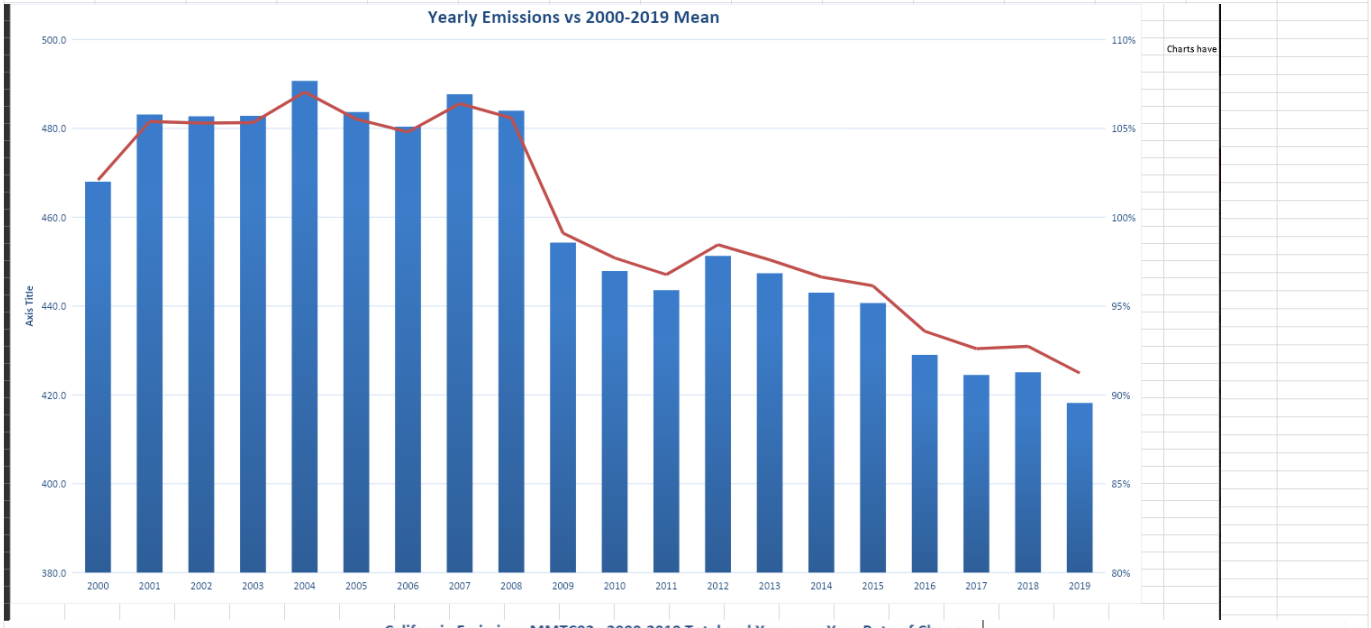
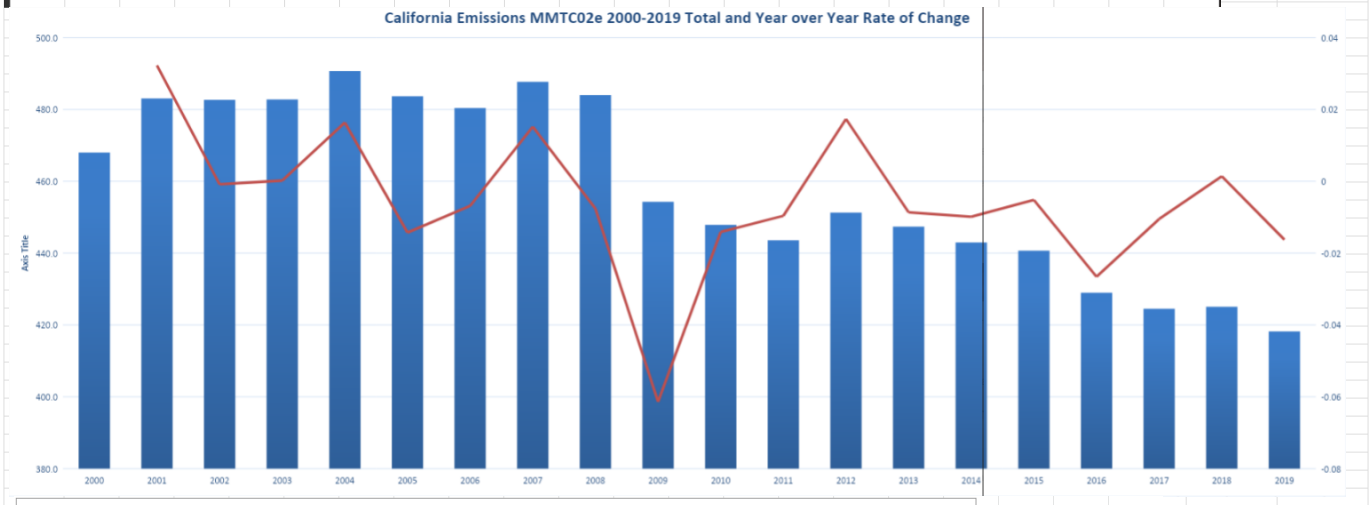




Charts have Alternative Text


8000
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019

California Air Resources Board

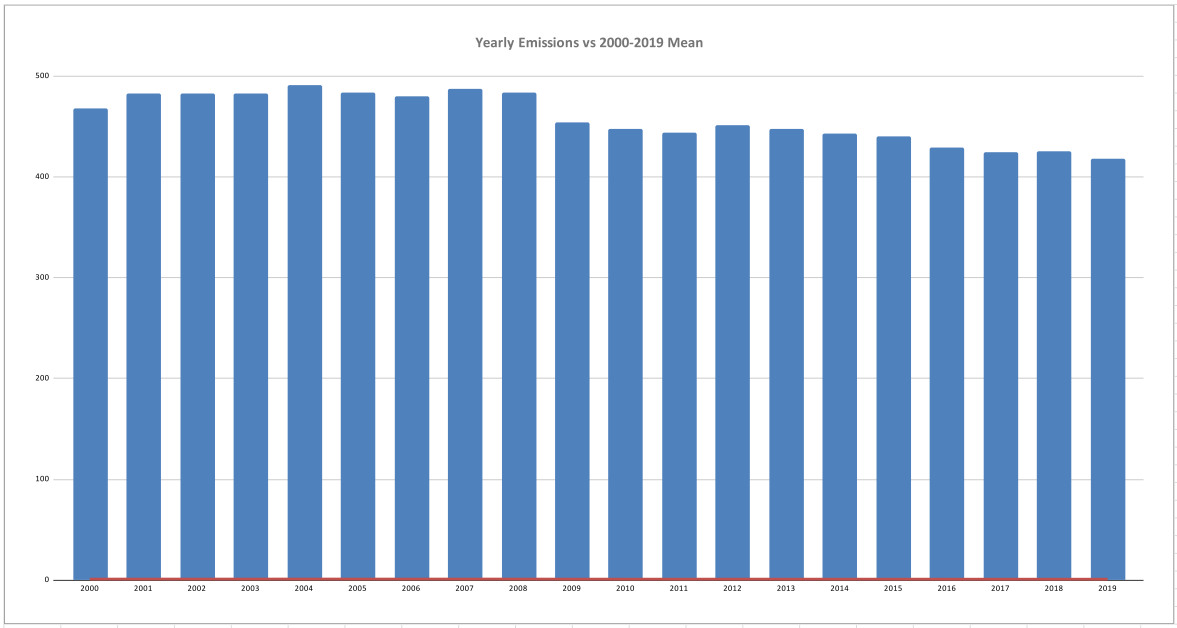
Data used to generate figures in the *California Greenhouse Gas Emissions for 2000 to 2019- Trends of Emissions and Other Indicators* report

Figure 1: California GHG Emission Trends

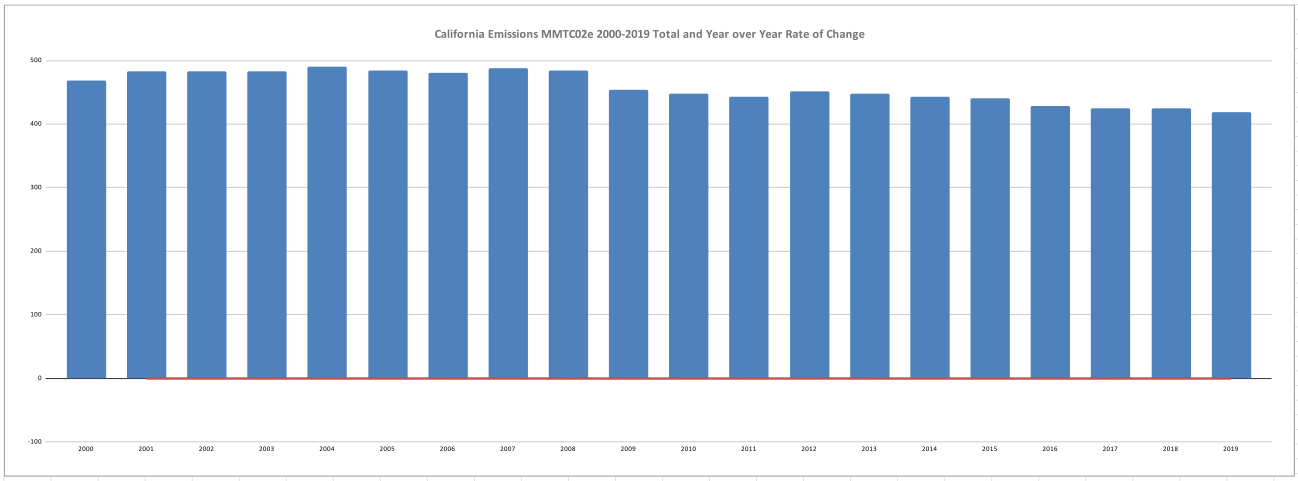
Parameter	Unit	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
California Emissions	MMTCO2e	468.0	483.1	482.7	482.8	490.7	483.7	480.4	487.7	484.0	454.3	447.9	443.6	451.3	447.4	443.0	440.7	429.0	424.5	425.1	418.2
Year over Year Rate of change			3.23%	-0.08%	0.02%	1.64%	-1.43%	-0.68%	1.52%	-0.76%	-6.14%	-1.41%	-0.96%	1.74%	-0.86%	-0.98%	-0.52%	-2.65%	-1.05%	0.14%	-1.62%
Change Since 2000			3.23%	3.14%	3.16%	4.85%	3.35%	2.65%	4.21%	3.42%	-2.93%	-4.29%	-5.21%	-3.57%	-4.40%	-5.34%	-5.83%	-8.33%	-9.29%	-9.17%	-10.64%
Annual change vs mean (458.405)		102%	105%	105%	105%	107%	106%	105%	106%	106%	99%	98%	97%	98%	98%	97%	96%	94%	93%	93%	91%
20 year average emissions	458.4																				
Year		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
20 year prediction Emissions MMTCO2e		9360	9662	9654	9656	9814	9674	9608	9754	9680	9086	8958	8872	9026	8948	8860	8814	8580	8490	8502	8364

Source: California Air Resources Board (2021). California Greenhouse Gas Emission Inventory - 2021 Edition. Data available at: https://ww3.arb.ca.gov/cc/inventory/data/data.htm

Charts have Alternative Text



Charts have Alternative Text


California Emissions MMTC02e 2000-2019 Total and Year over Year Rate of Change
500
400
300
200
100
0
-100
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019

Charts hav

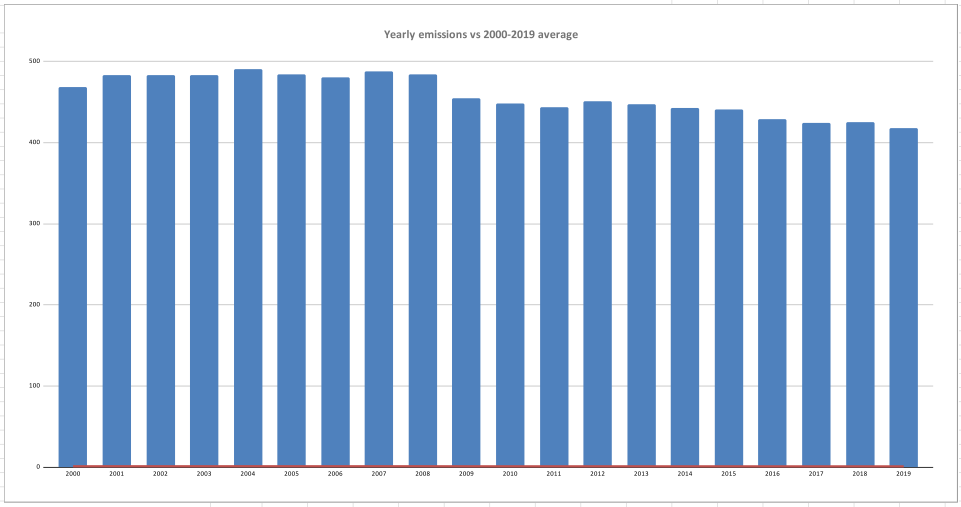
California Air Resources Board

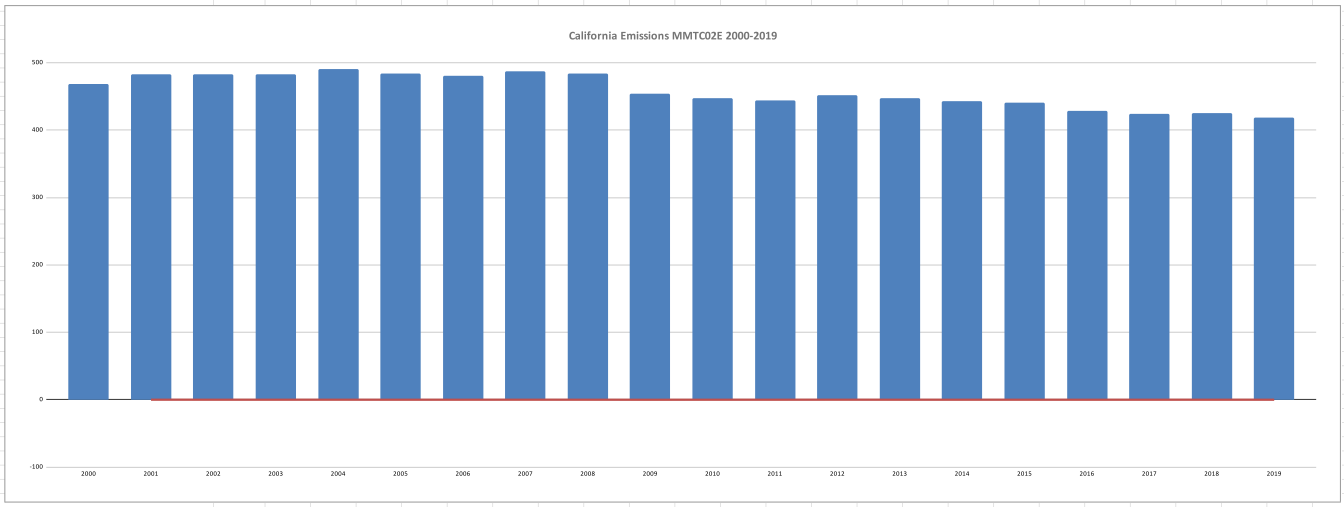
Data used to generate figures in the *California Greenhouse Gas Emissions for 2000 to 2019- Trends of Emissions and Other Indicators* report

Figure 1: California GHG Emission Trends

Parameter	Unit	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
California Emissions	MMTCO2e	468.0	483.1	482.7	482.8	490.7	483.7	480.4	487.7	484.0	454.3	447.9	443.6	451.3	447.4	443.0	440.7	429.0	424.5	425.1	418.2
Year over Year Rate of change			3.23%	-0.08%	0.02%	1.64%	-1.43%	-0.68%	1.52%	-0.76%	-6.14%	-1.41%	-0.96%	1.74%	-0.86%	-0.98%	-0.52%	-2.65%	-1.05%	0.14%	-1.62%
Change Since 2000			3.23%	3.14%	3.16%	4.85%	3.35%	2.65%	4.21%	3.42%	-2.93%	-4.29%	-5.21%	-3.57%	-4.40%	-5.34%	-5.83%	-8.33%	-9.29%	-9.17%	-10.64%
Annual change vs mean (458.405)		102%	105%	105%	105%	107%	106%	105%	106%	106%	99%	98%	97%	98%	98%	97%	96%	94%	93%	93%	91%
20 year average emissions	458.4																				

ifornia Air Resources Board (2021). California Greenhouse Gas Emission Inventory - 2021 Edition. Data available at: https://ww3.arb.ca.gov/cc/inventory/data





California Air Resources Board

Data used to generate figures in the *California Greenhouse Gas Emissions for 2000 to 2019- Trends of Emissions and Other Indicators* report

Figure 2a: Change in California GDP, Population, and GHG Emissions Since 2000

Parameter	Unit	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Total Emissions	MMTCO2e	0%	3%	3%	3%	5%	3%	3%	4%	3%	-3%	-4%	-5%	-4%	-4%	-5%	-6%	-8%	-9%	-9%	-11%
California Population	people	0%	2%	3%	4%	5%	6%	7%	8%	8%	9%	10%	11%	12%	13%	14%	15%	15%	16%	17%	17%
California GDP	Trillion (2012 $)	0%	0%	2%	7%	11%	16%	21%	23%	23%	19%	20%	22%	25%	30%	35%	42%	46%	53%	59%	63%
GHG Emissions Per Capita	tonnes CO2e per person	0%	2%	0%	-1%	0%	-2%	-4%	-3%	-5%	-11%	-13%	-15%	-14%	-15%	-17%	-18%	-21%	-22%	-22%	-24%
GHG Emissions Per Unit GDP	tonnes CO2e per million $	0%	4%	1%	-3%	-6%	-11%	-15%	-15%	-16%	-18%	-20%	-23%	-23%	-26%	-30%	-34%	-37%	-41%	-43%	-45%

Sources:

California Air Resources Board (2021). California Greenhouse Gas Emission Inventory - 2021 Edition. Data available at: https://ww3.arb.ca.gov/cc/inventory/data/data.htm

California Department of Finance (2021). E-6. Population estimates and components of change by county 2010–2019. Available at: http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-6/

California Department of Finance (2021). California Gross Domestic Product. Available at: http://www.dof.ca.gov/Forecasting/Economics/Indicators/Gross_State_Product/

California Air Resources Board

Data used to generate figures in the *California Greenhouse Gas Emissions for 2000 to 2019- Trends of Emissions and Other Indicators* report

Figure 2b: California Total and Per Capita GHG Emissions

Parameter	Unit	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Total Emissions	MMTCO2e	468.0	483.1	482.7	482.8	490.7	483.7	480.4	487.7	484.0	454.3	447.9	443.6	451.3	447.4	443.0	440.7	429.0	424.5	425.1	418.2
Emissions Per Capita	MT CO2e per person	13.8	14.0	13.8	13.6	13.7	13.4	13.3	13.3	13.1	12.3	12.0	11.8	11.8	11.7	11.4	11.3	10.9	10.8	10.7	10.5

Sources:

California Air Resources Board (2021). California Greenhouse Gas Emission Inventory - 2021 Edition. Data available at: https://ww3.arb.ca.gov/cc/inventory/data/data.htm

California Department of Finance (2021). E-6. Population estimates and components of change by county 2010–2019. Available at: http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-6/

California Air Resources Board

Data used to generate figures in the *California Greenhouse Gas Emissions for 2000 to 2019- Trends of Emissions and Other Indicators* report

Figure 2c: Carbon Intensity of California's Economy

Parameter	Unit	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
California GDP	2012 chained trillion $	1.710	1.703	1.744	1.825	1.902	1.990	2.072	2.104	2.111	2.026	2.058	2.092	2.144	2.221	2.313	2.429	2.501	2.611	2.722	2.792
CA Emissions per Unit GDP	MT CO2e per million $	273.7	283.7	276.8	264.5	258.0	243.0	231.8	231.8	229.3	224.2	217.6	212.1	210.4	201.5	191.5	181.5	171.5	162.6	156.2	149.8

Sources:

California Air Resources Board (2021). California Greenhouse Gas Emission Inventory - 2021 Edition. Data available at: https://ww3.arb.ca.gov/cc/inventory/data/data.htm

California Department of Finance (2021). E-6. Population estimates and components of change by county 2010–2019. Available at: http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-6/

California Department of Finance (2021). California Gross Domestic Product. Available at: http://www.dof.ca.gov/Forecasting/Economics/Indicators/Gross_State_Product/

California Air Resources Board

Data used to generate figures in the *California Greenhouse Gas Emissions for 2000 to 2019- Trends of Emissions and Other Indicators* report

Figure 3: Trends in California GHG Emissions

Parameter	Unit	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Transportation	MMT CO2e	178.4	178.6	185.9	183.3	184.8	186.6	186.5	186.1	174.8	168.0	165.1	161.8	161.4	161.2	162.6	166.2	169.8	171.2	169.6	166.1
Electric Power	MMT CO2e	104.7	121.9	108.6	112.5	115.1	107.8	104.4	113.8	120.1	101.3	90.3	89.2	98.2	91.4	88.9	84.8	68.6	62.1	63.1	58.8
Industrial	MMT CO2e	96.2	94.4	95.5	94.7	97.3	95.5	93.0	89.7	89.9	87.2	91.1	89.4	88.9	91.7	92.5	90.3	89.0	88.8	89.2	88.2
Commercial & Residential	MMT CO2e	43.9	42.9	44.8	43.3	44.6	43.1	43.8	44.0	44.4	44.5	45.9	46.0	43.5	44.2	38.2	38.8	40.6	41.3	41.4	43.8
Agriculture	MMT CO2e	31.0	31.2	33.2	33.5	32.8	33.7	34.7	35.2	35.1	32.8	33.7	34.3	35.5	33.8	34.7	33.5	33.3	32.5	32.7	31.8
High GWP	MMT CO2e	6.3	6.6	7.1	7.8	8.5	9.3	10.1	10.8	11.7	12.3	13.5	14.5	15.5	16.8	17.7	18.6	19.2	20.0	20.4	20.6
Recycling & Waste	MMT CO2e	7.4	7.5	7.5	7.6	7.6	7.8	7.9	8.0	8.1	8.2	8.3	8.4	8.3	8.4	8.4	8.5	8.6	8.7	8.7	8.9

Source: California Air Resources Board (2021). California Greenhouse Gas Emission Inventory - 2021 Edition. Data available at: https://ww3.arb.ca.gov/cc/inventory/data/data.htm

California Air Resources Board

Data used to generate figures in the *California Greenhouse Gas Emissions for 2000 to 2019- Trends of Emissions and Other Indicators* report

Figure 4: 2019 GHG Emissions by Scoping Plan Sector and Sub-Sector Category

Scoping Plan Category	2019 Emissions (MMT CO2e)	Percentage
Transportation	166.1	39.7%
Industrial	88.2	21.1%
Electric Power	58.8	14.1%
Commercial & Residential	43.8	10.5%
Agriculture	31.8	7.6%
High GWP	20.6	4.9%
Recycling & Waste	8.9	2.1%

Scoping Plan Category	Sub-Sector Category	2019 Emissions (MMT CO2e)	Percentage
Transportation	Passenger Vehicles	119.1	28.5%
	Heavy-Duty Vehicles	32.5	7.8%
	Aviation	4.4	1.1%
	Ships	3.8	0.9%
	Rail	1.6	0.4%
	Other	4.8	1.1%
Industrial	Refineries	28.8	6.9%
	General Fuel Use	19.8	4.7%
	Oil & Gas	16.6	4.0%
	Thermal Cogen	7.4	1.8%
	Cement	7.7	1.8%
	Pipelines	4.0	1.0%
	Other	3.8	0.9%
Electric Power	In-State Generation	37.2	8.9%
	Specified Imports	11.8	2.8%
	Unspecified Imports	9.9	2.4%
Commercial & Residential	Residential	28.0	6.7%
	Commercial	15.9	3.8%
Agriculture	Livestock	22.6	5.4%
	Crops	6.6	1.6%
	Fuel	2.5	0.6%
High GWP	Refrigerants	18.6	4.4%
	Other	2.0	0.5%
Recycling & Waste	Waste	8.9	2.1%

Source: California Air Resources Board (2021). California Greenhouse Gas Emission Inventory - 2021 Edition. Data available at: https://ww3.arb.ca.gov/cc/inventory/data/data.htm

California Air Resources Board

Data used to generate figures in the *California Greenhouse Gas Emissions for 2000 to 2019- Trends of Emissions and Other Indicators* report

Figure 5: Overview of GHG Emissions from the Transportation Sector

Parameter	Unit	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Transportation Total	MMT CO2e	178.4	178.6	185.9	183.3	184.8	186.6	186.5	186.1	174.8	168.0	165.1	161.8	161.4	161.2	162.6	166.2	169.8	171.2	169.6	166.1
On-Road Total	MMT CO2e	164.8	165.3	171.6	168.4	169.4	170.2	169.6	169.6	159.8	155.1	151.2	148.1	147.7	147.1	147.9	151.2	155.2	156.6	154.6	151.6
Passenger Vehicles	MMT CO2e	125.2	125.9	130.8	127.8	127.0	126.9	126.0	125.2	118.8	117.4	114.1	111.4	111.8	111.5	112.2	116.3	119.0	120.1	119.5	119.1
Heavy Duty Vehicles	MMT CO2e	39.5	39.4	40.7	40.6	42.4	43.3	43.7	44.4	41.0	37.7	37.1	36.7	35.9	35.6	35.7	34.9	36.1	36.5	35.1	32.5
Aviation + Rail + Ships	MMT CO2e	9.0	8.6	9.7	10.2	10.5	11.2	11.5	11.5	10.1	9.0	9.9	9.9	9.8	10.2	10.5	10.5	10.3	10.3	10.6	9.8
Off-Road + Unspecified	MMT CO2e	4.6	4.7	4.7	4.7	4.9	5.2	5.4	5.0	4.9	3.9	4.1	3.7	3.8	3.9	4.2	4.5	4.3	4.3	4.4	4.8

Source: California Air Resources Board (2021). California Greenhouse Gas Emission Inventory - 2021 Edition. Data available at: https://ww3.arb.ca.gov/cc/inventory/data/data.htm

California Air Resources Board

Data used to generate figures in the *California Greenhouse Gas Emissions for 2000 to 2019- Trends of Emissions and Other Indicators* report

Figure 6: Trends in On-Road Light Duty Gasoline Emissions

Parameter	Unit	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Light Duty Fossil Gasoline Emissions	MMT CO2e	124.6	125.4	130.3	127.0	126.3	125.8	125.0	124.2	117.8	116.3	112.9	110.0	110.4	110.1	110.6	114.4	117.1	117.8	117.2	116.8
Light Duty Ethanol Emissions (bio CO2) [note 1]	MMT CO2e	0.3	0.4	0.5	2.8	4.3	4.6	4.6	4.5	4.8	4.8	7.5	8.0	7.4	7.7	8.4	8.2	8.2	8.2	8.3	8.1
Total Sales of Gasoline Blend	billion gallons sold	14.8	14.9	15.5	15.7	15.9	15.9	15.8	15.6	15.0	14.8	14.9	14.6	14.5	14.5	14.7	15.1	15.5	15.6	15.5	15.4
Ethanol % in Gasoline Blend	percentage	0.4%	0.5%	0.6%	3.5%	5.2%	5.5%	5.5%	5.5%	6.1%	6.2%	9.5%	10.3%	9.6%	10.0%	10.7%	10.2%	9.9%	9.9%	10.0%	9.8%

Notes:

Note 1: Consistent with the IPCC Guidelines for National GHG Inventories, the biofuel components of fuel combustion CO2 emissions are classified as "biogenic CO2."
They are tracked separately from the rest of the emissions in the inventory and are not included in the total emissions when comparing to California's GHG targets.

Sources:

California Air Resources Board (2021). California Greenhouse Gas Emission Inventory - 2021 Edition. Data available at: https://ww3.arb.ca.gov/cc/inventory/data/data.htm
California State Board of Equalization (2021). Fuel Taxes Division Statistics & Reports - Motor Vehicle Fuel. Accessed online at: https://www.cdtfa.ca.gov/taxes-and-fees/spftrpts.htm

California Air Resources Board

Data used to generate figures in the *California Greenhouse Gas Emissions for 2000 to 2019- Trends of Emissions and Other Indicators* report

Figure 7: Trends in On-Road Heavy Duty Diesel Vehicle Emissions

Parameter	Unit	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Heavy Duty Fossil Diesel Emissions	MMT CO2e	27.7	27.7	28.5	28.2	30.1	31.4	31.6	32.6	29.9	27.3	27.4	27.6	27.2	27.1	27.3	26.5	27.1	27.4	26.3	23.8
Heavy Duty Diesel (bio CO2) [note 1]	MMT CO2e	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.1	0.1	0.1	0.3	1.7	1.7	2.8	4.0	4.9	5.5	8.1
Total Sales of Diesel Blend	billion gallons sold	2.6	2.6	2.7	2.7	2.8	3.0	3.0	3.1	2.8	2.6	2.6	2.6	2.6	2.7	2.8	2.8	3.0	3.1	3.1	3.1
Bio-component % in Diesel Blend	percentage	0.1%	0.1%	0.1%	0.0%	0.0%	0.1%	0.7%	0.6%	0.4%	0.3%	0.3%	0.8%	1.2%	6.6%	6.5%	10.3%	13.9%	16.2%	18.5%	26.9%

Notes:

Note 1: Consistent with the IPCC Guidelines for National GHG Inventories, the biofuel components of fuel combustion CO2 emissions are classified as "biogenic CO2."
They are tracked separately from the rest of the emissions in the inventory and are not included in the total emissions when comparing to California's GHG targets.

Sources:

California Air Resources Board (2021). California Greenhouse Gas Emission Inventory - 2021 Edition. Data available at: https://ww3.arb.ca.gov/cc/inventory/data/data.htm
California State Board of Equalization (2021). Fuel Taxes Division Statistics & Reports - Motor Vehicle Fuel. Accessed online at: https://www.cdtfa.ca.gov/taxes-and-fees/spftrpts.htm

California Air Resources Board

Data used to generate figures in the *California Greenhouse Gas Emissions for 2000 to 2019- Trends of Emissions and Other Indicators* report

Figure 8: Electric Power Emissions

Parameter	Unit	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
In-State	MMT CO2e	58.8	62.9	49.6	48.0	49.1	45.0	49.8	54.0	54.2	53.2	46.7	42.6	53.7	51.4	52.1	50.9	42.2	38.2	38.5	37.2
Imports	MMT CO2e	45.9	59.0	59.0	64.6	66.0	62.8	54.7	59.8	65.8	48.0	43.6	46.6	44.4	40.0	36.8	33.9	26.4	23.9	24.6	21.7
Total Electric	MMT CO2e	104.7	121.9	108.6	112.5	115.1	107.8	104.4	113.8	120.1	101.3	90.3	89.2	98.2	91.4	88.9	84.8	68.6	62.1	63.1	58.8

Source: California Air Resources Board (2021). California Greenhouse Gas Emission Inventory - 2021 Edition. Data available at: https://ww3.arb.ca.gov/cc/inventory/data/data.htm

California Air Resources Board

Data used to generate figures in the *California Greenhouse Gas Emissions for 2000 to 2019- Trends of Emissions and Other Indicators* report

Figure 9: GHG Intensity of Electricity Generation

Parameter	Unit	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Note
In-State	tonne CO2e per MWh	0.27	0.32	0.27	0.25	0.25	0.22	0.23	0.26	0.26	0.26	0.23	0.21	0.27	0.25	0.26	0.25	0.20	0.18	0.18	0.17	1, 2
Imports	tonne CO2e per MWh	0.57	0.68	0.58	0.65	0.64	0.63	0.60	0.57	0.58	0.48	0.45	0.47	0.43	0.39	0.35	0.33	0.26	0.25	0.25	0.25	1, 3
Overall	tonne CO2e per MWh	0.41	0.46	0.42	0.42	0.42	0.39	0.36	0.39	0.41	0.36	0.33	0.32	0.35	0.32	0.31	0.30	0.24	0.21	0.22	0.21	1, 4

Notes:

Note 1:	All three GHG intensities account for renewables and zero-GHG sources, and exclude biogenic CO2 emissions.
Note 2:	In-state electricity emissions and MWh generation include commercial-scale power plants, on-site generation for on-site use, cogeneration emissions attributed to electricity generation, in-state generated electricity exported out of state, and rooftop solar. Emissions data for 2000-2008 are from EIA 2021. Emissions data for 2009-2019 are from CARB 2020. MWh generation data for 2000-2019 are from EIA 2021. Rooftop solar generation data are from CEC 2021.
Note 3:	Imported electricity data for 2000-2008 are based on CARB staff's compilation of data from various data sources; see CARB 2016 for documentation. Data for 2009-2019 are from CARB Mandatory GHG Reporting Regulation (MRR) (CARB 2020).
Note 4:	Overall GHG intensities: total electricity emissions (sum of in-state generation and imports) divided by the sum of total MWh consumed in California and MWh exported out of California. The MWh consumed amount represent the electricity arriving to and consumed by the end-user. This MWh consumption is not the same as the MWh of electricity generated, as some of that generated electricity will be lost due to resistance in the power lines during its transmission to the end-user. Consumption MWh data are from CEC 2020. Exports MWh data for 2001-2011 are from CEC 2019. Exports MWh data for 2012-2019 are from CARB 2020. Total emissions data are from CARB 2021.

Source: California Air Resources Board staff's calculations based on datasets from the following sources:

CARB 2016:	California Air Resources Board staff compilation of data from various data sources. Documentation available at: https://ww3.arb.ca.gov/cc/inventory/pubs/reports/2000_2014/ghg_inventory_00-14_technical_support_document.pdf
CARB 2020:	California Air Resources Board (2020). Summary of 2009 to 2019 data from California's Greenhouse Gas Mandatory Reporting Program. https://ww2.arb.ca.gov/mrr-data
CARB 2021:	California Air Resources Board (2021). California Greenhouse Gas Emission Inventory - 2021 Edition. Available at: https://ww3.arb.ca.gov/cc/inventory/data/data.htm
CEC 2019:	California Energy Commission (2019). "CEDU 2018 Baseline Statewide Mid Demand Case." Available at: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=18-IEPR-04
CEC 2021:	California Energy Commission, Energy Almanac (2021). "electricity_gen_2001-current.xlsx" Available at: https://ww2.energy.ca.gov/almanac/electricity_data/
EIA 2021:	U.S. Energy Information Administration (2021). Electricity - Form EIA-923 detailed data with previous form data (EIA-906/920). Available at: http://www.eia.gov/electricity/data/eia923/

California Air Resources Board

Data used to generate figures in the *California Greenhouse Gas Emissions for 2000 to 2019- Trends of Emissions and Other Indicators* report

Figure 10: In-State Hydro, Solar, and Wind Electricity Generation

Electricity Generation Type	Unit	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Large Hydro	TWh	35.1	20.3	25.5	29.5	27.8	32.8	40.5	23.2	19.9	23.2	27.6	35.4	22.7	20.2	13.7	11.5	24.8	36.4	21.6	32.7
Small Hydro	TWh	5.4	4.8	5.4	6.0	5.5	6.9	7.6	4.5	4.6	4.9	5.7	7.0	4.7	3.8	2.7	2.4	4.8	6.4	4.6	5.6
Solar (Rooftop)	TWh	0.008	0.01	0.04	0.1	0.1	0.2	0.3	0.4	0.7	1.0	1.3	1.8	2.5	3.3	4.6	6.4	8.9	11.4	13.8	15.8
Solar (Commercial-scale)	TWh	0.5	0.5	0.6	0.5	0.6	0.5	0.5	0.6	0.7	0.6	0.8	0.9	1.4	3.8	9.9	14.8	19.3	24.4	27.0	28.3
Wind	TWh	3.6	3.5	3.8	3.9	4.3	4.3	4.9	5.6	5.4	5.8	6.1	7.8	9.8	12.8	13.0	12.2	13.5	12.8	14.0	13.7

Sources:

U.S. Energy Information Administration (2021). Electricity - Form EIA-923 detailed data with previous form data (EIA-906/920). Available at: http://www.eia.gov/electricity/data/eia923/

Rooftop solar generation data are from: California Energy Commission (2019). "CEDU 2018 Baseline Statewide Mid Demand Case." Available at: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=18-IEPR-04

California Air Resources Board

Data used to generate figures in the *California Greenhouse Gas Emissions for 2000 to 2019- Trends of Emissions and Other Indicators* report

Figure 11a: In-State Electricity Generation by Fuel Type

Electricity Generation Type	Unit	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Natural Gas	TWh	107	111	89	91	100	93	106	116	120	113	108	89	120	120	120	116	97	88	90	86
Hydro, Solar, Wind, and Nuclear	TWh	81	62	70	76	69	81	86	70	64	67	74	90	60	62	61	66	90	109	99	112
Other Fuels [note 1]	TWh	28	25	25	26	26	26	26	26	25	25	24	24	23	22	22	21	20	20	20	20

Notes:

Note 1: "Other Fuels" include associated gas, biomass, coal, crude oil, digester gas, distillate, geothermal, jet fuel, kerosene, landfill gas, lignite coal, MSW, petroleum coke, propane, purchased steam, refinery gas, residual fuel oil, sub-bituminous coal, synthetic coal, tires, waste coal, waste heat, and waste oil.

Sources:

U.S. Energy Information Administration (2021). Electricity - Form EIA-923 detailed data with previous form data (EIA-906/920). Available at: http://www.eia.gov/electricity/data/eia923/

Rooftop solar generation data are from: California Energy Commission (2019). "CEDU 2018 Baseline Statewide Mid Demand Case." Available at: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=18-IEPR-04

California Air Resources Board

Data used to generate figures in the *California Greenhouse Gas Emissions for 2000 to 2019- Trends of Emissions and Other Indicators* report

Figure 12: Imported Electricity by Generation Type

Electricity Generation Type	Unit	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Solar	TWh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.6	1.3	1.2	1.7	1.9	2.8	2.8	2.8
Wind	TWh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	3.9	7.9	2.8	3.5	5.1	5.5	4.9	5.2	5.9	7.8	7.5
Nuclear	TWh	8.3	7.9	8.5	7.8	7.7	7.1	6.6	7.3	8.0	8.4	8.1	7.9	8.2	10.1	10.7	12.4	12.0	12.3	11.3	12.2
Hydro	TWh	4.0	3.7	3.5	3.0	3.0	2.7	3.0	2.9	2.9	2.6	3.1	2.8	3.6	6.0	8.6	9.6	13.3	13.1	15.3	11.6
ACS (Primarily Hydro) [note 1]	TWh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0	10.2	13.1	13.2	13.4	18.9	18.0	14.2	10.2
Biomass, Waste Heat, Geothermal	TWh	0.5	0.5	0.5	0.4	0.5	0.5	0.5	0.5	0.4	1.0	1.7	0.9	1.2	2.0	2.1	2.5	2.7	2.4	2.6	3.0
Unspecified	TWh	33.4	38.7	55.4	53.3	57.7	55.5	53.4	64.5	66.6	34.9	31.5	35.6	40.7	27.6	31.4	26.2	21.4	19.1	24.5	21.8
Natural Gas	TWh	0.2	0.2	0.2	0.1	0.1	0.1	0.1	3.4	6.9	23.7	20.4	15.9	11.9	13.4	13.5	16.5	13.2	10.3	11.7	11.2
MJRP (Primarily Coal) [note 2]	TWh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Coal & Diesel	TWh	33.5	35.3	33.7	34.1	35.0	34.4	28.0	27.1	26.7	25.4	23.4	25.2	21.6	23.2	18.1	16.0	10.7	10.4	8.3	7.0

Notes:

Note 1: Imports from ACS are primarily hydropower, but include some GHG-emitting power sources such as natural gas.

Note 2: Imports from MJRP are primarily coal, but include other types of generation resources.

Sources: Imported electricity data for 2000-2008 are based on CARB staff's compilation of data from various data sources (CARB 2016). Data from CARB Mandatory GHG Reporting Regulation (MRR) (CARB 2020) are used for 2009-2019.

CARB 2016: California Air Resources Board staff compilation of data from various data sources. Documentation available at: https://ww3.arb.ca.gov/cc/inventory/pubs/reports/2000_2014/ghg_inventory_00-14_technical_support_document.pdf

CARB 2020: California Air Resources Board (2020). Summary of 2009 to 2019 data from California's Greenhouse Gas Mandatory Reporting Program. https://ww2.arb.ca.gov/mrr-data

California Air Resources Board

Data used to generate figures in the *California Greenhouse Gas Emissions for 2000 to 2019- Trends of Emissions and Other Indicators* report

Figure 12: Industrial Sector Emissions

Parameter	Unit	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Total Industrial Emissions	MMT CO2e	96.2	94.4	95.5	94.7	97.3	95.5	93.0	89.7	89.9	87.2	91.1	89.4	88.9	91.7	92.5	90.3	89.0	88.8	89.2	88.2
Refineries and Hydrogen Production	MMT CO2e	28.5	29.1	29.3	29.9	29.1	29.8	29.7	29.3	28.5	28.4	30.5	30.1	29.8	29.4	29.8	28.4	29.8	30.1	30.1	28.8
Oil & Gas: Production & Processing	MMT CO2e	19.1	19.4	18.1	20.7	20.9	19.5	17.5	17.6	18.9	17.7	16.8	16.8	16.8	18.9	19.2	19.3	16.8	16.9	16.7	16.6
General Fuel Use	MMT CO2e	20.2	19.0	20.1	16.4	16.9	16.0	16.0	14.7	15.8	15.3	18.0	18.8	19.0	19.5	19.9	19.4	19.2	18.8	18.6	19.8
Cogen (thermal)	MMT CO2e	11.7	10.5	10.7	10.6	12.9	12.4	12.2	11.2	10.4	12.6	12.6	10.0	9.0	9.0	8.3	8.0	7.8	7.6	8.1	7.4
Cement	MMT CO2e	9.5	9.3	9.8	9.9	10.1	10.0	9.8	9.2	8.6	5.7	5.6	6.1	6.9	7.2	7.7	7.5	7.6	7.7	7.9	7.8
Other	MMT CO2e	7.3	7.2	7.6	7.3	7.3	7.7	7.9	7.7	7.7	7.5	7.6	7.6	7.5	7.6	7.7	7.8	7.8	7.8	7.9	7.8

Source: California Air Resources Board (2021). California Greenhouse Gas Emission Inventory - 2021 Edition. Data available at: https://ww3.arb.ca.gov/cc/inventory/data/data.htm

California Air Resources Board

Data used to generate figures in the *California Greenhouse Gas Emissions for 2000 to 2019- Trends of Emissions and Other Indicators* report

Figure 14: Emissions from Residential and Commercial Sectors

Parameter	Unit	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Residential Emissions	MMT CO2e	30.2	29.2	29.4	28.9	30.0	28.8	29.2	29.3	29.7	29.3	30.1	30.5	28.2	29.0	23.8	24.2	25.3	26.0	25.7	28.0
Heating Degree Days	Heating Degree Days	2832	2965	2946	2833	2842	2815	3014	2876	2861	2879	3086	3182	2741	2707	2091	2342	2438	2442	2281	2535
Commercial Emissions	MMT CO2e	13.8	13.6	15.4	14.4	14.6	14.3	14.6	14.6	14.7	15.2	15.9	15.5	15.3	15.2	14.4	14.6	15.4	15.3	15.6	15.9

Sources:

California Air Resources Board (2021). California Greenhouse Gas Emission Inventory - 2021 Edition. Data available at: https://ww3.arb.ca.gov/cc/inventory/data/data.htm

National Oceanic and Atmospheric Administration (2021). Heating and Cooling Degree Days. Available at: ftp://ftp.cpc.ncep.noaa.gov/htdocs/products/analysis_monitoring/cdus/degree_days/archives/Heating%20degree%20Days/monthly%20states/

California Air Resources Board

Data used to generate figures in the *California Greenhouse Gas Emissions for 2000 to 2019- Trends of Emissions and Other Indicators* report

Figure 15: Emissions per Unit Floor Space and Residential Housing Unit

Parameter	Unit	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Emissions per Unit Floor Space [note 1]	MMT CO2e per ft2	2.3	2.2	2.5	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.1	2.0	2.0	2.1	2.0	2.1	2.1
Commercial Floor Space	billion ft2	6.0	6.1	6.3	6.4	6.5	6.6	6.7	6.8	6.9	7.0	7.1	7.1	7.1	7.1	7.2	7.3	7.4	7.5	7.6	7.7
Emissions Per Housing Unit [note 2]	MMT CO2e per unit	2.5	2.4	2.4	2.4	2.5	2.4	2.4	2.4	2.4	2.3	2.4	2.4	2.2	2.3	1.9	1.9	2.0	2.0	2.0	2.1
Housing Units	million units	11.9	12.0	12.0	12.1	12.2	12.2	12.3	12.4	12.4	12.5	12.6	12.6	12.6	12.7	12.8	12.9	12.9	13.0	13.1	13.2

Notes:

Note 1: Emissions per unit floor space are calculated by taking the total emissions attributed to the commercial sector, divided by the total square footage of commercial floor space.

Note 2: Emissions per housing unit are calculated by taking the total emissions attributed to the residential sector, divided by the total number of occupied housing units.

Sources:

California Air Resources Board (2021). California Greenhouse Gas Emission Inventory - 2021 Edition. Data available at: https://ww3.arb.ca.gov/cc/inventory/data/data.htm

California Department of Finance (2021). Residential and non-residential construction annual data 2000-2019. Available at: http://www.dof.ca.gov/Forecasting/Economics/Indicators/Construction_Permits/

California Department of Finance (2021). E-5 Population and Housing Estimates for Cities, Counties, and the State, 2011 – 2019. Available at: http://dof.ca.gov/Forecasting/Demographics/Estimates/E-5/

California Air Resources Board

Data used to generate figures in the *California Greenhouse Gas Emissions for 2000 to 2019- Trends of Emissions and Other Indicators* report

Figure 16: Agricultural Emissions

Parameter	Unit	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Livestock Manure Management	MMT CO2e	9.3	9.6	10.3	10.6	10.0	10.4	10.7	11.8	12.1	11.8	11.9	11.9	12.4	11.7	12.0	11.7	11.6	11.7	11.7	11.6
Livestock Enteric Fermentation	MMT CO2e	9.9	9.8	10.4	10.5	10.3	10.6	10.6	11.7	11.5	11.1	11.6	11.4	11.5	11.2	11.3	11.0	10.9	11.1	11.1	11.0
Crop Growing & Harvesting	MMT CO2e	8.0	7.9	8.2	8.2	8.0	8.2	8.1	7.9	7.4	7.4	7.5	7.4	7.7	7.2	6.9	6.5	6.7	6.5	6.7	6.6

Source: California Air Resources Board (2021). California Greenhouse Gas Emission Inventory - 2021 Edition. Data available at: https://ww3.arb.ca.gov/cc/inventory/data/data.htm

California Air Resources Board

Data used to generate figures in the *California Greenhouse Gas Emissions for 2000 to 2019- Trends of Emissions and Other Indicators* report

Figure 17a: Trends in ODS and ODS Substitutes Emissions

Parameter	Unit	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Total Emissions (ODS + ODS Substitutes)	MMT CO2e	66.6	63.2	60.4	57.6	55.0	52.6	50.0	45.8	43.2	41.4	40.0	38.9	38.2	37.9	37.2	36.0	35.5	34.8	34.4	33.5
ODS (not in GHG Inventory) [note 1]	MMT CO2e	61.0	57.2	53.9	50.4	47.1	43.8	40.4	35.4	31.9	29.5	26.8	24.7	23.0	21.5	19.8	17.7	16.5	15.2	14.3	13.2
ODS Substitutes (included in GHG Inventory) [note 2]	MMT CO2e	5.6	6.0	6.5	7.2	8.0	8.7	9.6	10.4	11.3	12.0	13.2	14.2	15.2	16.4	17.4	18.3	19.0	19.6	20.1	20.3

Notes:

Note 1: ODS are also high-GWP gases, but are outside the scope of the IPCC accounting framework and AB32, and are not included in the inventory totals for California.

Note 2: ODS Substitutes emissions are specified in IPCC guidelines and AB32, and are therefore in the "included" inventory totals for California.

Source: California Air Resources Board (2021). California Greenhouse Gas Emission Inventory - 2021 Edition. Data available at: https://ww3.arb.ca.gov/cc/inventory/data/data.htm

California Air Resources Board

Data used to generate figures in the *California Greenhouse Gas Emissions for 2000 to 2019- Trends of Emissions and Other Indicators* report

Figure 17b: ODS Substitutes Emissions by Category

Parameter	Unit	2019 Emissions	Percentage
Refrigerants - Commercial	MMT CO2e	9.0	44.2%
Refrigerants - Transportation	MMT CO2e	4.1	20.3%
Refrigerants - Residential	MMT CO2e	3.6	17.6%
Refrigerants - Industrial	MMT CO2e	2.0	9.7%
Aerosols	MMT CO2e	0.6	3.0%
Foams	MMT CO2e	0.8	4.1%
Solvents & Fire Suppression	MMT CO2e	0.2	1.2%

Source: California Air Resources Board (2021). California Greenhouse Gas Emission Inventory - 2021 Edition. Data available at: https://ww3.arb.ca.gov/cc/inventory/data/data.htm

California Air Resources Board

Data used to generate figures in the *California Greenhouse Gas Emissions for 2000 to 2019- Trends of Emissions and Other Indicators* report

Figure 18: Landfill Methane Generation Emissions

Parameter	Unit	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Landfill Emissions	MMT CO2e	7.2	7.4	7.3	7.5	7.4	7.6	7.7	7.7	7.9	8.0	8.0	8.1	8.0	8.1	8.1	8.1	8.2	8.3	8.4	8.5
Remaining Degradable Carbon [note 1]	million short tons	55.4	56.3	57.2	58.0	58.7	59.6	60.4	60.9	61.1	61.0	60.8	60.5	60.2	60.0	59.8	59.8	59.8	60.0	60.2	60.5

Notes:

Note 1: Remaining degradable carbon is the cumulative total amount of carbon already deposited in the landfill that can decompose into gas (e.g., methane, CO2, etc.).

Sources:

California Air Resources Board (2021). California Greenhouse Gas Emission Inventory - 2021 Edition. Data available at: https://ww3.arb.ca.gov/cc/inventory/data/data.htm

CalRecycle (2021). Landfill Tonnage Reports, 2000-2019. Available at: https://www2.calrecycle.ca.gov/LandfillTipFees/

California Air Resources Board

Data used to generate figures in the *California Greenhouse Gas Emissions for 2000 to 2019- Trends of Emissions and Other Indicators* report

Figure 19: Landfill Waste

Parameter	Unit	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Landfilled Solid Waste [note 1]	million short tons	38.7	39.7	39.7	42.1	43.0	45.8	44.6	41.5	37.2	32.8	31.7	31.5	30.2	32.0	32.4	34.4	36.3	39.0	40.5	41.2
Degradable Carbon Deposited [note 2]	million short tons	2.9	3.0	3.0	2.8	2.9	3.0	3.0	2.7	2.4	2.1	2.1	2.0	2.0	2.1	2.1	2.3	2.4	2.5	2.6	2.7
Composting Feedstock Processed [note 3]	million short tons	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.8	4.0	4.2	4.4	4.6	4.8	5.0	5.2	5.4	5.6	5.8

Notes:

Note 1: Landfilled solid waste is the total weight of waste materials deposited into landfills per year.

Note 2: Degradable carbon is the annual amount of carbon deposited in the landfill that can decompose into gas (e.g., methane, CO2, etc.).

Note 3: Composting feedstock processed is an estimate of the total cumulative feedstock in the state's composting facilities.

Sources:

California Air Resources Board (2021). California Greenhouse Gas Emission Inventory - 2021 Edition. Data available at: https://ww3.arb.ca.gov/cc/inventory/data/data.htm

CalRecycle (2021). Landfill Tonnage Reports, 2000-2019. Available at: https://www2.calrecycle.ca.gov/LandfillTipFees/

California Air Resources Board

Data used to generate figures in the *California Greenhouse Gas Emissions for 2000 to 2019- Trends of Emissions and Other Indicators* report

Figure 20a: 2019 GHG Emissions by Economic Sector

Economic Sector	2019 Emissions (MMT CO2e)	Percentage
Transportation	170.3	40.7%
Industrial	99.9	23.9%
Electricity (In State)	37.3	8.9%
Electricity (Imports)	21.7	5.2%
Agriculture & Forestry	31.8	7.6%
Commercial	24.2	5.8%
Residential	33.0	7.9%

Source: California Air Resources Board (2021). California Greenhouse Gas Emission Inventory - 2021 Edition. Data available at: https://ww3.arb.ca.gov/cc/inventory/data/data.htm

California Air Resources Board

Data used to generate figures in the *California Greenhouse Gas Emissions for 2000 to 2019- Trends of Emissions and Other Indicators* report

Figure 20b: 2019 GHG Emissions by Scoping Plan Category

Scoping Plan Category	2019 Emissions (MMT CO2e)	Percentage
Transportation	166.1	39.7%
Industrial	88.2	21.1%
Electric Power	58.8	14.1%
Commercial & Residential	43.8	10.5%
Agriculture	31.8	7.6%
High GWP	20.6	4.9%
Recycling & Waste	8.9	2.1%

Source: California Air Resources Board (2021). California Greenhouse Gas Emission Inventory - 2021 Edition. Data available at: https://ww3.arb.ca.gov/cc/inventory/data/data.htm

California Air Resources Board

Correction to Previously Published Information

On April 1, 2022, numbers for some figures in this spreadsheet were updated after it was determined that these data were summarized from an incorrect transposition of the inventory data. Figures 1, 2b, 2c, 3, and 5 were revised by -0.1 MMTCO2e compared to the previous version. For Figure 6, the numbers for "Light Duty Ethanol Emissions (Bio CO2)" were updated to represent the values inside the yellow shaded area in the graph, which represent emissions of ethanol combustion. Previously these numbers reflect the top boundary of the yellow shaded area, which were derived from stacking ethanol emissions on top of fossil gasoline emissions as shown graphically in the graph. For Figure 18, minor updates were made to the numbers to clarify that the graph presents methane emissions, instead of all GHG emissions combined. On May 16, 2022, Note 4 of Figure 9 was expanded to provide additional information on how the numbers were calculated.

On May 16, 2022, Note 4 of Figure 9 was expanded to provide additional information on how the numbers were calculated.