

McCULLOUGH RESEARCH

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To: McCullough Research Clients

From: Robert McCullough
Heidi Schramm

Subject: **March 2008 Update**
Why Are Electricity Prices in RTOs Increasingly Expensive?

For the last two years we have been reviewing the electricity cost and revenue data provided by the Energy Information Administration. Our purpose is to observe the advantages, if any, of markets administered by governments (e.g., Texas and California) over open markets (e.g., WSPP).

As of November 2007, the differential between RTO states and non-RTO states rose to \$.021 per KWh on a twelve-month basis. With fuel costs removed, the differential is even greater – \$.025 per KWh.

Since April 1, 1998, the markets administered by RTOs (also called ISOs) have lost ground compared to open markets.¹ The difference between the average wholesale cost of electricity in RTO states and in non-RTO states peaks in the summer. **On a twelve-month moving average basis, the differential has now reached its highest level in the most recent EIA data available.**²

¹ States with RTOs include: Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont, New Jersey, New York, Pennsylvania, Illinois, Indiana, Michigan, Ohio, Wisconsin, Iowa, Minnesota, Missouri, Nebraska, North Dakota, South Dakota, Delaware, District of Columbia, Maryland, Virginia, West Virginia, Texas, and California.

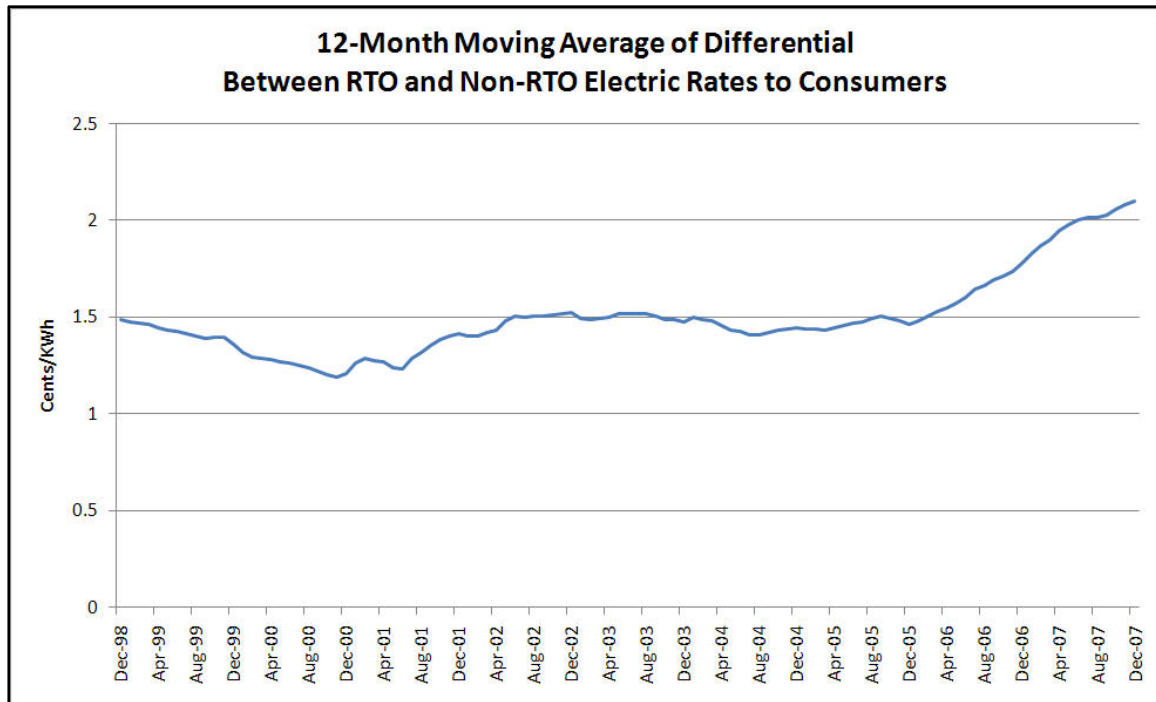
² U.S. Department of Energy, Energy Information Administration, Electric Power Monthly, March 2008. The data is the most recent available (an inevitable delay occurs in compiling the “numbers” in the EPM).

Why Are Regional Transmission Organizations So Expensive?

March 2008 Update

March 19, 2008

Page 2



As is easily seen from this chart, RTO prices are climbing much more steeply than non-RTO prices.

Is the High Price of Natural Gas to Blame?

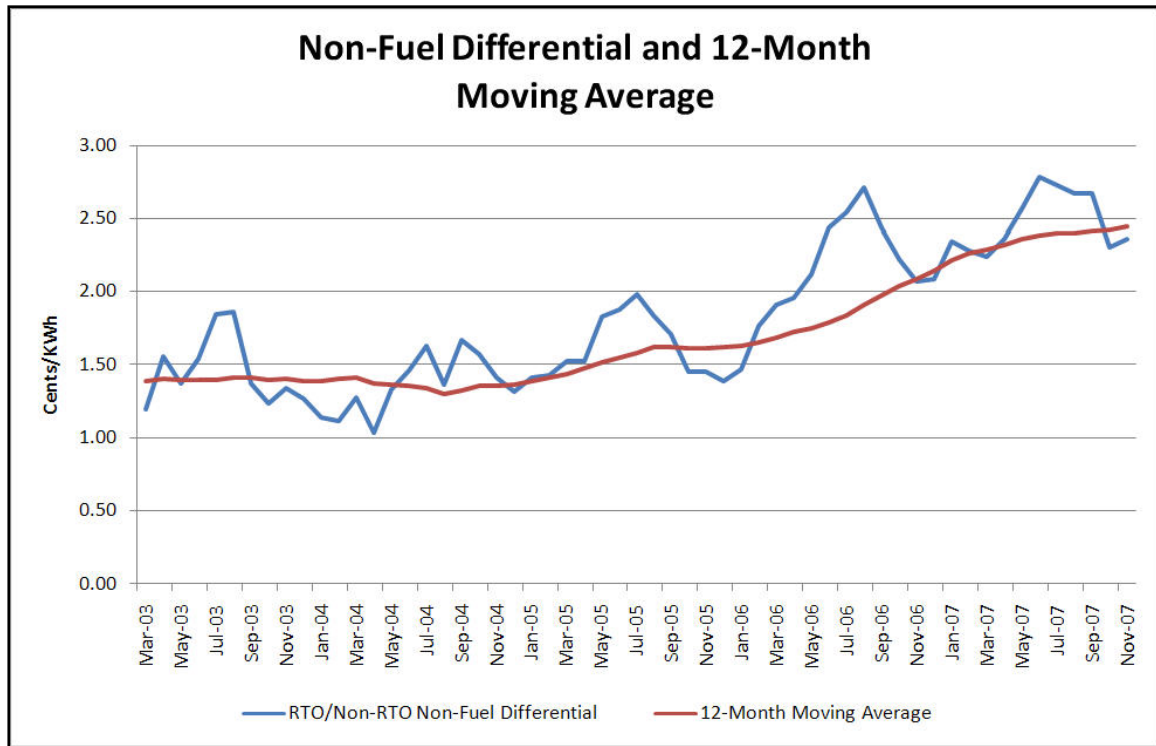
In spite of extensive data to the contrary, advocates of placing markets under the control of RTOs continue to argue that the problem is high natural gas prices. Since the differential has increased continuously over the last twenty-four months – even when natural gas prices were falling – this explanation appears weak at best.

Why Are Regional Transmission Organizations So Expensive?

March 2008 Update

March 19, 2008

Page 3



The pricing differential of RTO states is even greater when fuel costs are removed from the calculation, and explains why RTO prices have continued to diverge from non-RTO prices even though natural gas prices declined from highs in mid-2007.

We are unaware of any current research undertaken on the basis of natural gas prices to explain the differential. The usual approach is to submit the question to standard statistical tests.

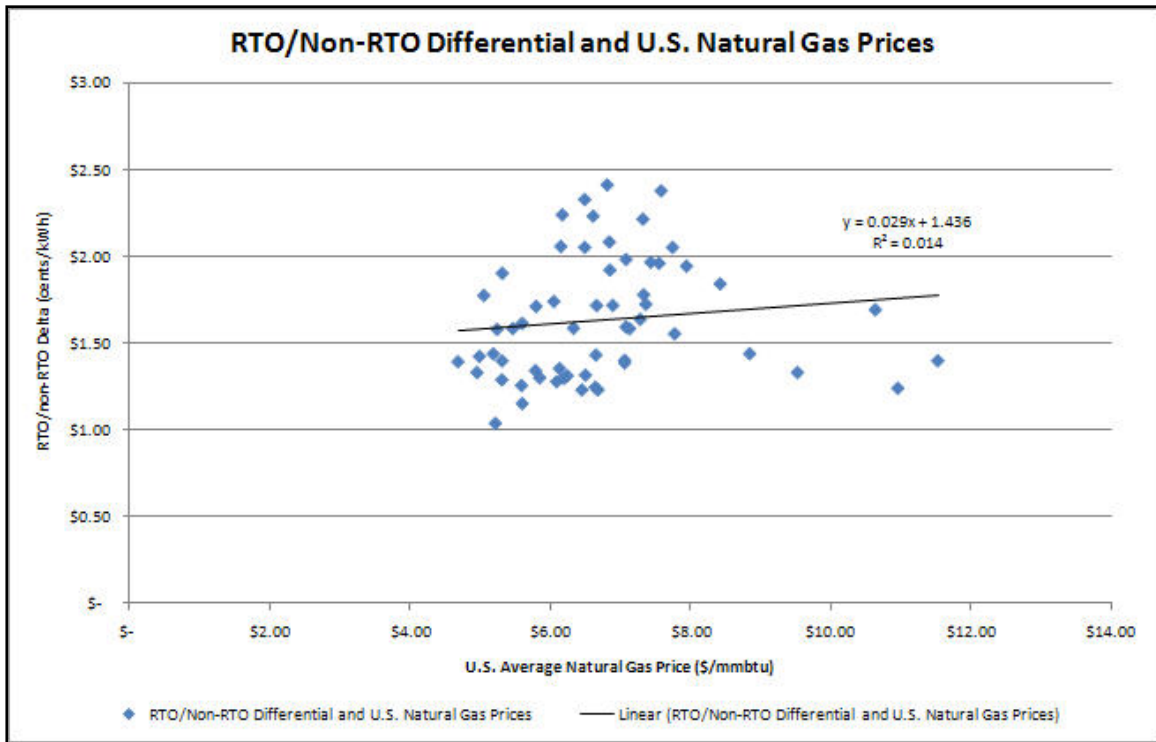
If the increasing difference between RTO and non-RTO states' rates is the result of the increasing cost of producing natural gas, the two series should correlate. A simple linear regression shows this is not the case.

Why Are Regional Transmission Organizations So Expensive?

March 2008 Update

March 19, 2008

Page 4



To conclude that natural gas is a good candidate for an explanation of the differential, we need to show that the correlation between the differential and natural gas is greater than zero. The simple linear regression above does not show this to be the case.

A frequent complaint concerning the use of simple linear regressions using time series data is that the error terms in the statistical procedure are correlated. This is the case here. Correcting for the serial correlation using the Hildreth-Lu procedure yields results that are efficient:

Why Are Regional Transmission Organizations So Expensive?

March 2008 Update

March 19, 2008

Page 5

Prais-Winsten AR(1) regression -- SSE search estimates

Source	SS	df	MS	Number of obs = 59
				F(1, 57) = 0.65
Model	.020667075	1	.020667075	Prob > F = 0.424
Residual	1.81808095	57	.031896157	R-squared = 0.0112
-----	-----	-----	-----	Adj R-squared -0.0061
Total	1.83874802	58	.031702552	Root MSE = .17859

delta	Coef.	Std. Err.	t	P> t		
-----	-----	-----	-----	-----	-----	-----
ng	-.028205	.030215	-0.93	0.355	-.088709	.032299
_cons	1.791749	.2828833	6.33	0	1.225285	2.358214
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rho	0.8981355					
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This technical analysis reveals that the impact of natural gas prices on the RTO/non-RTO differential is statistically indistinguishable from zero.

Illinois and Texas

Recent experience in two states has given policy-makers pause. In Illinois rates increased so markedly that the state enacted legislation in 2007 to improve its long-term energy acquisition policy. In Texas, unrealistically high real-time bids in the wholesale market have translated into very high prices for consumers.

Illinois

The Energy Information Administration's Electric Power Monthly assembles electric price and quantity data and includes fossil fuel costs and quantities for each state, facilitating state-by-state comparisons. We can see the impact of moving the pricing for much of Illinois to marginal cost based in an administered market starting in January 2007, by observing the thick blue line in the illustration below. The figure also shows that the price of wholesale electricity in neighboring states is generally lower, despite

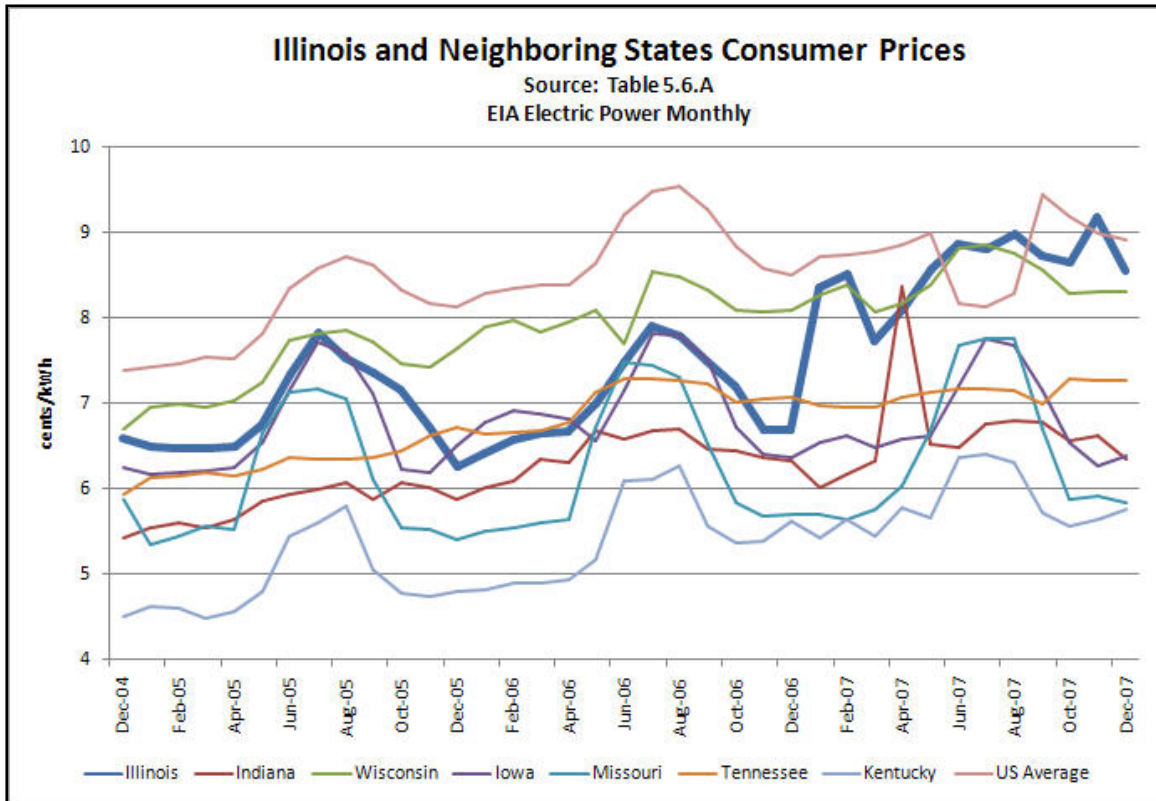
Why Are Regional Transmission Organizations So Expensive?

March 2008 Update

March 19, 2008

Page 6

the fact that the fuels used to make (generate) electricity are comparable to those in Illinois.



Texas

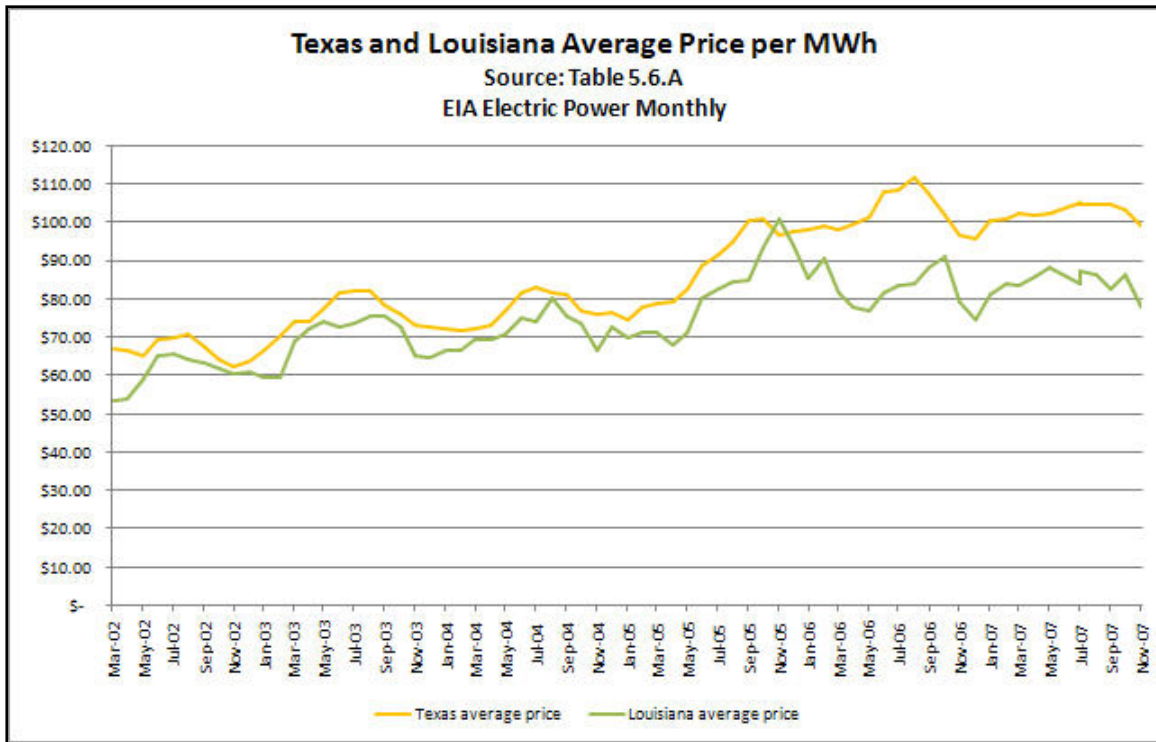
The next figure compares Texas with Louisiana, where generation is far more susceptible to natural gas prices increases than Texas, yet Louisiana's electricity is less expensive.

Why Are Regional Transmission Organizations So Expensive?

March 2008 Update

March 19, 2008

Page 7



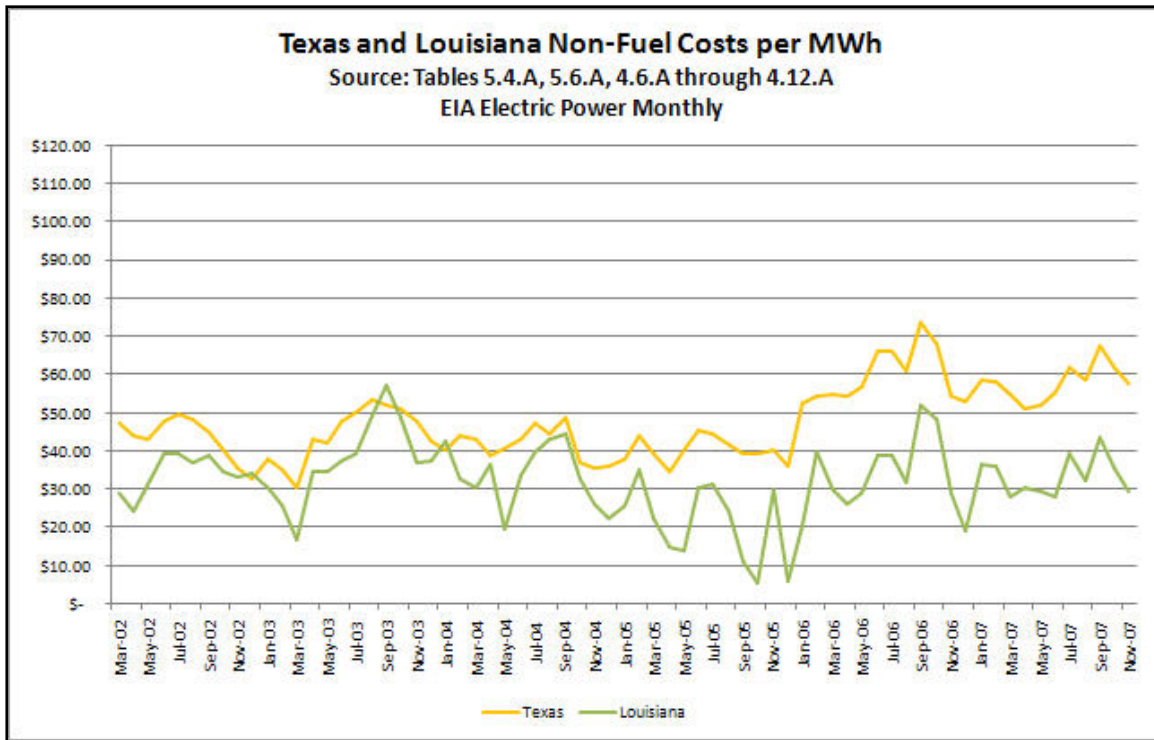
Higher fuel costs do not explain this price discrepancy. Even when we remove fossil fuel costs, average prices in Texas are significantly higher.

Why Are Regional Transmission Organizations So Expensive?

March 2008 Update

March 19, 2008

Page 8



Conclusion

Our comparison of EIA electric price, load, fossil fuel costs and quantities for RTO and non-RTO states shows us that consumers in states with markets administered by RTOs continue to pay higher electric rates than those in non-RTO states. Events in Illinois and Texas mirror the national experience. Fossil fuel costs, in particular natural gas costs, do not explain the differential between electric prices in RTO and non-RTO states.