



Climate Change 101



INSTITUTE FOR 21ST CENTURY ENERGY | U.S. CHAMBER OF COMMERCE

Climate change has been receiving a lot of attention in Washington lately. Policymakers have proposed various approaches to address this issue, but since it is so complicated, it can be difficult to understand what is really being considered. To help make it a little easier, the U.S. Chamber's Institute for 21st Century Energy has prepared this "cheat sheet" that defines the terms you will hear as the debate unfolds and answers some basic questions.

FREQUENTLY USED TERMS:

Greenhouse Gas Emissions: Greenhouse gases trap heat in the atmosphere. Some greenhouse gases, like water vapor, are emitted naturally, while others are emitted through human activities. The greenhouse gas that is the primary focus of debate is carbon dioxide (CO₂), which is emitted both by humans—primarily by the burning of fossil fuels-- and by natural occurrences. Other greenhouse gases include methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride.

Clean Energy: Clean energy is generally defined as a source of energy that emits smaller amounts of greenhouse gas emissions than traditional sources of energy. The federal government provides incentives for technologies that avoid, reduce, or sequester air pollutants or greenhouse gases. Among the eligible technologies are: renewable energy systems (such as wind and solar energy, biomass, geothermal and hydropower), biofuels, waste-to-energy, hydrogen fuel cell technology, nuclear energy, and carbon capture and sequestration technologies.

Cap and Trade: Cap and trade refers to a regulatory system that limits emissions of a pollutant (the "cap" part) and creates a market-based swapping system (the "trade" part). While a cap and trade system could be used to regulate any pollutant, the current focus is on CO₂ and other greenhouse gases.

Allocations: Under a cap and trade program, the government would issue a fixed number of allowances equal to the amount of CO₂ emissions allowed by the government for a particular year. These emission allowances, known also as carbon credits, are then distributed, or "allocated," to regulated facilities, whose emissions are restricted to the number of carbon credits it receives and/or purchases.

Massachusetts vs. EPA: Supreme Court decision that held that the Environmental Protection Agency (EPA) has the authority to regulate CO₂ under the Clean Air Act from new automobile tailpipes if the agency finds that CO₂ emissions endanger public health or welfare. However, the Court did not require EPA to regulate.

Endangerment Finding: A formal finding issued by the EPA that states that CO₂ poses a threat to public health and welfare. Issuing an endangerment finding would allow the government to regulate CO₂, which could impact virtually every segment of the American economy and could be used to block construction of all types of projects, including those that were funded in the stimulus.

Endangered Species Act: The Endangered Species Act was designed to protect critically important species from extinction. It became a factor in the climate change debate when the polar bear was listed as threatened. The declaration was made because polar bears use sea ice to hunt seals, and climate models predict that summer sea ice is disappearing. Earlier this year, the Obama Administration reinstated a rule directing U.S. agencies to consult relevant offices on whether certain projects might harm endangered species, providing a layer of review that could slow down their progress.

Waxman-Markey Bill: Draft cap and trade legislation authored by Representatives Henry Waxman (D-Calif.) and Ed Markey (D-Mass.) that would mandate a reduction in greenhouse gas emissions of 20 percent below 2005 levels by 2020 and 83 percent below 2005 levels by 2050. The draft bill does not have language detailing how the carbon credits would be allocated, which is among the thorniest of the issues. The legislation also would mandate renewable electricity production, emissions standards for vehicles, and new lighting and appliance standards. Among the other features of the bill are a rebate system to manufacturers impacted by higher energy costs and a citizen suit provision that would allow citizens to sue the government if they reasonably expect to suffer harm from climate change.



FREQUENTLY ASKED QUESTIONS:

How would a cap and trade system work?

Cap and trade seeks to reduce CO₂ emissions by putting a price on carbon. If an industrial facility emits a level of CO₂ over the government's allowance, that facility would have to either reduce emissions, purchase credits in a newly-formed carbon market, or both. Each credit generally refers to 1 metric ton of CO₂. Facilities that can reduce emissions cheaply will do so and sell their excess credits on the market.

Would cap and trade lead to higher energy costs?

Experts say that a cap and trade proposal would only be effective if the price of carbon rises over time. Traditional fossil fuel sources like coal, which currently provides 50 percent of America's electricity, will exceed carbon allowances and thus would need credits. It is likely that the cost of purchasing credits will be passed on to consumers. While the exact amount of price increases will depend on the specifics of the proposals, the EPA has estimated that a previous version of cap and trade would increase electricity prices by 44 percent by 2030, and reduce the overall U.S. gross domestic product by up to \$983 billion during the same period.

How much would carbon emissions have to be reduced?

President Obama has proposed reducing carbon emissions by 14 percent below 2005 levels by 2020, and by 83 percent below 2005 levels by 2050. In order to meet the 2020 goal, the U.S. will need to reduce emissions by 1 gigaton (1 billion metric tons) between 2012 and 2020. For example, to meet this goal, America would need to displace an equivalent amount of coal with: 130 average-sized nuclear power plants, or 127,500 large wind turbines, or 1.7 million acres of solar energy panels.

Have other countries tried to regulate carbon emissions through cap and trade?

Yes. The European Union launched the Emissions Trading Scheme (ETS) in 2005. The ETS is a cap and trade program for Europe's power and industrial sectors, which roughly account for about 45 percent of all emissions. The ETS was implemented to help Europe meet its obligations under the Kyoto Protocol. However, analysts say that Europe is not on track to meet its Kyoto obligations, due to overly-generous allocations and price volatility in the carbon market.

What other options exist to reduce greenhouse gas emissions?

Reducing greenhouse gas emissions can occur through a variety of ways. Deploying clean energy technologies, such as nuclear, solar, and wind energy will reduce emissions and increase energy supply. Expanding the use of these technologies would not require a mandate, but could be achieved through government incentives to the private sector. Some also advocate for a "carbon tax," which would be a direct tax on sources of carbon emissions like power plants and vehicles. A carbon tax is sometimes mentioned as a more straightforward alternative to cap and trade.

What would happen if the cap on carbon is too stringent?

The price of energy and nearly all consumer goods would skyrocket. Companies could decide to move to a different country that does not regulate carbon dioxide emissions. For instance, if the U.S. were to regulate carbon emissions, an American company may decide to shut down its domestic operations and instead relocate to a country like China or India that does not regulate emissions. So-called "carbon leakage" could undermine the effectiveness of cap and trade because it would harm the U.S. economy by sending jobs overseas and would fail to reduce global emissions, thereby mitigating any environmental benefits to the program.



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