IETA

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REDUCTIONS VS REMOVALS 101

What's the difference?

While both types of carbon credits, reduction- and removal-type credits, have similar attributes, understanding the distinction is important. Removal-type credits take CO2 out of the atmosphere, whereas reduction-type credits prevent the greenhouse gases from being emitted in the first place. Since the climate crisis is a multi-dimensional problem, all available tools need to be used and both types of credits represent ways in which we can mitigate emissions and global warming.

Reductions

Projects creating reduction-type credits can be divided into two categories, those that reduce emissions and those that avoid emissions. For example, if a landfill installs a landfill gas capture system, it prevents the venting of methane to the atmosphere - which is approximately 28x worse in the atmosphere than CO_2 - thus reducing the total emissions. If a company decides to convert their gasoline-powered vehicle fleet to electric vehicles, they are **avoiding** the emissions associated with the production and combustion of gasoline.

Some project types have aspects that reduce and avoid emissions concurrently.

Removals

Removal-type credits, or simply 'removals,' pull CO_2 out of the atmosphere. These projects are key to reducing the total amount of CO_2 that has accumulated in the atmosphere over time. Unlike reductions, removals inherently have a risk of non-permanence (or 'reversal') so the Standards which issue the credits carefully consider this risk, ensure adequate monitoring is in place, and adjust credit issuances accordingly.

Removals are often sub-categorised as either nature-based or technological. Nature-based removals typically come from photosynthesis whereby CO_2 is pulled from the atmosphere and sequestered into timber, seagrass, peat, or soil. A popular project type in the voluntary carbon market is the growth of trees through afforestation or reforestation. Since trees sequester large volumes of CO_2 as they grow, projects are established to ensure trees can grow to their maximum potential and sequester as much CO_2 from the atmosphere as possible.

Technological removals rely on innovative technologies such as direct air capture (DAC) or accelerated mineralisation to sequester CO_2. With a DAC project, facilities are constructed to pull CO_2 directly from the air. When this CO_2 is permanently sequestered underground in a carbon capture and storage scheme, the CO_2 removal is considered permanent.

An example of a removal project that straddles the line between nature-based and technological is bioenergy carbon capture and storage (BECCS). This is where CO_2 photosynthesised by plants that are used in energy or fuel production is captured during the fuel processing and then injected deep underground.

We need both

Both reductions and removals are urgently needed to fight climate change. While some groups argue that removals play a more important role in reversing climate change, IETA sees the importance of stopping the tap before mopping up. The Intergovernmental Panel on Climate Change acknowledges that it will be unavoidable to use carbon removals to negate hard-to-abate residual emissions (ie, essential emissions that are necessary for the healthy functioning of society), but globally we must first emphasise rapid, sustained, and significant emission reductions. Removals are a vital tool for reducing the concentration of CO_2 in the atmosphere, but the world must first implement deep emissions reductions in order to have a fighting chance of keeping global warming below 1.5°C.

FOR MORE INFORMATION, PLEASE CONTACT **INFO@IETA.ORG.**