Cogeneration is not a new concept but a proven process used for more than a century in commercial and industrial settings. The economics of cogeneration are very site specific and depend on many factors such as electricity rates, fuel cost, and investment cost. Since the power and heat output of a cogeneration system can never exactly match the requirements of the process plant, economics may also depend on the rates at which cogenerators purchase additional power or sell excess power to a utility if a system is sized for thermal needs. Therefore, the decision to install onsite cogeneration is a balance between the savings gained from the efficiency of a combined heat and power (CHP) system and the additional cost associated with capital, fuel and utility rates.

As a result, onsite cogeneration facilities for industrial applications are mostly situated in oil refineries and chemical plants with large power and process steam requirement having fixed cost advantages. Two key changes in the world’s industrialized economic system are occurring that could make cogeneration more important economically and environmentally—the restructuring of the electric power industry may provide an enhanced economic driver and the efforts to comply with the Kyoto Protocol on global warming may provide an environmental driver for energy efficiency. In recent years, smaller scale cogeneration systems have found applications in commercial sites with modest energy demands. Chemical plants with similar energy demands (3–50 MW of electricity and 10–100 thousand lb/hr of steam) may also consider onsite cogeneration as an attractive option. In this report, we present the economics of smaller "commercial-scale" cogeneration systems to supply chemical plants with electricity and process steam requirements.

This report is a valuable source of information that would be of interest to project planners, researchers, refinery operators, technology licensers, equipment vendors, government regulators, process developers, engineering contractors, and all those who are interested in reducing energy costs and protecting the environment.
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