

# Resource and Energy Action Plan

## Definitions and Acronyms

**Action Plans:** Steps that must be taken, or activities that must be performed well, for the REAP to succeed. Each action plan has four major elements: (1) Specific tasks: what will be done and by whom; (2) time horizon: when will it be done; (3) Resource allocation: potential funding sources; and (4) measurements: how success will be measured.

**Anthropogenic:** Produced by human activity

**B20:** Blends of biodiesel and conventional hydrocarbon-based diesel are products most commonly distributed for use in the retail diesel fuel marketplace. The "B" factor is used to state the amount of biodiesel in any fuel mix: fuel containing 20% biodiesel is labeled **B20**, while pure biodiesel is referred to as B100. Blends of 20 percent biodiesel with 80 percent petroleum diesel (B20) can generally be used in unmodified diesel engines. Biodiesel can also be used in its pure form (B100), but may require certain engine modifications to avoid maintenance and performance problems.

**Beanpole Initiative:** Creating pervasive wireless infrastructure that supports community-wide WiFi Networks in downtown areas and link areas within and between counties. The premise is to create regional smart communities in rural Colorado enabling improved commerce, economic diversity and competitiveness, and workforce development and sustainability.

**Biodiesel:** A non-petroleum-based diesel fuel.

**Baseline:** The measurement that will be used as the basis for comparing the GHG emissions that occurred in a specific year, such as 2005, to those that will be emitted in a future year.

**Biodegradable:** A 'biodegradable' product has the ability to break down, safely and relatively quickly by biological means into the raw materials of nature and disappear into the environment.

**Biofuel:** A solid, liquid or gaseous fuel produced from dry organic matter derived from relatively recently dead biological material, or combustible oils produced by plants and distinguished from fossil fuels, which are derived from long-dead biological material. Examples include heating with solid biofuels such as wood pellets, wood chips, and straw or using biodiesel in diesel engines.

**BMP:** Best Management Practices

**Carbon Dioxide (CO<sub>2</sub>):** A GHG produced through respiration and the decomposition of organic substances, such as burning fossils fuels or wood based fuels, which raise atmospheric carbon dioxide levels and contribute to the greenhouse effect.

**Carbon Dioxide Equivalents (CO<sub>2e</sub>):** Carbon dioxide equivalents provide a universal standard of measurement against which the impacts of releasing (or avoiding the release of) different greenhouse gases can be evaluated. Every greenhouse gas has a Global Warming Potential (GWP), or a measurement of the impact that particular gas has on 'radiative forcing'; that is, the

# Resource and Energy Action Plan

additional heat/energy which is retained in the Earth's ecosystem through the addition of this gas to the atmosphere.

The GWP of a given gas describes its effect on climate change relative to a similar amount of carbon dioxide and is divided into a three-part "time horizon" of twenty, one hundred, and five hundred years. CO<sub>2</sub> is used as the reference gas against which the other greenhouse gases are measured since it has the smallest GWP. As the base unit, carbon dioxide numeric is 1.0 across each time horizon. This allows the greenhouse gases regulated under the Kyoto Protocol to be converted to the common unit of CO<sub>2</sub> eq.

Global Warming potentials for the greenhouse gases regulated under the Kyoto Protocol under a 100 year timeframe are as follows (Source - US EPA):

- **Carbon dioxide** has a GWP of 1
- **Methane** has a GWP of 21
- **Nitrous oxide** has a GWP of 310
- **Halocarbons (HFC)** has a GWP of 140 to 11,700
- **Sulphur Hexafluoride** has a GWP of 23,90

This means that in 100 years, one metric ton of methane will have an effect on global warming that is 21 times greater than one metric ton of carbon dioxide, and so forth. No single number can accurately represent the GWP of a given gas, as certain gases remain in the atmosphere much longer than others. The uncertainty ranges for the fluorocarbon derivative indicates the continued uncertainty regarding their long term decomposition in the atmosphere as these are fairly newly 'designed' gases. Short-lived gases are less harmful in the long-term than they are in the short-term, which means that the carbon dioxide equivalency of a given gas can vary dramatically over time.

**Carbon Emissions:** Emissions to the atmosphere principally from the burning of fossil fuels and deforestation. Increased atmospheric concentrations of CO<sub>2</sub> and other greenhouse gases trap more of the earth's heat leading to the phenomenon known as global warming.

**Carbon Footprint:** A representation of the effect human activities have on the climate in terms of the total amount of greenhouse gases produced (measured in units of carbon dioxide).

**Carbon Offset:** A financial instrument representing a reduction in GHG emissions. One carbon offset represents the reduction of one metric ton of carbon dioxide, or its equivalent in other greenhouse gases. Offsets are typically generated from emissions-reducing projects, energy efficiency projects, the destruction of industrial pollutants or agricultural byproducts, destruction of landfill methane, or forestry projects. There are two primary markets for carbon offsets. In the larger compliance market, companies, governments, or other entities buy carbon offsets in order to comply with caps on the total amount of carbon dioxide they are allowed to emit. In the much smaller voluntary market, individuals, companies, or governments purchase carbon offsets to mitigate their own greenhouse gas emissions from transportation, electricity use, and other sources. For example, an individual might purchase carbon offsets to compensate for the greenhouse gas emissions caused by personal air travel.

# Resource and Energy Action Plan

**Carbon Sequestration:** Refers to the process by which atmospheric carbon is absorbed in to carbon sinks such as the oceans, forests and soil.

**Carbon Sink:** A carbon sink is a reservoir or condition that absorbs or 'sequesters' more carbon dioxide from the atmosphere than they release. Carbon sinks include forests, soils, peat, permafrost, ocean water and carbonate deposits in the deep ocean. Most of these carbon sinks are very large and very slow moving; human influence on these sinks is generally deemed fairly minimal, with the possible exception of soils and agriculture. Oil, coal and natural gas represent the final evolution of pre-historic carbon sinks that are now "fossilized" into mineral form. Carbon sinks can serve to partially offset greenhouse gas emissions.

**Carbon Tax:** A charge on fossil fuels (coal, oil, natural gas) based on their carbon content. When burned, the carbon in these fuels becomes carbon dioxide in the atmosphere, a significant greenhouse gas.

**CDPHE:** Colorado Department of Public Health and Environment

**CEC:** Community Energy Coordinators

**CEAP:** Climate and Energy Action Plan

**Chlorofluorocarbons (CFCs):** Stable, artificially created chemical compounds containing carbon, chlorine, fluorine and sometimes hydrogen. Chlorofluorocarbons, used primarily to facilitate cooling in refrigerators and air conditioners, have been found to deplete the stratospheric ozone layer which protects the earth and its inhabitants from excessive ultraviolet radiation.

**Climate and Energy Action Plan (CEAP):** The La Plata County CEAP—pronounced “keep”—document serves several purposes. The CEAP:

- Establishes the baseline GHG emissions data profile and forecast
- Serves as a roadmap to achieve the emission targets defined in section 3
- Provides a framework to compare and analyze alternative strategies and policies to reduce GHG emissions
- Facilitates review and decision-making by the county commissioners, city and town councils, businesses, and other organizations
- Establishes a foundation for future work as it will continuously evolve and be updated in response to new information, legislation, technological changes, opportunities, and public input.

**Climate Change:** The term “climate change” is sometimes used to refer to all forms of climatic inconsistency. The term is more often used to imply a significant change from one climatic condition to another. In some cases “climate change” has been used synonymously with the term “global warming.”

**COGCC:** Colorado Oil and Gas Conservation Commission

# *Resource and Energy Action Plan*

**Community Energy Coordinator:** The Governor's Energy Office (GEO), in promoting Colorado's New Energy Economy, is providing funds for Community Energy Coordinators (CECs) to develop and facilitate the implementation of regional energy efficiency and conservation strategies. The Four Corners Office for Resource Efficiency (4CORE) is Southwestern Colorado's CEC.

**Conservation:** Preserving and renewing, when possible, human and natural resources. Also, conservation is the use, protection and improvement of natural resources according to principles that will ensure their highest economic or social benefits.

**Conservation Resource Program:** The Conservation Reserve Program is a voluntary program for agricultural landowners to receive annual rental payments and cost-share assistance to establish long-term, resource conserving covers on eligible farmland.

**CRP :** Conservation Reserve Program

**EE:** Energy Efficiency

**Energy Efficiency:** The more efficient use of energy in order to reduce economic costs and environmental impacts; using less energy/electricity to perform the same function.

**Environmental Impact:** Any change to the environment whether adverse or beneficial, wholly or partially resulting from human activity, industry or natural disasters.

**EPA:** U.S. Environmental Protection Agency (EPA)

**ESCO:** Energy Services Company

**Evaporation:** The process by which water is converted from its liquid form to its vapor form and thus transferred from land and water masses to the atmosphere.

**Evapotranspiration:** A term describing the transport of water into the atmosphere from surfaces, including soil (soil evaporation), and from vegetation (transpiration). The process of evapotranspiration is one of the main consumers of solar energy at the Earth's surface.

**Fossil Fuels:** Fossil fuels are the remains of plant and animal life that are used to provide energy by combustion, coal, oil and natural gas.

**GEO:** Colorado Governor's Energy Office

**GHG:** Greenhouse Gases

**Global Warming:** A process that raises the air temperature in the lower atmosphere due to heat trapped by greenhouse gases, such as carbon dioxide, methane, nitrous oxide, CFCs and ozone. The term is applied to the warming predicted to occur as a result of those human activities that result in GHG emissions.

# Resource and Energy Action Plan

**Global Warming Potential (GWPs):** GWPs are used to convert emissions of non-CO<sub>2</sub> gases into their CO<sub>2</sub> warming equivalents (CO<sub>2</sub>E). The CO<sub>2</sub>E of a non-CO<sub>2</sub> gas is calculated by multiplying the mass of the emissions of the non-CO<sub>2</sub> gas by its GWP.

**Greenhouse Effect:** The warming of the earth's surface and lower atmosphere as a result of carbon dioxide and water vapor in the atmosphere which results in an increase in temperature.

**Greenhouse Gases:** Those gases present in the atmosphere that trap heat from the sun and warm the earth. The most important greenhouse gases are carbon dioxide, methane, nitrous oxide, chlorofluorocarbons and ozone.

**GWP:** Global Warming Potential (**see above**)

**HAPs:** Hazardous Air Pollutants

**IPCC:** Intergovernmental Panel on Climate Change

**Kyoto Protocol:** At the December 11, 1997 United Nations Conference on Climate Change held in Kyoto, Japan, an agreement was negotiated to achieve "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system." The Kyoto Protocol establishes legally binding commitments for the reduction of greenhouse gases produced by industrialized nations. Under Kyoto, industrialized countries agreed to reduce their collective GHG emissions by 5.2% compared to the year 1990.

**LPC:** La Plata County

**LPEA:** La Plata Electric Association

**Measure:** An action planned or taken as a means to an end; examples of GHG reduction measures include promoting bicycling and walking, converting a city fleet to hybrid or biofuel vehicles, increasing recycling, and maintaining healthy urban forests.

**Methane (CH<sub>4</sub>):** A colorless, odorless gas formed when organic matter anaerobically decomposes. Methane is about 20 times stronger than carbon dioxide as a greenhouse gas. Major sources include fermentation in ruminant animals, decay of organic material in landfill.

**Non-renewable resource:** A resource that is not replaced or only replaced very slowly by natural processes.

**NO<sub>x</sub>:** Nitrogen Oxides

**NSCR:** Non-Selective Catalytic Reduction

**RE:** Renewable Energy

# *Resource and Energy Action Plan*

**REAP:** Resource & Energy Action Plan

**RECs:** Renewable Energy Certificates

**Recycling:** Process by which materials that would otherwise become solid waste are collected and separated or processed and returned to the economic mainstream to be reused in the form of raw materials or finished goods.

**Renewable Energy Certificates (RECs):** Tradable environmental commodities which represent proof that one megawatt-hour (MWh) of electricity was renewable (generated from an eligible renewable energy resource). RECs can incentivize carbon-neutral renewable energy by providing a production subsidy to electricity generated from renewable sources. A green energy provider (such as a wind farm) is credited with one REC for every 1,000 kWh or 1 MWh of electricity it produces (for reference, an average residential customer consumes about 800 kWh in a month). A certifying agency gives each REC a unique identification number to make sure it doesn't get double-counted. The green energy is then fed into the electrical grid and the accompanying REC can then be sold on the open market.

**Renewable Resource:** A natural resource that can be replaced.

**Re-Use:** To find a new function for an item that has outgrown its original use or to use it again, saving waste.

**RICE:** Reciprocating Internal Combustion Engine

**SCADA:** supervisory control and data acquisition for public water treatment and distribution, oil and gas pipelines, electrical power transmission and distribution

**SCR:** Selective Catalytic Reduction

**Sink:** An environment capable of absorbing heat from an object with which it is in thermal contact without a phase change or an appreciable change in temperature.

**SIP:** Structural Interface Panels

**Sustainable:** Preserving the world's natural resources for future generations. A fully sustainable industry would be one that has zero impact or a positive impact on the environment.

**SWOT:** Strengths, Weaknesses, Opportunities, Threats

**TBD:** To Be Determined or Decided.

**Ton:** One metric ton is equal to 2,205 pounds or 1,000 kilograms, approximately the weight of a Miata. One Short tone is equal to 2000 pounds.

**VOCs:** Volatile Organic Compounds

# *Resource and Energy Action Plan*

**VRU:** Vapor Recovery Unit

**Waste-to-Energy:** Burning of industrial waste to provide steam, heat or electricity, sometimes referred to as waste-to-fuel process.

**Zero Waste-** The ability of an individual, business, municipality, or country to divert 90% or more of waste away from landfills or incinerators.