

**FY 2004
Cornell University
Energy Fast Facts¹**

PRIMARY ENERGY CONSUMPTION

Consumption increased 5% from 2003

Primary Consumption (trillion Btu)		2.57
Coal	1.68	
Electricity (Purchased)	0.68	
Hydro	0.02	
Natural Gas	0.14	
Oil	0.05	
1990 Primary Consumption per Square Foot (million Btu)		0.20
2004 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 increased 6% from 2003

1990 Total CO ₂ Emissions (thousand tons)		333
2004 Total CO ₂ Emissions (thousand tons)		280

	<u>1990</u>	<u>2004</u>
By Primary Energy Type:		
Coal	42%	62%
Electricity (purchased)	50%	33%
Hydro	0%	0%
Natural Gas	5%	3%
Oil	3%	2%

By Utility Type:

Chilled Water	5%	1%
Electricity - Procured	50%	33%
Electricity - Cogenerated	3%	5%
Steam	47%	61%

GLOSSARY

Btu	British thermal unit
CO ₂	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 end use Btu are 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 2004 purchased electric emission rate estimated using 2004 rates provided by New York State Public Service Commission

CHILLED WATER

1990 Total Chilled Water Production (trillion Btu)	0.34
2004 Total Chilled Water Production (trillion Btu)	0.48

	<u>1990</u>	<u>2004</u>
Generation Sources		
Chillers	83%	2%
Lake/Free Cooling	17%	98%
Total Energy Input (trillion Btu)	0.08	0.02
System COP	4.15	25.46

ELECTRICITY

1990 Total Consumption (mwh)		201,000
Cornell Generated	26,000	
Purchased	175,000	
2004 Total Consumption (mwh)		234,000
Cornell Generated	35,000	
Purchased	199,000	

	<u>1990</u>	<u>2004</u>
Cornell Generated Sources:		
Cogeneration	81%	87%
Hydro	20%	13%

Purchased Electricity Sources^{3,4}:

Biomass	0%	1%
Coal	74%	15%
Natural Gas	5%	38%
Hydro	14%	18%
Nuclear	5%	25%
Oil	2%	3%
Solar	0%	0%
Solid Waste	0%	<1%
Wind	0%	<1%

STEAM

1990 Total Steam Export (trillion Btu)	1.31
2004 Total Steam Export (trillion Btu)	1.39

	<u>1990</u>	<u>2004</u>
Fuel Sources (10 ¹² Btu)		
Coal	1.33	1.68
Natural Gas	0.29	0.14
Oil	0.13	0.05
Total Energy Input (10 ¹² Btu)	1.75	1.87
Thermal Efficiency	68%	69%

ADDITIONAL STATISTICS

	<u>1990</u>	<u>2004</u>
Total Enrollment	18,450	19,620
Campus Area (1000 sq. ft.)	11,800	13,700
Square Feet per Student	640	698
Heating Degree Days (7050 ave.)	6,919	7,092