Select Energy

Virtual Regional Dispatch (VRD) vs. Quarter Hour Scheduling & Short Notice Transactions

The purpose of this paper is to review the issues with cross border market efficiency, the proposals that have come forward to address this issue and to, hopefully, propose a process that would first allow Market Participants (MPs) to address this problem before the ISO step into the markets themselves. One only has to look at the RAM proposal that would have the ISOs central to long term capacity procurement on behalf of loads, to see how parties may negatively react to a similar approach here.

Preface

No one has disagreed with the data that shows counter-intuitive power flows across control area borders that are in opposition to RT prices. There is also little disagreement as to why the MPs have not effectively arbitraged such situations.

What is at issue is how to address the problem and even that assumes most parties want to address it in the first instance.

We have multiple potential solutions to consider:

- ISO based VRD

- A MP proposal, to serve as an interim alternative to VRD, by M Younger. It should be noted that the NYISO has been positive to this proposal once concerns about price reversal were addressed.

- One solution that receives no discussion: settlement of ahead of transaction based on ahead of price outcomes. This would NOT be a third settlement but an extension of NY's current use of BME prices for settlement under constrained conditions not recognized by in hour dispatch programs.

  While it would not solve all the issues, it would remove much opposition to whatever the ISOs chose to do in RT. It is not planned to discuss this further now.

- There has also been discussion of "cross border hedges" in a mimicry of TCCs or FTRs but to date, while intellectually appealing, seem to fall short of a solution.

- Finally, there is the MP alternative to VRD – proposed in more detail later, where much of the underpinnings of VRD are developed but the movement of power and the financial risk/reward goes to MPs not the ISOs.

  Only upon failure of the markets and MPs to act, would the full VRD be pursued.

For those wishing to read less, jump to the last two or so pages and read the colored text (blue on my screen).

Background

- Failure of NERTO to materialize (2002): one result was no single area dispatch (SAD) which if it had occurred none of this discussion would be taking place.
    - So the ISO(s?) – NY & NE anyway - have a problem; solution is VRD
        - Independent Market Advisor (IMA) first brought to NYISO MC in August 2002
          (Note: there were other papers floating around prior to this time but hadn't any traction prior to the IMA's conclusions)
        - Initially limited to small set (i.e. 42 hours) of problem hours with large prices spreads upside-down from the flows
        - By the October 2002 joint BoD/MC meeting the issue turned into an "all the time" issue with a solution bent in that direction

- After several meetings on VRD in 2003; at the joint NYISO BoD/MC meeting in October 2003, Bill Museler was pressed about the value of offering quarter hour scheduling to the markets as an alternative to VRD and promised that this would be fully investigated and that the ISO was not wedded to any particular solution

- After a period of some dormancy, we are back to a upcoming joint meeting with New England to discuss the Seams list and VRD. The immediate reason for doing so is FERC's comments in the NE RTO Order regarding VRD.
    - On 5-10-04, NYISO presented MSWG & S&PWG with a plan to only perform "mechanical testing" of the VRD concept later in 2004
    - What was also brought forth was that VRD was not ever going to be a ISO operator based manual process for exchanging power between NY & NE in a bid to close price spreads. Operations job was to concern themselves with reliability NOT market efficiencies.
        - This says that some reasonably substantial software development will be undertaken at some point assuming VRD is to move forward.

- Stepping back, David Patton made the following observations about why the flow/price discrepancies exist in real time. Below are the words taken directly from D. Patton's October 2002 report:
    - However, **substantial price differences between New York and adjacent markets have continued to occur under peak demand conditions**
    - The following would indicate that the interfaces have been scheduled efficiently:
        - When constraints are not binding, the difference in prices between neighboring control areas should be close to zero.
        - To the extent that price differences exist, electricity should generally flow from low-priced control areas to high-priced ones.
        - **Market participants should act quickly to arbitrage large price differences**

  And his conclusions indicate the following:

- The external transactions during recent peak periods have often resulted in inefficient scheduled flows between New York and adjacent markets. Some factors explaining these results likely include:

    - Participants **must schedule with two separate ISOs more than an hour in advance of the real-time.** Therefore, participants must anticipate the price differences.
    - These price differences can arise and dissipate quickly under peak conditions, **creating substantial uncertainty and risk for participants scheduling transactions between control areas.**
    - BME may not recognize the same relative economics between the markets when scheduling price-sensitive imports and exports

When we had our first VRD meeting with New England on May 29, 2003, the following (extracted from a presentation given) summarized reasons why the markets (participants) were not addressing the problem:
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VRD: The Problem

- Lags, forecast error, and risk avoidance more specifically;

    - The scheduling process requires transactions to be scheduled more than 60 minutes prior to the hour – makes forecasting more difficult.
    - Participants currently face considerable financial risk transacting between the markets in real time.
    - Participants must pay the congestion charges to deliver power to the border in one market and away from the border in the adjacent market.
    - These congestion charges depend on the price at the border in each market.
    - If these prices diverge substantially (as they do in many hours due to price volatility or congestion), participants engaged in physical transactions will be subject to considerable risk.

The summary is fine but two points need to be made: first, the analysis went from the IMA initially describing a problem that had its largest impact under relatively stressful conditions (peak loads analyzed for Summer 2002) to a solution that will be always armed and ready to go and, second, while the issues facing participants accurately describe why they eschew trading, especially in volatile periods, we have done little to improve the situation so that the markets and market participants, not the market facilitators can solve the problem.

This sets the stage for the proposal to be made below.

VRD

This summary will be a bit speculative as we have not discussed VRD in detail for some time.

As we might expect it, the ISOs would jointly develop a process to "automatically" adjust schedules between NY and NE to close price differences in RT. Based on prior materials, this would depend on constructing supply curves for both ISOs at their Proxy Generator Busses (PGBs). Either as part of the curves, that would need to be reconstructed with some frequency, or by some separate process, the ISOs would need to assure that besides abiding with the border transfer limit in each direction, they would have to be cognizant of internal security issues as well. For NYISO, with RTS coming, one might expect that at a minimum any change in transfer from the VRD process would need to be assessed and staged for the next RTC run that would apply 30 minutes from its initiation. To do otherwise simply would establish a shadow process in NY that could undermine the goals of RTS, e.g. substantial imports in the face of numerous GT starts, etc.

Of course, these proposed changes would not be unguided ones: the curves would present a limit to the exchange based on a current construction of supply bids on both sides of the border. Also, one might expect that NY's RTC may provide valuable parameters that could inform, and limit as necessary, and VRD based exchanges for security reasons. NE would have similar issues but as I am lacking the familiarity with NE's systems, I will not guess as to their approach.

One issue never discussed but certainly is a potential difference is that participants are forced to deal with tags on cross border transactions. To my recall, I do not believe the same applies to the ISOs.

If we accept my brief summary above we can look at how this avoids the issues that we identified on the prior pages of this paper:

1. The scheduling process will NOT require the ISOs to make a decision, more than 60 minutes in advance of actual flow, when making a VRD based transaction.

   For example, to catch an RTC run, the ISO's would be looking at 30 minutes ahead of actual flow. To actually flow at nn:30, such a change would need to be staged for RTC15 which initiates roughly at nn:00 and posts at nn:15.

   This is dramatically better than that afforded market participants who currently have to have transactions in by 75 minutes before the actual flow occurs.

   (Note: Recent changes to E-Tagging appears to have aggravated the ahead of time need to allow for possible corrections. More on this later.)

2. Financial risk for VRD has not and remains not an issue for the ISOs. They have all the information – supply curves, security restrictions, RT unit and line status and most importantly, the ability to offset any loss against a much larger pool of players

than does any single participant or participant organization.

3. What the ISO's do face is an allocation problem; both for success and failure. While increased LBMPs in one market are paid to the suppliers, decreased LBMPs is enjoyed by loads in another.

   If you had a single area (remember SAD way above?), then that would be the outcome; settle at LBMPs everwhere. However, we do not have a single ISO or RTO and likely that will not change in the foreseeable future. So we now have the politics of allocation. If one side has increased costs and the other substantially decreased ones (also recall that the IMA's initial analysis was targeted at egregious situations where there were very large un-arbitraged price spreads); loads on the supplying side are not apt to wait to see if "things even out over time".

   On the other hand market participants do not encounter this issue – with the price of entry set by the risks involved – they can make such transactions, equalize price and, hopefully, pocket the difference.

4. One last issue that should be noted is that the ISO's current approach only works with one neighbor. Not much of an issue for NE perhaps but NY has four neighbors.

   Eventually, NY has to face a complex solution not just a convenient one.

At a quick glance, it appears the ISOs should pursue VRD. That is, if one only extols the virtue of market efficiency. However, many parties actually look at (in?) their wallets and are inclined towards decisions that affect the flow into or out of that wallet.

While the ISOs have substantial advantage in getting the market efficiency, they are at a bit of disadvantage with the allocation problem. It was one of the factors that resulted in NERTO's terminal fate.

Market Solution: Quarter Hour Scheduling and Short Notice Transactions (SNETs – Short Notice External Transactions)

Now we really have speculation since little hard discussion of this has ever taken place. But let's give it a try…

Above I noted offsetting (but not necessarily equal) problems for the ISOs and VRD opposed to Market Participants and SNETs; one has allocation issues and the latter unavoidable risk. What we have not yet engaged in is any discussion of how participants may be encouraged to accomplish what the ISOs want to do by themselves.

One of the biggest advantages the ISO would have – even with my construct of having to pass any VRD change through an RTC run in NY – is time. This includes two component of time: the lesser lead time for making a decision and the period for which a change is bound to the RT prices in both ISOs.

We have done little to improve this situation since the markets began. We have managed only to reduce "the ahead of" notice from 90 to 75 minutes. We even see that being withered away by the E-tag changes recently implemented.

This brings the proposal and its key components:

1. Participants should be afforded the same time period capabilities as the ISOs would be able to utilize under VRD.

   This means (1) a 30+ minute lead time (assuming the need for RTC to consider the transaction(s) in its analysis) to put in place a transaction AND (2) a transaction that applies i.e. settles, for only a 15 minute interval.

   Inherent in this is the fact that if the ISOs can accommodate a change in their respective net interchange positions in hour for transactions of their making then it is *fundamentally* no different to accommodate MP based transactions.

2. MPs should also (finally) get one-stop-shopping, at last for this issue. This has been a promise going back to 2000 and through OSS, Facilitated checkout and now E-Tagging improvements. While these may have aided the ISOs work efforts and need for data exchange, at the user level, conditions have improved only slightly.

   For this, it is proposed that the transactions be entered either in NY or NE <u>not</u> both. Subject to acceptance (see below), once put in a market participant is stuck with their decision; if it flows you pay and are paid RT prices. No checkout failures due to no tags, mismatched schedules etc.

3. The ISOs would utilize the supply curves they need development of for VRD to limit the exchange of RT flows such that prices do not reverse.

   This is the same as was proposed to salvage Mark Younger's approach earlier this year. (See the VRD Update presented by NYISO staff for the 3-16-04 MSWG meeting)

4. The ISOs would also limit the proposed transactions to flow only in the efficient (i.e. from lower to higher prices) direction. This doesn't eliminate proposed transactions in the opposite direction, they simply would not be considered.

   While this may sound like a guarantee of some sort, it is not. The limitations imposed (i.e. flow direction) would be based on the ISO's best ahead of information; transactions would still settle on RT outcomes which as we all know can still be volatile. It also does not provide a risk or cost free option for counter-flow transactions as they will not be scheduled.

5. It is also proposed that the use of Tags for the NY-NE interface be eliminated for purposes of these short notice transactions. Unless the ISOs have to provide tags for VRD, then MPs should be afforded the same consideration.

6. With the elimination of the Out Service and TSC charges, there would be no bidding by MPs for their transactions which is where the revenues from the bids were to be directed. This was a key component of Mark Younger's proposal to rank transactions, however, monies from those bids was due to offset out service fees.

With the elimination of rate pancaking, we now would have an issue to deal with such bid based monies.

The risk here is that many more Mws of transaction might be offered than can be accommodated. A Bid system would allow ranking of such requests but there is then need to handle what is done with the monies received from those bids. This could be started with a simple pro-ration system and more complicated schemes considered if needed.

The purpose here is to reduce, not eliminate, the risk that has been identified in prior presentations as a major if not *the* reason, for MP avoidance of RT arbitrage opportunities.

If, after a reasonable period of time to see if the markets respond, there persists egregious issues of illogical price spreads and flows, then the ISOs should move to a full VRD implementation.

Given that we are proposing to utilize capabilities of the ISOs that would be needed for VRD in any case (e.g. the supply curves), we should not find ourselves in a position of having developed any throw away projects.