) associated with increasing the output of a generation resource or decreasing the consumption by a Demand Resource based on the effect of increased generation from or consumption by the resource on transmission losses."<sup>34</sup> Because complainants are seeking to arbitrage between the day-ahead and real-time LMP, they must pay the same LMP as all other customers. Indeed, as we pointed out in the Complaint Order, PJM actually dispatches generation in the Day-Ahead market based on the bids submitted by arbitrageurs, so their bids have the same effect on the creation of marginal losses as all other day-ahead transactions.

29. Complainants maintain that the Complaint Order incorrectly finds that virtual and physical transactions result in the same losses, because the virtual transactions do not result in physical energy being transmitted over the system. But in the way PJM administers its markets such transactions are treated identically. The PJM OATT provides that its day-ahead schedules and real-time prices are determined to satisfy the least cost means of satisfying its load, including the bids by market sellers and market buyers, making no distinction between bids by arbitrageurs and physical buyers.<sup>35</sup> For example, suppose that both an arbitrageur and an industrial plant submit bids in the Day-Ahead market for 100 MW. PJM will need to schedule generation to cover those purchases. In the Real-Time market, the arbitrageur then will sell the 100 MW in order to close out its account without taking delivery of the power. If the industrial plant has an outage and needs no power that day, it too will have to sell the 100 MW of power at the

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<sup>32</sup> Request for Rehearing at 4 (contending Complaint Order erred in concluding that virtual market participants cause transmission line losses to the same extent as physical transactions).

<sup>33</sup> Complaint Order, 122 FERC ¶ 61,208 at P 33. In its answer to the complaint, PJM explained that "[v]irtual transactions do not result in the diffusion of electric power from transmission lines in real-time, but they directly cause the financial costs associated with such diffusion by contributing to the formation of LMP." PJM Answer at 13; *see also* Allegheny Answer at 8.

<sup>34</sup> PJM, Open Access Transmission Tariff, Att. K, §§ 2.5, 2.6.

<sup>35</sup> *Id.* §§ 1.10.8, 2.5.

real-time price. From the standpoint of PJM's pricing in the Day-Ahead or Real-Time market, it does not matter whether that 100 MW bid was a physical transaction or a "virtual" one submitted by an arbitrageur. In either case, PJM will apply its OATT and calculate the appropriate LMP price including marginal line losses, with the assumption that all 100 MW will flow on its system. Thus, the LMP price in the Day-Ahead market paid by both the physical trader and the arbitrageur should reflect the marginal line losses created by the 100 MW bid. As the Commission found in the Complaint Order, arbitrage would be pointless if the prices arbitrated were not the same prices that other parties pay.<sup>36</sup>

30. Other than citing to tariff provisions and Commission orders regarding collateral and payment of system costs, Complainants cite to no tariff or other provision of the PJM OATT to suggest that arbitrage bids are, or should be, treated differently than bids by others in determining energy prices or in the prices that participants should be required to pay. Indeed, Complainants maintain in their request for rehearing that they are not asking the Commission to "alter the calculation it uses to determine LMP prices."<sup>37</sup>

31. Complainants cite to cases finding that it was unjust and unreasonable to have charged the same rate to different customers when the costs of serving those customers is different.<sup>38</sup> But in this case, as shown above, arbitrageurs create the same dispatch instructions as other customers and therefore are appropriately charged the same rate.

32. Since complainants provide no basis for a finding that the LMP prices charged to arbitrageurs should be adjusted to remove marginal line losses, we find that complainants have failed to show that the existing PJM LMP prices charged to them are unjust and unreasonable.

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<sup>36</sup> Complaint Order, 122 FERC ¶ 61,208 at P 34-35 ("Excluding marginal line losses, which are built into the LMP price, would result in arbitrage of positions that are not based on real market prices. As an example, an arbitrageur might perceive that a particular buy-sell combination is profitable only because line losses were not included in the prices that it is arbitraging").

<sup>37</sup> Request for Rehearing at 8 n.11.

<sup>38</sup> Complainants cite to *Ala. Elec. Coop., Inc. v. FERC*, 684 F.2d 20, 27-28 (D.C. Cir. 1982), and *Elec. Consumers Res. Council v. FERC*, 747 F.2d 1511 (D.C. Cir. 1984).

### 3. Allocation of Surplus

#### a. Background and Rehearing Request

33. As the Commission has found since the beginning of this case, no party within PJM is entitled to receive any particular amounts through disbursement of the surplus, since the price they are paying (based on marginal line losses) is the correct marginal cost for the energy they are purchasing. As the Commission stated in the May 1, 2006 Order, the method for disbursing the amounts of any surplus should not directly reimburse customers for their marginal line loss payments, as such a disbursement would interfere with the goal of basing prices on marginal losses:

We further stated that “[r]efunding excess loss revenues to the participants who incurred the losses would undermine the usefulness of including marginal losses in the LMP calculations.” Refunding the excess LMP revenues to those who paid would result in those purchasers no longer paying the marginal cost for energy—the basic foundation of LMP.<sup>39</sup>

34. In the May 1, 2006 Order, the Commission provided PJM’s stakeholders with an opportunity to consider a methodology for crediting the surplus, but the stakeholders were unable to reach consensus on an approach. In the November 1, 2006 Order, the Commission considered three proposals for allocating the excess revenue collected: a majority proposal to credit the surplus to those paying for network service in proportion to each customer’s ratio shares of the total megawatt-hours (MWh) of energy delivered to load; a minority proposal to credit the surplus 40 percent to network service users in proportion to load ratio share, 40 percent to generation providers, and 20 percent to fund Financial Transmission Rights (FTR) deficiencies; and a proposal by PJM to use the surplus to cover FTR shortfalls with any surplus credited to load. The Commission determined that all three proposals met its principal criterion of not allocating the surplus to customers in proportion to the amount of each customer’s payment of marginal losses. The Commission chose the majority proposal under which excess amounts are allocated to load. The Commission found that “it is fair to distribute surpluses back to load customers since they pay for the fixed costs of the grid.”<sup>40</sup>

35. Complainant’s principal argument is that they are entitled to share in the surplus because they pay marginal line losses. They argue that they pay 40 percent by volume of

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<sup>39</sup> See May 1, 2006 Order, 115 FERC ¶ 61,132 at P 24 (quoting *Northeast Utils. Serv. Co.*, 109 FERC ¶ 61,204, at P 21 (2004)); see also November 1, 2006 Order, 117 FERC ¶ 61,169 at P 25, 27-28.

<sup>40</sup> November 1, 2006 Order, 117 FERC ¶ 61,169 at P 28.

all marginal losses collected by PJM. They also claim that they pay market operations costs and that, through Up-To congestion transactions, they pay transmission costs. They make the further point that a finding disallowing a *specific* refund amount does not permit the upholding of a discriminatory allocation mechanism that denies *any* refund benefits to arbitrageurs.

**b. Commission Determination**

36. While the Complainants maintain that they are entitled to some credit as a result of the factors discussed above, they fail to specify what the appropriate method for determining the credit should be. As discussed below, to the extent Complainants are maintaining that they are entitled to a credit based on their proportionate load ratio share and their payment of market operations costs, we deny rehearing. We will grant rehearing, however, with respect to payments of transmission charges and will require PJM to propose a method of including in the credit others besides network service users who contribute to the fixed costs of the transmission grid or to show cause why such a credit should not be provided.

37. The current PJM tariff distributes the credit to customers based on their support of the transmission grid, and we cannot find that this method of distribution is unjust and unreasonable or should be replaced by another methodology. As discussed above, LMPs including marginal losses reflect the proper price of buying and selling power.<sup>41</sup> In a competitive market, the provider of the transmission service would retain all line losses as part of its price.<sup>42</sup> Because the transmission market is not competitive, however, and we use cost of service ratemaking to ensure just and reasonable transmission rates, transmission owners need to propose a reasonable method of handling the over-recovery of line losses, without jeopardizing the rationale for using marginal cost pricing.<sup>43</sup> Thus, we found that the only fundamental principle to be applied is that the distribution should in no circumstance be based on the amount paid for transmission line losses, because that

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<sup>41</sup> Complaint Order, 122 FERC ¶ 61,208 at P 29.

<sup>42</sup> In a competitive market, when the line losses become large enough to justify the construction of another transmission line, other competitors could compete for construction of such a line so that rates to consumers would remain competitive.

<sup>43</sup> See *Norwood v. FERC*, 962 F.2d 20 (D.C. Cir. 1992) (affirming use of marginal cost rate design “without the Rube Goldberg-style modifications” to accommodate the revenue constraint). Cf. *Elec. Consumers Res. Council v. FERC*, 747 F.2d 1511 (D.C. Cir. 1984) (remanding use of marginal cost rate design when the theory is compromised by the revenue constraint).

would distort the appropriate price signals which the use of marginal line loss pricing is designed to facilitate.<sup>44</sup>

38. Within this constraint, there may be many different just and reasonable methods of distributing the line losses.<sup>45</sup> Here, the majority of PJM members chose to credit the surplus to network service users based on their proportionate share of energy delivered to load. We found this method met the principle of not compromising the basis for using marginal cost pricing because this method does not credit the distribution based on the incurrance of line losses. This method of distribution returns the surplus to those parties that support and pay for the fixed costs of the transmission grid, which we continue to find is a reasonable basis for determining the credit. While arbitrageurs may conduct a large number of trades in the PJM market, for the most part they are able to conduct such trades without having to pay anything towards the fixed cost of the transmission system.<sup>46</sup> In this respect, arbitrageurs are no different from generators which also do not pay network or point to point service, and, therefore, are not entitled to a portion of the surplus distribution: “all generators, including the less expensive but more remote

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<sup>44</sup> For example, if a customer using a remote generator resulting in larger marginal line losses received a larger credit based on its payment of line losses, it would not have the incentive to minimize line losses by purchasing from a closer generator, thus eviscerating the price signal that marginal line loss pricing is designed to send.

<sup>45</sup> See *Petal Gas Storage, L.L.C. v. FERC*, 496 F.3d 695, 703 (D.C. Cir. 2007) (FERC is not required to choose the best solution, only a reasonable one); *Wis. Pub. Power, Inc. v. FERC*, 493 F.3d 239, 266 (D.C. Cir. 2007) (*Wisconsin Power*) (concluding that “[m]erely because petitioners can conceive of a refund allocation method that they believe would be superior to the one FERC approved does not mean that FERC erred in concluding the latter was just and reasonable. Again, reasonableness is a zone, not a pinpoint”); *ExxonMobil Oil Corp. v. FERC*, 487 F.3d 945, 955 (D.C. Cir. 2007) (Court need not decide whether the Commission has adopted the best possible policy as long as the agency has acted within the scope of its discretion and reasonably explained its actions); *United Distribution Cos. v. FERC*, 88 F.3d 1105, 1169 (D.C. Cir. 1996) (“The existence of a second reasonable course of action does not invalidate the agency’s determination.”).

<sup>46</sup> Complaint Order, 122 FERC ¶ 61,208 at P 37. We also are concerned that since arbitrageurs, unlike load, control their load ratio share by virtue of the number of transactions into which they enter, using a pure load ratio share calculation would provide an incentive for the arbitrageurs to conduct trades simply to receive a larger credit.

generators, will be facing a competitive market for their generation, which is the opportunity the PJM market is designed to provide.”<sup>47</sup>

39. Moreover, unlike load, arbitrageurs balance each purchase transaction with a sales transaction. As we pointed out in the Complaint Order, arbitrageurs making intelligent arbitrage transactions may well be able to profit from the use of marginal losses, compared to the previous PJM market in which marginal losses were not charged.<sup>48</sup>

40. Complainants maintain, without providing evidence, that the marginal losses they pay are lower than the marginal line losses they receive when they settle out their trades in the Real-Time market. Their support for this claim is a statement by PJM that most of the marginal line losses occur in the Day-Ahead market.

41. However, it is logical that most of the marginal line losses occur in the Day-Ahead market because that is when the vast bulk of transactions occur. That does not mean, however, that the real-time price does not also collect the same amount of marginal line losses. Suppose arbitrageurs believe that energy prices at a particular node are lower than what they will be in the Real-Time market. They would buy power at that node in the Day-Ahead market through a decrement bid in expectation of selling at higher prices in the Real-Time market. By increasing the load at the node the line losses paid by buyers likewise increase at that node. For example, suppose the Day-Ahead price at the node is \$24/MW plus a \$1/MW line loss bringing the total price at that node to \$25.<sup>49</sup> The arbitrageurs' bids, by increasing volume on the line, will result in higher line losses, say \$2/MW, resulting in a total price of \$26 at that node. The surplus resulting from the \$2/MW line loss would be reported by PJM as having been paid in the Day-Ahead market. Turning to real time, suppose the real-time load and price was exactly \$26 (with the same \$2/MW line loss). While PJM would report the marginal line losses as having

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<sup>47</sup> November 1, 2006 Order, 117 FERC ¶ 61,169 at P 29.

<sup>48</sup> See *Pennsylvania-New Jersey-Maryland Interconnection*, 81 FERC ¶ 61,257, at 62,252 (1997) (directing that firm customers receive a credit of the revenues derived from non-firm services); *Promoting Wholesale Competition Through Open Access Non-Discriminatory Transmission Services by Public Utilities; Recovery of Stranded Costs by Public Utilities and Transmitting Utilities*, Order No. 888, FERC Stats. & Regs. ¶ 31,036, at 31,738 (1996) (revenue from non-firm services should continue to be reflected as a revenue credit in the derivation of firm transmission tariff rates), *order on reh'g*, Order No. 888-A, FERC Stats. & Regs. ¶ 31,048, *order on reh'g*, Order No. 888-B, 81 FERC ¶ 61,248 (1997), *order on reh'g*, Order No. 888-C, 82 FERC ¶ 61,046 (1998), *aff'd in relevant part sub nom. Transmission Access Policy Study Group v. FERC*, 225 F.3d 667 (D.C. Cir. 2000), *aff'd sub nom. New York v. FERC*, 535 U.S. 1 (2002).

<sup>49</sup> This example ignores the effect that the arbitrageurs' bid might have on LMPs.

occurred in the Day-Ahead market, the same amount of line loss would occur in the Real-Time market. The arbitrageur selling power in the Real-Time market would receive the \$26/MW price which reflects the inclusion of the line losses. Thus, in this example, the \$2/MW line loss paid out in the Day-Ahead market is reflected in the \$26/MW price the arbitrageur receives for its energy in the Real-Time market.

42. Complainants argue that they also pay a portion of PJM's administrative costs. But complainants offer no reason why crediting based on payment of administrative costs is on par with or superior to crediting based on contributions to the fixed costs of the system, such that crediting based on payment of fixed costs is rendered unjust and unreasonable. Since line losses relate to the provision of transmission services, the credit for such losses can reasonably be allocated to those customers paying transmission rates.<sup>50</sup>

43. Complainants further claim that they are entitled to a large portion of the marginal line loss surplus because the Commission has recognized the value of arbitrage in energy markets. We do not dispute the value of arbitrage in energy markets. However, such arbitrage is valuable because the arbitrageur faces the marginal cost of energy and can therefore make transactions that reduce price divergence between the Day-Ahead and Real-Time markets. For arbitrage to be effective, arbitrageurs therefore should pay and receive the market price for energy, which in this case includes marginal line losses. As long as arbitrageurs receive and pay the marginal energy price, arbitrage is not jeopardized, and we see no entitlement to additional payment of surplus unrelated to the payment of transmission charges. Indeed, payment of the surplus to arbitrageurs that is unrelated to the transmission costs could distort arbitrage decisions and reduce the value of arbitrage by creating an incentive for arbitrageurs to engage in purchase decisions, not because of price divergence, but simply to increase marginal line loss payments.<sup>51</sup>

44. Complainants cite to *Sithe/Independent Partner Powers, L.P., v. FERC*<sup>52</sup> for the proposition that the allocation of the surplus must be in proportion to the payment of those costs. In *Sithe*, the court remanded to the Commission its allocation determination with respect to marginal line losses, finding that the Commission had not adequately explained why it had departed from cost causation principles by not crediting the surplus

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<sup>50</sup> This method is equivalent to reducing the cost-of-service determined rate by the amount of the over-recovered line losses.

<sup>51</sup> Complaint Order, 122 FERC ¶ 61,208 at P 51 (“[I]f arbitrageurs can profit from the volume of their trades, they are not reacting only to perceived price differentials in LMP or congestion, and may make trades that would not be profitable based solely on price differentials alone.”).

<sup>52</sup> 285 F.3d 1 (D.C. Cir. 2002).

proportionately to the amount of the overcharge. We have explained that in order to create appropriate price signals, the credit must not be based on the amount of marginal line losses paid.<sup>53</sup> As a simple example, suppose that there are two alternative generators that could serve an incremental load. One generator is located far from the load and can produce energy at a marginal cost of \$50 per MWh, but because of its distance from the load, its marginal line loss is 10 percent. Thus, its marginal line loss would be \$5 per MWh, with a total cost of delivering power to load at \$55 per MWh.<sup>54</sup> In contrast, a second generator is located closer to load and can produce energy at a marginal cost of \$52 per MWh, but has no line losses. In this example, the most efficient economical decision would be to dispatch the closer generator to serve that load, since it would be \$3 cheaper. However, if load received a credit proportionate to the line loss surplus, it would have an incentive to purchase from the remote generator even though that does not produce the least cost result. Thus, distributing line losses proportionately to payment is inefficient and at odds with the rationale for adopting marginal line losses in the first place.

45. In *Sithe*, the court also referred to a “simplifying assumption” in which each megawatt introduced into the system is treated as the last megawatt of energy, as being the cause of the over-collection and questioned whether protecting the “simplifying assumption” could justify a discriminatory refund allocation.<sup>55</sup>

46. But setting the locational marginal price based on the last megawatt is not a simplifying assumption. It is simply the application of marginal cost pricing to determine the proper price in the context of a grid with line losses. The price of energy is affected because PJM must dispatch additional generation to make up for the line losses and in so doing will choose the least costly generators. As the volume on the line increases, PJM will have to choose more expensive generators to cover the line loss created by the entire load on the line. There is no basis for determining which customer should be allocated the cost of the less expensive generators compared with the more expensive. Because each customer contributes to the demand on the system, the proper application of marginal cost pricing is to charge the same rate to each customer (the cost of the most

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<sup>53</sup> May 1, 2006 Order, 115 FERC ¶ 61,132, at P 4 n.2.

<sup>54</sup> In other words, for each megawatt-hour, the generator would have to produce 1.1 MW, so its total cost would be \$55.

<sup>55</sup> 285 F.3d at 5.

expensive generator dispatched).<sup>56</sup> Any attempt to align an individual customer with the actual cost of any generator would be arbitrary.<sup>57</sup>

47. Complainants also argue that the Commission's dismissal of their complaint is inconsistent with *Wisconsin Public Power, Inc. v. FERC*.<sup>58</sup> But in *Wisconsin Power*, the court recognized that there may be different just and reasonable methods for distributing the surplus resulting from marginal line loss recoveries, and affirmed the Commission's acceptance of a method that distributed losses to a balancing authority, rather than tailoring the method to the costs imposed on individual customers. As the Court stated:

Merely because petitioners can conceive of a refund allocation method that they believe would be superior to the one FERC approved does not mean that FERC erred in concluding the latter was just and reasonable. Again, reasonableness is a zone, not a pinpoint.<sup>59</sup>

Indeed, in that case, the Commission also found, as we do here, that payment for transmission service could be a reasonable method of distributing the marginal loss surplus.<sup>60</sup>

48. Complainants, however, also maintain that the Commission erred in the Complaint Order in finding that they are distinguishable from other load because they do not pay for the fixed costs of the transmission grid. They state that PJM has conceded that they do pay transmission costs through their Up-To congestion bids, and other parties to the

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<sup>56</sup> See *Southeastern Mich. Gas Co. v. FERC*, 133 F.3d 34, 41 (D.C. Cir. 1998) (“Because every shipper is economically marginal, the costs of increased demand may equitably be attributed to every user, regardless when it first contracted with the pipeline,” citing 1 Alfred E. Kahn, *The Economics of Regulation* 140 (1970)).

<sup>57</sup> See May 1, 2006 Order, 115 FERC ¶ 61,132 at P 5 (explaining why an over-collection occurs from proper application of marginal cost pricing).

<sup>58</sup> 493 F.3d 239 (D.C. Cir. 2007) (*Wisconsin Power*).

<sup>59</sup> *Id.* at 266; see also *Midwest Indep. Transmission Sys. Operator, Inc.*, 108 FERC ¶ 61,163, at P 74 (2004).

<sup>60</sup> *Wisconsin Power*, 493 F.3d at 265.

proceeding agree that those placing Up-To congestion transactions do pay transmission costs.<sup>61</sup>

49. As described above, the PJM OATT distributes the surplus of the collected marginal line losses to “Network Service Users” only.<sup>62</sup> While there may be alternative just and reasonable methods of distributing line loss surpluses, once having chosen a just and reasonable method, PJM cannot unduly discriminate among the class entitled to the distribution. We do not find that PJM satisfactorily has explained why its tariff limiting payment of the surplus to network service users only is just and reasonable and not unduly discriminatory, since other PJM services also support the fixed costs of the transmission grid. We will therefore grant rehearing and require PJM to file within 30 days to either propose a revision to its tariff to include a credit to others who pay for the fixed costs of the transmission system in proportion to the load represented by their transmission usage or to show cause why its existing tariff provision is just and reasonable.

The Commission orders:

(A) The request for rehearing is hereby denied in part and granted in part as discussed in the body of this order.

(B) PJM is required to make a compliance filing within 30 days of the date of this order as discussed in the body of the order.

By the Commission.

( S E A L )

Nathaniel J. Davis, Sr.,  
Deputy Secretary.

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<sup>61</sup> Allegheny Answer at 12 (quoting PJM, Motion for Leave to Answer and Answer at 5, 7 (filed Mar. 4, 2008)).

<sup>62</sup> PJM Operating Agreement, §5.5 (c) states: “the total Transmission Loss Charges accumulated by the Office of Interconnection in any month shall be distributed pro-rata to each Network Service User in proportion to its ratio shares of the total MWhs of energy delivered to load (net of operating Behind The Meter Generation, but not to be less than zero) in the PJM Region and the total exports of MWhs of energy from such region during such month by all Transmission Customers.”

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