



Life Cycle of a Process Plant

Edited by Mahdi Nouri and Eberhard Lucke

LIFE CYCLE OF A PROCESS PLANT

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Project management in oil and gas

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11.1 Introduction

The oil and gas industry is divided into three primary sectors: upstream, midstream, and downstream. The backstream sector has also become a recent development. Projects in this industry are very diverse, and it all depends on the sector it deals with.

Upstream focuses on the stage of exploration, which ultimately deals with searching for oil and gas at the subsurface. This involves programs for the production of hydrocarbons offshore in the oil fields and requires a team of engineers and geophysicists as well. Among upstream projects, there are several types, including maintenance, enhanced oil recovery methods, and infrastructure development to maximize production and benefits [1].

Midstream focuses on refining crude oil to fractions that can be used to create fuels and other useful chemicals, which requires the help of chemical engineers and petroleum engineers. Projects involving the transportation of oil and gas from the fields and into the market are also included in this sector.

Downstream focuses on converting crude oil into other high-demand products such as common plastics and petrochemicals. Such projects are intense on a large scale of demand and deal with wholesale of refined products [2].

Backstream focuses on managing the byproducts developed in midstream and downstream and finding methods to recycle and store waste products such as carbon dioxide that are formed during the refining processes. Interestingly, backstream projects require a similar skillset to that of the upstream industry, and indeed this is where some major oil and gas companies are diversifying into today [3].

As the oil and gas industry continues to develop, so do the project management methods that apply to them. The oil and gas industry has boomed to a high-scale industry and is very in demand, and project management methods must accommodate for that [4].

11.2 Project management in oil and gas industry

11.2.1 Why portfolio management?

A different set of tools and approaches are required for delivering a portfolio of small capital projects in the gas distribution industry for a mixture of compliance, service area improvement, and replacement/service life extension than large project delivery. While working with the clients, several tools and approaches have been developed to identify and prioritize these efforts and deliver them efficiently as possible (see Fig. 11.1).

Managing a portfolio of projects is an ongoing effort where a combination of business planning, project validation, supply chain and delivery management, and long-term asset management all enter into effective delivery of a large number of smaller projects.