We Need to Accelerate the Use of Captured CO₂ Now

No single solution is sufficient to counter climate change at this stage.

Reducing energy usage via increased efficiency, shifting from fossil fuels to clean electricity, and carbon capture, storage and utilization are all needed to stabilize the climate. In addition to minimizing the amount of CO₂ emissions now, we must also remove substantial amounts of legacy CO₂ emissions from the atmosphere. Once CO₂ has been captured, there are two things that could be done with it.

(1) It can be stored (“carbon capture and storage” or CCS), a process which completely relies on massive societal subsidies.

or

(2) It can be utilized as a fossil carbon replacement (“carbon capture and utilization” or CCU) to make products. In a process similar to recycling and reusing, products ranging from concrete to vodka to packaging can be made with captured CO₂. These products can then be sold to generate revenue. Global CO₂ Initiative (GCI) research projects an annual market potential of $2 trillion for CCU. CCU is unique among climate change strategies, not only because it has the potential for profit, but also because it is climatologically significant. GCI describes CCU as being “Carbon Negative, Dollar Positive.”

Our 2016 Global Roadmap for CO₂ Utilization showed enormous opportunities for CCU. For instance, the permanent removal of CO₂ by making building materials alone was projected to be up to 5.0 gigatons per year by 2030. Additionally, up to 3 gigatons of CO₂ could be used as a carbon source for other products ranging from chemicals, fuels, high tech materials, to food! However, our recent research indicates that we will fall far short of this projection.
Why? Progress was much slower than anticipated, mainly due to the lack of supporting policies to build and establish CCU. Half of the commercialization efforts from 2016 have failed and the total number of projects has increased by only 25%.

To achieve its full potential, CCU must be supported during the deployment phase!

As with all other aspects of addressing climate change, achieving full CCU potential will not be easy. It will require systemic technological, supply chain, economic and societal change, with strong policy support. Systemic change is difficult, but it would also give us the opportunity to redress some of the inequalities perpetuated by the current system.

GCI recommends the following steps to help accelerate the CCU market:

- Increase Funding Of CCUS R&D
- Establish CCU Products Pilot Centers
- Pursue International Collaboration
- Foster Creation Of CCUS IP For The Long Term
- Expand CO₂ Infrastructure
- Pursue Appropriate Standards And Regulatory Support
- Pursue Policy Support
- Collaborate With The Investment Community

The time to accelerate the deployment of CCU technologies is now!

Given the current climate situation, we cannot delay. Accelerating CCU will allow us to reduce the atmospheric CO₂ burden and secure access to carbon resources as raw ingredients in tomorrow’s products, while also providing a path to economic prosperity and social equity.

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