Conclusion 11/29/01

- How to make LT Right from Existing System
- How to make LT rights from new Construction

Project sponsor should get incremental LT rights for investment. May be not all of the rights

Basis for expansion (negotiation)

- Load or generation needs capacity
- Merchant Investment

RTO Should try to sell longer terms from existing capacity, within risk tolerance.

Need pricing for LTR from existing system.

Reserve price for LT may be unsustainable

New & Replacement FTO should get same deal (Brad)

What are rights for expansion? How is Load Growth treated?

The Long Term product is an FTO

Need to Resolve Liquidity Measure & Tools

Page 1 **LIQUIDITY**

- Under the convergence model, FTOs don't let you block access
- Day-ahead & Day-of should not be a problem

CONCERN: Forward Market

Page 2 Liquidity Tools

- Ways to make RTO willing to take more risk but the beneficiaries of the enhanced liquidity pay the costs/bear risk

Arne: This is fundamentally a question of revenue adequacy for the FTOs

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Ren:

- RTO decides its base case first
  X % certainty
- Then it could sell some more with
  Y % (less than x) certainty

Do we assess the problem on the basis of what is happening in the

Primary FTO market
v.

Secondary FTO market

Arne: Regular auction v. auction with a risk premium

Tom Delaney: Board should have an affirmative obligation to do something when there is insufficient liquidity (decide what to do when it happens)

How do you define insufficient liquidity?

Ren: Don't want to have to wait through process and FERC filing to do something →start with some tools

Stan: Whatever the tools do, they can't interfere with reliability serving load or cause price shocks to load.

Wally: Because rights are financial, the RTO isn't the only entity that can provide hedging products

Karen: Keep in mind transactions across seams.

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FORWARD RIGHTS/CONVERSION *(page 1)*

Chuck Durick: Won't try to deal with contingencies, reserves, outages, etc.

RIGHTS:

- Financial
- Options
- Defined bus-to-bus
- Want hub-to-hub tradability
- RTO reasses feasibility periodically
- Working to support liquidity
- RTO has tools to enhance insufficiently liquid rights

How are FTOs Redeemed
(=What FTOs are)

How are FTOs redeemed

- An FTO excuses congestion cost (not a revenue stream)
- Schedules are submitted to RTO (and RTO is getting inc/dec bids at same time) schedules may have limit prices.

Example Schedule

A →→→→D
    Congestion cost
    10
    FTO =- $10.00→payment = $0

Question: Is an FTO denominated in MW or $?
Answer: - in MW

FTO specifies:

- Injection point
- Withdrawal point
- Value

KEY QUESTIONS:

- Can a right from A →D be used to hedge against costs of schedule E →G?

- If we allow people to use rights toed to specific injection /withdrawal rights against **any** schedule, does it have unintended consequences?

Without Congestion, the system price doesn't "split".

Consequences

Are FTOs tied to specific injection/withdrawal points?

Evaluate

- Liquidity
- Complexity (rules to "translate" FTOs, etc.)
- Revenue adequacy
- PTO re-dispatch obligations
- Operational feasibility (esp. at pre-schedule)
- Uncertainty impact on willingness to convert
- Redemption Credit = difference in bus prices
- There will be a exchange for trading FTOs
- How does the RTO define hubs?

SUGGESTIONS:

Start with no defined hubs (all FTOs are bus-to-bus)

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- How do hubs "evolve"?
- How do you find the relationship among busses?
  - node prices spread
- Can you break a bus-to-bus right down? (trade segments)

Mike Ryan: RTO will have to make judgments about what broadly useful hedges to sell.

Hub question has two pieces:

- Transition from pre-existing rights
  (translation/segmentations of FTOs is under authority of RTO)
- Market help define hubs going forward
-

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Steve Walton:
- Generators settled on bus prices
- Loads settle on bus prices
- Hubs are intermediate points (weighted average of nodal prices)

Jim Toal:

- What happens with the bus to hub differential (price)

WE NEED TO DO THE MATH.

Steve Walton: "Reconfiguration auction"

Arne:

Critical Issue: How does segmenting work?
Do you go back to RTO each time?
Are there pre-established rules?

Chuck:
With options you have to cycle back through feasibility test

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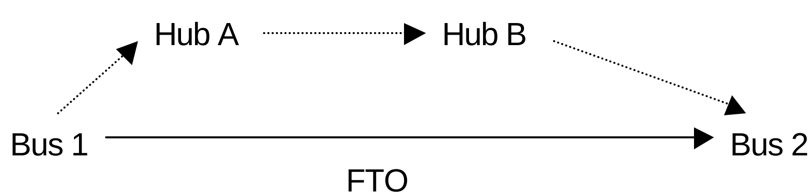
Relationship between energy trading hubs we have now (Mid-C, COB) & FTO trading hubs.

Steve Walton:
RTO decides if you can "decompose" FTOs or not



MW 1 →2 may not equal same MW as 1 →A →B →2

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a) How redeemed?
b) How traded?
c) How created?
    - Conversion pre-existing rights
    - RTO determines it can sell hedges

An FTO is the same either way.
Feasibility test is necessary
Does a conversion have to go through the same feasibility test?
Is there an auction/open season?
Auction Framework

(Market participants request the rights they want)
Requesters specify price

Jim Toal:

Does the RTO know how to translate MW capacity into selling hedges?

RESERVE PRICE BY RTO?

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Linc Concerns:

- Does this foster longer term rights?
- Will markets outside RTO be able to develop?

Steve Walton:
Only the primary issuance is solely through RTO

Terms of Auction?
Terms of Rights Auctioned?

There is an issue about whether RTO may need to set reserve prices on FTOs.

→ Owners of FTOs are published, and what they paid.

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Long Term rights/Expansion

- What are long-term rights?
    a) ATC that remains after committed uses are covered
        - posted on RTO West OASIS
        - revenues to PTO??
    b) Pre-existing contracts and LSO w/o contracts?
    c) FTOs (excuses from "targeted" congestion costs)
    d) New transmission construction
        - Company Rate
        - Merchant Lines: commercial rating v. physical capability (how to recover investment if congestion is relieved?)

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ATC? Or RTO sells FTOs?

Where do FTO sale revenue go? (Capacity on existing system)

JimToal:
"ATC" goes out – RTO manages that.

Preston:

Don't want FTO revenue to go back PTO b/c incentive for PTO to create congestion – maybe use some of revenue to "fix" congestion.

Ability to sell long-term rights on unencumbered paths to newly interconnecting generators?

Chris Reese:
Leave aside question about who gets the money – focus on what is the product the RTO can sell and for what term.

Kieran:
Need to take load growth into account (unresolved issue)

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Transition issue:
    What happens to facilities built between now and RTO start-up?

Arne:
- RTO will run a revenue maximizing algorithm and decide what terms and amounts it will auction FTOs.
- Cost-based rate for very long-term right (5-10-30-year rights, etc.)
- Cost-based reserve price for long-term rights?

Alan
- We need a product generators can buy to get certainty they need to finance their plants
- Open season – invest in new facility, receive long-term rights in exchange.

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Mike Ryan:
If FTOs are what you get for expansion, how to create an incentive to build to relieve congestion.

Darrel:
What does the RTO post on its OASIS?

Steve Walton:
Boundaries with other systems may need to have posted ATC, bur the internal system is doing business on a different basis.

Alan:
Defining terms of products and frequency of auction

Rich Bayless:

Any big line will affect (probably) all the nodes on the system.

→Whoever pays for the lines gets the FTOs associated with the new capacity. RTO assess incremental capacity created and works with project sponsor to translate to FTOs.

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Subscription – price, length of term, highest present value wins.

Brad:
Expiring long-term contracts – what happens with the capacity?

Linc: Another way to expand – expand system project-specific negotiated arrangements.

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Distinguish:
Ownership of a transmission facility v. Rights that a transmission facility supports

Rich Bayless:
RTO liquidity evaluation and enhancement tools

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Tom Delaney:

Counter-Scheduling bilateral hedging
- A way to create virtual" capacity" or their own FTOs.
- Need underlying assumptions about the topology of the system and how it will change.
- RTO will have a flow distribution system to make it evaluations and operations possible

KEY:

- Ability to make counter-scheduling some reasonable interval before real time
- [Request to Schedule (RTS)]

[See Attachment A to comments]

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Wally:

In an injection/withdrawal model, you don't need the concept of counter-schedule →find the generator on the other side of the constraint energy swap

Tim Toal/Mike Ryan:

Work through the same scheduling coordinator (net schedules)

Steve:

Important to have sufficient liquidity at energy trading points to be able to buy at a predictable price.

Under a financial model, what you trade is basis (price differential)

Arne:
No residual congestion when we go to nodal pricing

→Scheduling coordinator must take risk if counter party doesn't stick with the counter-schedule deal.

- Results is a "private hedge"
- RTO is not in the middle of other parties' private hedging or "counter-scheduling" transactions.
- Need to make sure the math works – size, direction, time

  [FTOs have physical and financial direction]
- Simultaneous feasibility (revenue adequacy)