STARS 3.0 Energy Calculator

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This tool converts different forms of energy to a common unit (megawatt-hours) for STARS reporting purposes.
It requires that stationary fuels and district heating and cooling be reported in units of energy.
To convert units of volume or mass to energy units, see the conversions tab.

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The Sustainability Tracking, Assessment & Rating System™ (STARS) is a transparent, self-reporting framework for colleges and universities to measure their sustainability performance. Learn more at:
https://stars.aashe.org/

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Electricity

Source	Unit	Amount	Conversion Factor	MWh
Electricity generated by on-site renewable systems [1]	kWh	0	0.001	0
(On-site renewable electricity exported) [2]	kWh	0	0.001	0
Electricity from off-site sources	kWh	0	0.001	0
			Total	*0*

Stationary fuels

Fuel type [3]	Unit	Amount	Conversion Factor	MWh
Natural gas	kWh	0	0.001	0
Propane/LPG	kWh	0	0.001	0
Heating oil	kWh	0	0.001	0
Coal/coke	kWh	0	0.001	0
Bioenergy products	kWh	0	0.001	0
Other stationary fuels	kWh	0	0.001	0
			Total	*0*

Heating and cooling from off-site sources

Source [4]	Unit	Amount	Conversion Factor	MWh
Steam from off-site sources	kWh	0	0.001	0
Hot water from off-site sources	kWh	0	0.001	0
Chilled water from off-site sources	kWh	0	0.001	0
			Total	*0*

Notes

Volume/Mass to Energy Conversions

To convert units of volume or mass to energy units, use the calculator below or an equivalent resource, e.g.:
- ENERGY STAR Quick Converter
- CDP Technical Note: Conversion of fuel data to MWh

Fuel or source	Unit	Amount	Conversion factor	Btu	MMBtu	MWh
Natural gas	scf	0	1029	0	0	0
	hcf/ccf	0	102900	0	0	0
	mcf	0	1029000	0	0	0
	cubic meters	0	36303	0	0	0
Distillate fuel oil	US gallons	0	138690	0	0	0
	litres	0	36638	0	0	0
Residual fuel oil	US gallons	0	149690	0	0	0
	litres	0	37754	0	0	0
Heating oil	US gallons	0	138690	0	0	0
	litres	0	36638	0	0	0
Diesel fuel	US gallons	0	138690	0	0	0
	litres	0	36638	0	0	0
Motor gasoline	US gallons	0	124238	0	0	0
	litres	0	32820	0	0	0
Kerosene	US gallons	0	135000	0	0	0
	litres	0	35663	0	0	0
Crude oil	barrels	0	5800000	0	0	0
Biodiesel (100%)	US gallons	0	127000	0	0	0
	litres	0	33550	0	0	0
Ethanol (100%)	US gallons	0	84262	0	0	0
	litres	0	22260	0	0	0
Propane/LPG	US gallons	0	91647.6	0	0	0
	litres	0	24210.8	0	0	0
Wood	short tons	0	15380000	0	0	0
	tonnes	0	13952505	0	0	0

Coal/coke (anthracite)	short tons	0	25090000	0	0	0
	tonnes	0	27656980	0	0	0
Coal/coke (bituminous)	short tons	0	24930000	0	0	0
	tonnes	0	27480610	0	0	0
Steam (150 psig)	pounds	0	1194	0	0	0
	kg	0	2632	0	0	0
Chilled water	ton-hours	0	12000	0	0	0

[1] Include the total amount of electricity generated by renewable systems located on campus, including power exported to the grid.

[2] This figure is subtracted from the renewable generation figure to calculate annual site and source energy consumption.

[3] Include all fuel products sourced during the performance year for the purpose of producing electricity and/or thermal energy, irrespective of whether they were used or not.

[4] Exclude heating and cooling generated by on-site systems.