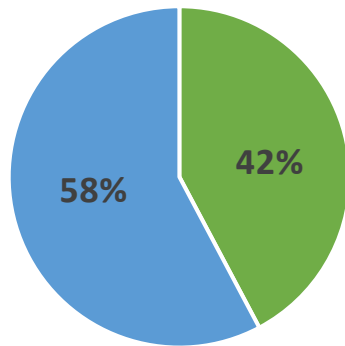


Total City of Long Beach Emissions in CO₂e (MT) by Scope and Sector

Sector	Scope 1 CO ₂ e (MT)	Scope 2 CO ₂ e (MT)	Total CO ₂ e (MT)
Buildings & Facilities	4,190.4473	15,463.3490	19,653.7963
Street Lights & Traffic Signals	-	5,031.9292	5,031.9292
Water & Wastewater Treatment	289.4303	4,991.6118	5,281.0421
Vehicle Fleet	14,947.5705	-	14,947.5705
Port of Long Beach	1,376.9512	2,964.4197	4,341.3709

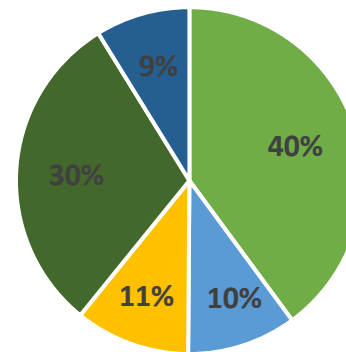
	Scope 1 CO ₂ e (MT)	Scope 2 CO ₂ e (MT)	Total CO ₂ e (MT)
Total City of Long Beach CO₂e (MT)	20,804.3993	28,451.3098	49,255.7091

Total CLB Emissions by Scope



- Scope 1 CO₂e (MT)
- Scope 2 CO₂e (MT)

Total CLB Emissions by Sector



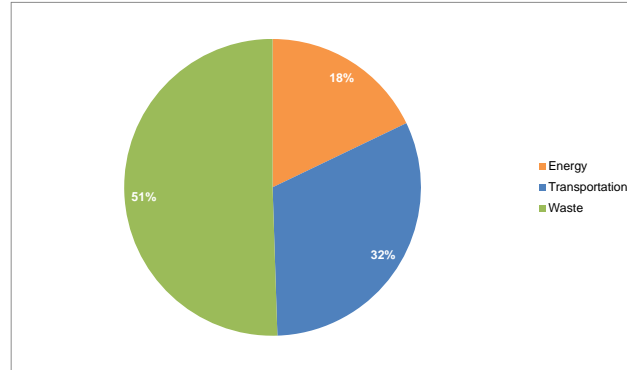
- Buildings & Facilities
- Street Lights & Traffic Signals
- Water & Wastewater Treatment
- Vehicle Fleet
- Port of Long Beach

2015

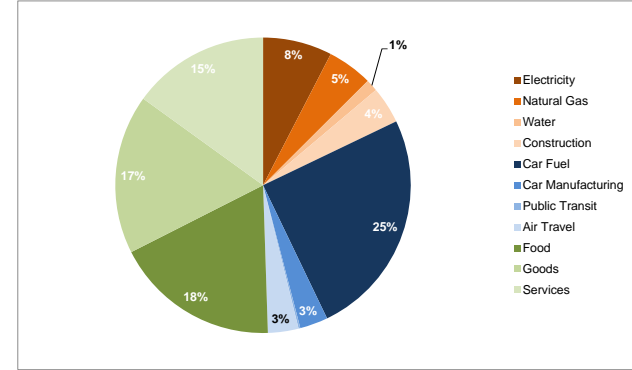
Long Beach Consumption-based Inventory

Sector	MT CO ₂ e/yr	% of Total
Energy	1,261,181	18%
Electricity	535,168	8%
Natural Gas	348,138	5%
Water	93,274	1%
Construction	284,600	4%
Transportation	2,227,761	32%
Car Fuel	1,761,148	25%
Car Manufacturing	216,760	3%
Public Transit	13,237	0%
Air Travel	236,615	3%
Waste	3,562,469	51%
Food	1,272,429	18%
Goods	1,229,408	17%
Services	1,060,633	15%
TOTAL	7,051,410	100%

Consumption Inventory by Sector



Consumption Inventory by Subsector

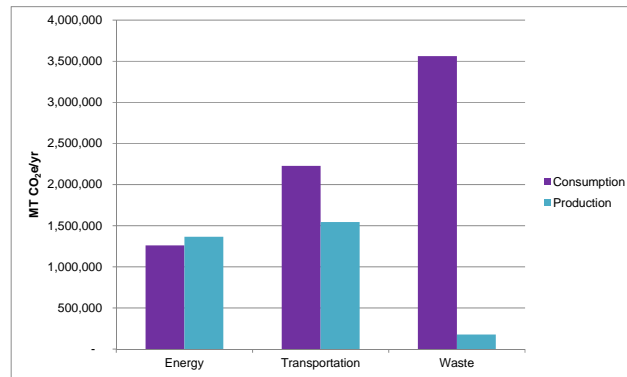


2015

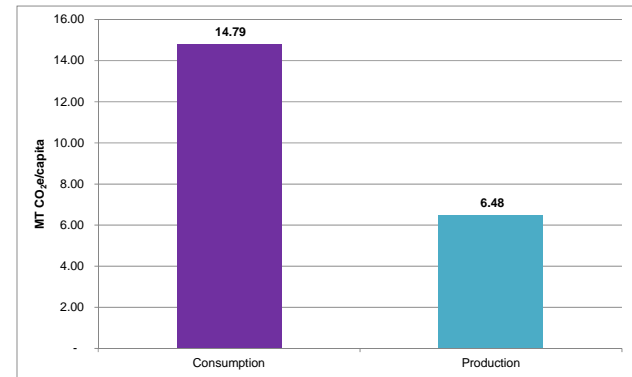
Long Beach Production-based Inventory

Sector	MT CO ₂ e/yr	% of Total
Energy	1,367,000	19%
Transportation	1,546,326	22%
Waste	176,850	3%
TOTAL	3,090,176	44%

Consumption vs. Production Inventory - Total Emissions



Consumption vs. Production Inventory - Per Capita Emissions



ELECTRICITY

Activity Type	Description	Activity data		Emissions Factors		Total GHG	
		Amount	Unit	Amount	Unit	Amount	Unit
Consumption in Community							
Electricity	Residential electricity consumption	813,346,135	kWh	0.00023	MT CO ₂ e/kWh	187,070	MT CO ₂ e
Electricity	Municipal Buildings and Facilities electricity use	65,685,859	kWh	0.00023	MT CO ₂ e/kWh	15,108	MT CO ₂ e
Electricity	Municipal Street Lights and Traffic Signals electricity use	21,374,839	kWh	0.00023	MT CO ₂ e/kWh	4,916	MT CO ₂ e
Transmission and Distribution Losses							
T&D Losses	Residential electricity T&D losses	34,648,545	kWh	0.00026	MT CO ₂ e/kWh	8,968	MT CO ₂ e
T&D Losses	Municipal electricity T&D losses	3,708,786	kWh	0.00026	MT CO ₂ e/kWh	960	MT CO ₂ e
Upstream Emissions							
Upstream Emissions	Residential electricity upstream emissions	847,994,680	kWh	0.0003	MT CO ₂ e/kWh	287,385	MT CO ₂ e
Upstream Emissions	Municipal electricity upstream emissions	90,769,484	kWh	0.0003	MT CO ₂ e/kWh	30,762	MT CO ₂ e
Subtotal	Electricity					535,168	MT CO₂e

NATURAL GAS

Activity Type	Description	Activity data		Emissions Factors		GHG	
		Amount	Unit	Amount	Unit	Amount	Unit
Consumption in Community							
Natural gas	Residential natural gas consumption	44,654,640	Therm	0.0054	MT CO ₂ e/therms	241,176	MT CO ₂ e
Natural gas	Municipal Buildings and Facilities natural gas use	787,878	Therm	0.0054	MT CO ₂ e/therms	4,255	MT CO ₂ e
Natural gas	Municipal Groundwater Treatment Facility natural gas use	54,418	Therm	0.0054	MT CO ₂ e/therms	294	MT CO ₂ e
Transmission and Distribution Losses							
T&D Losses	Residential natural gas T&D losses	388,495	Therm	0.0054	MT CO ₂ e/therms	2,098	MT CO ₂ e
T&D Losses	Municipal natural gas T&D losses	7,328	Therm	0.0054	MT CO ₂ e/therms	40	MT CO ₂ e
Upstream Emissions							
Upstream Emissions	Residential natural gas upstream emissions	45,043,135	Therm	0.0022	MT CO ₂ e/therms	98,419	MT CO ₂ e
Upstream Emissions	Municipal natural gas upstream emissions	849,624	Therm	0.0022	MT CO ₂ e/therms	1,856	MT CO ₂ e
Subtotal	Natural Gas					348,138	MT CO₂e

WATER

Activity Type	Description	Activity data		Emissions Factors		GHG	
		Amount	Unit	Amount	Unit	Amount	Unit
Electricity	Water Supply & Conveyance electricity use	119,649,054	kWh	0.0003	MT CO ₂ e/kWh	30,967	MT CO ₂ e
Electricity	Water Treatment electricity use	1,365,224	kWh	0.0003	MT CO ₂ e/kWh	353	MT CO ₂ e
Electricity	Water Distribution electricity use	15,644,728	kWh	0.0003	MT CO ₂ e/kWh	4,049	MT CO ₂ e
Electricity	Wastewater Treatment electricity use	13,015,590	kWh	0.0003	MT CO ₂ e/kWh	3,369	MT CO ₂ e
Transmission and Distribution Losses							
Electricity	Water system electricity T&D losses	6,376,138	kWh	0.0003	MT CO ₂ e/kWh	1,650	MT CO ₂ e
Upstream Emissions							
Electricity	Water system upstream emissions	156,050,734	kWh	0.0003	MT CO ₂ e/kWh	52,886	MT CO ₂ e
Subtotal	Water					93,274	MT CO₂e

CONSTRUCTION

Activity Type	Description	Activity data		Emissions Factors		GHG	
		Amount	Unit	Amount	Unit	Amount	Unit
Construction	Household construction	165,465	Households	1.72	MT CO ₂ e/household	284,600	MT CO ₂ e
Subtotal	Construction					284,600	MT CO₂e

Total	Unit
1,261,181	MT CO₂e

CAR FUEL

Activity Type	Description	Activity data		Emissions Factors		Total GHG	
		Amount	Unit	Amount	Unit	Amount	Unit
Household Travel							
Gasoline	Household gasoline vehicle use - LDA vehicles	100,534,433	gallons	0.00780	MT CO ₂ e/gallon	783,837	MT CO ₂ e
Diesel	Household diesel vehicle use - LDA vehicles	529,572	gallons	0.00984	MT CO ₂ e/gallon	5,212	MT CO ₂ e
Electricity	Household electric vehicle use - LDA vehicles	144,418	kWh	0.00023	MT CO ₂ e/kWh	33	MT CO ₂ e
Gasoline	Household gasoline vehicle use - LDT1 / LDT2 vehicles	60,275,381	gallons	0.00876	MT CO ₂ e/gallon	527,989	MT CO ₂ e
Diesel	Household diesel vehicle use - LDT1 / LDT2 vehicles	55,024	gallons	0.01011	MT CO ₂ e/gallon	556	MT CO ₂ e
Electricity	Household electric vehicle use - LDT1 / LDT2 vehicles	1,932	kWh	0.00023	MT CO ₂ e/kWh	0	MT CO ₂ e
Municipal Fleet Fuel Use							
Gasoline	Fleet gasoline use, excluding Water Department	882,184	gallons	0.00882	MT CO ₂ e/gallon	7,783	MT CO ₂ e
LNG	Fleet LNG use	756,095	gallons	0.00460	MT CO ₂ e/gallon	3,475	MT CO ₂ e
Diesel	Fleet diesel use, excluding Water Department	238,222	gallons	0.01021	MT CO ₂ e/gallon	2,433	MT CO ₂ e
Gasoline	Water Department gasoline use	59,789	gallons	0.00878	MT CO ₂ e/gallon	525	MT CO ₂ e
Jet Fuel	Fleet jet fuel use	38,939	gallons	0.00983	MT CO ₂ e/gallon	383	MT CO ₂ e
Diesel	Water Department diesel use	31,445	gallons	0.01021	MT CO ₂ e/gallon	321	MT CO ₂ e
Propane	Fleet propane use	3,709	gallons	0.00575	MT CO ₂ e/gallon	21	MT CO ₂ e
CNG	Fleet CNG use	2,180	scf	0.00286	MT CO ₂ e/scf	6	MT CO ₂ e
Transmission and Distribution Losses							
Electricity	Household electric vehicle T&D losses	6,235	kWh	0.0003	MT CO ₂ e/kWh	2	MT CO ₂ e
Upstream Emissions							
Gasoline	Household and municipal gasoline upstream emissions	161,751,788	gallons	0.00263	MT CO ₂ e/gallon	425,431	MT CO ₂ e
Diesel	Household and municipal diesel upstream emissions	854,263	gallons	0.00213	MT CO ₂ e/gallon	1,820	MT CO ₂ e
Electricity	Household electricity upstream emissions	152,584	kWh	0.00034	MT CO ₂ e/kWh	52	MT CO ₂ e
LNG	Municipal LNG upstream emissions	756,095	gallons	0.00158	MT CO ₂ e/gallon	1,192	MT CO ₂ e
Jet Fuel	Municipal jet fuel upstream emissions	38,939	gallons	0.00180	MT CO ₂ e/gallon	70	MT CO ₂ e
Propane	Municipal propane upstream emissions	3,709	gallons	0.00190	MT CO ₂ e/gallon	7	MT CO ₂ e
CNG	Municipal CNG upstream emissions	2,180	scf	0.00002	MT CO ₂ e/scf	0	MT CO ₂ e
Subtotal	Electricity					1,761,148	MT CO₂e

CAR MANUFACTURING

Activity Type	Description	Activity data		Emissions Factors		GHG	
		Amount	Unit	Amount	Unit	Amount	Unit
Car manufacturing		165,465	Households	1.3100	MT CO ₂ e/household	216,760	MT CO ₂ e
Subtotal	Car Manufacturing					216,760	MT CO₂e

PUBLIC TRANSIT

Activity Type	Description	Activity data		Emissions Factors		GHG	
		Amount	Unit	Amount	Unit	Amount	Unit

Public Transit	Household public transit	165,465	Households	0.08	MT CO ₂ e/household	13,237	MT CO ₂ e
Subtotal	Water					13,237	MT CO₂e

AIR TRAVEL

Activity Type	Description	Activity data		Emissions Factors		GHG	
		Amount	Unit	Amount	Unit	Amount	Unit
Air travel	Household air travel	165,465	Households	1.43	MT CO ₂ e/household	236,615	MT CO ₂ e
Subtotal	Air Travel					236,615	MT CO₂e

Total	Unit
2,227,761	MT CO₂e

FOOD

Activity Type	Description	Activity data		Emissions Factors		Total GHG	
		Amount	Unit	Amount	Unit	Amount	Unit
Meat	Household meat consumption	165,465	Households	3.01	MT CO ₂ e/household	498,051	MT CO ₂ e
Dairy	Household dairy consumption	165,465	Households	1.15	MT CO ₂ e/household	190,285	MT CO ₂ e
Produce	Household produce consumption	165,465	Households	0.91	MT CO ₂ e/household	150,573	MT CO ₂ e
Cereals	Household cereals consumption	165,465	Households	0.97	MT CO ₂ e/household	160,501	MT CO ₂ e
Other Food	Household other food consumption	165,465	Households	1.65	MT CO ₂ e/household	273,018	MT CO ₂ e
Subtotal	Electricity					1,272,429	MT CO₂e

GOODS

Activity Type	Description	Activity data		Emissions Factors		Total GHG	
		Amount	Unit	Amount	Unit	Amount	Unit
Clothing	Household clothing consumption	165,465	Households	2.41	MT CO ₂ e/household	398,771	MT CO ₂ e
Furniture	Household furniture consumption	165,465	Households	1.98	MT CO ₂ e/household	327,621	MT CO ₂ e
Other Goods	Household other goods consumption	165,465	Households	3.04	MT CO ₂ e/household	503,015	MT CO ₂ e
Subtotal	Electricity					1,229,408	MT CO₂e

SERVICES

Activity Type	Description	Activity data		Emissions Factors		Total GHG	
		Amount	Unit	Amount	Unit	Amount	Unit
Services	Household services consumption	165,465	Households	6.41	MT CO ₂ e/household	1,060,633	MT CO ₂ e
Subtotal	Electricity					1,060,633	MT CO₂e
						Total	Unit
						3,562,469	MT CO₂e