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California Environmental Protection Agency
Air Resources Board

# California Greenhouse Gas Inventory for 2000-2011 — by Category as Defined in the 2008 Scoping Plan

*million tonnes of CO2 equivalent - (based upon IPCC Second Assessement Report's Global Warming Potentials)*

| | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Transportation** | **176.29** | **176.65** | **183.86** | **183.55** | **187.21** | **188.94** | **189.34** | **188.97** | **177.16** | **171.57** | **170.61** | **168.42** |
| ***On Road*** | ***162.97*** | ***163.54*** | ***169.72*** | ***168.88*** | ***171.83*** | ***172.56*** | ***172.56*** | ***172.43*** | ***162.30*** | ***158.64*** | ***157.57*** | ***155.11*** |
| Passenger Vehicles | 130.17 | 130.03 | 134.52 | 132.96 | 133.66 | 132.63 | 131.96 | 130.80 | 123.61 | 122.57 | 121.54 | 119.02 |
| Heavy Duty Trucks | 32.80 | 33.51 | 35.20 | 35.92 | 38.17 | 39.93 | 40.60 | 41.63 | 38.69 | 36.07 | 36.02 | 36.08 |
| ***Ships & Commercial Boats*** | ***3.39*** | ***3.21*** | ***3.56*** | ***3.77*** | ***3.83*** | ***4.12*** | ***4.20*** | ***4.08*** | ***3.95*** | ***3.66*** | ***3.70*** | ***3.81*** |
| ***Aviation (Intrastate)*** | ***4.15*** | ***4.02*** | ***4.11*** | ***4.22*** | ***4.48*** | ***4.48*** | ***4.54*** | ***4.90*** | ***4.44*** | ***3.97*** | ***3.82*** | ***3.74*** |
| ***Rail*** | ***1.88*** | ***1.89*** | ***2.50*** | ***2.70*** | ***2.91*** | ***3.34*** | ***3.53*** | ***3.17*** | ***2.38*** | ***1.94*** | ***2.33*** | ***2.49*** |
| ***Off Road [1]*** | ***2.63*** | ***2.79*** | ***2.77*** | ***2.84*** | ***3.03*** | ***3.22*** | ***3.32*** | ***3.18*** | ***2.82*** | ***2.25*** | ***2.03*** | ***2.13*** |
| ***Unspecified*** | ***1.28*** | ***1.19*** | ***1.21*** | ***1.13*** | ***1.13*** | ***1.22*** | ***1.20*** | ***1.22*** | ***1.27*** | ***1.10*** | ***1.16*** | ***1.14*** |
| **Electric Power** | **104.86** | **122.01** | **108.65** | **112.62** | **115.20** | **107.86** | **104.54** | **113.94** | **120.14** | **103.56** | **90.09** | **86.57** |
| ***In-State Generation*** | ***58.95*** | ***62.98*** | ***49.68*** | ***48.05*** | ***49.15*** | ***45.05*** | ***49.85*** | ***54.12*** | ***54.32*** | ***55.52*** | ***46.50*** | ***39.71*** |
| Natural Gas | 50.92 | 55.46 | 42.16 | 40.91 | 42.40 | 38.11 | 43.07 | 47.12 | 48.02 | 48.90 | 40.60 | 34.53 |
| Other Fuels | 6.85 | 6.36 | 6.37 | 5.99 | 5.59 | 5.77 | 5.64 | 5.85 | 5.15 | 5.28 | 4.80 | 3.94 |
| Fugitive and Process Emissions | 1.18 | 1.16 | 1.15 | 1.15 | 1.16 | 1.16 | 1.14 | 1.16 | 1.14 | 1.34 | 1.10 | 1.23 |
| ***Imported Electricity*** | ***45.91*** | ***59.03*** | ***58.97*** | ***64.57*** | ***66.05*** | ***62.81*** | ***54.69*** | ***59.81*** | ***65.83*** | ***48.05*** | ***43.59*** | ***46.86*** |
| Unspecified Imports | 14.27 | 25.43 | 26.92 | 32.05 | 32.92 | 30.02 | 27.96 | 32.73 | 37.93 | 14.99 | 13.45 | 15.52 |
| Specified Imports | 31.64 | 33.60 | 32.05 | 32.51 | 33.13 | 32.80 | 26.73 | 27.08 | 27.90 | 33.05 | 30.14 | 31.34 |
| **Commercial and Residential** | **43.64** | **43.25** | **43.06** | **42.47** | **43.60** | **42.52** | **43.10** | **43.83** | **44.59** | **44.19** | **45.13** | **45.47** |
| ***Residential Fuel Use*** | ***29.65*** | ***28.72*** | ***28.88*** | ***28.41*** | ***29.45*** | ***28.18*** | ***28.54*** | ***28.69*** | ***29.03*** | ***28.65*** | ***29.38*** | ***29.85*** |
| Natural Gas | 28.02 | 27.42 | 27.53 | 26.66 | 27.37 | 25.97 | 26.59 | 26.72 | 26.66 | 26.30 | 27.03 | 27.51 |
| Other Fuels | 1.63 | 1.30 | 1.34 | 1.75 | 2.07 | 2.21 | 1.95 | 1.97 | 2.37 | 2.35 | 2.35 | 2.33 |
| ***Commercial Fuel Use*** | ***12.90*** | ***13.48*** | ***13.12*** | ***13.79*** | ***13.53*** | ***13.94*** | ***14.14*** | ***14.64*** | ***15.19*** | ***14.61*** | ***14.83*** | ***14.87*** |
| Natural Gas | 11.44 | 12.21 | 11.85 | 12.37 | 11.93 | 12.27 | 12.87 | 13.25 | 13.36 | 12.60 | 12.54 | 12.56 |
| Other Fuels | 1.46 | 1.26 | 1.27 | 1.43 | 1.60 | 1.67 | 1.27 | 1.39 | 1.83 | 2.01 | 2.28 | 2.30 |
| ***Commercial Cogeneration Heat Output*** | ***1.09*** | ***1.05*** | ***1.06*** | ***0.26*** | ***0.62*** | ***0.40*** | ***0.42*** | ***0.49*** | ***0.37*** | ***0.92*** | ***0.92*** | ***0.75*** |
| **Industrial** | **95.81** | **93.85** | **94.42** | **93.42** | **95.73** | **94.23** | **91.88** | **88.79** | **89.27** | **84.43** | **91.00** | **93.24** |
| ***Refineries*** | ***28.44*** | ***29.02*** | ***29.17*** | ***29.81*** | ***29.06*** | ***29.73*** | ***29.62*** | ***29.19*** | ***28.40*** | ***28.31*** | ***30.37*** | ***30.10*** |
| ***General Fuel Use*** | ***22.17*** | ***20.89*** | ***22.23*** | ***18.48*** | ***18.88*** | ***17.98*** | ***17.91*** | ***16.88*** | ***18.13*** | ***17.58*** | ***20.23*** | ***21.62*** |
| Natural Gas | 16.82 | 14.62 | 15.18 | 11.97 | 12.80 | 12.72 | 12.38 | 11.56 | 12.37 | 11.46 | 13.46 | 14.48 |
| Other Fuels | 5.35 | 6.27 | 7.05 | 6.51 | 6.09 | 5.26 | 5.53 | 5.31 | 5.76 | 6.13 | 6.77 | 7.14 |
| ***Oil & Gas Extraction [2]*** | ***18.56*** | ***18.91*** | ***17.50*** | ***20.05*** | ***20.24*** | ***18.93*** | ***16.78*** | ***16.84*** | ***18.06*** | ***16.96*** | ***16.02*** | ***16.07*** |
| Fuel Use | 17.53 | 17.76 | 16.51 | 19.03 | 19.20 | 17.90 | 15.75 | 15.78 | 17.02 | 15.92 | 15.00 | 14.91 |
| Fugitive Emissions | 1.04 | 1.15 | 0.99 | 1.02 | 1.04 | 1.02 | 1.03 | 1.05 | 1.04 | 1.04 | 1.02 | 1.17 |
| ***Cement Plants*** | ***9.40*** | ***9.51*** | ***9.61*** | ***9.71*** | ***9.81*** | ***9.91*** | ***9.74*** | ***9.14*** | ***8.63*** | ***5.72*** | ***5.56*** | ***6.14*** |
| Clinker Production | 5.43 | 5.52 | 5.60 | 5.68 | 5.77 | 5.85 | 5.80 | 5.55 | 5.28 | 3.60 | 3.46 | 4.08 |
| Fuel Use | 3.97 | 4.00 | 4.01 | 4.03 | 4.04 | 4.06 | 3.94 | 3.59 | 3.34 | 2.12 | 2.10 | 2.06 |
| ***Cogeneration Heat Output*** | ***11.72*** | ***10.48*** | ***10.65*** | ***10.59*** | ***12.92*** | ***12.41*** | ***12.16*** | ***11.15*** | ***10.40*** | ***10.27*** | ***12.49*** | ***12.59*** |
| ***Other Fugitive and Process Emissions*** | ***5.51*** | ***5.03*** | ***5.24*** | ***4.77*** | ***4.83*** | ***5.28*** | ***5.66*** | ***5.60*** | ***5.65*** | ***5.57*** | ***6.33*** | ***6.73*** |

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| | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Recycling and Waste** | **6.14** | **6.26** | **6.20** | **6.32** | **6.33** | **6.47** | **6.51** | **6.57** | **6.69** | **6.81** | **6.94** | **7.00** |
| ***Landfills [3]*** | ***6.02*** | ***6.12*** | ***6.06*** | ***6.16*** | ***6.15*** | ***6.29*** | ***6.31*** | ***6.35*** | ***6.46*** | ***6.56*** | ***6.68*** | ***6.73*** |
| ***Composting*** | ***0.12*** | ***0.13*** | ***0.15*** | ***0.16*** | ***0.17*** | ***0.19*** | ***0.20*** | ***0.22*** | ***0.23*** | ***0.25*** | ***0.26*** | ***0.27*** |
| **High GWP** | **7.11** | **7.12** | **7.25** | **7.87** | **8.53** | **9.25** | **9.86** | **10.50** | **11.48** | **12.45** | **14.15** | **15.17** |
| ***Ozone Depleting Substance (ODS) Substitutes*** | ***6.30*** | ***6.44*** | ***6.61*** | ***7.22*** | ***7.93*** | ***8.65*** | ***9.25*** | ***9.89*** | ***10.83*** | ***11.92*** | ***13.52*** | ***14.57*** |
| ***Electricity Grid SF6 Losses [4]*** | ***0.35*** | ***0.34*** | ***0.32*** | ***0.31*** | ***0.31*** | ***0.31*** | ***0.29*** | ***0.27*** | ***0.28*** | ***0.27*** | ***0.25*** | ***0.25*** |
| ***Semiconductor Manufacturing [3]*** | ***0.46*** | ***0.33*** | ***0.32*** | ***0.34*** | ***0.30*** | ***0.29*** | ***0.32*** | ***0.33*** | ***0.37*** | ***0.26*** | ***0.37*** | ***0.35*** |
| **Agriculture** | **29.04** | **29.23** | **32.39** | **32.84** | **32.57** | **32.81** | **33.95** | **32.94** | **33.88** | **31.69** | **31.68** | **32.24** |
| ***Livestock*** | ***16.49*** | ***17.16*** | ***17.69*** | ***18.18*** | ***17.68*** | ***18.32*** | ***18.68*** | ***19.92*** | ***20.22*** | ***20.05*** | ***19.60*** | ***19.62*** |
| Enteric Fermentation (Digestive Process) | 8.32 | 8.48 | 8.72 | 8.84 | 8.76 | 9.05 | 9.14 | 9.70 | 9.67 | 9.52 | 9.36 | 9.34 |
| Manure Management | 8.17 | 8.68 | 8.96 | 9.33 | 8.92 | 9.27 | 9.54 | 10.22 | 10.55 | 10.53 | 10.24 | 10.28 |
| ***Crop Growing & Harvesting*** | ***8.73*** | ***8.24*** | ***10.31*** | ***10.29*** | ***10.37*** | ***9.86*** | ***9.95*** | ***9.22*** | ***9.74*** | ***9.00*** | ***9.27*** | ***8.96*** |
| Fertilizers | 7.29 | 7.00 | 8.91 | 8.91 | 8.84 | 8.42 | 8.33 | 7.79 | 8.36 | 7.61 | 7.89 | 7.54 |
| Soil Preparation and Disturbances | 1.36 | 1.18 | 1.34 | 1.31 | 1.47 | 1.37 | 1.55 | 1.36 | 1.31 | 1.31 | 1.31 | 1.34 |
| Crop Residue Burning | 0.08 | 0.06 | 0.06 | 0.06 | 0.06 | 0.07 | 0.06 | 0.07 | 0.07 | 0.07 | 0.07 | 0.08 |
| ***General Fuel Use*** | ***3.82*** | ***3.83*** | ***4.39*** | ***4.37*** | ***4.52*** | ***4.63*** | ***5.33*** | ***3.80*** | ***3.92*** | ***2.65*** | ***2.81*** | ***3.66*** |
| Diesel | 2.52 | 2.69 | 3.04 | 3.11 | 3.17 | 3.41 | 3.87 | 2.68 | 3.00 | 1.78 | 1.99 | 2.37 |
| Natural Gas | 0.98 | 0.75 | 0.94 | 0.85 | 0.82 | 0.70 | 0.88 | 0.79 | 0.75 | 0.69 | 0.65 | 0.66 |
| Gasoline | 0.31 | 0.38 | 0.41 | 0.41 | 0.52 | 0.52 | 0.57 | 0.32 | 0.17 | 0.17 | 0.17 | 0.63 |
| Other Fuels | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| ***Total Emissions*** | ***462.90*** | ***478.36*** | ***475.82*** | ***479.08*** | ***489.18*** | ***482.09*** | ***479.18*** | ***485.54*** | ***483.22*** | ***454.69*** | ***449.59*** | ***448.11*** |

[1] Includes equipment used in construction, mining, oil drilling, industrial and airport ground operations
[2] Reflects emissions from combustion of natural gas, diesel, and lease fuel plus fugitive emissions
[3] These categories are listed in the Industrial sector of ARB's GHG Emission Inventory sectors
[4] This category is listed in the Electric Power sector of ARB's GHG Emission Inventory sectors

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