

Control Number: 24770



Item Number: 234

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Public Utility Commission of Texas

Memorandum

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To: Tammy Cooper
Director, Policy Development Division

From: Keith Rogas 
Director
Legal And Enforcement Division, Electric Section

Date: May 15, 2003

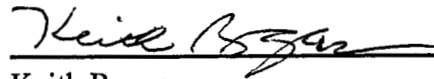
Re: Docket No. 24770, Report of the Electric Reliability Council of Texas
(ERCOT) to the PUCT regarding Implementation of the ERCOT
Protocols

Pursuant to your request at yesterday's technical conference, attached are the presentations made by Staff.

Docket No. 24770
Memo to Tammy Cooper
5/15/03

CERTIFICATE OF SERVICE

I, Keith Rogas, certify that copies of this document will be served on all parties on May 15, 2003, in accordance with Public Utility Commission of Texas Procedural Rule 22.74.



Keith Rogas

How the Modified Competitive Solution Method Would Work

David Hurlbut
Senior Economist
Market Oversight Division

Main Elements

- When is it triggered?
- To what level is a price mitigated?
- How are bids above the mitigation level treated?

When Triggered

- If no interzonal congestion, when all available BES bids in ERCOT are deployed
- If interzonal congestion, when all available BES bids for a zone are deployed

Mitigation Level

- Price corresponding to deployment of 95% of available BES stack or unmitigated MCPE
- Alternative: Price corresponding to deployment of 95% of available BES stack, times 1.5 (or unmitigated MCPE, whichever is lower)

If Zonal Congestion

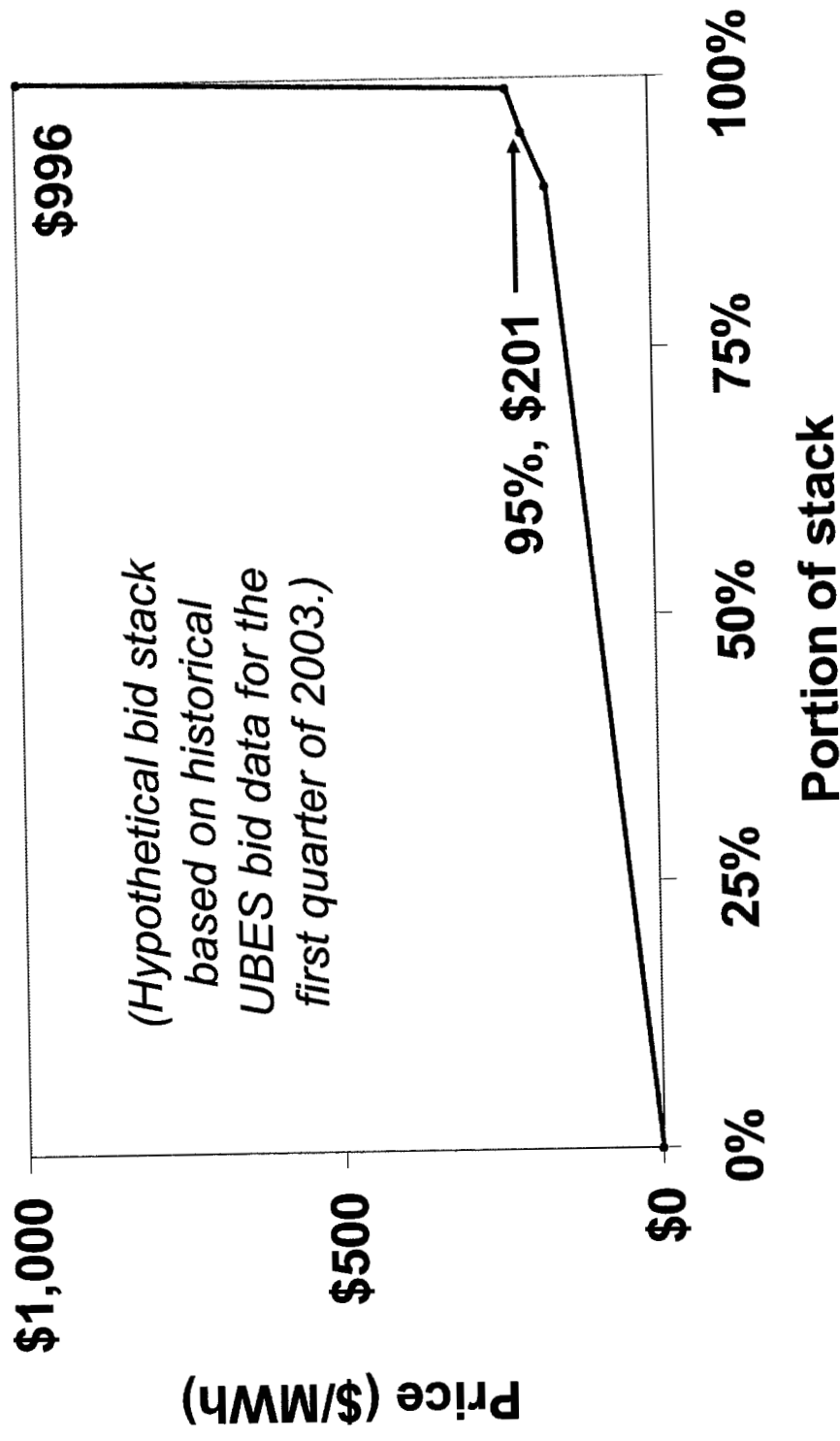
- Mitigation level for all fully deployed zones is the higher of
 - The highest MCPE (in zones not mitigated) or
 - The highest price corresponding to 95% of the bid stack (in zones to be mitigated)

Bids above Mitigation Level

- Paid verifiable cost
 - Initially, use existing ERCOT methodology (Protocol 6.8.2.3(3))
 - Allow stakeholders to revise methodology for application to MCSM
- (CPS alternative) Pay as bid

Mitigation under MCSM

Original Proposal



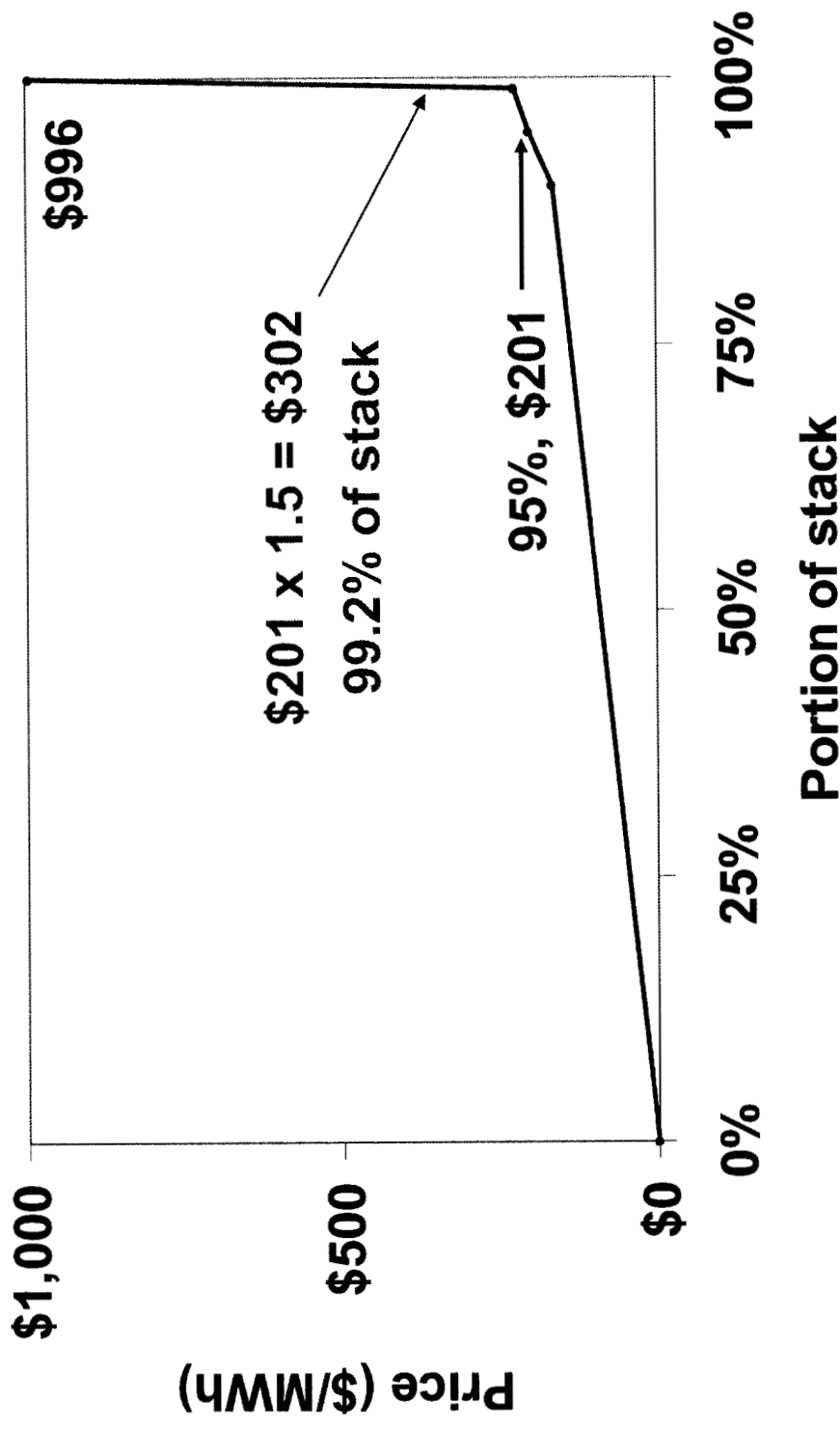
Mitigation under MCSM

Original Proposal

- In this example,
 - MCSM would reduce the MCPE from \$996 down to \$201
 - 95% of bid stack would be paid more than their offer price
 - 5% would be paid the higher of \$201 or their verifiable cost

Mitigation under MCSM

Alternative



Mitigation under MCSM

Alternative

- In this example,
 - MCSM would reduce the MCPE from \$996 down to \$302
 - 99.2% of bid stack would be paid more than their offer price
 - 0.8% would be paid the higher of \$302 or their verifiable cost

Mitigation under MCSM

Alternative

- Using market interval ending 8:00 a.m. February 25, 2002 as an example,
 - MCSM would reduce the MCPPE from \$990 down to \$448
 - 4,399 MW of bid stack would have been paid above its offer price
 - 1 MW would have been paid the higher of \$448 or its verifiable cost

Time, Cost of Alternatives*

	<u>MCSM</u>	<u>CPS</u>	<u>Reliant</u>
Not applied if zonal congestion	Immediate None	8 mos. \$95,000	4 mos. \$50,000
Also applied if zonal congestion	8+ mos. \$100,000+	?	?

*System impact as estimated by ERCOT staff

Options and MOD Preferences

- Immediately implement MCSM in cases when there is no zonal congestion
 1. MCSM as proposed
 2. CPS plan as proposed
 3. MCSM, with pay-as-bid
 4. MRRI (modified RRI proposal)
- *RRI plan as proposed should not be adopted*

Options and MOD Preferences

- Sunshine policy should be implemented regardless of which mechanism (if any) is adopted
 - Option A: Identify MCPE setters at commission's discretion
 - Option B: Automatically identify +\$900 bidders if MCPE exceeds \$900
 - Option C: Both

The Power of Sunshine

- ERCOT Protocol Sec. 1.3.1.1(2)
 - Protected Information includes bids or pricing information identifiable to a specific QSE, except as provided in 1.3.3(2)(b).
- ERCOT Protocol Sec. 1.3.3(2)(b)
 - ERCOT shall post the name of any QSE submitting bids for UBES at a price greater than \$300 or less than -\$300 for DBES not later than the next business day

The Power of Sunshine

- Day-after disclosure of UBES bidders above \$300 began on July 1, 2002
- MOD analyzed the number of times specific QSEs submitted high bids before and after July 1, 2002
- 365 days times 24 bidding hours times 4 zones = 35,040 BES markets in a year

Effect of Disclosure

- Before July 1, 2002 (8 months)
 - 18 QSEs submitted 21,236 bids above \$300
 - 7 QSEs did so more than 1,000 times
 - 14 QSEs submitted bids above \$800
- After July 1, 2002 (4 months)
 - 6 QSEs submitted 4,155 bids above \$300
 - 3 QSEs did so more than 500 times
 - 4 QSEs submitted bids above \$800

The Power of Sunshine

- ERCOT Protocol Sec. 1.3.3(1)(c)
 - Protected status of bids or pricing information identifiable to a specific QSE shall expire 180 days after the applicable operating day
 - Bid data for 12 month period ending October 31, 2002 is no longer protected

12 months ending 10/31/02

(Table 1 of 3)

QSE	Bids over \$300	Bids over \$800
MIRANT AMERICAS ENERGY MARKETING	7,523	1,381
AQUILA ENERGY MARKETING CORP	4,618	4,561
LOWER COLORADO RIVER AUTHORITY	4,184	2,732
CITY OF AUSTIN DBA AUSTIN ENERGY	2,668	111
AUTOMATED POWER EXCHANGE	1,974	1,730
AEP SERVICE CORP	1,354	1,340
PG AND E ENERGY TRADING POWER LP	1,179	0

12 months ending 10/31/02

(Table 2 of 3)

QSE	Bids over \$300	Bids over \$800
CALPINE POWER MANAGEMENT LP	594	460
BTU QSE SERVICES INC	539	192
TENASKA POWER SERVICES CO	279	277
CORAL POWER LLC	205	97
TEXAS GENCO GP LLC	140	11
DYNEGY POWER MARKETING INC	84	0
ANP FUNDING I LLC	34	34

12 months ending 10/31/02

(Table 3 of 3)

QSE	Bids over \$300	Bids over \$800
FPL ENERGY POWER MARKETING, INC.	9	9
RELIANT ENERGY SERVICES INC	5	5
TXU ELECTRIC CO	1	
TXU PORTFOLIO MANAGEMENT COMPANY LP	1	

July 1 – October 31, 2002

QSE	Bids over \$300	Bids over \$800
MIRANT AMERICAS ENERGY MARKETING	2,344	1,381
AUTOMATED POWER EXCHANGE	1,099	1,042
AEP SERVICE CORP	662	660
TEXAS GENCO GP LLC	37	0
DYNEGY POWER MARKETING INC	10	0
AQUILA ENERGY MARKETING CORP	3	3

Market Failure Mitigation for Ancillary Services

Shmuel Oren

University of California at Berkeley
Consultant to MOD, PUCT

Presented at the PUCT Technical Conference,

July 19, 2002

Shmuel Oren, July 19, 2002

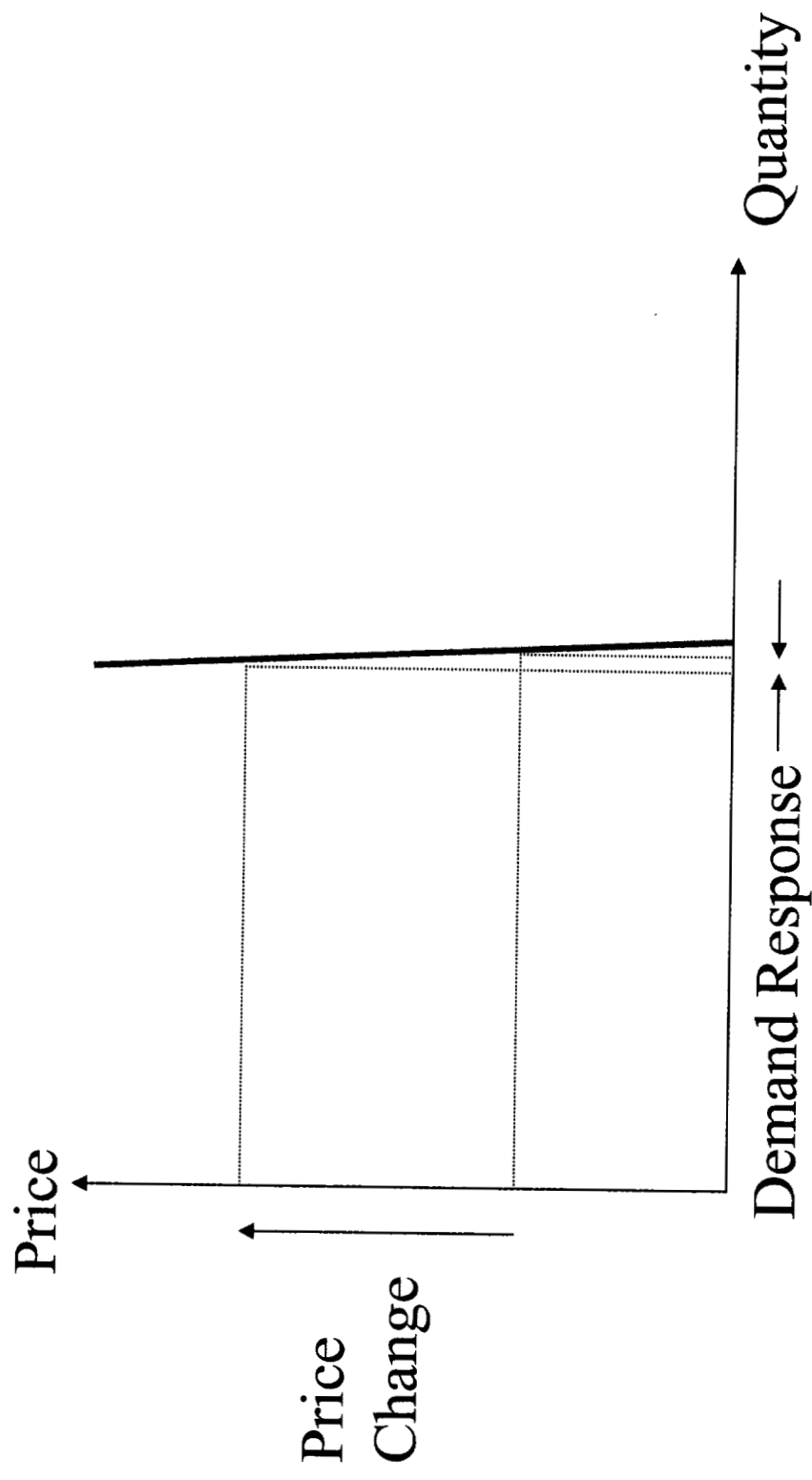
Modes of Market Failure

- Markets fail to clear (demand exceeds supply)
- Market clearing price can be set arbitrarily by a single/pivotal supplier (monopoly power)
- Market clearing price set by collusive behavior (explicit or implicit)
- Market failure is not indicated by high prices.
- Market failure is indicated by non-competitive conditions that may lead to high prices

What are the Ingredients of Market Failure

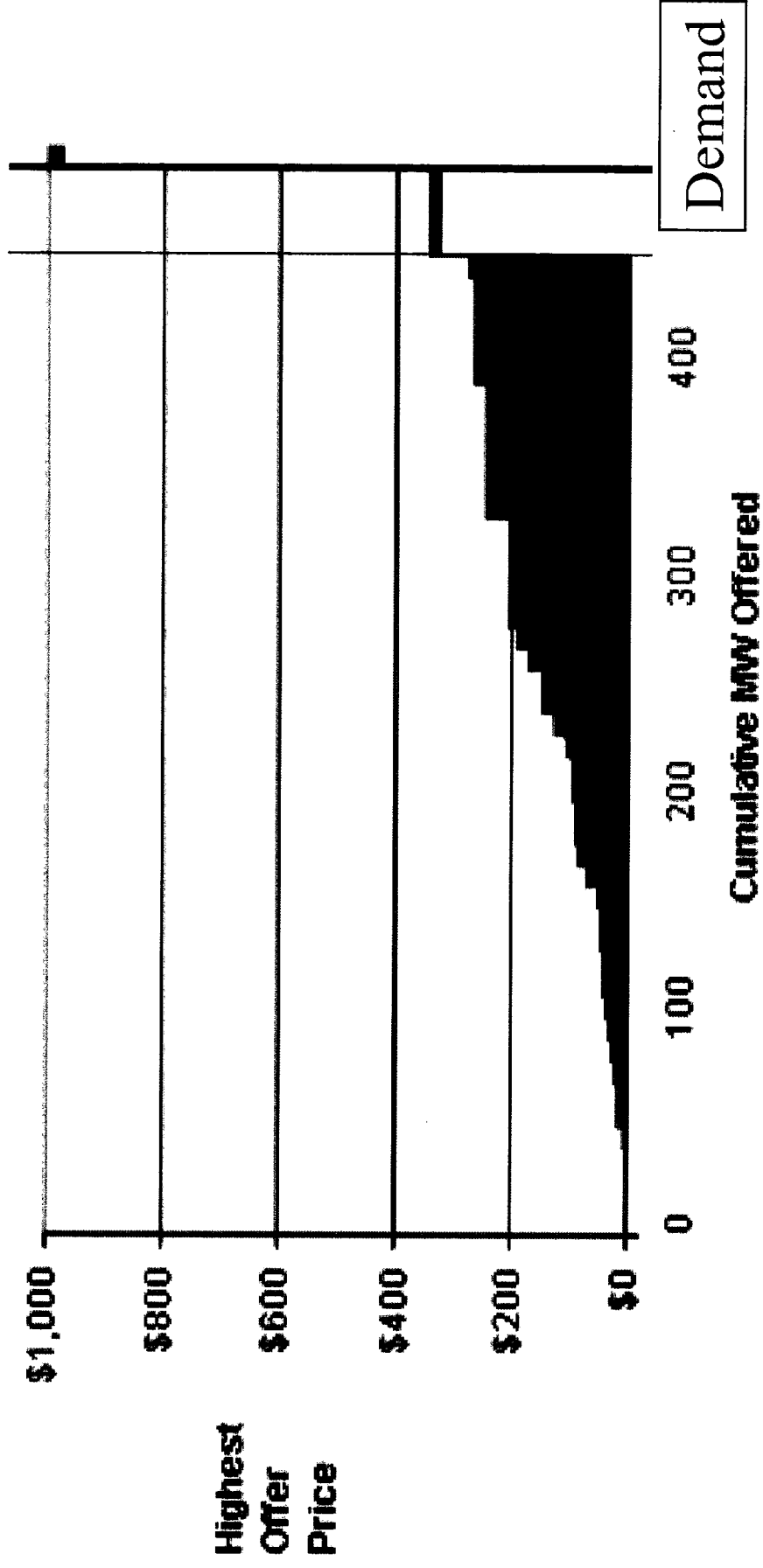
- Inelastic demand (no price response)
- Supply shortage
- Pivotal suppliers
- “Hockey Stick” bidding strategy

Inelastic Demand



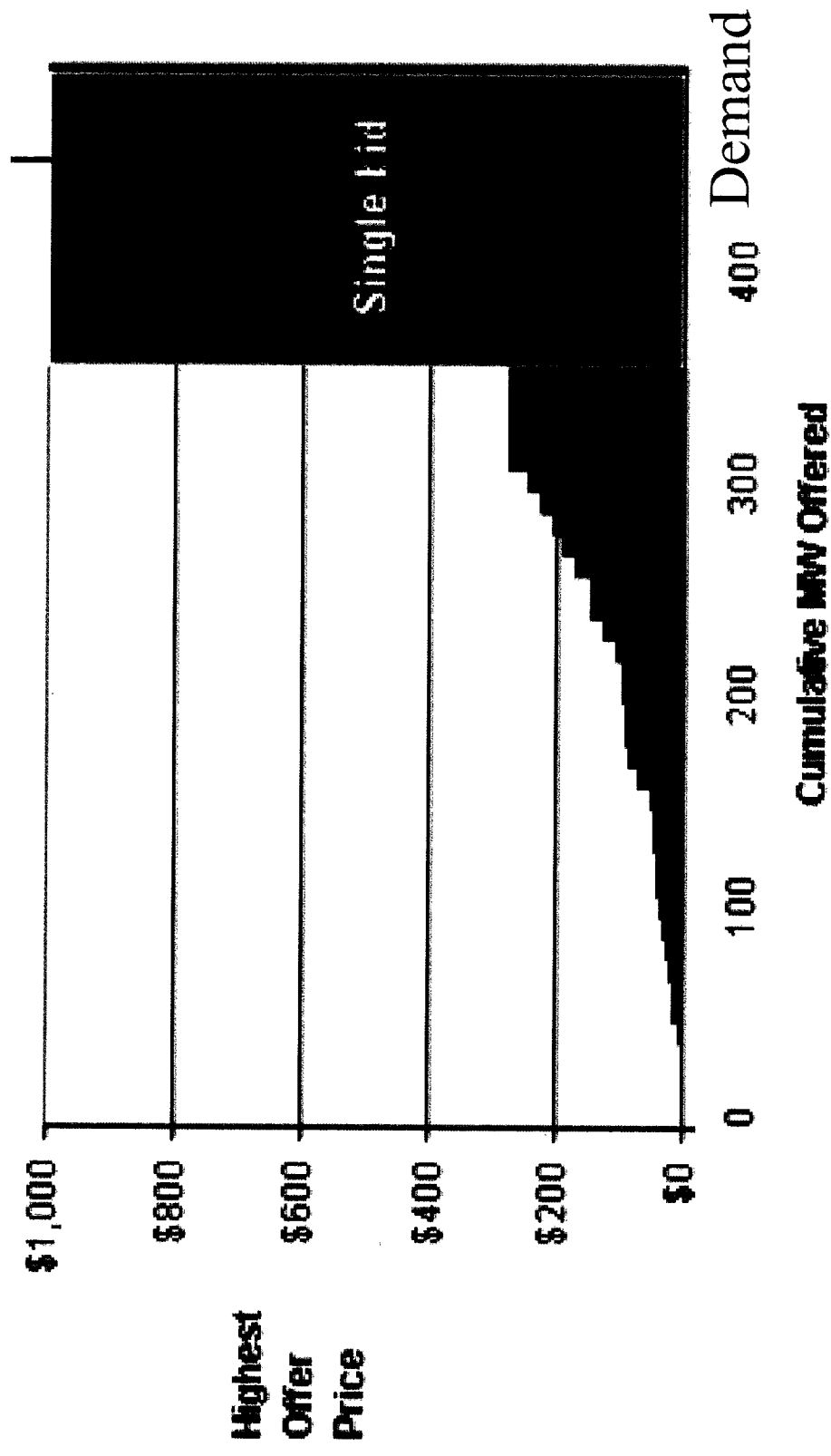
Shmuel Oren, July 19, 2002

Supply Shortage

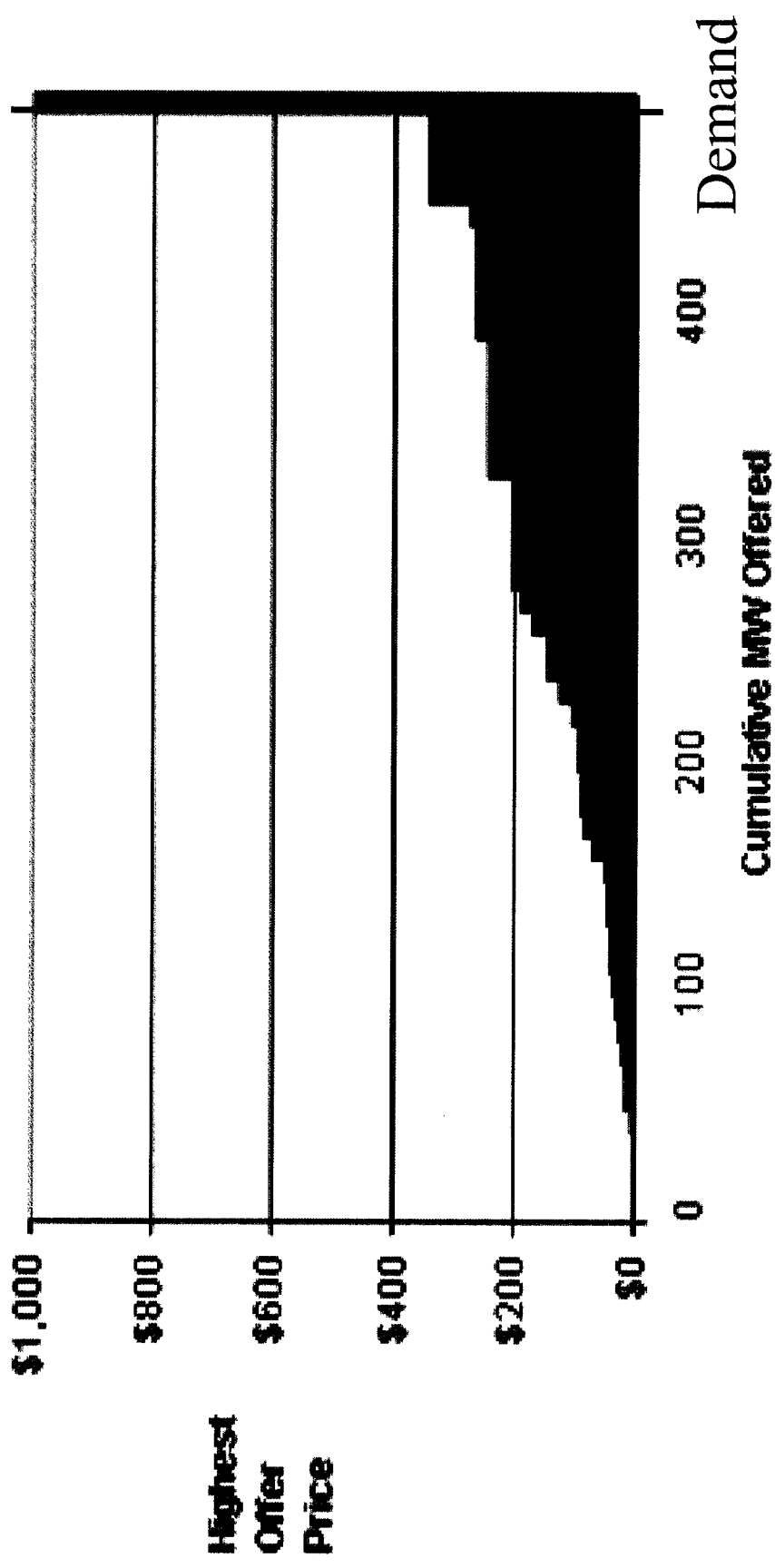


Shmuel Oren, July 19, 2002

Pivotal Supplier



“Hockey Stick” Bidding



Protocol Mitigation of Physical Shortage [§6.8.1.1(2)].

- Set price to highest bid received
- OOM available capacity at the price corresponding to 80% of the bid stack
- Discourages physical withholding
- Vulnerable to “Hockey Stick” bidding and economic withholding by pivotal suppliers

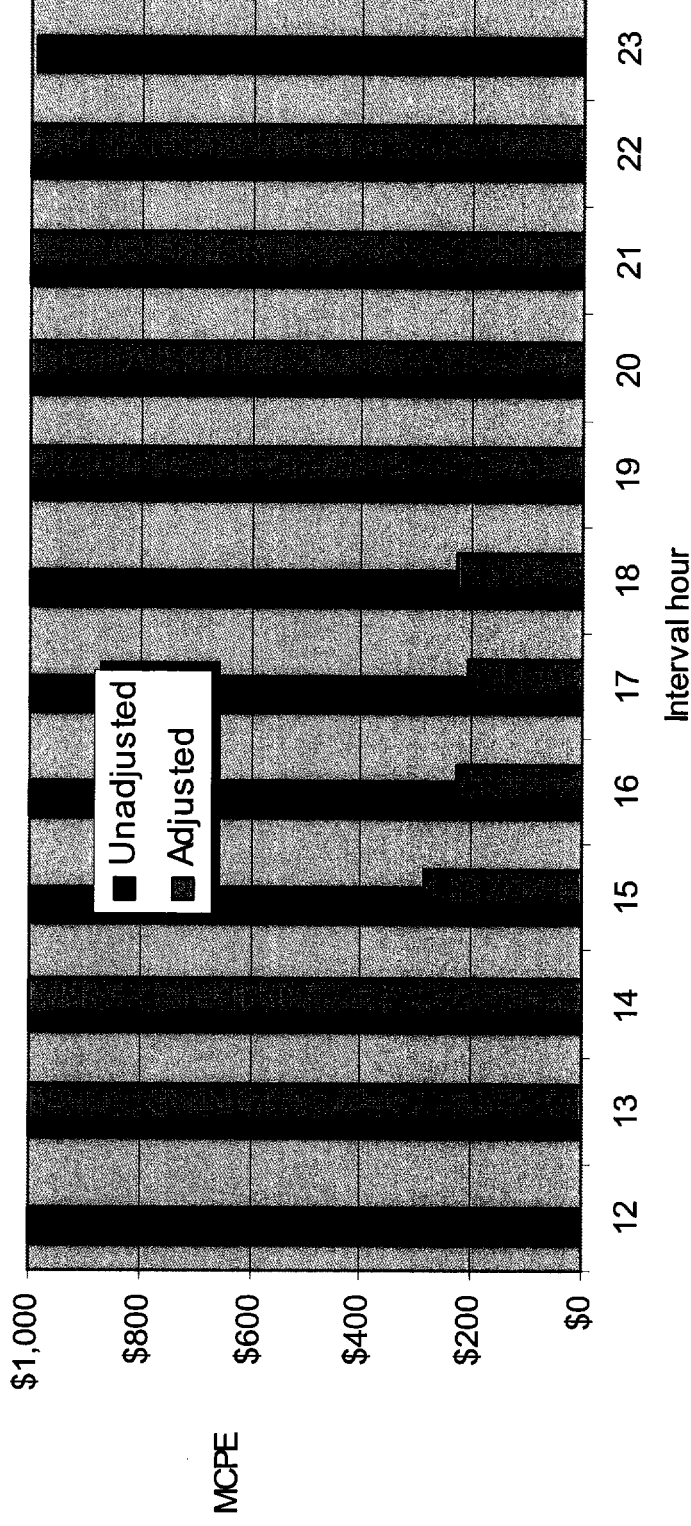
Non Spinning Reserves, April 30, 2002

Unadjusted MCP compared to adjusted MCP

using current ERCOT methodology (80% rule)

[rule was not invoked]

- All bidders were pivotal (except for hours 12 and 23)
- \$8 Million was spent that day



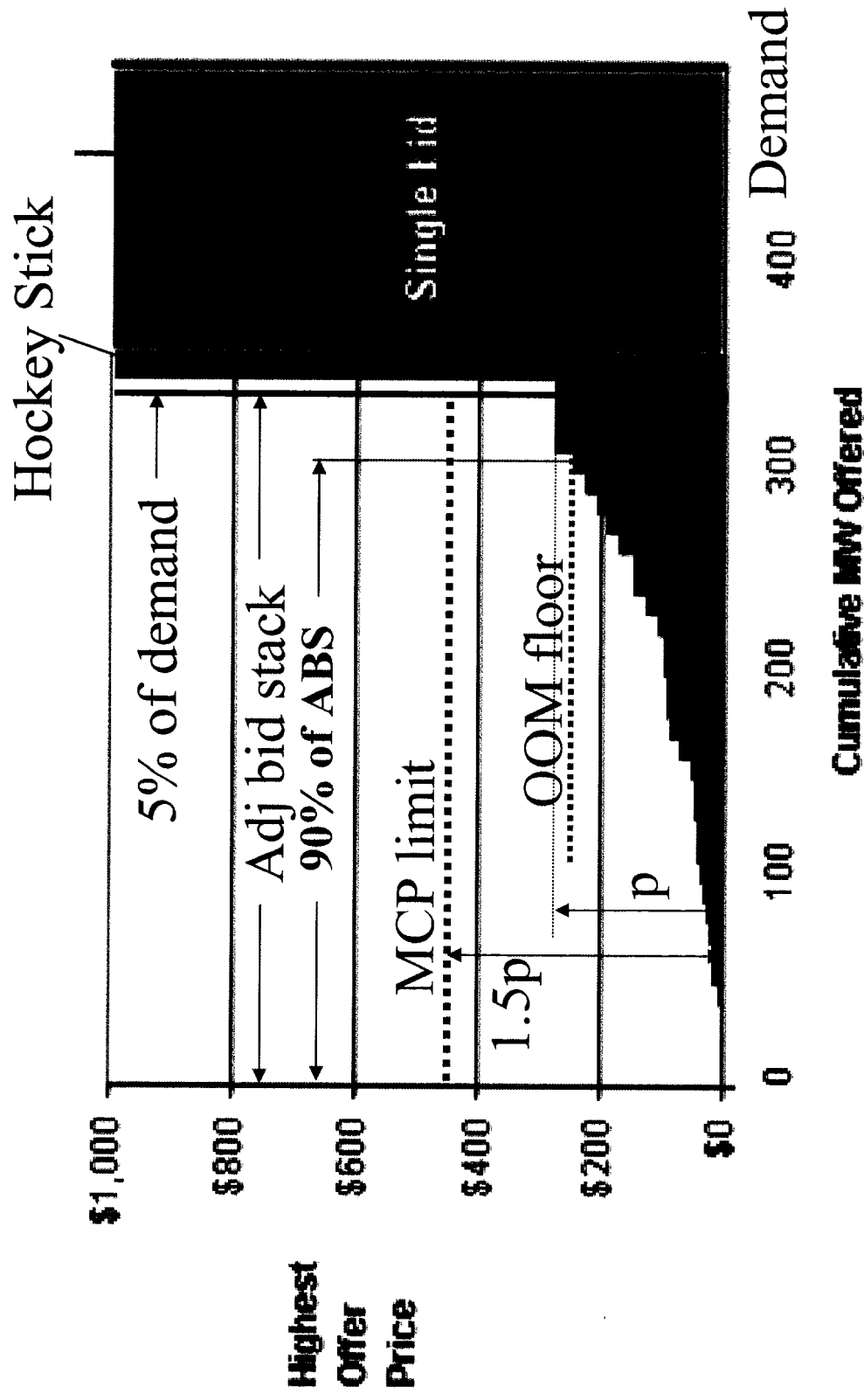
MOD Mitigation Proposal

- Generator bid cap at \$1000 per MW/h, load resource bid cap at \$2000 per MW/h.
- Competitive sufficiency test
 - Bid stack $\geq$ 115% of demand (net of self-arranged)
 - MCP not set by pivotal supplier
- Post indicative MCP and extend Day-Ahead market closing by one hour
 - Indicative MCP = Unmitigated MCP
 - Increased self-arranged and new bids allowed
 - New bids are price takers
 - Bids can be withdrawn only to be converted to self-arranged

MOD Proposal (cont'd)

- Determine MCP limit
 - Remove bids from pivotal suppliers
 - Remove the highest priced 5% of requirement from non-pivotal suppliers
 - MCP limit = $1.5 \times$ highest bid in adjusted bid stack
- Set mitigated MCP
 - Mitigated MCP = $\text{Min} [\text{MCP limit, Unmitigated MCP}]$
- All bids at mitigated MCP or less to be paid mitigated MCP
- Available capacity not offered or offered above mitigated MCP will be OOMed as needed to meet any residual requirement on a nondiscriminatory basis
 - OOMed resources paid verifiable incremental cost or marginal price corresponding to 90% of quantity procured from adjusted bid stack (whichever is higher)

Determining MCP Limit



Application of MOD proposal

Example 1

April 30, hour beginning 12:00 Noon

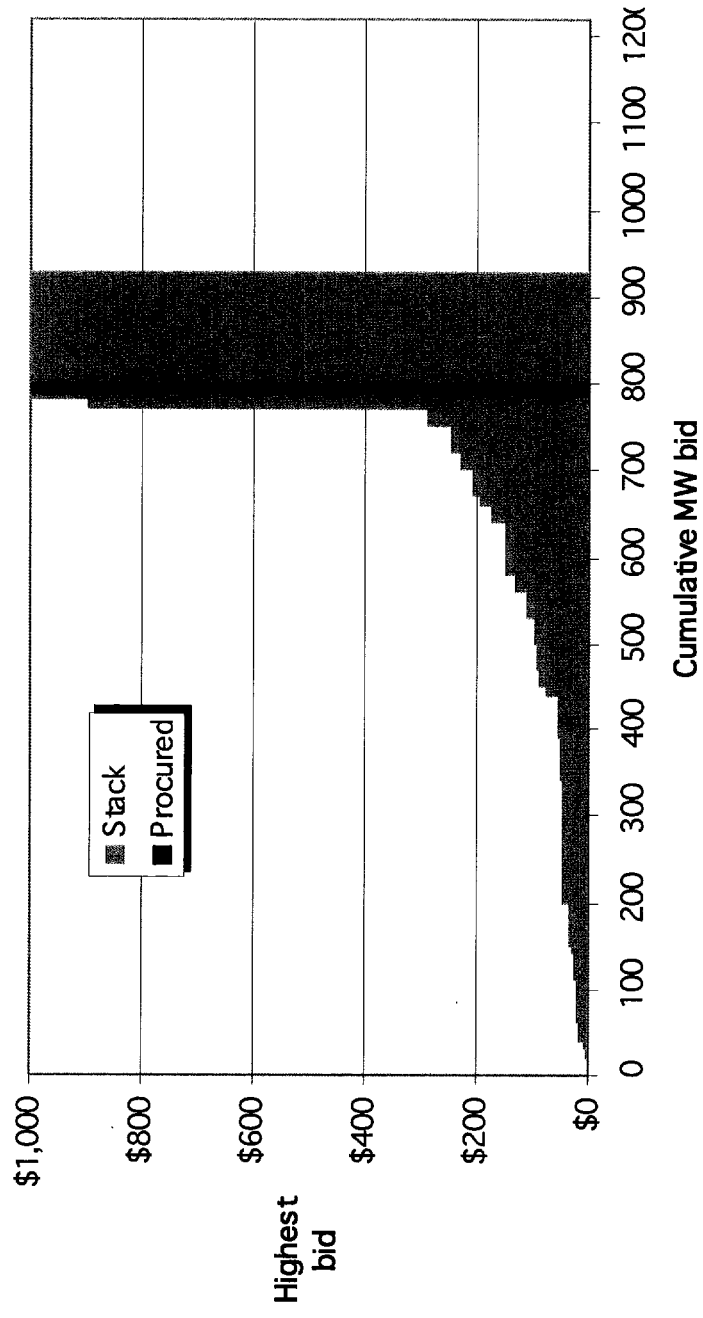
- Requirement: 790 MW
- Total Offer, all bidders: 924 MW
- MCP = \$999

115% sufficiency is met, but price is set by pivotal bidder: sufficiency test fails

- Mitigated price: \$149 (paid to 579 MW)
- Price paid to 211 MW OOMed: \$94.24 or cost

Example 1

Hour beginning 12:00



Shmuel Oren, July 19, 2002

Application of MOD proposal

Example 2

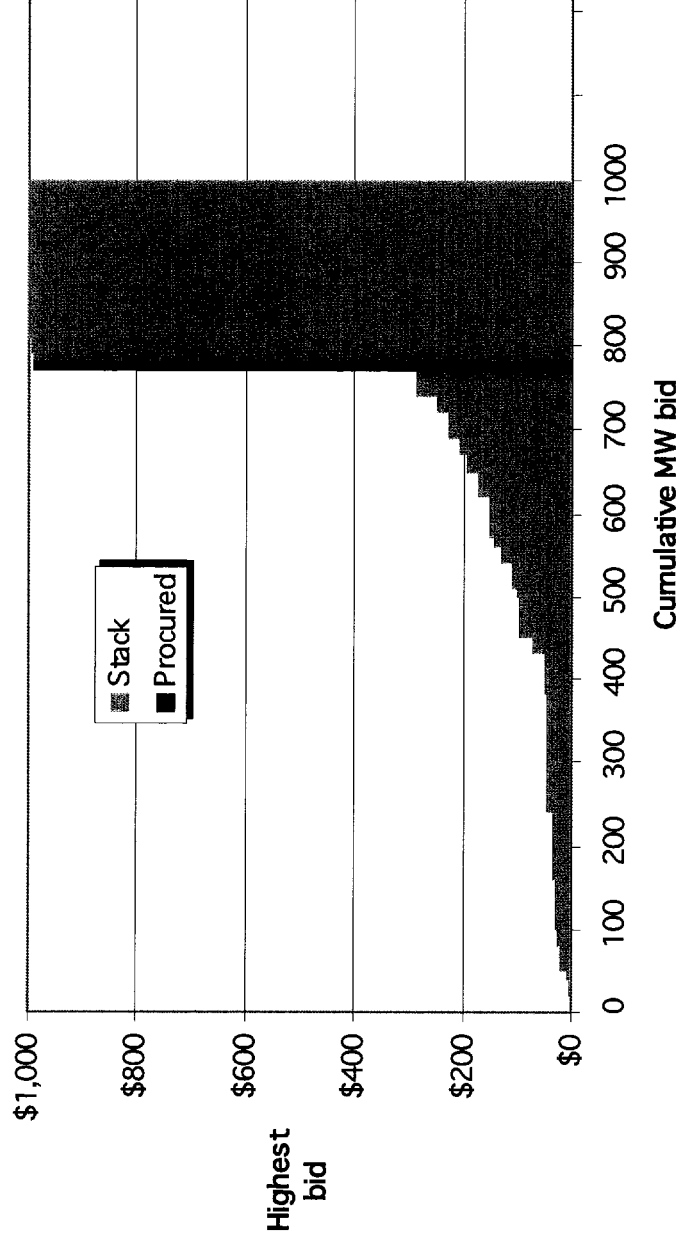
April 30, hour beginning 23:00

- Requirement: 765 MW
- Total Offer, all bidders: 1008 MW
- MCP = \$990

115% sufficiency is met, and price is not set by pivotal bidder. No mitigation: price remains \$990.

Example 2

Hour beginning 23:00



Shmuel Oren, July 19, 2002

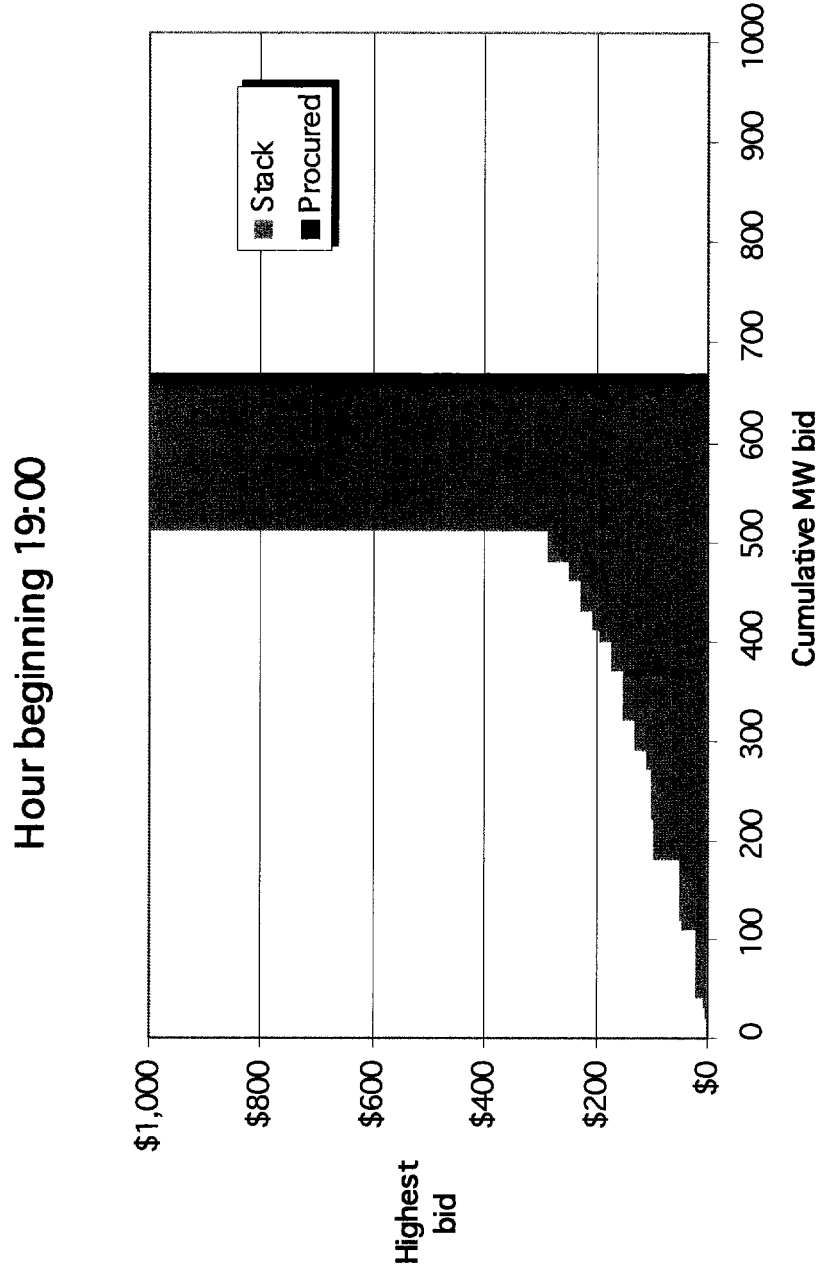
Application of MOD proposal

Example 3

April 30, all hours beginning 13:00 to 22:00

- All bidders were pivotal bidders during this window. Sufficiency test fails.
- All bidders would be OOMed to meet requirement and paid at cost.

Example 3



Shmuel Oren, July 19, 2002

Avoid Excessive Capacity Payment to RPRS Load Resources

- While load resources and generation resources provide substitutable RPRS products their incentives are different. Megawatts and Negawatts are not the same.
 - Generators have an incentive to underbid (below cost) capacity and start up in order to be selected for RPRS and sell balancing energy.
 - Load resources have an incentive to collect capacity payment and avoid deployment by submitting high energy bids.
- MOD SOLUTION: Pay MCPC to selected load resources only if deployed.
- ERCOT SOLUTION: Pay MCPC to load resources and deploy them as price takers (at MCPE) if 95% of the balancing energy bid stack is exhausted [overpayment]