

**FY 2005
Cornell University
Energy Fast Facts¹**

PRIMARY ENERGY CONSUMPTION

Consumption decreased 3% from 2004

Primary Consumption (trillion Btu)		2.50
Coal	1.65	
Electricity (Purchased)	0.70	
Hydro	0.02	
Natural Gas	0.09	
Oil	0.06	

1990 Primary Consumption per Square Foot (million Btu)	0.20
2005 Primary Consumption per Square Foot (million Btu)	0.18

END-USE ENERGY CONSUMPTION

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

ENERGY RELATED CO₂ EMISSIONS

Emissions decreased 8% from 2004

1990 Total CO ₂ Emissions (thousand tons)	333
2005 Total CO ₂ Emissions (thousand tons)	260

	<u>1990</u>	<u>2005</u>
By Primary Energy Type:		
Coal	42%	66%
Electricity (purchased)	50%	30%
Hydro	0%	0%
Natural Gas	5%	2%
Oil	3%	2%

By Utility Type:		
Chilled Water	6%	1%
Electricity - Procured	50%	30%
Electricity - Cogenerated	3%	6%
Steam	47%	63%

GLOSSARY

Btu	British thermal unit
CO ₂	Carbon Dioxide
Primary	Central Plant Usage
End Use	Building metered usage
COP	Coefficient of Performance

NOTES

- Information provided is for Ithaca central utility campus only.
- Chilled water input Btu's are the energy input to the central plants for production and distribution of cooling water.
- 1990 purchased electric emission rate determined from New York State Electric & Gas (NYSEG) 1990 annual report.
- 2005 purchased electric emission rate estimated using 2004 rates provided by New York State Public Service Commission (NYSPPSC).

CHILLED WATER

1990 Total Chilled Water Production (trillion Btu)	0.34
2005 Total Chilled Water Production (trillion Btu)	0.43

	<u>1990</u>	<u>2005</u>
Generation Sources		
Chillers	83%	0%
Lake/Free Cooling	17%	100%

Total Energy Input ² (trillion Btu)	0.07	0.01
System COP	4.7	32.0

ELECTRICITY

1990 Total Consumption (mwh)	201,000
Cornell Generated	26,000
Purchased	175,000
2005 Total Consumption (mwh)	240,000
Cornell Generated	36,000
Purchased	204,000

	<u>1990</u>	<u>2005</u>
Cornell Generated Sources:		
Cogeneration	81%	87%
Hydro	20%	13%

	<u>1990</u>	<u>2005</u>
Purchased Electricity Sources ^{3,4} :		
Biomass	0%	<1%
Coal	74%	13%
Natural Gas	5%	37%
Hydro	14%	21%
Nuclear	5%	22%
Oil	2%	7%
Solar	0%	0%
Solid Waste	0%	<1%
Wind	0%	<1%

STEAM

1990 Total Steam Export (trillion Btu)	1.31
2005 Total Steam Export (trillion Btu)	1.41

	<u>1990</u>	<u>2005</u>
Fuel Sources (10 ¹² Btu)		
Coal	1.33	1.65
Natural Gas	0.28	0.09
Oil	0.13	0.06
Total Energy Input (10 ¹² Btu)	1.74	1.79
Thermal Efficiency	69%	74%

ADDITIONAL STATISTICS

	<u>1990</u>	<u>2005</u>
Total Enrollment	18,000	19,010
Campus Area (1000 sq. ft.)	11,800	13,809
Square Feet per Student	656	726
Heating Degree Days (7050 ave.)	6,919	7,202