Fiscal Year 2011
Cornell University
Central Energy Plant (CEP) Fast Facts[1]

CEP PRIMARY ENERGY CONSUMPTION		
Primary Consumption (trillion Btu)	1990 (2)	2011
Electricity (Grid Purchased)	0.60	0.25
Coal	1.33	0.20
Hydro (electric)	0.02	0.01
Natural Gas	0.28	2.47
Oil	0.14	0.00
Total Primary Energy Consumption	**2.35**	**2.94**

CENTRAL ENERGY PLANT EFFICIENCY		
Energy Output (trillion Btu)	1990	2011
Total Steam Generation	1.31	1.36
Total Turbine Electric Generation	0.07	0.69
Total Energy Output	1.38	2.05
Fuel Sources (trillion Btu)	1990	2011
Coal	1.33	0.20
Natural Gas - Boilers	0.28	0.18
Natural Gas - Turbines	0.00	1.99
Natural Gas - Duct Burners	0.00	0.30
Oil	0.14	0.00
Total Energy Input (trillion Btu)	1.74	2.68
Total Central Plant Efficiency	69%	77%
Total Steam Sales (trillion Btu)	NA	1.16
Total Steam Losses (%)	NA	15%

ELECTRICITY		
Cornell Utilities Generated (Mwh)	1990	2011
Cornell Utilities Hydro	5,200	4,200
Cornell Utilities Steam Turbine - Cogen	21,000	28,000
Cornell Utilities Gas Turbine - CCHPP(3)	0	178,000
Total Cornell Utilities Generated	**26,200**	**210,200**
Electricity Exported to Grid (Mwh)	0	(30,900)
Electricity (Grid Purchased) (Mwh)	175,000	67,500
Total CEP Electricity (Mwh)	**201,200**	**246,800**
Total Campus Sales (Mwh)	**NA**	**234,000**
Electricity LSC (Grid Purchased) (Mwh)	0	6,500
Electricity (Grid Purchased) Sources	1990	2011
Other Renewables	0%	4%
Coal	74%	7%
Natural Gas	5%	44%
Hydro	14%	11%
Nuclear	5%	13%
Petroleum	2%	16%
Other Gases	0%	<1%
Pumped Storage	0%	4%

CHILLED WATER		
Energy Output & Input (trillion Btu)	1990	2011
Total Chilled Water Production (trillion Btu)	0.338	0.560
Total Energy Input (trillion Btu)(6)	0.072	0.029
System Coefficient of Performance	**4.7**	**19.3**
Total Campus Sales (trillion Btu)	N/A	0.569
Chilled Water Sources		
Mechanical Chillers	83.2%	3%
Lake Source Cooling	17%	97%

ENERGY RELATED CARBON DIOXIDE (CO_2) EMISSIONS		
Purchased Electric	1990	2011
Grid CO_2 Emission Factor (lbs/MWh)	1,918	669
Grid Electric CO_2 (1,000 tons)	167	25
Cornell Central Energy Plant		
Cornell Coal(4)	138	21
Cornell Natural Gas(5)	15	124
Cornell Oil	12	0.3
Total CEP CO_2 Emissions (1,000 tons)	165	146
Total CO_2 Emissions (1,000 tons)	**333**	**170**
CO_2 Emissions By Primary Energy Type:	1990	2011
Electricity (Grid Purchased)	50%	14%
On-Site Coal	42%	12%
On-Site Natural Gas	5%	73%
On-Site Oil	4%	0%
On-Site Hydro	0%	0%

CENTRALLY CONNECTED BLDG GSF x 1,000		
	1990	2011
Electric (provided via CEP)	NA	13,700
Steam (provided via CEP)	NA	12,600
Chilled Water (provided via CEP)	NA	8,000

ENERGY METRICS (KBTU/GSF) PER YEAR		
	1990	2011
Electric Sales	NA	58
Steam Sales	NA	92
Chilled Water Sales	NA	71

ENERGY CONSUMPTION BY BUILDING		
Building Type: (trillion Btu)	1990	2011
Research/Teaching	NA	2.12
Campus Life	NA	0.59
Administration	NA	0.24

POPULATION AND WEATHER		
	1990	2011
Students	18,389	20,776
Staff/Non-Faculty	7,690	8,081
Faculty	1,617	1,564
Ithaca Campus (6) (1000 GSF)	11,800	15,200
Campus GSF per Student	642	732
Heating Degree Days (7,220 Normal)	6,919	7,221
Cooling Degree Days (337 Normal)	312	605

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 facilities 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) GHG adjusted for exported electric
(6) Ithaca Campus includes non-CEP connected facilities