Analysis of process electrification for industrial energy systems

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Most of the energy system for chemical processes are based on the fossil fuel, which inevitably brings about environment issues. Therefore, Paris agreement effective as of 2016 to control the global temperature change below 2 °C by reducing greenhouse gas emission, eventually resulting in decarbonization, has been urged. For decarbonization, electrification is one of the effective methods to replace conventional fossil fuel-based energy system.

In this study, optimal utilization of energy considering maximum energy recovery and proper selection of utilities are evaluated with aid of heat integration method. Considering electrified energy-generation units, economic feasibilities of the alternative energy systems are evaluated. Further discussion is also made to improve economic efficiency.

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