عنوان مقاله:

A planning procedure for total site integration of the utility hub in an oil refinery

محل انتشار:

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خلاصه مقاله:

This work presents a mathematical model for retrofitting of utility hub in a refinery site. This problem is formulated as a mixed-integer nonlinear programming model. Feasible retrofit scenarios are investigated to reach maximum possible water and energy savings. Furthermore, techno economic simulation of water and energy recovery systems from boiler flue gasses has been examined to obtain the optimal condition of these systems. For heat recovery, a systematic model for using organic Rankine cycle has been developed and results showed that toluene is the best possible working fluid amongst candidates in this case. Finally, water absorption cycle with ethylene glycol has been simulated and results showed that up to 75 present of water vapor could be recovered. Maximum possible saving are up to 6 percent or 4.48 million dollars. For basic scenario, the specific water and energy consumption are 4.28 and .0.441 Kg/kWh, respectively. However, these may be reduced to 4.25 and 0.429 kg/kwh in some scenarios

کلمات کلیدی:

Refinery, optimization, utility hub