Parametric study of post-combustion CO_2 capture processes integration in a thermoelectric power plants

The objective of the thesis consists in the global evaluation of a coal power plant with subcritical parameters by using the life cycle assessment in order to identify the greenhouse gases. Taking into account the values of GHG emissions it will proposed solutions for respecting the best operating conditions of the power plant. Finally, a comparative analysis was made of the power plant with and without CO_2 capture considering technical and environmental impact criteria. It was found that by integrating the CO_2 post-combustion capture (chemical absorption), the overall efficiency of the power plant was reduced by approximately 10%. This led to increased fuel consumption for the same unit of energy produced and thus increases the overall impact on the environment.

Key Words: GES, CO_2 Capture; Chemical Absorption, Power Plant