Design alternatives and economic analysis of CO_2 terminal

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CCS is a promising technology to solve climate-related problems and to decelerate global warming. In CCS chain, CO_2 storage is considered as the final stage to block CO_2 emission. To safely and efficiently deliver CO_2 from capture and liquefaction site to seashore and connect incoming CO2 to injection site, CO_2 terminal is essential. Even though CO_2 terminal is involved with many safety and operation issues, research on CO_2 terminal is insufficient. In this study, various CO_2 terminal configurations are proposed including CO_2 storage tank, Boil-off gas (BOG) treatment and booster pumps. Moreover, economic analysis is performed based on the ASME code. The result shows that BOG treatment with CO_2 itself has the lowest operating energy as well as total cost.

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