NRG Energy, Inc.
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Princeton, NJ 08540

January 8, 2018

VIA OVERNIGHT & ELECTRONIC MAIL

Allie Bury
Legislative Clerk
Committee on Energy and Commerce
2125 Rayburn House Office Building
Washington, D.C. 20515

Dear Ms. Bury:

Attached please find responses to Chairman Upton's December 19, 2017 follow-up questions to my testimony before the Subcommittee on Energy hearing on November 29, 2017 entitled "Powering America: Examining the Role of Financial Trading in Electricity Markets."

Sincerely,

/s/ Christopher Moser
Christopher Moser

Enclosure

Attachment – Responses to Additional Questions for the Record

1. Can you explain how you use FTRs to keep prices low for NRG's consumers?

NRG utilizes Financial Transmission Rights, or FTRs, in three primary ways:

Retail Power Sales:

NRG purchases FTRs to hedge its retail sales of power. In the organized RTO/ISO electricity markets, there can be significant differences in the price we: (i) receive for sales from our power plants and (ii) pay to purchase power needed to serve our retail load obligations. These price differentials result from the fact that NRG's generation resources or power purchases are not always co-located with the customers we serve, which exposes NRG to the risk of congestion on the transmission system. Electricity costs more to make and deliver in crowded (or "congested") areas of the grid, such as large cities or areas that are far from generation.

NRG utilizes FTRs to manage this risk and provide predictable and stable prices to its end-use customers. Specifically, NRG can purchase an FTR along the path between a generating facility (or, more likely, a liquid point on the system, usually known as a "hub") and its end-use customers. For example, New York City's electric grid is as congested as its roadways. So if NRG sells electricity to a customer in the middle of New York City from a power plant located in upstate New York, it is likely that the transaction will incur additional congestion charges. Without FTRs, it would be difficult to predict exactly how much we would pay in extra congestion charges and we would have to include a larger "risk premium" in our prices to account for that uncertainty. A higher risk premium directly increases the price paid by end-use consumers. Purchasing an appropriate FTR, however, allows the parties to "lock in" those congestion charges, eliminating much of the congestion risk in exchange for an upfront payment.

Of course, purchasing FTRs costs money, which may reduce the profits we would otherwise earn. But the tradeoff is that we will not lose large amounts of money if unexpected congestion appears on the system. Overall, FTRs allow NRG to protect against unpredictable congestion on the transmission system, minimize the costs to retail customers, and increase our ability to offer customers long-term, fixed-price power deals.

Wholesale Power Sales:

FTRs are also critical to the process of selling our generation output to other retailers of electricity. For example, NRG often sells power from its power plants on a bilateral basis to other companies, who then re-sell the power to end-use consumers. The organized electricity markets facilitate these bilateral sales by providing both parties with open access to the transmission system and clear, transparent prices.

Whether the buyer or seller takes the risk of congestion is often a significant negotiating point. Sellers of power typically prefer that all risk of congestion (or even outright failure of the transmission system) transfer to the buyer at the point where the power plant injects the power into the grid. Buyers, on the other hand, typically prefer that the seller maintain the risk of successfully delivering the power. FTRs allow either party to manage the risk of transmission congestion by buying an FTR. If the sale of electricity is ultimately accompanied by any additional congestion costs, then the FTR makes the parties whole for those costs. Thus, FTRs provide an "insurance policy" against the risk

that congestion will appear on the system and substantially alter the economics of the underlying transaction.

FTRs are particularly important when selling the output of large-scale renewable generators, which are often located far from load. In many cases, generators located far from load are subject to increased risk of congestion between the point of injection into the power grid and the point of delivery to an end-use customer. FTRs protect both sides of the transaction from congestion risk, which facilitates stable prices for both buyers and sellers of renewable power.

Transmission System Investments:

FTRs can be a powerful means of attracting additional at-risk capital into the transmission system, which is typically dominated by utility investment using captive ratepayer dollars. Most organized markets permit non-utilities to pay to upgrade an "element" of the transmission system that constricts the flow of power from Point A to Point B. In exchange for fronting the capital to make or advance the construction of the upgrade, the investor receives the value of any additional power flows across that element, usually in the form of FTRs or related products. Thus consumers receive new or accelerated improvements to the transmission system, while investors only make money to the extent the new/upgraded transmission improvement is actually used. This moves risk from captive customers to private investors, while increasing total infrastructure investment.

2. As a merchant utility with actual generating assets and retail customers, can you explain why and how NRG uses virtual transactions?

NRG likewise uses virtual transactions to manage sales from its power plants and to manage retail market positions. Virtual transactions are a powerful tool for managing the risk inherent in two-settlement electricity markets, where some power sales take place in the day-ahead market (the first settlement), and other sales take place in the real-time market (the second settlement). Prices can diverge between day-ahead and real-time markets as physical conditions on the grid evolve over time. These price differences are critical to the proper functioning of electricity markets, and are often caused by changing load forecasts (i.e., as we get closer to real-time, we better understand consumer demand, based on weather and other factors), changes in generator or transmission line outages, changing fuel costs, or other factors.

As a result, it is often more or less advantageous to sell (or purchase) power in either the day-ahead or real-time markets. Virtual transactions allow generators to pay a (usually small) fee to "virtually" shift their sales of power from the day-ahead to the real-time market, if conditions warrant.