Fiscal Year 2015
Cornell University
Central Energy Plant (CEP) Fast Facts[1]

CEP PRIMARY ENERGY CONSUMPTION		
Primary Consumption (trillion Btu)	***1990*** [(2)]	***2015***
Electricity (Grid Purchased)	0.60	0.18
Coal	1.33	0.00
Hydro (electric)	0.02	0.01
Natural Gas	0.28	2.94
Oil	0.14	0.01
Total Primary Energy Consumption	**2.35**	**3.14**

CENTRAL ENERGY PLANT EFFICIENCY		
Energy Output (trillion Btu)	***1990***	***2015***
Total Steam Generation[(3)]	1.49	1.32
Total Turbine Electric Generation	0.07	0.74
Total Energy Output	1.56	2.06
Fuel Sources (trillion Btu)	***1990***	***2015***
Coal	1.33	0.00
Natural Gas - Boilers	0.28	0.23
Natural Gas - Turbines	0.00	2.35
Natural Gas - Duct Burners	0.00	0.36
Oil	0.14	0.01
Total Energy Input (trillion Btu)	1.74	2.95
Total Central Plant Efficiency	90%	70%
Total Steam Sales (trillion Btu)	1.10	1.00
Total Distrib and Building Steam Losses (%)	17%	18%
Total Steam Condensed for Electric (trillion Btu)	0.00	0.09

ELECTRICITY		
Cornell Utilities Generated (Mwh)	***1990***	***2015***
Cornell Utilities Hydro	5,200	3,500
Cornell Utilities Steam Turbine - Cogen	21,000	26,400
Cornell Utilities Gas Turbine - CCHPP[(3)]	0	193,700
Total Cornell Utilities Generated	**26,200**	**223,600**
Electricity Exported to Grid (Mwh)	0	(45,000)
Electricity (Grid Purchased) (Mwh)	174,500	47,000
Total CEP Electricity (Mwh)	**200,700**	**225,600**
Total Campus Sales (Mwh)	**190,626**	**213,000**
LSC Electricity (Grid Purchased) (Mwh)	0	4,400
Electricity (NY Grid) Sources	***1990***	***2015***
Other Renewables	0%	3%
Coal	19%	3%
Natural Gas	17%	40%
Hydro	21%	19%
Nuclear	17%	31%
Petroleum	25%	2%
Other	1%	2%
Total	100%	100%

CHILLED WATER		
Energy Output & Input (trillion Btu)	***1990***	***2015***
Total Chilled Water Production (trillion Btu)	0.381	0.490
Total Energy Input (trillion Btu)[(6)]	0.072	0.017
System Coefficient of Performance	**5.3**	**28.8**
Total Campus Sales (trillion Btu)	0.348	0.504
Chilled Water Sources		
Mechanical Chillers	85%	1%
Lake Source Cooling	0%	99%
"Free" Cooling	15%	0%

ENERGY RELATED CARBON DIOXIDE (CO_2) EMISSIONS		
Purchased Electric	***1990***	***2015***
Grid CO_2 Emission Factor (kg/MWh)	870	186
Grid Electric CO_2 (1,000 metric tons)	152	10
Cornell Central Energy Plant		
Cornell Coal[(4)]	125	0
Cornell Natural Gas[(5)]	15	157
Cornell Oil	11	1
Total CEP CO_2 Emissions (1,000 metric tons)	151	158
Total CO_2 Emissions (1,000 metric tons)	**303**	**167**
CO_2 Emissions By Primary Energy Type:	***1990***	***2015***
Electricity (Grid Purchased)	50%	6%
On-Site Coal	41%	0%
On-Site Natural Gas	5%	94%
On-Site Oil	4%	0%
On-Site Hydro	0%	0%

CENTRALLY CONNECTED BLDG GSF x 1,000		
	1990	***2015***
Electric (provided via CEP)	NA	14,000
Steam (provided via CEP)	NA	12,800
Chilled Water (provided via CEP)	NA	8,700

ENERGY METRICS (KBTU/GSF) PER YEAR		
	1990	***2015***
Electric Sales	NA	55
Steam Sales	NA	103
Chilled Water Sales	NA	56

ENERGY CONSUMPTION BY BUILDING		
Building Type: (trillion Btu)	***1990***	***2015***
Research/Teaching	NA	2.35
Campus Life	NA	0.56
Administration	NA	0.22

POPULATION AND WEATHER		
	1990	***2015***
Students	18,389	20,796
Staff/Non-Faculty	7,690	9,168
Faculty	1,617	1,578
Ithaca Campus [(6)] (1000 GSF)	11,800	15,825
Campus GSF per Student	642	761
Heating Degree Days (7,220 Normal)	6,919	7,822
Cooling Degree Days (337 Normal)	312	404

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