

May 11, 2008

To: Demand Side Steering Committee
From: Joe Bowring, Market Monitor
Re: System average heat rates

The MMU has prepared information regarding the per MWh costs for gas-fired combustion turbines (CTs) and combined cycles (CCs) as requested by members of the DSSC. Please let me know if you have additional questions or requests.

I have attached two tables for CTs.

The first table for CTs shows:

1. Heat rate for a new unit
2. A range of gas costs
3. VOM costs
4. NOx costs

The second table for CTs shows:

1. Average heat rate
2. A range of gas costs
3. VOM costs
4. NOx costs

I have attached two tables for CCs.

The first table for CCs shows:

1. Heat rate for a new unit
2. A range of gas costs
3. VOM costs
4. NOx costs

The second table for CCs shows:

1. Average heat rate
2. A range of gas costs
3. VOM costs
4. NOx costs

New CT					
	Min	25th Perc	Avg	90th Perc	Max
Heat Rate	10500	10500	10500	10500	10500
Fuel Price (\$/MBTU)	\$8.186	\$9.176	\$10.592	\$11.372	\$18.316
Fuel MC \$/MWh	\$85.95	\$96.35	\$111.22	\$119.40	\$192.31
VOM	\$5.00	\$5.00	\$5.00	\$6.15	\$6.15
NOX	\$0.00	\$1.97	\$1.97	\$1.97	\$5.56
Variable Subtotal	\$5.00	\$6.97	\$6.97	\$8.12	\$11.71
Total Marginal Cost	\$90.95	\$103.32	\$118.19	\$127.52	\$204.02

*Using the 10,500 btu/kwh proxy from SOM for newer CT technologies

CT Average Heat Rate					
	Min	25th Perc	Avg	90th Perc	Max
Heat Rate	12645	12645	12645	12645	12645
Fuel Price (\$/MBTU)	\$8.186	\$9.176	\$10.592	\$11.372	\$18.316
Fuel MC \$/MWh	\$103.51	\$116.04	\$133.94	\$143.80	\$231.60
VOM	\$5.00	\$5.00	\$5.00	\$6.15	\$6.15
NOX	\$0.00	\$1.97	\$1.97	\$1.97	\$5.56
Variable Subtotal	\$5.00	\$6.97	\$6.97	\$8.12	\$11.71
Total Marginal Cost	\$108.51	\$123.01	\$140.91	\$151.92	\$243.31

New CC					
	Min	25th Perc	Avg	90th Perc	Max
Heat Rate	7150	7150	7150	7150	7150
Fuel Price (\$/MBTU)	\$8.186	\$9.176	\$10.592	\$11.372	\$18.316
Fuel MC \$/MWh	\$58.53	\$65.61	\$75.73	\$81.31	\$130.96
VOM	\$1.50	\$2.00	\$2.00	\$2.00	\$5.00
NOX	\$0.00	\$0.88	\$0.88	\$0.88	\$1.28
Variable Subtotal	\$1.50	\$2.88	\$2.88	\$2.88	\$6.28
Total Marginal Cost	\$60.03	\$68.49	\$78.61	\$84.19	\$137.24

*Using the 7,150 btu/kwh proxy from SOM for newer CC technologies

CC 75th Percentile point					
	Min	25th Perc	Avg	90th Perc	Max
Heat Rate	8739	8739	8739	8739	8739
Fuel Price (\$/MBTU)	\$8.186	\$9.176	\$10.592	\$11.372	\$18.316
Fuel MC \$/MWh	\$71.53	\$80.19	\$92.56	\$99.38	\$160.06
VOM	\$1.50	\$2.00	\$2.00	\$2.00	\$5.00
NOX	\$0.00	\$0.88	\$0.88	\$0.88	\$1.28
Variable Subtotal	\$1.50	\$2.88	\$2.88	\$2.88	\$6.28
Total Marginal Cost	\$73.03	\$83.07	\$95.44	\$102.26	\$166.34