See Larry Ruff, “Flowgates vs. FTRs and Options vs. Obligations” Draft, August 26, 2000

To: Larry Ruff
From: Shmuel Oren
Date: August 29, 2000
Subject: Re Counterflows, FTRs and FGRs

Dear Larry,
Attached is a note that (I hope) will shed some light on the issues that You have raised in your August 26 note. I think, however, that it all comes down to the old debate of Min ISO vs. Max ISO and centralized systems vs. decentralized systems were we are on opposite sides of the fence. We seem to agree that for efficiency reasons real time settlements should reflect all congestion and socialization of congestion cost creates perverse incentives. However, I envision the LMP applied to a limited residual market based on INCs and DECs for congestion relief and balancing but short of a full fledge economic dispatch. As to the role of forward markets, I agree that in a risk neutral world a real time market based on LMP could, in theory, suffice to ensure economic efficiency. However, in the real world were agents have different risk preferences, economic efficiency also includes efficient risk sharing for which a liquid forward market is essential. The mess in San Diego is a good example of what happens in the absence of forward contracting (although some have been trying to pin it on the absence of an LMP based market). Consumers are averse to price volatility even if on an annualized basis prices might be reasonable and politicians react by imposing price caps that really screwup efficiency. I am attaching a short note by Pablo Spiller and Myself that speaks to this issue.

Shmuel

See “More on Options vs. Obligations and FGRs vs. Pt. To Pt. FTRs” Draft, August 29, 2000

To: Shmuel Oren
From: Larry E. Ruff
Sent: Wednesday, August 30, 2000
Subject: Re: Counterflows, FTRs and FGRs

Shmuel --
I will read your note with interest and will prepare a response as soon as I have time.

You now say that the main issue here is primarily ideological/philosophical/theological, i.e., is "the old debate of Min ISO vs. Max ISO and centralized systems vs. decentralized systems, w[h]ere we are on opposite sides of the fence." I enjoy a good bull session debate as well as the next guy, but I would appreciate it if you would make it clear when you are stating what you think is an analytically correct statement and when you are stating an ideological/philosophical/ theological preference. For example, you state in the CPOW paper that negative-value FTRs create all sorts of inefficiencies and gaming opportunities. This is simply wrong as an analytical statement, but I would not have bothered to criticize it if I had known that you were merely stating an ideological/philosophical/ theological preference.
To: Larry Ruff  
From: Shmuel Oren  
Subject: Re: Counterflows, FTRs and FGRs  
Date: Wed, 30 Aug 2000  

Larry  

I know that you want to have the last word but the ideological/philosophical/theological part comes out in the second sentence of your paper's conclusion where you state "Decentralized bilateral trading may be able to create something roughly equivalent to transmission hedges independent of the RTO, but this would be difficult and inefficient. And anything along these lines that can be done in a flowgate/FGR regime could be done at least as well in an LMP/FTR regime." You do not present any analytical proof to support your statement. It is simply an expression of your basic skepticism or fear of decentralized markets and blind trust that a centralized approach can do better.  

As to the statement that you attribute to the CPOW paper that "negative-value FTRs create all sorts of inefficiencies and gaming opportunities." I did a complete word search on the version of the paper of June 23 and the version that was distributed at the MEET workshop and the word "gaming" did not appear even once. We also did not say that negative valued FTRs create inefficiencies. The closest we have come to such a statement was the sentence "In other words the transfer capability between two points may be greatly diminished unless a point-to-point right with negative value is underwritten." It is my understanding, and "please correct me if I am right" that in some LMP/FTR systems the negative-valued FTRs are underwritten by the ISO and their cost is socialized in order to avoid dealing with their commercial peculiarities. Even you would agree that that can cause inefficiencies. However, since we did not have any hard evidence about that we have not mentioned it in the CPOW paper. So basically I do not know what you are referring in the following statement that you have repeated in your e-mail responses both tome and to Hung Po: "For example, you state in the CPOW paper that negative-value FTRs create all sorts of inefficiencies and gaming opportunities. This is simply wrong as an analytical statement,... ". Would you please let me know where you got that. Are you still debating my 1995 Electricity Journal paper?

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To: Shmuel Oren  
From: Larry Ruff  
Date: Wed, 30 Aug 2000  
Re: Counterflows, FTRs and FGRs  

Shumel --

You are correct that I have somewhat misstated what the CPOW says, and I apologize for that. CPOW does not specifically refer to "gaming." What it says is: "This negative price would adversely affect the incentives of market traders, which cannot be corrected without introducing additional complexities..."
that would increase the cost of implementing a property rights system." (p. 9)
I was careless in equating "adverse incentives" with "gaming incentives" in my memory. I apologize.

But with this correction, my point remains the same. CPOW says that paying somebody to take on an obligation to produce a counterflow or pay the resulting redispatch costs creates adverse incentives that will be difficult to correct, and that flowgates can deal with counterflows without causing the same problems -- whatever they are. I say that this cannot be correct. The commercial world is full of contracts that create obligations to perform or pay the consequences, and a flowgate system would have to do precisely the same thing to provide complete hedges in the presence of counterflows. As a logical, analytical matter, either COPW is correct and I am wrong, or I am correct and CPOW is wrong. If the weight of professional opinion decides I am wrong, I will admit it. But I do not expect it.

This would all be great fun if it were not that important policy decisions are being made based on incomplete and sometimes incorrect analysis of these problems. I hope we can all agree to try to get at least the simple logical points correct so that we can argue about the philosophy without confusing it with analysis.

Regards,
Larry

See Larry Ruff, “Still More on Flowgates, FTRs Options and Obligations.” September 1, 2000


See Larry Ruff, “Letter to Shmuel Oren, Flowgates Chapter 3,” September 8, 2000


To: Larry Ruff
From: Shmuel Oren
Subject: Re: My FINAL (Maybe) Word on Flowgates
Date: Wed, 13 Sep 2000

Dear Larry
I Agree that we beat this horse to death. I am sorry that you do not share my enthusiasm for decentralized electricity markets and my optimism. I have expressed my opinion that socialization of costs resulting from the discrepancies between the commercial and the operational models can lead to gaming and abuses if such discrepancies are predictable (e.g. my comments at ERCOT regarding their intrazonal congestion management protocol). However, in practice it is always a question of how much. The ERCOT trigger criterion that will activate their zonal pricing if annual congestion cost will exceed 20 Million Dollars seems reasonable.

After all the PJM implementation of LMP is also a far cry from what the theory promises in terms of dispatch efficiency. The PJM Power Point
presentation distributed by Bill Hogan reveals that PJM's LMP implementation is basically a system of "no arbitrage" transmission pricing based on the pool dispatch. It effectively mutes bypass of the pool by pricing transmission so that no bilateral transaction can do better than trading with the pool. Such a system can sustain any arbitrary level of dispatch inefficiency by the pool and there is no market test built into the system that can measure how efficient is the dispatch. Decentralized forward trading is, in my opinion, the only hope for contestability and that is why I am so supportive of designs that can promote such trading. But this is a topic for another debate.

It was definitely a stimulating exchange

Regards, Shmuel.

To: Shmuel Oren  
From: Larry Ruff  
Date: September 14, 2000  
Subject:  

Shmuel --

I am forwarding an e-mail from Andy Ott of PJM, describing some actual results of FTR auctions in PJM. There are a lot of negative bids for FTR/obligations involving counterflows, and many of these bids clear in the monthly auctions.

There is no significant secondary trading of FTRs through the PJM website, but one would not expect there to be when parties can trade secondary FTRs bilaterally without notifying PJM. More importantly, as I suggested in my note and Andy confirms, there is little need for secondary trading of FTRs when PJM conducts a monthly reconfiguration auction.

Could you please tell me what CPOW will be saying about these issues in the forthcoming Electricity Journal article so that I can be begin preparing a response?

Larry

To: Shmuel Oren and Hung-po Chao  
From: Larry Ruff  
Sent: Thursday, September 21, 2000  
Subject: CPOW and the Ruff-Oren Exchange  

Shmuel and Hung-Po -

Thank you for sending me the 15 September 2000 version of CPOW, presumably as it will appear in the October Electricity Journal.

I see that this "final" version still contains the following assertions::
CPOW 1. "Another advantage of flowgate rights is that their value is never negative, unlike a point-to-point financial right. [FTR]" [p. 7]

CPOW 2. "By contrast with FGRs, point-to-point rights [FTRs] entail an obligation to provide the requisite flow, and they can result in a Financial liability." [p. 7]

CPOW 3. "[T]he transfer capability between two points may be greatly diminished unless a point-to-point right with negative value is underwritten. On the other hand, the available number of flowgate rights on a link is determined only by the contingency-adjusted flow constraints on that link...." [p. 7]

CPOW 4. "This negative price [of FTRs involving counterflow] could increase the cost of implementing a property right system... [because the holder would be] liable for the cost of more expensive replacement generation at their location [if they could not produce]. ... Hence, the risk premium for undertaking such an obligation would be high, introducing distortion into the allocative efficiency of the property rights." [p. 9, including footnote]

CPOW 5. "On the other hand, if prices must be kept non-negative, the Issuance of transmission rights must be limited, and the transmission system will be underutilized. This suggests that unlike the flow-based approach, a point-to-point transmission-rights system is inherently limited in supporting a decentralized market design." [pp. 9-10]

Given all that appeared to have been accomplished in the Ruff-Oren exchange, it is surprising to find these claims in CPOW. There could be and no doubt are different interpretations of the Ruff-Oren exchange, but I think a reasonable reading would support the following conclusions;

RUFF 1. FTRs do not have to be "obligations," but can be options just as well as FGRs can be.

RUFF 2. A flowgate system cannot provide full hedges in counterflow situations unless somebody holds negative-valued FGRs that entail the same perform-or-pay obligations required with a negative-valued FTR.

RUFF 3. Rights with negative values are very common in markets- e.g., a power sales contract is just such a negative-valued right or obligation - and there is nothing about transmission that makes such rights/obligations unusual or particularly risky or that would "introduce distortion into the allocative efficiency of the property rights." In fact, as Andy Ott pointed out, negative value FTRs are commonly bid for and sold in the PJM FTR auctions.

RUFF 4. If the RTO cannot issue negative-value FGRs for some reason (which seems to be the CPOW position), full hedging in the presence of counterflow requires that negative-value rights - obligations - be somehow defined and administered in decentralized markets.

RUFF 5. However hard or easy it may be to use decentralized markets to Define and trade negative-value FGRs to deal with counterflows (or anything else), there is no fundamental reason this should be more difficult with FTRs than with FGRs. The purpose of the Ruff-Oren exchange was presumably to clarify issues such as these. Although everything was not resolved, I and even some more neutral observers thought that at least RUFF 1 thru 5 had been demonstrated. We need not repeat the entire discussion, but it would be useful to know which of the "RUFF" assertions above you disagree with or why the CPOW assertions are still valid despite the RUFF assertions. And it would be useful to know the extent to which you think
our remaining disagreements reflect analytical differences and where they reflect factual/quantitative or even philosophical/ideological differences.

Regards,

Larry

To: Larry Ruff  
From: Shmuel Oren  
Subject: Re: CPOW and the Ruff-Oren Exchange  
Date: Thu, 21 Sep 2000

Dear Larry  
As you say there are different interpretations of our exchange. Your comments alerted us to the need to sharpen and clarify some of our assertions. However, I do not agree that you proved these assertions wrong. Ideally we would have added a bunch of footnotes clarifying our position. Unfortunately, such clarifications would require more space than the editor would allow us at this advanced stage in the publication process. So the way I see it is that you will still have the opportunity to write your critic without being preempted by our revisions and I will be happy to write a rebuttal summarizing the clarifications and sharpening of assertions that were flushed out in our debate.  
Shmuel.

To: Larry Ruff  
From: Shmuel Oren  
Date: Saturday, September 23, 2000  
Subject: Re: CPOW and the Ruff-Oren Exchange

Dear Larry  
In the email below (see CPOW and the Ruff-Oren Exchange 9/21/00) you present five conclusions that you choose to extract from our debate. I find your selection of "proven facts" misleading, demagogical and obscuring the truth. At least in theory, under the assumptions of stable PTDFs and Flowgate capacities, FGRs either as options or as obligations are fundamentally superior to FTRs in providing flexible hedging capability for congestion cost. To be specific, RTO issued feasible FGRs can provide hedge cover for more transactions than simultaneously feasible RTO issued FTRs. This is true when the FGRs and FTRs are defined as options and also true when obligations are allowed. Giving you the benefit of the doubt that the deception is not intentional, I am willing to assume responsibility for not making myself clear enough in our exchange. Therefore, at the risk of rekindling our debate I will give it another shot trying to make it simple and crisp.  
Shmuel

See Oren, Shmuel. “FGRs vs. Pt. FTRs: One More Round.” September 22, 2000

To: Shmuel Oren  
From: Larry Ruff  
Date: September 23, 2000  
Re: CPOW and the Ruff-Oren Exchange

Shmuel --

I had hoped we could get some of these analytic issues resolved before it all hit the broader public, and had even thought we had done so. Now, as you say, there will have to be articles, responses, responses-to-the-responses, ad infinitum/ad nauseum. This is
fine if the objective is to add to academic resumes, but it will create far more confusion than clarification in the critical policy discussions now underway. I will continue playing my self-selected role here because I think these issues are so important that seriously misleading assertions should not be left unchallenged. But I would prefer a process in which a logical statement would be either refuted or accepted so that the discussion could build from there. This would be far more useful than a continuation of a process in which incorrect assertions are made, and when directly challenged are denied and/or fudged -- and then reappear in public in essentially the same form as though nothing had ever been said.

For example, it is either true or false that FTRs can be options as well as obligations, just as FGRs can be. I think it is true, and have said so. I thought you had agreed -- or at least I have seen nothing from you indicating any basis for disagreeing. If that is correct, why does the version of CPOW to appear in the Electricity Journal continue saying that FTRs must be obligations while only FGRs can be options?

Similarly, it is either true or false that counterflows cannot be hedged with either FGRs or FTRs unless somebody holds an FGR/FTR that is an obligation to perform-or-pay. I think this is true, have said so, and thought that you had conceded the point during our exchange. If you think this proposition is false, you should have said so and tried to use the simple example in our exchange to show me the errors in my thinking. If you agree that this proposition is true, you should not be letting CPOW hit the streets saying something very different.

I could give more examples, but I think my point has been made for anybody who cares. I will respond to CPOW in the Electricity Journal, not because I want to see my name in print, but because the CPOW assertions that I thought we had disposed of during our (semi-)private exchange should not be allowed to appear in public unchallenged. Unfortunately, this is a grossly inefficient, slow and ultimately ineffective way to make progress on important policy issues that could and should be settled with logical analysis.

Larry

To: Larry Ruff
From: Shmuel Oren
Date: September 23, 2000
Re: CPOW and the Ruff-Oren Exchange

Larry

I sent the previous Email with my new piece before seeing this Email from you. I hope that my analysis will contribute to what you call “the logical” discussion and provide the clarifications you seek to our assertions in the CPOW paper. As I indicated in my previous email the facts that you are trying to establish only tell part of the story. Either with two way contracts or with options the set of transactions that can be hedged with FTRs is a subset of what can be fully hedged with FGRs. Let me know if you agree with this conclusion after you read my logical argument.

Shmuel

To: Shmuel Oren
From: Larry Ruff
Sent: Saturday, September 23, 2000
Subject: Re: CPOW and the Ruff-Oren Exchange
Shmuel --

I don't think you prove your points at all, as demonstrated in the Attached response. Furthermore, you have made no effort to refute the five RUFF propositions that you have called "deceptions" that are "misleading, Demagogical and obscuring the truth." I can understand why you do not try to refute my points, given that your most recent paper actually concedes at least four of the five. (I will grant that RUFF 5 is a matter of judgment and opinion.) I would still like to know how you can -- or why you do -- defend the specific statements in CPOW that I have challenged, given what you say now.

Larry


To: Larry Ruff  
From: Shmuel Oren  
Subject: Re: CPOW and the Ruff-Oren Exchange  
Date: Sun, 24 Sep 2000

Larry,

I do not have the time to prepare a full response to your new paper and I am not sure I will soon but I will try to explain my recent accusations and why I will not respond or refute your assertions directly.

First, let me explain why I consider your "court room tactics" and your insistence on getting YES or NO answers misleading and demagogical. You are extracting sentences from the CPOW paper out of context and try to get me to accept or refute your assertions out of context. I am sorry that I am not willing to play your game but the best I can do is a long response which is given in my latest (September 22 note). If you interpret it as conceding implicitly or explicitly your points than you got your answers and other readers will get theirs.

The references in the CPOW paper to FTRs and FGRs which you seem to object to so strenuously were based on conventional terminology and you are simply hung up on semantics. I agree that FTRs can be defined as options but then they will be "FTR options" and not FTRs. The possibility of introducing FTR options was mentioned as early as 1996 in my paper with Wu, Spiller and Varaiya but as we demonstrated then and in my last note the number of such options that can be issued by an RTO is severely constrained by the simultaneous feasibility condition. On the other hand, FGRs (specifically their financial components) are defined in CPOW as rights to the (nonnegative) shadow prices on flowgates and they are inherently one sided options since their holder can walk away from them with no penalty. Obviously, what is an option for the holder is an obligation for the counterpart. This is true even for regular call and put options. If the RTO issues an option it is an option for the holder and an obligation for the RTO, likewise if a counterflow producer sells an FGR it is an option for the FGR holder but an obligation for the counterflow producer. The difference is that a regular FTR (not an FTR option) is defined as a two sided contract which can have a positive or negative real time settlement depending on the operating point. Hence, both sides are obligated by it. By contrast an FGR is always one sided so one of the parties can always walk away from it, regardless of where the operating point is, with no penalty. By using the term FGR obligation in my recent note I was not conceding anything just adopting your terminology so that I can focus on the logic. My preferred terminology would be to always think of FGRs as options and to distinguish between the case where the RTO can only sell FGRs (based on the flowgate capacity) and the case where the RTO can both sell and buy FGRs for capacity and counterflow.
As to your comments on my latest (September 22 note). This was an attempt on my part to respond to your earlier requests to separate logic from opinion. My results specifically state the assumptions and the logical implication. In referring to simultaneous feasibility I used the condition as defined in [Hogan 1992] and as implemented at PJM. The restrictive nature of this condition is one of the shortcomings of the FTR approach. You seem to agree with that since your response relaxes that condition trying to take into consideration commercial significance. You also propose that the RTO could supplement the simultaneously feasible FTRs with additional FGRs on the flowgates that are not fully subscribed. These are interesting ideas that would definitely improve the FTR approach and bring it closer to the FGR potential. You correctly observed that one problem with the simultaneous feasibility constraint on FTRs issued by an RTO is that it prevents the RTO from allocating all the rights on commercially significant flowgates and that limits traders hedging capability between reconfiguration auctions.

I was hoping to settle the logical arguments first by making the assumptions and consequences clear so we can move the debate to the empirical and policy questions. I do not expect you to agree with my assumptions and I fully agree that the FTR approach can be enhanced so as to replicate what FGRs do naturally. Indeed a hybrid approach can probably capture the best of both worlds. It would help, however, to clarify the issues if you could clearly draw the line between were you disagree with my assumptions and were you think that my logic is flawed. It appears that you don't like this game. Your recent note mixes opinion logic and empirical assertions in a confusing manner.

Shmuel

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To: Larry Ruff  
From: Shmuel Oren  
Date: September 24, 2000  
Re: CPOW and the Ruff-Oren Exchange

Larry

I am trying to extract something positive from our exchange and it occurred to me after reading your September 23 response that you may agree with me that the simultaneous feasibility condition as currently defined and implemented at PJM and, I believe, NYPP is overly restrictive. In your arguments you have basically relaxed that restriction to show that FTRs can achieve whatever FGRs can. In particular I thought you would agree with me that expanding the FTR auction so as to auction off the leftover flowgate rights on commercially significant flowgates in addition to the FTRs could improve the hedge cover offered by FTRs. Specifically, if all the "leftover" FGRs are sold together with the simultaneously feasible FTRs then the settlement of these FGR claims will eat up the excess congestion revenues that represent unhinged congestion cost. Having these leftover FGRs in the market would allow traders to adjust their hedges through secondary trading in between reconfiguration auctions so as to better track changes in the operating conditions.

I fact my Theorem I in the September 22 note can be amended to say that a maximal set of feasible FTRs+FGRs will provides the same hedge cover as a maximal set of FGRs.

This idea of having the RTO issue both FTRs and FGRs was brought up by Dick O'Neili at the MEET workshop along with a suggestion on how to modify the simultaneous feasibility auction in order to accommodate both types of
instruments.

If you agree with me that the LMP/FTR paradigm can be improved by requiring the RTO to auction off both FTRs and FGRs then please confirm that and perhaps we could make a joint recommendation to PJM and NYPP to expand their FTR auctions by also offering FGRs on the commercially significant flowgates. I also believe that having FGRs in addition to the FTRs would help in dealing with the seams between RTOs along the lines advocated by NERC. Traders outside the RTO jurisdiction creating loopflow within the RTO could hedge their transactions by simply buying FGRs on the flowgates they impact if the RTO doesn't offer FTRs that cover they injection and withdrawal point.

Shmuel