

Negative Emissions Primer



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Why are negative emissions technologies important for climate?

To meet U.S. and international climate goals we need to emit less greenhouse gas into the atmosphere and, eventually, emit none. Clean energy technologies like solar, carbon capture, wind, and nuclear are already providing us with some of the energy we need, without the emissions. But, we're not deploying them fast enough. In fact, today, we've already gone through about 73% of our carbon budget (aka how much carbon can be in the air before warming rises to an unsafe level). We can and should ramp up deployment of clean energy technologies. But, we also have a secret weapon that many experts think we'll absolutely need to keep warming to a safe level: negative emissions technologies.

So what are they?

Well, there are two main types of negative emissions technologies. First, there's something called Bio-Energy with Carbon Capture and Storage (or BECCS, for short). Most plants absorb carbon from the air as they grow (thanks, plants!). Some facilities burn this biomass material to make

energy, which releases the stored carbon back into the atmosphere. But if you add carbon capture technology, this facility can catch all the carbon dioxide stored by the plants before it escapes back into the air. And voila - negative emissions. We actually already have some BECCS plants up and running, with the largest one in the world operating right now in Illinois.

The other way to get to negative emissions is through something called Direct Air Capture, where a device sucks carbon dioxide straight from the atmosphere like a vacuum. This is a pretty new technology, but there are already promising projects in the works, like [Carbon Engineering](#) and [Skytree](#). As with BECCS, the captured carbon dioxide can then be stored safely underground or used to make new products like fuel or building materials.

Are there more organizations saying this is needed?

Negative emissions are really (really, really) important in meeting our climate goals. But don't take our word for it. Both the [United Nations Intergovernmental Panel on Climate Change](#) says so, as has the [International Energy Agency](#), and just try to stay within our carbon budget without using negative emissions on this [interactive feature](#) in the *New York Times*. When it comes down to it, we need every tool we have to fight climate change, and negative emissions gives us an edge in the climate fight that we can't afford to ignore.

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