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Climate neutrality

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impacts, including receiving or providing financial and technological support to developing countries; and collaborate and cooperate to adapt to impacts. The UNFCCC secretariat provides support to the Conference of the Parties (COP), which includes the signatory governments, as well as to other institutions involved in climate-change processes. The COP meets every few years to review implementation of the convention, including adoption decisions and resolutions.

The Kyoto Protocol is an addition to the UNFCCC that was approved by a number of states in 1997 and entered into force in 2005. The Kyoto Protocol contains more powerful and legally binding measures than the UNFCCC, including targets for reduction of GHG emissions for 37 industrialized countries and the European community. The targets include a 5 percent reduction in GHG emissions against 1990 levels by 2012. The Kyoto Protocol places a heavier burden on developed nations because the current level of GHG emissions is mostly the result of 150 years of industrial activity by developing countries.

A number of countries as well as regions within countries have developed their own mitigation and adaptation policies. The European Union Emissions Trading Scheme is a multinational cap-and-trade emissions trading program in which a limit is placed on emissions and then countries can trade their shares. In the United States, some states have joined together in regional cap-and-trade programs, such as the eastern United States Regional Greenhouse Gas Initiative (RGGI).

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See Also: Carbon Footprint and Neutrality; Carbon Sequestration; Climate Neutrality; Global Warming; Greenhouse Gases; Heat Island Effect; Intergovernmental Panel on Climate Change; Regional Greenhouse Gas Initiative.

Climate Neutrality

Category: Environmentalism.

Summary: Climate neutral initiatives need to be implemented at both the individual and the organizational levels in order to protect the environment and mitigate climate change.

The first United Nations Conference on the Human Environment was held in June 1972 in Stockholm, Sweden. It called for protection of the environment and natural resources across the world. Since then, there has been much debate over the impact of human activities on the environment, particularly regarding the degradation of natural resources (forests, agriculture, and water) and exploration for fossil fuels. Notably, the inconsiderate use of fossil fuels for industries and transportation has caused greenhouse gas (GHG) emissions that, many scientists agree, have led to global warming as a result of excessive CO₂ and other GHGs in the atmosphere, which exacerbate the greenhouse effect. This warming is having a negative impact on human and other animal life, as well as causing a loss of valuable environmental resources.

The term *climate neutrality* refers to actions, commitments, and behaviors that do not result in GHG emissions that lead to global warming and diverse environmental hazards. Currently, human activities such as the use of home appliances, automobiles, and industrial technologies are resulting in different rates of GHG emission. The effort to achieve climate neutrality begins with taking stock of what we use and produce that is causing GHG

▷ *Carbon Offsetting*

Another strategy for becoming carbon neutral is to make use of carbon offsetting. Carbon offsetting involves balancing the GHG emissions from one source by reducing emissions from another source. High-GHG-emitting companies can use carbon offsetting, for example, by financing the planting of trees elsewhere. The offsets are measured in metric tons of carbon dioxide equivalent (CO₂e) but may involve the reduction of any of the six major GHGs: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), and sulfur hexafluoride (SF₆). This is also termed a carbon credit, which an organization or country can buy from a lower-emitting entity through financing for green activities. The concept is discussed in the United Nations Framework Convention on Climate Change (UNFCCC) and is working to some extent.

emissions. Taking such an inventory can be an effective tool for estimating the amount of GHGs we are emitting and devising strategies to neutralize the effects of climate change. For instance, through measuring electricity consumption in kilowatt-hours, the amount and type of fuel used to heat water and warm the house, and how many miles we drive, fly, or ride in different vehicles, we can become aware of our impact on the climate and then determine what changes in habits would be required to make our activities more climate neutral.

On the individual level, climate neutrality means changing behaviors that otherwise contribute to GHG emissions. For instance, in our homes we can use fluorescent lightbulbs, which emit less carbon; adopt solar panels to reduce overdependence on fossil-fuel-based electricity consumption; switch off our computers and televisions instead of leaving them in standby mode;

ride bicycles to avoid emissions from motor vehicles; and plant trees and other plants to absorb carbon dioxide.

On the business and corporate level, production of low-carbon-emitting goods and services is the goal. The low-carbon-emitting products will save the environment and can involve recycling products that otherwise would lead to additional manufacturing loads and the emission of new carbon into the global atmosphere. A climate neutral business program can consist of tracking, reducing, and offsetting business flights, which is usually the largest source of unavoidable emissions in a service-oriented business.

Climate neutral businesses can create a high level of customer satisfaction by advertising their environmentally friendly point of view and playing a role in environmental protection. Environmentally friendly business goods and services can increase profits through lower production costs and can boost sales by touting their environmentally friendly investments. However, climate neutral business solutions may require coaching and guidance in the design of innovative products.

Organizations can also play a vital role in advancing climate neutrality by participating virtually rather than physically in industry conferences and workshops. The virtual effort will save money and time and reduce carbon emissions globally by avoiding air travel. Different organizations are currently organizing online conferences and workshops as part of their effort to become climate neutral. The proper networking and merging of new climate neutral business ideas and their development are required. To some extent, business entities can fill their climate neutral roles through compliance with environmental protection laws and policies regarding manufacturing and by adhering to international standards (accredited by the International Standards Organization, ISO) for carbon neutral certification. Compliance with environmental laws will support a company's sustainability as well as reduce carbon dioxide and other GHG emissions.

Many countries and communities have pledged to become climate neutral. Some of them include

Costa Rica, Denmark, Iceland, Norway, the Maldives, New Zealand, and Iceland. These nations have started to use renewable sources of energy such as solar power, wind power, hydropower, and geothermal energy for producing electricity. New Zealand undertakes forest regeneration programs to offset the carbon emissions from its public sector.

Climate neutral actions are needed to reduce carbon and other GHG emissions into the atmosphere by means of offsetting or equivalent green initiatives. Moreover, developing climate neutral attitudes and behaviors will help save our environmental resources and promote sustainable global development.

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See Also: Carbon Footprint and Neutrality; Carbon Trading and Offsetting; Global Warming; Greenhouse Gases; Heat Island Effect.

Coal

Category: Energy Resources.

Summary: Coal has been one of the most widely used of the fossil fuels since the 19th century, driving industrial growth and modernization, although concerns about its environmental impacts slowed its growth in the 20th century.

Coal is a fossil fuel formed over centuries through the compaction and heating of decaying plant

materials in oxygen-poor environments. It is mined from the earth through either surface or subsurface methods. Coal has been one of the most widely used fossil fuels since the Industrial Revolution of the 19th century; the leading fuel for electricity generation, it currently accounts for close to 30 percent of the world’s primary energy production. Coal is used for heating, generating electricity, and industrial processes such as the manufacture of coke and steel.

Coal’s powering of the Industrial Revolution in Britain, Germany, and elsewhere led to its emergence as the driving force behind economic expansion well into the 20th century. Usage rates declined mid-century as a result of environmental concerns and the development of cleaner energy sources. However, coal usage rates have undergone a resurgence since the late 20th century because of the rising expense and energy security issues surrounding oil, the rising demand in developing countries such as China and India, and to a lesser degree the development of clean-coal technologies.

Coal formed when ancient plant materials accumulated in layers over the centuries in environments such as swamps, where they failed to decay completely due to lack of oxygen. Anaerobic bacteria, which survive without oxygen, converted the plant materials into simpler forms such as minerals including carbon. Centuries of heat and pressure converted this decaying organic material into the combustible, rock-like substance known as coal, which is mainly carbon. Scientists believe that most of the earth’s coal was formed during the Carboniferous period, approximately 300 million years ago, with other large deposits forming during the Upper Cretaceous period, approximately 100 million years ago.

The dead vegetative material first forms into peat, which is soft and wood-like. Peat itself is burned as a fuel source, but its poor burning capacity and smoky output have limited its use, especially in modern times. If peat remains in the ground, layers of sediment gradually build on top of the peat, resulting in additional heat and pressure. This process slowly converts the peat into coal. Coal is most often found in lengthy horizontal layers of varying