## PRIMARY ENERGY CONSUMPTION

*Consumption decreased 2% from 1998*

<table>
<thead>
<tr>
<th>Energy Type</th>
<th>1990</th>
<th>1999</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coal</td>
<td>1.40</td>
<td>1.40</td>
</tr>
<tr>
<td>Electricity (Purchased)</td>
<td>0.71</td>
<td>0.71</td>
</tr>
<tr>
<td>Hydro</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>0.29</td>
<td>0.29</td>
</tr>
<tr>
<td>Oil</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

1990 Primary Consumption per Square Foot (million Btu): 0.20
1999 Primary Consumption per Square Foot (million Btu): 0.19

## END-USE ENERGY CONSUMPTION

By Building Type:
- Lab Buildings: TBD
- Residence Halls: TBD
- Other: TBD

## ENERGY RELATED CO2 EMISSIONS

*Emissions decreased 2% from 1998*

<table>
<thead>
<tr>
<th>Year</th>
<th>Total CO2 Emissions (thousand tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>333</td>
</tr>
<tr>
<td>1999</td>
<td>256</td>
</tr>
</tbody>
</table>

By Primary Energy Type:
- Coal: 42% 57%
- Electricity (purchased): 50% 37%
- Hydro: 0% 0%
- Natural Gas: 5% 6%
- Oil: 3% 0%

By Utility Type:
- Chilled Water: 6% 4%
- Electricity - Procured: 50% 37%
- Electricity - Cogenerated: 3% 6%
- Steam: 47% 57%

## GLOSSARY

- Btu: British thermal unit
- CO2: Carbon Dioxide
- Primary: Central Plant Usage
- End Use: Building metered usage
- COP: Coefficient of Performance

## NOTES

1. Information provided is for Ithaca central utility campus only.
2. Chilled water input Btu’s are the energy input to the central plants for production and distribution of cooling water.
3. 1990 purchased electric emission rate determined from New York State Electric & Gas (NYSEG) 1990 annual report.
4. 1999 purchased electric emission rate estimated using 2001 rates provided by New York State Public Service Commission (NYSPSC).

## CHILLED WATER

1990 Total Chilled Water Production (trillion Btu): 0.34
1999 Total Chilled Water Production (trillion Btu): 0.40

<table>
<thead>
<tr>
<th>Generation Sources</th>
<th>1990</th>
<th>1999</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chillers</td>
<td>83%</td>
<td>88%</td>
</tr>
<tr>
<td>Lake/Free Cooling</td>
<td>17%</td>
<td>12%</td>
</tr>
</tbody>
</table>

Total Energy Input$^2$ (trillion Btu): 0.07 0.09

System COP: 4.7 4.7

## ELECTRICITY

1990 Total Consumption (mwh): 201,000
- Cornell Generated: 26,000
- Purchased: 175,000

1999 Total Consumption (mwh): 243,000
- Cornell Generated: 34,000
- Purchased: 209,000

Cornell Generated Sources:
- Cogeneration: 81% 90%
- Hydro: 20% 9%

Purchased Electricity Sources$^3$:
- Biomass: 0% 2%
- Coal: 74% 15%
- Natural Gas: 5% 35%
- Hydro: 14% 19%
- Nuclear: 5% 20%
- Oil: 2% 6%
- Solar: 0% 0%
- Solid Waste: 0% 3%
- Wind: 0% <1%

## STEAM

1990 Total Steam Export (trillion Btu): 1.31
1999 Total Steam Export (trillion Btu): 1.20

<table>
<thead>
<tr>
<th>Fuel Sources (10^12 Btu)</th>
<th>1990</th>
<th>1999</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coal</td>
<td>1.33</td>
<td>1.40</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>0.28</td>
<td>0.29</td>
</tr>
<tr>
<td>Oil</td>
<td>0.13</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Total Energy Input (10^12 Btu): 1.74 1.69
Thermal Efficiency: 69% 67%

## ADDITIONAL STATISTICS

<table>
<thead>
<tr>
<th>Statistic</th>
<th>1990</th>
<th>1999</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Enrollment</td>
<td>18,000</td>
<td>18,319</td>
</tr>
<tr>
<td>Campus Area (1000 sq. ft.)</td>
<td>11,800</td>
<td>13,000</td>
</tr>
<tr>
<td>Square Feet per Student</td>
<td>656</td>
<td>710</td>
</tr>
<tr>
<td>Heating Degree Days (7000 ave.)</td>
<td>8,919</td>
<td>6,679</td>
</tr>
</tbody>
</table>