Fiscal Year 2022
Cornell University
Central Energy Plant (CEP) Fast Facts[1]

CEP PRIMARY ENERGY CONSUMPTION

Primary Consumption (trillion Btu)	1990 [2]	2022
Electricity (Grid Purchased)	0.60	0.19
Coal	1.33	0.00
Hydro (electric)	0.02	0.03
Natural Gas	0.28	2.53
Oil	0.14	0.00
Total Primary Energy Consumption	**2.35**	**2.75**

CENTRAL ENERGY PLANT EFFICIENCY

Energy Output (trillion Btu)	1990	2022
Total Steam Generation [3]	1.35	1.30
Total Turbine Electric Generation	0.07	0.68
Total Energy Output	1.42	1.98

Fuel Sources (trillion Btu)	1990	2022
Coal	1.33	0.00
Natural Gas - Boilers	0.28	0.34
Natural Gas - Turbines	0.00	1.96
Natural Gas - Duct Burners	0.00	0.23
Oil	0.14	0.00
Total Energy Input (trillion Btu)	1.74	2.53
Total Central Plant Efficiency	81%	78%
Total Steam Sales (trillion Btu)	0.99	0.84
Total Distrib and Building Steam Losses (%)	17%	24%
Total Steam Condensed for Electric (trillion Btu)	0.00	0.07

ELECTRICITY

Cornell Utilities Generated (Mwh)	1990	2022
Cornell Utilities Hydro	5,200	7,500
Cornell Utilities Steam Turbine - Cogen	21,000	26,600
Cornell Utilities Gas Turbine - CCHPP [3]	0	172,900
Total Cornell Utilities Generated	**26,200**	**207,000**
Electricity Exported to Grid (Mwh)	0	(52,600)
Electricity (Grid Purchased) (Mwh)	174,500	48,700
Total CEP Electricity (Mwh)	**200,700**	**203,100**
Total Campus Sales (Mwh)	**190,626**	**193,000**
LSC Electricity (Grid Purchased) (Mwh)	0	6,400

Electricity (NY State Grid) Sources	1990	2022
Other Renewables	0%	8%
Coal	19%	0%
Natural Gas	17%	26%
Hydro	21%	35%
Nuclear	17%	31%
Petroleum	25%	0%
Other	1%	<1%
Total	100%	100%

CHILLED WATER

Energy Output & Input (trillion Btu)	1990	2022
Total Chilled Water Production (trillion Btu)	0.381	0.594
Total Energy Input (trillion Btu) [6]	0.072	0.028
System Coefficient of Performance	**5.3**	**21.2**
Total Campus Sales (trillion Btu)	0.348	0.537
Chilled Water Sources		
Mechanical Chillers	85%	3%
Lake Source Cooling	0%	97%
"Free" Cooling	15%	0%

ENERGY RELATED CARBON DIOXIDE (CO_2) EMISSIONS

Purchased Electric	1990	2022
Grid CO_2 Emission Factor (kg/MWh)	870	106
Grid Electric CO_2 (1,000 metric tons)	152	6
Cornell Central Energy Plant		
Cornell Coal [4]	125	0
Cornell Natural Gas [5]	15	134
Cornell Oil	11	0
Total CEP CO_2 Emissions (1,000 metric tons)	151	134
Total CO_2 Emissions (1,000 metric tons)	**303**	**140**

CO_2 Emissions By Primary Energy Type:	1990	2022
Electricity (Grid Purchased)	50%	4%
On-Site Coal	41%	0%
On-Site Natural Gas	5%	96%
On-Site Oil	4%	0%
On-Site Hydro	0%	100%

CENTRALLY CONNECTED BLDG GSF x 1,000

	1990	2022
Electric (provided via CEP)	NA	14,000
Steam (provided via CEP)	NA	13,100
Chilled Water (provided via CEP)	NA	11,100

ENERGY METRICS (KBTU/GSF) PER YEAR

	1990	2022
Electric (CEP to Campus)	NA	49
Steam (gross Generation)	NA	99
Chilled Water (gross Production)	NA	53

ENERGY CONSUMPTION BY BUILDING

Building Type: (trillion Btu)	1990	2022
Research/Teaching	NA	1.98
Campus Life	NA	0.55
Administration (includes CEP)	NA	0.22

POPULATION AND WEATHER

	1990	2022
Students	18,389	24,507
Staff/Non-Faculty	7,690	9,990
Faculty	1,617	1,524
Ithaca Campus [6] (1000 GSF)	11,800	16,025
Campus GSF per Student	642	654
Heating Degree Days (7,220 Normal)	6,919	6,809
Cooling Degree Days (337 Normal)	312	452

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