

Green Design Approach in Natural Gas Value Chain

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Clean burning characteristic and ability to meet tough environment regulations has increased the demand of natural gas (NG) considerably recently. Primarily NG is used as a fuel in the form of liquefied natural gas (LNG) and also serves as feed stock for petrochemical. In this paper the concept of integration is applied to a base NGL process which is integrated with the representative single mixed refrigerant (SMR) processes of NG liquefaction. The obtained case of integrated green design are optimized before calculating the heat and compression energy requirement. The heat and compression energy and capital cost benefits along with the specific power consumption are reported. Based on the case studies performances it was concluded that the specific power consumption depends on the type of liquid co-produced in tandem with LNG and also on the type of liquefaction cycle. The optimized integrated plant saves manifold of energy than the independent optimized plant, because of the synergy effect and thus helps in reduction of plant specific power at the same time having less impact on environment. This research was supported by a grant from the Gas Plant R&D Center funded by the Ministry of Land, Transportation and Maritime Affairs (MLTM) of the Korean government.