

2016 Greenhouse Gas (GHG) Emissions Factor for CleanPowerSF

GREEN	SUPERGREEN
186.35 lbs CO ₂ /MWh	0.00 lbs CO ₂ /MWh

Summary

CleanPowerSF offers its retail customers in San Francisco a choice of two products: *Green*, with a 40% renewable content in 2016; and *SuperGreen*, with a 100% renewable content in 2016.

This document provides preliminary results of CleanPowerSF's 2016 GHG emissions factors for its Green and SuperGreen products and the methodology used to calculate the factors.¹ In 2016, CleanPowerSF's GHG emission factor for electricity supplied to its Green customers was 186.35 pounds of carbon dioxide (CO₂) per megawatt-hour (MWh); CleanPowerSF's GHG emissions factor for electricity supplied to its SuperGreen customers was 0.00 pounds of CO₂/MWh. Consistent with practices used by other electric utilities, CleanPowerSF calculates its emissions factor by applying an emissions rate for each fuel type in its power mix, as reported annually in its electricity product Power Content Labels (PCLs), and obtaining the weighted average of supply portfolio emissions per MWh of electricity delivered to retail customers.

Methodology

CleanPowerSF calculates its electricity supply emissions factor based on its annual PCL and the GHG emissions factor for each electricity source. The PCL, which CleanPowerSF provides to all of its customers, reports the sources of electricity used to serve those customers following the California Energy Commission's reporting guidelines.² CleanPowerSF applies the assigned GHG emissions rates for each electricity source where available; where unavailable CleanPowerSF assigns GHG emissions rates for each electricity source using widely-accepted industry standards.³

¹ The SFPUC has been using this methodology to calculate its emission factor for electricity supplied to its retail customers since 2011. The same methodology is being leveraged to complete the emissions factors for the CleanPowerSF Green and SuperGreen products.

² California Energy Commission. Power Source Disclosure Program Regulations, effective 12 April 2017. <http://docketpublic.energy.ca.gov/PublicDocuments/14-OIR-01/TN216978_20170412T103905_Power_Source_Disclosure_Program_Amended_Regulations.pdf>

³ For example, this calculation and the emissions rates used are consistent with The Climate Registry's Electric Deliveries Metric for Retail Sales ("Chapter 19: Optional Reporting". Electric Power Sector Protocol for the Voluntary Reporting Program" Version 1, The Climate Registry, 2009.).

CleanPowerSF's 2016 Green Product PCL reports the product's sources of electricity for the total amount of 2016 retail sales of 223,190 MWh as laid out in the following table:

2016 GHG Emissions Factor Calculation for GREEN							
ENERGY RESOURCES	GREEN Power Mix	Net Purchases (MWh)	Emissions Factor (lbs CO ₂ e/MWh)	Emissions (lbs CO ₂ e)	Emissions (MT CO ₂ e)	GREEN Emissions Factor (lbs CO ₂ e/MWh)	GREEN Emissions Factor (MTCO ₂ e/MWh)
Eligible Renewable	40%	89,275	-	-	-		
Biomass & Biowaste	0%	-	-	-	-		
Geothermal	0%	-	-	-	-		
Eligible Hydroelectric	0%	-	-	-	-		
Solar Electric	0%	-	-	-	-		
Wind ⁴	40%	-	-	-	-		
Coal	0%	-	-	-	-		
Large Hydroelectric⁵	38%	85,897	-	-	-		
Natural Gas⁶	22%	48,018	866.17	41,591,609	18,866		
Nuclear	0%	-	-	-	-		
Other	0%	-	-	-	-		
Unspecified Sources of Power	0%	-	-	-	-		
TOTAL	100%	223,190		41,591,609	18,866	186.35	0.08

⁴ Wind turbines convert the kinetic energy present in wind motion into mechanical energy to generate electricity without combusting a carbon-based fuel or emitting GHGs.

⁵ Hydroelectric generation, which uses the gravitational force of falling/flowing water to drive a turbine, generates electricity without combusting a carbon-based fuel, and thus does not emit GHGs.

⁶ Natural gas emission factor calculated using data available in the CleanPowerSF contracted facility's 2016 California Air Resources Board Verified Greenhouse Gas Summary Report.

CleanPowerSF's 2016 SuperGreen Product Power Content Label reports the product's sources of electricity for the total amount of 2016 retail sales of 2,362 MWh as laid out in the following table:

2016 GHG Emissions Factor Calculation for SUPERGREEN							
ENERGY RESOURCES	SUPERGREEN Power Mix	Net Purchases (MWh)	Emissions Factor (lbs CO ₂ e/MWh)	Emissions (lbs CO ₂ e)	Emissions (MT CO ₂ e)	SUPERGREEN Emissions Factor (lbs CO ₂ e/MWh)	SUPERGREEN Emissions Factor (MT CO ₂ e/MWh)
Eligible Renewable	100%	2,362	-	-	-		
Biomass & Biowaste	0%	-	-	-	-		
Geothermal	0%	-	-	-	-		
Eligible Hydroelectric	0%	-	-	-	-		
Solar Electric	0%	-	-	-	-		
Wind ⁷	100%	-	-	-	-		
Coal	0%	-	-	-	-		
Large Hydroelectric	0%	-	-	-	-		
Natural Gas	0%	-	-	-	-		
Nuclear	0%	-	-	-	-		
Other	0%	-	-	-	-		
Unspecified Sources of Power	0%	-	-	-	-		
TOTAL	100%	2,362		-	-	0.00	0.00

⁷ Wind turbines convert the kinetic energy present in wind motion into mechanical energy to generate electricity without combusting a carbon-based fuel or emitting GHGs.