Fiscal Year 2024 Cornell University Central Energy Plant (CEP) Fast Facts¹

CEP PRIMARY ENERGY CONS		
Primary Consumption (trillion Btu)	<u>1990</u> (2)	<u>2024</u>
Electricity (Grid Purchased)	0.60	0.13
Coal	1.33	0.00
Hydro (electric)	0.02	0.01
Natural Gas	0.28	2.6
Oil	0.14	0.00
Total Primary Energy Consumption	2.35	2.75
CENTRAL ENERGY PLANT EFFICIENCY		
Energy Output (trillion Btu)	<u>1990</u>	2024
Total Steam Generation ⁽³⁾	1.35	1.29
Total Turbine Electric Generation	0.07	0.69
Total Energy Output	1.42	1.98
Fuel Sources (trillion Btu)	<u>1990</u>	<u>2024</u>
Coal	1.33	0.00
Natural Gas - Boilers	0.28	0.20
Natural Gas - Turbines	0.00	2.25
Natural Gas - Duct Burners	0.00	0.16
Oil	0.14	0.00
Total Energy Input (trillion Btu)	1.74	2.6
Total Central Plant Efficiency	81%	76%
Total Steam Sales (trillion Btu)	0.99	0.75
Total Distrib and Building Steam Losses (%)	17%	27%
Total Steam Condensed for Electric (trillion Btu)	0.00	0.15
ELECTRICITY		
Cornell Utilities Generated (Mwh)	<u>1990</u>	2024
Cornell Utilities Hydro	5,200	4,400
Cornell Utilities Steam Turbine - Cogen	21,000	14,800
Cornell Utilities Gas Turbine - CCHPP ⁽³⁾	0	195,000
Total Cornell Utilities Generated	26,200	214,200
Electricity Exported to Grid (Mwh)	0	(38,200
Electricity (Grid Purchased) (Mwh)	174,500	31,500
Total CEP Electricity (Mwh)	200,700	207,500
Total Campus Sales (Mwh)	190,626	198,000
LSC Electricity (Grid Purchased) (Mwh)	0	6,700
Electricity (NY State Grid) Sources	<u>1990</u>	2024
	0%	9%
Other Renewables		0%
Other Renewables Coal	19%	
	19% 17%	
Coal		25%
Coal Natural Gas	17%	25% 33%
Coal Natural Gas Hydro	17% 21%	25% 33% 32%
Coal Natural Gas Hydro Nuclear	17% 21% 17%	25% 33% 32% 0%
Coal Natural Gas Hydro Nuclear Petroleum	17% 21% 17% 25%	25% 33% 32% 0% <1%
Coal Natural Gas Hydro Nuclear Petroleum Other Total	17% 21% 17% 25% 1%	25% 33% 32% 0% <1%
Coal Natural Gas Hydro Nuclear Petroleum Other Total	17% 21% 17% 25% 1%	25% 33% 32% 0% <1%
Coal Natural Gas Hydro Nuclear Petroleum Other Total CHILLED WATER Energy Output & Input (trillion Btu)	17% 21% 17% 25% 1% 100%	25% 33% 32% 0% <1% 100%
Coal Natural Gas Hydro Nuclear Petroleum Other Total CHILLED WATER Energy Output & Input (trillion Btu) Total Chilled Water Production (trillion Btu)	17% 21% 17% 25% 1% 100%	25% 33% 32% 0% <1% 100% 2024 0.638
Coal Natural Gas Hydro Nuclear Petroleum Other Total CHILLED WATER Energy Output & Input (trillion Btu) Total Chilled Water Production (trillion Btu) Total Energy Input (trillion Btu) ⁽⁶⁾	17% 21% 17% 25% 1% 100%	25% 33% 32% 0% <1% 100% 2024 0.638 0.030
Coal Natural Gas Hydro Nuclear Petroleum Other Total CHILLED WATER Energy Output & Input (trillion Btu) Total Chilled Water Production (trillion Btu) Total Energy Input (trillion Btu) System Coefficient of Performance	17% 21% 17% 25% 1% 100% 1990 0.381 0.072 5.3	25% 33% 32% 0% <1% 100% 2024 0.638 0.030 21.2
Coal Natural Gas Hydro Nuclear Petroleum Other Total CHILLED WATER Energy Output & Input (trillion Btu) Total Chilled Water Production (trillion Btu) Total Energy Input (trillion Btu) System Coefficient of Performance Total Campus Sales (trillion Btu)	17% 21% 17% 25% 1% 100% 1990 0.381 0.072	25% 33% 32% 0% <1% 100% 2024 0.636 0.030 21.2
Coal Natural Gas Hydro Nuclear Petroleum Other Total CHILLED WATER Energy Output & Input (trillion Btu) Total Chilled Water Production (trillion Btu) Total Energy Input (trillion Btu) ⁽⁶⁾ System Coefficient of Performance Total Campus Sales (trillion Btu) Chilled Water Sources	17% 21% 17% 25% 1% 100% 1990 0.381 0.072 5.3	25% 33% 32% 0% <1% 100% 2024 0.638 0.030 21.2
Coal Natural Gas Hydro Nuclear Petroleum Other Total CHILLED WATER Energy Output & Input (trillion Btu) Total Chilled Water Production (trillion Btu) Total Energy Input (trillion Btu) System Coefficient of Performance	17% 21% 17% 25% 1% 100% 1990 0.381 0.072 5.3	25% 33% 32% 0% <1% 100% 2024 0.635 0.030 21.2 0.526 4%

	EMISSIONS	6
Purchased Electric	<u>1990</u>	2024
Grid CO ₂ Emission Factor (kg/MWh)	870	110
Grid Electric CO ₂ (1,000 metric tons)	152	4
Cornell Central Energy Plant		
Cornell Coal ⁽⁴⁾	125	C
Cornell Natural Gas ⁽⁵⁾	15	115
Cornell Oil	11	0
Total CEP CO ₂ Emissions (1,000 metric tons)	151	115
Total CO ₂ Emissions (1,000 metric tons)	303	119
CO ₂ Emissions By Primary Energy Type:	1990	2024
Electricity (Grid Purchased)	50%	4%
On-Site Coal	41%	0%
	5%	96%
On-Site Natural Gas	4%	0%
On-Site Oil	0%	0%
On-Site Hydro	070	070
CENTRALLY CONNECTED BLDG GSF x 1,00	00	
	<u>1990</u>	<u>2024</u>
Electric (provided via CEP)	NA	14,700
Steam (provided via CEP)	NA	13,800
Chilled Water (provided via CEP)	NA	12,000
ENERGY METRICS (KBTU/GSF) PER YEAR		
	<u>1990</u>	2024
Electric (CEP to Campus)	NA	48
Steam (gross Generation less SCB)	NA	83
Chilled Water (gross Production)	NA	53
ENERGY CONSUMPTION BY BUILDING		
Building Type: (trillion Btu)	1990	2024
Research/Teaching	NA	1.98
Campus Life	NA	0.55
Administration (includes CEP)	NA	0.22
POPULATION AND WEATHER	1990	2024
	<u>1990</u> 18.389	
Students	18,389	25,072
Students Staff/Non-Faculty	18,389 7,690	25,072 10,914
Students Staff/Non-Faculty Faculty	18,389 7,690 1,617	25,072 10,914 1,576
Students Staff/Non-Faculty Faculty Ithaca Campus ⁽⁶⁾ (1000 GSF)	18,389 7,690 1,617 11,800	25,072 10,914 1,576 16,613
Students Staff/Non-Faculty Faculty Ithaca Campus ⁽⁶⁾ (1000 GSF) Campus GSF per Student	18,389 7,690 1,617 11,800 642	25,072 10,914 1,576 16,613
Students Staff/Non-Faculty Faculty Ithaca Campus ⁽⁶⁾ (1000 GSF)	18,389 7,690 1,617 11,800	25,072 10,914 1,576 16,613 663 6,011
Students Staff/Non-Faculty Faculty Ithaca Campus ⁽⁶⁾ (1000 GSF) Campus GSF per Student Heating Degree Days (7,220 Normal) Cooling Degree Days (337 Normal)	18,389 7,690 1,617 11,800 642 6,919	25,072 10,914 1,576 16,613 663 6,011
Students Staff/Non-Faculty Faculty Ithaca Campus ⁽⁶⁾ (1000 GSF) Campus GSF per Student Heating Degree Days (7,220 Normal) Cooling Degree Days (337 Normal) GLOSSARY & NOTES	18,389 7,690 1,617 11,800 642 6,919	25,072 10,914 1,576 16,613 663 6,011
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Students Staff/Non-Faculty Faculty Ithaca Campus ⁽⁶⁾ (1000 GSF) Campus GSF per Student Heating Degree Days (7,220 Normal) Cooling Degree Days (337 Normal) GLOSSARY & NOTES Btu: British thermal unit	18,389 7,690 1,617 11,800 642 6,919	25,072 10,914 1,576 16,613 663 6,011
Students Staff/Non-Faculty Faculty Ithaca Campus ⁽⁶⁾ (1000 GSF) Campus GSF per Student Heating Degree Days (7,220 Normal) Cooling Degree Days (337 Normal) GLOSSARY & NOTES Btu: British thermal unit Primary: Central Plant Usage	18,389 7,690 1,617 11,800 642 6,919	25,072 10,914 1,576 16,613 663 6,011
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