

# McCULLOUGH RESEARCH

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To: McCullough Research Clients

From: Robert McCullough  
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Subject: Why Are Electricity Prices in RTOs Increasingly Expensive? November 2008 Update

For the last several years we have been reviewing the electricity cost and revenue data provided by the U.S. Energy Information Administration.<sup>1</sup> 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 2008, the differential between RTO states and non-RTO states is \$.020 per KWh on a twelve-month basis. With fuel costs removed, however, the differential is even greater – \$.024 per KWh.

Since April 1, 1998, the markets administered by RTOs (also called ISOs) have lost ground compared to open markets.<sup>2</sup> The difference between the average wholesale cost of electricity in RTO states and in non-RTO states peaks in the summer.

As is easily seen from the chart below, RTO prices are consistently much higher than non-RTO prices:

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<sup>1</sup> U.S. Department of Energy, Energy Information Administration, Electric Power Monthly, November 2008.

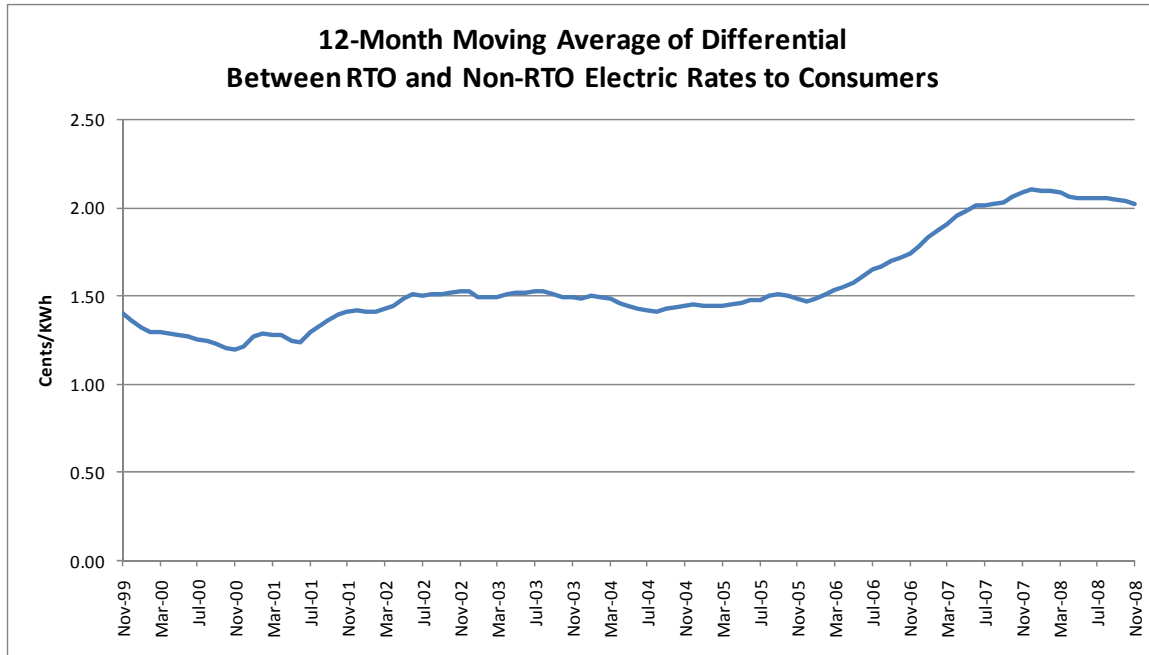
<sup>2</sup> For a map of the states, see <http://www.ferc.gov/industries/electric/indus-act/rto.asp#skipnavsub>.

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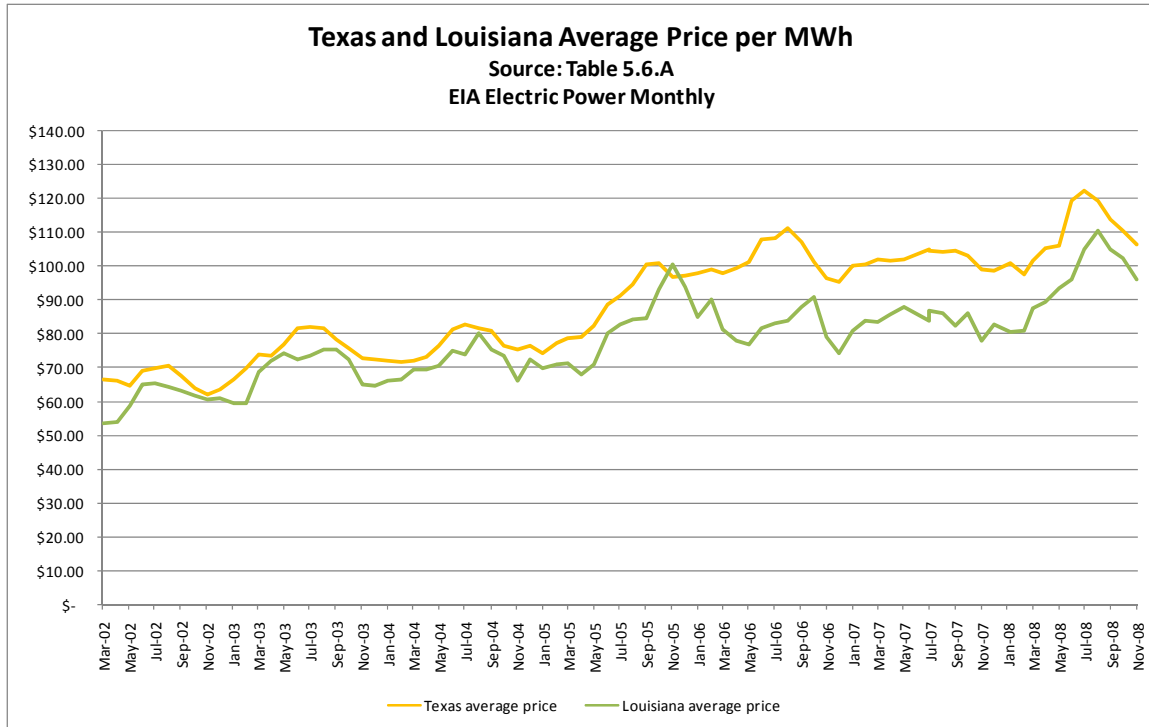
## Texas and Louisiana

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

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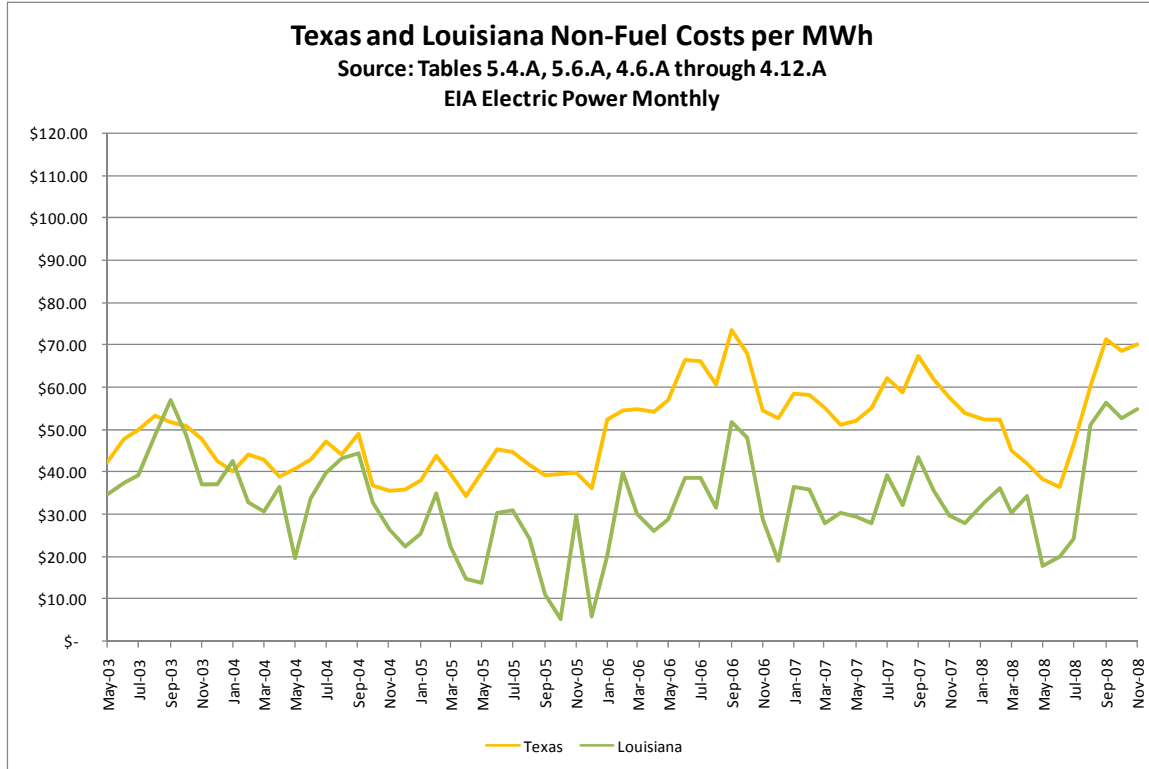


Higher fuel costs do not explain this price discrepancy. Even when we remove fossil fuel costs, average prices in Texas are significantly higher:

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**Is the high price of natural gas to blame?**

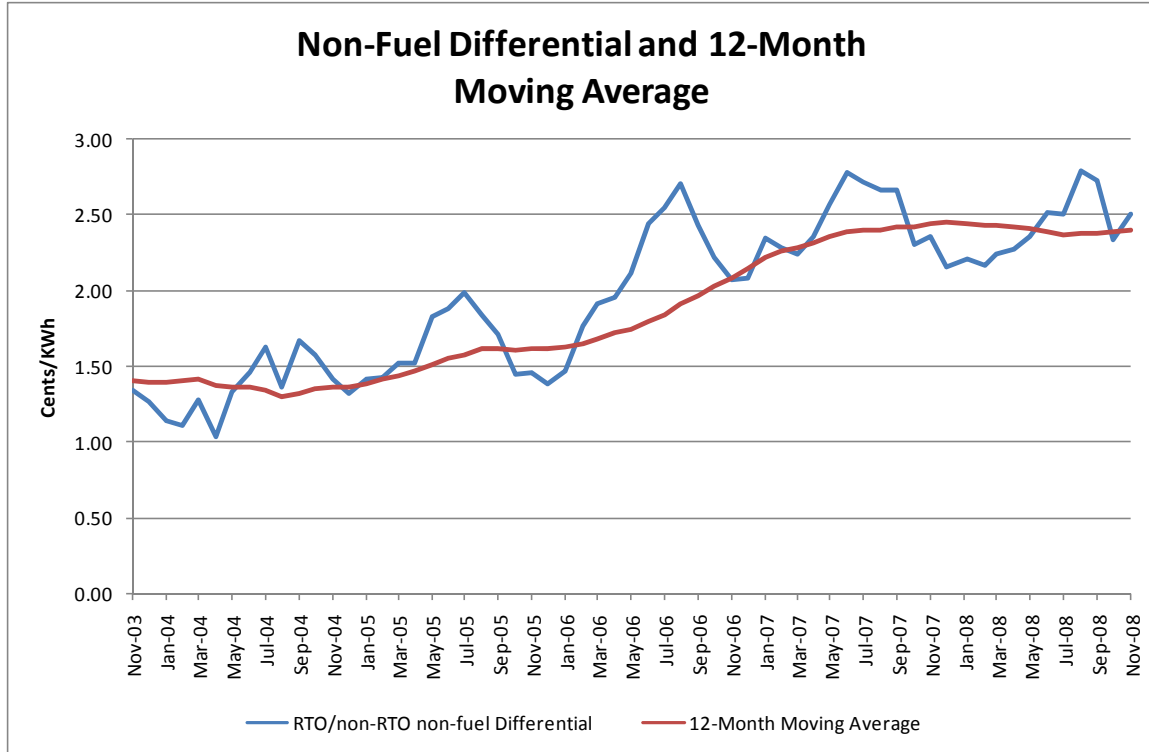
Despite extensive data to the contrary, advocates of placing markets under the control of RTOs continue to argue that the problem is high natural gas prices.

This argument is puzzling since the differential has increased when natural gas prices increased and when natural gas prices fell. For example, natural gas fell after Katrina, but the differential increased. More recently, natural gas prices have fallen significantly, and the differential remains quite high.

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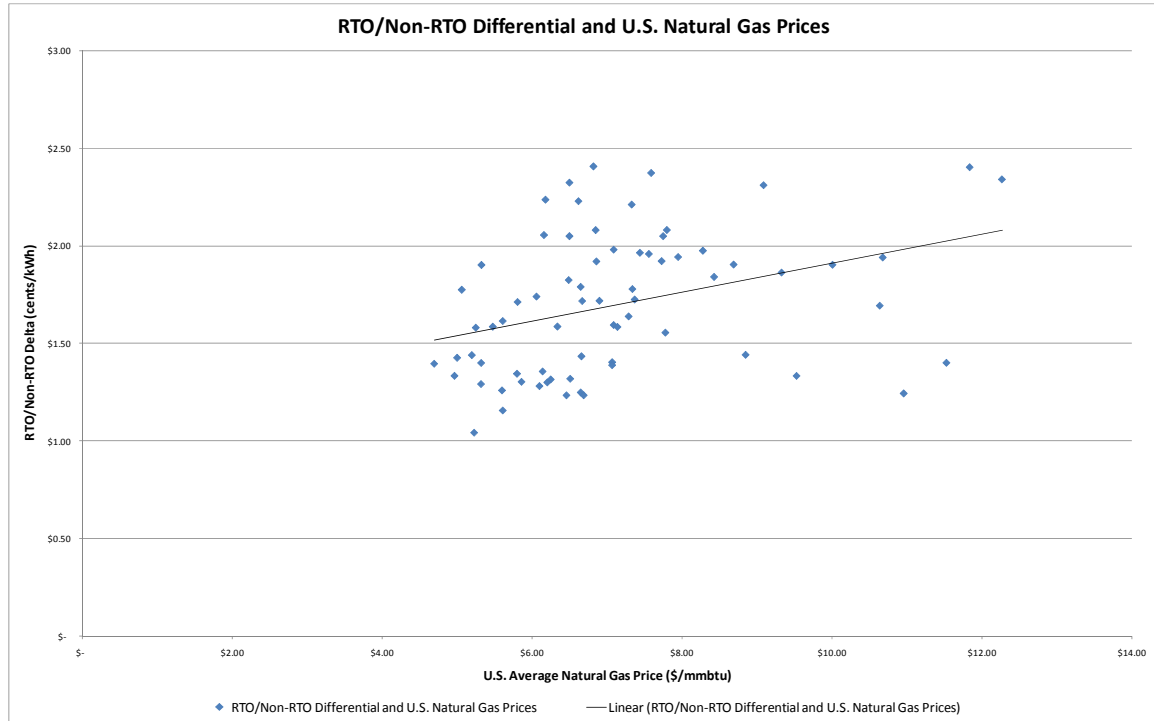
The pricing differential of RTO states is even greater when fuel costs are removed from the calculation, and explains why RTO prices have continued to diverge from non-RTO prices even though natural gas prices declined from highs in mid-2007. We are unaware of any current research undertaken on the basis 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 procuring natural gas, the two series should have a significant positive correlation. A simple plot showing the relationship between natural gas prices and the RTO/non-RTO differential shows that this is not the case.

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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 statistically greater than zero.

A frequent concern in 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 statistically efficient:

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

Source	SS	df	MS	Number of obs =	71
Model	.10715732	1	.10715732	F( 1, 69) =	3.23
Residual	2.28850443	69	.033166731	Prob > F =	0.0766
				R-squared =	0.0447
				Adj R-squared =	0.0309
Total	2.39566175	70	.034223739	Root MSE =	.18212

differential	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
gas	-.049815	.0253367	-1.97	0.053	-.1003604 .0007303
_cons	2.174093	.608114	3.58	0.001	.9609384 3.387247
rho	.9743416				

Durbin-Watson statistic (original) 0.217539  
 Durbin-Watson statistic (transformed) 1.861020

This technical analysis reveals that the impact of natural gas prices on the RTO/non-RTO differential is statistically indistinguishable from zero. While this does not mean that natural gas may not be a factor, it certainly contradicts the argument that natural gas is a major explanation behind the increasing differential.

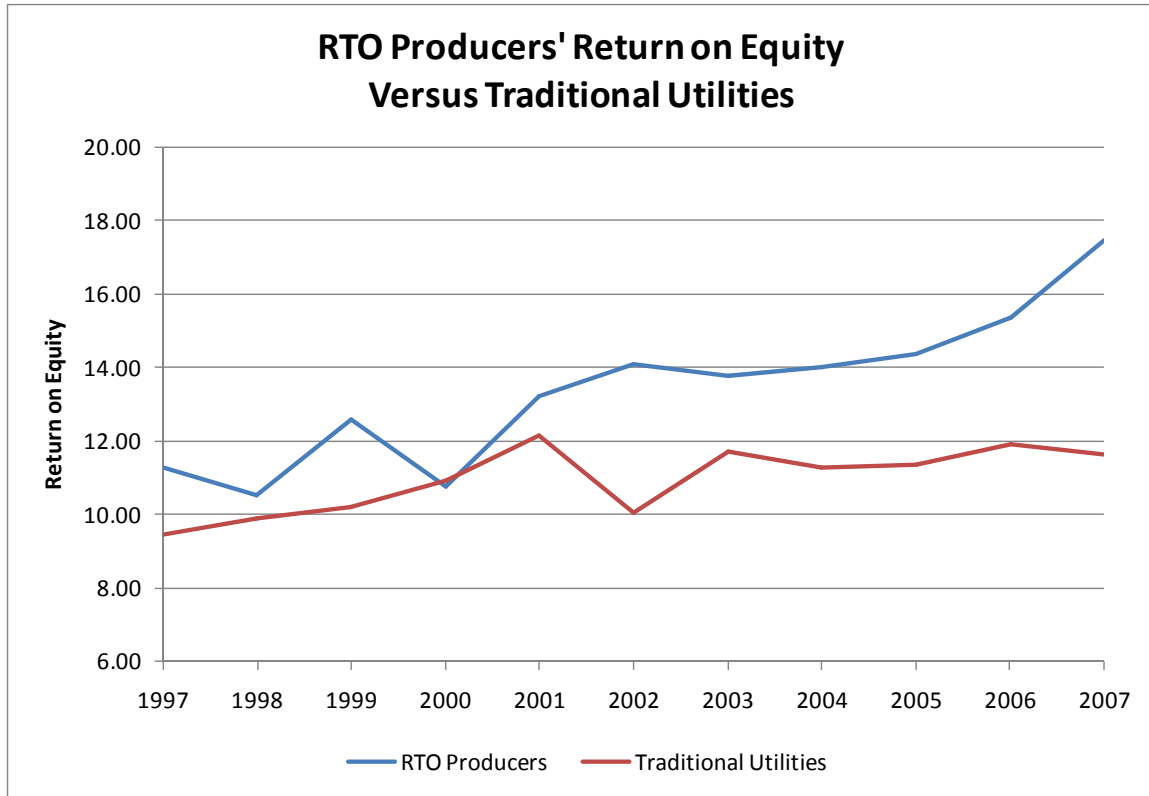
**Is it possible that the differential is due to higher than normal profits for firms specializing in RTO power markets?**

A relatively small set of firms have profited from the change to administered markets. These include Exelon in Illinois; Public Service Electric and Gas; the former TXU; and Constellation. Although the situation is different company by company and state by state, a clear picture has emerged over the past six years:

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One important reason for their enhanced profitability has been the transfer of existing plants from regulated pricing to market pricing. This shows up as a windfall for the owners of existing units. A secondary reason is the relatively higher wholesale prices as noted above that have occurred under administered markets.

**Conclusion**

Our comparison of EIA electricity 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 consumers living in non-RTO states. Fossil fuel costs, in particular natural gas costs, do not explain the differential between electricity prices in RTO and non-RTO states.