Postage-Stamp Cost Allocation for High-Voltage Transmission

On March 30, 2012, the Federal Energy Regulatory Commission ("FERC" or the "Commission") issued an order concerning the methods used a Regional Transmission Organization ("RTO") to allocate charges for financing new transmission facilities among its utility members. The order ("Order on Remand") responds to a court decision remanding to FERC the issue of the appropriate methodology to be used by PJM Interconnection, L.L.C., an RTO, in allocating the costs associated with new transmission facilities that will operate at or above 500 kilovolts ("kV"). The court ruled that the Commission failed to adequately explain how the benefits to be derived from these new facilities were related to the costs assessed against certain member utilities for their construction and operation. Specifically, FERC failed to explain why the static flow based methodology used to allocate the costs of lower-voltage transmission facilities would not be appropriate for the pricing of new facilities above 500 kV.

I. Background

A. Differences within RTO Sub-Regions

The first three letters in PJM Interconnection, L.L.C. ("PJM") stand for Pennsylvania-New Jersey-Maryland. PJM’s region stretches east and south from the Chicago area, mainly to western Michigan and eastern Indiana, Ohio, Pennsylvania, New Jersey, Delaware, Maryland, the District of Columbia, and Virginia. In the western portions of PJM’s region, the electrical generating plants are often close to the customers - Chicago, for instance, is


2 From the United States Court of Appeals for the Seventh Circuit in Illinois Commerce Commission v. FERC, 576 F.3d 470, 476 (7th Cir. 2009).
surrounded by power plants. As a result, relatively low voltage transmission facilities - mainly 345 kV - are preferred. In the east, where the power plants are usually farther away from the customers, 500 kV and even higher voltage transmission facilities are preferred because high voltage is more efficient than low for transmitting electricity over long distances.

B. Initial FERC Order

On April 19, 2007, FERC issued its initial decision concerning PJM’s transmission rates contained in PJM’s Open Access Transmission Tariff. The Commission approved the previously used “license-plate” methodology of cost recovery for facilities with capacities of less than 500 kV, under which facilities are financed by contributions from the region’s electrical utilities calculated on the basis of the benefits that each utility receives from the facilities. PJM used a static flow-based model in its determination of these benefits. FERC, however, believed that the flow-based model for allocating the costs of above 500 kV facilities did not account for the system-wide benefits provided by those facilities, and decided that all the utilities in PJM’s region should contribute pro rata - meaning that their rates should be raised by a uniform amount sufficient to defray the facilities' costs. With the Commission's approval, PJM revised its Tariff to adopt a “postage-stamp” methodology to allocate the cost of investment in all new transmission facilities included in PJM's Regional Transmission Expansion Plan (“RTEP”) that operate at or above 500 kV among its members.

The Midwestern utilities in PJM's region objected to this proposed method for pricing the new higher-voltage transmission facilities, particularly since it appeared that few, if any, facilities with a capacity equal to or above 500kV would be built in the western service areas un-

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3 Opinion No. 494.

4 Under a license-plate (or zonal) rate design, a customer pays the embedded cost of transmission facilities that are located in the same zone as the customer. A customer does not pay for other transmission facilities outside of the zone, even if the customer engages in transactions that rely on those zones.

5 Under a region-wide, postage-stamp methodology, all transmission service customers in a region pay a uniform rate per unit-of-service, based on the aggregated costs of all covered transmission facilities in the region.
der PJM’s existing RTEP. On appeal, the court granted the petition for review regarding the use of a postage-stamp cost allocation methodology for new transmission facilities that operate at or above 500 kV and, on October 28, 2009, remanded the case to the Commission for further proceedings.

C. Court of Appeals Decision

In order to change an existing cost allocation under section 206 of the Federal Power Act, FERC must show that the existing cost allocation of a utility is unjust and unreasonable, and then must establish a new just and reasonable cost allocation to replace the existing cost allocation. The court held that the Commission had not provided sufficient record evidence to justify its findings that applying the existing license plate methodology of cost recovery to allocate costs for the new facilities was unjust and unreasonable, and that it had not adequately supported its conclusion that the postage-stamp methodology approved for the new higher-voltage transmission facilities was just and reasonable.6

The court first determined that FERC’s reliance on the difficulty of measuring benefits for above 500 kV facilities, and the resulting likelihood of litigation, failed to justify its decision. The court stated that the Commission had failed to show “the absence of any indication that

6 For instance, the court explained that:

Despite the stakes in the dispute - the new policy might, for example, force Commonwealth Edison to contribute hundreds of millions of dollars to an above 500 kV eastern project called "Project Mountaineer," when it would not have had to pay a dime under the benefits-based system applicable to lower-voltage transmission facilities - no data are referred to in FERC's two opinions (the original opinion and the opinion on rehearing). No lawsuits are mentioned. No specifics concerning difficulties in assessing benefits are offered. No particulars are presented concerning the contribution that very high-voltage facilities are likely to make to the reliability of PJM's network. Not even the roughest estimate of likely benefits to the objecting utilities is presented. The first sentence in this paragraph is an adequate summary of the Commission's reasoning, minus recourse to metaphor, as in the Commission's repeated references to very high-voltage facilities as the "backbone" of PJM's network.

_Illinois Commerce Commission_, 576 F.3d 470 at 474.
the difficulty exceeds that of measuring benefits to particular utilities of a smaller-capacity transmission line.”

The court further determined that the Commission failed to justify requiring PJM to adopt a region-wide, postage-stamp cost allocation methodology for new transmission facilities that operate at or above 500 kV:

FERC is not authorized to approve a pricing scheme that requires a group of utilities to pay for facilities from which its members derive no benefits, or benefits that are trivial in relation to the costs sought to be shifted to its members. “[A]ll approved rates [must] reflect to some degree the costs actually caused by the customer who must pay them.” [citations omitted]. “Not surprisingly, we evaluate compliance with this unremarkable principle by comparing the costs assessed against a party to the burdens imposed or benefits drawn by that party.”

The court also found that the Commission had not justified the allocation of these costs on the basis of the reliability benefits provided to the PJM system. The court recognized that, in an interconnected grid, “a failure in one part of the region can affect the supply of electricity in other parts of the network. So utilities and their customers in the western part of the region could benefit from higher-voltage transmission lines in the east.” The court ruled, however, that “nothing in FERC’s opinions in this case enables even the roughest of ballpark estimates of those benefits.”

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7 Illinois Commerce Commission, 576 F.3d 470 at 475.

8 Id. at 476.

9 Id.

10 Id.
The court acknowledged that, in comparing costs and benefits, FERC “does not have to calculate benefits to the last penny, or for that matter to the last million or ten million or perhaps hundred million dollars.”11 The court concluded that:

If [the Commission] cannot quantify the benefits to the midwestern utilities from new 500 kV lines in the East, even though it does so for 345 kV lines, but it has an articulable and plausible reason to believe that the benefits are at least roughly commensurate with those utilities’ share of total electricity sales in PJM’s region, then fine; the Commission can approve PJM’s proposed pricing scheme on that basis. For that matter it can presume that new transmission lines benefit the entire network by reducing the likelihood or severity of outages. But it cannot use the presumption to avoid the duty of “comparing the costs assessed against a party to the burdens imposed or benefits drawn by that party.”12

Thus, the court charged the Commission with reexamining the issue and with determining the appropriate methodology to be used by PJM to allocate costs associated with new transmission facilities that will operate at or above 500 kV.

II. Order on Remand

A. Discussion

On remand, FERC reaffirmed its earlier decision in Opinion No. 494 that PJM’s system-wide postage-stamp cost allocation methodology for the new higher-voltage new transmission facilities is just and reasonable.

1. Cost Causation Principles

The Commission rejected the argument that the Seventh Circuit’s decision requires it to conduct a utility-by-utility comparison of the benefits with the costs expected to be allocated

11 Id.

12 Id.
to each utility over the next 40 to 50 years to satisfy the cost causation analysis expressed by that court. FERC read the decision as consistent with established precedent that “the correct cost causation principle is whether the planned 500 kV and above facilities will provide sufficient benefits to the entire PJM region to justify a regional allocation of those costs.” Ultimately, it determined that PJM’s RTEP adequately identifies system-wide needs for new facilities, and that PJM has reasonably shown an economic and engineering basis for applying different cost allocation methodologies to different sized facilities.

2. *Static Flow-Based Methodology Inadequate*

FERC first evaluated PJM’s static flow-based methodology for determining cost allocation, the distribution factor (“DFAX”) methodology that is used for facilities below 500 kV. The DFAX methodology measures the flows across constrained facilities before a new transmission upgrade and identifies the effect of the various system loads on that constraint. PJM then uses the measure of each load’s effect on the constraint to allocate the costs to resolve that constraint. FERC determined that such a model is reasonable for projects that address a small number of constraints in in a localized geographic area, which as PJM indicates are projects operated at voltages of 345 kV and below. The DFAX model, however, is inade-

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13 *PJM Interconnection, L.L.C.*, at 26. See, e.g., *Sacramento Mun. Util Dist. v. FERC*, 616 F.3d 520, 534-35 (D.C. Cir. 2010) (upholding, as consistent with cost causation principles, a *pro rata* allocation of over-collected revenues to all customers in the California ISO based on their electricity usage); *Alcoa Inc. v. FERC*, 564 F.3d 1342, 1346-48 (D.C. Cir. 2009) (finding a nation-wide allocation of costs of the national organization which develops and enforces electric reliability standards meets the cost causation principle); *Pacific Gas & Elec. Co. v. FERC*, 373 F.3d 1315, 1320-21 (D.C. Cir. 2004) (rejecting, as inconsistent with costs causation principles, an allocation of costs commensurate with each utility’s benefits as measured by account balances); and *KN Energy, Inc v. FERC*, 968 F.2d 1295, 1301 (D.C. Cir. 1992) (upholding the Commission’s allocation of cost to one of three classes of customers that did not cause the problem for which costs would be incurred, but would benefit as a class from the resolution of the problem) (because “all segments of the industry [will] ultimately benefit from their resolution [of the problem] . . . all segments can rightly be assessed a portion of [those] costs”); *Cal. Dept of Water Res. v. FERC*, 489 F.3d 1029, 1038 (9th Cir. 2007) (The Commission presumes that “an integrated system is designed to achieve maximum efficiency and reliability at a minimum cost on a system-wide basis [and that] all customers . . . receive the benefits that are inherent in such an integrated system”).
quate for assessing the costs and benefits of a high-voltage transmission project, primarily because DFAX:

is unable to identify the causes of multiple constraints, fails to account for the fact that a high voltage upgrade will resolve multiple constraints in multiple areas in addition to the constraint that is the focus of a DFAX analysis, and fails to account for changes in usage and flow direction over time, particularly given the 40 year or longer life span for transmission facilities.\(^\text{14}\)

Also, the DFAX model is a “snapshot” that cannot fully analyze the “spectrum of benefits” of a large transmission project over time, nor can DFAX capture the reliability benefits of a new high-voltage transmission project.\(^\text{15}\)

3. Postage-Stamp Methodology Equitable

Parties opposing the postage-stamp methodology assert that the costs that would be allocated to western zones under this method are so substantial that they cannot possibly be commensurate with benefits. They similarly argue that there are substantial cost shifts that occur between the use of a static, flow-based and a region-wide cost allocation. Under an application of the DFAX methodology, the western zones are shown to benefit from only a few of the eighteen 500 kV or larger facilities at issue, but using the postage-stamp methodology would increase the western zone’s cost allocation substantially more than using the DFAX method. For example, Exelon claims that the total cost shifts to the western zones would be approximately $2.4 billion, which equates to western zones paying between 1,260 percent and 22,500 percent more than the benefits they receive.

FERC found the analysis set forth in this argument to be misleading because it is predicated on a comparison of the full capital costs, rather than annualized costs, of the projects to annual benefits. A more accurate analysis of the relative impacts of the postage-stamp cost allocation methodology results from applying PJM’s annual transmission carrying charge rate of 19.1 percent to the total costs. Using ComEd as an example to illustrate the benefits and

\(^\text{14}\) PJM Interconnection, L.L.C., 138 FERC ¶ 61,230 (2012) at p. 16.

\(^\text{15}\) Id. at 16-17.
costs allocated to the western region of PJM, the Commission found that the postage stamp method will result in ComEd being assigned approximately $198 million annually for the 500 kV and above projects at issue in this proceeding, but that the approximately $320 million to $468 million of benefits that ComEd receives from these projects each year exceed the costs, and therefore provide an articulable and plausible reason for ComEd to be allocated costs under the postage stamp methodology. These estimated savings totaling approximately $320 million to $468 million would not be possible but for the high voltage facilities that allow the entire PJM system to be interconnected and operated reliably.  

4. **Measurable Benefits Provided to PJM Region**

The Commission ultimately found that existing and future 500 kV and above high-voltage facilities will provide PJM members with various benefits, including greater reliability, greater transfer capability, greater opportunities for reserve sharing, and reduced transmission losses, as well as various market efficiency benefits. Transmission facilities that operate at 500 kV and above in PJM provide a reliable, integrated transmission network, to the benefit of all parties that are interconnected with it. Since all load interconnected to the transmission network receives benefits, it is reasonable to allocate costs based on a methodology that recognizes the benefits of PJM’s integrated high voltage regional transmission system. The postage-stamp cost allocation methodology, based on PJM’s RTEP process, is one such methodology.

**B. System-Wide Allocation of Costs Just and Reasonable**

The Commission confirmed that the broader and more widespread benefits that result from new transmission facilities that operate at 500 kV and above are better captured by a cost allocation method based on customer’s usage at peak times (load-ratio shares), which matches the way the PJM transmission system is planned, and is the more credible basis upon which to set just and reasonable rates. Accordingly, FERC determined that the postage-stamp cost allocation methodology for transmission enhancements to the PJM system that

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16 ComEd’s annual allocation of costs under the DFAX methodology would be approximately $2.9 million, which is equal to ComEd’s total allocation under the DFAX methodology ($15.17 million) times the annual carrying charge rate of 19.1 percent.
operate at or above 500 kV is just and reasonable, and not unduly discriminatory or preferential.

III. Commissioner LaFleur’s Dissent

A. System-Wide Postage-Stamp Cost Allocation Methodology Overbroad Solution

Commissioner LaFleur essentially states that the majority’s remedy to the problems with using the DFAX methodology is overbroad and that the Order on Remand imposes a cost allocation methodology that produces results that do not correlate at all with the reasons why the projects were included in the RTEP to begin with. While it has been demonstrated that 500 kV lines have both present and future unquantifiable benefits not captured by DFAX, it has also been demonstrated that DFAX identifies the most immediate present and short-term beneficiaries. She concluded by stating that the Commission should require a cost allocation methodology that accounts for both the benefits and drawbacks of DFAX and postage-stamp allocation.

1. DFAX’s (“Static Flow-Based Methodology’s”) Effectiveness

Commissioner LaFleur argued that the majority ignores DFAX’s undisputed utility in identifying the immediate and short-term needs that justify PJM’s decision to build the transmission facilities - the proposed facilities were all included in the RTEP because they were identified by DFAX as specific solutions to specific reliability problems. Put differently, these lines were not included in the RTEP because they were regarded as having broad regional benefits, or because they were part of a portfolio approach calculated to ensure that the overall transmission plan in any given year had broad regional benefits; they were “but for” lines, intended to benefit specific and identifiable customers.

2. Postage Stamp Methodology Incomplete

While the majority describes the shortcomings of the DFAX methodology, it fails to explain why the remedy for these shortcomings is a postage-stamp approach that does not account at all for the reliable information DFAX does provide. Commissioner LaFleur found it difficult to understand why the majority believes that DFAX has no place allocating the cost of
500 kV lines when DFAX is the only method in the record that provides certain information about who will benefit from these lines.

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This Committee Update provides general information and not legal advice or opinions on specific facts.