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Battery Limit Cost Estimation

Process Economics Program Report 145C

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PEP Report 145C

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Abstract

The Process Economics Program (PEP) provides a wide range of plant investment and economic estimates for process technology in the chemical, polymer, and refinery industries. These conceptual designs and economic assessments depend on reasonable estimates of costs for the process equipment used in each design. To accomplish this, PEP must periodically address the methods used to estimate such costs, which in turn involves an assessment of the correlation methods of each equipment type. New equipment types should also be added at such times, the enhance the breadth of the equipment classes covered, as well as to update existing types to account for changes in the equipment manufacturing industry and address new data and expand limits.

This report updates the algorithms and correlations used to estimate battery limits capital costs built into PEP's costing method (PEPCost), and adds a number of new equipment types that previously required manual entry of hand calculations because PEPCost did not previously include estimation methods for them. A total of nearly 3,500 new or updated correlations are included, counting equipment costs, setting labor, material costs, and labor requirements for each bulk installation component (piping, civil, structural steel, instrumentation, electrical, insulation, and paint). The results of this effort are applicable to the chemical, petrochemicals, oil refining, and specialty chemical industries. Food and pharmaceutical industries are less applicable because most process equipment in those areas require built-in "clean-in-place" or "sterilize-in-place" features, for which the process industries noted previously do not need.

The goal of this project has been to upgrade and enhance PEP's ability to prepare cost estimation data for the preparation of Class 3 estimates with minimum design engineering effort.

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