

Crude Oil to Chemicals and Oxidative Coupling of Methane: Potential for Synergy?

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Abstract

On 13 June 2018, Siluria Technologies, Inc. issued a press release announcing that Saudi Aramco Technologies Co., a subsidiary of the world's largest oil company, had purchased five licenses for Siluria's oxidative coupling of methane (OCM) process to make light olefins from methane. Saudi Aramco called the Siluria process a "strong fit" with certain plant configurations for crude oil to chemicals (COTC).

In this review, we present two COTC concept cases. The first is an update of a concept that we first published in PEP Report 29J, "Steam Cracking of Crude Oil" (March 2016), scaled up to 200,000 BPD. We also balance the steam cracking and HSFCC (high-severity fluid catalytic cracking) capacities, which shows that on a third quarter 2018 Saudi basis net refinery margin (EBITDA) for this concept is over \$17/bbl. If this performance could be achieved in the field, such a COTC refinery would rank as the best performer in Eurasia.

We also present a case in which OCM is integrated into the COTC process. Here, the OCM unit cofeeds ethane and propane along with methane, thereby substituting for gas crackers. Here, the extra ethylene produced via OCM from inexpensive Saudi methane appears to roughly balance the increased CAPEX for the OCM and associated units.

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