September 12, 2000

Dear Shmuel –

I do not know if there have been negative bids for FTRs obligations or much secondary FTR trading in PJM, but I will try to find out. I would not expect many negative bids for FTRs, given that counterflow situations probably arise only occasionally and PJM FTRs are defined as two-way obligations, so that the overall value of FTR/obligations with occasional counterflows would still be positive. Nor would I be surprised to see little or no private creation or secondary trading of FTRs, given that I do not think decentralized transmission hedges are likely to be very efficient. PJM is beginning to operate more frequent reconfiguration auctions that will make decentralized FTR creating/trading unnecessary. This may offend you and reduce profits for private market makers, but there is little sign that market participants mind if PJM turns the market-clearing crank occasionally. My point was that IF you are right about the efficiency of private FGR trading there could also be private FTR trading. If I am right, the lack of private FTR trading (if that is what the facts show) indicates that it would be folly to rely on private FGR trading.

I take it from your latest response that you are no longer claiming that decentralized creation and trading of FTRs is “impossible.” It also appears, although this is not explicit in your reply, that you are no longer claiming that decentralized trading of FGRs is “guaranteed” to lead to a simultaneously feasible and complete set of transmission hedges in some logical sense that does not apply to FTRs, or that FTRs are extraordinarily risky or economically inefficient because they somehow “compound” generator performance risk. You now appear to be making an empirical/practical claim that it will be so easy to define and trade FGRs in decentralized markets that it is not necessary for the RTO to administer a system of FTRs and periodic reconfiguration auctions. Further details on just what you are claiming here would be useful, but if your current position is as suggested in this paragraph we are at least making some progress in defining the line between logic and opinion.

I agree completely that the simple correlations among FTR values in my simple examples are due to the assumption that there is only a single “fundamental commodity – flow capacity on
[a single congested] flowgate.” My point is that the alleged trading simplifications of the flowgate model are due almost entirely to such unrealistic assumptions, not to any inherent advantages that FGRs have over FTRs. If things really were as simple as must be assumed to make a flowgate system plausible, almost anything would work – even FGRs – and almost anything would be simple – even LMPs and FTRs. My objections to your assertions in CPOW and in this exchange are not to the simple theory, but to your factually dubious assumptions and particularly to some logically incorrect initial statements about what is and is not required or feasible in an FTR system.

Once we get the logic straightened out, the only remaining interesting questions concern how to deal with the reality that there are thousands of unstable, unpredictable constraints and PTDFs on real electricity systems. You cite as “encouraging” Richard Tabors’ graphs showing that “115 flowgates can capture 90% of the annual congestion cost in the entire US eastern interconnect.” Leaving aside the question of whether 115 flowgates or 10% of congestion costs is “small,” I will only observe that such analyses were used to “prove” that a single pricing zone was enough in New England and that three zones were enough in California. I will also remind you that Bill Hogan countered Richard’s position at Stanford by pointing out that Tabors identified the 28 constraints that he thought were enough to capture the commercially significant congestion in PJM, but in the first six months of PJM operation there were 43 important constraints actually binding, NONE of which were on Tabors’ list of 28.\footnote{Hogan, William, “Flowgate Rights and Wrong,” August 16, 2000, p.20.} Your faith in Richard’s graphs is touching, but experience indicates that this is hardly the sort of thing anybody should take seriously when making important market design decisions.

Apart from fundamental disagreements about what the real evidence says about the accuracy of flowgate assumptions, the main issues remaining between us appear to be empirical/practical questions concerning how easy it is or will be to trade financial instruments of various kinds. As you say, such questions cannot be fully settled by logical
argument. Such questions can, however, be clouded and confused by imprecise or misleading definitions of the issues and the options.

For example, you refer to a six node network with two binding flowgate constraints, and say “I contend that a market with two traded instruments [FGRs] is likely to be deeper and more liquid than one trading fifteen partially correlated [FTRs].” (Oren 9/12,2 first page) Right off the bat, your comparison of two FGRs to fifteen FTRs is misleading, because on a six node network no more than 5 FTRs are ever needed once one is designated as a hub, and up to 15 FGRs could be required in principle. But this comparison also ignores a rather important fact: Neither FGRs nor FTRs are financial instruments that are bought and held for their own sakes (except perhaps by pure speculators), but are used to hedge electricity transactions. Thus, any useful assessment of the relative ease of trading in an FGR versus an FTR system should look at trading from the standpoint of those engaged in electricity transactions, most of which are point-to-point transactions. I would add that the main purpose of transmission hedging is to protect generators and loads with physical positions rather than speculators and day–traders, but others may have a different view on this.

Implicit in the assertions about how easy trading would be in an FGR world is the assumption that the price of FGRs will be determined in some market that is essentially independent of the energy market itself, so that a trader could simply observe the prices of the various FGRs and then use the PTDFs to select and price the combination of FGRs needed to hedge a specific transaction. But the demand for FGRs will be a complex derived demand that depends on the specific point-to-point energy transactions traders want. FGRs will not be bought and sold individually in some FGR bazaar, but will be released for resale and demanded in complex combinations. You and your CPOW coauthors have said that the market for FGRs will be more like an electromagnetic spectrum auction, in which bidders want various all-or-nothing combinations of different FGRs. I have great respect for the ability of Bob Wilson and others to create, and for Charlie Plott and others to test,

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2 Undated attachment to an E-mail from Shmuel Oren to Larry Ruff, distributed to the MEET e-mail list on 12 September 2000.
sophisticated, multi-round, multi-dimensional auction processes. But your faith that this process will be simple or will create a lot of “liquidity” – whatever that is – is just about as touching and has just about as much basis as your faith in Richard Tabor’s assurances that – this time, really – there will be only a few, predictable, stable flowgates.

Some pro-flowgate analysts are beginning to recognize that what traders really want are point-to-point transmission hedges – to “grandfather” existing transmission rights, for example – and that FGRs cannot provide these if the flowgates and/or PTDFs are not stable. Some proposals now emerging would allow traders to assemble (or be endowed with) the FGRs necessary to hedge a specific point-to-point transaction and then “register” that point-to-point transaction with the RTO. Then, as flowgates and PTDFs change, the RTO would redefine the FGRs held by a registered point-to-point transaction and only the residual FGRs would be available in the market. This is an ingenious proposal that deserves more thought, but suggests to me that the objective of all this may be getting lost. If traders want point-to-point rights and flowgates and PTDFs are unstable, why start with FGRs, convert them into point-to-point rights, and then convert these back to FGRs? I thought the main point of FGRs to get away from point-to-point rights and to simplify and decentralize trading.

Finally, I would suggest that you take some notice of where the real world is going with your ideas. You and your CPOW authors take the theoretically pure position (I think) that the RTO’s real-time LMP market should price all congestion, not just that on pre-identified commercially significant flowgates. But that is not what the more commercially motivated flowgate advocates are pushing in real policy discussions – in MISO and SPP for example. There, flowgate advocates are insisting that the RTO should guarantee the flowgates and the PTDFs, and should socialize all costs necessary to close the gap between the outcome of simplified flowgate trading and real-world operations. This is a very different proposition from what CPOW proposes (I think). Theoreticians cannot be held responsible for what others do with their theories; but I do think they have some responsibility to speak up when their theories are being misinterpreted and misapplied.
I have little more to say on this subject without a lot more thought and work than I have time or energy for right now. We have both had our say. Any readers still following this exchange can make up their own minds about the logical and factual basis for our respective positions. It has been fun, and has motivated me to think through and lay out some details and examples that have increased my own understanding of the issues. I hope you and anybody listening have also found it useful.

Regards,

Larry