

1-1-1991

# 1990 - 1991 Energy Report Macalester College Physical Plant Department

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1990 - 1991 ENERGY REPORT  
MACALESTER COLLEGE  
PHYSICAL PLANT DEPARTMENT

1990-91 FUEL AND ELECTRICITY CONSUMPTION

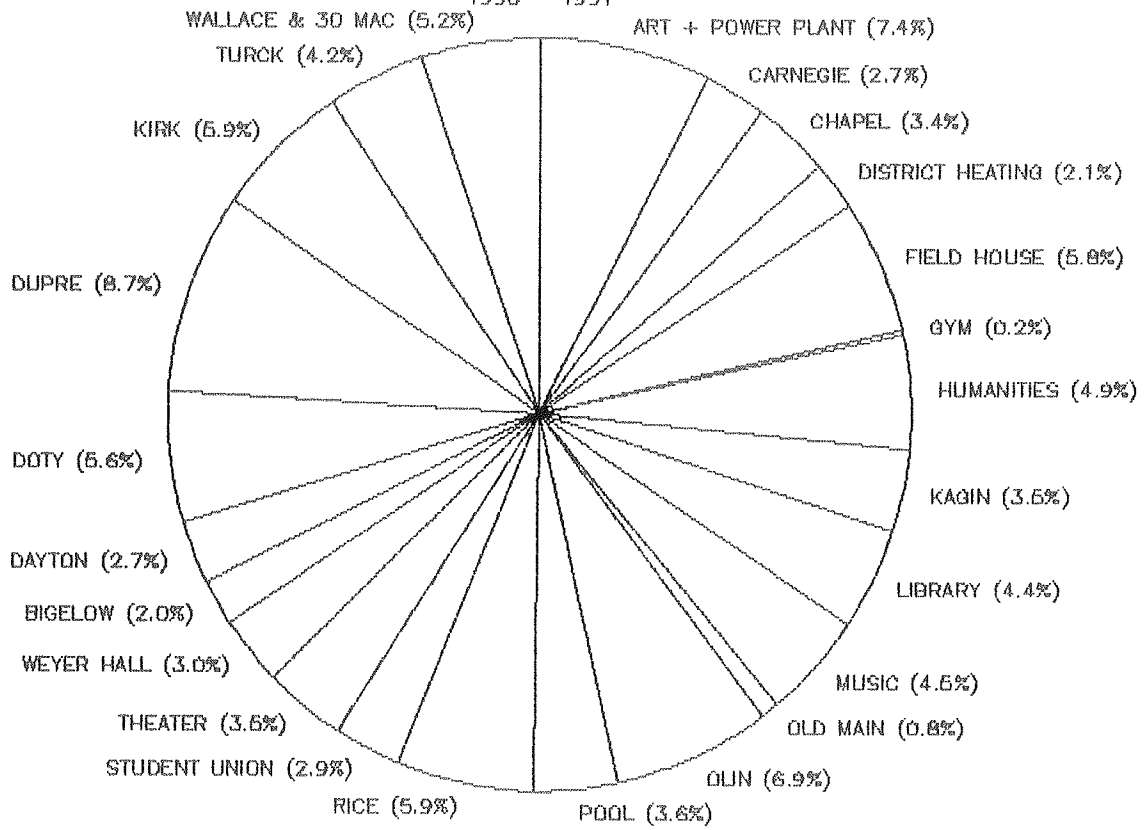
|  | JUNE  | JULY  | AUGUST  | SEPT.   | OCT.  | NOV.  |
|--|---|---|---|---|---|---|
| GAS                                    | 6,143<br>\$1,532.74<br>0.250                    | 10,024<br>\$2,314.37<br>0.231                   | 0<br>\$291.50                                   | 19,284<br>\$3,837.18<br>0.199                   | 78,736<br>\$16,924.99<br>0.215                  | 119,387<br>\$31,880.28<br>0.267                 |
| OIL                                    | 0   | 0   | 0   | 0   | 0   | 0   |
| TOTAL BTU CONSUMPTION (X1,000)         | 614,300   | 1,002,400                                       | 0   | 1,928,400                                       | 7,873,600                                       | 11,938,700                                      |
| ELECTRICITY                            | 717,600<br>28<br>25,629<br>\$40,002.40<br>0.056 | 866,400<br>32<br>27,075<br>\$43,554.85<br>0.050 | 672,000<br>28<br>24,000<br>\$39,046.44<br>0.058 | 890,400<br>30<br>29,680<br>\$47,470.22<br>0.053 | 825,600<br>29<br>28,469<br>\$36,457.51<br>0.044 | 967,200<br>34<br>28,447<br>\$40,253.02<br>0.042 |
| # STEAM GENERATED                      | 555,100   | 980,900   | 0   | 1,836,100                                       | 7,391,100                                       | 11,148,800                                      |
| BOILER EFFICIENCY (BTU STEAM/BTU FUEL) | 79.0%   | 85.1%   | -   | 82.8%   | 81.9%   | 81.2%   |
| HEATING DEGREE DAY - ACTUAL (MAC)      | 25  | 3   | 1   | 86  | 425   | 689   |
| COOLING DEGREE DAY - ACTUAL (MAC)      | 285   | 343   | 308   | 166   | 0   | 1   |
| HOURS CHILLER OPERATION                | 522   | 567   | 383   | 314   | 0   | 0   |
| 1989-90 GAS (CCF)                      | 5,911<br>\$1,598.98<br>0.271                    | 3,989<br>\$1,161.99<br>0.291                    | 6,330<br>\$1,671.63<br>0.264                    | 31,292<br>\$7,253.34<br>0.232                   | 77,432<br>\$17,360.36<br>0.224                  | 139,290<br>\$32,716.96<br>0.235                 |
| 1989-90 OIL (GAL)                      | 0   | 0   | 0   | 0   | 0   | 0   |
| 1989-90 BTU CONSUMPTION (X1,000)       | 591,100   | 398,900   | 633,000   | 3,129,200                                       | 7,743,200                                       | 13,929,000                                      |
| 1989-90 ELECTRICITY                    | 564,000<br>27<br>20,889<br>\$31,522.90<br>0.056 | 748,800<br>32<br>23,400<br>\$38,030.01<br>0.051 | 708,000<br>29<br>24,414<br>\$36,924.27<br>0.052 | 840,000<br>29<br>28,966<br>\$42,704.75<br>0.051 | 825,600<br>28<br>29,486<br>\$27,719.34<br>0.045 | 943,200<br>33<br>28,582<br>\$39,457.12<br>0.042 |
| 1989-90 # STEAM GENERATED              | 575,000   | 359,700   | 580,700   | 2,912,100                                       | 7,110,400                                       | 13,041,000                                      |
| 1989-90 HEATING DEGREE DAY             | 64  | 2   | 20  | 204   | 494   | 1,137   |
| 1989-90 COOLING DEGREE DAY             | 101   | 291   | 130   | 12  | 2   | 0   |
| 1989-90 HOURS CHILLER OPERATION        | 153   | 199   | 256   | 139   | 68  | 0   |

(\$9k credit)

| DEC.        | JAN.        | FEB.        | MARCH       | APRIL       | MAY         | YEAR END<br>TOTAL |
|-------------|-------------|-------------|-------------|-------------|-------------|-------------------|
| 175,249     | 197,173     | 145,576     | 142,592     | 78,913      | 14,310      | 987,387           |
| \$46,660.15 | \$52,425.97 | \$38,789.76 | \$38,003.13 | \$15,708.77 | \$3,301.84  | \$251,670.68      |
| 0.266       | 0.266       | 0.266       | 0.267       | 0.199       | 0.231       | 0.255             |
| 0           | 0           | 0           | 0           | 0           | 0           | 0                 |
|             |             |             |             |             |             | \$0.00            |
|             |             |             |             |             |             | 0.0000            |
| 17,524,900  | 19,717,300  | 14,557,600  | 14,259,200  | 7,891,300   | 1,431,000   | 98,736,700        |
| 945,600     | 904,800     | 854,400     | 756,400     | 981,600     | 1,075,200   | 10,459,200        |
| 40          | 24          | 28          | 26          | 35          | 34          | 368               |
| 23,640      | 37,700      | 30,514      | 29,169      | 28,046      | 31,624      | 28,422            |
| \$39,151.30 | \$34,274.90 | \$32,454.02 | \$25,671.79 | \$38,774.29 | \$45,942.72 | \$463,053.46      |
| 0.041       | 0.038       | 0.038       | 0.039       | 0.040       | 0.043       | 0.044             |
|             |             |             | *REFUND*    |             |             |                   |
| 16,361,100  | 18,449,800  | 13,764,300  | 13,326,200  | 7,442,700   | 1,466,400   | 92,712,500        |
| 81.2%       | 81.4%       | 82.3%       | 84.0%       | 83.0%       | 83.1%       | 82.3%             |
| 1,502       | 1,722       | 1,254       | 1,146       | 639         | 303         | 7,795             |
| 0           | 0           | 0           | 0           | 0           | 18          | 1,121             |
| 0           | 0           | 0           | 0           | 0           | 306         | 2,092             |
| 133,810     | 5,478       | 147,860     | 130,640     | 82,920      | 24,540      | 789,492           |
| \$30,514.42 | \$2,066.01  | \$34,538.38 | \$27,473.60 | \$16,807.89 | \$5,040.52  | \$178,204.08      |
| 0.228       | 0.377       | 0.234       | 0.210       | 0.203       | 0.205       | 0.226             |
| 35,900      | 98,500      | 0           | 0           | 0           | 0           | 134,400           |
| \$11,852.39 | \$41,961.00 |             |             |             |             | \$53,813.39       |
| 18,720,000  | 15,322,000  | 14,785,900  | 13,064,000  | 8,292,000   | 2,454,000   | 99,062,300        |
| 895,200     | 818,400     | 842,400     | 796,800     | 916,800     | 715,200     | 9,614,400         |
| 36          | 28          | 29          | 29          | 34          | 30          | 364               |
| 24,867      | 29,229      | 29,048      | 27,476      | 26,965      | 23,840      | 26,413            |
| \$35,829.82 | \$34,361.03 | \$35,410.58 | \$33,997.97 | \$40,731.84 | \$35,073.51 | \$431,765.14      |
| 0.040       | 0.042       | 0.042       | 0.043       | 0.044       | 0.049       | 0.045             |
| 17,938,100  | 14,483,700  | 14,273,700  | 12,607,400  | 7,720,000   | 2,417,000   | 94,018,800        |
| 1,733       | 1,300       | 1,237       | 1,052       | 698         | 240         | 8,181             |
| 0           | 0           | 0           | 0           | 3           | 17          | 556               |
| 0           | 0           | 0           | 0           | 63          | 59          | 937               |

# CONDENSATE CONSUMPTION (GALLONS)

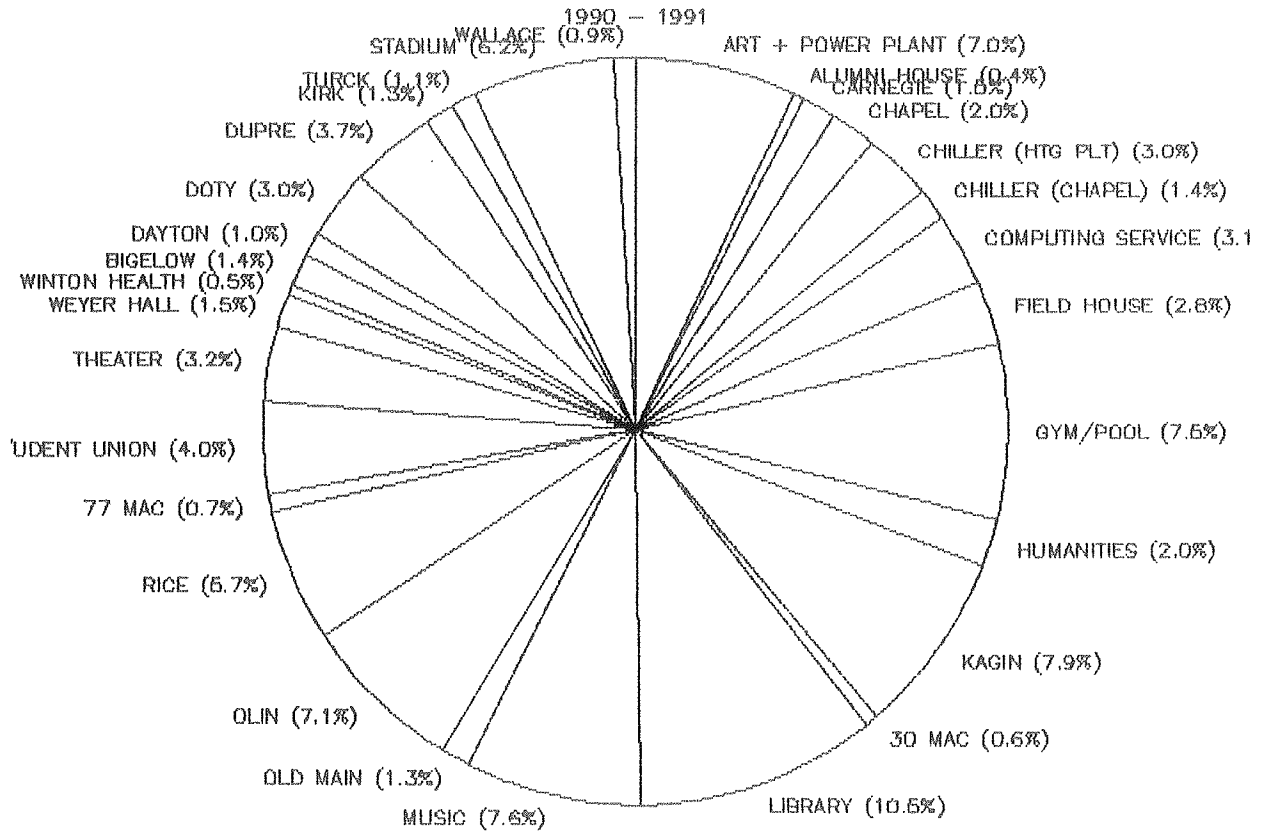
1990 - 1991



CONDENSATE CONSUMPTION BY BUILDING  
1990 - 1991

| BUILDING          | JUNE    | JULY   | AUGUST | SEPT   | OCT     | NOV     | DEC       | JAN       | FEB       | MARCH   | APRIL   | MAY     | TOTAL     |
|-------------------|---------|--------|--------|--------|---------|---------|-----------|-----------|-----------|---------|---------|---------|-----------|
| ART + POWER PLANT | 9,110   | 4,110  | 0      | 10,990 | 43,700  | 69,480  | 95,180    | 109,360   | 81,870    | 65,660  | 16,880  | 2,340   | 502,580   |
| CARNEGIE          | 0       | 0      | 0      | 0      | 10,630  | 13,470  | 36,140    | 45,250    | 31,370    | 28,220  | 15,040  | 4,090   | 184,210   |
| CHAPEL            | 390     | 0      | 0      | 1,930  | 15,160  | 31,180  | 43,260    | 39,830    | 34,460    | 35,060  | 25,230  | 6,110   | 232,570   |
| FIELD HOUSE       | 1,740   | 1,250  | 0      | 5,850  | 31,210  | 50,620  | 77,900    | 77,380    | 62,700    | 53,720  | 23,910  | 6,080   | 392,360   |
| GYM               | 10      | 0      | 0      | 20     | 330     | 1,390   | 3,090     | 3,090     | 2,400     | 2,480   | 630     | 0       | 13,440    |
| HUMANITIES        | 2,670   | 1,750  | 30     | 6,030  | 24,380  | 35,980  | 55,010    | 61,530    | 51,340    | 50,890  | 36,710  | 10,270  | 336,590   |
| KHWIN             | 11,230  | 0      | 7,880  | 13,150 | 9,410   | 34,120  | 7,260     | 63,640    | 61,720    | 29,300  | 4,460   | 0       | 241,170   |
| LIBRARY           | 460     | 0      | 0      | 2,126  | 22,077  | 35,658  | 43,667    | 48,510    | 58,352    | 46,059  | 36,420  | 5,095   | 299,426   |
| MUSIC             | 10      | 0      | 0      | 410    | 17,800  | 32,070  | 59,720    | 66,990    | 50,700    | 47,400  | 24,250  | 6,410   | 305,760   |
| OLD MAIN          | 0       | 0      | 0      | 20     | 6,280   | 9,920   | 5,280     | 9,890     | 11,120    | 12,060  | 4,740   | 2,410   | 55,720    |
| OILIN             | 5,000   | 8,390  | 7,700  | 6,720  | 38,670  | 65,480  | 83,350    | 87,860    | 64,630    | 52,940  | 26,380  | 17,550  | 465,570   |
| POOL              | 11,730  | 4,190  | 0      | 570    | 6,910   | 32,150  | 54,780    | 53,940    | 41,730    | 29,130  | 10,990  | 280     | 246,400   |
| RICE              | 1,740   | 0      | 0      | 600    | 19,400  | 26,840  | 87,480    | 96,890    | 88,690    | 59,780  | 19,680  | 2,230   | 403,330   |
| STUDENT UNION     | 0       | 0      | 0      | 1,100  | 10,630  | 12,510  | 60,280    | 32,450    | 29,930    | 27,850  | 20,500  | 5,030   | 200,280   |
| THEATER           | 3,450   | 1,490  | 0      | 860    | 17,360  | 33,380  | 49,340    | 24,050    | 34,900    | 43,140  | 24,460  | 5,990   | 238,420   |
| WEYER HALL        | 1,290   | 0      | 0      | 1,990  | 12,010  | 24,020  | 37,590    | 64,410    | 17,760    | 24,330  | 18,330  | 4,030   | 205,760   |
| BIGELOW           | 2,910   | 300    | 0      | 2,600  | 9,060   | 19,860  | 27,150    | 12,440    | 20,450    | 22,260  | 13,220  | 6,540   | 135,790   |
| DAYTON            | 1,330   | 0      | 0      | 2,830  | 14,640  | 25,100  | 34,640    | 35,100    | 28,080    | 22,780  | 14,670  | 3,250   | 182,420   |
| DUTY              | 2,490   | 0      | 0      | 5,260  | 25,040  | 51,850  | 78,310    | 80,890    | 66,540    | 95,930  | 29,720  | 5,450   | 381,420   |
| DUPRE             | 15,000  | 0      | 0      | 5,140  | 24,460  | 56,910  | 107,630   | 119,660   | 106,600   | 101,410 | 48,480  | 7,140   | 594,430   |
| KIRK              | 4,580   | 0      | 0      | 1,310  | 31,600  | 55,950  | 69,610    | 71,630    | 64,800    | 57,850  | 38,840  | 6,170   | 404,340   |
| TURK              | 21,310  | 0      | 6,120  | 12,620 | 25,560  | 46,470  | 39,360    | 15,720    | 35,980    | 46,330  | 30,710  | 6,770   | 286,940   |
| WHITACE & 30 MAC  | 14,460  | 3,390  | 0      | 0      | 25,520  | 41,170  | 54,430    | 57,420    | 58,000    | 59,150  | 31,050  | 16,490  | 313,550   |
| DISTRICT HEATING  | 3,120   | 0      | 0      | 1,210  | 7,430   | 18,980  | 35,200    | 35,650    | 19,980    | 16,070  | 5,390   | 820     | 143,850   |
| TOTAL CONDENSATE  | 119,970 | 24,870 | 21,730 | 85,236 | 448,257 | 824,558 | 1,245,657 | 1,301,540 | 1,126,102 | 963,699 | 520,690 | 132,545 | 6,808,656 |

# ELECTRICITY CONSUMPTION



ELECTRICITY CONSUMPTION BY BUILDING  
1990 - 1991

| BUILDING           | JUNE    | JULY    | AUGUST  | SEPT    | OCT     | NOV     | DEC     | JAN     | FEB     | MARCH   | APRIL   | MAY       | TOTAL      |
|--------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-----------|------------|
| ALUMNI HOUSE       | 3,769   | 4,479   | 3,790   | 5,090   | 3,580   | 4,406   | 4,014   | 4,150   | 3,750   | 3,490   | 3,080   | 3,321     | 46,919     |
| ART + POWER PLANT  | 82,830  | 66,260  | 59,840  | 69,260  | 53,320  | 62,370  | 62,060  | 60,260  | 59,280  | 57,400  | 50,410  | 74,710    | 752,000    |
| CARNegie           | 4,260   | 1,110   | 2,070   | 2,700   | 5,640   | 8,610   | 16,260  | 22,140  | 24,420  | 23,880  | 25,350  | 24,300    | 160,740    |
| CHAPEL             | 26,670  | 20,760  | 17,950  | 19,290  | 13,050  | 15,900  | 16,710  | 18,330  | 17,640  | 15,960  | 14,550  | 22,200    | 218,310    |
| COMPUTING SERVICE  | 23,690  | 24,920  | 31,610  | 31,490  | 23,940  | 21,790  | 28,180  | 32,760  | 32,190  | 32,350  | 21,900  | 29,560    | 334,380    |
| FIELD HOUSE        | 25,230  | 25,200  | 23,430  | 26,190  | 23,910  | 26,160  | 26,550  | 27,180  | 27,240  | 24,540  | 25,350  | 23,940    | 304,920    |
| GYM/POOL           | 69,000  | 57,600  | 60,000  | 69,900  | 72,800  | 76,600  | 74,800  | 68,800  | 69,000  | 61,200  | 63,200  | 67,500    | 810,400    |
| HUMANITIES         | 13,680  | 12,660  | 9,330   | 16,500  | 20,520  | 21,270  | 20,100  | 20,370  | 19,980  | 20,310  | 19,980  | 19,980    | 217,710    |
| KHGIN              | 86,100  | 74,160  | 67,080  | 85,500  | 66,360  | 65,940  | 60,000  | 55,020  | 64,440  | 59,220  | 70,140  | 92,940    | 846,900    |
| 30 MAC             | 5,100   | 4,620   | 4,965   | 6,660   | 7,830   | 7,950   | 7,530   | 4,500   | 3,510   | 3,532   | 3,060   | 3,705     | 62,962     |
| 77 MAC             | 8,159   | 9,847   | 8,045   | 8,245   | 4,196   | 4,956   | 5,042   | 4,679   | 4,360   | 4,993   | 5,245   | 9,268     | 77,025     |
| LIBRARY            | 74,260  | 56,760  | 61,380  | 78,740  | 98,040  | 106,480 | 105,360 | 92,080  | 102,500 | 110,400 | 113,920 | 125,440   | 1,125,360  |
| MUSIC              | 39,320  | 32,100  | 29,440  | 35,540  | 41,680  | 46,500  | 105,200 | 46,500  | 46,540  | 142,520 | 144,220 | 155,400   | 1,125,360  |
| OLD MAIN           | 11,820  | 8,840   | 9,660   | 12,450  | 11,720  | 11,600  | 13,040  | 12,880  | 12,060  | 10,040  | 10,460  | 11,320    | 135,900    |
| OLIN               | 44,900  | 38,200  | 40,600  | 51,300  | 59,760  | 65,240  | 61,000  | 52,960  | 57,600  | 56,640  | 58,080  | 80,880    | 757,680    |
| RICE               | 29,840  | 28,960  | 26,840  | 34,840  | 37,600  | 38,720  | 39,920  | 40,240  | 44,360  | 39,320  | 37,640  | 35,440    | 439,720    |
| STUDENT UNION      | 20,220  | 16,000  | 17,280  | 23,660  | 31,560  | 35,700  | 39,600  | 34,340  | 33,440  | 32,200  | 34,000  | 28,640    | 340,640    |
| THEATER            | 19,860  | 10,480  | 11,820  | 13,680  | 13,840  | 14,280  | 13,920  | 13,580  | 13,780  | 13,660  | 13,820  | 13,180    | 159,900    |
| WEYER HALL         | 2,790   | 2,475   | 3,180   | 3,480   | 2,190   | 4,740   | 5,820   | 5,640   | 5,430   | 5,198   | 4,448   | 4,500     | 49,891     |
| WINTON HEALTH      | 8,680   | 7,140   | 6,780   | 14,880  | 15,300  | 16,740  | 14,340  | 12,420  | 14,820  | 14,400  | 14,160  | 14,160    | 154,020    |
| BIGELUH            | 10,950  | 7,950   | 7,350   | 9,300   | 9,750   | 10,200  | 9,150   | 7,800   | 9,150   | 9,150   | 8,700   | 9,150     | 100,600    |
| DRAYTON            | 27,510  | 23,940  | 21,060  | 26,490  | 27,300  | 28,710  | 27,810  | 26,010  | 28,920  | 29,670  | 29,610  | 29,760    | 326,790    |
| DUPRE              | 27,840  | 22,920  | 18,400  | 30,880  | 39,200  | 48,080  | 37,640  | 32,400  | 38,760  | 36,320  | 34,600  | 30,600    | 397,640    |
| KIRK               | 12,500  | 10,380  | 11,680  | 17,880  | 12,340  | 12,520  | 10,080  | 8,260   | 11,100  | 11,085  | 11,100  | 10,720    | 139,760    |
| TURCK              | 6,450   | 5,850   | 4,200   | 9,900   | 12,300  | 13,050  | 11,250  | 9,300   | 11,700  | 11,085  | 10,950  | 10,350    | 116,385    |
| STADIUM            | 8,400   | 9,000   | 12,300  | 32,600  | 45,400  | 67,500  | 115,700 | 121,400 | 98,600  | 80,300  | 41,800  | 29,100    | 662,100    |
| PHILLARCE          | 4,740   | 4,650   | 3,870   | 9,120   | 10,710  | 11,790  | 9,870   | 8,280   | 9,720   | 9,705   | 9,390   | 9,075     | 100,860    |
| CHILLER (HT6 PLT)  | 89,280  | 60,760  | 47,400  | 58,440  | 240     | 40      | 600     | 600     | 560     | 440     | 440     | 65,560    | 324,360    |
| CHILLER (CHAPEL)   | 32,080  | 32,840  | 28,400  | 25,320  | 1,160   | 1,200   | 1,240   | 1,120   | 1,120   | 1,120   | 1,080   | 23,440    | 150,120    |
| TOTAL KHH CONSUMED | 884,368 | 742,101 | 706,570 | 900,375 | 620,636 | 906,942 | 932,872 | 895,389 | 923,180 | 972,323 | 935,453 | 1,110,039 | 10,730,248 |



MACALESTER COLLEGE  
MONTHLY ENERGY BUDGET REPORT  
JUNE 1990 - MAY 1991

| ENERGY<br>TYPE                      | QUANTITY<br>CONSUMED | EXPENDITURE       | BUDGETED                               | BUDGETED             | TOTAL       | TOTAL        |
|-------------------------------------|----------------------|-------------------|--|----------------------|-------------|--------------|
|                                     |                      |                   | CONSUMPTION<br>(BTU <sub>s</sub> /KWH) | TOTAL<br>EXPENDITURE | CONSUMPTION | EXPENDITURE  |
|                                     | 6/1/90-<br>5/31/91   | 6/1/90<br>5/31/91 | 90-91                                  | 90-91                | 90-91       | 90-91        |
| GAS (CCF)                           | 987,387              | \$251,670.68      |  |                      |             |              |
| OIL (GAL.)                          | 0                    | \$0.00            |  |                      |             |              |
| TOTAL BTU <sub>s</sub><br>(* 1,000) | 98,738,700           | \$251,670.68      | 96,000,000                             | \$249,600.00         | 98,738,700  | \$251,670.68 |
| ELEC. (KWH)                         | 10,459,200           | \$463,053.46      | 9,500,000                              | \$484,500.00         | 10,459,200  | \$463,053.46 |
| TOTAL<br>EXPENDITURES               | ////////             | \$714,724.14      | ////////                               | \$734,100.00         | ////////    | \$714,724.14 |

VARIANCE:  
BUDGT VS EST      \$19,375.86  
=====

FUEL VARIANCE

|             |              |
|-------------|--------------|
| CONSUMPTION | \$7,120.62   |
| PRICE       | (\$5,049.94) |
| SUB-TOTAL   | \$2,070.68   |

ELEC VARIANCE

|             |               |
|-------------|---------------|
| CONSUMPTION | \$48,919.20   |
| PRICE       | (\$70,365.74) |
| SUB-TOTAL   | (\$21,446.54) |

TOTAL FUEL AND  
ELEC VARIANCE      (\$19,375.86)  
=====

COMPARATIVE CONSUMPTION REPORT  
 1989/90 VS. 1990/91  
 JUNE - MAY

| CONSUMPTION | GAS<br>(CCF) | OIL<br>(GAL) | TOTAL BTU <sub>6</sub><br>(X 1,000) | ELEC<br>(KWH) |
|-------------|--------------|--------------|-------------------------------------|---------------|
| 1989/90     | 789,492      | 134,400      | 99,062,300                          | 9,614,400     |
| 1990/91     | 987,387      | 0            | 98,738,700                          | 10,459,200    |

| EXPENDITURE | GAS+OIL<br>COSTS | \$/BTU<br>(1,000 BTU <sub>6</sub> ) | ELECTRICITY<br>COSTS | \$/KWH |
|-------------|------------------|-------------------------------------|----------------------|--------|
| 1989/90     | \$232,017.47     | 0.002342                            | \$431,765.14         | 0.045  |
| 1990/91     | \$251,670.68     | 0.002549                            | \$463,053.46         | 0.044  |
| DIFFERENCE  | (\$19,653.21)    |                                     | (\$31,288.32)        |        |

TOTAL 90/91  
 VARIANCE  
 FROM 89/90 (\$50,941.53)

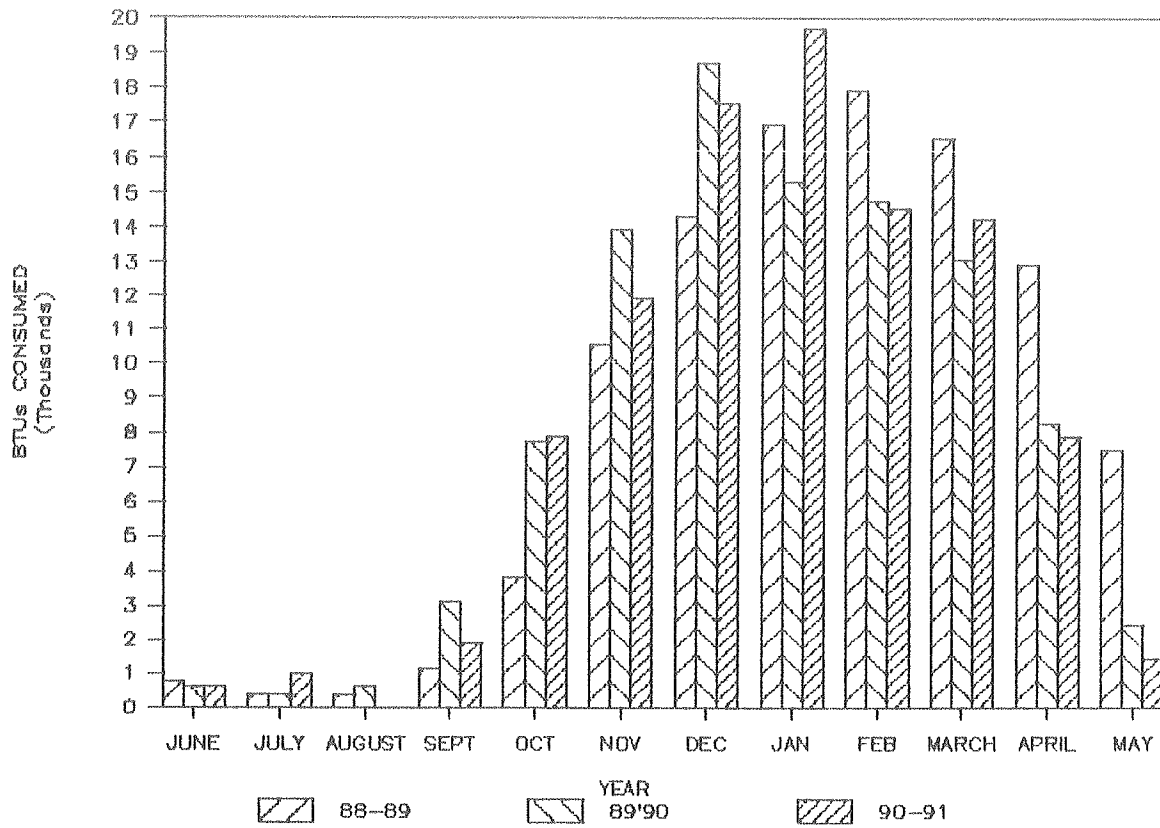
FUEL  
 VARIANCE (\$757.92) DUE TO CONSUMPTION

\$20,411.13 DUE TO PRICE

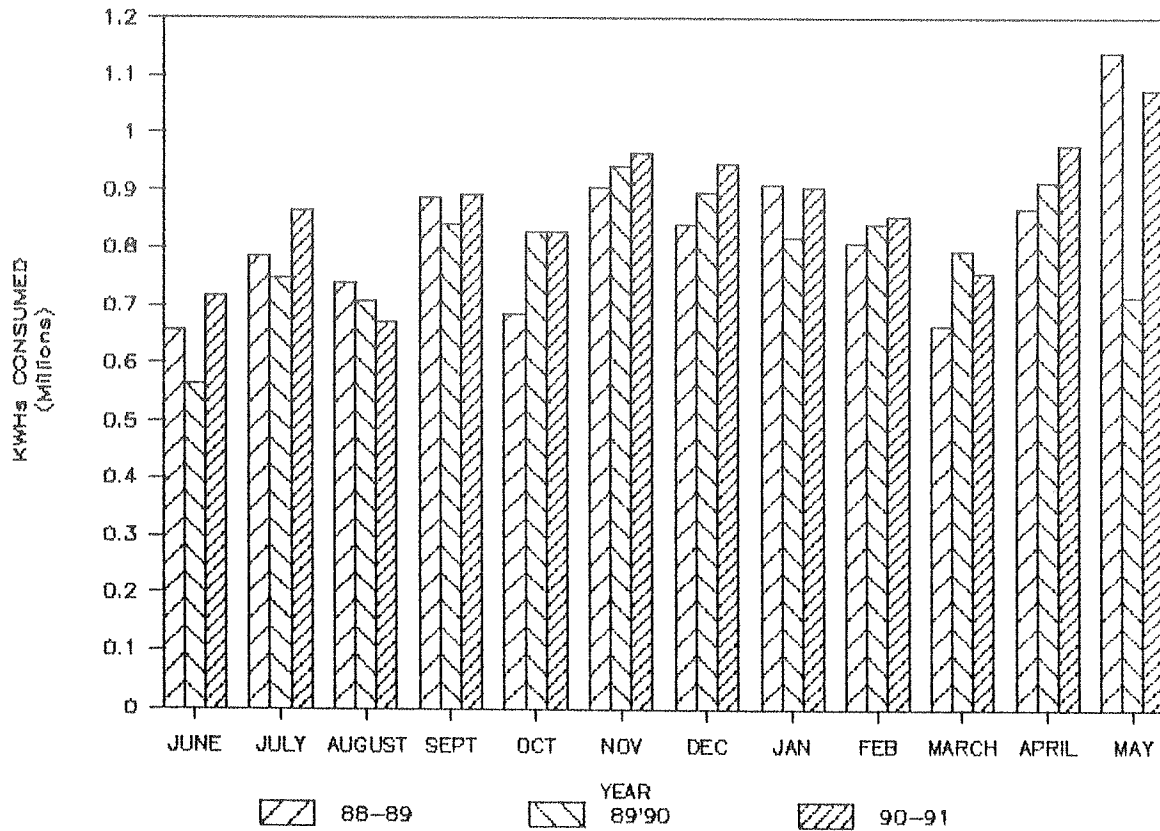
ELEC  
 VARIANCE \$37,938.42 DUE TO CONSUMPTION

(\$6,650.10) DUE TO PRICE

### 3 YEAR BTU CONSUMPTION COMPARISON

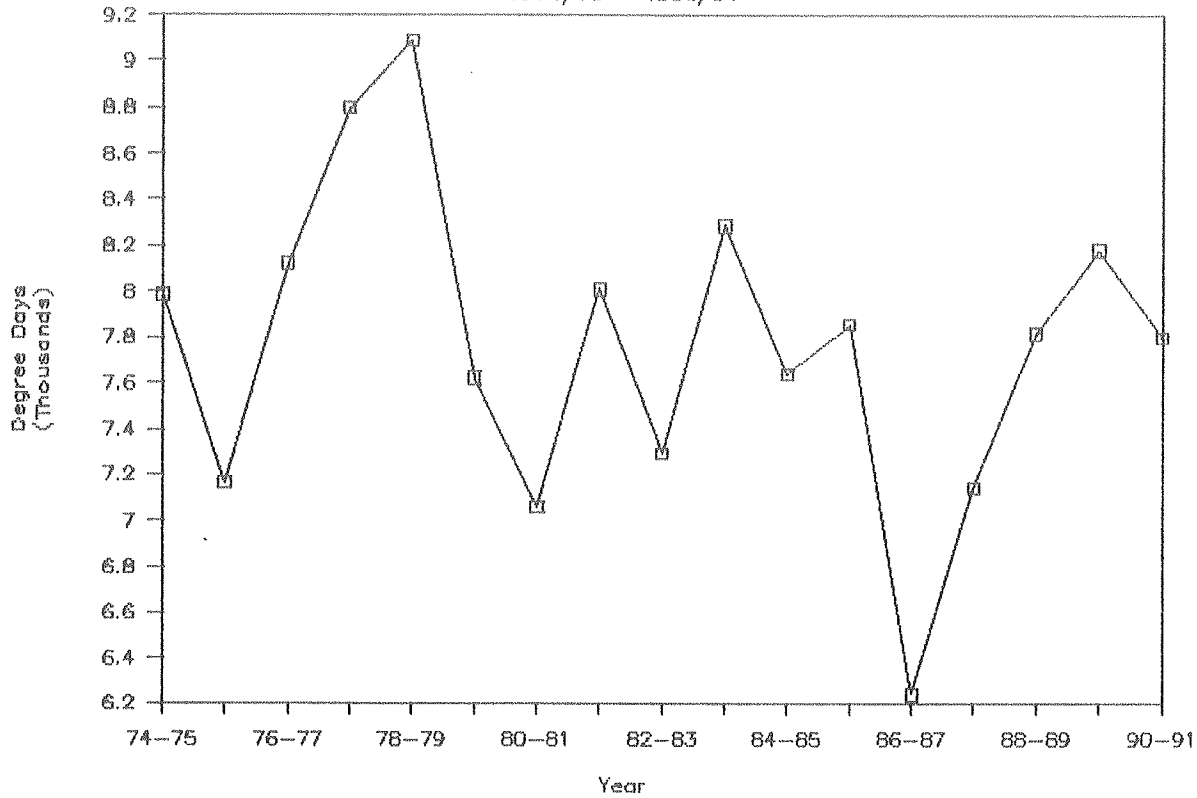


### 3 YEAR KWH CONSUMPTION COMPARISON



# DEGREE DAYS

1974/75 - 1990/91



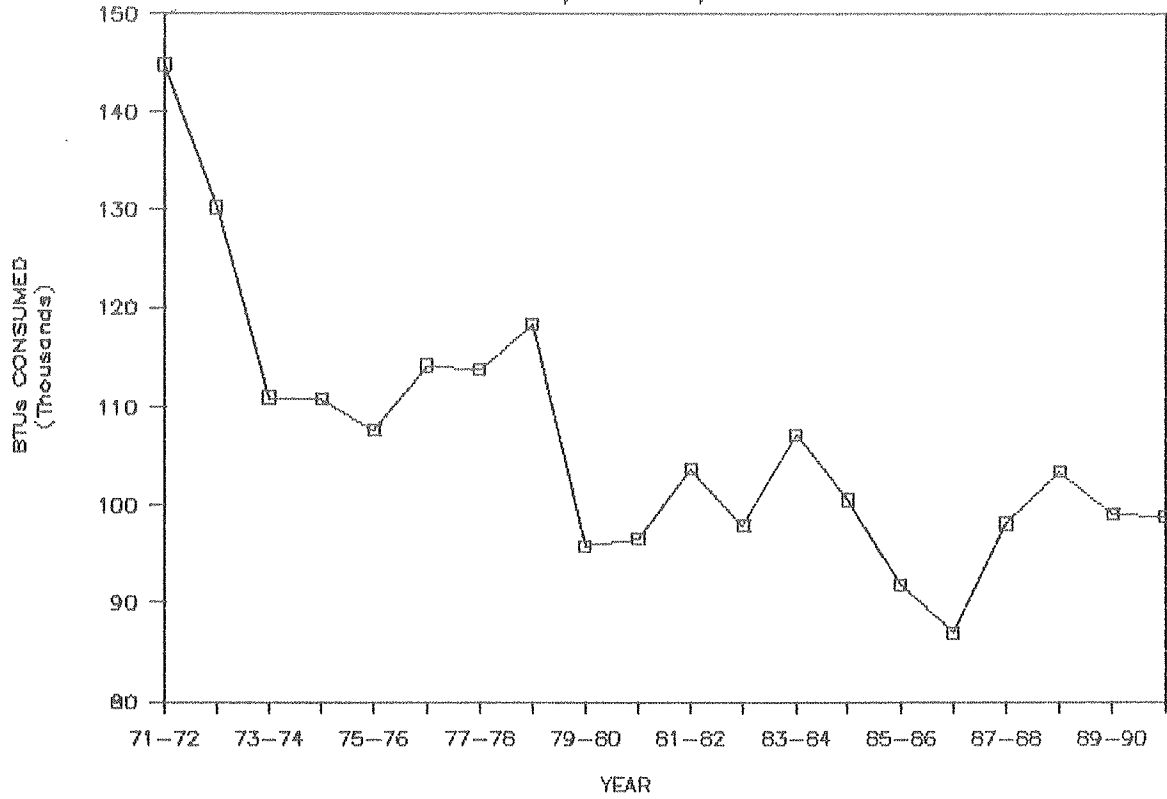
## MACALESTER COLLEGE ACTUAL READINGS

MAC TWIN CITY  
AVERAGE AVERAGE  
7 YR 20 YR

|              | 84/85        | 85/86        | 86/87        | 87/88        | 88/89        | 89/90        | 90/91        |              |              |
|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| JUNE         | 150          | 169          | 81           | 0            | 29           | 64           | 25           | 61           | 41           |
| JULY         | 41           | 30           | 0            | 51           | 0            | 2            | 3            | 17           | 12           |
| AUG          | 10           | 1            | 0            | 2            | 0            | 20           | 1            | 2            | 16           |
| SEPT         | 10           | 59           | 111          | 40           | 39           | 204          | 86           | 37           | 160          |
| OCT          | 229          | 470          | 247          | 393          | 302          | 494          | 425          | 234          | 488          |
| NOV          | 740          | 658          | 752          | 653          | 790          | 1,137        | 689          | 513          | 954          |
| DEC          | 1,186        | 1,470        | 1,160        | 977          | 1,141        | 1,733        | 1,502        | 848          | 1,420        |
| JAN          | 1,676        | 1,686        | 1,068        | 1,483        | 1,382        | 1,300        | 1,722        | 1,042        | 1,668        |
| FEB          | 1,720        | 1,396        | 1,264        | 1,605        | 1,405        | 1,237        | 1,254        | 1,056        | 1,330        |
| MARCH        | 1,026        | 1,048        | 820          | 994          | 1,336        | 1,052        | 1,146        | 746          | 1,110        |
| APRIL        | 651          | 597          | 602          | 671          | 929          | 698          | 639          | 493          | 570          |
| MAY          | 193          | 268          | 133          | 269          | 464          | 240          | 303          | 190          | 238          |
| <b>TOTAL</b> | <b>7,632</b> | <b>7,852</b> | <b>6,238</b> | <b>7,138</b> | <b>7,817</b> | <b>8,181</b> | <b>7,795</b> | <b>7,522</b> | <b>8,007</b> |

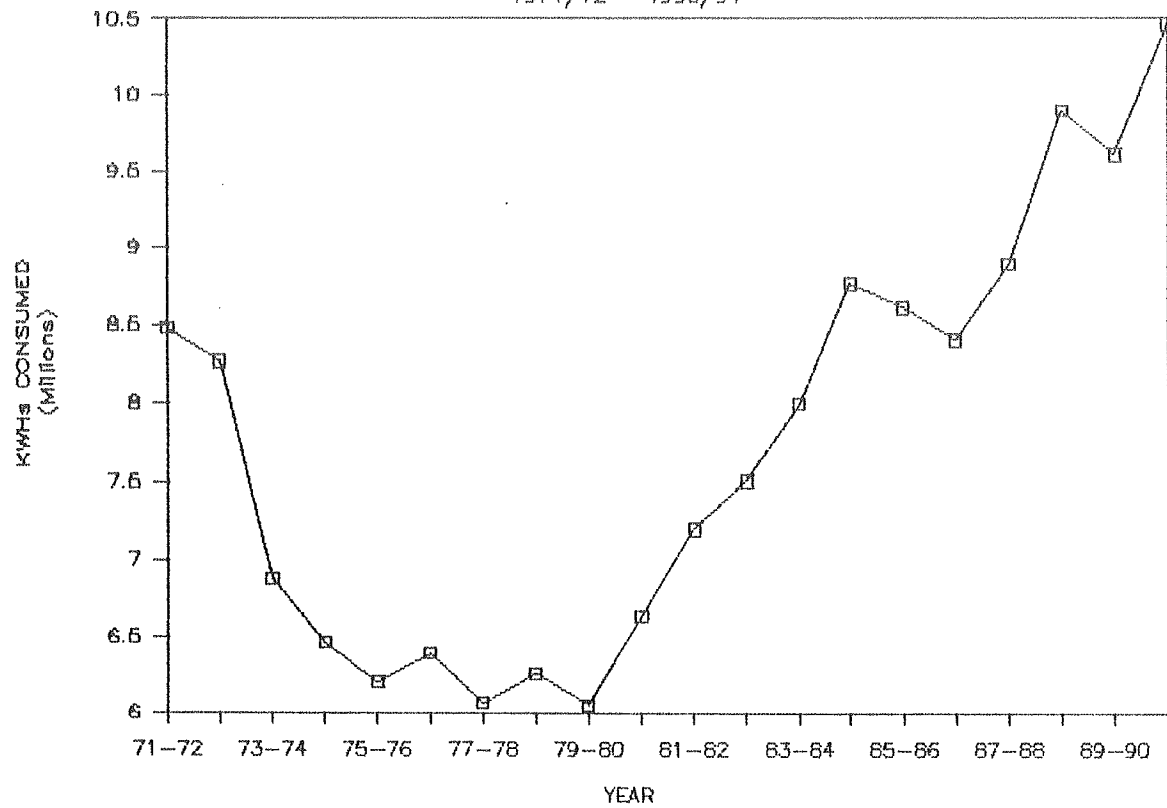
### BTU CONSUMPTION

1971/72 - 1990/91



### KWH CONSUMPTION

1971/72 - 1990/91



MACALESTER COLLEGE  
ENERGY CONSUMPTION

| YEAR  | ACTUAL<br>D. DAY | MCF GAS<br>CONSUMED | GALLONS<br>OIL<br>CONSUMED | BTUs<br>CONSUMED<br>x100,000 | KWH<br>CONSUMED |
|-------|------------------|---------------------|----------------------------|------------------------------|-----------------|
| 74-75 | 7,989            | 67,595              | 246,150                    | 110,769                      | 6,468,000       |
| 75-76 | 7,164            | 51,326              | 361,503                    | 107,587                      | 6,201,600       |
| 76-77 | 8,125            | 51,103              | 408,907                    | 114,191                      | 6,389,400       |
| 77-78 | 8,797            | 62,161              | 338,056                    | 113,709                      | 6,062,400       |
| 78-79 | 9,088            | 47,116              | 447,725                    | 118,299                      | 6,256,800       |
| 79-80 | 7,617            | 76,710              | 111,607                    | 95,864                       | 6,050,400       |
| 80-81 | 7,058            | 88,585              | 52,979                     | 96,558                       | 6,640,800       |
| 81-82 | 8,010            | 56,682              | 293,415                    | 103,563                      | 7,197,600       |
| 82-83 | 7,293            | 24,334              | 481,125                    | 97,945                       | 7,507,200       |
| 83-84 | 8,286            | 74,636              | 198,885                    | 107,096                      | 7,993,623       |
| 84-85 | 7,632            | 100,149             | 0                          | 100,516                      | 8,767,200       |
| 85-86 | 7,852            | 37,124              | 364,850                    | 91,852                       | 8,611,200       |
| 86-87 | 6,238            | 51,612              | 235,700                    | 86,956                       | 8,407,200       |
| 87-88 | 7,138            | 94,168              | 40,800                     | 98,071                       | 8,894,600       |
| 88-89 | 7,817            | 99,692              | 4,900                      | 103,242                      | 9,900,000       |
| 89-90 | 8,181            | 78,949              | 134,400                    | 99,062                       | 9,614,400       |
| 90-91 | 7,795            | 98,739              | 0                          | 98,739                       | 10,459,700      |

BTU CONSUMPTION - OIL AND GAS COMBINED (x 100,000)

| YEAR       | JUNE  | JULY  | AUGUST | SEPT  | OCT    | NOV    | DEC    | JAN    | FEB    | MARCH  | APRIL  | MAY   | (x100,000) |
|------------|-------|-------|--------|-------|--------|--------|--------|--------|--------|--------|--------|-------|------------|
| 1971-72    | 5,876 | 5,550 | 1,311  | 5,092 | 7,998  | 15,809 | 19,964 | 24,273 | 21,819 | 17,879 | 12,976 | 6,240 | 144,781    |
| 1972-73    | 4,076 | 4,088 | 1,126  | 4,379 | 11,306 | 14,564 | 21,408 | 20,827 | 18,470 | 14,269 | 9,782  | 5,990 | 130,285    |
| 1973-74    | 4,801 | 5,158 | 3,929  | 4,747 | 7,442  | 12,524 | 19,625 | 17,434 | 14,490 | 13,156 | 8,134  | 5,487 | 110,927    |
| 1974-75    | 4,055 | 6,146 | 2,454  | 4,435 | 7,492  | 10,588 | 19,679 | 17,421 | 15,386 | 14,451 | 10,813 | 3,849 | 110,769    |
| 1975-76    | 1,853 | 2,696 | 1,978  | 3,125 | 5,240  | 10,845 | 20,854 | 22,125 | 8,489  | 15,613 | 8,151  | 6,618 | 107,587    |
| 1976-77    | 3,500 | 3,179 | 2,717  | 3,631 | 6,514  | 15,042 | 16,712 | 26,847 | 9,906  | 10,864 | 8,898  | 4,381 | 114,191    |
| 1977-78    | 1,659 | 3,386 | 2,804  | 2,069 | 3,999  | 11,482 | 18,349 | 24,039 | 17,932 | 9,901  | 10,820 | 7,270 | 113,709    |
| 1978-79    | 1,625 | 2,931 | 2,774  | 2,960 | 4,045  | 14,515 | 17,221 | 24,873 | 18,306 | 10,114 | 9,638  | 9,296 | 118,299    |
| 1979-80    | 2,215 | 3,459 | 2,370  | 1,784 | 3,673  | 9,047  | 13,734 | 20,738 | 13,026 | 11,615 | 10,583 | 3,620 | 95,864     |
| 1980-81    | 1,413 | 2,271 | 2,004  | 895   | 6,890  | 11,175 | 13,313 | 18,330 | 14,380 | 12,136 | 7,636  | 6,115 | 96,558     |
| 1981-82    | 1,542 | 1,647 | 1,094  | 1,385 | 3,852  | 7,701  | 13,738 | 29,446 | 16,071 | 10,333 | 11,735 | 5,020 | 109,563    |
| 1982-83    | 836   | 1,736 | 1,862  | 1,656 | 3,357  | 17,322 | 14,926 | 15,027 | 14,321 | 14,440 | 6,708  | 5,954 | 97,945     |
| 1983-84    | 1,059 | 1,847 | 1,847  | 2,167 | 5,692  | 8,436  | 26,989 | 20,584 | 10,897 | 11,327 | 10,462 | 5,991 | 107,096    |
| 1984-85    | 954   | 1,984 | 2,641  | 2,026 | 5,327  | 10,326 | 14,966 | 18,938 | 17,352 | 14,157 | 9,760  | 3,285 | 100,516    |
| 1985-86    | 1,858 | 2,463 | 1,935  | 1,855 | 6,497  | 7,822  | 15,855 | 16,270 | 13,520 | 10,104 | 7,892  | 5,841 | 91,852     |
| 1986-87    | 2,230 | 2,479 | 1,935  | 1,855 | 6,497  | 7,822  | 15,855 | 16,270 | 13,520 | 10,104 | 7,892  | 5,841 | 91,852     |
| 1987-88    | 1,025 | 2,138 | 1,708  | 2,479 | 5,886  | 10,582 | 13,628 | 12,314 | 14,483 | 10,588 | 8,025  | 2,897 | 86,956     |
| 1988-89    | 784   | 399   | 526    | 1,971 | 4,619  | 9,348  | 13,296 | 17,926 | 20,364 | 13,790 | 8,851  | 5,916 | 98,071     |
| 1989-90    | 591   | 399   | 351    | 1,163 | 3,831  | 10,556 | 14,360 | 16,918 | 17,915 | 16,531 | 12,974 | 7,500 | 103,242    |
| 1990-91    | 614   | 1,002 | 633    | 3,129 | 7,743  | 13,929 | 18,720 | 15,322 | 14,786 | 13,064 | 8,292  | 2,454 | 99,062     |
| 1990-91    | 614   | 1,002 | 0      | 1,928 | 7,874  | 11,939 | 17,525 | 19,717 | 14,558 | 14,259 | 7,891  | 1,431 | 98,738     |
| 20 YR AVG. | 2,128 | 2,634 | 1,793  | 2,594 | 6,064  | 11,678 | 16,613 | 19,988 | 15,324 | 12,929 | 9,498  | 5,258 | 106,501    |

KILOWATT-HOURS CONSUMPTION - (ELECTRICITY)

|           |         |         |         |         |         |         |         |         |         |         |         |           |            |
|-----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-----------|------------|
| 1971-72   | 396,000 | 396,000 | 396,000 | 405,600 | 542,400 | 532,800 | 669,600 | 578,400 | 626,400 | 561,600 | 571,200 | 525,600   | 6,201,600  |
| 1972-73   | 348,000 | 415,200 | 424,800 | 525,600 | 525,600 | 686,400 | 669,600 | 595,200 | 590,400 | 561,600 | 554,400 | 492,600   | 6,389,400  |
| 1973-74   | 362,400 | 446,400 | 352,800 | 475,200 | 412,800 | 489,600 | 840,000 | 508,800 | 592,800 | 568,800 | 520,800 | 492,000   | 6,062,400  |
| 1974-75   | 333,600 | 444,000 | 345,600 | 508,400 | 482,400 | 568,800 | 669,600 | 564,000 | 708,000 | 537,600 | 602,400 | 494,400   | 6,256,800  |
| 1975-76   | 343,200 | 446,400 | 360,000 | 436,800 | 506,400 | 554,400 | 664,800 | 559,200 | 590,400 | 576,000 | 494,400 | 518,400   | 6,050,400  |
| 1976-77   | 446,400 | 482,400 | 448,800 | 532,800 | 516,000 | 583,200 | 700,800 | 616,800 | 600,000 | 595,200 | 590,400 | 528,000   | 6,640,800  |
| 1977-78   | 446,400 | 501,600 | 556,800 | 580,800 | 561,600 | 590,400 | 748,800 | 628,800 | 708,000 | 657,600 | 638,800 | 589,200   | 7,197,600  |
| 1978-79   | 475,200 | 628,800 | 590,400 | 612,000 | 748,800 | 650,400 | 650,400 | 691,200 | 602,400 | 645,600 | 672,000 | 540,000   | 7,507,200  |
| 1979-80   | 463,200 | 645,600 | 585,600 | 964,800 | 379,200 | 729,600 | 789,200 | 676,800 | 708,000 | 741,600 | 684,914 | 651,109   | 7,993,623  |
| 1980-81   | 513,600 | 708,000 | 657,600 | 655,200 | 806,400 | 765,600 | 759,200 | 874,800 | 840,000 | 772,800 | 748,800 | 722,400   | 8,767,200  |
| 1981-82   | 550,000 | 741,200 | 588,000 | 686,400 | 732,000 | 727,200 | 866,400 | 708,000 | 789,600 | 772,800 | 705,600 | 744,000   | 8,611,200  |
| 1982-83   | 559,200 | 720,000 | 568,800 | 573,600 | 710,400 | 698,400 | 900,000 | 729,600 | 729,600 | 744,000 | 729,600 | 744,000   | 8,407,200  |
| 1983-84   | 549,600 | 784,800 | 700,800 | 619,200 | 712,000 | 732,000 | 912,000 | 787,200 | 844,800 | 768,000 | 871,200 | 612,000   | 8,894,600  |
| 1984-85   | 657,600 | 787,200 | 741,600 | 885,600 | 686,400 | 904,800 | 840,000 | 909,600 | 808,800 | 664,800 | 871,200 | 1,142,400 | 9,900,000  |
| 1985-86   | 564,000 | 748,800 | 708,000 | 840,000 | 825,600 | 943,200 | 895,200 | 818,400 | 842,400 | 796,800 | 916,800 | 715,200   | 9,614,400  |
| 1986-87   | 717,600 | 866,400 | 672,000 | 890,400 | 825,600 | 967,200 | 945,600 | 904,800 | 854,400 | 758,400 | 981,600 | 1,075,200 | 10,459,200 |
| 1987-88   | 482,875 | 610,175 | 543,600 | 636,900 | 623,400 | 695,263 | 782,700 | 691,350 | 714,750 | 670,500 | 696,807 | 661,262   | 7,809,601  |
| 1988-89   |         |         |         |         |         |         |         |         |         |         |         |           |            |
| 1989-90   |         |         |         |         |         |         |         |         |         |         |         |           |            |
| 1990-91   |         |         |         |         |         |         |         |         |         |         |         |           |            |
| 16 YR AVG |         |         |         |         |         |         |         |         |         |         |         |           |            |

8,476,800  
8,268,000  
6,878,400  
6,468,000