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# Acronyms Used Throughout Document

| | |
|---|---|
| AB | Assembly Bill |
| BART | Bay Area Rapid Transit |
| BEST | Benicia Energy Solutions for Tomorrow |
| BRT | Bus rapid transit |
| CARB | California Air Resources Board |
| CCA | Community Choice Aggregation |
| CCAP | Center for Clean Air Policy |
| CEC | California Energy Commission |
| CCP | Cities for Climate Protection |
| CFL | Compact fluorescent light |
| $CH_4$ | Methane |
| CNG | Compressed natural gas |
| CO | Carbon monoxide |
| $CO_2$ | Carbon dioxide |
| $CO_2$EMT | Carbon dioxide equivalent in metric tons |
| CPUC | California Public Utilities Commission |
| EPA | U.S. Environmental Protection Agency |
| GHG | Greenhouse gas |
| HFC | Hydrofluorocarbons |
| HVAC | Heating, ventilating, and air conditioning |
| ICLEI | International Council of Local Environmental Initiatives, renamed to "ICLEI – Local Governments for Sustainability" |
| ICS | Irrigation control system |
| IPCC | Intergovernmental Panel on Climate Change |
| LED | Light-emitting diode |
| LEED | Leadership in Energy and Environmental Design |
| LGSEC | Local Government Sustainable Energy Coalition |
| LID | Low impact development |
| $N_20$ | Nitrous oxide |
| $O_3$ | Ozone |
| PCB | Polychlorinated biphenyls |
| PG&E | Pacific Gas & Electric |
| PM | Particulate matter |
| PPM | Parts per million |
| RECs | Renewable energy certificates |
| SGIP | Self Generation Incentive Program |
| SB | Senate Bill |
| TDM | Transportation demand management |
| TOD | Transit oriented development |
| UNFCCC | United Nations Framework Convention on Climate Change |
| USGBC | U.S. Green Building Council |
| VIP | Valero Improvement Program |
| VMT | Vehicle miles traveled |
| VTA | Santa Clara Valley Transportation Authority |

*Global Warming Potential and $CO_2$EMT*

Various types of GHGs absorb different amounts of heat; therefore, a common reference gas, CO2, is used to relate the amount of heat absorbed with the amount of gas emitted, commonly referred to as "CO2 equivalent," or, CO2E. CO2E is calculated by multiplying the amount of GHGs emitted by its global warming potential. For example, carbon dioxide has a global warming potential of one. By contrast, methane (CH4) has a global warming potential of 21, meaning its global warming effect is 21 times greater than carbon dioxide on a molecule per molecule basis. A graphic depiction is located on page iv. In this report CO2 equivalent is measured in metric tonnes (CO2EMT).

# What is a Carbon Dioxide Equivalent Metric Tonne?

Carbon Dioxide Equivalency is a conversion method used to express the global warming potential (GWP) of multiple greenhouse gases using a consistent unit of measurement, carbon dioxide equivalent metric tonnes (CO2EMT). The measurement is expressed in terms of the amount of carbon dioxide (CO2) that would have the same GWP as the mixture. For example, methane is twenty-five times more potent than carbon dioxide, giving it a GWP of 25, expressed as 25 CO2EMT.

## $CO_2$- Carbon Dioxide

Since CO2 is used as the baseline measurement, it has a global warming potential (GWP) of 1. CO2 concentrations have increased by 36% since the industrial revolution.

## $NO_2$ - Nitrous oxide

Nitrous oxide has a global warming potential of 298. Nitrous oxide concentrations have increased 15% since the industrial revolution.

CO2EMT

## $CH_4$-Methane

Methane is a major greenhouse gas and has a global warming potential of 25. Since the industrial revolution, the abundance of methane in the Earth's atmosphere has increased from 700 parts per billion (ppb) to 1745 ppb.

## Other Gases

other

Other gases known as 'minor' gases are also included in CO2EMT. While they may be low in concentration, these 'minor' gases can still have a large impact on global warming. For example, the minor gas fluoroform, a byproduct of Teflon, has a GWP of 14,800.

| Greenhouse Gas | Formula | 1998 Level | Increase since 1750 | GWP | 1 tonne is equivalent to |
|---|---|---|---|---|---|
| Carbon Dioxide | $CO_2$ | 365ppm | 87ppm | 1 | 1 CO2EMT |
| Methane | $CH_4$ | 1,745ppb | 1,045ppb | 25 | 25 CO2EMT |
| Nitrous oxide | $CH_4$ | 314ppb | 44ppb | 298 | 298 CO2EMT |
| Carbon tetrafluoride | $CF_4$ | 80ppt | 40ppt | 6,500 | 6,500 CO2EMT |
| Hexafluoroethane | $C_2F_6$ | 3 ppt | 3ppt | 9,200 | 9,200 CO2EMT |
| Sulfur hexafluoride | $SF_6$ | 4.2ppt | 4.2ppt | 22,800 | 22,800 CO2EMT |
| Fluoroform | $CHF_4$ | 14ppt | 14ppt | 14,800 | 14,800 CO2EMT |
| Tetrafluoroethane | $C_2H_2F_4$ | 7.5ppt | 7.5ppt | 1,430 | 1,430 CO2EMT |
| Difluoroethane | $C_2H_4F_2$ | 0.5ppt | 0.5ppt | 120 | 120 CO2EMT |

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