



**University of Thi -Qar
College of Engineering – Petroleum and Gas Engineering
Department**

**PETROLEUM ENGINEERING
ECONOMICS (I)
*(Lecture 2)***

Lecturer
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The importance of oil

1. Oil represents the great importance in the economic life of nations; it is considered the main source of energy and the main engine of economic developments and industrial civilization that prevailed around the world.
2. Oil characterized by the highest degree of flexibility in many needs, in addition to its use as a raw material for industry and energy, also used in the petrochemical industry, fertilizers, plastics, pesticides, and other industries.
3. Adoption of oil-producing countries on the returns as an indispensable source of national income] for the regular budget and investment and a means to achieve economic development.
4. Strategic importance of oil where it enters in many cases, as policies and state field and evolution of life.
5. Enters in the food industry as a source of protein.

Despite many attempts to discover and develop alternatives to oil, but the oil will be the major source of energy in the world because of *its advantage of the characteristics* as shown below:

- 1- Ease of extraction, transportation, refining and storage.
- 2- High calorific value of oil compared with other sources of energy.
products
- 3- The possibility of refining to multiple producers with different benefits, such as gasoline, kerosene and lubricating oils.

In spite of the above benefits there are some problems (*disadvantages*), namely:

- a. Oil is one of the finite resources in the future.
- b. The combustion products of oil caused significant environmental problems on a global level.

Stages of the oil industry (briefly)

There are five stages related rings of the 'oil industry and for each of these stages specificity and nature of which differs from the other stages, which described briefly below:

1-stage of research and exploration:

Includes various studies, research and business technical and economic knowledge, this aims to identify the presence of the oil wealth in terms of quantity, quality and degree economically exploited.

2-Oil extraction stage:

This stage includes a set of economic events and technical work on the creation of crude oil for the purposes of extraction and becomes ready to be transferred to centers and export demand, and this stage also includes preparation oil-producing wells and set up the equipment and facilities necessary for the pipeline and extraction operations.

3- Transportation stage:

Which include the establishment, formation and provide specialized transportation to transport crude oil from production centers to centers and export demand, as well as the creation of tankers, container and in order to complete the transfer of the oil internally and externally.

4-Rfining stage:

The process of converting crude oil into petroleum products and the few products for use in its final form or centrist such as petrochemical and other industries.

5-Stage of distribution:

This stage represents the link between the producer and the consumer, and includes the establishment and formation of the distribution centers for internal and external storage or oil products and distribution final networks.

• Petrochemical manufacturing stage:

There are several petrochemical products and is based on the manufacture of refined products (gasoline, kerosene, associated gas, natural gas) in order to

produce various chemical products (detergents, pesticides, fertilizers, paints, plastic materials...)-

The characteristics of the oil industry:

1. Magnitude capital money invested in this industry, as it requires large investments by virtue of the multiplicity and diversity of the stages and the exploitation of the product. An additional to the nature of the earth and water, which is where the process of oil production.
2. A high proportion of fixed capital investment to variable capital investment, which means that the capital structure in the oil industry has mostly fixed elements of which include (machinery, equipment and construction) and the percentage of this group is more than 80% compared with variable capital.
3. The use of development technology, because the nature of this industry and try to reduce the cost of the production to increase the returns from it.
4. LOW elasticity of demand and supply in the short term as the Elasticity of demand is less than the correct one and this leaves traces which is clear on the prices of crude oil and its derivatives from the sharp rise.
5. The oil industry and because of their nature and specificity are more inclined towards the monopoly of it to the competition.
- 6- High level of risk and uncertainty in economic activity.
7. Oil industry needs to be staffed with cadres of skills and scientific skills trainers and a high degree of educational attainment and professional.

Theories of oil formation

Oil substance simple and complex at the same time it is chemically composed of two elements, namely hydrogen and carbon. Oil compounds are complex in terms of their different characteristics and their derivatives in different molecular structures where they differ in the viscosity, and

therefore its density and also oil color may be greenish black or brown and yellow.

Petroleum is derived from two words (petro) a rock and (leum) which mean gasoline in Latin and this so-called rock oil.

The theory of the evolution of oil from the two theories:

1. Inorganic theory.

2. Organic theory, which consist as (plant theory and animal theory).