Fiscal Year 2014
Cornell University
Central Energy Plant (CEP) Fast Facts[1]

CEP PRIMARY ENERGY CONSUMPTION		
Primary Consumption (trillion Btu)	***1990*** [(2)]	***2014***
Electricity (Grid Purchased)	0.60	0.19
Coal	1.33	0.00
Hydro (electric)	0.02	0.01
Natural Gas	0.28	2.74
Oil	0.14	0.03
Total Primary Energy Consumption	**2.35**	**2.98**

CENTRAL ENERGY PLANT EFFICIENCY		
Energy Output (trillion Btu)	***1990***	***2014***
Total Steam Generation	1.31	1.40
Total Turbine Electric Generation	0.07	0.72
Total Energy Output	1.38	2.13
Fuel Sources (trillion Btu)	***1990***	***2014***
Coal	1.33	0.00
Natural Gas - Boilers	0.28	0.23
Natural Gas - Turbines	0.00	2.19
Natural Gas - Duct Burners	0.00	0.32
Oil	0.14	0.03
Total Energy Input (trillion Btu)	1.74	2.77
Total Central Plant Efficiency	68%	77%
Total Steam Sales (trillion Btu)	NA	1.01
Total Distrib and Building Steam Losses (%)	NA	19%

ELECTRICITY		
Cornell Utilities Generated (Mwh)	***1990***	***2014***
Cornell Utilities Hydro	5,200	4,400
Cornell Utilities Steam Turbine - Cogen	21,000	25,400
Cornell Utilities Gas Turbine - CCHPP[(3)]	0	187,100
Total Cornell Utilities Generated	**26,200**	**216,900**
Electricity Exported to Grid (Mwh)	0	(38,800)
Electricity (Grid Purchased) (Mwh)	175,000	52,200
Total CEP Electricity (Mwh)	**201,200**	**230,300**
Total Campus Sales (Mwh)	**NA**	**216,000**
Electricity LSC (Grid Purchased) (Mwh)	0	4,700
Electricity (Grid Purchased) Sources	***1990***	***2014***
Other Renewables	0%	4%
Coal	74%	15%
Natural Gas	5%	22%
Hydro	14%	28%
Nuclear	5%	29%
Petroleum	2%	1%
Other	0%	<1%
Total	100%	100%

CHILLED WATER		
Energy Output & Input (trillion Btu)	***1990***	***2014***
Total Chilled Water Production (trillion Btu)	0.338	0.526
Total Energy Input (trillion Btu)[(6)]	0.072	0.021
System Coefficient of Performance	**4.7**	**25.0**
Total Campus Sales (trillion Btu)	N/A	0.533
Chilled Water Sources		
Mechanical Chillers	83.2%	2%
Lake Source Cooling	17%	98%

ENERGY RELATED CARBON DIOXIDE (CO_2) EMISSIONS		
Purchased Electric	***1990***	***2014***
Grid CO_2 Emission Factor (lbs/MWh)	1,918	549
Grid Electric CO_2 (1,000 tons)	167	16
Cornell Central Energy Plant		
Cornell Coal[(4)]	138	0
Cornell Natural Gas[(5)]	15	161
Cornell Oil	12	2.7
Total CEP CO_2 Emissions (1,000 tons)	165	164
Total CO_2 Emissions (1,000 tons)	**333**	**179**
CO_2 Emissions By Primary Energy Type:	***1990***	***2014***
Electricity (Grid Purchased)	50%	9%
On-Site Coal	42%	0%
On-Site Natural Gas	5%	90%
On-Site Oil	4%	2%
On-Site Hydro	0%	0%

CENTRALLY CONNECTED BLDG GSF x 1,000		
	1990	***2014***
Electric (provided via CEP)	NA	14,000
Steam (provided via CEP)	NA	12,800
Chilled Water (provided via CEP)	NA	8,200

ENERGY METRICS (KBTU/GSF) PER YEAR		
	1990	***2014***
Electric Sales	NA	56
Steam Sales	NA	110
Chilled Water Sales	NA	64

ENERGY CONSUMPTION BY BUILDING		
Building Type: (trillion Btu)	***1990***	***2014***
Research/Teaching	NA	2.15
Campus Life	NA	0.60
Administration	NA	0.24

POPULATION AND WEATHER		
	1990	***2014***
Students	18,389	20,599
Staff/Non-Faculty	7,690	9,148
Faculty	1,617	1,553
Ithaca Campus [(6)] (1000 GSF)	11,800	15,800
Campus GSF per Student	642	767
Heating Degree Days (7,220 Normal)	6,919	7,771
Cooling Degree Days (337 Normal)	312	497

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 NOT adjusted for exported electric
(6) Ithaca Campus GSF includes non-CEP connected facilities