

CASE STUDY



PEMEX Out-Performs Industry Benchmarks for Major Capital Projects Estimating



**"By systematically incorporating Aspen Capital Cost Estimator as part of a PEMEX methodology, and applying it on dozens of projects, PEMEX has been able to consistently achieve superior accuracy and reduce estimating man-hours."**

- Ing. Olga Marta Monterrubio Chavolla, PEMEX



Mexico's National Oil Company, PEMEX, needs to make the best possible decisions to most effectively invest its available capital in both oil production and refining projects.

In support of those goals, the PEMEX estimating group has standardized on economic evaluation solutions from AspenTech to ensure that capital estimates meet PEMEX benchmarks, exceed industry standards, and can be produced quickly.

PEMEX has relied on Aspen Economic Evaluation software over a ten-year period to achieve proven results both in terms of accuracy and predictability. The integration of estimating with other strategic solutions, such as process simulation and project control, has made the estimators' work more effective by removing organizational boundaries.

**PEMEX took advantage of several key areas of interoperability between software tools.**

### CUSTOMER PROFILE - PEMEX - Upstream Oil & Gas and Refining

#### CHALLENGE

Implement investment cost methodology to consistently exceed PEMEX CAPEX standards.

#### SOLUTION

aspenONE Engineering including Aspen HYSYS®, Aspen Process Economic Analyzer, and Aspen Capital Cost Estimator.

#### BENEFITS

- Consistently exceed PEMEX and industry benchmarks for Class IV to II estimates
- Achieve accuracy within 10% over 11 projects for Class II estimates
- Achieve accuracy within 15% over 13 projects for Class III estimates
- Reduce man-hours for estimates and feasibility studies
- Link directly to project control

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## SUPPORT BOTH INVESTMENT DECISIONS AND PROJECT EXECUTION

With PEMEX capital budgets under close scrutiny, and the use of capital strategic to the enterprise, the estimating organization is under constant pressure to produce estimates that meet stringent goals in terms of variations in cost and time.

A key factor in achieving this for PEMEX is the ability to accurately and efficiently define project scope early in the design and estimating process. Aspen Capital Cost Estimator (ACCE), with its 'engineer-in-a-box' modeling approach, is uniquely positioned to integrate with process simulation modeling and risk modeling software, supporting the early and accurate definition of scope.

## ACTUAL PROJECT COST RESULTS FULLY VALIDATES APPROACH

A review of actual versus estimated costs for 33 projects executed beginning in 2001 by PEMEX shows that with Aspen Capital Cost Estimator acting as the core of a standardized methodology, PEMEX was able to achieve estimating variability that stayed below industry benchmarks and within the bounds of PEMEX investment standards.

**A standardized and integrated approach—using aspenONE® Engineering—enables PEMEX to optimize estimating methodologies, support an increased pace of capital investment, and improve decision-making.**

## AN INTEGRATED WORKFLOW IMPROVES EFFECTIVENESS

Looking for ways to reduce the time and effort to produce excellent estimates, PEMEX took advantage of several key areas of interoperability between software tools.

One key element is the automated workflow between process simulation, for which PEMEX standardizes on Aspen HYSYS, and Aspen Economic Evaluation, in which equipment sizing and mappings are brought directly into the estimating system.

A second key element is the interoperability with Oracle Project, in which the ACCE-generated estimate populates the project control system with scope, resources, manpower requirements, and cash flow.

## ADDITIONAL TIME CREATED FOR RISK ASSESSMENT

The use of AspenTech's tools has increased the efficiency of the estimating function, freeing up time for conducting much needed risk analysis, a vitally important activity that must accompany the estimating process. PEMEX uses a Monte Carlo approach, in concert with ACCE, to calculate the risks and quantify contingencies of all capital proposals.

AspenTech is a leading supplier of software that optimizes process manufacturing—for energy, chemicals, engineering and construction, and other industries that manufacture and produce products from a chemical process. With integrated aspenONE® solutions, process manufacturers can implement best practices for optimizing their engineering, manufacturing, and supply chain operations. As a result, AspenTech customers are better able to increase capacity, improve margins, reduce costs, and become more energy efficient. To see how the world's leading process manufacturers rely on AspenTech to achieve their operational excellence goals, visit [www.aspentech.com](http://www.aspentech.com).

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