3.4: Carbon Finance

In general, **carbon finance** refers to applying a financial management system, models, and tools to manage a company's carbon dioxide and other greenhouse gas (GHG) emissions. Companies currently voluntarily attempt to reduce carbon dioxide and GHG emissions (air pollution associated with climate change), yet many believe regulations will soon emerge in this area, thus, the field of carbon finance is poised for growth. Carbon finance encompasses various topics, such as cap-and-trade, carbon emissions trading, carbon tax, renewable energy certificates, and more.

Cap-and-Trade and Emissions Trading

A **cap-and-trade system** is an attempt to set a limit (a cap) on the amount of allowable carbon emissions from an industry, a geographic region, or a country. Companies are issued carbon permits for their share of allowable emissions. A company's goal would be to reduce emissions so as not to exceed its permits. Companies with fewer emissions than its permits can make money by selling their excess permits or carbon credits to another company; conversely, companies with more emissions than their permits allow must purchase additional permits. This gives rise to carbon trading, the buying and selling of company rights to emit carbon dioxide into the air. **Carbon trading** is a market-based mechanism to allocate carbon emissions allowances within the emissions trading system. It is speculated that the rise of a cap-and-trade system could also give rise to the creation of an economically viable carbon capture and storage industry. Carbon capture and storage involves removing carbon dioxide from fossil fuels before or after they are burned for energy. There are already a number of cap-and-trade systems in place that provide the mechanism for emissions trading markets (see Chapter 2).

Carbon Tax

Levying a carbon pollution tax, or carbon tax, is one of the many options to lower carbon emissions. The tax is enacted upon the amount of carbon emissions and is reflective of the societal costs of carbon pollution. In a carbon tax, the government translates the price per ton of carbon into a tax on nonrenewable fuels, such as natural gas or oil. Rather than externalizing the costs of emissions from these energy sources, the carbon tax is an attempt to internalize costs and make consumers pay for the ultimate environmental damage resulting from the choice to use nonrenewable energy sources.