
Executive Certificate in Carbon Capture and Storage

Accounting

In the Executive Certificate in Carbon Capture and Storage (CCS), there are several key terms and vocabularies that are essential for understanding the course material. Here, we will discuss these terms in detail, including their definitions, examples, practical applications, and challenges.

1. Carbon Capture and Storage (CCS)

Carbon Capture and Storage (CCS) is a technology that captures carbon dioxide (CO₂) emissions from industrial processes or power plants, transports it to a storage site, and injects it into rock formations for long-term storage. CCS is a crucial technology for reducing CO₂ emissions, particularly in industries that are difficult to decarbonize, such as cement, steel, and chemical manufacturing.

2. Carbon Capture

Carbon capture is the process of capturing CO₂ emissions from industrial processes or power plants. There are three main methods of carbon capture: pre-combustion capture, post-combustion capture, and oxy-fuel combustion. Pre-combustion capture involves capturing CO₂ before combustion by converting fossil fuels into a gas, separating the CO₂, and then combusting the remaining gas. Post-combustion capture involves capturing CO₂ after combustion by using chemical or physical solvents to separate the CO₂ from the flue gas. Oxy-fuel combustion involves combusting fossil fuels in pure oxygen instead of air, resulting in a flue gas that is primarily CO₂ and water vapor.

3. Carbon Dioxide (CO₂)

Carbon dioxide (CO₂) is a colorless, odorless gas that is a natural part of the Earth's atmosphere. CO₂ is essential for photosynthesis, the process by which plants convert CO₂ and sunlight into oxygen and glucose. However, human activities, such as burning fossil fuels and deforestation, have increased the concentration of CO₂ in the atmosphere, leading to global warming and climate change.

4. Carbon Price

A carbon price is a cost applied to CO₂ emissions to reflect the environmental damage they cause. A carbon price can take the form of a carbon tax or a cap-and-trade system. A carbon tax sets a fixed price per ton of CO₂ emissions, while a cap-and-trade system sets a limit on CO₂ emissions and allows companies to trade emission allowances.

5. Carbon Credits

Carbon credits are certificates that represent the reduction or removal of one ton of CO₂ emissions.

Companies or individuals can purchase carbon credits to offset their own emissions or to meet regulatory requirements. Carbon credits can be generated through various projects, such as renewable energy, energy efficiency, or reforestation.

6. Carbon Footprint

A carbon footprint is the total amount of CO₂ emissions associated with a product, service, or organization. The carbon footprint includes direct emissions, such as those from burning fossil fuels, and indirect emissions, such as those from the production of goods or services.

7. Carbon Accounting

Carbon accounting is the process of measuring and reporting CO₂ emissions. Carbon accounting typically involves tracking emissions from energy use, transportation, waste, and other sources. Carbon accounting can help organizations identify opportunities to reduce emissions, meet regulatory requirements, and communicate their environmental performance to stakeholders.

8. Carbon Budget

A carbon budget is the maximum amount of CO₂ emissions that can be released while still limiting global warming to a certain temperature target. For example, the Paris Agreement aims to limit global warming to well below 2°C above pre-industrial levels, which requires a global carbon budget of approximately 1,000 gigatons of CO₂.

9. Carbon Capture Utilization and Storage (CCUS)

Carbon Capture Utilization and Storage (CCUS) is a technology that captures CO₂ emissions, utilizes the CO₂ for industrial processes or products, and then stores the CO₂ for long-term storage. CCUS is similar to CCS, but with the added step of utilizing the CO₂ before storage.

10. Carbon Leakage

Carbon leakage is the phenomenon where companies or countries reduce their emissions in one location, but increase their emissions in another location due to economic or regulatory pressures. Carbon leakage can undermine the effectiveness of climate policies and result in net increases in global emissions.

In conclusion, the Executive Certificate in Carbon Capture and Storage covers a wide range of key terms and vocabulary that are essential for understanding the course material. These terms include Carbon Capture and Storage (CCS), Carbon Capture, Carbon Dioxide (CO₂), Carbon Price, Carbon Credits, Carbon Footprint, Carbon Accounting, Carbon Budget, Carbon Capture Utilization and Storage (CCUS), and Carbon Leakage. Understanding these terms is crucial for developing and implementing effective climate policies and technologies for reducing CO₂ emissions and mitigating climate change.

It's important to note that while carbon capture technologies offer promising solutions for reducing CO₂

emissions, they are not a silver bullet for addressing climate change. Significant reductions in CO2 emissions will also require transitioning to renewable energy sources, improving energy efficiency, and reducing demand for high-emission products and services.

As a learner in the Executive Certificate in Carbon Capture and Storage, it's essential to apply these terms and concepts to practical examples and challenges. This can include analyzing case studies of CCS projects, calculating carbon footprints for organizations or products, and developing climate policies that incorporate carbon pricing or carbon budgets.

By mastering these key terms and vocabulary, learners can contribute to the development of a low-carbon economy and help mitigate the impacts of climate change on communities and ecosystems around the world.