Control Number: 40000

Item Number: 207

Addendum StartPage: 0

PROJECT NO. 40268

PUC RULEMAKING TO AMEND PUC SUBST. R. 25.505, RELATING TO RESOURCE ADEQUACY IN THE ELECTRIC RELIABILITY COUNCIL OF TEXAS POWER REGION	§ § § § §	**PUBLIC UTILITY COMMISSION OF TEXAS**

INITIAL COMMENTS OF VIRIDITY ENERGY, INC.

Viridity Energy, Inc. ("Viridity") submits these comments on the proposal by the Public Utility Commission of Texas ("Commission") to increase the system wide offer caps to $9,000 by June 2015, and to change the peaker net margin. Viridity works with large energy users to manage their loads actively, in order to maximize energy savings, meet sustainability objectives, and earn revenues in the organized wholesale markets. Through an integrated demand-side management solution, our customers significantly reduce their energy spend, achieving significant energy savings and unlocking new energy revenue streams. Viridity's proprietary VPower™ software platform enables customers to understand wholesale energy pricing, make informed decisions about the use of their energy-generating and energy-consuming resources, and take advantage of economic opportunities. VPower's energy portal makes it easy for customers to manage complicated, multi-variable energy portfolios via one centralized, user-friendly platform.

Viridity does not disagree with the Commission's proposal to increase the system-wide offer cap. We agree that allowing prices to rise to the proposed levels during times of scarcity will eventually help to encourage the development of new generation and the deployment of other resources as well.

201

However, we do believe that the success of the Commission's proposed changes depends on the ability of energy prices to rise in response to market forces rather than in response to administrative interventions in the market, and on the ability to harness market forces to reduce market power and to make gaming unrewarding. Reliance on administrative interventions to raise prices when scarcity exists will undermine the ability of prospective new entrants to use their market knowledge to project the energy revenues they can earn. Administrative actions to mitigate market power are far less effective than a fully competitive market that minimizes the likelihood that market power will develop. After-the-fact administrative actions to unwind gaming strategies are far less effective than markets that minimize any incentive for gaming.

The energy market's ability to form prices accurately in response to scarcity, to mitigate market power, and to deter gaming, all require robust competition in the market. Viridity respectfully suggests that the Commission's work to ensure resource adequacy will be far more effective if demand resources can contribute to that competition, by serving as a resource in the energy market that can compete head-to-head with generators.

I. Introduction

The Commission requires that ERCOT's protocols and rules advance several objectives. ERCOT must:

- Promote economic efficiency in the production and consumption of electricity;
- Support wholesale and retail competition;
- Support the reliability of electric service; and
- Reflect the physical realities of the ERCOT system.[1]

[1] Tex. Pub. Util. Comm'n, 16 Tex. Admin. Code Sec. 25.501(a).

The Commission is exploring several initiatives related to resource adequacy - an essential foundation for advancing all four of these objectives. Demand response, and other proven means of bringing end-use customer resources into the ERCOT wholesale markets, can make a major contribution to resource adequacy and to the Commission's objectives.

The Brattle Group's June 1, 2012 report to ERCOT[2] notes ERCOT's projection that reserve margins will fall to 9.8 percent by 2014,[3] and cites several reasons for pessimism about the prospects for developing new generation - reasons that do not apply to the prospects for increasing demand response:

- 2014 is approaching "too quickly to add some types of new capacity, even if market conditions would support such investments."[4]
- Potential generation investors emphasize that the two- to three-year horizon of futures prices is not long enough to support investment in an asset with a lead time of three years and an operating life of several decades.[5]
- There is a substantial gap between market expectations about future energy prices and the prices needed to attract new combined-cycle power plants.[6]

In other words, developing new generation involves long lead times, high initial costs, and uncertainty about market conditions over the decades-long useful life of a generator. The combination of these factors makes it a risky strategy to base resource adequacy over the next few years on hopes that new generation will be developed.

The opposite is true for demand resources. Demand resources can be deployed with extremely short lead times. The capital investment is small. Long-term uncertainty over market conditions is essentially irrelevant to the deployment of demand resources, especially because of the short lead times and the small capital investment.

---

[2] Newell et al., "ERCOT Investment Incentives and Resource Adequacy," June 1, 2012 ("Brattle Report").
[3] Brattle Report, p. 1.
[4] Brattle Report, p. 6.
[5] Brattle Report, p. 53.
[6] Brattle Report, p. 52.

Like generation, demand resources can contribute to resource adequacy. The electric grid requires an absolute, continuous, instantaneous physical balance between demand and supply. In other industries, if an imbalance occurs, prices may change, but the supply of the product does not come crashing down. But in the electric industry an imbalance can threaten the delivery of the service to each and every customer – outages can and do occur because of imbalances. When an electric customer curtails usage, it helps to maintain the absolute, continuous, instantaneous physical balance between demand and supply. It helps to ensure the reliable supply of electricity at that point in time. It provides a service to the grid and to all other customers.

Texas has enormous untapped potential to deploy demand resources to support resource adequacy. Federal Energy Regulatory Commission staff have projected a potential of nearly 19 GW just in the reduction of peak load, or more than 20 percent of peak Texas load.[7]

The Commission therefore has the opportunity in this proceeding to develop market rules which enhance the competitiveness of the markets; enhance the elasticity of demand; and increase the efficiency with which electricity is delivered. Indeed, the Commission has the opportunity in this proceeding to begin the creation of the industry of the future where the power grid and markets are no longer "dumb"; where they begin to act as a true network which uses the full opportunities of controllable load and traditional and distributed resources to achieve economic efficiencies, environmental sustainability, and system reliability.

The ability and willingness of customers to manage their load based on today's enhanced information flows marks a new and exciting development. Communications technology, software technologies and distributed generation and storage resources are providing customers with a meaningful opportunity to manage price and reliability in the market, if the rules of the

[7] Brattle Group et al., "A National Assessment of Demand Response Potential," Federal Energy Regulatory Commission staff report, June 2009, p. 169.

market allow customers to participate. In the smart grid world of the future customers are not merely passive buyers of power; they are active participants in the markets, helping to enable the grid to function as a more complex, but more efficient, network which uses the full opportunities provided by distributed technologies and customer controlled load to achieve reliability in an economically efficient manner.

The broad societal benefits of demand resources in the markets are well established. Demand resources have demonstrated their ability to reduce peak loads consistently, and thus to delay the need for new power plants and associated transmission system infrastructure. Active market participation by demand resources makes the market more competitive market, enhances reliability precisely when the system is most stressed, at times of peak load.

We do not disagree with the Commission's proposal to increase the system-wide offer caps in Section 25.505. On the contrary, we believe that allowing prices to rise to the proposed levels during times of scarcity will eventually help to encourage the development of new generation and the deployment of other resources as well. However, we believe that by enabling both generation and demand resources to compete in the ERCOT markets, the Commission can promote economic efficiency in the production and consumption of electricity, support competition especially at the wholesale level, and protect reliability.

We respectfully request that the Commission's efforts to assure resource adequacy, especially in the current proposal regarding scarcity pricing, include a serious evaluation of how demand resources in the wholesale markets can advance the success of those efforts, as explained below.

II. Comments

1. Demand response in the wholesale markets can address resource adequacy concerns and support reliability.

A report by the ISO/RTO Council (which includes ERCOT) concluded that ISO and RTO support of demand response helps ensure that electricity sector resources are used efficiently, that the need for new generation resources is reduced, and that system reliability is improved.[8] In other words, ISOs and RTOs can use demand response to address the resource adequacy concerns that led the Commission to propose the scarcity pricing rule changes currently under review.

The ISO/RTO Council report explained that RTOs have integrated demand-response resources and products directly into the electricity markets: as a capacity resource in capacity markets; as an emergency resource during system emergencies; and as a resource actively participating in energy markets.

Such direct integration of demand response into ERCOT's wholesale markets is essential for the Commission's proposed changes to scarcity pricing to work. Integrating demand response into the markets will provide a check on market power especially during scarcity conditions. It will also help to prevent scarcity conditions from developing unnecessarily.

Furthermore, greater participation by demand resources will also contribute to resource adequacy through reduced line losses and greater fuel to electricity conversion efficiencies. Approximately six percent of all generated electricity is lost through its transmission over the transmission and distribution systems. Curtailments of load will not incur these losses.

[8] ISO/RTO Council, Markets Committee, "Harnessing the Power of Demand: How ISOs and RTOs Are Integrating Demand Response into Wholesale Electricity Markets," October 16, 2007, p. ES-3.

2. Demand resources in the wholesale markets make the markets more competitive, mitigating market power and making price signals more accurate.

The Commission's proposed action on scarcity pricing is certainly not unprecedented. In 2008, the Federal Energy Regulatory Commission similarly determined that market rules must to allow prices to rise sufficiently during an operating reserve shortage to allow supply to meet demand.[9] The FERC noted that bid caps could make it impossible to elicit the optimal level of response from either generators or loads, foregoing the additional resources needed to maintain reliability.[10]

The FERC also recognized that scarcity pricing had to be accompanied by measures to mitigate market power and deter gaming behavior.[11] Failing to do so would increase the likelihood of involuntary curtailments, and would add price volatility and market uncertainty[12] - the same problems that the Commission and the Brattle Group believe are exacerbating resource adequacy challenges.

Integrating demand resources into the ERCOT wholesale markets will help to mitigate market power and deter gaming behavior. Very simply, allowing demand resources to compete in those markets helps to limit market power, and to counteract potential gaming, by providing additional competition. The more demand response that sees and responds to higher market prices, the greater the competition; the greater the competition, the more gaming is deterred because of increased risks that a supplier that bids an artificially high price will not be dispatched.[13]

---

[9] FERC, "Wholesale Competition in Regions with Organized Electric Markets," 125 FERC ¶ 61,071, October 17, 2008 (Order 719), para. 192.
[10] Id. at para. 193.
[11] Id. at para. 196.
[12] Id. at para. 193.
[13] See FERC, "Demand Response Compensation in Organized Wholesale Energy Markets," 134 FERC ¶ 61,187, March 15, 2011 (Order 745), para. 10.

Merely hoping that demand resources will respond to high retail prices has proven ineffective without the opportunity to compete in the wholesale markets. Customers with retail choice continue to shop for fixed-price retail contracts that do not expose the customer to the time-sensitive value of electricity, and to sign up for those contracts.[14] Allowing customers to offer into the wholesale energy market immediately enables customers to respond to the real-time price of electricity, while preserving customers' ability to choose fixed-price or block-and-index contracts for their retail supply.

Therefore, allowing demand resources to compete in the wholesale energy market will help protect Texas customers against market power and gaming. It will do so without the need for administrative intervention in the market, and therefore without distorting the accurate price signals that the Commission desires to send.

3. Load management resources in the wholesale markets can prevent scarcity conditions from developing.

Enabling demand resources to serve as resources in the wholesale energy markets can prevent "scarcity conditions" from developing. The Brattle report defines "scarcity conditions" as "those hours when administrative interventions are required in response to capacity shortages, and where a contributing cause of the capacity shortage is a low planning or realized reserve margin."[15]

Specifically, with market rules that allow load management to be offered into the wholesale energy markets as a supply resource, ERCOT would be able to dispatch more resources economically, and avoid the need for administrative interventions. With customers

[14] See, e.g., Chairman Donna L. Nelson, "Ten Years of Electric Choice in Texas: Challenges, Opportunities, and Successes," October 5, 2011, p. 12 (available at http://www.puc.state.tx.us/agency/about/commissioners/nelson/pp/GCPA_Keynote_100511.pdf).
[15] Brattle Report, p. 72.

offering to supply specified curtailments at specified prices, ERCOT would simply dispatch both generation and load management resources in order of price. Having more resources available to be dispatched economically reduces the need to deploy administrative interventions and call on resources (such as Reliability Unit Commitment and Reliability Must Run) on an out-of-market basis. "Scarcity conditions" will arise less often; price distortion from administrative interventions will be less frequent; and there will be less need to rely on the administrative scarcity pricing that Brattle has found to be "unlikely to achieve ERCOT's 1-in-10 reliability target, even with aggressive increases in scarcity pricing parameters."[16]

In other words, robust demand resource participation in the energy market can ensure that scarcity conditions arise only when there is true scarcity, and do not arise from market power or from gaming. Properly compensated demand respsone can prevent resource adequacy shortages before they occur. Robust demand response participation in the market can prevent load from climbing the load curve in the first instance. An ounce of prevention is still worth a pound of cure.

4. Straightforward rules will support successful integration of demand resources into the wholesale energy market.

Successfully integrating demand resources into the energy market requires little more than applying the same rules under which generators participate in the same market. Demand resources would offer into the same auctions as generators currently do. ERCOT would clear offers from generation and from demand resources, in merit order. Resources would be dispatched in accordance with security-constrained economic dispatch, so that energy would be

[16] Brattle Report, p. 79.

supplied at the lowest cost to serve consumers reliably, recognizing any operational limits of generation and transmission facilities.[17]

For RTOs and ISOs under FERC jurisdiction, FERC Order 745 outlines three additional principles for integrating demand resources into the energy market:

1. The demand resources must contribute to balancing supply and demand.
2. The dispatch of demand resources must be cost-effective.
3. If the first two conditions are met, then the RTO or ISO pays the demand resource the LMP, just as generation is paid.[18]

The FERC's approval of PJM's compliance filing illustrates how these principles work in practice. To contribute to balancing supply and demand, the demand resource must be capable of being dispatched and actually follow the dispatch. Accordingly, PJM requires that load reductions be identified on a timely basis so that PJM's dispatchers can determine whether the load reduction is a cost-effective alternative to other resources.

Cost-effectiveness depends on two factors: the reduction in LMP that results when demand resources cause more expensive generating resources to be displaced; and any additional costs to load that result from spreading the total cost of energy in a given hour over a smaller amount of load (since some customers are curtailing load). When these two factors together result in net benefits to customers overall, paying LMP for the load reductions is cost-effective. The FERC required jurisdictional RTOs and ISOs to determine each month the level of LMP above which it is cost-effective to pay LMP for the load reductions.

PJM also serves as an example of how demand resources can be scheduled in the day-ahead and real-time energy markets. In the day-ahead energy market, scheduling is essentially the same for generators and for demand resources. By noon of the day before the operating day,

[17] Joint Boards on Security Constrained Economic Dispatch, "Study and Recommendations Regarding Security Constrained Economic Dispatch," submitted to the FERC July 11, 2006.
[18] FERC Order 745, para. 2.

the seller specifies the resource (generator or demand resource); the amount of energy offered for each hour and the associated price; the minimum run time (for a generator) or minimum down time (for a demand resource). The seller can also specify start-up costs (for a generator) or shutdown costs (for a demand resource).

In the real-time energy market, PJM schedules and dispatches generation resources and demand resources economically, on the basis of least-cost security-constrained dispatch, and the prices and operating characteristics offered by sellers. The approach is slightly different for demand resources, due to the requirement for demand resources to contribute to balancing supply and demand and due to the need to determine whether customers as a whole will receive net benefits from the presence of demand resources in the market. Specifically, PJM requires that offers from demand resources into the real-time market be submitted by 6:00 pm on the day before the operating day, but allows the amount of energy offered to be revised much closer to the operating hour. The end result is that demand resources have flexibility in their offers, and the dispatcher is aware of and able to call on demand resources to meet load conditions, at the same time the dispatcher is doing the same for generation.

In both the day ahead and real time markets the basic mechanism is that demand response submits a bid in direct competition with generation, and if the DR clears, it is dispatched and paid just like generation. The FERC adopted this mechanism because of the economic and reliability benefits noted above. The result is that customers who curtail electric usage should be compensated for the service they provide to the grid – and to all other customers. There is only one comparable, readily identifiable, competitively determined value for that service – LMP. Just as an increment of supply is paid LMP, an equal decrement of load makes the same

contribution to balancing supply and demand, and therefore should also be paid LMP. The decrement of load has the same value to the grid as the increment of supply.

The importance of equal compensation for equal services cannot be overstated. The benefits that currently untapped demand resources can provide depend on it. Experience in PJM demonstrates this point. During 2007, demand response compensation within PJM was set at full LMP. In 2007, the average year over year growth in demand resource in the energy market was 238%. When this compensation was allowed to sunset, curtailments dropped dramatically.

5. Integrating demand resources into other markets can also help to ensure reliability.

Demand resources that are integrated into the energy market can also help to preserve reliability by participating in other markets. For example, the high penetration of wind-based generation in Texas, and the efforts to bring the output of those generators to Texas load centers through the Commission's Competitive Renewable Energy Zones Transmission Program, are increasing the need for regulation service. Resources on end-use customer sites can help to meet that need, while freeing up traditional generators to provide energy rather than regulation to the grid.

A diverse range of customer-sited resources can provide regulation. For example, battery-based storage on customer sites can enable the customer to ride through disruptions on the ERCOT grid – and can also respond very quickly and very accurately to an ERCOT regulation signal. Residential electric water heaters can be configured to provide that service as well. Resources like these can be accommodated through low thresholds for participation (for example, PJM sets a minimum threshold of 100 kW for a regulation resource), allowing aggregation (with some regions already allowing aggregation and others working on it), and

paying regulation resources based on their actual performance (as provided in the FERC's Order 755).

III. Conclusion

We respectfully request that the Commission's resource adequacy efforts evaluate the contribution that demand resources can make. The evaluation should include the benefits of active participation by demand resources in the ERCOT energy market, to minimize market power and gaming that could otherwise arise under the proposed changes to scarcity pricing; and the benefits of demand resource participation in the ancillary services markets as well.

Respectfully submitted,

Viridity Energy, Inc.

By: /s/ ***Allen Freifeld***

Allen Freifeld, Senior Vice President
External Affairs
Viridity Energy, Inc.
1801 Market Street, Suite 2701
Philadelphia, PA 19103
484-534-2191
afreifeld@viridityenergy.com

By: /s/ ***Samuel A. Wolfe***

Samuel A. Wolfe, Managing Director
Legal & Regulatory Affairs
Viridity Energy, Inc.
1801 Market Street, Suite 2701
Philadelphia, PA 19103
609-785-1005
swolfe@viridityenergy.com

Dated: June 15, 2012

Philadelphia, Pennsylvania