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# CHALLENGES FOR EPC CONTRACTORS

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## Chapter 1

# PURPOSE OF THIS PAPER

In this paper the current changes in the EPC business, the impact of these changes on EPC projects and the effect of the Coronavirus as well as the current oil price crash on the contracting industry will be analyzed and an outlook for the industry will be given.

## Chapter 2

# CHANGES IN EPC BUSINESS

The EPC business worldwide was fueled by the US shale gas revolution and the boom of projects driven by low cost feedstock, such as abundant ethane, LPG and shale oil. In the US, where the boom started, a significant number of large-scale petrochemical projects entered the market after a period of many years without any major project in this sector. Projects had competing schedules and have been awarded in tough price battles. Project locations either have been at the US gulf coast or at remote locations close to feedstock sources.

This concentration of projects created enormous problems for the EPC companies, to find enough capacity and quality of construction manpower, as projects were competing with each other for manpower.

Another factor was the size of the projects, as economy of scale was used to bring specific production costs down. Due to the size every project required a huge number of construction manpower, which was not available in sufficient quantity and with experience, as for long time large EPC projects have not been awarded in the US.

The construction portion of an EPC project is always the part with the highest risk and for many years has been in the range of 25 to 35 % of the EPC project cost for international projects. Driven by

the scarcity of qualified manpower the construction portion for US petrochemical projects went up to 50 % and more of the EPC cost. Besides construction, delayed permits were another major source for project delays and schedule and cost overruns, as any delay creates extra project cost.

A delayed startup of a plant also means entering the market later as scheduled and in an environment of competing projects, as shale ethane-based projects all produce similar end products, such as Polyethylene and Ethylene derivatives.

This trend to be early on the market with the end products has driven EPC contractors to offer short and probably unrealistic schedules, which during execution had to be extended significantly and led to an underestimation of project risks of schedule.

The technological risk in the EPC projects was rather limited, as ethane-based complexes with steam cracker and polymer units are well known to experienced Engineering companies and have been executed before in similar scale several times in the Middle East.

However, supply of bulk material and equipment was a challenging factor, as the boom of projects overheated also international markets for bulk and