

An integrated model of waste-heat exchange network in an eco-industrial park (EIP)

채송화, 김상훈, 윤성근, 박선원*
한국과학기술원
(sunwon@kaist.ac.kr*)

Construction of an eco-industrial park (EIP) draws attention as a promising tool for improving the energy efficiency of the existing industrial park. The objective of EIP is minimization of energy consumption and output environmental loads by construction of recycle networks for raw material, waste, and energy. Utilization of waste-heat from industry will bring on not only economic and environmental benefits due to reduction of energy consumption, but also social benefit. To utilize industrial waste-heat, repugnance of time and place should be resolved. We constructed the MILP model for construction of the waste-heat integration network. The integrated model can achieve stability of the network by considering interceptions. To verify the model, case studies have been carried out for several communities. The result shows that the total energy cost of community can be reduced more than 18%.

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