

Process analysis Of IGCC plant with captured CO<sub>2</sub> recovery

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An IGCC (integrated coal gasification combined cycle) plant is one of the best options for the power generation while addressing climate change issues. In this study, an IGCC plant has been simulated using Aspen Plus. This work makes use of an idea that by recycling the captured CO<sub>2</sub> from the process, it can be used as a diluting agent back to combustion chamber. This study compares the energy efficiency of two systems, one employing water gas shift reactors while other system utilizing oxygen for the combustion of syngas. In case 1 the syngas is shifted to produce a higher H<sub>2</sub> content and in case 2 syngas bypass the WGS reactor. The results show that both processes are competitive in terms of efficiency. However, capital cost and the required final products can be the decisive variables.

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