



Replacing Demand Meters with IDRs in a Competitive Energy Market

A Study Performed by Verdigris Energy LLC

Published June 5, 2011

INDUSTRY: Restaurant

SUBCLASS: Buffet Style Restaurants

CLIENT: Multi-State Regional Chain

CHALLENGE: Client's usage pattern may warrant paying for IDR meters to take advantage of lower-cost weekend energy; electric supply contract expiring in 90 days

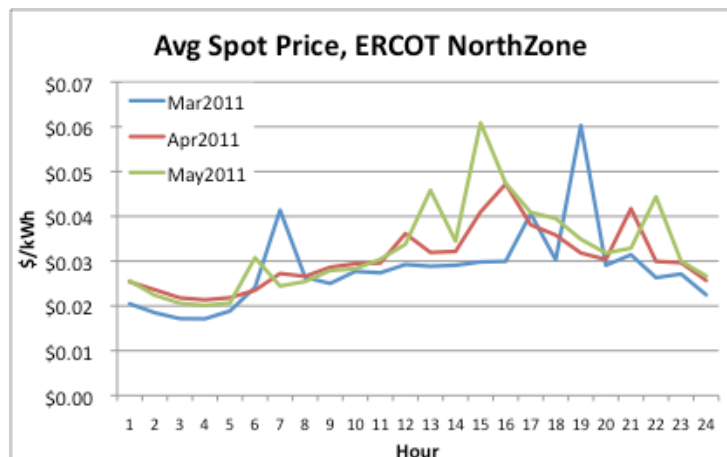
INTRODUCTION

With growing awareness of “smart meters,” some energy managers are considering whether it makes sense to get ahead of the curve and replace existing demand meters with IDR meters (a demand meter records monthly kWh usage and monthly kW peak whereas the IDR [“Interval Data Recorder”] records kW/kWh usage every 15 minutes). The meter replacement not only provides detailed time-of-use data, but has a significant economic impact on the Retail Electric Provider's cost to serve the meter.

Since competitive energy pricing starts with cost, any improvements in cost-to-serve translate into energy cost savings for the customer. The client believed their restaurants had more kWh usage during the lower-cost weekends and was considering paying for meter updates to take advantage of the difference. Verdigris Energy, hired to conduct the solicitation and negotiation for energy supply, performed a detailed econometric study to quantify the potential benefits of upgrading to IDR meters.

WHY TOU MATTERS

“TOU” (time of use) rates exist in competitive and fully-regulated electric utilities across the United States. The economic concept is simple – the cost to generate and transmit electricity varies by season and time-of-day. The cost difference occurs because generators are dispatched by order of efficiency – with the lowest cost units coming on line first, and more expensive units coming on line only as needed. Since markets tend to price on marginal cost, the last unit on the grid tends to set the price all. All things being equal, the price of power at 3am should be lower than the price at 3pm of the same day. A recent sampling (*see chart, right*) illustrates the pattern. In fact, years of spot-market price data provide remarkable pattern consistency.





STUDY ELEMENTS

The client has more than a dozen restaurants across the Texas competitive energy market. However, the majority of the energy use is in ERCOT NORTH ZONE. Fortunately, the initial meter inventory identified two restaurants with existing IDR meters. This allowed Verdigris Energy to use an existing sample dataset to test the thesis. Better still, the two IDR meters represented the client’s two different restaurant concepts. *The client’s electricity contract was due to expire only a few months from the beginning of the study.* The short time frame required a thoughtful approach.

Verdigris Energy prepared a procurement strategy for the client with two key and interrelated elements. The study and the competitive solicitation would have to occur simultaneously. The solicitation would incorporate a strategy allowing the client to take advantage of a change in load-shape.

This can be challenging because suppliers use usage *history* for their pricing. A large-scale meter replacement project was a potential *future* event, meaning it was of no use in the current procurement. However, certain suppliers with robust wholesale operations can support allowing the client to *access the wholesale market directly* and bypass retail “load shaping” services. In essence, the end-use customer manages their own energy supply portfolio as if they were their own Retail Electric Provider (REP). These strategies have been used by larger industrial clients for many years. In practice the approach is quite manageable for firms with proficient in-house or out-sourced energy management personnel, and the energy cost savings can be substantial.

So the procurement included two quote requests: a standard “fixed price” quote and a customized “wholesale access” quote. The standard fixed-price quote used historic usage data whereas the “wholesale access” quote would use the optimum meter type as determined by the study performed Verdigris Energy.

STUDY RESULTS

Verdigris Energy compared the cost-to-serve the IDR meter load shape vs. the “deemed load profile¹” associated with the demand-meters already in place. The results were a surprise to the client. While usage was high during the low-cost weekends as expected, *usage was lower than the “deemed load profile” during the cheapest overnight hours.* The lack of cheaper overnight kWh was an important finding. When wholesale market futures

	Implied Cost to Serve		
	\$/MWh	MWh/Yr	IDR Benefit
IDR #1	\$39.99	833.88	(\$459)
IDR #2	\$40.53	629.71	(\$686)
Deemed Profile	\$39.44		

Although the IDR meters had better-than-profiled weekend usage, the lack of low-cost overnight kWh caused the IDR metered accounts to have a higher cost of service than smaller accounts without an IDR meter.

¹ All meters are “assigned” a time-of-use load profile in the absence of IDR data. The shape is determined by ERCOT using a large sampling of accounts with comparable load factors. This tends to bias the load shape to look like the largest customer group in the sample, typically office-buildings and retailers.



were overlaid to the shape comparisons, the results were striking. Verdigris Energy concluded that *upgrading the meters to IDRs would not only bring new capital and operational expenses, doing so would also cause an increase in the retail electric provider's cost-to-serve those accounts.*

THE REST OF THE STORY

The data provided a clear answer to the question of whether to invest in the installation of IDR meters at the client locations: a resounding “No.”

However, the choice of supply strategies was also impacted by the study results. Instead of a standard “retail fixed price” transaction that the client would otherwise have executed, the cost forecast and other benefits associated with the wholesale purchasing strategy compelled the client to shift directions. Verdigris Energy forecast cost benefits exceeding \$50,000 on a \$600,000 contract term value, based on the market conditions at the time the contract was executed. *Since that time, additional wholesale block positions have been added to capture additional value and further reduce volatility.* At the time of writing, savings estimate for the full term is forecasted to exceed \$80,000 – more than 13% under the cost of the retail fixed price alternative.

	Time of Use		
	On Peak	Weekend	Overnight
IDR #1	56.6%	23.4%	20.0%
IDR #2	59.1%	24.3%	16.7%
Deemed Profile	56.0%	19.4%	24.6%

"The lack of cheaper overnight kWh was an important finding."

Day of Execution - Expected Savings	Supplier 1	Supplier 2	Supplier 3
Expected Monthly Invoice Average on Wholesale Strategy	\$49,053	\$51,300	\$48,664
Expected Monthly Invoice Average on 100% Fixed	\$53,820	\$52,960	\$53,858
Expected Monthly Savings	\$4,767	\$1,660	\$5,194
Expected Annual Savings vs. Supplier's Fixed Quote	\$57,210	\$19,921	\$62,328

5/31/11 Update	\$83,190
Expected Annual Savings vs. Fixed Price Alternative	

FINAL NOTE: ADDED PRICE PROTECTION

The client desired to proceed with the wholesale strategy, but as this concept was new for the client, they requested some assurance of performance. Verdigris Energy stood behind the savings forecast by committing to pay the client up to \$30,000 if the alternative wholesale strategy failed to provide lower costs than the alternative retail fixed price. In consideration, the client agreed to pay Verdigris Energy a performance bonus if the managed-supply wholesale strategy delivers savings.

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