

# Too Big to Fail? PJM at Thirty Years

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# The Parable of the Emperor's New-Old Clothes

- Few of us clearly remember our childhood lessons but the Emperor's Clothes are increasingly important
- The gist of the story is that lobbyists convinced the emperor that his beautiful outfit could not be seen by fools
- A child saw through the deception and everyone was relieved that they were not all fools, but the parable doesn't end there.

**"But he hasn't got anything on!" the whole town cried out at last.**

**The Emperor shivered, for he suspected they were right. But he thought, "This procession has got to go on." So he walked more proudly than ever, as his noblemen held high the train that wasn't there at all."**

A woman with dark hair, wearing a white top, is speaking at a wooden podium. Behind her is a large American flag on the left and the official seal of the Federal Energy Regulatory Commission (FERC) on the right. The seal features an eagle with wings spread, holding a shield, and the text "DEPARTMENT OF ENERGY" and "FEDERAL ENERGY REGULATORY COMMISSION".

On April 13, 2026 the chairman of FERC commented that “PJM Interconnection may be “too big to function”

- It might surprise some to find that as PJM is reaching its thirtieth year as an organized market that it doesn’t function well.
- Actually, it is working worse over time as its markets are reaching are being replaced by ad hoc patches.
- I am focusing on PJM’s capacity markets because they have become a form of opera bouffe with wild gyrations, massive market power, balkanization, and missing documentation.
- Each new “fix” has made the problems worse.

# Why is this relevant to us?

- PacifiCorp has joined the California ISO's day ahead administered market
- BPA is likely to join as well.
- Thirty years of data shows that joining an ISO has increased market prices and consumer prices.
- Simultaneously, the flagship of the ISO movement is mired in problems – and FERC has announced a session to figure out what has gone wrong.
- So, this is a cautionary tale. Where I, a small child, is questioning how sensible this is.

# A Brief History of Electric Markets

- Wholesale electric markets were pioneered here in Portland in the 1980s.
- FERC allowed a limited experiment in 1987 and issued a permanent in 1991.
- Not surprisingly, market prices fell dramatically.
- In the mid-1990s, the California ISO conducted a long series of hearings to “design” the new markets with an astonishingly complex version of the Pacific Northwest’s open outcry market
- Representing a number of utilities and industries I opposed the Rube Goldberg creation and was soundly defeated.

# Paul Samuelson's Five Laws of Perfect Competition

## 1. Many Buyers and Sellers

There are a large number of buyers and sellers in the market, each of whom is small relative to the market as a whole. No single buyer or seller can influence the market price – they are **price takers**.

## 2. Homogeneous (Identical) Products

All firms produce identical or perfectly substitutable goods. Consumers have no preference for one seller's product over another, so there is no product differentiation.

## 3. Free Entry and Exit

Firms can enter or exit the market without significant barriers. This ensures that in the long run, economic profits are driven to zero, as new firms enter when profits are high and exit when they are low.

## 4. Perfect Information

Both buyers and sellers have complete and accurate information about prices, product quality, and market conditions. This eliminates information asymmetries that could distort competition.

## 5. No Government Intervention

The market operates without government regulation or interference. Prices are determined solely by the forces of supply and demand in the absence of external controls.

# Electricity is actually an excellent environment for perfect competition

1. Many buyers and sellers – especially in the Pacific Northwest.
2. Few things are more homogeneous than an electron.
3. Free entry and exit – largely defined by transmission access and assured by FERC Order 888 – BPA had served much the same role in the Pacific Northwest.
4. Perfect information was assured by ample rules and regulations
5. Little governmental intervention in open outcry markets

# Attack of the Killer Tomatoes

- Steve Peace co-produced the film and was the major actor in AB-1890 which implemented the concepts debated at the California PUC.
- What did he get wrong?
- Primarily, he violated all five of Samuelson's laws to varying degrees:
  1. He established two governmental entities to dominate the markets.
  2. A complex skein of products replaced the relative simplicity of the existing competitive market.
  3. Entry and exit became very complicated and expensive.
  4. **Transparency was rejected in favor of a highly opaque market.**
  5. The “market” had a very high degree of governmental intervention.

# There are mistakes so evocative that they are repeated again and again

- In the case of the “Killer Tomatoes” model of competition other states and regions to erect their own complex administered markets.
- Central to the process is an unproved but widely accepted theory that transparency favors collusion. Simply put, when the streetlights are removed the muggers and thieves go home early.
- As Enron and quite a few other firms have proved, this is not the case.
- So why has the “Killer Tomatoes” model both expanded and disappointed at the same time?

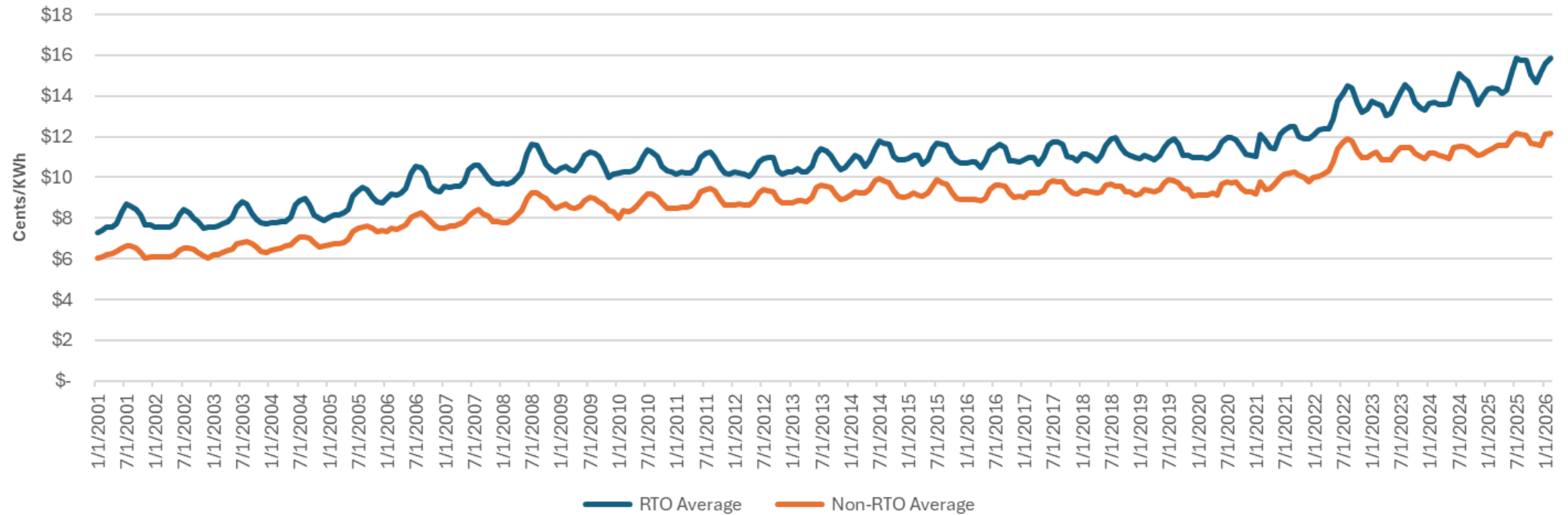
# Expansion and Disappointment

- The gatefold paper effect explains the expansion – how could one resist billion dollar computer investments that produced reams of output?
- For fourteen months in 2000-2001, the California model basically imploded with collusion and manipulation taking home billions.
- Similar events to lesser degrees have afflicted ERCOT, MISO, PJM, and the New York ISO.
- Mr. 990.01 in Texas is a case in point. He bid 1 MW at certain hours when a glitch in the ISO algorithms would allow him to set the price for the whole state. His prescience was impressive – he generally only bid when the algorithm would trigger. He disappeared soon after the WSJ publicized his predations.
- Curiously, the rest of the energy business still operates on the more efficient open outcry model

# RTO and Non-RTO Rates

## RTO and Non-RTO Electric Rates

Source: Table 5.6.A  
EIA Electric Power Monthly



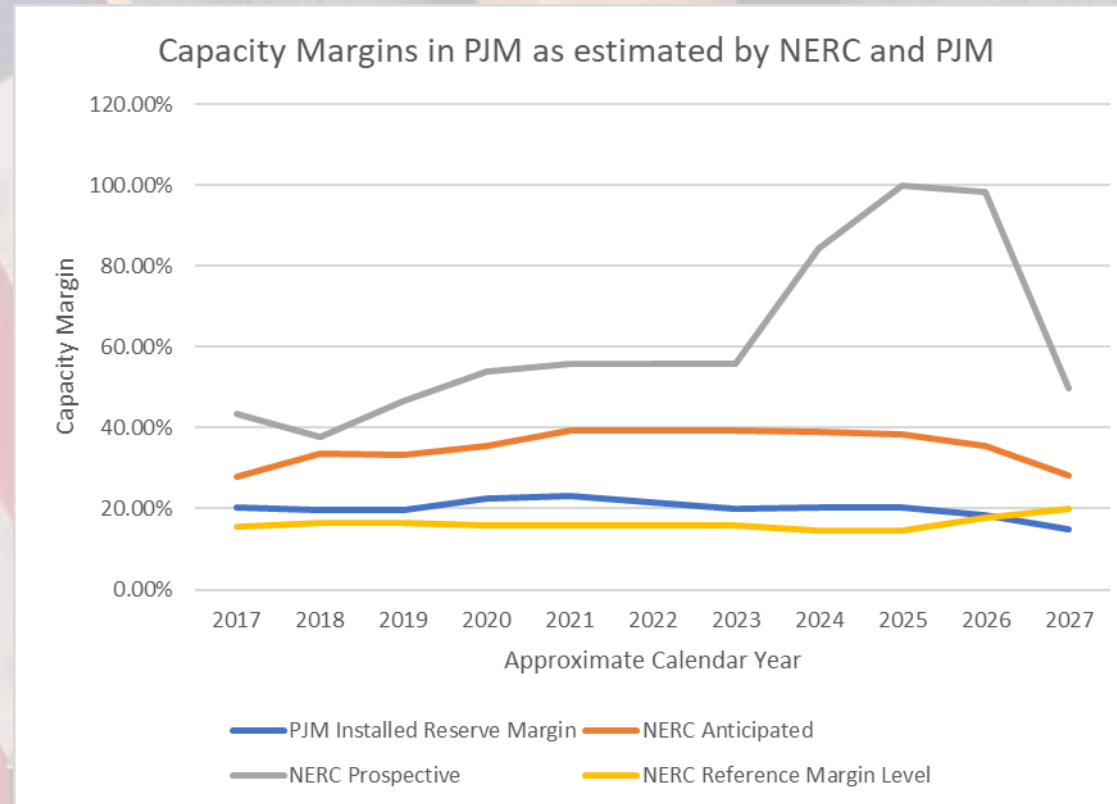
# Let's return to PJM

- PJM has allowed their market to Balkanize to accentuate local market power.
- Years of ad hoc adjustments have created a virtually opaque set of calculations.
- PJM's basic capacity model is based on computer code that rejected Marshallian supply and demand. Instead of allowing the supply curve to cross the demand curve the model follows the Lego model and assembles the most pleasing combination of Lego bricks that perfectly meet the demand curve – even if this abandons merit order.
- The documentation of the model has been lost. Major market participants have reverse engineered the algorithm – as we have – and can set prices at will.

# PJM and NERC

- F. Scott Fitzgerald once remarked that “The test of a first-rate intelligence is the ability to hold two opposed ideas in mind at the same time and still retain the ability to function.”
- The annual auction at PJM and the contemporaneous NERC Long Term Reliability Assessments diverge wildly every year.
- Currently, PJM is either massively surplus or about to face serious reliability problems.
- Luckily, no one seems very worried that the pricing model gives inconsistent results when compared to NERC studies.

IN PJM, 2027 will bring either surplus or deficit:  
NERC indicates a 49.9% prospective reserve  
margin and PJM's auction shows a 14.9% margin



# How do we stack up next to PJM?

- A full west side market would encompass 1,800,000 square miles over parts of three countries. PJM is smaller 369,000 square miles with a major island in northern Illinois.
- PJM's capacity is smaller with 199 terawatts to the WECC's 329 terawatts.
- The WECC has approximately 25% hydroelectric capacity and PJM has virtually none.
- If PJM has failed to manage effectively over a smaller area, with less capacity, and a vastly simpler system, is this as easy as it is depicted?

# Takeaways

- The poster child of the RTO movement has blemishes – serious blemishes.
- FERC has noticed and is considering steps to break this large RTO into component parts.
- RTOs, generally, have neither provided reliability or cost reductions – even after thirty years.
- We are facing enormous pressure to join an even larger, more complex, and geographically diverse RTO.
- Perhaps a more thorough analysis is needed . . .

# Thank you!

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