

Economic Evaluation and Application Process Economics and Design Parameters

As we have seen above, gas-oil separation plants are needed for environmental reasons. It is not appropriate to burn off the gases associated with crude oil. The economic reasons for processing and treating the produced crude are obvious. Recovering associated gases prevents wasting a natural resource, which was originally flared off. There are other economic reasons for using GOSP. Removing contaminants from the crude, such as salt and hydrogen sulfide, protects plants from corrosion damage.

During crude-oil processing at the GOSP, one of the most important variables that determines the efficiency of oil/water/gas separation is the tightness of the incoming emulsion. The tighter the emulsion, the higher is the dosage of demulsifier needed to break them. The performance of the GOSP is closely tied to the characteristics of the feed emulsions.

Another aspect of GOSP performance is related to the process facilities (hardware) and process variables. The hardware includes the number and type of separators, dehydrators, and desalters, water/oil separators (WOSs), and other hardware at the GOSP. Process variables include oil and water-flow rates, temperatures, water cuts, and GOSP operating conditions. A higher residence time of fluids in the GOSP will generally lead to better separation and better performance, all other variables being constant. In addition to the residence time, process retrofits in the vessels also tend to enhance performance.

Usually it is most economical to use three to four stages of separation for the hydrocarbon mixture. Five or six may pay out under favorable conditions, when, for example, the incoming wellhead fluid is found at very high pressure. However, the increase in liquid yield with the addition of new stages is not linear. For instance, the increase in liquids gained by adding one stage to a single-stage system is likely to be substantial. However, adding one stage to a three- or four-stage system is not as likely

to produce any major significant gain. In general, it has been found that a three-stage separating system is the most cost effective.

The following parameters are detrimental in evaluating the performance and the economics of GOSP:

1. Optimum separation conditions: separator pressure and temperature.
2. Compositions of the separated gas and oil phases
3. Oil formation volume factor Gas-Oil Separation
4. Product gas-oil ratio
5. API gravity of the stock tank oil

Organization Of Arab Petroleum Exporting Countries (OAPEC)

Organization Of Arab Petroleum Exporting Countries (OAPEC) is an inter-governmental organization based in Kuwait. OAPEC fosters cooperation among its 11-member Arab oil-exporting nations.

APEC was established in 1968 by Kuwait, Libya, and Saudi Arabia. Its other members include Algeria, Bahrain, Egypt, Iraq, Qatar, Syria, Tunisia, and the United Arab Emirates. Although they have several members in common, OAPEC is a separate and distinct entity from [OPEC](#)

(the Organization of the Petroleum Exporting Countries), the 12-nation [cartel](#) that plays a pivotal role in determining global petroleum prices. OAPEC sponsors joint ventures for its member countries to promote the effective use of resources and the economic integration of Arab countries.

The Influence of OAPEC

According to Gulf News, although momentum is not at the pace it was 30 years ago, OAPEC has had a substantial positive influence on the Arab oil and gas industry since its inception. Arab energy and oil consumption has increased 15-fold and 10-fold, respectively, and oil reserves have increased to 710 billion barrels in 2016 from less than half that number in 1980. In addition, gas reserves grew from 15 to 53 trillion cubic meters, and Arab petrochemicals production is now almost 150 million tons a year