Fiscal Year 2010
Cornell University
Central Energy Plant (CEP) Fast Facts[1]

CEP PRIMARY ENERGY CONSUMPTION

Primary Consumption (trillion Btu)	1990 (2)	2010
Electricity (Grid Purchased)	0.60	0.46
Coal	1.33	0.19
Hydro (electric)	0.02	0.01
Natural Gas	0.28	1.92
Oil	0.14	0.00
Total Primary Energy Consumption	**2.35**	**2.57**

CENTRAL ENERGY PLANT EFFICIENCY

Energy Output (trillion Btu)	1990	2010
Total Steam Generation	1.31	1.26
Total Turbine Electric Generation	0.07	0.42
Total Energy Output	1.38	1.69

Fuel Sources (trillion Btu)	1990	2010
Coal	1.33	0.19
Natural Gas - Boilers	0.28	0.69
Natural Gas - Turbines	0	1.06
Natural Gas - Duct Burners	0	0.16
Oil	0.14	0.00
Total Energy Input (trillion Btu)	1.74	2.11
Total Central Plant Efficiency	69%	80%
Total Steam Sales (trillion Btu)	NA	1.09
Steam Distribution Losses %	NA	14%

ELECTRICITY

Cornell Utilities Generated (Mwh)	1990	2010
Cornell Utilities Hydro	5,200	3,000
Cornell Utilities Steam Turbine - Cogen	21,000	23,000
Cornell Utilities Gas Turbine - CCHPP(3)	0	99,000
Total Cornell Utilities Generated	**26,200**	**125,000**
Electricity Exported to Grid (Mwh)	-	13,000
Electricity (Grid Purchased) (Mwh)	174,500	133,000
Total CEP Electricity (Mwh)	**200,700**	**245,000**
Total Campus Sales (Mwh)	**NA**	**231,148**

Electricity (Grid Purchased) Sources	1990	2010
Biomass	0%	1%
Coal	74%	23%
Natural Gas	5%	18%
Hydro	14%	26%
Nuclear	5%	28%
Oil	2%	3%
Wind/Solar	0%	1%
Solid Waste/Other	0%	<1%

CHILLED WATER

Energy Output & Input (trillion Btu)	1990	2010
Total Chilled Water Production (trillion Btu)	0.338	0.563
Total Energy Input (trillion Btu)(6)	0.072	0.022
System Coefficient of Performance	**4.7**	**25.8**
Total Campus Sales (trillion Btu)	N/A	0.536
Chilled Water Sources		
Mechanical Chillers	83.2%	1.4%
Lake Source Cooling	17%	99%

ENERGY RELATED CARBON DIOXIDE (CO_2) EMISSIONS

Purchased Electric	1990	2010
Grid CO_2 Emission Factor (lbs/MWh)	1,918	684
Grid Electric CO_2 (1,000 tons)	167	46
Cornell Central Energy Plant		
Cornell Coal(4)	138	20
Cornell Natural Gas(5)	15	114
Cornell Oil	12	0
Total CEP CO_2 Emissions (1,000 tons)	165	134
Total CO_2 Emissions (1,000 tons)	**333**	**180**

CO_2 Emissions By Primary Energy Type:	1990	2010
Electricity (Grid Purchased)	50%	25%
On-Site Coal	42%	11%
On-Site Natural Gas	5%	64%
On-Site Oil	4%	0%
On-Site Hydro	0%	0%

CENTRALLY CONNECTED BLDG GSF x 1,000

	1990	2010
Electric (provided via CEP)	NA	13,600
Steam (provided via CEP)	NA	12,600
Chilled Water (provided via CEP)	NA	7,400

ENERGY METRICS (KBTU/GSF) PER YEAR

	1990	2010
Electric Sales	NA	58
Steam Sales	NA	86
Chilled Water Sales	NA	72

ENERGY CONSUMPTION BY BUILDING

Building Type: (trillion Btu)	1990	2010
Research/Teaching	NA	2.19
Campus Life	NA	0.31
Administration	NA	0.08

POPULATION AND WEATHER

	1990	2010
Students	18,389	20,676
Staff/Non-Faculty	7,690	8,168
Faculty	1,617	1,605
Ithaca Campus (6) (1000 GSF)	11,800	14,812
Campus GSF per Student	642	716
Heating Degree Days (7,220 Normal)	6,919	6,856
Cooling Degree Days (337 Normal)	312	389

GLOSSARY & NOTES

Btu: British thermal unit
Primary: Central Plant Usage
MMBtu: Million Btu
Mwh: mega watt-hour

(1) Info for CEP only, not all campus buildings part of CEP
(2) Kyoto Base Year is 1990
(3) Combined Heat & Power Plant start-up FY 2010
(4) "Beyond Coal" begins FY 2012
(5) No GHG credit taken for exported electric
(6) Ithaca Campus includes non-CEP connected buildings