An 865 MW lignite fired CO_2 free power plant – A technical feasibility study (the so called "Lippendorf Study")

Date: 2002

Authors: Lars Strömberg et al (Vattenfall AB and Chalmers University of Technology)

ID: #

Distribution: Official

Further: English language, 6 pages; the study has been published in official journals

Abstract

This work applies an O_2/CO_2 concept to commercial data from an 856 MW_e lignite fired reference power plant and large air separation unit (ASU). The aim is to identify essential components and energy streams of the two processes and investigate the possibilities to process integration. A detailed design of the flue gas treatment before transportation of the separated carbon dioxide is also proposed. The sulphur dioxide can be sequestered together with the carbon dioxide, provided that the gas is dry, and, consequently, there is no need for a desulphurisation unit. Since the investment cost of an ASU is slightly lower than for the desulphurisation unit, the investment cost of the O_2/CO_2 plant will be slightly lower than for the reference plant. With all identified integration possibilities the net electrical efficiency becomes 34.3 per cetn, which is a reduction by 8.3 per cent units compared to the reference plant.