

The Myth of Net-Zero Emissions

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by LILI FUHR and NICLAS HÄLLSTRÖM

BERLIN – The emissions from burning coal, oil, and gas are heating up our planet at such a rapid rate that increasingly volatile and dangerous climate conditions seem almost inevitable. Clearly, we have to reduce emissions fast, while developing alternative energy sources that allow us to leave fossil fuels in the ground.

This imperative is almost shockingly straightforward. Yet climate change has been subject to so much political inertia, false information, and wishful thinking for the last few decades that we continue to see ineffective or impossible solutions, rather than an effort to address root causes. Often these “solutions” are based on non-existent or risky new technologies.

This approach is highly expedient, for it threatens neither business as usual nor socioeconomic orthodoxy. But climate models that depend on elusive technologies weaken the imperative to enact the deep structural changes that are needed to avoid climate catastrophe.

The latest such “solution” to emerge is “net-zero emissions,” which depends on so-called “carbon capture and storage.” Though the technology still faces more than a few shortcomings, Intergovernmental Panel on Climate Change (IPCC) Chairman Rajendar Pachauri issued a [deeply problematic statement](#) last month, saying that, “With CCS it is entirely possible for fossil fuels to continue to be used on a large scale.”

To be fair, the IPCC’s latest [assessment report](#) highlights the imperative of cutting CO₂ emissions drastically to avoid exceeding the world’s small – and still risky – carbon budget. But to shift from clear-cut goals like “zero emissions,” “full decarbonization,” and “100% renewable energy” to the far hazier objective of net-zero emissions is to adopt a dangerous stance.

Indeed, the net-zero idea implies that the world can continue to produce emissions, as long as there is a way to “offset” them. So, instead of embarking immediately on a radical emissions-reduction trajectory, we can continue to emit massive amounts of CO₂ – and even establish new coal plants – while claiming to be taking climate action by “supporting” the development of CCS technology. It is apparently irrelevant that such technology might not work, is riddled with practical challenges, and carries the risk of future leakage, which would have major social and environmental consequences.

Bioenergy with Carbon Capture and Storage is the poster child for the new “overshoot approach” of net-zero emissions. BECCS entails planting a huge amount of grass and trees, burning the biomass to generate electricity, capturing the CO₂ that is emitted, and pumping it into geological reservoirs underground.

BECCS would have enormous development implications, provoking large-scale [land grabs](#), most likely from relatively poor people. This is not some farfetched scenario; rising demand for biofuels has spurred devastating land grabs in developing countries for many years.

It would take a lot more land to offset a substantial share of CO₂ emissions. Indeed, an estimated [218-990 million hectares](#) would have to be converted to switchgrass to sequester one billion tons of carbon using BECCS. That is 14-65 times the amount of land the United States uses to grow corn for ethanol.

Nitrous-oxide emissions from the vast amount of fertilizer that would be required to grow the switchgrass could be enough to exacerbate climate change. Then there are the CO₂ emissions from producing synthetic fertilizers; clearing trees, shrubs, and grass from hundreds of millions of hectares of land; destroying large reservoirs of soil carbon; and transporting and processing the switchgrass.

Even more problematic is the revelation that CCS and BECCS would most likely be used for “enhanced oil recovery,” with compressed CO₂ pumped into old oil wells for storage, thereby [creating a financial incentive to recover more oil](#). The US Department of Energy estimates that such methods could make 67 billion barrels of oil –

three times the volume of proven US oil reserves – economically recoverable. Indeed, given the money at stake, enhanced oil recovery could actually be one of the motives behind the push for CCS.

In any case, no form of CCS advances the goal of a structural shift toward full decarbonization, which is what social movements, academics, ordinary citizens, and even some politicians are increasingly demanding. They are prepared to accept the inconveniences and sacrifices that will arise during the transition; indeed, they view the challenge of creating a zero-carbon economy as an opportunity to renew and improve their societies and communities. Dangerous, elusive, and pie-in-the-sky technologies have no place in such an effort.

A clear understanding of the climate crisis expands the range of potential solutions considerably. For example, by banning new coal plants and shifting fossil-fuel subsidies toward the financing of renewable energy through feed-in tariffs, sustainable energy could be brought to billions of people worldwide, while reducing fossil-fuel dependency.

While such innovative and practical solutions are prevented from being scaled up, billions of dollars are pumped into subsidies that reinforce the *status quo*. The only way to reform the system and make real progress toward mitigating climate change is to work to eliminate fossil fuels completely. Vague goals based on nebulous technologies simply will not work.

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