

What Is A Cap-And-Trade System?

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A Carbon Cap-and-Trade system is a situation in which the government places a firm limit or cap on the whole level of carbon pollution from factories and lowers that cap annually to attain a set pollution objective. As the cap/limit decreases every year, it lowers plant's overall greenhouse gas emissions to the set limit as required by the law, and then compels polluters, which exceed their emissions allocation to purchase unused share from other firms. Therefore, it is the responsibility of the government to create and distribute the pollution quotas, in most cases through auction. Hence, this creates incentives for companies to reduce their emissions and be capable of selling instead of buying pollution quotas. The market, therefore, is expected to set all the prices of the quotas under this system (Qiu, Qiao, & Pardalos, 2017). Thus, in this manner, the emission cap makes sure that the amount of pollution is reduced, and the firms are provided with economic incentives in order to find alternative methods of reducing the harmful gases emitted from the greenhouses and support the use and production of clean energy.

Cap-And-Trade In Action

The cap-and-trade method has been applied successfully in the United States to limit the emissions of nitrous oxide as well as sulphur dioxide, the two main ingredients accountable for acid rain. Ever since the 1980s, the system of cap-and-trade has been applied to reduce acid rain formation, leading to a healthier environment. On the other hand, the European Union started applying the system of cap-and-trade in 2005 in order to limit the greenhouse gases that are emitted from approximately 10,000 large organizational emitters. Tokyo established a cap-and-trade system in 2010. Its 2020 target is historical; the metropolitan government's current policy targets a 50% reduction in greenhouse-gas emissions from 2000 levels by 2030, with the fourth compliance period beginning in 2025.

Carbon Tax Or Cap-And-Trade

Over the years, there have been various discussions surrounding the issue of whether the carbon tax or, rather, the system of cap-and-trade is the most effective method of putting the price on the gas pollution emitted by the greenhouse. This depends on how every system is formulated or designed. Moreover, the design is helpful in determining the environmental and economic effectiveness of the system. For instance, how effective is the use of incentives to limit emissions as well as for the companies to switch to cleaner energy, to what extent does the emission department the system apply, and how is the revenue collected from the firms used to sustain the cleaner energy? If all the systems are designed effectively, the two options, the carbon tax and cap-and-trade system, are alike and can be applied in tandem. Rabe (2016) believes that pricing should be used broadly in most

industrialized countries and that it might be done through a cap-and-trade system, carbon tax or a blend of the two systems. It is, however, important to note that the pricing on carbon pollution gives an incentive for every person, ranging from the firms to the households, to be a part of the larger solution. Eventually, the vital factor in limiting heat-trapping emissions is the strength of the financial signal. The higher price of carbon will ensure the start of growth in renewable, clean energy and encourage the use of greener practices both in firms and industries.

Pros And Cons

Both the two systems of pricing, cap-and-trade as well as carbon taxes, can work effectively as long as they are properly designed to give a stronger financial signal in order to switch to cleaner energy. Nevertheless, there are some differences between the two systems. On the one hand, cap-and-trade has one main environmental benefit over the carbon tax in that it gives more certainty concerning the amount of the emissions limitations which will result, as well as the little certainty concerning the price of the emissions that is stipulated by the emission trading market. On the other hand, the carbon tax gives certainty concerning the price but provides little certainty concerning the total amount of the emissions limitations. Similarly, a carbon tax has an advantage over the cap-and-trade in that it is quicker and easier for the government to implement than the cap-and-trade system.

Further, a carbon tax tends to be very simple to apply since it can depend on the existing structures of the administration for taxing fuels and, hence, can be effectively implemented within a few months. Moreover, in theory, the same tactic applies to the system of cap-and-trade; however, in practice, they are much more complex (Rabe, 2016). The two systems require more time to develop the essential regulations, and they are deemed to be more prone to loopholes as well as lobbying. Further, cap-and-trade also needs the establishment of a trading market for emissions. Besides, under the two systems, the price of pollution formulates the strength of the financial signal and determines the exact level to which green choices are encouraged.

Key Design Elements In A Carbon Cap-And-Trade

In the carbon cap-and-trade system, the government is responsible for setting an emissions cap and giving an amount of emission allowances equal to that cap. Therefore, emitters are expected to hold allowances for each mass of greenhouse gases they emit. Firms may purchase and sell allowances; this market regulates the price of emissions. Consequently, firms that have the ability to substantially reduce their emissions at a lesser cost can sell excess allowances for firms facing greater costs to buy. More importantly, beyond these fundamentals, policymakers should take into consideration an array of design choices, which may influence the fee of compliance as well as the distribution of these charges in society.

Complementary policies are integral in Carbon Cap-and-Trade since they determine whether the cap-

and-trade will become the main policy instrument for lowering emissions or whether it needs other policies, which will also assist in achieving the climate goals. The complementary policies influence the carbon cost as well as the pace of drop in emissions (He, Zhang, Xu, & Bian, 2015). Notably, computer modelling plus other analytical methods may offer guidance to policymakers concerning the costs as well as results of various sets of climate acts.

Scope is another element of the cap and trade system. It determines the kind of sources of emissions as well as the sort of greenhouse gases that will be enclosed by the cap. For instance, RGGI covers CO₂ emissions from industries, whereas California covers numerous greenhouse gases from factories, industrial facilities, transportation, and buildings. For easy administration, policies tend to comprise merely the major sources of greenhouse gases within the economy. Similarly, the target as a tenet of the cap and trade system determines the level of emissions decrease that will be required and by what time it will be achieved. California's 2020 limit—equal to 1990 emissions—has passed. State law now requires greenhouse-gas emissions to be 40% below 1990 levels by 2030.

Allowance allocation is an element that determines how allowances will be distributed. In this sense, governments may auction allowances and freely offer them away to the covered facilities. It is important to allocate certain allowances freely to prevent emissions. Moreover, auctioning generates income that may be used for preserving the environment. Cap and trade system may also be facilitated through banking/borrowing. It determines whether facilities can save additional allowances for use within later years or rather borrow allowances from an upcoming year. As a matter of fact, both banking and borrowing assist in avoiding cost spikes. Additionally, banking offers a financial incentive to keep lowering emissions beyond what is required. Nonetheless, borrowing may create supply limitations in future years.

On the other hand, compliance periods determine the duration in which the facilities are expected to surrender allowances annually. Indeed, a multi-year compliance duration may reduce cost volatility. Also, offsets establish whether firms can use verified emissions discounts made outside the cap to comply. Indeed, offsets may help in lowering the overall prices of attaining the cap. For example, agricultural and forestry projects may often lower emissions at a reduced cost compared to industrial facilities. To remain effective, offset plans should undergo rigorous confirmation procedures to make sure that emissions are reduced and only a single entity earns the acknowledgement for the offset. Lastly, market integrity, as an element of cap and trade, determines how market manipulation will be avoided. A secure, safe and transparent registry may be used to track transactions and stop theft and double counting of allowances. Additionally, most authorities choose independent specialists to review contract information and monitor for fraud.

How Carbon Pricing Works

There are two major ways to put a cost on carbon: Under a cap-and-trade system, policies or rather regulations have the capacity to limit or cap carbon emissions from specific segments of the economy

or even the entire economy and give allowances, which permit emissions, to match the limit set. For instance, if the limit is 10,000 tons of carbon dioxide, then 10,000 one-ton grants will be awarded. A reduction in emissions limit would assist in reducing emissions over time. Therefore, every source of emissions is subject to the limit and is expected to hold allowances equivalent to their emissions. The operators of the power plant may obtain their allowances through an auction or allocation. Once these facilities have allowances, then they would be allowed to trade or rather sell allowances freely to other authorized market participants. Since the allowances are “capped” and thus valuable, the companies that are subjected to the cap will then try to lower their emissions to reduce certain allowances they need to buy.

The subsequent communication of the allowances between demand and supply in the marketplace determines the cost of an allowance, the carbon price. What is more, with a carbon tax, policies or regulations are passed which put in place a fee on each ton of emitted carbon from a segment or even the entire economy (Purohit, Shankar, Dey, & Choudhary, 2016). The firm owners are subject to a tax and are expected to pay levies, which are equivalent to the tons of their total carbon emissions. Notably, those who can reduce carbon emissions cost-effectively would be able to cut their tax payments. Equally, those subject to the levy would be able to have an incentive to reduce their emission by moving to cleaner energy and using energy more proficiently. Resultantly, a rising carbon levy would assist in ensuring a reduction in emissions for a certain period of time.

However, hybrid programs are needed to limit carbon emissions. One of the hybrid approaches includes adjusting the levy to make sure specific emission cut goals are attained. Another hybrid technique would be when an authority applies a carbon cap-and-trade system for certain segments and executes a carbon levy on others. Carbon pricing schemes may also work in a way that corresponds with other energy efficiency strategies like renewable electricity and electric fuel budget rules. From an economic viewpoint, the carbon tax, as well as a cap-and-trade system, operates in an equivalent manner: one gives the cost of emissions that then controls the level of carbon emissions, while the other gives the level of carbon emissions that determines a cost for the emissions. The level of the cap and its rate of growth or decline over time pushes the level to which carbon emissions are cut. All these approaches have the capacity to deliver on the major objectives of a vigorous carbon pricing policy, which is to assist in reducing emissions economically in line with various energy goals.

Economic Benefits Of Cap And Trade

Carbon cap-and-trade policy with auctioned payments may generate substantial revenues. The application of these incomes has significant implications for distributional fairness as well as economic growth. The potential application of carbon income includes offsetting the unequal influences of higher energy costs for low-income households. It also helps provide transition assistance to employees as well as communities that depend on coal for a living (Purohit, Shankar, Dey, & Choudhary, 2016).

A good policy design needs to address possible equity implications. Thus, these equity concerns comprise the regressive influence of potential energy cost upsurges on low-income families and the prospective for carbon tax policies to enable certain fossil fuel-fired factories or rather refineries to remain in operation. Notably, most industrialized nations have used carbon levies to depress fossil fuel emissions while promoting clean energy.

Conclusion

In summary, cap and trade is a technique that harnesses marketplace forces in order to reduce carbon emissions cost-effectively. Just like other market-based programs, it varies from “command-and-control” methods in which the government sets presentation standards or even dictates technology selections for separate facilities. Cap and trade enables the marketplace to determine a cost on carbon; and that cost drives investment choices and encourages market innovation. Cap and trade vary from a levy in the sense that it offers a high level of inevitability about future carbon emissions, although not about the cost of those carbon emissions. A cap can be a desirable policy when an authority has a stated emissions target.

References

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Appendices

Cap-and-trade and carbon tax pricing programs can both help economies move away from carbon-intensive forms of energy.