

## MAJOR TRANSMISSION CONSTRAINTS IN PJM

Since PJM initiated its RTEP process in 1999, more than \$4.2 billion of transmission upgrades and additions have been authorized through December 31, 2006. More than half of this amount (\$2.3 billion) was authorized in 2006 alone. Still, transmission congestion problems exist in the region and are expected to exacerbate threatening reliability in eastern PJM. The PJM RTEP continues to draw attention to limited energy transfers into southwestern PJM and eastern PJM through the interstate transmission system from the west augmenting reliability and congestion concerns.

Transmission congestion costs in PJM totaled about \$1.6 billion in 2006, a decline of 23 percent from 2005 congestion costs of \$2.1 billion. Part of this decline is attributed to the lower gas prices during 2006. According to the PJM 2006 State of the Market report, in areas where transmission constraints defined local markets there are moderate to high supplier concentration levels creating the potential for market power exercise.

In addition, the 2006 RTEP report pointed out that the combination of robust load growth, expected old generator retirements, and slow development activity in the east would result in a continued dependence on cheap power sources in western PJM. While most of the new generation is being planned for the western parts of PJM, not enough transmission is being built to move the power to the east, according to PJM. Also, four merchant transmission lines between PJM East and New York are currently being developed, creating the need for accommodating about 2,900 MW of exports by 2016.<sup>1</sup>

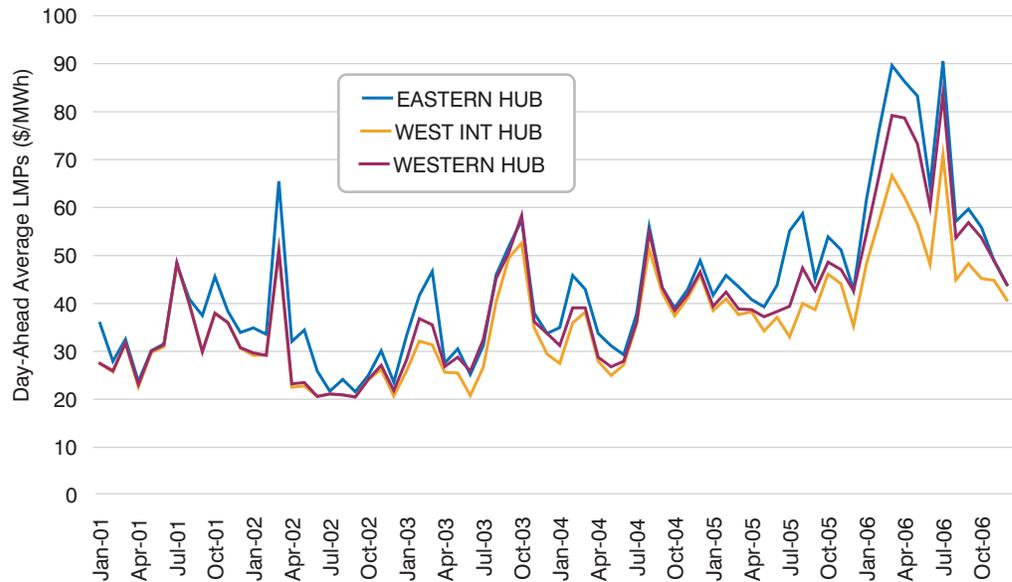
Specifically, six facilities were identified as limiting west-to-east transfers: the Bedington-Black Oak 500 kV line, Wylie Ridge 500/345 kV #5 and #7 transformer, Doubts-Mt. Storm 500 kV line, PJM Central Interface/Juniata 500 kV, Harrison-Kammer Tap 500 kV line, and Fort Margin-Pruntytown 500 kV line. The Bedington-Black Oak Interface has become the largest contributor to congestion costs in PJM, accounting for 31 percent or \$492 million of the total PJM congestion costs in 2006.<sup>2</sup> This transmission congestion increases prices in the constrained side of the affected facilities (eastern zones) while reducing prices in the unconstrained western areas. The price separation is manifested in Figure 1 on the next page.

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<sup>1</sup> PJM 2006 Regional Expansion Transmission Plan, February 27, 2007.

<sup>2</sup> 2006 State of the Market Report. Market Monitoring Unit, March 8, 2007.

FIGURE 1  
**AVERAGE MONTHLY LMPs; PJM WESTERN AND EASTERN HUBS**



SOURCE: The PJM Interconnection

## PROJECT MOUNTAINEER

In May 2005, PJM introduced the “Project Mountaineer” concept to identify the required transmission expansion to improve the ability of the cheap coal-fired generation in the west to access eastern PJM. This initiative establishes cooperation between PJM, state regulators, the coal industry, and PJM utilities to advance the required upgrades and address siting, environmental, cost recovery, and ownership issues. Project Mountaineer utilizes the RTEP process to evaluate alternatives for improving fuel diversity and relieving west-to east transmission congestion. It was initially estimated that between 550 and 900 miles of 500 or 765 kV lines, at a cost of \$3.3-3.9 billion, would be needed to increase west-to-east flows by up to 5,000 MW.<sup>3</sup> Last year, two major projects (detailed below) were proposed to achieve the benefits of Project Mountaineer.

## AEP INTERSTATE PROJECT

On January 31, 2006, AEP announced through its new subsidiary, AEP Transmission Company, LLC, its intention to develop a 765 kV transmission line and associated facilities originating at its Amos 765 kV station in West Virginia, extending through Allegheny Power’s Doubs Station in Maryland, and terminating at Public Service

<sup>3</sup> FERC Docket No. AD05-3-000.

Electric and Gas' Deans Station in New Jersey. The line would run about 550 miles and cost approximately \$3 billion—if built above ground and excluding necessary related upgrades by utilities. AEP projects an in-service date of 2014 for this project, assuming three years to site and obtain certifications and five years to construct the facilities.

Referring to PJM's high congestion costs, AEP stresses that its transmission development would bring about substantial congestion relief and reliability improvements increasing Midwest-to-east transfers by 5,000 MW and fulfilling the published goal of Project Mountaineer. In addition, AEP Interstate would reduce peak hour loss by 280 MW, and provide opportunities for the development of interim transmission investment by incumbents that would eventually integrate into the 765 kV transmission line.<sup>4</sup>

AEP has already filed the proposal with the PJM Interconnection, FERC, and the DOE. PJM announced that it intended to analyze the project's potential for reducing congestion as well as its impact on capacity pricing and other market elements. In July 2006, FERC approved the requested transmission incentives consistently with its recent transmission incentive ratemaking initiative. The incentives approved for AEP include: (1) enhanced return on equity; (2) full recovery of construction work in progress (CWIP); and (3) pre-construction and pre-operation cost recovery.

AEP expects to receive the required regulatory approvals for the first part of its project during this year. While PJM has not made a formal decision on authorizing the project yet, it has made favorable comments about its potential role in resolving the reliability issues in the region.

## **TRANS-ALLEGHENY INTERSTATE**

Less than a month after AEP's announcement, Allegheny Energy proposed building a 330-mile, 500 kV transmission line that would increase west-to-east power transfers through its territory by 3,800 MW. The company hopes to bring the first sections of the \$1.4 billion project into service by 2013. Called the Trans-Allegheny Interstate Line (TrAIL), this project would originate from Allegheny's Wylie Ridge substation in the panhandle of West Virginia, run through southwestern Pennsylvania, then through north-central West Virginia before entering western Maryland, and reaching its end point at a new substation near Kempton in central Maryland. It would remain in Allegheny territory throughout the route.

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<sup>4</sup>Total congestion costs in PJM in 2005 reached \$2.09 billion, representing a 179 percent increase from the 2004 costs of \$750 million. This huge increase is partially driven by the expanded PJM footprint in 2005.

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Allegheny emphasized that Trans-Allegheny was not meant to compete with AEP's project since the lines would proceed on mostly different paths and terminate in different states. Similar to AEP, Allegheny filed a request with FERC for incentive rate treatment and asked the DOE to designate its project as an NIETC. FERC granted the Trans-Allegheny project the same transmission pricing incentives as those approved for AEP Interstate in addition to recovery of all prudently incurred development and construction costs if the project was abandoned for reasons beyond Allegheny Energy's control.

In March 2007, Allegheny Energy filed its application to build the West Virginia section of Trans-Allegheny line with the West Virginia Public Service Commission (PSC). Also during March 2007, Allegheny Energy contracted with Kenny Construction Company to provide construction management and other related services related to the project. During April 2007, Allegheny Energy submitted its applications for authorization to build the respective state portions of TrAIL with the Pennsylvania PUC and the Virginia State Corporation Commission (SCC).

Recently, AEP and Allegheny Energy have decided to join forces in developing high voltage transmission lines. The MOU signed by the two companies in April 2007 creates a joint venture that will build and own about 250 miles of 765 kV transmission lines including a portion of the AEP Interstate line. This would not include Allegheny's TrAIL project.

In addition to AEP and Allegheny Energy's proposals, Pepco Holdings, Inc. (PHI) has recently proposed the construction of a 230-mile, 500 kV interstate transmission line—referred to as the PHI Mid-Atlantic Power Pathway (MAPP). The transmission line would originate in northern Virginia and travel through Maryland and the Delmarva Peninsula to end in New Jersey. Filed for inclusion in PJM's latest RTEP, this \$1.2 billion project—to be completed by 2014/2015—represents the only south-to-north proposal. The Mid-Atlantic Power Pathway is expected to significantly improve reliability and relieve congestion in eastern PJM, complementing AEP and APS west-to-east proposals. PHI expects to receive PJM's decision on its proposal during the first half of 2007.

PJM's 2006 15-year RTEP recommended the evaluation of about ten proposed transmission projects estimated to cost \$10 billion including the three transmission projects proposed by AEP, Allegheny, and PHI. Additionally, a portion of the TrAIL project was approved in the latest RTEP to help resolve some identified transmission problems. Given sponsors' filing of additional siting and environmental studies, PJM expects to make decisions on these projects during 2007.

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In its recent report on national transmission congestion, the DOE has identified the area between New York City and Northern Virginia as a “critical congestion area.”<sup>5</sup> Critical congestion areas represent candidates for designation as NIETCs, which would be eligible for federal backstop siting authority when states fail to act on transmission expansion applications. AEP, Allegheny, and PHI view that NIETC designation is a

probable requirement for their projects to be approved given the top two obstacles to their transmission proposals: individual landowners and conflicts involving federal agencies. On October 11, PJM told the Department of Energy that they asked FERC to designate three areas within PJM as NIETCs. These areas include the Allegheny Mountain, the Delaware River, and the Mid-Atlantic corridors.

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Hind Farag, Ventyx | hind.farag@ventyx.com

Gary L. Hunt, Ventyx | gary.hunt@ventyx.com

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<sup>5</sup> “National Electric Transmission Congestion Study,” August 2006, U.S. Department of Energy.