## ICAP Market Price and Payment Estimate (1)

NYCA Capability Period NYC Weighted Average Price (\$/kW-Month)
5.75 ..... 2.14
Winter 2006-07
12.54 ..... 2.87
Summer 2007 ..... 4.54 ..... 1.93
Summer 2008 ..... 5.98 ..... 2.65
Winter 2008-09 ..... 1.83 ..... 1.47
Summer 2009 ..... 8.31 ..... 3.49
Average ..... 6.49 ..... 2.42
Con Edison Service Area ICAP Price ..... 5.95
(2008 NYC/Westchest split: $86.8 \%$ vs $13.2 \%$.)
Total ICAP Requirement for Con Edison 200 MW Load (MW) ..... 233
(200 MW plus 16.5\% reserve margin)
In-City ICAP Requirement for NYC portion of 200 MW Load (MW) ..... 162
(232 MW x 80\% x 86.8\%)
ROS ICAP Requirement for 200 MW Load (MW) ..... 71
(Total requirement minus In-City reqirement)
In-City Annual ICAP Payment (\$) ..... 12,603,819
(In-City requirement x NYC price)
ROS Annual ICAP Payment (\$)$2,071,928$
(ROS requirement x ROS price)
Total ICAP Payment (\$)14,675,748
(1) Source of price data: NYISO. Listed are UCAP prices, which are adjusted for outage rates.On average the ICAP prices would be about $6 \%$ lower. However, accounting for more purchases thanthe ICAP requirement due to the demand curve adjustment, the ending payment is about the same asestimated above. For demonstration purposes, the 14.7 million is used as the ICAP payment estimate.
(2) ROS $=$ Rest of State.

## Increasing and Decreasing Load Response to Temperature - An Illustration



Base Load Insensitive to Temperature





Average MW Difference in Early June 2008 from Sample Period 2008

|  | --- TV Occurred in June (6/1-6/15) | --- |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| TV Difference | $\underline{70.6}$ | $\underline{71.9}$ | $\underline{72.4}$ | $\underline{75.7}$ | $\underline{78.4}$ |  |
|  |  |  |  |  | 158 |  |
| 0.1 |  |  | 536 | 148 | -191 |  |
| 0.2 | -187 | -596 | 335 | 181 | -170 |  |
| 0.3 |  |  |  |  |  |  |
| Average | -187 | -596 | 435 | 162 | -180 |  |

Average MW Difference in June 2008 from Sample Period 2008

| TV Difference | 70.6 | 71.9 | --- TV Occurred in June (6/1-6/30) ----- |  |  |  |  | 76.2 | 78.4 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | 72.4 | 74.7 | 74.9 | $\underline{75.7}$ | 75.8 |  |  |
| 0.1 |  |  |  |  | -85 | 141 | 141 | -33 |  |
| 0.2 |  |  | 536 | -276 | -122 | 131 | 175 | -100 | -191 |
| 0.3 | -187 | -405 | 283 | -174 | -172 | 164 | 114 | 68 | -170 |
| Average | -187 | -405 | 409 | -225 | -126 | 145 | 143 | -21 | -180 |

Data source: Con Edison response to Staff IR DPS-286.
Sample period 2008 = July 1 - August 15.


## Staff Pooled Regression Analysis

| Dependent Variable: LOAD <br> Method: Least Squares <br> Sample: 1127 <br> Included observations: 127 |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Variable | Coefficie | td. Error | Statistic | Prob. |
| D2005 | 167501.3 | 43404.15 | 3.859108 | 0.0002 |
| D2006 | 167623.8 | 43414.20 | 3.861036 | 0.0002 |
| D2007 | 167723.0 | 43408.72 | 3.863808 | 0.0002 |
| D2008 | 167808.5 | 43412.94 | 3.865402 | 0.0002 |
| TV | -6465.767 | 1699.023 | -3.805581 | 0.0002 |
| TV^2 | 84.95248 | 22.11152 | 3.842001 | 0.0002 |
| TV^3 | -0.356338 | 0.095685 | -3.724068 | 0.0003 |
| R -squared | 0.975419 | Mean dep | ndent var | 11015.75 |
| Adjusted R-squared | 0.974190 | S.D. dep | ndent var | 1062.347 |
| S.E. of regression | 170.6720 | Akaike | fo criter | 13.17090 |
| Sum squared resid | 3495471. | Schwarz | riterion | 13.32767 |
| Log likelihood | -829.3525 | Durbin-W | tson stat | 1.810193 |

## Estimated Load at Design of 86 Degree TV



Regression 2-3 $3^{\text {rd }}$ Order Polynomial Model with Period Effect on Constant and Slope

| Dependent Variable: LOAD |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Method: Least Squares |  |  |  |  |
| Sample: 1127 |  |  |  |  |
| Included observations: 127 |  |  |  |  |
| Convergence achieved after 24 iterations |  |  |  |  |
| $\begin{aligned} \mathrm{LOAD}=(1+ & \mathrm{C}(1) * \mathrm{D} 2006+\mathrm{C}(2) * \mathrm{D} 2007+\mathrm{C}(3) * \mathrm{D} 2008) *(\mathrm{C}(4)+\mathrm{C}(5) \star \mathrm{TV} \\ & \left.+\mathrm{C}(6) * \mathrm{TV} \wedge 2+\mathrm{C}(7) * \mathrm{TV}^{\wedge} 3\right) \end{aligned}$ |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C (1) | 0.010915 | 0.003970 | 2.749379 | 0.0069 |
| C (2) | 0.020578 | 0.004130 | 4.982453 | 0.0000 |
| C (3) | 0.028921 | 0.004229 | 6.839445 | 0.0000 |
| C (4) | 158943.3 | 42280.77 | 3.759233 | 0.0003 |
| C (5) | -6118.799 | 1655.291 | -3.696509 | 0.0003 |
| C (6) | 80.32805 | 21.54850 | 3.727779 | 0.0003 |
| C (7) | -0.336048 | 0.093286 | -3.602360 | 0.0005 |
| R -squared | 0.975922 | Mean dep | ndent var | 11015.75 |
| Adjusted R-squared | 0.974718 | S.D. dep | ndent var | 1062.347 |
| S.E. of regression | 168.9154 | Akaike | fo criter | 13.15021 |
| Sum squared resid | 3423890. | Schwarz | riterion | 13.30698 |
| Log likelihood | -828.0386 | Durbin- | tson stat | 1.836794 |

Estimated Load at Design of 86 Degree TV

| obs | REG4F05 | REG4F06 | REG4F07 | REG4F08 |
| :---: | :---: | :---: | :---: | :---: |
| 150 | 13087.49 | 13230.34 | 13356.81 | 13466.00 |

## Sensitivity Analysis - 2008 Quadratic Model

Case 1. Observations Con Edison used

| Dependent Variable: LOAD08 <br> Method: Least Squares <br> Sample: 136 <br> Included observations: 36 |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Variable | CoefficienStd. Errort-Statistic Prob. |  |  |  |
| C | 2776.271 | 8921.039 | 0.311205 | 0.7577 |
| TV08 | -72.46723 | 232.6781 | -0.311448 | 0.7575 |
| TV08^2 | 2.321624 | 1.515861 | 1.531554 | 0.1355 |
| FRI08 | -221.5944 | 57.59917 | -3.847180 | 0.0005 |
| R-squared | 0.981037 | Mean dependent var 10893.04 |  |  |
| Adjusted R-squared | 0.979259 | S.D. dep | endent var | 946.6818 |
| S.E. of regression | 136.3387 | Akaike | nfo criter | 12.77260 |
| Sum squared resid | 594823.7 | Schwarz | criterion | 12.94855 |
| Log likelihood | -225.9068 | F-stati |  | 551.8256 |
| Durbin-Watson stat | 2.324368 | Prob (F- | tatistic) | 0.000000 |

## Case 2. Manufactured data removed

| Dependent Variable: LOAD08 |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Method: Least Squares |  |  |  |  |
| Sample: 133 |  |  |  |  |
| Included observations: 33 |  |  |  |  |
| Variable CoefficienStd. Errort-Statistic Prob. |  |  |  |  |
| C | 4290.504 | 12034.41 | 0.356520 | 0.7240 |
| TV08 | -113.2907 | 318.2921 | -0.355933 | 0.7245 |
| TV08^2 | 2.596424 | 2.103401 | 1.234393 | 0.2270 |
| FRI08 | -223.3713 | 59.20100 | -3.773099 | 0.0007 |
| R -squared | 0.972887 | Mean de | endent var | 10728.55 |
| Adjusted R-squared | 0.970082 | S.D. dep | endent var | 801.6947 |
| S.E. of regression | 138.6683 | Akaike i | fo criter | 12.81526 |
| Sum squared resid | 557638.2 | Schwarz | criterion | 12.99665 |
| Log likelihood | -207.4518 | F -statis | ic | 346.8601 |
| Durbin-Watson stat | 2.313461 | Prob (F-s | atistic) | 0.000000 |

## Case 3. Manufactured data and $1^{\text {st }}$ observation removed

| Dependent Variable: LOAD08 |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Method: Least Squares |  |  |  |  |
| Sample: 233 |  |  |  |  |
| Included observations: 32 |  |  |  |  |
| Variable | Coefficie | d. Erro | Statistic | Prob. |
|  |  |  |  |  |
| C | -8714.853 | 17301.40 | -0.503708 | 0.6184 |
| TV08 | 223.6516 | 452.7786 | 0.493954 | 0.6252 |
| TV08^2 | 0.415546 | 2.961094 | 0.140335 | 0.8894 |
| FRI08 | -210.6656 | 60.34606 | -3.490959 | 0.0016 |
| R-squared | 0.968351 | Mean dep | endent var | 10787.01 |
| Adjusted R-squared | 0.964960 | S.D. dep | endent var | 739.6284 |
| S.E. of regression | 138.4502 | Akaike | nfo criter | 12.81537 |
| Sum squared resid | 536716.7 | Schwarz | criterion | 12.99858 |
| Log likelihood | -201.0459 | F-stati | tic | 285.5706 |
| Durbin-Watson stat | 2.244476 | Prob (F- | tatistic) | 0.000000 |

## Sensitivity Analysis - 2008 Quadratic Model

Case 4. Data added for 7/10/07 with load inflated $1.1 \%$


Dependent Variable: LOAD08
Method: Least Squares
Sample: 137
Included observations: 37

| $==============================================================$ |  |  |  |  |
| :---: | ---: | ---: | ---: | ---: |
| Variable | CoefficienStd. Errort-Statistic | Prob. |  |  |
| $==============================================================$ |  |  |  |  |
| C | -1828.309 | 8622.350 | -0.212043 | 0.8334 |
| TV08 | 50.99620 | 224.1244 | 0.227535 | 0.8214 |
| TV08^2 | 1.495164 | 1.454965 | 1.027629 | 0.3116 |
| FRI08 | -218.1714 | 58.85343 | -3.707029 | 0.0008 |


| R-squared | 0.981370 | Mean dependent var 10940.95 |  |
| :--- | ---: | :--- | ---: |
| Adjusted R-squared | 0.979677 | S.D. dependent var 977.8803 |  |
| S.E. of regression | 139.4060 | Akaike info criteri12.81446 |  |
| Sum squared resid | 641323.1 |  | Schwarz criterion |
| Log likelihood | -233.0676 | F-statistic | 58862 |
| Durbin-Watson stat | 2.361102 | Prob(F-statistic) | 0.000000 |

Case 5. Data added for 7/10/07 with load inflated $1.1 \%$ and $1^{\text {st }}$ observation removed
Dependent Variable: LOAD08
Method: Least Squares
Sample: 237
Included observations: 36

| Variable | CoefficienStd. Errort-Statistic |  |  | Prob. |
| :---: | :---: | :---: | :---: | :---: |
| C | -11795.93 | 11590.99 | -1.017682 | 0.3165 |
| TV08 | 304.8251 | 298.5088 | 1.021160 | 0.3148 |
| TV08^2 | -0.118597 | 1.920074 | -0.061767 | 0.9511 |
| FRI08 | -208.6147 | 58.79107 | -3.548408 | 0.0012 |
| R -squared | 0.979629 | Mean dep | endent var | 10998.81 |
| Adjusted R-squared | 0.977719 | S.D. dep | endent var | 925.2919 |
| S.E. of regression | 138.1170 | Akaike | fo criter | 12.79852 |
| Sum squared resid | 610442.2 | Schwarz | criterion | 12.97447 |
| Log likelihood | -226.3733 | F-stati | ic | 512.9455 |
| Durbin-Watson stat | 2.324250 | Prob (F- | tatistic) | 0.000000 |

Case 6. Case 4 with adjusted two peak loads from June 2008


## Sensitivity Analysis - 2008 Quadratic Model

## Estimated loads at design of 86 degree TV

| obs | QUAD1F | QUAD2F | QUAD3F | QUAD4F | QUAD5F | QUAD6F |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 56 | 13714.82 | 13750.65 | 13592.56 | 13615.60 | 13541.88 | 13448.28 |

## Forecasting errors at $95 \%$ confidence

| obs | QUAD1E | QUAD2E | QUAD3E | QUAD4E | QUAD5E | QUAD6E |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 56 | 190.9935 | 266.9118 | 306.4587 | 184.4548 | 191.7132 | 173.0247 |

