

Greenpeace Q&A on Carbon Capture & Storage (CCS)

What does Greenpeace see as the problem with coal?

Coal burning is the greatest threat to our climate. It accounts for over one-third of all CO₂ pollution – the largest single source. If business-as-usual predictions are realised, CO₂ pollution from coal burning will increase 60% by 2030.¹ Quitting coal is essential to prevent dangerous climate change.

Don't we need to build new coal-fired power stations to keep the lights on?

Greenpeace has developed a blueprint for our future energy supply, together with the German Aerospace Centre (DLR) and energy institutions around the world. This Energy [R]evolution scenario shows that global CO₂ emissions can be halved by 2050 by using energy in smarter ways and generating half of our energy from clean energy sources such as wind, sun and sustainable biomass.

The scenario shows that, in OECD (industrialised) countries, the lights can stay on without building new coal-fired power plants (or nuclear power plants).

It also shows that some developing countries have enormous potentials for improving energy efficiency and huge resources of renewable energy. A limited number of new power plants burning fossil fuels will have to be built. Greenpeace wants these to be as efficient and low-polluting as possible.

What is the report on CCS that Greenpeace is publishing on 5 May 2008?

'False Hope' relies on independent, peer-reviewed scientific sources to penetrate the smokescreen surrounding carbon capture and storage. The report details why CCS is a dangerous distraction in the fight against climate change. It reveals that the technology is unproven, risky, expensive and will be developed to the detriment of sustainable solutions. The promise of CCS should not be used as an excuse to continue building coal-fired power stations especially when the solutions needed to save the climate - renewable energy and energy efficiency - are available today.

What does Greenpeace think about Carbon Capture and Storage (CCS)?

CCS is unproven, risky and expensive. It should not be used as an excuse by power companies to continue building new coal-fired power plants. Instead, all attention, focus and investment should be put into technologies that can power our society and reduce CO₂ pollution today: renewable energy and energy efficiency.

What does Greenpeace think of "capture ready" power stations?

The idea of a new power station being "capture ready" suggests that CCS technology might be retrofitted to capture CO₂ at some time in the future. Meanwhile, though, the power plant is just as polluting as a plant which is not considered "capture ready". The term is simply an attempt to gain acceptance for building more new, polluting coal-fired power stations. But there is no guarantee that CCS will be fitted or CO₂ emissions will be mitigated in the future. Instead of delivering a concrete solution to fighting climate change, the "capture ready" philosophy banks on the promise of an unproven technology and risks locking us into an energy future that fails to protect the climate. Relying on the potential future availability of CCS to mitigate emissions from power stations is about as smart as deliberately contracting a disease in the hope that medical science will one day devise a cure.

Does Greenpeace support coal-fired power plants with CCS?

There is no such thing as a coal-fired power plant with CCS. It simply does not exist. So how can Greenpeace support it? Instead of hanging our hopes on the false promise of CCS, Greenpeace is pushing for an energy revolution that relies on proven modern technologies for renewable energy and energy efficiency to power our societies and cut CO₂ pollution.

¹ According to the International Energy Agency (IEA), quoted in the Fourth Assessment Report (FAR) of the United Nations (UN) Intergovernmental Panel on Climate Change (IPCC)

Aren't deep cuts in CO₂ pollution needed to prevent dangerous climate change?

Yes, and time is running out! Climate scientists warn that global greenhouse gas emissions need to peak around 2015 and be reduced dramatically thereafter, by at least 50% by 2050. To ensure that this occurs, governments and industry must invest in solutions that can cut emissions in this timeframe. CCS simply won't deliver in time and should not be used as an excuse to continue burning coal.

Greenpeace is in favour of subsidies for renewables. What do you think about government subsidies for the development of CCS?

The urgency of the climate crisis demands that investment priorities focus on sustainable energy solutions that already work. Money can only be spent once. Providing the substantial levels of support required to get CCS off the ground raises a serious question about government and industry priorities. Current research shows that electricity generated from coal-fired power plants equipped with CCS will be more expensive than other less-polluting sources, such as gas, wind power and many types of sustainable biomass. CCS is also far more expensive than improving energy efficiency. Even assuming that, at some stage, carbon capture becomes technically feasible, is capable of guaranteeing long-term storage, and is both environmentally safe and commercially viable, its impact would be limited.

If energy companies want to keep burning coal and oil, they should be the ones paying for the technology they believe can make it clean - not asking the public to pay for something that may never deliver.

But surely CCS could play a role in the future, around 2030 or 2040. Shouldn't we put some money into developing this technology?

The focus of government efforts and funding should not be on resolving the engineering challenges associated with CCS. Instead, the push should be to catalyse a shift to a sustainable energy future that will actually reduce the amount of CO₂ generated. While coal will still be a part of the energy mix in 2030 and 2040, relying on CCS to deliver us from climate change is a dangerous gamble. There is no guarantee that it will ever work or that sufficient high-quality storage capacity is available for CO₂ disposal. Even further, the IPCC estimates that upwards of 70% of electricity sector emissions may not be suited for CCS by 2050 so alternative solutions are needed anyway. Industry can worry about making this end-of-pipe technology work if they want to but governments should put effective strategies to reduce emissions first.

Can CO₂ be safely and permanently stored?

At this stage, we simply do not know. The longest running CO₂ storage project, Sleipner in Norway, has only existed for twelve years. While the presence of oil and gas deposits in geological formations indicate that it may be possible for CO₂ to remain underground for long periods of time, it remains to be seen if we can engineer the same scenario over for the massive quantities of CO₂ that would result from deployment of CCS.

Why is CO₂ leakage a concern?

Leakage of CO₂ back into the environment presents a number of concerns. CO₂ can contaminate drinking water and harm aquatic ecosystems, impact the quality of soils, mobilise heavy metals and even threaten human health at high enough concentrations. From a climate perspective, even the smallest of leakage rates could undermine the potential climate benefit of CO₂ disposal. This is because of the long timescales involved in such operations. For example, leakage rates of 1% and 0.01% per annum will result in the loss of 50% of an injected quantity of CO₂ in 70 and 7000 years, respectively.

Is Greenpeace the only environmental organisation with this viewpoint on CCS?

Greenpeace, NGOs such as Friends of the Earth, Rainforest Action Network and others, have united to deliver a clear message on CCS. We are agreed that CCS is an unproven technology that, if it is ever ready, will arrive too late to deliver the emission reductions needed to save the climate. Instead, we believe investments in solutions with the greatest potential to provide energy security and reduce emissions in an environmentally-sound manner must be given priority by governments and

the power sector. The solutions to stopping dangerous climate change lie in renewable energy supply and energy efficiency technologies that are already beginning to protect the climate today.

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