

Process design of efficiency improvement for IGFC using Aspen HYSYS

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Integrated gasification fuel cell combined cycle (IGFC) is a technology using solid oxide fuel cell (SOFC) at integrated gasification combined cycle (IGCC) to improve electrical efficiency for an electricity production on large-scale plants in the industry. The SOFC can be operated at high temperature condition (500–1000°C) at power plants and would also reduce pollutant emission such as NO_x, SO_x, and CO. In addition, SOFC-based IGFC is now one of the remarkable technologies and would be a clean and power efficient plant. In this work, simplified IGFC process is designed using Aspen HYSYS, doing two case studies to find more efficient way to produce electricity by changing the heat exchanger location. A rough cost estimation for efficiency comparison is also included.