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DOCKET NO. 24770

REPORT OF THE ELECTRIC	**§**	**PUBLIC UTILITY COMMISSION**
RELIABILITY COUNCIL OF TEXAS	**§**	**OF TEXAS**
(ERCOT) TO THE PUCT REGARDING	**§**	
IMPLEMENTATION OF THE ERCOT	**§**	
PROTOCOLS	**§**	

COMMISSION STAFF'S RESPONSE TO ORDER NO. 19

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May 1, 2003

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COMMISSION STAFF'S RESPONSE TO ORDER NO. 19[1]

I. INTRODUCTION

Staff understands that the purpose of the comments filed in response to Order No. 19, and the May 14, 2003 technical conference, is to identify meritorious mitigation measures that can be implemented by the beginning of this summer. As explained below, Staff recommends that the Commission order ERCOT to implement Staff's Modified Competitive Solution Method (MCSM) no later than July 1, 2003, and recommends that the Commission adopt a "Sunshine Policy" for hockey stick bids.

II. THE RELATIVE MERITS OF MCSM AND ALTERNATIVE PROPOSALS

A. Background

MCSM is explained in the two attached documents, the March 18, 2003 memo and Commission Staff's Response to Order 18. Staff believes that the ERCOT markets need some

[1] This pleading uses the following abbreviations: AEP – American Electric Power; Commission – Public Utility Commission of Texas; CSM – Competitive Solution Method; ERCOT – Electric Reliability Council of Texas; MCPE – market clearing price for energy; MCSM – Modified Competitive Solution Method; MOD – Market Oversight Division of the Public Utility Commission of Texas; OOME – out of merit order energy; QSE – qualified

sort of mitigation mechanism. It should not mitigate each and every high MCPE, but it should be on standby to protect the market against price spikes that arise from gaming and market manipulation.

For many market intervals, at least one high bid lies waiting for some extraordinary, unpredictable turn of events that would cause it to be struck. For example, MOD examined all up balancing energy service (UBES) bids submitted during 2002 and found that during the first half of the year 65% of all QSEs submitted at least one bid in excess of $800; of that group, slightly more than half did so between 100 and 4,000 times. During the second half of the year - after ERCOT began releasing the identities of all QSEs who submitted bids greater than $300 (or less than -$300) in the balancing energy markets[2] - the proportion of over-$800 bidders dropped to 19% of all QSEs; still, more than half of that group did so between 100 and 4,000 times. Clearly, the potential for price spikes is usually there regardless of whether there is true scarcity in the market.

B. Reply to AEP

In its criticism of MCSM, AEP lays out a set of circumstances that constitute a worst-case scenario, in which price signals across a transmission constraint are reversed as a result of mitigation.[3] AEP's scenario raises implementation questions, but does not disprove the need for a mitigation tool. Looking at the scenario, even if it is only a remote possibility, is valuable in clarifying how a measure such as MCSM should be implemented.

scheduling entity; Reliant – Reliant Resources, Inc.; San Antonio – City Public Service of San Antonio; Staff – staff of the Public Utility Commission of Texas; UBES – up balancing energy service.

[2] Disclosure of bidder identity is discussed below in subsection E.

[3] Response of the AEP ERCOT Companies to Order No. 18.

By adding a requirement that the mitigated MCPE may not fall below a certain level, the scenario described by AEP goes away entirely. For each zone where the bid stack is exhausted, a price corresponding to 90% of the available bid stack would be calculated. All MCPEs from the exhausted zones would be compared with the MCPEs for all other zones and the highest value would set the mitigated MCPE for all exhausted zones. More precisely:

$$\text{Mitigated MCPE}_i = \max \{ 90\% \text{ price}_{i,j} , \text{MCPE}_{i,k} \}$$

where *i* is the market interval;

j designates a zone where the entire available bid stack has been deployed;

k designates a zone where the available bid stack is not fully deployed;

$MCPE_{i,k}$ is the market clearing price in zone *k* for interval *i*; and

$90\%\ price_{i,j}$ is the MCPE that would have resulted from deploying 90% of the eligible bid stack in zone *j* for interval *i*.

In this way, there would be one mitigated MCPE for all exhausted zones, and that mitigated MCPE would be at least as high as the highest unmitigated MCPE. This would ensure that the differences between mitigated MCPEs and unmitigated MCPEs across congested zones are consistent with the direction of congestion.

C. Reply to Reliant

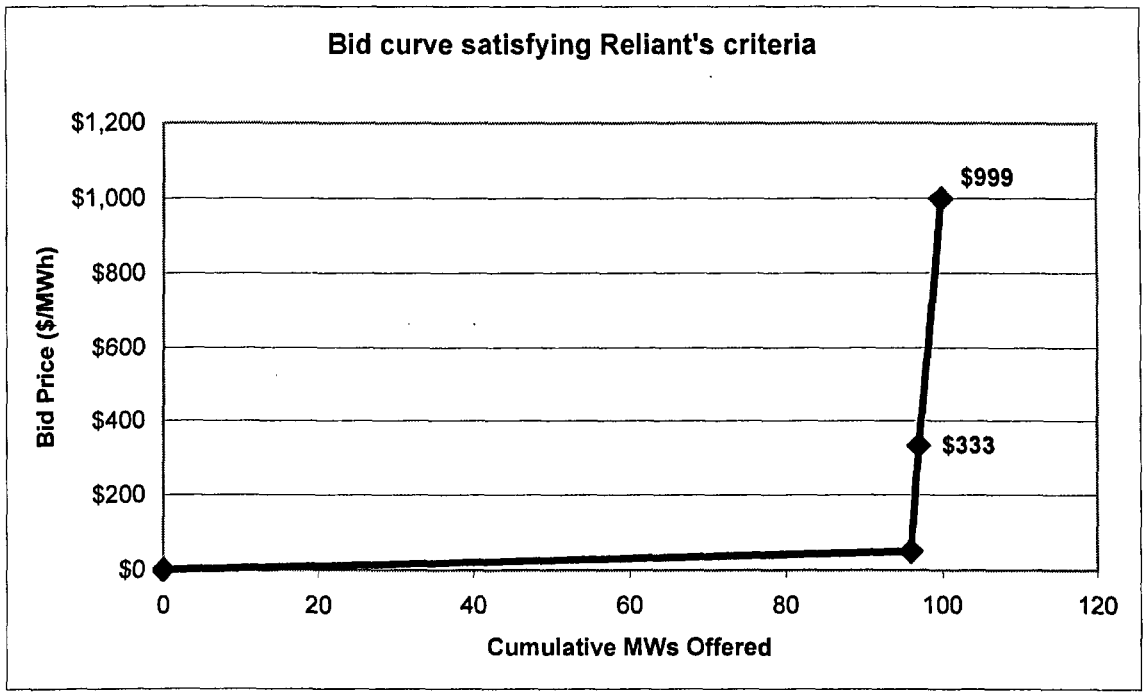
Reliant has proposed a "mitigation" plan that can best be described as a Trojan Horse.[4] Although it purports to mitigate hockey stick bidding directly, it in fact *sanctions* hockey stick bidding by providing step-by-step instructions on how to do it:

- Make the last volume-price pair 3% of the total volume included in the bid curve; and
- Set the price on the last volume-price pair to three times the next most expensive volume-price pair.

However, Reliant would waive these inconsequential requirements and allow even more extreme hockey stick behavior if three bidders did it at the same time. This amounts to an open invitation

for tacit collusion among QSEs, because it would be economically rational for all bidders to play the low-cost hockey stick lottery. As long as three or more bidders play and one of the hockey stick bids is struck, all the bidders will enjoy the spoils. Under Reliant's proposal, hockey stick bidding is still low-cost; therefore the mechanism would do virtually nothing to discourage market participants from engaging in hockey stick bidding.

The following chart illustrates the bidding strategy that Reliant would sanction as mitigation-proof:



In Staff's view, this bid curve is not substantially different from the hockey stick bids that cost the ERCOT market $17 million in additional balancing energy costs during the ice storm of February 24 and 25, 2003:[5]

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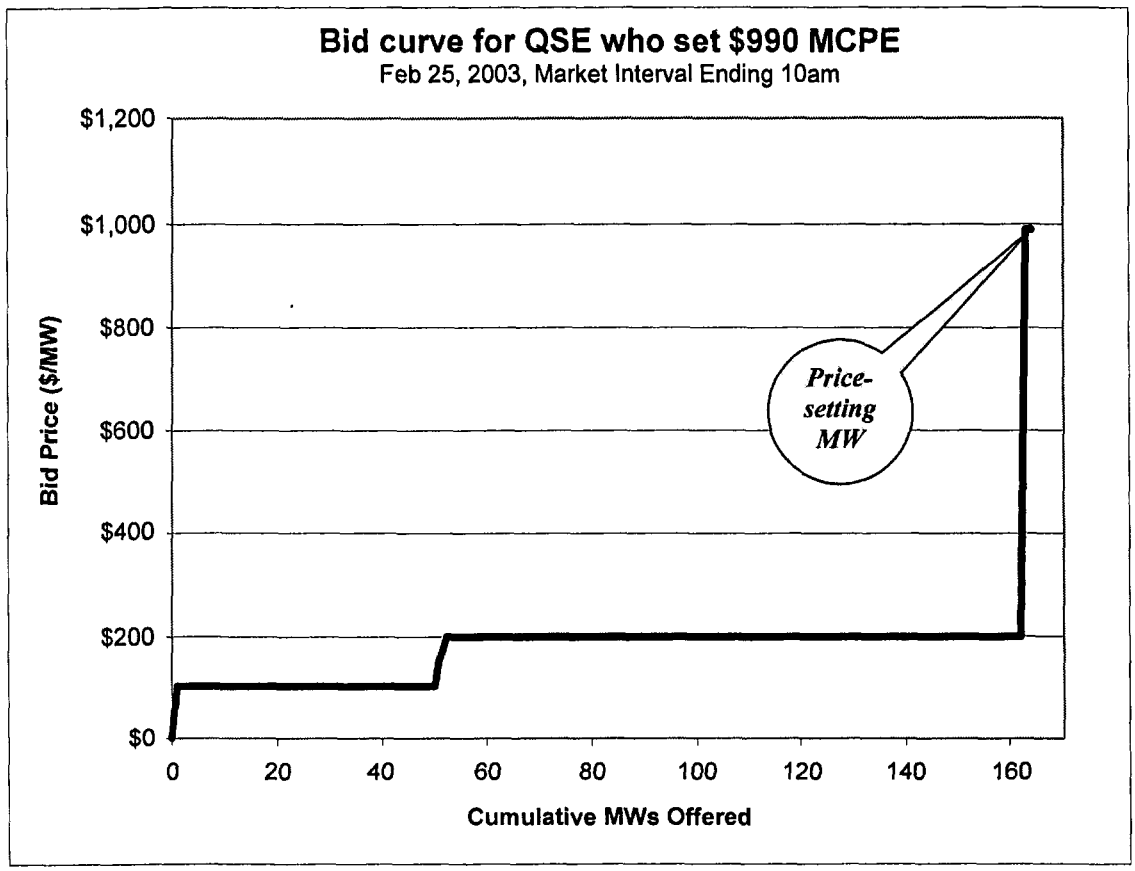
[4] Reliant Resources, Inc.'s Reply Comments to Order 18.

[5] The hockey stick bidding in the balancing energy market that pushed the MCPE to $990 also drove the cost of ancillary services to $999 for a number of intervals on February 25 and 26, as bidders saw the high balancing energy



The fundamental flaw in Reliant's proposal is that it draws a bright line for permissible individual behavior. As has been observed on a grand scale in California and on a lesser scale in Texas, such bright lines are easily gamed. Staff's approach is fundamentally different: allow QSEs to bid any way they wish (subject to the $1,000 bid cap and the requirements of the ERCOT Protocols), but use competitive conditions in the market as a whole to determine whether to trigger mitigation. The market can protect itself against hockey stick bidders as long as there is competition. MCSM is triggered by market conditions in which competition is totally absent – all available resources are deployed and there is no ability to substitute one supplier for another.

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price as their actual replacement costs. The real cost of the hockey stick bids thus went far beyond the $17 million impact in the balancing energy market.

Staff has grave concerns about Reliant's proposal and strongly urges the Commission to reject it. Not only is it a non-mitigation measure, the Reliant proposal amounts to an open invitation to game the ERCOT markets. It would provide an instruction manual for hockey stick bidding, and would tell the world that gaming is permissible in ERCOT as long as it doesn't violate the letter of the Protocols.

D. Reply to San Antonio

In Staff's view, there are significant similarities between San Antonio's proposal and MCSM. A major difference is how bids above the mitigated MCPE would be treated. Staff has proposed that these bids be paid at cost, whereas the San Antonio proposal would pay them as bid.

Staff views this difference – pay-as-bid versus pay verifiable cost – as an implementation issue that does not fundamentally affect the MCSM design. Although Staff is concerned about the incentive to submit inflated bids using pay-as-bid, the likelihood that these bids would ever be struck and paid at all is admittedly remote. Staff's preference is to pay at cost those bids that are above the mitigated MCPE, although MCSM could accommodate pay-as-bid.

Another difference is that although MCSM is triggered only when 100% of the eligible balancing energy bid stack is deployed, the San Antonio mechanism would be triggered when 95% or more of the stack is deployed. Therefore, under the San Antonio approach, price mitigation would be more frequent. This difference moves toward the original CSM model proposed by Staff for ancillary capacity services, where a bid stack is deemed competitively insufficient if more than 87% of the stack is deployed.[6] Although Staff is not averse in principle

[6] Specifically, a bid stack fails the Competitive Sufficiency Test if the entire eligible bid stack is less than 115% of what is required by ERCOT for that service.

to expanding the trigger to 95% as proposed by San Antonio, it would almost certainly have a greater impact on ERCOT systems. Indeed, the main reason Staff suggested the 100% trigger for MCSM was because of system impact concerns raised by ERCOT with respect to applying full CSM to the balancing energy markets. Staff suggests that for the purpose of closing out this docket, the Commission adopt MCSM's 100% trigger for the interim and explore San Antonio's alternative in a project dealing with long-term price mitigation measures.

E. Staff's Supplemental Proposal: "Sunshine Is the Best Disinfectant"

Staff proposes an additional mitigation measure that could be easily implemented on an interim basis with no impact on ERCOT systems: disclosing, at the Commission's discretion, the identity of the market participant whose bidding behavior causes market prices to spike perversely.

The mitigation effect would be simple. Once the Commission were to declare a "Sunshine Policy", all market participants would be on notice that they could be named publicly if they tried to game the market and ended up causing unwarranted price spikes. If the Commission were to find that an unwarranted, high MCPE was set by a market participant who was gaming the market (either through hockey stick bidding or some other strategic behavior), the Commission could simply identify the price-setting market participant. Identification of the entity who set the clearing price would not be routine, but would happen only when the Commission decided that the disclosure for the specific market interval was in the public interest.

Since July 1, 2002, ERCOT has been releasing the identities of all QSEs who submit bids greater than $300 (or less than -$300) in the balancing energy markets. The list is published on the ERCOT web site after a one-day lag. MOD has observed – both in bid data and from interviews with individual QSEs – that this disclosure appears to have reduced the number of

high balancing energy bids considerably. When the Protocol change took effect on July 1, 2002, the number of plus-$300 bids in the up balancing energy service (UBES) market dropped by half.[7]

Moreover, some of the QSEs interviewed during MOD's investigation of the February 2003 price spikes said that while fuel costs were rising they tried to keep their UBES bids below the $300 threshold as long as they could. When they finally started bidding over $300, it was because their marginal costs had in fact risen that far. At that point, the number of QSEs on the over-$300 list increased from three on February 24 to eight on February 25.

Staff believes that identifying high bidders has clearly deterred frivolously high balancing energy bids. A similar Sunshine Policy, if known to market participants ahead of time, could similarly deter hockey stick bidding and other forms of gaming before they happen. Staff therefore recommends that the Commission adopt a Sunshine Policy in conjunction with MCSM.

III. IDENTIFYING AND DISTINGUISHING TRUE SHORTAGES

Without some common notion of what makes a shortage spurious rather than true, and of what makes scarcity prices artificial rather than legitimate, evaluating an automatic mitigation procedure's economic effects is little more than an intellectual exercise equivalent to blind man's bluff. At the extreme end of the spectrum, Reliant argues that "an unencumbered spot market is essential to make the ERCOT market work."[8] Following Reliant's statement to its logical conclusion, any shortage would be true, any price increase would be a legitimate scarcity price, and therefore no mitigation should ever take place.

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[7] MOD compared May and June 2002 with July and August 2002 – two months before and two months after the disclosures began. The total number of UBES bids above $300 for the latter two months, which exhibited tighter demand and supply conditions, was about half the number for the previous two months.

Reliant's proposed alternative is consistent with its apparent anything-is-permissible philosophy of market behavior. By sanctioning hockey stick bidding – and thereby ensuring that neither MOD nor the Commission can do anything about it when such a bid sets the MCPE – the Reliant alternative makes no real attempt to distinguish true shortages from spurious ones. In fact, the Reliant alternative wouldn't even test the market for shortages at all. It would establish *individual* bidding guidelines, and as long as individual QSEs stayed within that very permissive framework, no MCPE would ever be touched regardless of what MOD or anyone else concluded about its legitimacy as a price signal.

San Antonio's alternative, on the other hand, is similar to MCSM in that it *does* look at shortage in the market as a whole, and does not focus on individual bidding behavior. A presumption that these two approaches seem to share is that if a shortage is economically true rather than spurious, it will elicit a response from the entire market. All bid prices will tend to rise, and legitimate scarcity prices will be reflected throughout the bid stack.

Both MCSM and San Antonio's alternative therefore anticipate legitimate scarcity prices being reflected in the MCPE in two ways. First, many bidders will perceive the shortage and realize that their bids will still have a good chance of being accepted if they include scarcity rent in their bid prices. Thus, the curve itself will move higher. Second, when scarcity is due at least in part to increased demand, the quantity of balancing energy deployed will increase relative to the size of the bid stack, and the MCPE will naturally move up the supply curve and settle at higher prices. These two factors ensure that, during times of true scarcity, the MCPE paid to all resources will be systematically higher:

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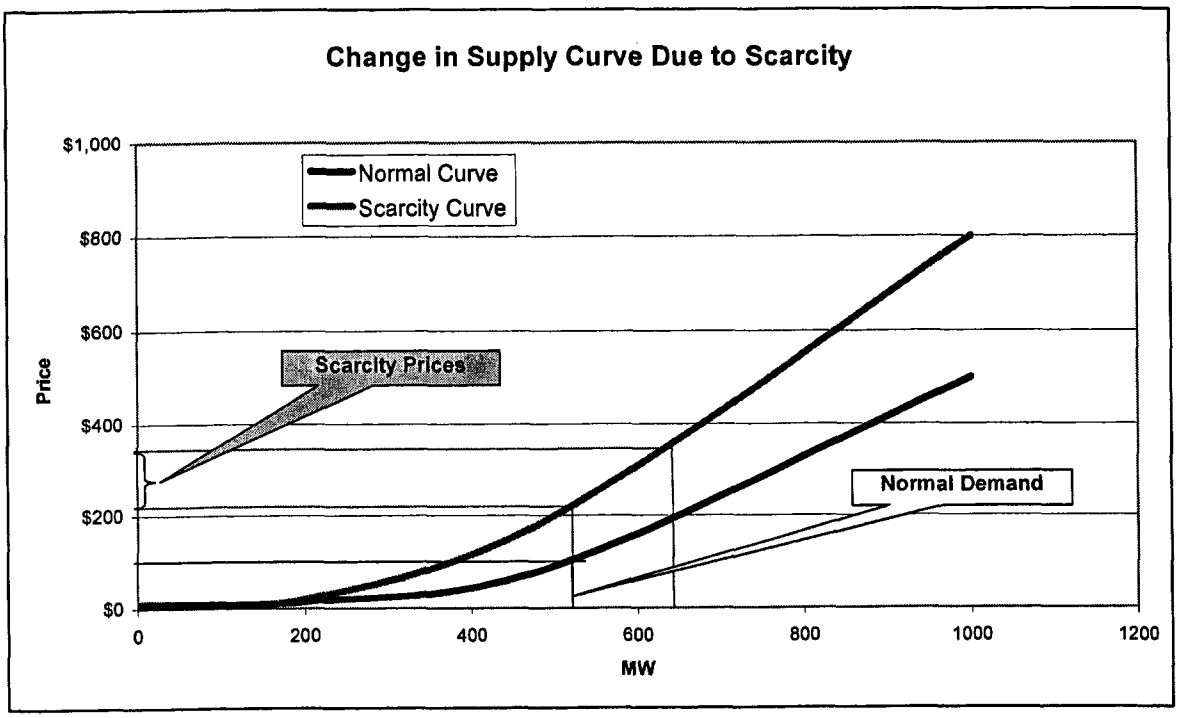
[8] Reliant Resources, Inc.'s Reply Comments to Order No. 18, p. 2.



A crucial point with regard to scarcity pricing must be kept in mind: under Reliant's proposal, a hockey stick bid can cause price to spike *without any change to the underlying supply curve whatsoever.* This is the difference between a legitimate price signal and a perverse price signal. A legitimate price signal is the result of a dynamic response from many suppliers who have perceived a shortage and have added scarcity rents to their bids. A perverse price signal is due to random, unpredictable shocks where the supply curve itself has not changed. Because many suppliers have added scarcity rents to their bids, taking away the most expensive 5% or 10% of the bid stack will still capture scarcity pricing. In a true economic shortage, the 90th and 95th percentiles will be higher than they would be under normal conditions. Eliminating the extreme portion of the curve eliminates opportunistic behavior that goes beyond legitimate scarcity rent.

IV. HOW THE VERIFIABLE COST DETERMINATION WOULD BE MADE UNDER MCSM

Staff anticipates that verifiable costs would be determined in a manner similar to existing Protocols pertaining to compensation for OOME Up service, specifically Section 6.8.2.3(c). However, balancing energy is provided through portfolio deployments rather than resource-specific deployments as in the case of OOME Up service. For payment of verifiable cost under MCSM, the bidder could identify the most expensive resource (i.e., the marginal resource) and quantify the cost of deploying that resource to provide the balancing energy at issue. Staff's recommendation is that the Commission adopt the principle of paying verifiable cost (or the mitigated MCPE, if higher) to resources deployed when MCSM is triggered, but allow stakeholders to define what those costs should be in an open forum at ERCOT (e.g., the Protocol Revision Subcommittee). This approach – deciding principles at the Commission and allowing stakeholders to fill in the details – is consistent with how the Commission has approached most market design issues.

V. CONCLUSION

Staff recommends that the Commission order ERCOT to implement MCSM no later than July 1, 2003, and recommends that the Commission adopt a Sunshine Policy for hockey stick bids.

Dated: May 1, 2003

Respectfully Submitted,

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CERTIFICATE OF SERVICE

I, Keith Rogas, certify that copies of this document will be served on all parties on May 1, 2003, in accordance with Public Utility Commission of Texas Procedural Rule 22.74.

Keith Rogas

Public Utility Commission of Texas

Memorandum

TO: Chairman Rebecca Klein
Commissioner Brett A. Perlman
Commissioner Julie Caruthers Parsley

FROM: Parviz Adib, Market Oversight Division
David Hurlbut, Market Oversight Division
Julie Gauldin, Market Oversight Division

DATE: March 18, 2003

RE: Docket No. 24770, Report of the Electric Reliability Council of Texas (ERCOT) to the PUCT regarding Implementation of the ERCOT Protocols

Proposal to Apply a Modified Competitive Solution Method to Balancing Energy Service and Update on Applying the Competitive Solution Method to Ancillary Capacity Services

The Market Oversight Division (MOD) is continuing its investigation into the price spikes in Up Balancing Energy Service (UBES) and ancillary capacity services that occurred during the cold weather event of February 24-26, 2003. As MOD indicated in its report of March 3, 2003,[1] hockey-stick bidding on the part of one qualified scheduling entity (QSE) significantly contributed to the UBES price spikes, and that absent this behavior, the market clearing price for energy (MCPE) would have been $500 per MWh or less during the intervals in question rather than $990.

Regardless of whether the QSE in question violated any rule or protocol, MOD concludes that an important contributing factor to the high prices seen on February 24-26 was the balancing energy market structure that made it possible for a single hockey-stick bid to set the MCPE at $990. After further study of the market conditions leading to the recent UBES price spikes, MOD has concluded that a modified form of the Competitive Solution Method (CSM) proposed by Staff in Docket No. 24770[2] can be quickly implemented and would have

[1] *Analysis of Balancing Energy Price Spikes during the Extreme Weather Event of February 24-26*, Market Oversight Division Staff Report (March 3, 2003). This report was filed in Project No. 23100 on March 4, 2003 and Docket No. 24770 as an attachment to Keith Rogas's memo on March 17, 2003.
[2] *See* Docket No. 24770, Commission Staff's Initial Brief (January 25, 2002), pp. 15-24.

mitigated these spikes to a level more in line with the increase in fuel costs that occurred during the cold weather event.

Similarly, MOD believes that its original recommendation to implement CSM should be considered as a remedy to address similar problems in ancillary capacity service markets.[3] With respect to the ancillary capacity service markets, MOD has provided ERCOT staff with protocol language that could implement CSM alongside simultaneous selection of ancillary services.[4] Simultaneous selection of ancillary services is currently being implemented by ERCOT.[5] ERCOT staff has told MOD that ERCOT will provide a high-level system impact assessment on CSM for the ancillary capacity service markets by early April.

Modified CSM for Balancing Energy Service

The features of CSM that complicate its application to the balancing energy service markets in fact never would have come into play during the February 24-25 BES price spikes.[6] Moreover, the conditions surrounding this price spike – in particular, ERCOT's procurement of all available UBES – will very likely characterize some future price spikes. If another extreme weather event were to increase system load beyond ERCOT forecasts, the amount of UBES required by ERCOT to balance the system and deal with local congestion could again exhaust the eligible bid stack. Hockey stick bidding is most likely to harm the market under such conditions: the last eligible megawatt is deployed, yet the bid price of that last megawatt is abnormally high due to strategic bidding rather than to changes in marginal costs.

MOD concludes that a simplified version of CSM could be implemented quickly, with little impact on ERCOT systems, as follows.

1. Test whether ERCOT deploys all eligible UBES or Down Balancing Energy Service bids from a particular zone.[7]
2. If so, flag the interval for mitigation and deploy the energy.
3. Calculate an out-of-merit (OOM) floor price, which would be the MCPE that would have resulted had ERCOT deployed 90% of the eligible bid stack.
4. Settle each deployed resource at the greater of the OOM floor price or its verifiable costs.

The simplified version would differ from full CSM in that it would only be triggered when ERCOT deploys *all* eligible balancing energy offers.[8] In addition, it would not require identifying pivotal bidders or calculating a Market Clearing Price (MCP) Limit, which are

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[3] *See* Docket No. 24770, Application of Competitive Solution Method to Data from ERCOT Ancillary Capacity Services (October 11, 2002).

[4] *See* Appendix. *See also* Order No. 17 and letter from Keith Rogas to Marc Burns dated and filed January 30, 2003.

[5] In Docket No. 23220, the Commission ordered ERCOT to use simultaneous selection of ancillary services. Docket No. 23220, *Petition of the Electric Reliability Council of Texas for Approval of the ERCOT Protocols*, Order on Rehearing (June 4, 2001), p. 7.

[6] In particular, determining who is a pivotal bidder becomes more complicated when zonal congestion results in separate balancing energy bid stacks for each congestion zone. Such determination is an integral part of calculating an MCP Limit.

[7] If there is no zonal congestion, the entire ERCOT area is treated as a single zone.

[8] Full CSM applies two competitive sufficiency tests, both of which fail when the entire bid stack is procured.

the two features of full CSM that complicate its application to the balancing energy markets.[9] Nor would it involve an extended market, which would be infeasible given the schedule for submitting balancing energy bids.

Replacing the MCPE with an OOM floor price would not change the amount of balancing energy procured, just the level at which it would be paid. The OOM floor would apply to a zone if and only if all that zone's available balancing energy offers were procured.

This procedure would be consistent with current ERCOT protocols that establish a wall between real-time system operators and bid information. That means ERCOT system operators would still be free to make real time decisions at any time without having to worry about the marginal cost of the last megawatt of balancing energy. This procedure would, however, automatically protect the market from harm in the event that operators needed every eligible megawatt from a zonal stack that happened to be affected by hockey stock bidding.

MOD has consulted with ERCOT staff, and they confirmed that verifying whether 100% of the eligible bid stack was deployed would be relatively easy, but that it may be more complicated to check for less than 100% deployment, especially if there is zonal congestion.[10] A Commission decision to implement a "100% deployment solution" soon would not preclude additional measures later that would address other relevant scenarios, however.

What MOD proposes here is not a perfect or comprehensive mitigation procedure, but it would be good enough to prevent price spikes whose characteristics match those seen on February 24 and 25 in UBES. Therefore, MOD recommends implementing this proposed simplified CSM for balancing energy service soon, and exploring further mitigation measures for balancing energy in Project No. 26376, Rulemaking on Wholesale Market Design Issues in the Electric Reliability Council of Texas.[11]

The following chart shows how modified CSM would have affected the MCPE for the interval ending at 6 p.m. on February 24, 2003, when the MCPE spiked to $990. Note that the OOM floor price still would have been $299, which is indicative of fuel costs on the spot market for natural gas at the Houston Ship Channel hub during the cold weather event.

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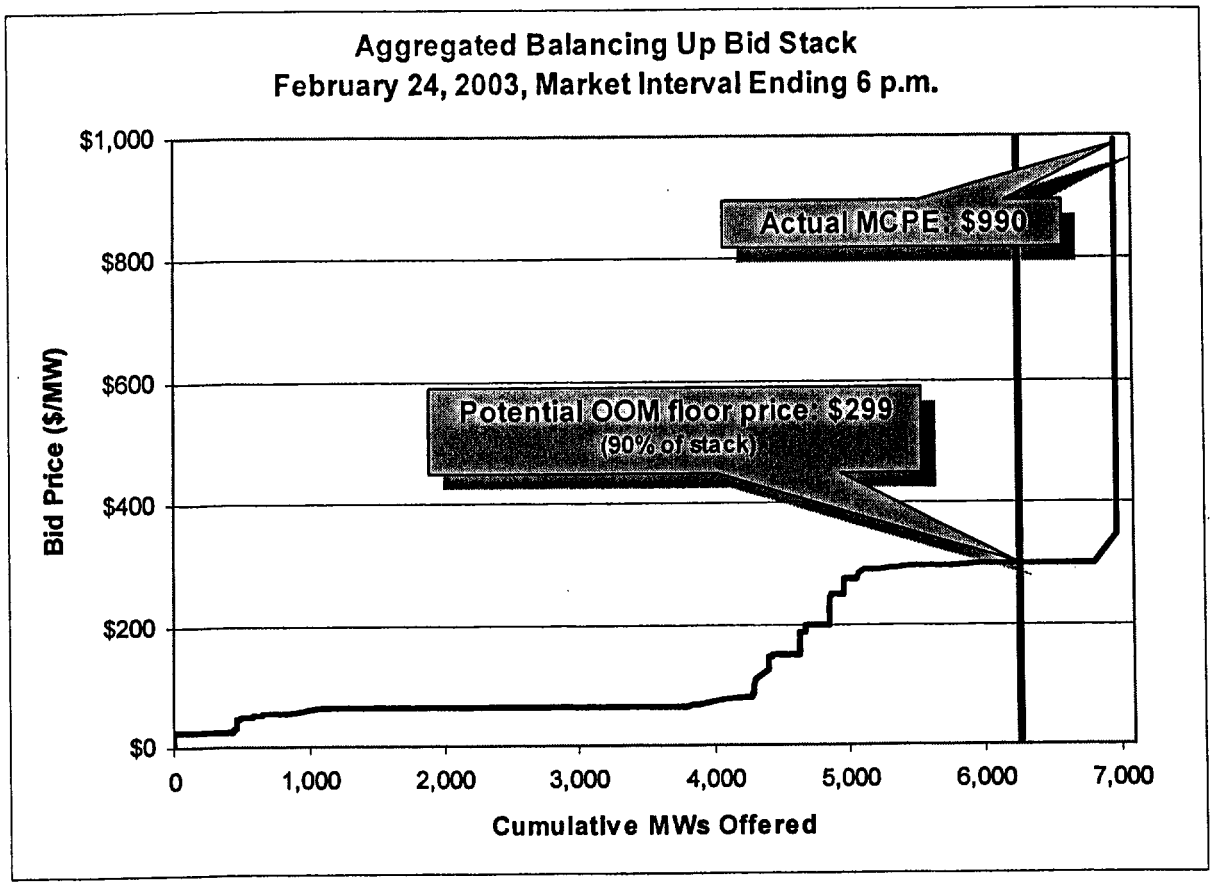
[9] A bidder is pivotal if removing all of its offers would leave the bid stack short of what ERCOT needs. All bidders are pivotal when the entire stack is procured, which makes the MCP Limit zero.

[10] In fact, ERCOT already flags intervals for which all eligible bids were deployed.

[11] Further mitigation measures for balancing energy are dependent upon the congestion management method adopted by the Commission in Project No. 26376. *See* Commission Staff' Response to Order No. 17 concerning Procedural Schedule (December 16, 2002), p. 2, last pargraph.


Aggregated Balancing Up Bid Stack
February 24, 2003, Market Interval Ending 6 p.m.
$1,000
$800
$600
$400
$200
$0
Bid Price ($/MW)
Actual MCPE: $990
Potential OOM floor price: $299
(90% of stack)
0
1,000
2,000
3,000
4,000
5,000
6,000
7,000
Cumulative MWs Offered

Appendix:
Implementation of the Competitive Solution Method in ERCOT Ancillary Capacity Service Markets

Add to 2.1, Definitions

Ancillary Services Simultaneous Optimization Model
The optimization model used to simultaneously procure Regulation Up, Responsive Reserves, and Non-spinning reserves.

Composite Ancillary Services Bid Stack
All the bids received for Regulation Up, Responsive Reserves, and/or Non-spinning Reserves for the same time interval.

Pivotal Bidder

A bidder is considered pivotal if removing all of its offered quantities from the Bid Stack will result in a Bid Stack that is less than the total quantity to be obtained by ERCOT.

6 Ancillary Services

6.8 Compensation for Services Provided

6.8.1 Payments to Providers of Ancillary Services Procured in the Day-Ahead and Adjustment Periods

6.8.1.1 Payments for Ancillary Service Capacity

6.8.1.2 Automatic Mitigation – Competitive Solution Method

6.8.1.2.1 Competitive Sufficiency Test

(1) For each Settlement Interval in the Day-Ahead Market, ERCOT shall apply a Competitive Sufficiency Test to the Bid Stack for Regulation Down Service, and to the Composite Ancillary Services Bid Stack for Regulation Up, Responsive Reserves, and Non-spinning reserves.

(2) A Bid Stack shall fail the Competitive Sufficiency Test if either of the following conditions are true.

(a) The total capacity available is less than 115% of the total capacity to be obtained by ERCOT, or

(b) The MCPC is set by a Pivotal Bidder.

(3) In applying 6.8.1.2.1(2)(a), ERCOT shall employ the following methodology:

(a) For Regulation Down Service:

$$CA_{RDi} = \sum_{q} C_{RDiq}$$

and

$$\frac{CA_{RDi}}{CP_{RDi}} \geq 115\%$$

where:

i : interval being calculated

C_{RDiq} : the MW of capacity offered by QSE q for Regulation Down Service for interval i

CA_{RDi} : the total capacity available for Regulation Down Service for interval i

CP_{RDi} : the total Regulation Down Service to be procured by ERCOT for interval i.

(b) For the Composite Ancillary Services Bid Stack for Regulation Up, Responsive Reserves, and Non-spinning Reserves:

Let CP_{RUi} = the total Regulation Up Service capacity to be procured by ERCOT for interval i.

Set $CP_{RUi}^{revised} = 1.15 * CP_{RUi}$

Let CP_{RRi} = the total Responsive Reserve Service capacity to be procured by ERCOT for interval i.

Set $CP_{RRi}^{revised} = 1.15 * CP_{RRi}$

Let CP_{NSi} = the total Non-Spinning Reserve Service capacity to be procured by ERCOT for interval i.

Set $CP_{NSi}^{revised} = 1.15 * CP_{NSi}$

Then, run the Ancillary Services Simultaneous optimization model, substituting $CP_{RUi}^{revised}$ in place of CP_{RUi}, substituting $CP_{RRi}^{revised}$ in place of CP_{RRi}, substituting $CP_{NSi}^{revised}$ in place of CP_{NSi} and keeping all other inputs the same. If there is a feasible solution to the LP, then the Composite Ancillary Services Bid Stack passes the 115% test, otherwise it fails.

(4) In applying 6.8.1.2.1(2)(b), ERCOT shall employ the following methodology:

(a) For the Composite Ancillary Services Bid Stack for Regulation Up Service, Responsive Reserve Service, and Non-Spinning Reserve Service, a QSE *q* is pivotal if removing all of the QSE's bids from the Composite Ancillary Services Bid Stack and re-running the Ancillary Services Simultaneous optimization model results in an infeasible solution.

(b) For Regulation Down Service, a QSE *q* is pivotal if

$$CA_{RDi} - C_{RDiq} < CP_{RDi}$$

where

i: the interval being tested

q: the bidding QSE being tested

C_{RDiq}: bids by QSE *q* during interval *i* for Regulation Down Service

CA_{RDi} : the total capacity available for Regulation Down Service for interval i.

CP_{Di} : the total Regulation Down Service obtained by ERCOT for interval i.

6.8.1.2.2 Extended Market

(1) If a Bid Stack (either the Composite Ancillary Services Bid Stack or the Regulation Down bid stack) fails the Competitive Sufficiency Test, ERCOT shall post Indicative MCP(s) equal to the clearing price(s) which would result from the original Bid Stack. ERCOT shall also extend by one hour the Day-Ahead Market in the service or combination of services for the Settlement Interval that failed the test. During the Extended Market, QSEs may:

(a) increase their self-arrangement for the affected services,

(b) withdraw bids to the extent that the corresponding withdrawn quantities are to be used to serve an ancillary service requirement that has been converted during the Extended Market from ERCOT-obtained to self-arranged,

(c) offer additional quantities to ERCOT at a price of $0 (i.e., the QSEs will be price takers as to these quantities), and/or

(d) increase the services to which an existing bid applies (in the case of the Composite Ancillary Services Bid Stack), as long as the revised bid meets the restrictions in 4.4.11. If a change in an existing bid results in the bid not conforming to 4.4.11, then the original bid will be maintained by ERCOT.

(2) After the close of the Extended Market, ERCOT shall determine Extended-Market MCP(s), which shall apply to all quantities procured by ERCOT for the affected Settlement Interval. In the case of Regulation Up Service, Responsive Reserve Service, and Non-Spinning Reserve Service, an Extended-Market MCP for each of the three services shall be calculated by applying the Ancillary Services Simultaneous Optimization Model to the Extended-Market Composite Ancillary Services Bid Stack. The Extended-Market Bid Stack shall include all bids submitted for that Settlement Interval in the original Day-Ahead Market that have not been withdrawn under (1)(b), and those that have been submitted or changed under (1)(c) and (1)(d).

(3) At the end of the Extended Market, the Competitive Sufficiency Test shall be applied again. If the Extended-Market Bid Stack passes the Competitive Sufficiency Test, ERCOT shall use the Extended-Market MCPs to pay QSEs whose bids are accepted.

(4) If the Extended-Market Bid Stack fails the Competitive Sufficiency Test, then ERCOT shall calculate an MCP Limit for the failed Settlement Interval. A QSE whose bid is accepted shall be paid the Mitigated MCP, which shall be the lower of the MCP Limit or the Extended-Market MCP. ERCOT shall use all QSE bids accepted in the Extended Market up to the quantity to be obtained by ERCOT and to the extent that the bids are at or below the Mitigated MCP. If this competitive procurement is insufficient to meet the entire quantity to be obtained by ERCOT, ERCOT shall obtain the remaining quantity needed pursuant to subsection (6) below.

(5) If the Extended-Market Bid Stack fails the Competitive Sufficiency Test and an MCP Limit cannot be calculated, ERCOT shall obtain the entire quantity needed pursuant to subsection (6) below.

(6) To the extent described above, ERCOT shall OOM available Resources on a non-discriminatory basis, regardless of whether the Resources were bid into ERCOT-administered markets, to obtain needed quantities and shall pay the OOMed Resources the higher of their verifiable, incremental costs directly attributable to the services provided or the marginal prices corresponding to 90% of the quantities procured by ERCOT from the Bid Stacks. [Verifiable, incremental costs directly attributable to the services provided shall be determined according to a new Protocol provision or a modification of 6.8.2.2(4) and (5)].

6.8.1.2.3 MCP Limit

The method for calculating an MCP Limit for Regulation Down is as follows:

(1) Remove from the Extended-Market Bid Stack all bids from Pivotal Bidders to obtain a Non-Pivotal Bid Stack.

(2) The MCP Limit is 150% of the MCPC that would have resulted if ERCOT had procured the lowest-priced 95% of the Non-Pivotal Bid Stack.

The method for calculating MCP Limits for Regulation Up Service, Responsive Reserve Service, and Non-Spinning Reserve Service is as follows:

(1) Obtain a Non-Pivotal Bid Stack by removing from the Extended-Market Bid Stack all bids from Pivotal Bidders.

(2) Obtain a Revised Constraint Set for the Ancillary Services Simultaneous Optimization Model as follows:

(a) subtract any capacity accepted from Pivotal Bidders for Regulation Up from CP_{RUi} ,

(b) subtract any capacity accepted from Pivotal Bidders for Responsive Reserves from CP_{RRi} ,

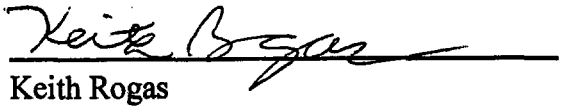
(c) subtract any capacity accepted from Pivotal Bidders for Non-spinning Reserves from CP_{NSi} , and

(d) reduce each of the resulting CP values by a further 5%.

(3) For each service, the MCP Limit is 150% of the MCPC that would have resulted if ERCOT had solved the Ancillary Services Simultaneous Optimization Model using the Revised Constraint Set and the Non-Pivotal Bid Stack.

CERTIFICATE OF SERVICE

I, Keith Rogas, certify that copies of this document will be served on all parties on March 18, 2003, by fax.



Keith Rogas

DOCKET NO. 24770

REPORT OF THE ELECTRIC RELIABILITY COUNCIL OF TEXAS (ERCOT) TO THE PUCT REGARDING IMPLEMENTATION OF THE ERCOT PROTOCOLS	**§ § § § §**	**PUBLIC UTILITY COMMISSION OF TEXAS**

COMMISSION STAFF'S RESPONSE TO ORDER 18

Thomas S. Hunter
Division Director - Legal Division

Keith Rogas
Director – Legal Division, Electric Section

April 3, 2003

DOCKET NO. 24770

REPORT OF THE ELECTRIC RELIABILITY COUNCIL OF TEXAS REGARDING CERTAIN MARKET DESIGN ISSUES	§ § § §	PUBLIC UTILITY COMMISSION OF TEXAS

COMMISSION STAFF'S RESPONSE TO ORDER 18[1]

I. INTRODUCTION

As explained below, Staff recommends that the Commission at this time: (1) decide to eliminate the July 4, 2003 generator balancing energy bid cap termination date as part of the final order in Docket No. 24770, and to not place a termination date on the other bid caps that it has approved on an interim basis in this docket; and (2) approve Staff's modified Competitive Solution Method (MCSM) for balancing energy service and to order its prompt implementation by ERCOT.

II. BACKGROUND

The genesis of the market failure mitigation issues in the current docket was a report from Dr. Oren, *prepared over two years ago*, in the docket in which the Commission approved the

[1] This pleading uses the following abbreviations: BES – balancing energy service; Commission – Public Utility Commission of Texas; CSM – Competitive Solution Method; DBES – down balancing energy service; DOJ – United States Department of Justice; ERCOT – Electric Reliability Council of Texas; IRS – United States Internal Revenue Service; MCP – market clearing price; MCSM – Modified Competitive Solution Method; MOD – Market Oversight Division of the Public Utility Commission of Texas; QSE – qualified scheduling entity; REP – retail electric provider; Staff – staff of the Public Utility Commission of Texas; STF – Special Task Force; TAC – Technical Advisory Committee; UBES – up balancing energy service.

initial Protocols.[2] In that docket, the Commission ordered ERCOT to consider certain issues raised by Dr. Oren and report back to the Commission by October 1, 2001, which ERCOT did.[3] In order to prepare the report ordered by the Commission, the ERCOT TAC created a Special Task Force (STF), which began meeting in July 2001 and was chaired by a Reliant representative. STF did not have a defined membership. Instead, it was open for participation by stakeholders, although only ERCOT members could vote at the meetings.[4] It was through the STF meetings that Staff developed CSM and received valuable feedback from stakeholders on earlier versions of CSM.[5] It was also through STF that many wholesale market participants developed their response to the Commission's concern about the potential for ancillary service market failure. According to these market participants that voted in favor of the STF report, the Commission should not order the implementation of market failure protections because "there is no indication of market failure."[6] These market participants have even opposed the $1,000 backstop bid/offer caps,[7] which the Commission has already approved on an interim basis in Order Nos. 13 and 14. However, they did provide "possible solutions" "to the extent that the operation of the market demonstrates that changes need to be made".[8] Nevertheless, Staff demonstrated in its initial brief in this docket the inadequacy of these "possible solutions".[9]

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[2] Docket No. 23220, *Petition of the Electric Reliability Council of Texas for Approval of the ERCOT Protocols*, Docket No. 23220, Report to the Public Utility Commission of Texas on the ERCOT Protocols, Shmuel S. Oren, Ph.D. (2/9/01).

[3] Docket No. 23220, Order on Rehearing, p. 8, last paragraph – p. 9, second paragraph, p. 13, last paragraph, 53; Docket No. 24770, ERCOT Report (10/1/01); Docket No. 24770, Commission Staff's Initial Brief (1/25/02), p. 8, last paragraph – p. 10, first paragraph.

[4] ERCOT Report (10/1/01), p. 2, second paragraph.

[5] Commission Staff's Reply Brief (2/15/02), p. 16.

[6] Commission Staff's Initial Brief (1/25/02), p. 12, second paragraph. Neither TAC nor the ERCOT Board adopted the STF report. *See* ERCOT Report, p. 9.

[7] *See* Commission Staff's Initial Brief (1/25/02), p. 27.

[8] ERCOT Report, p. 27, first paragraph.

[9] Commission Staff's Initial Brief (1/25/02), p. 24, second paragraph – p. 28, second paragraph.

The parties in this docket agreed to waive the right to a hearing and instead brief the issues.[10] Nevertheless, the Commissioners presided over a technical conference that included a discussion of the ancillary service issues addressed by CSM. Sworn witnesses participated in this discussion.[11] After this technical conference, the Commissioners discussed CSM during a number of Open Meetings and asked for additional information, including application of CSM to historical data and a procedural schedule to consider implementation issues. Staff filed a report in which it described the application of CSM to historical data for the daily ancillary capacity services; parties commented on the report; and Staff replied to the comments.[12]

In response to Order No. 17, Staff developed Protocol language to implement CSM for the daily ancillary capacity services, and ERCOT expects to complete by early this month a high-level cost and schedule estimate to implement CSM for these services.[13]

In a filing made on December 16, 2002, Staff recommended that implementation of CSM for balancing energy service (BES) proceed on a separate track, for three reasons. First, implementation of CSM to BES is dependent upon the congestion management method adopted by the Commission in Project No. 26376, *Rulemaking Proceeding on Wholesale Market Design Issues in the Electric Reliability Council of Texas*. If the Commission orders ERCOT to change from the current zonal congestion management model to a nodal congestion management model, then Staff believes that application of CSM to energy service would not be feasible, and the Commission would need to consider other market failure mitigation measures for energy service,

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[10] *See* Order No. 7.

[11] *See* Order No. 11.

[12] Application of Competitive Solution Method to Data from ERCOT Ancillary Capacity Services (10/11/02); Commission Staff's Response to Comments on Staff Report (12/13/02).

[13] *See* January 30, 2003 letter from Keith Rogas to Marc Burns; Appendix to the March 18, 2003 memo from MOD to Commissioners; March 21, 2003 Open Meeting transcript, p. 234, l. 21 – p. 235, l. 2.

for example the New York Independent System Operator's Automated Mitigation Procedure.[14] Second, Staff has not yet applied CSM to historical BES data (as it has for the daily ancillary capacity services), and doing so will take a considerable amount of time. Third, application of CSM to BES would be significantly more involved than application to the daily ancillary capacity services.[15]

In response to the price spikes in the BES market in February 2003 and the resulting bankruptcy of Texas Commercial Energy, Staff developed MCSM. ERCOT has stated that MCSM could be implemented immediately, with no system impacts.[16]

III. BID CAPS

The ERCOT bid portal accepts an unlimited number of digits. As a result, without the $1,000 bid caps currently in place, a QSE could bid $999,999 (or $1 trillion), and that bid could set the market clearing price. More specifically, during the period February 24-25, 2003, the price for up balancing energy service (UBES) hit $990/MWh for a total of seven hours, due to a single market participant bidding a single megawatt-hour at $990.[17] Absent the $1,000/MWh bid cap, this single market participant could have bid this single megawatt-hour at $999,999 for those seven hours, which would have increased the price for all UBES purchased by ERCOT for these seven hours to $999,999/MWh, at a total cost of $31.6 **billion**. In other words, for seven hours in a recent two-day period, ERCOT's purchases of relatively small amounts of energy would have

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[14] *See* Staff's October 23, 2002 filing, which describes this Procedure. Staff believes that application of CSM to the daily ancillary capacity services would be feasible under a nodal congestion management model, although it would require the additional step of aggregating affiliated resource-specific bids, if bidding for the daily ancillary capacity services became resource-specific.

[15] Commission Staff's Response to Order No. 17 concerning Procedural Schedule (12/16/02), p. 2, last paragraph – p. 3, first paragraph.

[16] March 21, 2003 Open Meeting transcript, p. 236, l. 5–15 (ERCOT indicated that a manual process could be used so long as MCSM was applied infrequently, which is consistent with historical data).

cost an amount that would dwarf the cost of the multi-year California energy crises that is currently in multi-year litigation. Undoubtedly, a number of market participants would have joined Texas Commercial Energy in filing for bankruptcy had UBES cleared at $999,999/MWh instead of $990/MWh. In California, before bid caps were implemented, the bid portal accepted up to four digits and the market cleared at $9,999/MW per hour.[18]

Apparently, Reliant's response to the risk of extremely high market clearing prices is that market participants should not rely at all on ERCOT-administered ancillary service markets.[19] However, in well functioning commodity markets, market participants do rely on spot markets to meet a portion of their needs. Furthermore, in the absence of market failure mitigation measures and given the inelastic demands for ERCOT ancillary services, market participants will either have to substantially overprocure supply to avoid the risk of relying on the ERCOT-administered spot markets or will have to take the risk of relying on those markets and filing for bankruptcy if the markets clear at very high prices.[20]

Bid caps are a well-established, essential measure to avoid an immediate market meltdown in competitive electricity markets.[21] To confirm the efficacy of the bid caps in ERCOT, MOD reviewed the ERCOT MCPs and found that, since the opening of the new market in July 31, 2001, the ERCOT-administered ancillary service markets have cleared above $990 the

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[17] March 17, 2003 letter from Keith Rogas to Commissioners, attached MOD report, p. 2, second paragraph.

[18] Commission Staff's Initial Brief (1/25/02), p. 26, last paragraph, last sentence.

[19] *See* Reliant Resources, Inc.'s Response to Staff Proposal of March 18, 2003 (3/20/03), p. 3, second paragraph.

[20] A load serving entity could seek to transfer the risk of relying on the ERCOT-administered markets to a wholesale supplier. However, that risk would be reflected in the contract between the two, or the wholesale supplier would have to declare bankruptcy if it was caught short due to resource outages during a very high MCP period.

[21] If quick demand-side response to prices substantially increases in the future, the bid cap for up balancing energy service could become superfluous. However, it is not clear that increased demand response will ever be able to render superfluous the bid caps for down balancing energy service or the ancillary capacity services.

following number of times: UBES – 207; down balancing energy service (DBES) - 162;[22] up regulation reserve service – 15; down regulation reserve service – 1; responsive reserve service – 25; and non-spinning reserve service – 41.

Staff urges the Commission to decide at this time to eliminate the July 4, 2003 generator balancing energy bid cap termination date as part of the final order in Docket No. 24770, and to not place a termination date on the other bid caps that it has approved on an interim basis in this docket. Staff recognizes that the bid caps should be periodically reviewed to ensure that they do not become too low (or too high) and thereby adversely affect generation investment and other market decisions.[23] The Commission will have an opportunity to revisit the level of the bid caps as part of Project No. 24255, *Rulemaking concerning Planning Reserve Margin Requirements.*[24]

IV. MODIFIED COMPETITIVE SOLUTION METHOD FOR BALANCING ENERGY SERVICE

A. Overview

Staff has already extensively explained the justification for CSM.[25] As indicated above in section II, Staff believes that the Commission should order ERCOT to promptly implement CSM to the daily ancillary capacity services, once ERCOT provides its high-level cost and schedule estimate early this month. However, for the reasons described above in section II, the Commission should delay consideration of implementation of CSM to balancing energy service.

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[22] The numbers for UBES and DBES count each zone separately, even when there was no congestion.

[23] March 17, 2003 memo from Keith Rogas to Commissioners, p. 2, first paragraph; Commission Staff's Reply Comments pursuant to Order No. 13 (8/13/02), p. 1, last paragraph.

[24] March 17, 2003 memo from Keith Rogas to Commissioners, p. 2, last paragraph.

Nevertheless, the price spikes in the BES market in February 2003 and the resulting bankruptcy of Texas Commercial Energy made clear the need for some automatic market failure mitigation measures in the short run for BES, in addition to the bid cap. To fill this need, Staff developed MCSM. ERCOT has stated that MCSM could be implemented immediately, with no system impacts.[26]

It is important to note that MCSM essentially *is* CSM. The only modification is that the threshold triggering the procedure is increased. CSM would produce exactly the same result as MCSM in circumstances where ERCOT procures all eligible UBES or DBES bids from a particular zone or procures all eligible UBES or DBES bids for all of ERCOT.[27] MCSM would apply only in these circumstances, whereas CSM would apply in other circumstances as well. As a result, there is ample support in the record of this docket to support Commission adoption of MCSM. Therefore, as a legal matter, the Commission need not succumb to the delay tactic of a party requesting additional study or a hearing.

The unique features of current electricity markets – the essential nature of the service; the short-run inelasticities of both demand and supply; the inability to cost-effectively store supply; and the need to balance demand and supply in real time – make them particularly susceptible to market failure.[28] In a typical competitive market, when prices rise, customers buy less, which thereby moderates prices while supply increases. In addition, a short-term supply imbalance is moderated by the use of stored quantities of the product. In contrast, ERCOT ancillary capacity

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[25] Commission Staff's Initial Brief (1/25/02), p. 15-24; Commission Staff's Reply Brief (2/15/02), p. 22-30; July 19, 2002 Technical Conference; Application of Competitive Solution Method to Data from ERCOT Ancillary Capacity Services (10/11/02).

[26] March 21, 2003 Open Meeting transcript, p. 236, l. 5–15 (ERCOT indicated that a manual process could be used so long as MCSM was applied infrequently, which is consistent with historical data).

[27] March 18, 2003 memo from MOD to Commissioners; Commission Staff's Initial Brief (1/25/02), p. 16-20.

[28] Commission Staff's Reply Brief, p. 20, first paragraph – p. 21, first paragraph.

service quantities will not be reduced at all in response to price increases. Instead, ERCOT specifies the quantities needed from a reliability perspective, and these quantities are procured, regardless of price. In addition, there is little potential to cost-effectively store the ancillary capacity services. Compared to the ERCOT ancillary capacity services, customers do have some ability to respond to high electric energy prices. In California, when the price of electricity rose substantially for a sustained period of time, consumption dropped substantially, which had a significant dampening effect on prices. However, for the ERCOT balancing energy market, which is where supply and demand must be balanced in real time, price spikes generally occur for only short periods of time. Therefore, it is much more difficult for customers to respond to such short-term price spikes. In ERCOT, consumption is measured and settled in 15-minute increments. Therefore, for a customer to capture the benefit of decreasing consumption in response to short-term balancing energy price increases, the customer's consumption must be measured in short intervals. Such short-term consumption measurement is currently limited primarily to very large customers in ERCOT.

B. The Need for Mitigation

John D. Chandley of LECG, LLC has recently commented on MCSM, and Staff would like to take this opportunity to respond to Mr. Chandley's comments.[29] Mr. Chandley acknowledges not knowing the specifics of either the February BES price spike or MCSM, yet that does not deter him from challenging the merits of MCSM on theoretical grounds. He states that "hockey stick bidding *may* well track marginal costs", "bids at or above $1,000 for the last increments *may* be legitimate", and "there are other reasons why prices *can legitimately* spike" (italics added), then fails to address the heart of the matter: when are high prices legitimate and

when are they not? Staff submits that Mr. Chandley's failure to address the crucial question reveals his predilection towards a dogma that rejects any price mitigation under any circumstance – a predilection that seems to be shared by many generators for whom such a dogma would be conveniently profitable, to the detriment of load-serving entities.

Mr. Chandley's opposition to MCSM appears to be based on the premise that bids should always be left untouched, because there is a remote possibility that a high bid is justified. This argument stands on its head the entire philosophy of market mitigation, as well as the rationale underlying merger audits and market concentration limits imposed by DOJ. The relevant question is not, "is it possible that a justifiably high price will be mitigated?", but rather "is it possible that an unjustifiably high price will create massive transfers of wealth between consumers and producers?" The objective of automatic market mitigation is to close loopholes and abate gaming. One should operate on the assumption that when such gaming opportunities exist, profit seeking companies will exploit them. Indeed, competitive electricity markets have an abundance of experience where loopholes were gamed for profit. ERCOT has not been immune from such gaming, and will continue to be at risk of such gaming until the loopholes are closed. The fact that an unjustified hockey stick bidding strategy can profit its perpetrator at essentially no risk is ample reason for market mitigation and audit of such bidding strategies, whether it turns out that the high prices where justified or not.

The DOJ market concentration criteria, for instance, are based on the same principles as market mitigation in competitive electricity markets. It is well known that high market concentration is harmless in a market with high demand elasticity, yet the HHI threshold (which does not account for elasticity) automatically triggers an elaborate DOJ audit, regardless of

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[29] *See* March 27, 2003 memo from Commissioner Perlman.

whether the high concentration would actually lead to the exercise of market power. IRS audits are also based on general metrics even though in some cases it turns out that deviations from the norm are justified. MCSM should be viewed in this spirit. Given the great potential for abuse when the bid stack is fully exhausted, MCSM triggers an audit of all bids that exceed the 90% bid stack price level and limit the price setting ability of bids above such level. Such a measure is fully justified by the potential for gaming and the severe financial consequences of such behavior for consumers.

C. Inelastic Demand

If any market is to work for the benefit of society, it must be either competitive or regulated, or a combination of both. If a market is to be competitive, buyers must have the potential to substitute one supplier for another. Without the ability to switch (or to cut back demand) buyers are hostage to market forces they are unable to influence. When any supplier can command any price without fear of diminishing demand, the price reflects little more than the whim of the least merciful supplier and does not provide a rational, coherent signal for market behavior. This is what the economic term "inelastic demand" means.

Substitution is not possible when all available supplies are being deployed. It is full deployment and the resulting lack of substitutability – not, as some parties have implied, the mere occurrence of high prices – that Staff proposes to be the trigger for MCSM in the balancing energy market.

Substitution is also impossible when the clearing price is set by a pivotal supplier, even though a small amount of supply remains unprocured. Because its absence would create a shortfall, a pivotal supplier cannot be swapped out for another supplier. Therefore, the market has no economic choice but to accept whatever price the pivotal bidder chooses to charge –

again, the market is compromised by inelasticity in demand. Pivotal suppliers are easily identified in the daily ancillary capacity markets, and CSM would apply a pivotal supplier test to these markets.

If scarcity characterizes the market as a whole and all bid prices increase, the price corresponding to the 90th percentile of available supply (the floor price proposed in CSM and MCSM) will rise along with all other prices and will reflect changes in the entire market. By contrast, the highest price can reflect blatant opportunism. Mr. Chandley argues that a generator could legitimately bid a dramatically higher price for its last possible increment of output in order to compensate for the resulting dramatically increased risk of forced outage for the entire facility. Staff submits that ERCOT consumers would be better off if such a high bid were not made, rather than face a dramatically increased risk of a forced outage for the entire facility. MCSM covers two scenarios: where the zonal bid stack is depleted, but ERCOT can turn to another zonal bid stack to relieve the congestion, or a system-wide shortage where the bid in question is the last one available to ERCOT. In the latter case, if the generator doesn't make the very high bid due to MCSM, then ERCOT will have to shed firm load. Then, the question is whether the value of lost load is less than the reduced payments resulting from application of MCSM. Because application of MCSM reduces the MCP whereas the value of lost load relates only to the small increment that was interrupted, the answer is yes. As to the first scenario, depletion of only a zonal bid stack, the cost savings from MCSM will be greater than the cost of having to turn to another zonal bid stack. Like bid caps, MCSM would help avoid imposing excessive costs on consumers.

D. Price volatility

Although it is true that reasonably high prices can provide appropriate economic signals to the market, wide variances and unpredictability of prices only undermine market stability and can confuse the economic signals. Price volatility adds a risk burden to REPs, but it also makes it more difficult for supply-side investors to judge the value of new generation.

Mitigating unwarranted swings in prices would result in lower average prices, and it would also reduce price volatility to an even greater degree. In addition, the prices at which the market operates most of the time would not be affected by MCSM. Thus investors (and REPs) would largely see the same costs without the unpredictable danger of capricious price swings, while generators would still be assured of recovering at least their verifiable costs on an individual basis.

V. CONCLUSION

The basic market failure mitigation issues in this docket were first raised by Dr. Oren in February 2001; they have been under consideration by the ERCOT generators since July 2001; and they have been under consideration by the Commission since October 2001. The extensive information that Staff has provided in this docket, along with actual experiences in ERCOT and other competitive electricity markets, provide ample support for the two modest measures addressed in this pleading: continued existence of the bid caps already in place and implementation of MCSM. Staff urges the Commission to adopt Staff's recommendations on these issues at this time.

Dated: April 3, 2003

Respectfully Submitted,

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CERTIFICATE OF SERVICE

I, Keith Rogas, certify that copies of this document will be served on all parties on April 3, 2003, in accordance with Public Utility Commission of Texas Procedural Rule 22.74.

Keith Rogas