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OP-90 EFFICIENCY of POWER PLANTS with CARBON CAPTURE and STORAGE

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The impact of human activities on climate change has been growing by time. One of these activities that causes global warming is continuously increasing consumption of fossil fuels. It is certain that high energy demand has some negative effects. However ensuring the developments on carbon capture and storage (CCS) technologies in parallel with increase in the energy demand is critical for both sustainable environment and energy supply security.

There have been valuable technological researches on CCS aiming to struggle the climate change problem. CCS is a range of technologies that hold the promise of trapping up to 85-90 % of the carbon dioxide emissions from power plants. It involves collecting, transporting and finally storing the CO₂ so that it is not emitted to the atmosphere and contribute to climate change.

There are three main techniques; pre-combustion CCS process, post combustion process (with solvent), and oxyfuel burns techniques. These technics can mainly be used in insutrial facilities that emmits CO₂.

Fossil fuels are heavily preffered for energy production in spite of some adverse environmental impacts. Thus, it is important to focus on development and use of CCS in order to increase the production efficiency and eliminate some adverse impacts. In this study, application of CCS on fossil fueled power plants have been discussed in terms of both environmental and production efficiency.

Keywords: Energy efficiency, Climate change, Global warming, CCS technologies, sustainability