

RTO Car Talk – April 13, 2001

CONGESTION MANAGEMENT

This is the only subject under discussion right now. Two bare-bones models -- with variations -- are being studied. [Ed. note: I have no "ed. notes" in this issue, because all of this is just too horrible to contemplate.]

MODEL #1: The Flowpath Model

This is based on the physical flow of electrons, and is the model first presented in stage 1. Flow distribution factors (FDFs) are calculated by an engineering power flow analysis to determine what impact a given schedule on a flowpath will have on the entire transmission system. The sum of all incremental effects for all schedules on a flowpath will approximate the actual flow on that flowpath. The total of all rights to use the flowpath will be limited to the flowpath rating. The current model has 50+ flowpaths and associated congestion zones.

The basic features of this model are

1. A commercially significant set of flowpaths is defined which will minimize residual congestion. [OK, here's an ed. note on what I understand the meaning of "residual congestion" to be: Both the Flowpath and Contract Models are COMMERCIAL models. They are based on a PHYSICAL model that looks at the flow of electrons -- the physics of system operation. The content group is trying to figure out how to translate the physical model into a commercial model, i.e, how to collect money for and from the RTO and transmission users and owners. Residual congestion is thus the congestion that appears in the physical model, but is not dealt with in a commercial model -- so it is "residual".]
2. The FDFs associated with the identified flowpaths are calculated and released to all parties.
3. Firm Transmission Rights (FTRs) are issued periodically (annual, monthly, etc.) through an auction or allocation. (In a recent order responding to a Grid Florida filing, FERC leans toward allocating, rather than auctioning, FTRs.)
4. A Transmission Exchange is established which will facilitate a secondary market for trading FDFs/FTRs.
5. A "Use or Lose" feature is provided to limit FTR hoarding using recallable and non-firm transmission rights (RTRs and NTRs); if FTRs aren't scheduled, they will go into the day-ahead market for use by someone else as RTRs/NTRs.
6. Schedules submitted as set of Injections & Withdrawals, akin to POIs and PODs, which are accepted when the required FTRs are held per the applicable FDF.
7. RTO West clears residual congestion and allocates the cost to SCs. Details are still unavailable.

Variations include

**"Pre-bundled FTRs" or the "bouquet of FTRs" in which FTRs are grouped to coincide with major routes (such as all the rights to go from Colstrip to Seattle), and which can be unbundled in order for the holder to sell off in pieces and collect the revenues.

** Threshold Limits can be established so that a Scheduling Coordinator (SC) wanting to go from point A to point B, but lacking a minor component of that path, can submit the schedule and RTO West will gather the remaining daisy or two to make up the "FTR bouquet" (RTO West would provide minor components using secondary market purchase and/or re-dispatch offers). Minor component cost would be paid by SCs in cash or using financial rights. Exactly what the threshold limit is (do you need only 90% of the FTRs

from point A to point B to do the deal? All FTRs save 2-3MW regardless of the size of the deal?) hasn't yet been decided.

MODEL #2: The Contract Path Model

This model attempts to capture the basic idea of the physical rights model, but drastically reduces the number of flowpaths involved in the commercial transaction by assigning all FTRs necessary for a transaction to a single segment or set of segments from point A to point B. While the flowpath model acknowledges that several paths are affected by a transaction and flows on all paths are considered, the contact path ignores the smaller paths in favor of the dominant path so that the user isn't "chasing a dime with a dollar". Rights are needed on fewer paths to make a single schedule.

Most aspects of this model are similar to the flowpath model -- FDFs would be calculated from power flow studies, FTRs would be allocated based on those studies, FTRs/NTRs/RTRs could be traded through auctions and secondary markets, and unbundling for resale of portions of a path is possible. In effect, this model is basically the flowpath model with an extreme threshold (such as you need at least 60% of all FTRs on a path to do the deal), but with much less accuracy of the pure flowpath model. Accuracy is exchanged for simplicity, with residual congestion likely to be bigger (how much bigger is not known).

This model is currently used on the east side of RTO West where a few big lines carry most of the power. Most BPA transmission contracts do not have contract paths.

Congestion due to loopflow-driven overloads can be handled four ways: RTO can determine and set aside a percentage of the system (current practice is 10%) as transmission loading relief/capacity benefit margin (TLR/CBM); use phase shifters; curtail on a prorata basis; or purchase redispatch. Phase shifters, curtailment, and redispatch are part of the flowpath portfolio of tools for dealing with congestion.

Variations include a mix of the contract path model for the eastern side of RTO West (where there are a few dominant lines and contract paths are common) with the flowpath model for the western side (where there are many parallel paths and contract paths are not commonly used).

Both the models and the variations need work. Key questions: How is residual congestion managed and who pays? How does the model encourage new transmission and/or generation? How is hoarding of transmission addressed? How is market power (both monopolization of a transmission path and dominance of generation for use in redispatch) mitigated? How can the disconnect between congestion management and planning be fixed? (Re the last question, a subgroup suggests that the RTO should be responsible for transmission expansion projects within zones, while the market can take care of such projects on lines dividing zones. FERC's Grid South order said that an RTO should have a substantial planning function, which is not the case with RTO West at this point.)

APRIL 10 FERC MEETING IN BOISE

FERC sought the views of western states' representatives on western electric price volatility; a west-wide RTO; and generation and transmission infrastructure. The states' representatives unanimously opposed moving immediately to a west-wide RTO and supported moving forward with the regional RTO initiatives (RTO West and Desert Star) currently before FERC. In addition, the states' representatives urged FERC to issue orders on the RTO filings (e.g., RTO West).

The next chance for RTO West to be on FERC's agenda is April 25. If it is, then FERC could issue an order on April 25 or 26, in time for the 5/4 RRG mtg.