

Glossary of Terms and Acronyms

Baseline: The baseline serves as a reference point to assess changes in greenhouse gas emission from year to year.

Business-as-Usual: A scenario used for the projection of greenhouse gas emissions at a future date based on current technologies and regulatory requirements in absence of other reductions.

Carbon Dioxide (CO₂): A naturally occurring gas, and also a by-product of burning fossil fuels and biomass, as well as land-use changes and other industrial processes. It is the principal anthropogenic greenhouse gas that affects the Earth's radiative balance. It is the reference gas against which other greenhouse gases are measured and therefore has a Global Warming Potential of 1.

Carbon Dioxide Equivalent (CO₂E): This is a common unit for combining emissions of greenhouse gases with different levels of impact on climate change. It is a measure of the impact that each gas has on climate change and is expressed in terms of the potency of carbon dioxide. For carbon dioxide itself, emissions in tons of CO₂ and tons of CO₂E are the same, whereas for nitrous oxide and methane, stronger greenhouse gases, one ton of emissions is equal to 310 tons and 21 tons of CO₂E respectively.

Chlorofluorocarbons (CFCs): A family of inert, nontoxic, and easily liquefied chemicals used in refrigeration, air conditioning, packaging, insulation, or as solvents and aerosol propellants. Because CFCs are not destroyed in the lower atmosphere, they drift into the upper atmosphere, where their chlorine components destroy ozone.

Climate: Climate in a narrow sense is usually defined as the "average weather," or more rigorously, as the statistical description in terms of the mean and variability of relevant quantities over a period of time ranging from months to thousands of years. The classical period is three decades, as defined by the World Meteorological Organization. These quantities are most often surface variables such as temperature, precipitation, and wind. Climate in a wider sense is the state, including a statistical description, of the climate system.

Climate Action Plan: A description of the measures and actions that a local government will take to reduce greenhouse gas emissions and achieve an emissions reduction target. Most plans include a description of existing and future year emissions; a reduction target; a set of measures, including performance standards that will collectively achieve the target; and a mechanism to monitor the plan and require amendment if its not achieving specified levels. Interchangeable with Greenhouse Gas Reduction Plan.

Climate Change: Climate change refers to any significant change in measures of climate (such as temperature, precipitation, or wind) lasting for an extended period (decades or longer). Climate change results from: natural factors, such as changes in the sun's intensity or slow changes in the Earth's orbit around the sun; natural processes within the climate system (e.g. changes in

ocean circulation); human activities that change the atmosphere's composition (e.g. through burning fossil fuels) and the land surface (e.g. deforestation, reforestation, urbanization, desertification, etc.).

Co-Benefit: The benefits of policies that are implemented for various reasons at the same time – including climate change mitigation – acknowledging that most policies designed to address greenhouse gas mitigation also have other, often at least equally important, rationales (e.g., related to objectives of development, sustainability, and equity). The term co-impact is also used in a more generic sense to cover both the positive and negative side of the benefits.

Corporate Average Fuel Economy (CAFE): The CAFE standards were originally established by Congress for new automobiles, and later for light trucks, in Title V of the Motor Vehicle Information and Cost Savings Act with subsequent amendments. Under CAFE, automobile manufacturers are required by law to produce vehicle fleets with a composite sales-weighted fuel efficiency, which cannot be lower than the CAFE standards in a given year. Standardized tests are used to rate the fuel economy of new vehicles.

Emissions: The release of a substance (usually a gas when referring to the subject of climate change) into the atmosphere.

Emissions Factor: A set of coefficients used to convert data provided on energy use and energy use reductions to emissions. These emission factors are the ratio of emissions of a particular pollutant (e.g., carbon dioxide) to the quantity of the fuel used (e.g., kilograms of coal). For example, when burned, 1 ton of coal = 2.071 tons of CO₂.

Forecast Year: Any future year in which predictions are made about emissions levels based on growth multipliers applied to the base year.

Global Warming: Global warming is an average increase in the temperature of the atmosphere near the Earth's surface and in the troposphere, which can contribute to changes in global climate patterns. Global warming can occur from a variety of causes, both natural and human induced. In common usage, "global warming" often refers to the warming that can occur as a result of increased emissions of greenhouse gases.

Greenhouse Effect: Trapping and build-up of heat in the atmosphere (troposphere) near the Earth's surface. Some of the heat flowing back toward space from the Earth's surface is absorbed by water vapor, carbon dioxide, ozone, and several other gases in the atmosphere and then reradiated back toward the Earth's surface. If the atmospheric concentrations of these greenhouse gases rise, the average temperature of the lower atmosphere will gradually increase.

Greenhouse Gas: Any gas that absorbs infrared radiation in the atmosphere. Greenhouse gases include, but are not limited to, water vapor, carbon dioxide (CO₂), methane (CH₄), nitrous oxide

(N₂O), chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), ozone (O₃), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆).

Heating, Ventilation, and Air Conditioning (HVAC): Controls the ambient environment (temperature, humidity, air flow and air filtering) of a building and must be planned for and operated along with other data center components such as computing hardware, cabling, data storage, fire protection, physical security systems and power.

Hydrofluorocarbons (HFCs): Man-made compounds containing hydrogen, fluorine, and carbon, many of which have been developed as alternatives to ozone-depleting substances for industrial, commercial, and consumer products, that have a range of global warming potentials. HFCs do not have the potential to destroy stratospheric ozone, but they are still powerful greenhouse gases.

Intergovernmental Panel on Climate Change (IPCC): The IPCC was established jointly by the United Nations Environment Program and the World Meteorological Organization in 1988. The purpose of the IPCC is to assess information in the scientific and technical literature related to all significant components of the issue of climate change. The IPCC draws upon hundreds of the world's expert scientists as authors and thousands as expert reviewers. Leading experts on climate change and environmental, social, and economic sciences from some 60 nations have helped the IPCC to prepare periodic assessments of the scientific underpinnings for understanding global climate change and its consequences. With its capacity for reporting on climate change, its consequences, and the viability of adaptation and mitigation measures, the IPCC is also looked to as the official advisory body to the world's governments on the state of the science of the climate change issue. For example, the IPCC organized the development of internationally accepted methods for conducting national greenhouse gas emission inventories.

Methane (CH₄): A hydrocarbon that is a greenhouse gas with a global warming potential most recently estimated at 23 times that of carbon dioxide (CO₂). Methane is produced through anaerobic (without oxygen) decomposition of waste in landfills, animal digestion, decomposition of animal wastes, production and distribution of natural gas and petroleum, coal production, and incomplete fossil fuel combustion.

Measures: Any action taken to reduce emissions.

Metric Ton (MT): Common international measurement for the quantity of greenhouse gas emissions. A metric ton is equal to 2205 lbs. or 1.1 short tons.

Mixed-Use: In a suburban context, a project that has at least three of the following on- or off-site within a 1/4 mile radius: residential development, retail development, park, open space, or office. Mixed-use developments should encourage walking and other non-auto modes of transport from residential to office/commercial locations (and vice versa). The project should minimize the need for external trips by including services/facilities for day care, banking/ATM, restaurants, vehicle refueling, and shopping (CAPCOA, 2010).

Natural Gas: Underground deposits of gases consisting of 50 to 90 percent methane and small amounts of heavier gaseous hydrocarbon compounds such as propane and butane.

Perfluorocarbons (PFCs): Potent greenhouse gases that accumulate in the atmosphere and remain there for thousands of years. Aluminum production and semiconductor manufacture are the largest known man-made sources of perfluorocarbons.

Sector: A term used to describe emission inventory source categories for greenhouse gases based on broad economic sectors.

Target Year: The year by which the emissions reduction target should be achieved.

Transit Oriented Development: A moderate- to high-density development located within a 5- 10 minute walk (or roughly 1/4 mile) of a major transit stop, generally with a mix of residential, employment, and shopping opportunities. TOD encourages walking, bicycling, and transit use without excluding the automobile.

Vehicle-Miles Traveled (VMT): One vehicle traveling the distance of one mile. Total vehicle miles is the aggregate mileage traveled by all vehicles. VMT is a key measure of street and highway use. Reducing VMT is often a major objective in efforts to reduce vehicular congestion and achieve air quality goals.

Acronyms

AB - Assembly Bill

CACP - Clean Air and Climate Protection Software

CAP - Climate Action Plan

CAPPA - Climate and Air Pollution Planning Assistant

CARB - California Air Resources Board

CEC - California Energy Commission

CEQA - California Environmental Quality Act

CH₄ - Methane

CO₂ - Carbon dioxide

CO₂E - Carbon dioxide equivalent

EPA - U.S. Environmental Protection Agency

GHG - Greenhouse gas

HFC - Hydrofluorocarbons

HVAC - Heating, ventilating, and air conditioning

IPCC - Intergovernmental Panel on Climate Change

KWh - Kilowatt hours

LCFS - Low Carbon Fuel Standard

MMT - Million metric tons

N₂O - Nitrous oxide

PPM - Parts per million

SCAG - Southern California Association of Governments

SCAQMD - South Coast Air Quality Management District

SB - Senate Bill

TOD - Transit oriented development

UNFCCC - United Nations Framework Convention on Climate Change

USGBC - U.S. Green Building Council

VMT - Vehicle miles traveled

Global Warming Potential and CO₂E

The global warming potential of a greenhouse gas is the potential of a gas or aerosol to trap heat in the atmosphere. Because greenhouse gases absorb different amounts of heat, a common reference gas (CO₂) is used to relate the amount of heat absorbed to the amount of the gas emissions, referred to as "CO₂ equivalent," and is the amount of greenhouse gases emitted multiplied by its global warming potential. In this report CO₂ equivalent is measured in metric tons (CO₂E). 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.