

**Questions for Mr. Vincent Duane
PJM Interconnection, L.L.C.**

Committee on Energy and Natural Resources Hearing- March 9, 2010

Questions from Senator Bingaman:

1. Could you describe the ways in which utilities as well as other market participants come to own FTRs?

As a regional transmission organization (RTO) PJM serves as a transmission provider, obligated under the Federal Energy Regulatory Commission's (FERC) regulations, to provide open access, non-discriminatory transmission service to customers seeking such service within PJM's footprint. One type of transmission service that PJM is required to offer, again pursuant to FERC directive, is firm transmission service. Although some customers purchase transmission service to export power from PJM into neighboring regions, overwhelmingly, customers who purchase firm transmission service (either network or point-to-point) do so to meet the needs of the end use consumers or retail customers that they serve. Firm service allows transmission customers, (public utilities, municipal utilities, cooperative utilities and competitive retail suppliers) to move electricity from one point on the system (typically a generation station or hub) to another point (typically a load bus) on a "firm" basis, which is to say without further cost beyond the transmission charges they pay to PJM for firm service.

In organized wholesale electricity markets, such as the one administered by PJM, prices can differ by location at various points on the system. These differences result from transmission constraints, limiting the volume of electricity that can be moved reliably across the system. When such constraints exist PJM, as the system operator, must redispatch higher cost generation behind the constraint. The higher cost that results behind the constraint is referred to as congestion cost. In order to provide "firm" service as mandated by FERC, and in order to recognize the native load rights of those customers that historically have paid for the transmission grid, PJM provides firm transmission customers with a mechanism to protect against congestion costs. This mechanism is the FTR.

FTRs are made available to firm transmission customers as a means to hedge against congestion charges. The amount of FTRs is finite; it is limited by the physical capability of the transmission system and calculated using a complex algorithmic model that PJM refers to as a "simultaneous feasibility analysis." Every 12 months, PJM will conduct a simultaneous feasibility analysis to determine the level of FTRs that can be allocated over the next 12 month period (or planning period).

Wholesale customers may choose to hold their FTRs or sell them to other market participants, which may include other transmission customers, generators, or trading firms (including financial institutions). Thus, the FTR Auctions permit other market participants to bid for and acquire specific FTRs and provides a market-based method to determine the value of those FTRs. In this case, while the economic value of the FTR, which is to say the price realized by that FTR in an auction, will inure to the customer who originally received the allocation from PJM, the ultimate holder of the FTR (depending on auction outcomes) might be a different entity – potentially another load serving utility, or other type of market participant, including a financial institution.

In summary, the value of all FTRs inures to those transmission customers who pay in rates for the fixed costs of the transmission service (firm transmission customers) in recognition of their historic payments for the cost of building out and maintaining the grid that serves them. This is true whether the transmission customer continues to hold the FTR) or whether it receives the realized price of the FTR in an FTR Auction (its auction revenue rights). The auction allows transmission customers to buy and sell FTRs to obtain a particular portfolio of FTRs to best hedge their particular congestion exposures. It also efficiently allows for an FTR to be held by the entity that places the greatest value on it (*i.e.*, the one who bids highest for it in the auction). Finally, FTR holders are free to bilaterally contract to sell their FTR to another party outside the auction environment. Such bilateral transfers are reported to PJM and subject to particular rules addressing the creditworthiness of the transferee.

2. Would CFTC jurisdiction over FTRs (or any other RTO product) compromise open access to the PJM transmission system for market participants? If yes, how?

Yes. As described above, the FTR is the means by which those RTOs administering locationally priced markets provide firm transmission service to their load serving customers, consistent with FERC Order No. 888 open access mandates. To treat the FTR as a CFTC regulated “swap” or “futures contract” would impose on RTOs requirements relating to the trading, settlement and credit risk management of the product that could radically alter the FTR in a manner which would frustrate its fundamental purpose – -namely to provide a means for wholesale customers to serve their native load at a predictable price consistent with the concepts of “firm” transmission service. frustrating the RTO in its mission as a FERC regulated transmission provider and wholesale electric market administrator.

Open access could revert to a system of physically firm transmission service with re-dispatch costs being indiscriminately socialized across all users of the transmission system and a greater reliance on physically curtailing or interrupting transmission schedules. The efficiencies and greater use and optimization of a

transmission system brought about by applying market oriented tools (such as locational pricing and FTRs) so as to provide “financially firm” open access is well documented. The loss of this efficiency and the sub-optimal use of the transmission system that would follow will reduce competition and increase costs overall to consumers in PJM.

Finally, CFTC jurisdiction could require RTOs such as PJM to register as a derivative clearing organization. RTOs would then have to establish admission and financial eligibility standards for organizations who wish to do business within RTO markets. Users of PJM markets range from very large utilities to very small municipal systems as well as industrial and commercial customers. FERC’s regulation has been designed to ensure nondiscriminatory access to these markets by all commercial entities, regardless of size. Any requirement that PJM impose these new financial eligibility standards – standards that are more applicable to traders on large exchanges – could prove difficult and costly for small entities such as small utilities, renewable resource developers and end use customers. In essence, this would be placing a barrier to PJM’s competitive wholesale markets with little demonstrated concomitant benefit.

3. Your testimony states that PJM has never found a CFTC-registered clearinghouse interested in or able to clear the FTR positions of PJM’s market participants. Could you describe the reasons why registered clearinghouses declined to take the business of clearing FTR positions in PJM?

In 2004, PJM’s management met repeatedly with clearinghouses and clearing organizations to examine the potential for credit clearing services to be provided to PJM’s members. PJM was advised in this matter by Deloitte & Touche. Based on these discussions, the following basic challenges became apparent: (1) calculating variation margin (or marking the position to market) would be difficult or impossible given the infrequently established reference prices that in turn result from FTR Auctions occurring only once every month and insufficient secondary market trading of FTRs between auctions, (2) the risk of unforeseen grid outages and other physical factors that can dramatically affect the expected future value of an FTR position, making it very difficult for a clearinghouse to properly assess price risk; (3) the differing tariffs governing FTRs among various RTOs which limit the opportunity for netting of FTR positions across several RTOs as would be necessary to support a viable clearinghouse; and (4) PJM’s inability at that time to novate positions to the clearinghouse due to the absence of clear legal authority to effect such novation. Some of these challenges are surmountable. Others could be managed only by significantly redefining the product as it exists today, potentially so radically as to reduce or eliminate the value of the FTR as a hedging tool for firm transmission customers.

4. If the CFTC found that PJM was required to become a Designated Clearing Organization, what steps would PJM have to take? Do you have cost estimates for those steps? From whom would you recover those costs?

If the CFTC were to determine that PJM was a Derivatives Clearing Organization (DCO), PJM would be required to register with the CFTC and to demonstrate that it complies with the CFTC's "Core Principles" applicable to DCOs. As explained below, most of the CFTC's DCO Core Principles are not well-suited for RTO markets because RTOs do not provide "clearing services" within the meaning of the Commodity Exchange Act and offer products that (a) are integrally related to physical energy and transmission services, and (b) are not "futures," or other forms of derivatives.

The DCO Core Principles include:

- Financial Resources. DCOs must demonstrate adequate financial, operational, and managerial resources to discharge their regulatory responsibilities. RTOs do not maintain default insurance, guarantee funds, or other tiers of protection (*e.g.*, an intermediary default structure analogous to the role of futures commission merchants with respect to DCOs) to mitigate the impact of a participant default. Instead, RTOs require market participants to provide financial security (except where unsecured credit is permitted). When a member's financial security is exhausted, the RTO will allocate the default shortfall to its members through a "default allocation assessment" according to the terms of the RTO's Operating Agreement. If RTOs were required to adopt some or all of the financial safeguards used by DCOs, it would force PJM's members to accept substantially higher operating costs and capital requirements (*e.g.*, margin). PJM's Members then would likely pass these costs on to ratepayers.
- Participant and Product Eligibility; System Safeguards. DCOs must establish appropriate minimum standards for the DCO's participants and products. In addition, DCOs must establish and maintain a program of oversight and risk analysis to ensure the ongoing integrity of the DCO as a whole (including emergency procedures for data backup and disaster recovery).

All RTO market participants are members of the RTO. There are no tiers of members (*e.g.*, clearing or non-clearing members) and no minimum financial membership criteria, although members must comply with PJM's credit policies. This is consistent with FERC's general policy of encouraging open access to the RTO markets. Requiring RTOs to limit their membership, would undermine long-standing FERC policy regarding open, non-discriminatory transmission and power markets.

Similarly, if RTOs are required to clear their products and services (including FTRs) in a manner comparable to a DCO clearing futures contracts, RTOs may be forced to substantially modify or even eliminate those products

because the RTO may not be able to conform simultaneously with both FERC's and the CFTC's regulatory requirements. For example, DCOs typically mark positions to market and collect variation margin based from market participants on a daily basis. FTRs are priced infrequently through auctions that typically occur only once a month. Each auction includes both buyers and sellers, but unlike a futures exchange where buyers and sellers enter into equal and opposite standardized contracts, the FTRs and the FTR market are defined by the physical characteristics of the transmission system. Because each FTR is essentially a customized product, FTR buyers and sellers cannot be matched to standardized contracts, and there is no certainty that any particular FTR will be priced in any given auction. Notwithstanding the CFTC's regulatory requirements for DCOs, PJM cannot calculate its exposure using a current market reference price with any regularity, and therefore as a practical matter, cannot use daily demands for incremental collateral to manage risk.

At a minimum, certain DCO core principle concepts, including daily margining and calculation of value-at-risk, would need to be translated to work within the limits of the RTO market. Notably, the CFTC's regulatory requirements for credit risk management policies would need to be adjusted to rely more on a retrospective examination of price behavior and statistical modeling, and less on a real-time analysis of actual market conditions. Although some aspects of the regulatory program for DCOs may be beneficial, they are mostly incompatible with and cannot reasonably be applied to RTO markets and products.

- Settlement Procedures. DCOs must be able to complete settlements on a timely basis, even under adverse conditions. In addition, DCOs must adequately record the flow of funds associated with each cleared transaction, and must comply with the terms and conditions of any netting or offset arrangements with other clearing organizations. RTOs already maintain robust settlement systems. If necessary, these systems likely could be adapted to comply with the DCO Core Principles.
- Protection of Customer Funds. DCOs must develop and enforce standards and procedures to protect member and participant funds. This concept is inapposite to RTOs because RTOs are not themselves market participants. Indeed, definitional requirements imposed on RTOs by FERC, requiring independence, prevent RTOs from proprietary trading in its own account while at the same time serving as a custodian for accounts of customers also participating in the RTOs markets. Again, this principle follows from the intermediary structure of seat holders and "futures clearing merchants" characterizing exchanges and clearinghouses respectively. This structure does not characterize RTOs.
- Rules and Procedures. DCOs must publish all rules and operating procedures, including rules to ensure the efficient, fair, and safe management of events

when members or participants become insolvent or otherwise default on their obligations. In addition, DCOs must demonstrate adequate ability to monitor and enforce compliance with the DCO's rules (such as, through either internal resources or arrangements with an outside compliance organization). RTOs have the ability to allocate member defaults through a "default allocation assessment" that is similar to the procedure used by DCOs in the event of a member default. Other aspects of the DCO Core Principles do not reasonably apply to RTOs. For example, the "customer priority rule" cannot apply to RTOs because RTOs do not themselves engage in the markets they administer. Similarly, although DCOs are required to maintain extensive surveillance and enforcement programs, this role in RTO markets is performed by FERC and the RTO's independent market monitor. RTOs are not self-regulatory organizations as that concept is applied by the CFTC; rather they are heavily regulated organizations subject to comprehensive oversight by the FERC.

- Reporting and Recordkeeping. DCOs must provide to the CFTC all information necessary for it to oversee the DCOs' activities. In addition, DCOs must maintain all business records for five years in a form acceptable to the CFTC. RTOs already comply with extensive FERC reporting and recordkeeping requirements. Although RTOs likely could comply with this DCO Core Principle, the CFTC's reporting and recordkeeping requirements may be duplicative of, and less comprehensive than, the requirements already imposed by FERC.

The DCO registration process takes approximately six months from the date when a DCO application is submitted, unless the CFTC's Division of Market Oversight grants an applicant's request for an expedited 90-day review. The process of preparing the DCO application is, however, time-consuming and expensive. Therefore, the complete registration process will likely take considerably longer than six months.

5. Could you describe some of the attributes of FTRs that you believe distinguish them from futures?

The Commodity Exchange Act ("CEA") has never defined what constitutes a contract for future delivery. However, precedent from the CFTC and various federal courts has identified the following common characteristics of futures contracts:

- Standardized, non-negotiable terms.
- Future delivery.
- Ability to enter into equal and opposite offsetting transactions.
- Price at which the underlying commodity will be delivered in the future is fixed on the date when a market participant enters into a futures contract.
- Offered to the public.

- Secured with margin.

These elements of a futures contract generally do not apply to FTRs.

FTRs are not standardized and are not fungible. Each FTR is based on the hourly congestion price differences across a particular transmission path in the Day-Ahead Energy Market (*i.e.*, the price difference between any two locational marginal price (“LMP”) points within an RTO system). FTRs can vary in terms of quantity (in MW) and duration (*e.g.*, one month, three months, etc.). In each FTR Auction, there are hundreds of thousands of possible FTR combinations upon which market participants may bid. In contrast, NYMEX futures contracts for electricity are based on the price of electricity between two fixed time periods, and at a few highly liquid nodes.

FTR positions cannot be financially settled or closed-out through offsetting transactions. A long (purchase) futures contract can be settled by purchasing an equal and opposite “offsetting” short (sale) futures contract. In contrast, FTRs must only be, as a whole, “simultaneously feasible” such that all outstanding positions remain within the physical limitations of the transmission system. In other words, for each long FTR position, there is *not* necessarily one single equal and opposite short position held by another market participant. A long FTR between two LMP points (A to B) may be closed out, in whole or in part, by a combination of FTR positions involving different but related LMP points (C to D and D to E, for example, where actual physical flows on paths C to D and D to E involve some flow of electrons across path A to B). This is fundamentally different from a futures contract and how futures markets operate.

FTRs are not offered to the general public. FTRs are offered only to members of a particular RTO, which typically consists primarily of transmission owners, load serving entities, generation owners, electric distributors, end-use commercial and industrial customers, and power marketers.

FTRs are not secured through daily margin payments. Each RTO establishes credit requirements according to a process set forth in its respective, FERC-approved tariff. For example, some RTOs establish credit requirements for market participants holding FTRs retrospectively by reference to the historical value of the positions, adjusted by a factor designed to reasonably anticipate atypical market conditions. Because FTRs are allocated through an auction based process, it is not possible to establish values for FTRs even on a monthly basis. In each FTR Auction, only a small fraction of the potential FTR combinations are bought or sold. As a result, there is insufficient liquidity across the numerous FTR paths to establish daily “market” values for forward FTR positions, and therefore, insufficient market information to support more frequent margin calculations.

6. In 2003, PJM revised its market rules so that FTRs were available to all transmission service customers and PJM members. What motivated that revision?

On June 1, 2003, in response to a request by customers to provide them with more liquidity and flexibility, PJM supplemented the direct allocation of FTRs with an allocation of “auction revenue rights” or “ARRs” coupled with an Annual FTR Auction. This change gave firm transmission customers the option to receive the economic value of the FTR (as realized in an auction) or instead, simply convert the ARR to the underlying FTR, so as to replicate the direct FTR allocation outcome that existed prior to June 1, 2003. Auction revenue rights can be regarded as the financial proceeds realized by selling the underlying FTR in an auction. Since FTRs are specific to particular geographic points on the grid, customers may find that they are unable to receive an allocation of all the precise FTR paths they might request. In such cases, they may prefer to retain the auction revenue rights in place of the FTR, and use the proceeds realized by selling one FTR to purchase another that better suits their changing supply obligations or perception of expected patterns of congestion.

In short, the institution of an auction marketplace for FTRs in 2003, as requested by wholesale customers, provided further options to those transmission customers entitled to an allocation of FTRs. First, establishing a marketplace provided these customers a forum to sell FTRs and buy alternate FTRs that might better match their hedging needs, given the location and nature of the load they served. Second, it provided efficiency through a transparent auction environment that ensured that a party placing the greatest value on a specific FTR was able to procure that FTR. Often, the party placing the greatest value on a particular FTR (thereby willing to pay the highest price for this FTR) is not the party to whom the FTR is originally allocated. In such a case, the original holder would prefer receipt of the auction revenue rights associated with that FTR (*i.e.*, the price realized for that FTR in the auction) rather than the FTR itself. This change was endorsed by the PJM stakeholders and approved by the FERC.

Questions from Senator Murkowski:

1. Is there currently a regulatory gap we’re trying to plug for electric market mechanisms like Financial Transmission Rights? Aren’t FTRs already regulated by FERC through its review and approval of RTO tariffs?

No, there is no regulatory gap that needs to be filled as FTRs and the FTR Auction process are subject to pervasive regulation by FERC. As stated in my testimony (Section 4b), virtually from the inception of PJM’s markets, FERC directed the creation of FTRs as a means to allocate to transmission customers equitable access to the transmission grid. In PJM, the FTR product was approved

by FERC more than a decade ago upon the creation of PJM's organized markets in 1997.

Furthermore, section 217 of the EPACT of 2005 Congress states its intention that FERC regulate FTRs comprehensively, including their formation, initial allocation, and transfer among various entities, as well as the trading of any excess FTR rights. PJM believes that Section 217 makes clear that the Congress intended for the FERC to regulate FTRs because of their inextricable link to the underlying transmission grid and electricity market structure. The plain language of Section 217 indicates, in our opinion, Congress' desire that the FERC's regulation should be unambiguous in this area, guided by its expertise in transmission regulation.¹

2. Why can't utilities clear their derivative transactions on exchanges like other standardized commodities?

To the extent this question refers to derivative transactions that take place in over the counter environments, PJM does not take a position on the merits of clearing standardized derivatives or an end user exemption to mandatory clearing. If the question refers to arguably derivative products in RTO environments, such as the FTR, PJM would respectfully reference its prior answers to Senator Bingaman's questions 3-5 above.

3. What role do financial entities play in the organized wholesale electricity markets? I understand that in addition to bringing in needed liquidity some financial entities, like J.P. Morgan, have actual electric delivery obligations.

Financial entities can play an important role in wholesale electricity markets. With the introduction of competitive retail service in several PJM states, entities such as Morgan Stanley, Goldman Sachs (J. Aron) and J.P. Morgan act as "load serving entities" in PJM. Moreover, many traditional utility or energy companies maintain proprietary trading businesses that, in part, financially optimize and hedge the physical generation and load positions of their affiliate utility operations, but also trade in PJM's markets, in much the same manner as "financial entities." For these reasons, PJM would suggest that rather than drawing distinction between "financial entities" and other entities, it may be more helpful to distinguish between speculation and hedging, keeping in mind that both financial entities and traditional energy companies can engage in both functions from time to time.

Trading (by "financial entities" or energy company/utility affiliates) is valuable to PJM's markets and promotes efficiency and lower prices, up to a point. Excessive speculation, concentration of risk, and abusive trading can distort pricing and result in costs to consumers. PJM and FERC guard against these risks through active market monitoring and enforcement by both an independent market monitor and the FERC itself. Furthermore, PJM continuously refines its

market rules to manage these risks, and is currently in dialogue with its stakeholders and FERC about such concepts as the role of unsecured credit, position limits, minimum net worth requirements for participants and limits on aggregate financial guarantees. .

4. Aren't FTRs directly tied to the physical limitations of the grid meaning there's a finite amount in the market? Please explain.

Yes. FTRs are financially-settled products that transmission customers use to hedge against the cost of congestion, that are directly tied to the physical characteristics and limitations of the transmission system. FTRs can be created only by RTOs or ISOs and their number and composition is determined based upon the transmission system topology and the physics of physical power flows.

Congestion occurs when the least costly resources available to serve load in a given area cannot be dispatched because the physical limitations of the transmission lines located between the source point (sending end/generator) and the sink point (receiving end/customer site) prevent the movement of electricity from these generation resources to the load. FTRs help hedge congestion risk by providing payments that are proportional to the congestion that transmission customers would encounter over a specified transmission path.

In order to provide an effective risk management product, the FTRs that are awarded through the auction process must correspond to the actual transmission capabilities of the system. If too many FTRs are awarded for a certain transmission path, the RTO would be over-committed and the efficacy of the FTR as a hedging tool would be compromised. To maintain the integrity of the FTR market, the FTR Auction process relies on a linear algorithm that only awards FTRs to bidders who have submitted a "simultaneously feasible" combination of bids. A combination of bids is "simultaneously feasible" if the RTO's actual transmission system can accommodate simultaneously transmitting the electricity underlying each FTR transaction. Because of the physics associated with transmitting electricity, the total quantity of FTRs can increase above the nominal capacity of the transmission system if there are prevailing flow and counterflow FTRs over the same transmission path. However, even in this case, the total number of FTRs in the market is absolutely limited by the physical characteristics of the transmission system.

5. In 1998, PJM, the largest wholesale electric market in the world, asked the CFTC through a No Action letter to clarify certain regulatory uncertainties related to the RTO's standing as a Derivatives Clearing Organization. It is my understanding that the CFTC failed to respond for over a decade but just recently turned to this issue, is that correct? What was the agency's reason

for failing to consider the request in a timely manner? How is this regulatory certainty impacting the organized markets?

On October 19, 2000, PJM filed a request with the CFTC's then Division of Trading and Markets for no-action relief. As required by CFTC rules, PJM periodically provided the Division with updated or supplemental information. PJM believes that it has a very professional and constructive relationship with the CFTC and its Staff. We are not, however, privy to the CFTC's internal activities or deliberations relative to PJM's no-action request, and accordingly, cannot offer the Committee any insight on this subject.

PJM is concerned that if the present uncertainty continues, decreased liquidity and increased volatility will ultimately raise costs for consumers and compromise the integrity of PJM's markets. The most troubling aspect of the recent public attention given by the CFTC to the FTR markets is the potential for a defaulting FTR holder to allege that the FTR is illegal and unenforceable because it was not traded in an environment registered with or overseen by the CFTC. Hopefully, this risk is remote. Resolution of the pending no-action request in a manner which does not raise the specter that these products needed to have been registered with the CFTC since their inception would remove this risk.

6. Didn't PJM at one point approach NYMEX regarding these RTO-market instruments and the Exchange had zero interest in clearing those products? Wasn't the rationale because the risk associated with instruments like FTRs are tied to the realities of the system?

PJM has explored clearing services from a CFTC-registered clearinghouse, but has never found a DCO willing or able to clear PJM's FTR product. As discussed above in response to Senator Bingaman's question 3, the physical characteristics of PJM's FTR product and the special requirements of PJM's FERC-regulated markets make the clearing, as defined by the CFTC, of FTRs impossible. Instead, PJM has implemented credit policies and mechanisms to protect the integrity of its markets that are tailored to its products and the services it offers. These provisions, developed in consultation with FERC and codified in its tariff, are as effective as the CFTC's Core Principles, but also compatible with how RTO markets are required to function.

ⁱ Testimony of Vincent P. Duane, Vice President & General Counsel PJM Interconnection, L.L.C. Impacts of Potential Financial Markets Reform Legislation on Organized Wholesale Electricity Markets" March 9, 2010