

Ethane Export Terminal

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Abstract

Today, the United States is a cumulative net exporter of refined products, NGLs, natural gas, and chemicals derived from natural gas and NGLs.

The export of ethane by pipeline to Canada started in 2014 and constituted almost 100% of USA's total ethane exports till 2016. The more complex logistics of deep-water ship-borne ethane exports was worked out and culminated in the first ship-borne ethane exports to Norway in 2016.

Today, the USA ships ethane to Norway, Sweden, UK, Mexico, Brazil, China, and India. The world is interested in US ethane as a low-cost feedstock for ethylene production, and it is anticipated that ship-borne exports will rise—with India, Western Europe, and China as possible large-scale clients of future US ethane surplus. This review addresses the technology and economics of a marine ethane export terminal in USA, with a processing capacity of 200,000 barrels per day* (equivalent to 5.8 MMTPA) of refrigerated ethane. (**Note: In this review, the 200,000 barrels per day refers to refrigerated liquid ethane produced. In Mont Belvieu barrels, the capacity is 310,100 bbl/day—see Section 5.2 for details*)

It includes the process flow diagram, material balance, major equipment sizes, and specifications. Cost data, including battery limit and offsite costs, variable costs, CAPEX, OPEX, and overall production costs, is provided.

This review provides insight into various aspects of the technical design of such a facility. It can be used as a cost estimation tool for different plant capacities. It will be beneficial for planners, producers, and designers who are looking for independent data for ethane export terminals.

An interactive iPEP Navigator module of the process is included, which provides a snapshot of the ethane terminal process economics in six global regions, reported in English or metric unit.

The technological and economic assessment of the process is PEP's independent interpretation of a commercial process based on information presented in open literature (such as patents or technical articles) or in-house generated data (e.g. HYSYS simulation, equipment cost estimation). While this assessment may not reflect the actual plant data fully, we do believe that it is sufficiently representative of the process and process economics within the range of accuracy necessary for economic evaluations of a process design.

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