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Duke v. PJM: How Gas-Electric Coordination Issues Arise in a Real World Situation

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This is the first in a series of articles highlighting the economic and operational issues raised by the interdependency of the **natural gas** and **electric markets**. This post analyzes a recent complaint filed by **Duke Energy Corporation** (Duke) against **PJM Interconnection, LLC** (PJM) in FERC Docket No. EL14-45. The complaint involves generating units owned by Duke that were directed by PJM to be prepared to run during last winter's Polar Vortex, but that were not actually dispatched on the day in question. Due to PJM's strongly-expressed reliability concerns, Duke procured natural gas even though gas prices were unusually high and the pipeline delivering the gas to the generation facility had imposed certain operational restrictions. Because PJM did not dispatch Duke's facilities, Duke has unrecovered gas purchase costs approaching $10 million. In its complaint, Duke is asking FERC to permit recovery of its gas purchase costs under these unusual conditions.

Duke owns and operates eight 80 MW natural gas-fired, combustion turbine units located about 90 miles west of Chicago (the Lee Units). Duke has designated all eight of the Lee Units as Generation Capacity Resources under the PJM Tariff for the 2013/2014 Delivery Year. That designation requires that Duke offer the Lee Units into the PJM Day-ahead Energy Market every day for the duration of the Delivery Year. In order to offer the units, Duke must procure enough gas to run the units if called-upon by PJM. To that end, Duke purchases gas in the wholesale natural gas markets and uses Natural Gas Pipeline Company of America, LLC (NGPL) to deliver the gas to the Lee Units. Units that clear the PJM Day-ahead Energy Market can expect to be called on or dispatched in real time. PJM may not, however, dispatch the units in real time and, in that instance, the unit owner must purchase energy in the Real Time Market to meet its Day-ahead commitment.

In its complaint, Duke seeks recovery of nearly $10 million dollars in losses resulting from its January 28, 2014 gas purchases made in order to run several of the Lee Units. Duke alleges that the purchases were made after PJM declared a "Maximum Emergency Generation Alert" and directed Duke to ensure that the Lee Units would be available to run. PJM issued the Alert on January 27 at 8:45 a.m. Eastern Prevailing Time (EPT) during the so-called Polar Vortex and notified generators that it expected to be operating its system with a reserve margin of less than 1% on January 28, 2014.

Because gas prices on the morning of January 27 were an unusually high $37 per million BTUs (MMBtu), Duke contacted PJM to determine the likelihood of the Lee Units being called upon on

January 28. Duke would have needed to purchase gas to run the Lee Units in advance of the electric day, due in part to the mismatch in the Electric and Gas Days. PJM's Electric Day begins at 12:00 a.m. EPT and ends at 11:59 p.m. EPT. In contrast, the Gas Day begins at 10:00 a.m. EPT and ends at 9:59 a.m. EPT on the following day. The Electric Day therefore encompasses parts of two Gas Days.

In addition, NGPL had issued a series of operational restrictions on gas flows due to the extremely cold weather. Specifically, NGPL made clear that it planned to strictly enforce tariff obligations requiring all shippers to take deliveries of gas on an even hourly basis over the course of the Gas Day. As a result, even if a generating unit planned to run for just one hour, the generator had to buy enough gas to cover the necessary level of flow for the other 23 hours of the day. NGPL also made clear that it would enforce the restriction on ratable hourly takes by operating flow control devices in the event that individual shippers exceeded the hourly flow restrictions by a certain percentage.

Due to the mismatch between the Electric and Gas Days and the hourly flow restrictions, any generating unit required to be available in all hours of the Electric Day, such as the Lee Units, had to buy two full Gas Days' worth of gas. Keenly aware of these factors and based on its belief that the Lee Units would not actually be called upon by PJM, Duke initially decided it did not make economic sense to purchase gas at that time. Shortly after that decision was made, Duke received a call from PJM stating that in anticipation of reliability issues, all of the Lee Units needed to be available. Duke then began the process of securing gas at a weighted average gas cost of $63/MMBtu and offered the Units into the Day-ahead Energy Market. Five of the eight Units cleared the Day-ahead Energy Market for nine hours the next day. However, PJM did not call upon the Units in real time, and Duke was only able to recover roughly $2 million of the $12 million it had spent to procure the gas by self-scheduling three of the Lee Units. Duke claims in its complaint that it should be permitted to recover nearly $10 million in gas costs, because it purchased the gas due only to PJM's directive.

FERC is currently considering the question of the lack of harmonization between the electric and gas scheduling timelines in a Notice of Proposed Rulemaking issued in Docket No. RM14-2 (this NOPR will be the subject of a subsequent article in this series).

In addition to gas-electric coordination concerns, the Duke complaint raises several interesting issues regarding electric market operations. As previously mentioned, Generation Capacity Resources in PJM, such as the Lee Units, receive capacity payments for being available throughout the year and must be offered into the Day-ahead Energy Market every day. In addition, depending on the details of the Day-ahead offers for the Lee Units and whether the units clear in the Day-ahead Energy, Regulation or Operating Reserve Markets, Duke also can receive the PJM Day-Ahead Energy, Regulation or Operating Reserve clearing prices for those services. One key question is whether the must-offer obligation by itself requires Duke to make sufficient gas supply arrangements to run the units in all hours of the day even if Duke does not expect the offered units to clear the Day-ahead Market in all hours. Moreover, even for units that clear in the Day-ahead Energy Market (as some of the Lee Units did for some hours on January 28), does an owner like Duke have to make sufficient gas supply arrangements if the owner's experience has been that PJM nonetheless will not call upon those units? In a similar case involving the ISO-NE capacity markets, the Commission has held that capacity resources may recover costs associated with procuring fuel needed to maintain reliability in "extraordinary" circumstances.[1]

Duke and PJM also disagree over whether PJM's statements to Duke regarding the need to have the Lee Units operational amounted to a "directive" under Section 10.3 of the PJM Tariff. Section 10.3 provides that a Generation Owner will be held harmless for "obligations…to third parties, arising

out of…a Generation Owner's (acting in good faith to implement or comply with the directives of the Transmission Provider) performance of its obligations under this Tariff." Duke maintains that PJM issued a directive when it told Duke that it wanted the Lee Units available. PJM disputes that its discussions with Duke amounted to a directive within the meaning of Section 10.3. Nonetheless, in its answer to Duke's complaint, PJM states that it does not object to FERC granting a waiver of applicable provisions of its tariff in order to compensate Duke in these extreme and unusual circumstances.

PJM's Independent Market Monitor raises two interesting arguments on this point in its answer opposing the relief sought by Duke. First, as noted above, as a Generation Capacity Resource, Duke's Lee Units have an obligation to be ready to run. The Market Monitor points out that "[i]f a 'directive' means an advisory statement, a request, or a call for another party to honor their obligations, then the Transmission Customer would be required to indemnify all costs Generator Owners incur (in good faith, and in the absence of negligence or intentional wrongdoing) in the course of responding to any and all PJM emergency instructions and advisories, including for example, Maximum Emergency Generation Alerts." Second, the Market Monitor notes that Duke's hesitation to buy gas resulted in a price differential of $26/MMBtu. It goes on to make this important point: "If Duke really thought PJM was directing it to purchase gas, it should have complied immediately." Instead of buying gas at $37/MMBtu when first contacted by PJM, Duke waited and ended up purchasing gas at $63/MMBtu. In effect, the Market Monitor concludes that Duke made a business decision not to make gas supply arrangements ahead of time or in a different manner, and that it – rather than electricity consumers in the PJM region — should bear the financial effects of that decision.

Regardless of whether Duke is eventually compensated for its losses, its complaint demonstrates the "real world" implications brought about by the scheduling and operational differences in the gas and electric markets. The "just in time" manner in which gas is procured for gas-fired generators in organized electric markets such as PJM does not provide generators with the practical ability to recover costs associated with long-term supply arrangements. As a result, there is no incentive to enter into such transactions and this lack of long-term planning can create real reliability concerns. Until the Commission can figure out a way to better align the two markets, the issues raised by Duke's complaint are likely to arise again.

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[1] *ISO-New England, Inc.*, 145 FERC P 61,110 (2013).

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