

## Energy Saving and Capital Cost Evaluation in Retrofitted Natural Gas Liquid Recovery Process

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This work reports the results of a techno-economic feasibility study to retrofit natural gas liquid (NGL) recovery process. A hydraulic performance indicator, fractional utilization of area (FUA) was used to identify whether the bottleneck happens or not. A modified coordinate descent methodology (MCD) is employed for solving process optimization problem. The column grand composite curve (CGCC) was used to indicate the thermodynamic feasibility of the implementation of heat pump system into distillation column and energy saving. The results show that MCD was successful in finding the optimum proposed sequence structure and the operating variables, which result in operating cost saving 44.55% compared to the representative base case. This work was also supported by Priority Research Centers Program through the National Research Foundation of Korea (NRF) funded by the Ministry of Education (2014R1A6A1031189). This research was also 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.