Fiscal Year 2018
Cornell University
Central Energy Plant (CEP) Fast Facts[1]

CEP PRIMARY ENERGY CONSUMPTION

Primary Consumption (trillion Btu)	1990 [2]	2018
Electricity (Grid Purchased)	0.60	0.05
Coal	1.33	0.00
Hydro (electric)	0.02	0.02
Natural Gas	0.28	3.11
Oil	0.14	0.00
Total Primary Energy Consumption	**2.35**	**3.17**

CENTRAL ENERGY PLANT EFFICIENCY

Energy Output (trillion Btu)	1990	2018
Total Steam Generation[3]	1.35	1.36
Total Turbine Electric Generation	0.07	0.91
Total Energy Output	1.42	2.27

Fuel Sources (trillion Btu)	1990	2018
Coal	1.33	0.00
Natural Gas - Boilers	0.28	0.16
Natural Gas - Turbines	0.00	2.69
Natural Gas - Duct Burners	0.00	0.26
Oil	0.14	0.00
Total Energy Input (trillion Btu)	1.74	3.11
Total Central Plant Efficiency	81%	73%
Total Steam Sales (trillion Btu)	0.99	0.88
Total Distrib and Building Steam Losses (%)	17%	22%
Total Steam Condensed for Electric (trillion Btu)	0.00	0.23

ELECTRICITY

Cornell Utilities Generated (Mwh)	1990	2018
Cornell Utilities Hydro	5,200	6,000
Cornell Utilities Steam Turbine - Cogen	21,000	26,800
Cornell Utilities Gas Turbine - CCHPP[3]	0	239,400
Total Cornell Utilities Generated	**26,200**	**272,200**
Electricity Exported to Grid (Mwh)	0	(67,800)
Electricity (Grid Purchased) (Mwh)	174,500	8,900
Total CEP Electricity (Mwh)	**200,700**	**213,300**
Total Campus Sales (Mwh)	**190,626**	**202,400**
LSC Electricity (Grid Purchased) (Mwh)	0	4,600

Electricity (NY Grid) Sources	1990	2018
Other Renewables	0%	6%
Coal	19%	1%
Natural Gas	17%	42%
Hydro	21%	20%
Nuclear	17%	31%
Petroleum	25%	<1%
Other	1%	<1%
Total	100%	100%

CHILLED WATER

Energy Output & Input (trillion Btu)	1990	2018
Total Chilled Water Production (trillion Btu)	0.381	0.513
Total Energy Input (trillion Btu)[6]	0.072	0.021
System Coefficient of Performance	**5.3**	**24.4**
Total Campus Sales (trillion Btu)	0.348	0.509
Chilled Water Sources		
Mechanical Chillers	85%	2%
Lake Source Cooling	0%	98%
"Free" Cooling	15%	0%

ENERGY RELATED CARBON DIOXIDE (CO_2) EMISSIONS

Purchased Electric	1990	2018
Grid CO_2 Emission Factor (kg/MWh)	870	134
Grid Electric CO_2 (1,000 metric tons)	152	2
Cornell Central Energy Plant		
Cornell Coal[4]	125	0
Cornell Natural Gas[5]	15	165
Cornell Oil	11	0
Total CEP CO_2 Emissions (1,000 metric tons)	151	165
Total CO_2 Emissions (1,000 metric tons)	**303**	**167**

CO_2 Emissions By Primary Energy Type:	1990	2018
Electricity (Grid Purchased)	50%	1%
On-Site Coal	41%	0%
On-Site Natural Gas	5%	99%
On-Site Oil	4%	0%
On-Site Hydro	0%	0%

CENTRALLY CONNECTED BLDG GSF x 1,000

	1990	2018
Electric (provided via CEP)	NA	14,100
Steam (provided via CEP)	NA	12,800
Chilled Water (provided via CEP)	NA	10,800

ENERGY METRICS (KBTU/GSF) PER YEAR

	1990	2018
Electric Sales	NA	52
Steam Sales	NA	106
Chilled Water Sales	NA	48

ENERGY CONSUMPTION BY BUILDING

Building Type: (trillion Btu)	1990	2018
Research/Teaching	NA	2.42
Campus Life	NA	0.51
Administration (includes CEP)	NA	0.23

POPULATION AND WEATHER

	1990	2018
Students	18,389	22,369
Staff/Non-Faculty	7,690	9,463
Faculty	1,617	1,537
Ithaca Campus [6] (1000 GSF)	11,800	15,876
Campus GSF per Student	642	710
Heating Degree Days (7,220 Normal)	6,919	6,916
Cooling Degree Days (337 Normal)	312	403

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