Capitalizing on Carbon

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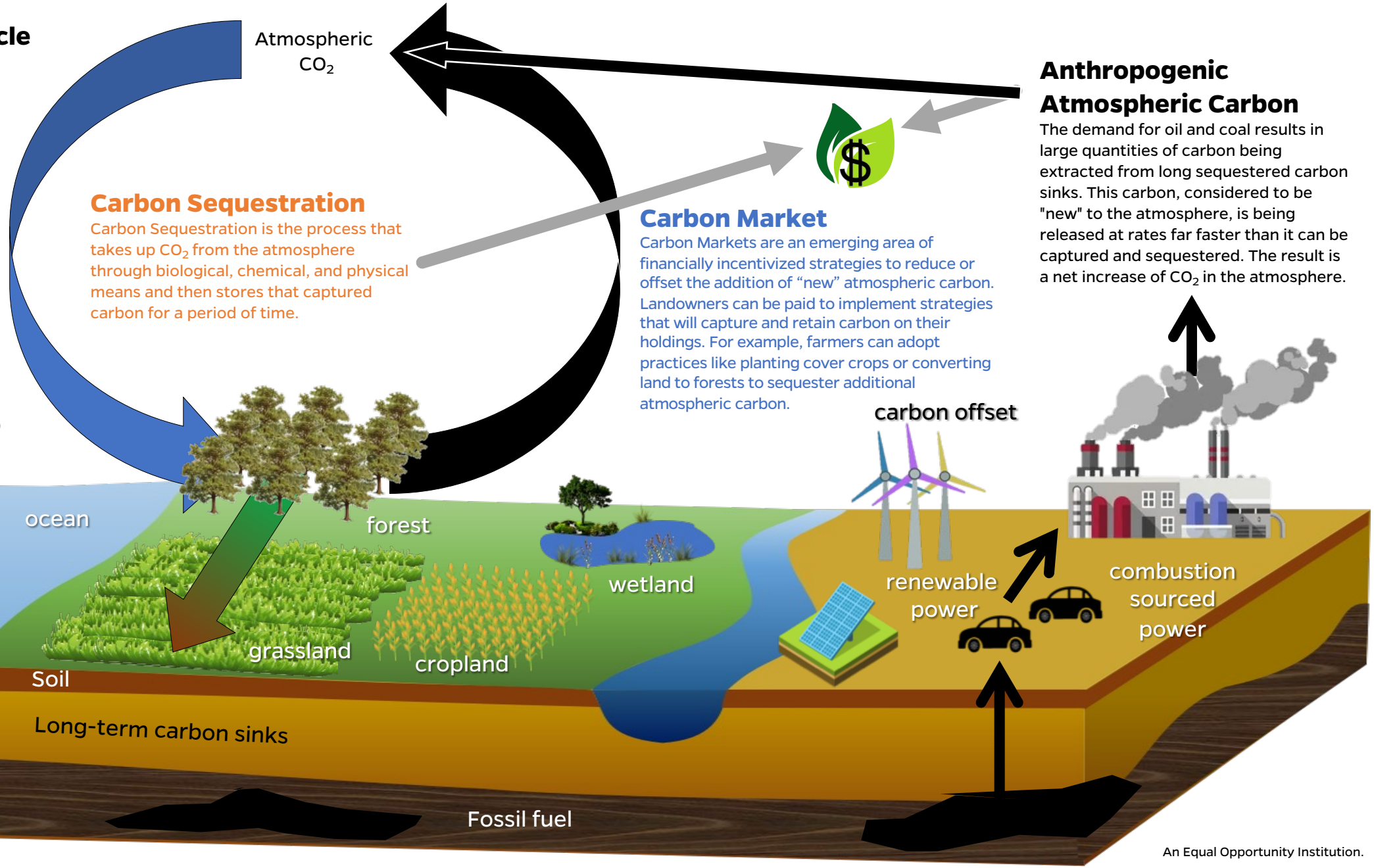
The Global Carbon Cycle

is complex and has **sources** (black arrows) and **sinks** (blue, green and brown arrows). Extraction and combustion of ancient carbon pools linked to industrialization have released CO_2 and other greenhouse gases into the atmosphere faster than carbon sinks can remove them. The result is a net increase in CO_2 concentration in the atmosphere leading to climate change. **Carbon markets** aim to reduce new atmospheric carbon and **sequester** existing atmospheric CO_2 using financial incentives and carbon trading. One carbon credit is equivalent to one metric ton (1,000 kg) of greenhouse gas removed from the atmosphere.



Carbon Sequestration

Carbon Sequestration is the process that takes up CO_2 from the atmosphere through biological, chemical, and physical means and then stores that captured carbon for a period of time.

Carbon Market

Carbon Markets are an emerging area of financially incentivized strategies to reduce or offset the addition of “new” atmospheric carbon. Landowners can be paid to implement strategies that will capture and retain carbon on their holdings. For example, farmers can adopt practices like planting cover crops or converting land to forests to sequester additional atmospheric carbon.

Anthropogenic Atmospheric Carbon

The demand for oil and coal results in large quantities of carbon being extracted from long sequestered carbon sinks. This carbon, considered to be "new" to the atmosphere, is being released at rates far faster than it can be captured and sequestered. The result is a net increase of CO_2 in the atmosphere.

Carbon Sinks

Carbon sinks are “pools” of carbon where CO_2 accumulates in various forms. Plants and other organisms are short-term sinks, because they release most of their carbon as they decompose. Other sinks, such as soils and the ocean, store carbon for longer periods of time. Some of the oldest carbon sinks are coal and oil (fossil fuel) deposits. This carbon has been out of the carbon cycle for millions of years.