Machine learning based estimation of decision variables for SMR natural gas liquefaction process

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Abstract

Natural gas (NG) is considered as relatively clean energy source in comparison with coal and oil. The transportation of NG over long distances is carried out in liquid form i.e., liquefied natural gas (LNG). However, liquefaction of NG is an energy intensive process and a small change in the feed conditions can cause the process infeasible. To make the process feasible again there is need an optimization which requires lot of computational cost. Therefore, to solve this problem support vector regression based machine learning model is used to estimate the decision variables at which the process becomes feasible again. This work was supported by Basic Science Research Program through the National Research Foundation of Korea (NRF) funded by the Ministry of Education (2018R1A2B6001566) and by Priority Research Centers Program through the National Research Foundation of Korea (NRF) funded by the Ministry of Education (2014R1A6A1031189).