



WECF Position Paper

Carbon Capture and Storage (CCS) - A Barrier to Climate Protection

WECF opposes Coal-CCS as it is a high-risk unproven technology that will further increase demand for fossil energy sources and is not compatible with the aim to halt climate change and to create sustainable and equitable societies. Instead of reducing and avoiding CO₂ emissions, CCS is being promoted to extend the life of fossil-fueled technologies. WECF recommends that a COP20 decision should be made to support conservation, renewable energy, and energy efficiency-measures that are already available today, and exclude CCS from any UNFCCC mechanism

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Definition

Definition according to the IEA¹: “Carbon Capture and Storage, or CCS, is a family of technologies and techniques that enable the capture of CO₂ from fuel combustion or industrial processes, the transport of CO₂ via ships or pipelines, and its storage underground, in depleted oil and gas fields and deep saline formations.”²

Background/Technology

High-risk, unproven technology

Despite all the promises made, CCS has not been proven as a reliable technology to date. No-one has as yet found a storage-location or a container-material that is absolutely airtight so that no CO₂ can escape. That the storage should be airtight, not only for a day, but forever, is crucial for a positive effect on climate, otherwise emissions will only be delayed. Additionally, a 100% separation cannot be guaranteed (making sure all of the CO₂ is taken out of the exhaust / emission). An emission / exhaust will always bring Carbon Dioxide into the atmosphere, even if less than before.

Liability risks

CCS will be implemented with large-scale applications that have to be spatially connected to big physically-fixed CO₂ producers like power plants or industrial plants producing natural gas, hydrogen, liquified coal, etc. These above ground infrastructures will pose risks to human health and to the environment, as also observed with other types of infrastructure, for example by contamination of ground and/or drinking water. In addition, the above ground infrastructures will be more prone to leakages, and therefore a potential increase of GHG emissions. That liability risk is currently not taken into the financial calculations.

CCS is a waste of energy and water resources

The process of carbon separation is highly energy intensive. CCS would use up to 40 % of the electricity output of the power plant whose carbon it is capturing³ declining its effectiveness dramatically. This, in turn, leads to more coal having to be mined, transported and burned to achieve the original station output. Used in combination with coal fired power plants, CCS would erase the gains in energy efficiency made over the past 50 years and increase resource consumption. Additionally, power stations with capture technology will require 90% more freshwater for plant cooling than those that do not have this technology.⁴ As predictions for 2050 show that half the world will suffer from severe water stress, this is another reason why this type of technology is un- suited for the majority of countries.

Incompatible technologies

Renewable Energy (RE) sources require a flexible electricity market. Existing large central power stations, mostly run on coal or nuclear, are not flexible enough to be a part of a RE scenario and will not be compatible with a high share of volatile sun and wind power in the grid. For a real global switch to RE, new players in the market must be able to adapt quickly to variable electricity production and demand. It basically comes down to

¹ International Energy Agency <http://www.iea.org>

² IEA <http://www.iea.org/topics/ccs/>

³ German Federal Environment Agency <http://www.umweltbundesamt.de/themen/wasser/gewaesser/grundwasser/nutzung-belastungen/carbon-capture-storage>

⁴ Greenpeace <http://www.greenpeace.org/international/en/news/features/ccs-not-going-to-save-the-clim/>

making a decision between sticking with the old polluting system or moving forward with the new. Already established subsoil technologies like geothermal energy and compressed air storage allow efficient production and storage of energy with predictable risks while allowing disengagement from old, obsolete and overpriced fossil fuel technologies. There is no need for CCS. The only thing CCS will do is at great cost to taxpayers and future generations, give a few more years of lifespan to an already out-dated, harmful and polluting fossil-fuel based systems, which should be phased out rather sooner than later.

Relation to Climate Change

CCS will not be ready in time anyway

The CCS-technology is still far from being ready for commercial application. According to current projections, CCS might be ready for the market by 2030 at the earliest. But if we want to reach the 1.5 degree target for a limit global temperature rise, 2030 is much too late to start action. Climate experts say the worst impacts of climate change can be averted by levelling off global warming pollution by 2015, then immediately accelerating action for more emission reductions. But the earliest that CCS will be ready is 2030. The Nobel Peace Prize-winning Intergovernmental Panel on Climate Change (IPCC) is even less optimistic. The IPCC doesn't see CCS being commercially viable until even a later date - around 2050,⁵ in conclusion, CCS will be of no more use, and will have been a waste of funds.

CCS is expensive and undermines real solutions to Climate Change

Because of the complex large-scale technology that would have to be implemented, CCS could well mean that electricity prices would increase from 30 and 80%.⁶ Further, it would use up funds that are seriously needed for increasing energy efficiency and renewable energy production — which can deliver more energy than carbon fuels for the same cost. Renewable Energy (RE) implementation can also achieve more rapidly the desired goal of carbon reduction. CCS is both expensive and not feasible without public funding, thus the development of CCS will depend on political realities which are determined by several rather short-term interests, mainly those of the fossil fuel industry and countries that have thus far been dependent on fossil fuels. Some of these short-term interests include:

- The potential for CO₂-Enhanced Oil or Gas Recovery — one of several technologies among fracking etc. that increase the amount of crude oil that can be extracted from an oil or gas field via gas injections — would extend our dependence on fossil fuels
- The possibility that an economy would become an exporter of a technology that often is not really appropriate for - and applicable to - the conditions in the potential importing countries
- For countries that are currently using large amounts of fossil fuels domestically, mitigation targets will require a transition of energy systems. Countries need to invest in this change now in order to achieve serious reductions of CO₂ emissions instead of trying to “buy time” by using CCS to delay switching to non-fossil sources.

WECF's position

Far beyond the technological aspects, we have to decide what kind of energy supply we really want to have. Based on market mechanisms that are put in place, CCS will help the 'old', centralized, fossil-fuelled industries to continue to survive. Safe and clean energy sources, such as wind and solar power, provide electricity much more cheaply than coal-fired plants fitted with CCS will ever be able to. Renewable energies also allow decentralised systems, adapted to the local realities and with a large share of local job creation and democratic control over resources. For our societies which aim at inclusive, equitable and sustainable development, with equal opportunities for women and men, and where inequalities are being reduced, the CCS model will only be a barrier. The funding to get CCS off the ground - including substantial sums of taxpayers' money - comes at the expense of transitioning to real energy solutions. CCS encourages holding on to the conventional centralized system of power supply which blocks the development of truly carbon-free technologies (aka renewable energy systems). Furthermore, the absence of effective financial regulation of emissions and the low cost of coal power will prevent renewable energy producers from breaking even.

WECF promotes instead of CCS the implementation of renewable energy, conservation and energy efficiency, and the protection and restoration of natural forests to their original capacities.

⁵ Greenpeace <http://www.greenpeace.org/international/en/news/features/ccs-not-going-to-save-the-clim/>

⁶ U.S. Department of Energy: “Retrofitting the Existing Coal Fleet with Carbon Capture Technology”.
www.fossil.energy.gov/programs/powersystems/pollutioncontrols/Retrofitting_Existing_Plants.html