

Feasibility of Implementing Carbon Capture and Storage Technology in Sri Lankan Power Sector

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Declaration

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Dr.Thushara . D. Rathnayaka

Abstract

Earth is consistently getting hotter with the most noteworthy recorded temperature was at 2016. Global warming is the principle explanation behind the temperature increase on the planet. As one of major greenhouse gas, CO₂ has a strong influence on global warming. In addition to the global warming, CO₂ concentration on the earth atmosphere will directly affect the physiological processes and growth of plants and indirectly for the changes in precipitation patterns and frequency of weather extremes. Non-renewable energy sources, and fossil fuel based electrical power plants are primary CO₂ producers to the environment. Carbon Capture and Storage (CCS) is one of the most forthcoming technologies that captures CO₂ emissions produced from fossil fuel power plants. However, this technology is highly resource intensive and therefore it is required to estimate the impacts beforehand.

This thesis estimates the feasibility of implementing Carbon Capture and Storage technology in Sri Lankan fossil fuel power plants. In addition to the CO₂ emission, other harmful gases, SO₂, NO_x, and HCl emissions are also considered in this study. Author proposes the most suitable CCS technology for each and every thermal power plant by considering the reduction of CO₂ emission and effective resources usage. In addition to that, cost feasibility of implementation of technology is also discussed.

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