Retrofit a Natural Gas Liquid Fractionation Process

Hussain Arif, Nguyen Van Duc Long, Le Quang Minh, 팜녹트람, 이문용†
영남대학교

This paper reports the results of a techno-economic feasibility study to retrofit a natural gas liquid (NGL) fractionation process. A novel hybrid system, side reboiler and heat pump-assisted, thermally-coupled distillation sequence to maximize the energy efficiency, was proposed. A modified coordinate descent methodology was employed to solve the optimization problem. As a result, the modified coordinate descent methodology was successful in finding the optimal proposed sequence structure and the operating variables, which resulted in substantial operating cost saving compared to the representative base case. The short payback period and significantly reduced CO2 emissions are other benefits of the proposed sequence. This sequence can be employed for both grass-root and retrofit designs. This study was supported by the Basic Science Research Program through the National Research Foundation of Korea (NRF) funded by the Ministry of Education (2015R1D1A3A01015621). This study was also supported by Priority Research Centers Program through the National Research Foundation of Korea (NRF) funded by the Ministry of Education (2014R1A6A1031189).