

A map of the Northeastern United States, including parts of Canada, is shown in the background. The region covered by the Northeast Power Conference (NPCC) is highlighted in red. The text "NPCC" is visible on the map. Other regions are colored blue and pink, with "MAAC" visible in the pink region.

Artifice or Reality: Pricing In the Eastern Interconnection

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McCullough Research Forecasting Philosophy

When Mr. Raccoon wanted to know how long the winter would last, he went to Mr. Hedge Hog. Mr. Hedge Hog explained that his approach was very scientific. He checked the coats on the forest animals and saw whether the moss was on the north or the south side of the trees. Most of all, he went to the edge of the forest to see how large the wood piles the humans had built.



The Robber Barons



JP Morgan



Samuel Insull



**There were a few ups and
downs**



Roosevelt steps in



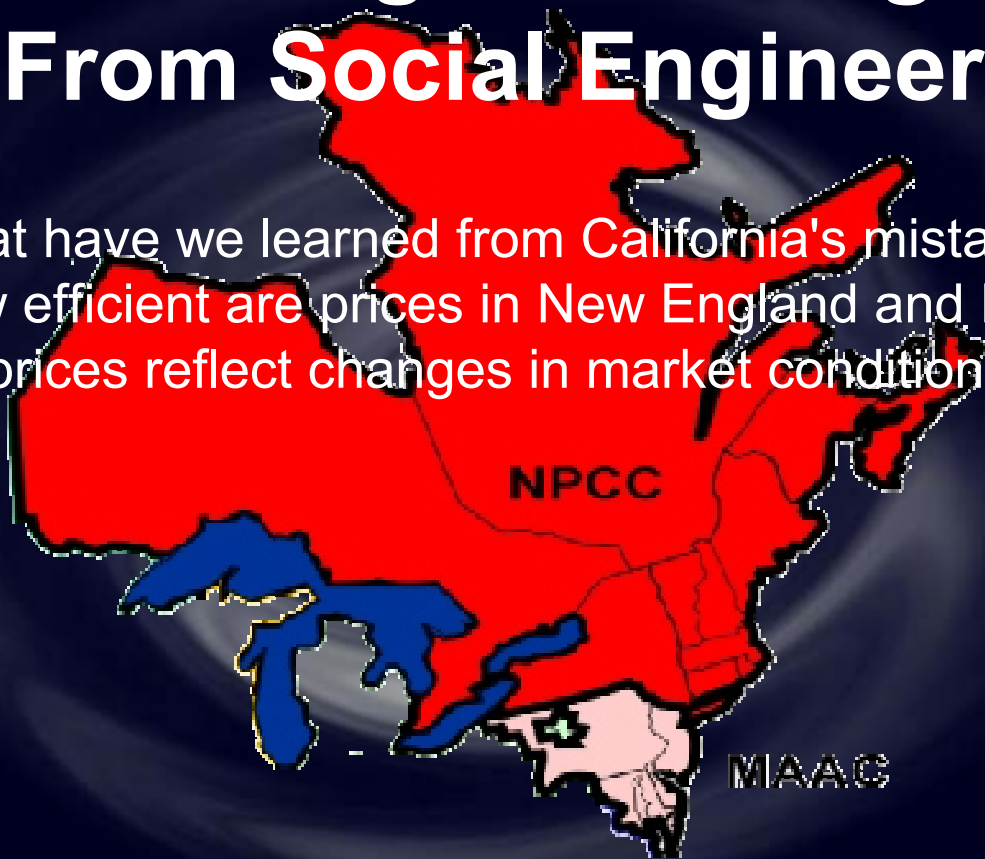
Artifice or Reality: Pricing In the Eastern Interconnection

- Filtering Market Signals From Social Engineering
- Revisiting The Contract Path Fallacy
- Loads and Resources
- Recent Developments
- Prospects and Suspicions



Filtering Market Signals From Social Engineering

- What have we learned from California's mistakes?
- How efficient are prices in New England and PJM?
- Do prices reflect changes in market conditions?

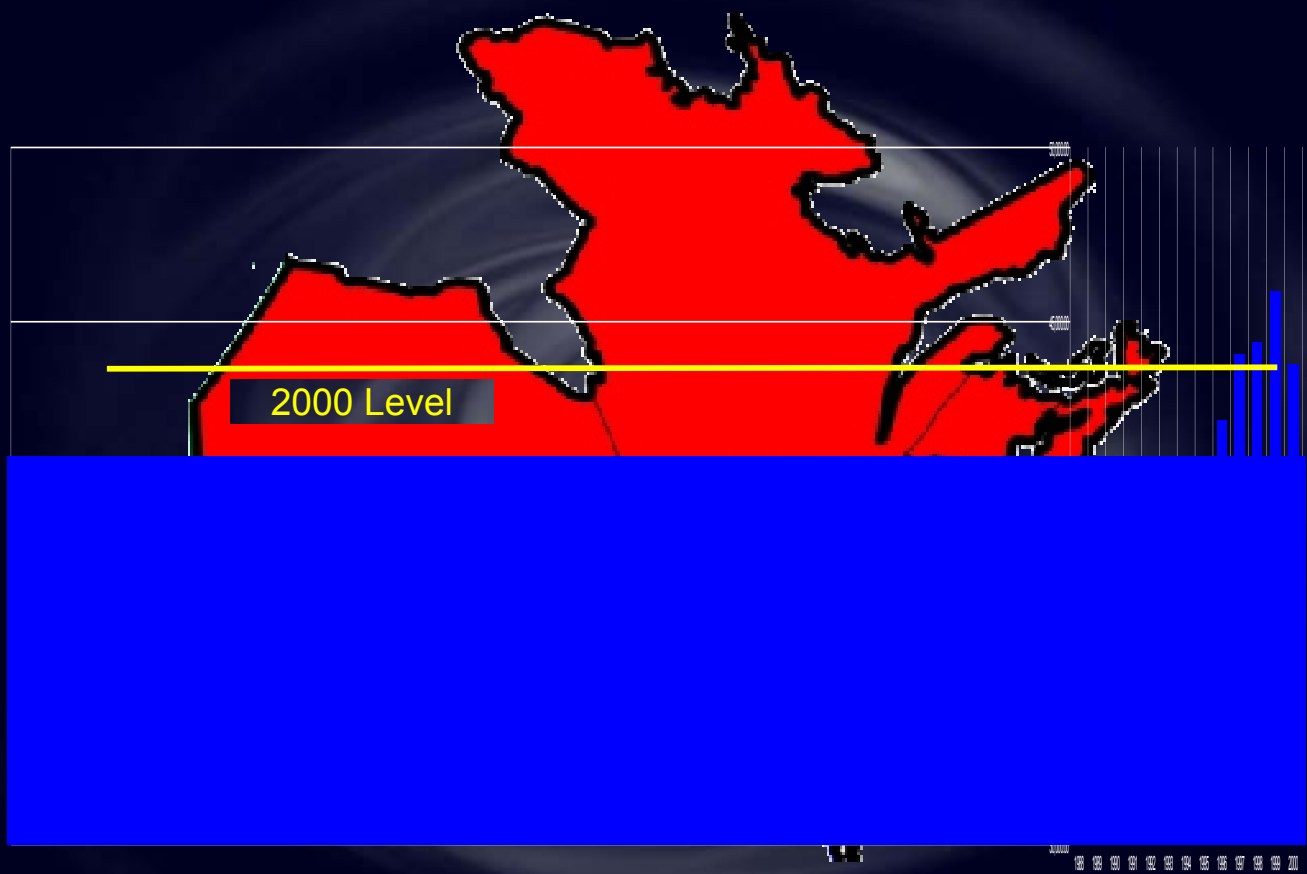


California's Mistakes

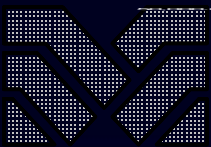
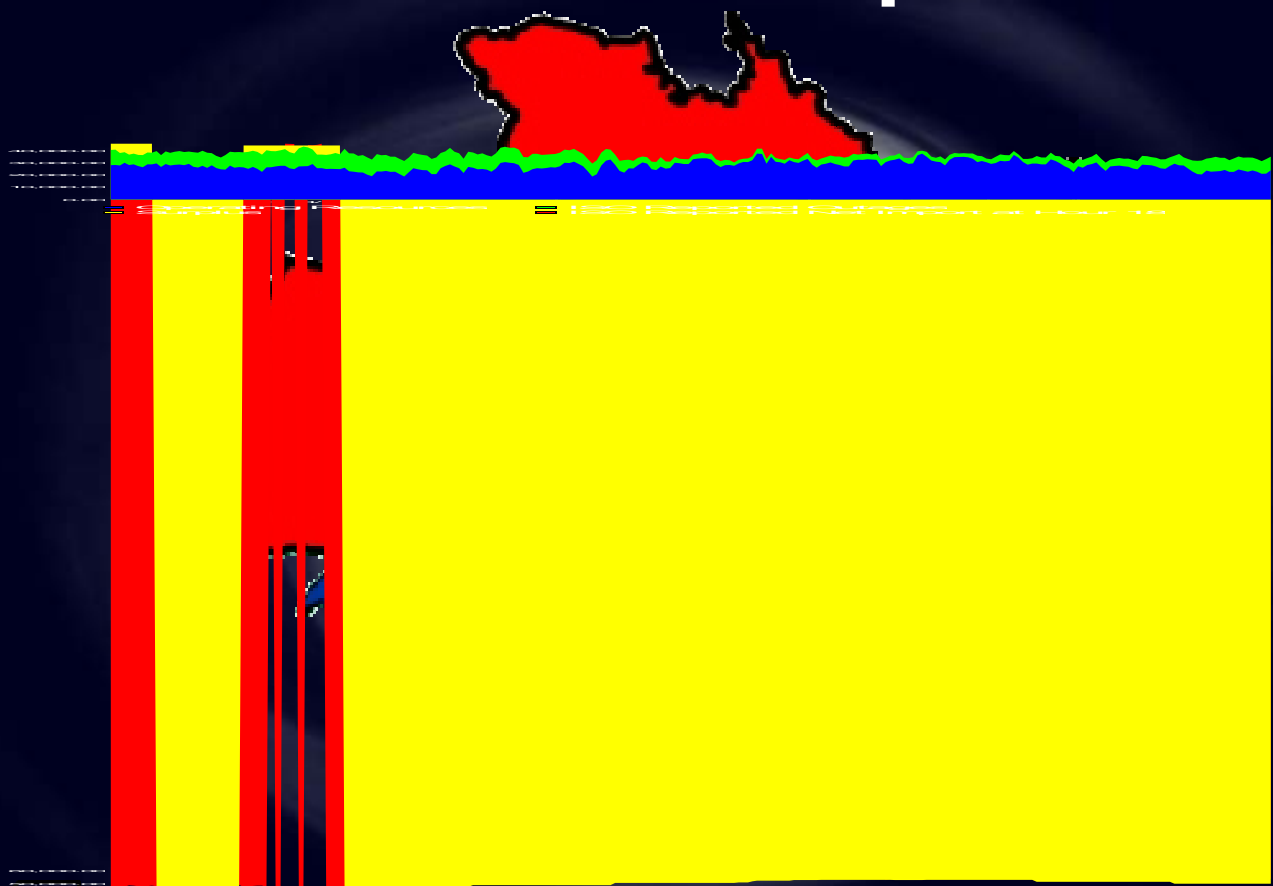
- Since May 2000, we have seen long term prices far more sensitive to administrative changes -- primarily FERC decisions than fundamentals
- Overall pricing has been very inefficient in the sense that we see major swings unrelated to the supply demand balance



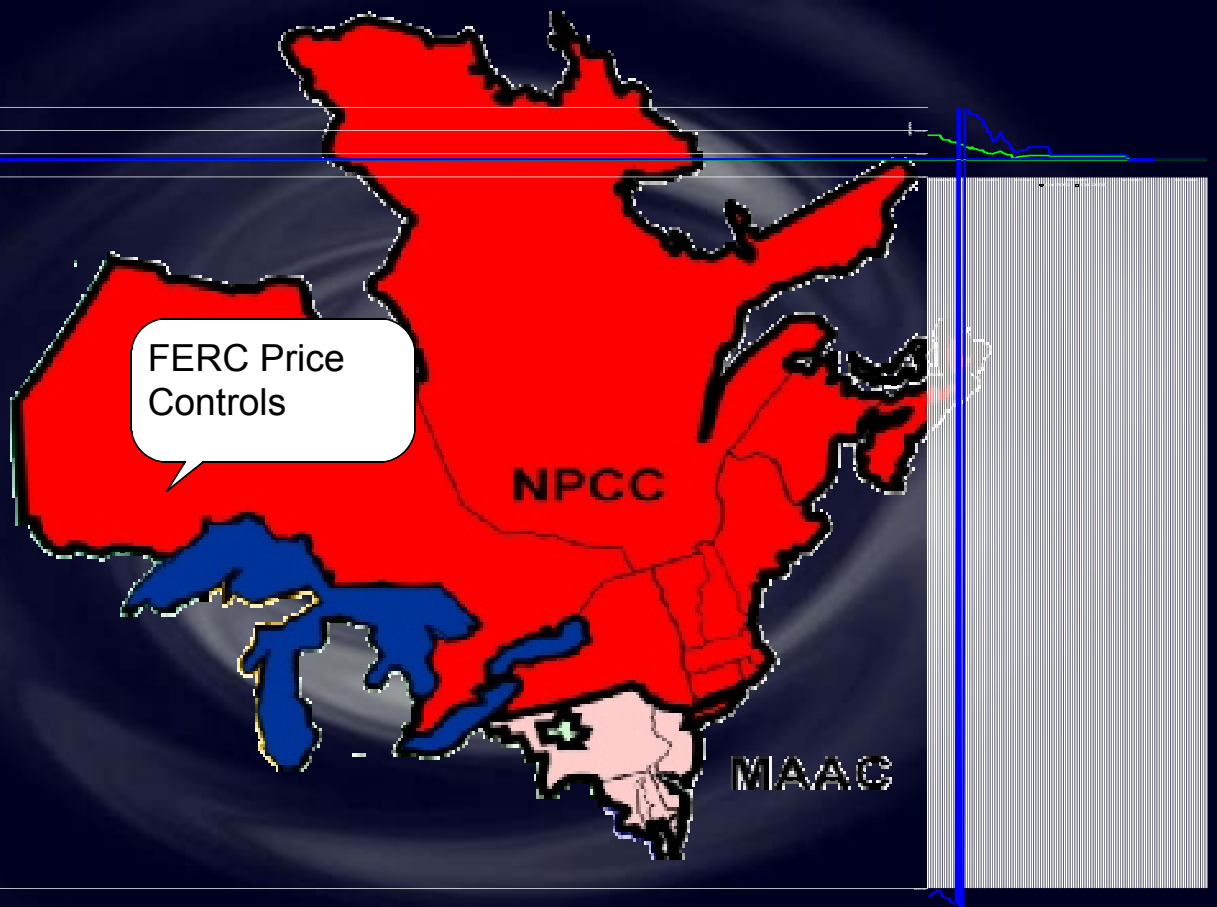
California ISO Peak Loads



Actual ISO Operations



COB Futures Markets



Derating California

- In 1997, California peak loads were higher and resources were less than in 2000
- Notwithstanding, the ISO believes that it was capacity constrained in 2000
- The primary reasons turn out to be failures in the ISO modeling and dispatch
 - ISO procedures derate capacity resources by 2,999 MW due to communication problems
 - ISO transmission dispatch is highly questionable -- Path 15 is often constrained even when the intertie is unloaded

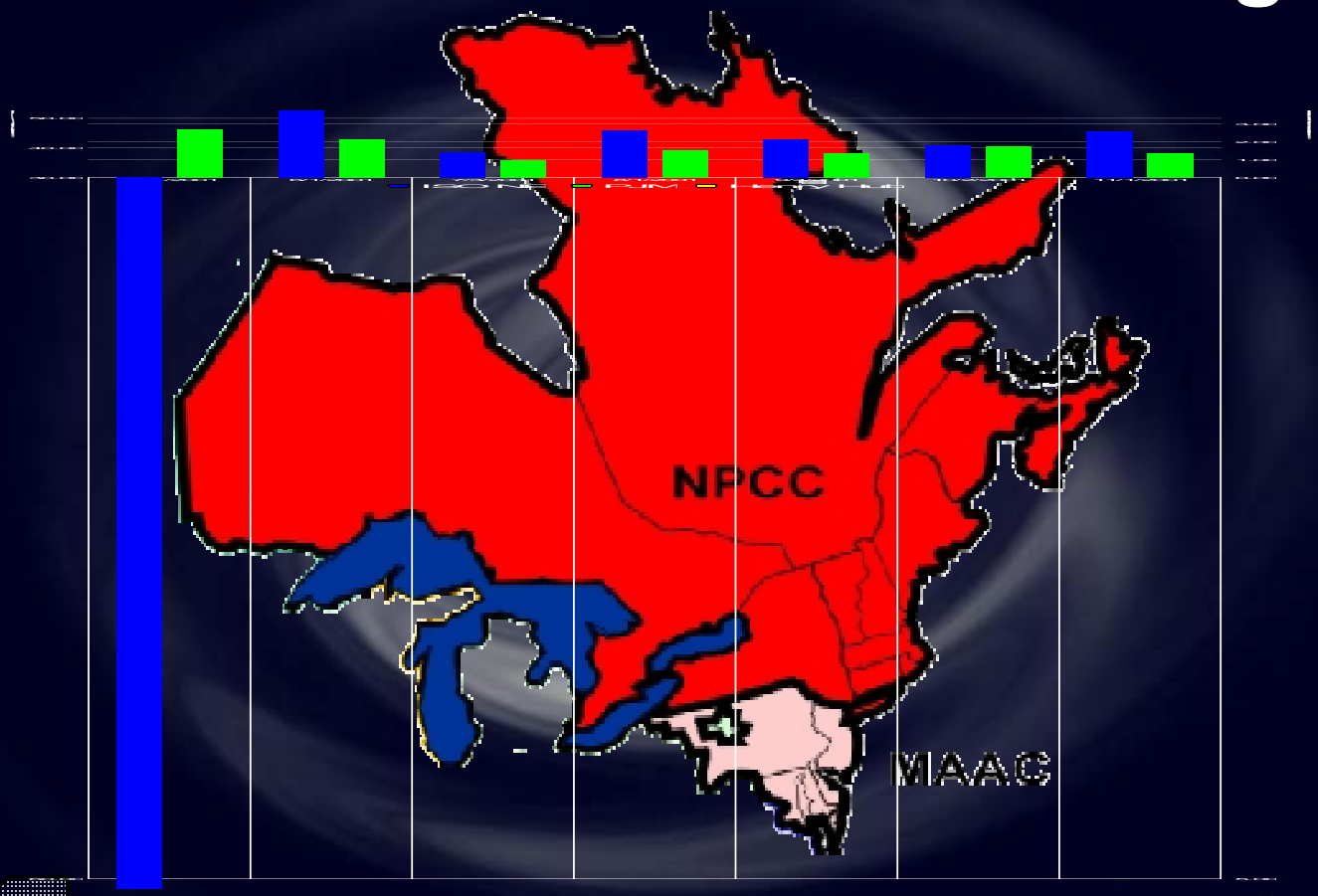


Eastern Interconnection

- We see similar problems with ISO NE and PJM
- Contrary to FERC's misconceptions, ISO NE makes more sense than PJM
- Neither market reflects supply information very efficiently

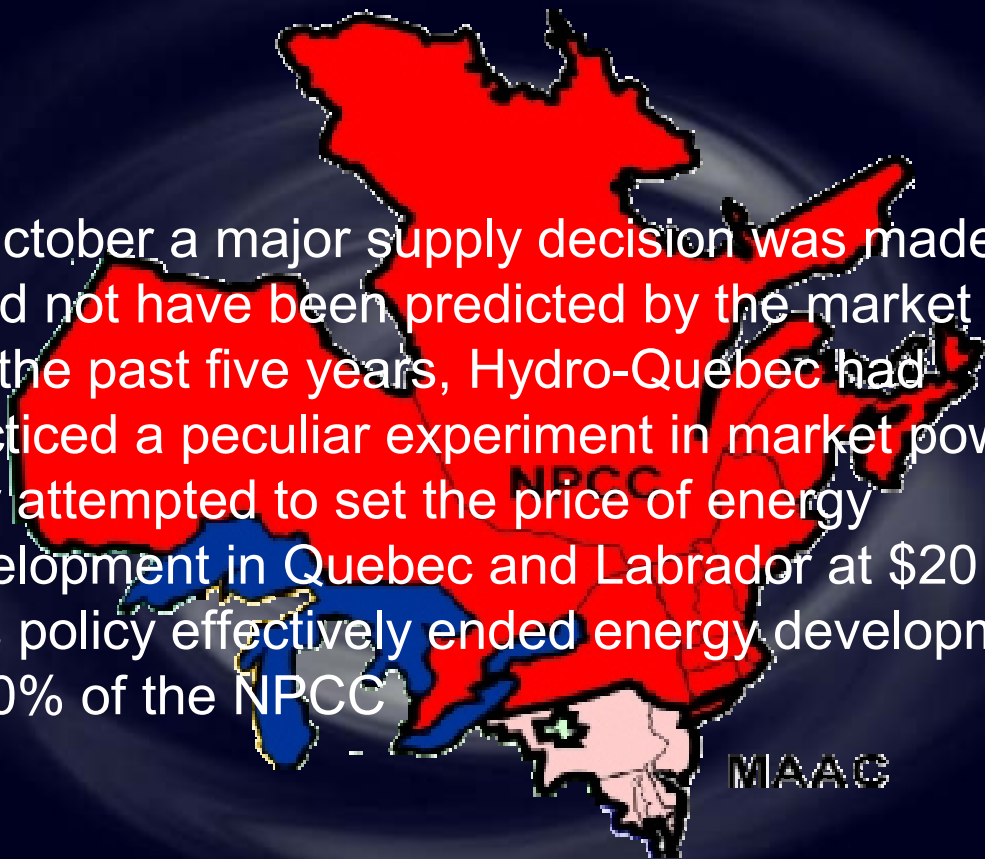


PJM and ISO NE Pricing

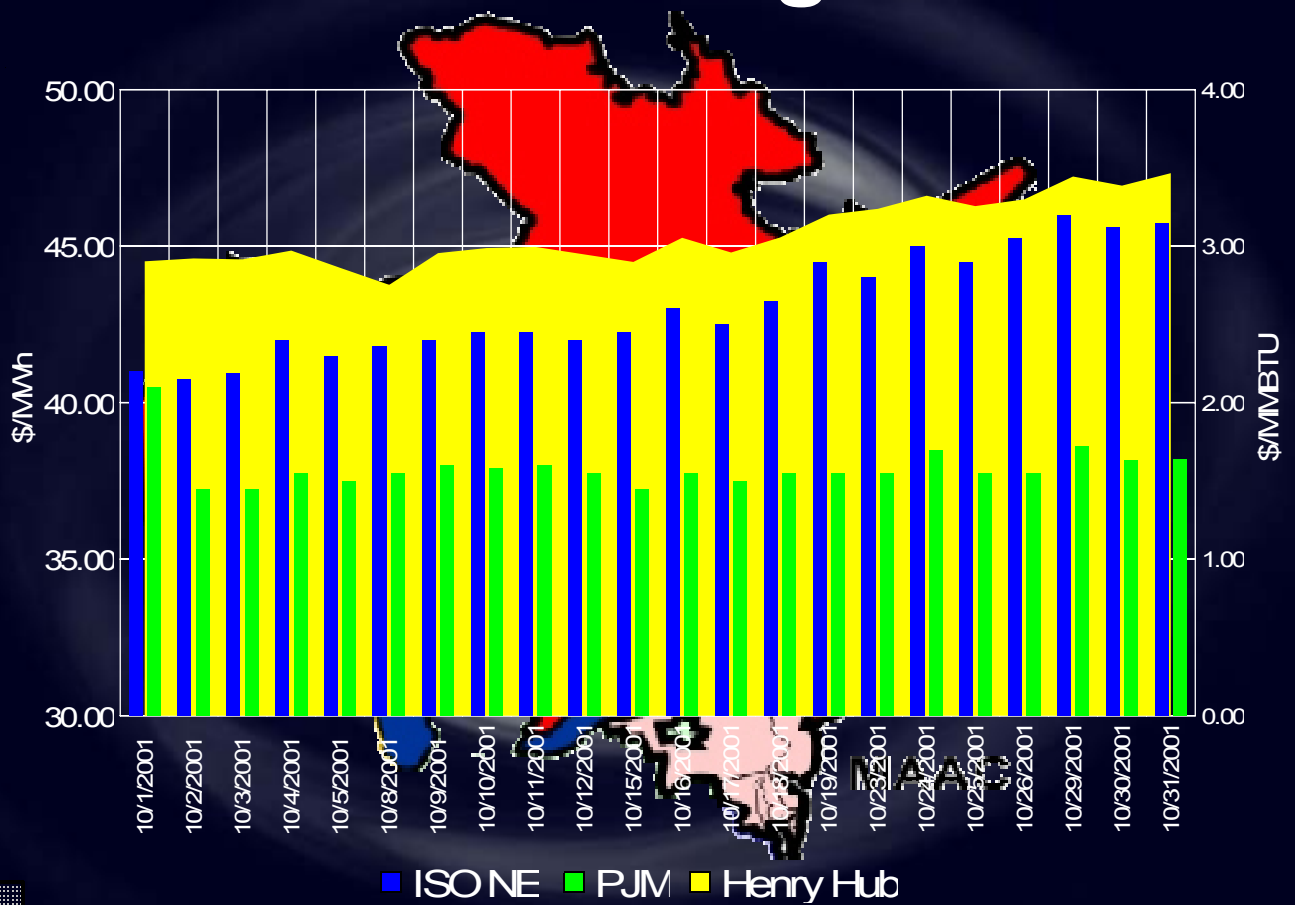


October 2001

- In October a major supply decision was made that could not have been predicted by the market
- For the past five years, Hydro-Quebec had practiced a peculiar experiment in market power: they attempted to set the price of energy development in Quebec and Labrador at \$20 U.S.
- This policy effectively ended energy development in 30% of the NPCC

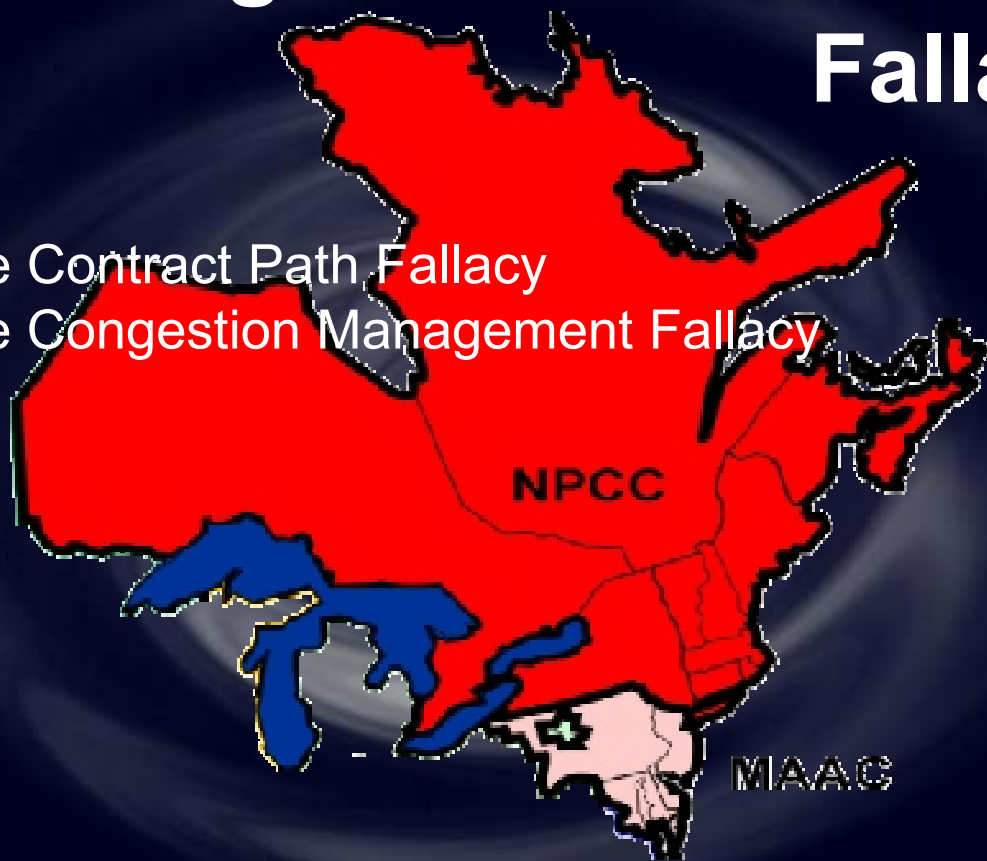


October Pricing For 2003



Revisiting The Contract Path Fallacy

- The Contract Path Fallacy
- The Congestion Management Fallacy



The Contract Path Fallacy

- Everyone is familiar with the appalling poor fit between contract paths and actual transmission constraints
- Our traditional approach is to operate the system, make judgments concerning transfer capabilities, and fit contract paths into this limit
- While low tech, the approach had the merit that actual capabilities were a part of the process



Upping The Ante -- The Congestion Pricing Fallacy

- The various ISO/RTO implementations have effectively reduced the operational basis in favor of arbitrary models
- We are familiar with the substantial derating of the system by the California ISO, but we have a less precise understanding of the problems this approach may be causing elsewhere



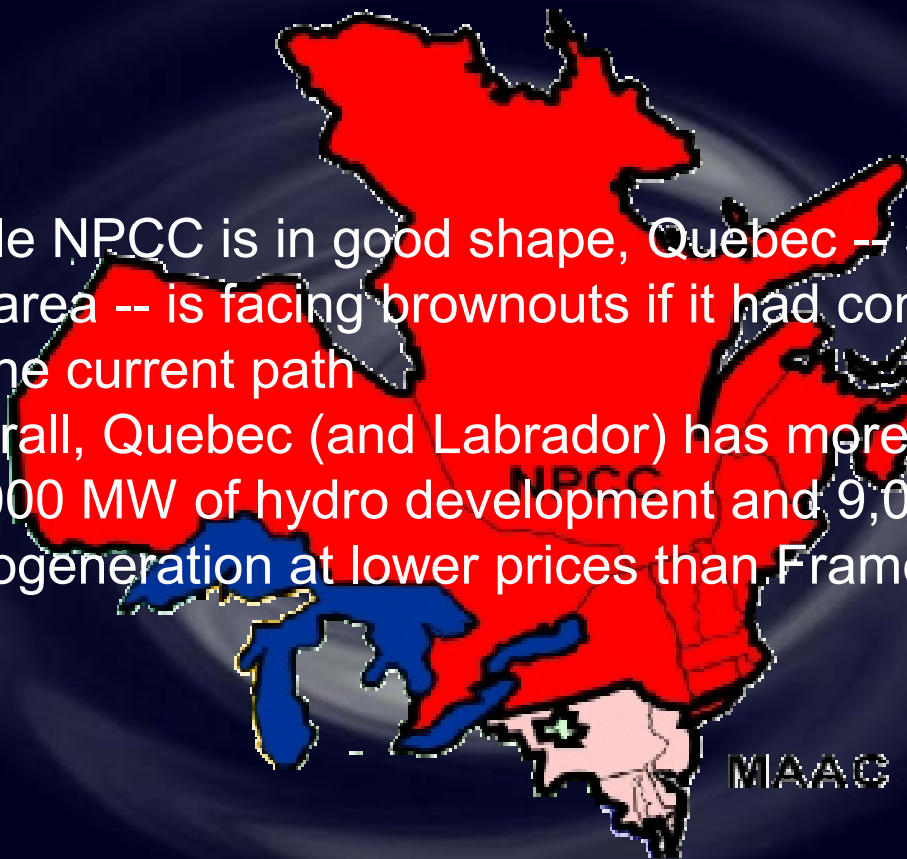
Does Congestion Pricing Cause Congestion?

- The lesson from California is that it does
- Expansion of that lesson to other regions is difficult without the massive amount of data we now have on California operations
- The problem is caused by the complexity of the congestion management process
 - Adjustment bids in California routinely fail to materialize
 - Anecdotal evidence indicates that this is the rule rather than the exception.

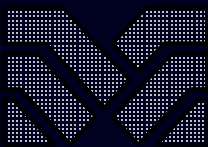
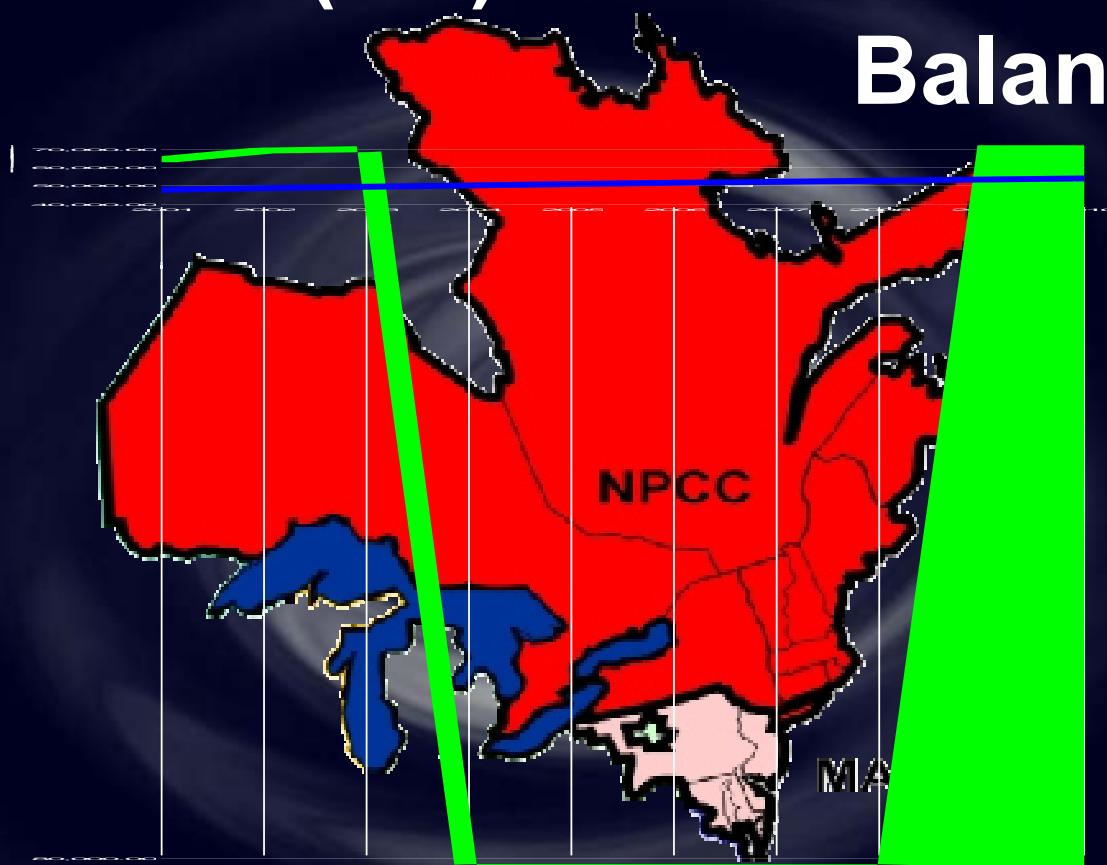


Loads and Resources

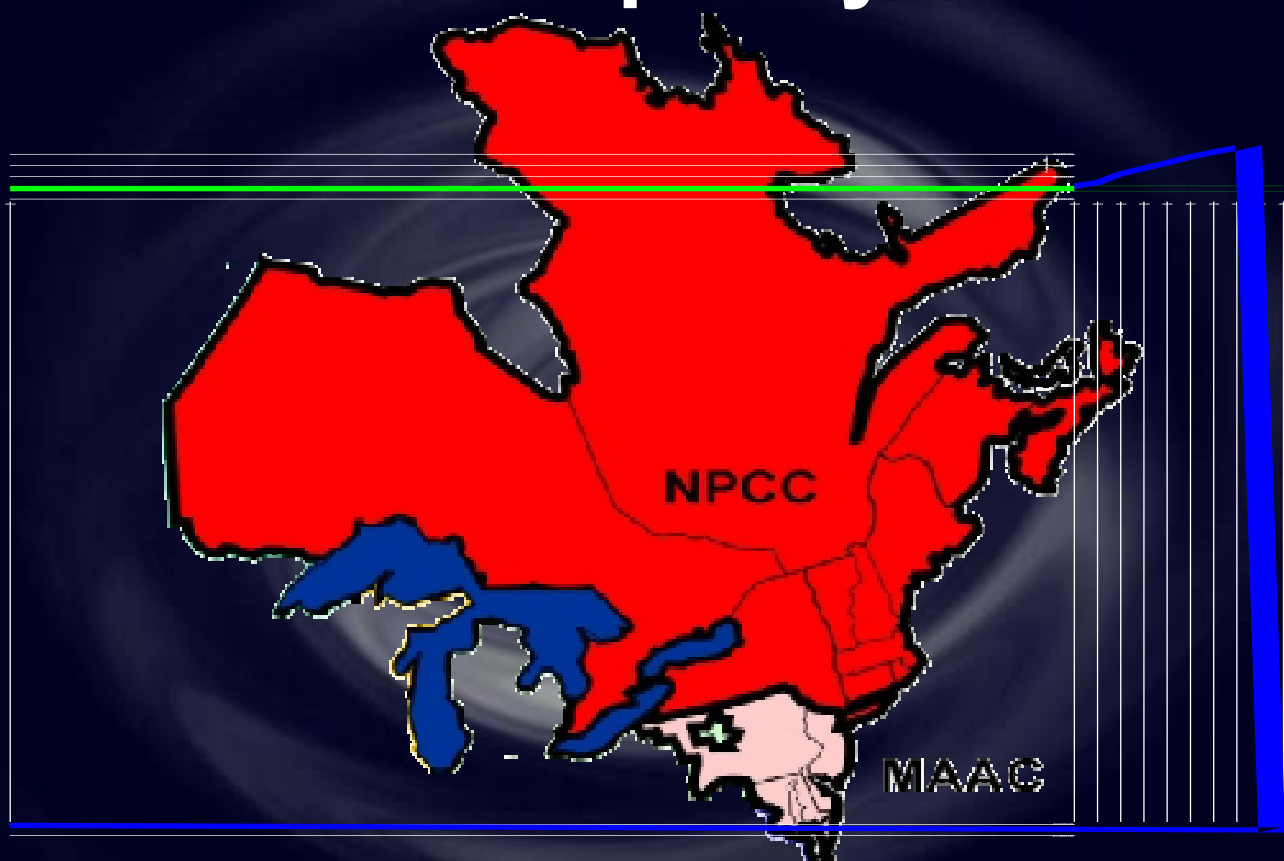
- While NPCC is in good shape, Quebec -- 30% of the area -- is facing brownouts if it had continued on the current path
- Overall, Quebec (and Labrador) has more than 20,000 MW of hydro development and 9,000 MW of cogeneration at lower prices than Frame 7



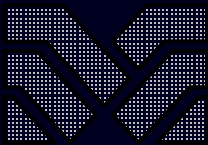
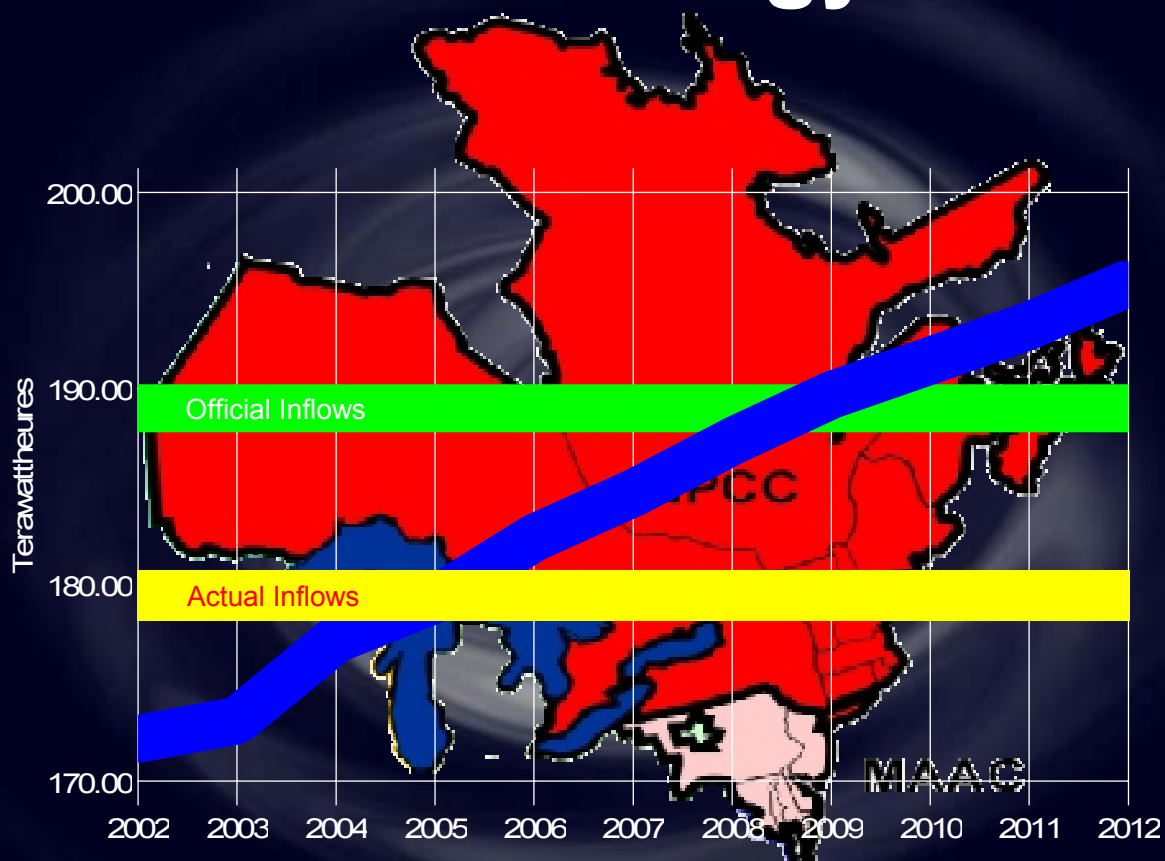
NPCC (US) Load Resource Balance



Quebec Capacity Balance



Quebec Energy Balance

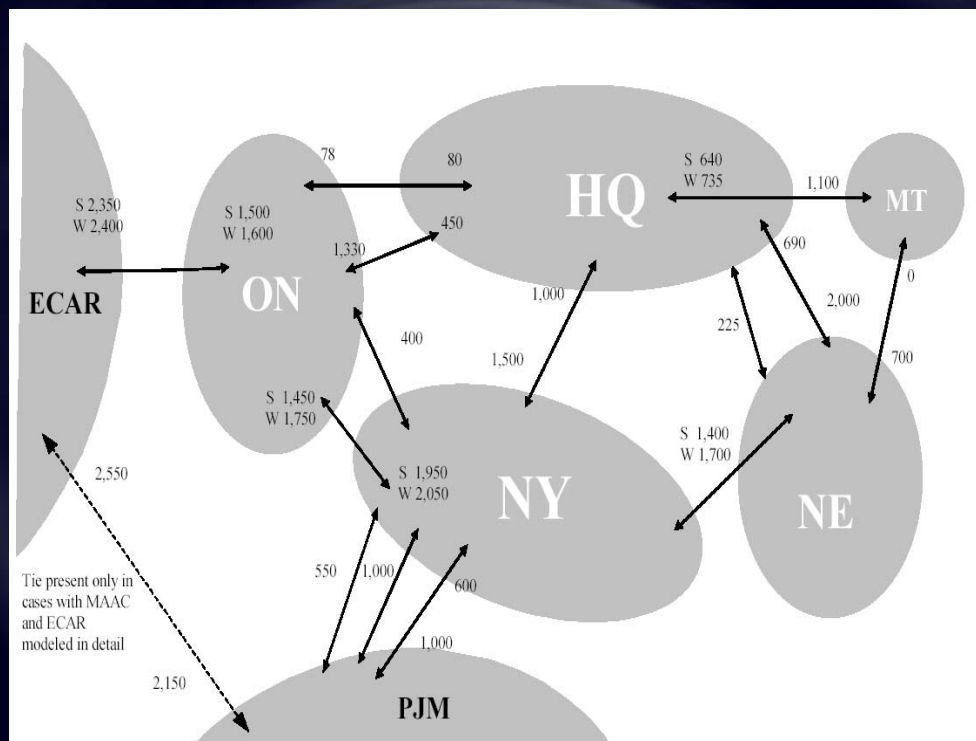


Recent Developments

- NPCC had two major development in the past two months
 - Premier Landry overruled Hydro-Quebec's resource strategy
 - ALJ Young's "Business Plan" for the Northwest RTO was released
- Last Wednesday, FERC blinked



NPCC/PJM Map



NPCC/PJM Developments

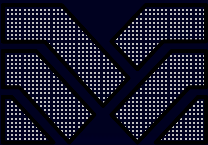
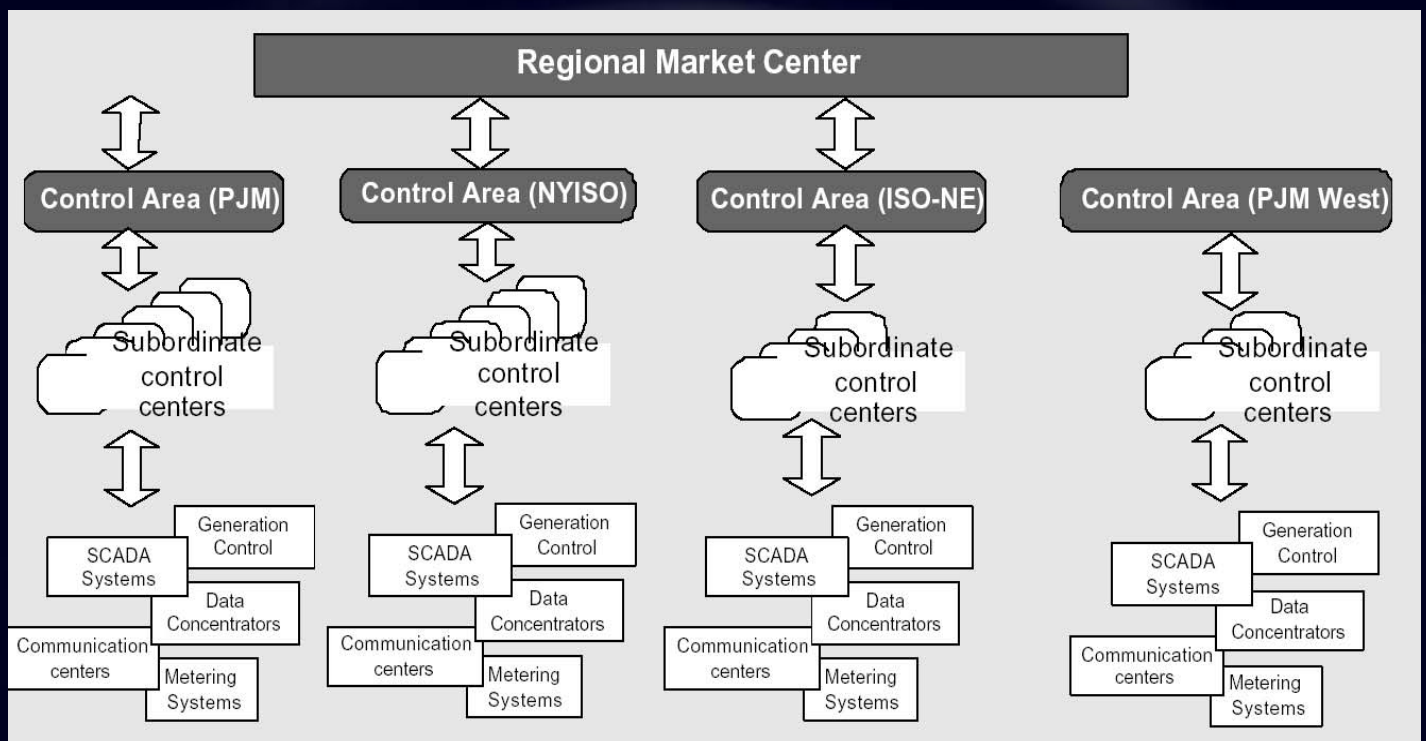
- FERC had announced a rapid evolution of the New York ISO, ISO New England, PJM, and PJM West into a single ISO
- As a critical step, all of the stakeholders were invited to a mediation with 400 participants
- As a result of the mediation, ALJ Young released a proposed business plan



Northeast Mediation



ALJ Young's Business Plan



New York ISO/Mirant Dialog

- On September 1st, Mirant placed an article in the Fortnightly arguing that integrating the four ISOs would add \$400 million in efficiency a year
 - Fixing the "seams" between small ISOs doesn't fix the problems. Only one Northeast market with central scheduling, governance, market monitoring, planning and reliability rules could generate \$400 million annually of regional efficiencies in energy markets. This estimate is based on looking at flows between New York and PJM and New York and New England from June 2000 to December 2000, during periods without binding transmission constraints, and "re-dispatching" generation among the regions-still within transmission limits-to increase imports into the higher cost region. In other words, trade patterns are rationalized when ISO rules, not transmission constraints, impeded the efficient flow of electricity that could have lowered consumer electricity bills, especially in New York.

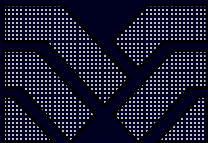


NY ISO's Response

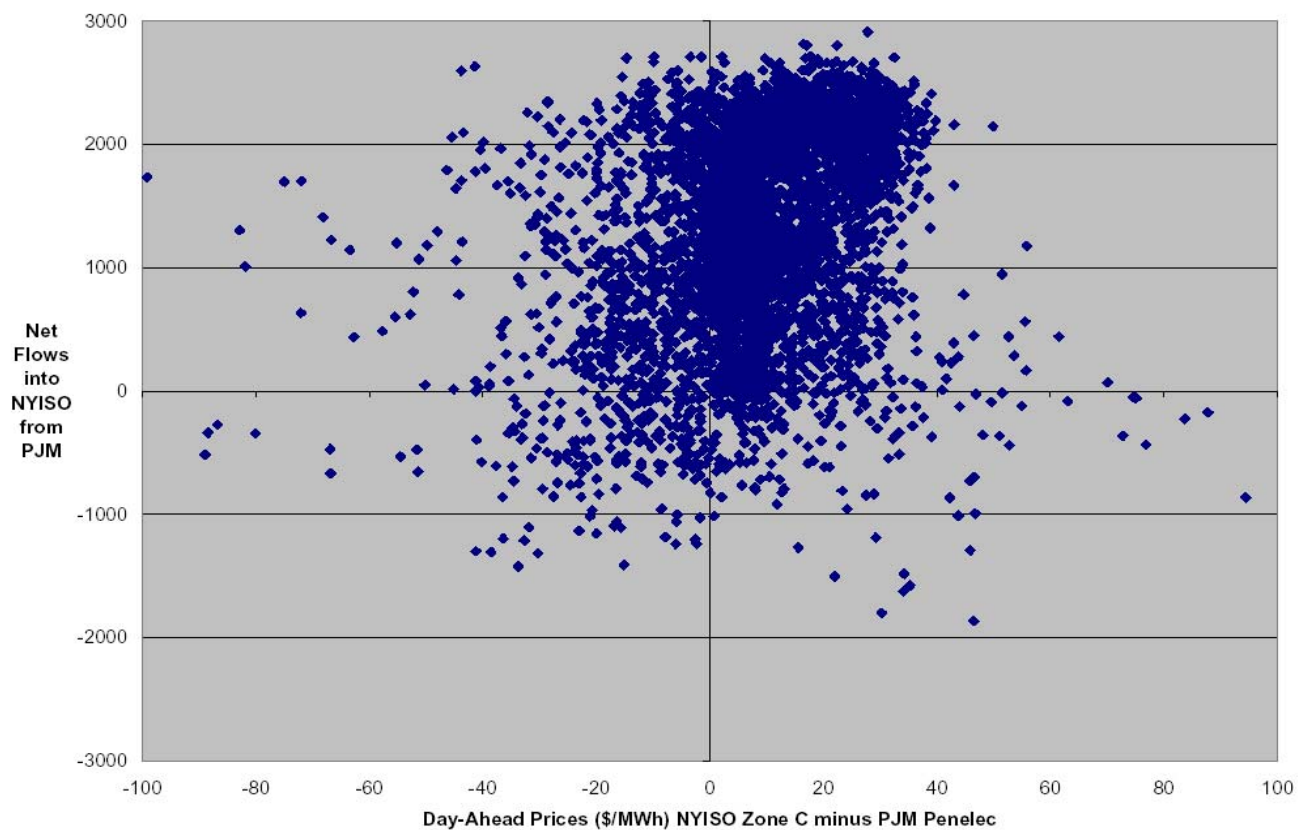
- NY ISO responded:

First, the EEA analysis of energy flows between New York and PJM inappropriately compared day-ahead prices to real-time energy flows. If the EEA methodology is applied to real-time prices and real-time flows between PJM and New York over the post-ECA-B period, October 11, 2000 to August 31, 2001 (a longer and more recent period than that analyzed by EEA), the estimated price impact of implementing interregional real-time dispatch would be to significantly reduce PJM prices, but to either have little effect on or to actually increase New York prices. Moreover, this finding appears to be relatively insensitive to different assumptions about the slope of the New York supply curve.

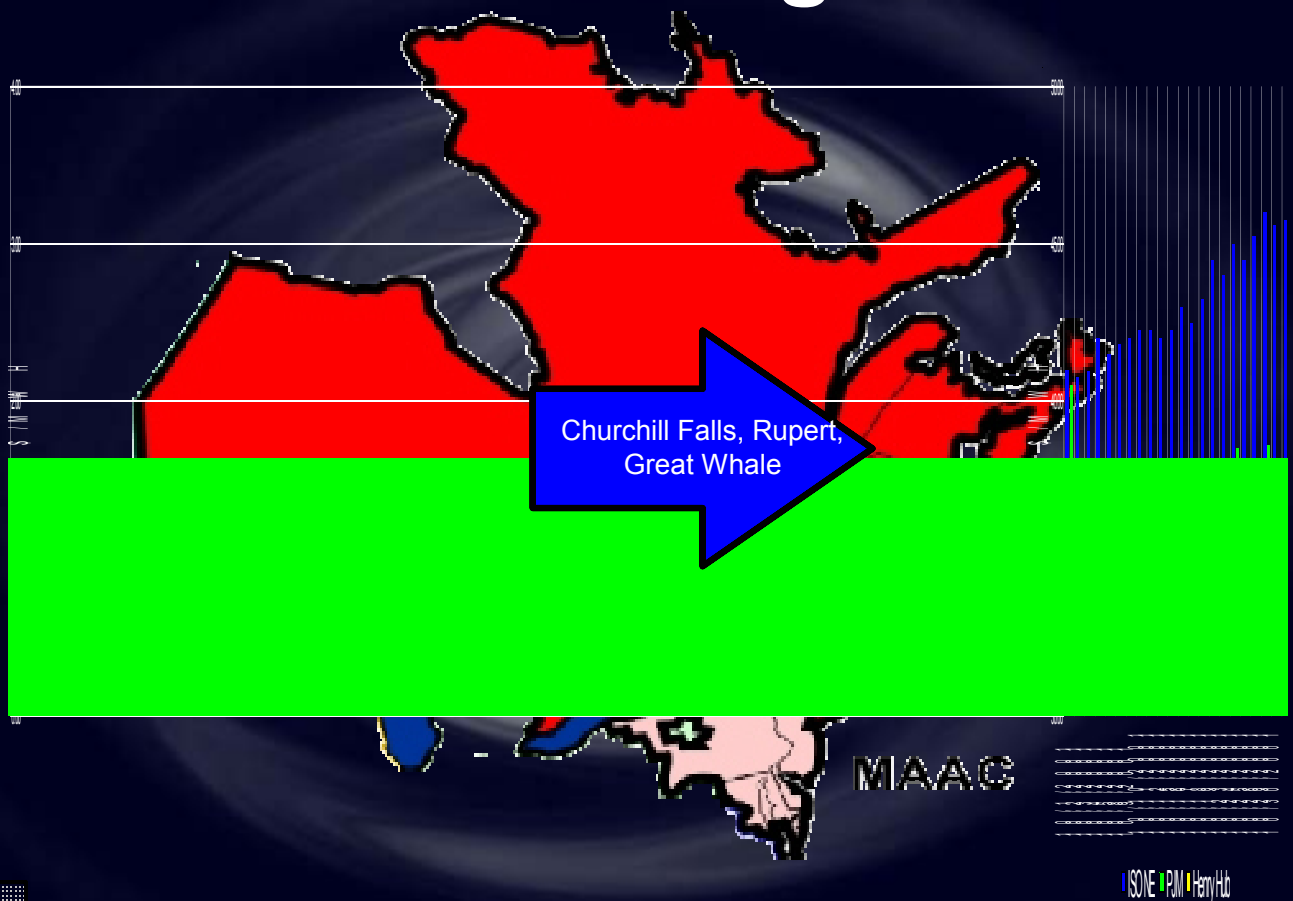
- Second, it is noteworthy that most of the estimated potential gains from implementing interregional real-time dispatch between New York and PJM arise from the elimination of uneconomic flows from PJM to New York. This is why the price impact gains are concentrated in PJM, as the elimination of these flows would lower PJM prices and raise New York prices. It is striking that over the October 11, 2000 to August 31, 2001 period, there were net real-time energy flows into New York in over 95 percent of the hours in which such flows would have been economic based on the criteria employed by EEA, but there were net real-time energy flows into PJM in only a little over 8 percent of the hours in which such flows would have been economic based on the criteria employed by EEA.



Net Flows Versus Price Differential



October Pricing For 2003



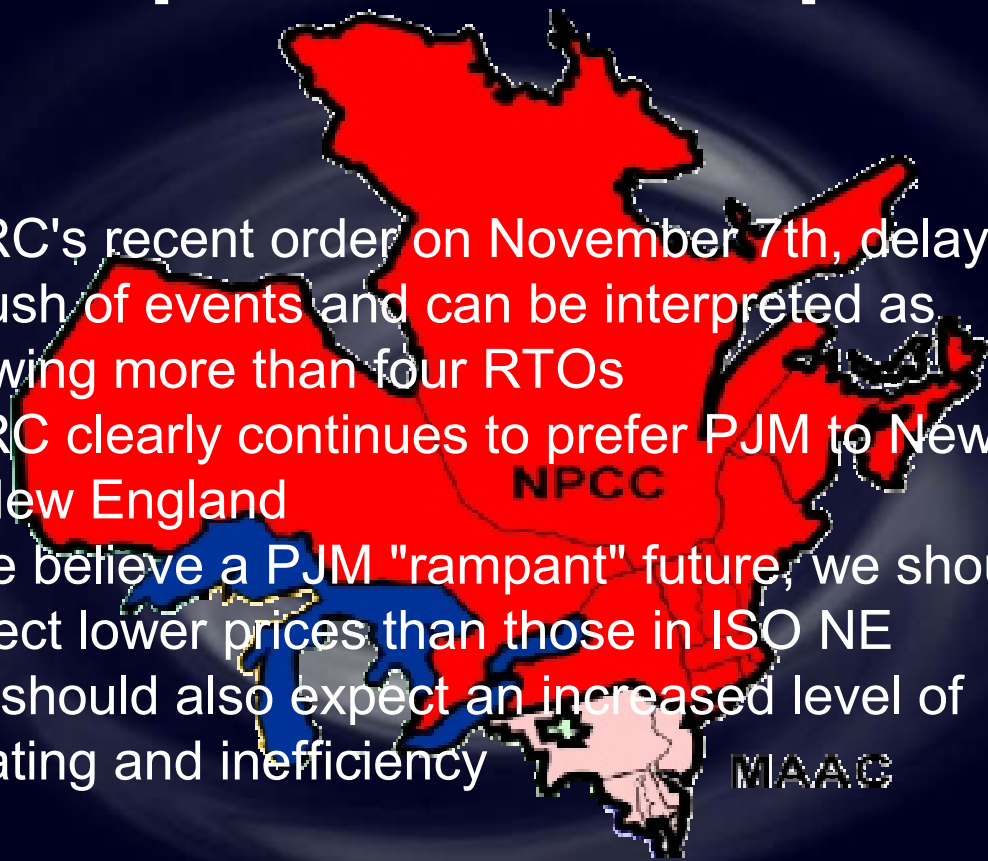
Last Wednesday FERC Blinked

In recognition of the fact that RTO development is in very different stages in various parts of the country and that it is not possible for all RTOs to be in operation by the December 15, 2001 deadline established in Order No. 2000, we intend to address in our future orders the establishment of a progressive, but appropriately measured, timeline for continuing RTO progress in each general region.



Prospects and Suspicions

- FERC's recent order on November 7th, delays the onrush of events and can be interpreted as allowing more than four RTOs
- FERC clearly continues to prefer PJM to New York or New England
- If we believe a PJM "rampant" future, we should expect lower prices than those in ISO NE
- We should also expect an increased level of derating and inefficiency





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