



## TECH 2018S4: Small Scale Methanol/DME

**Small Scale Methanol/DME** is one in a series of reports published as part of Nexant’s 2018 Technoeconomics – Energy & Chemicals (TECH) program.

### Overview

Small Scale Methanol/DME is a growing development amidst the announcements of world scale methanol plants. Due to the limited flexibility of world-scale methanol plants, small scale methanol and DME technologies are on the rise in order to convert stranded, associated, or bio gas into value-added products. The development of small scale methanol and DME facilities follows the investment and success achieved in small scale gas-to-liquids (GTL) technologies. This report provides an updated overview of the technological, economic, and market aspects for small scale methanol/DME production. The following issues are addressed in this report:

- What are the key market drivers for small scale methanol and DME production? What is the current market environment for methanol and DME?
- How will the new International Marine Organization regulations influence DME and methanol use as a marine fuel?
- What technologies are currently available for small scale production of methanol and DME? How do the technologies differ? Which technologies are available for license?
- How do the process economics compare to world scale production facilities?

### Commercial Technologies

With growing interest in small scale methanol and DME, numerous companies have developed technologies for the production of methanol and DME. Small scale plants leverage standard designs, proximity to the customer, inexpensive feedstocks, or the use of biofeedstocks to compete with large, world scale plants who must ship product long distances to the end customer. Technologies developed by Primus Green Energy, GasTechno, Haldor Topsoe, Midstream Methanol, Maverick Synfuels, Enerkem, Thyssenkrupp, BSE Engineering, Oberon Fuels, Mitsubishi, Toyo Engineering, Unitel, ChemBioPower, Korea Gas Corp, and JFE Holdings are described.

### Process Economics

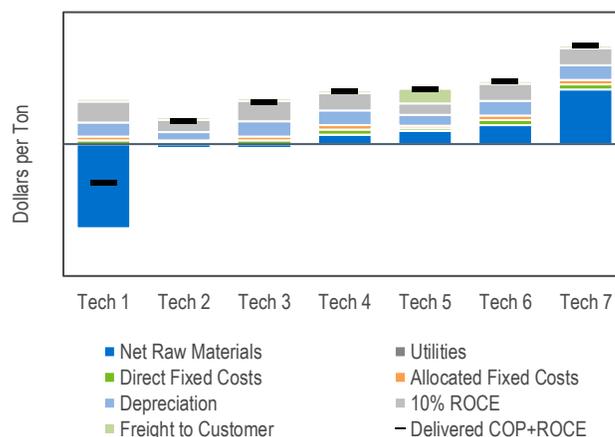
Detailed cost of production estimates for small scale methanol and DME technologies are presented for USGC, China, and Western Europe locations. For methanol plants in the U.S., estimates are compared to a world scale plant on a delivered basis to assess the competitiveness of small scale plants.

### Commercial Overview

Global methanol consumption was more than 90 million tons in 2017 with demand into olefins and formaldehyde as dominant end uses. Emerging uses, such as olefin production, gasoline blending, and biodiesel are the fastest growing end uses.

Global DME consumption reached nearly 4 million tons in 2017 with demand driven predominately by gasoline blending applications in China. However, there has been considerable interest in the use of DME as a replacement for both LPG and diesel for use as a transportation fuel. This TECH report provides an overview of supply, demand and trade of methanol and DME on a global and regional basis.

Small Scale Methanol Cost of Production





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