

# **Al-Mustaqbal University College**

Department of Chemical engineering  
and petroleum industries

Petroleum Economics

Second Stage

# Petroleum Economics :

Petroleum economy known as one of scientific disciplines that deal with studying the oil industry across multiple rings (exploration, extraction, transportation, refining, and consumption). The oil economy as a branch of applied economics, which tries to take advantage of the tools of economic analysis in the study of the behavior of the oil industry as units producing or consuming in terms of the supply, demand, prices, costs, the behavior of the product, and consumer behavior. **It is aware of the economics branches, like other types of industrial and agricultural economy and the international economy and the rest of the other branches.**

## Effect of Oil Economics with other Branches of Science:

- 1- The relationship of oil economics with other branches of knowledge, such as geography and history and politics, for example, geography (the oil economy relation to the geographical distribution of oil sites in the world), and history (the evolution of the oil industry in the world) by several indicators and patterns of ownership and its evolution over time and the control of companies and countries on the industry.
- 2- Relationship of oil economy with the branches of statistics and mathematics, and the intervene in many areas and operations research as well as the functions of demand and supply, prices and functions (linear and non-linear and logarithmic) in building models and estimate and analyze the behavior of the product oil as well as the growth rates of oil consumption, energy and oil production as well as quantitative analysis and the other different fields.



## Terminology and some aspects Energy map:

Divided into different energy sources, whether the sources of energy depleted or non-depleted sources and distributed between what is commercial and non-commercial, and as shown below:

- **Conventional (classical) energy sources (wood, animal waste).**

- Sources of Commercial Energy (Normal):

1- Depleted energy sources (oil, gas, and coal .....).

2- A renewable energy sources (hydropower, geothermal energy).

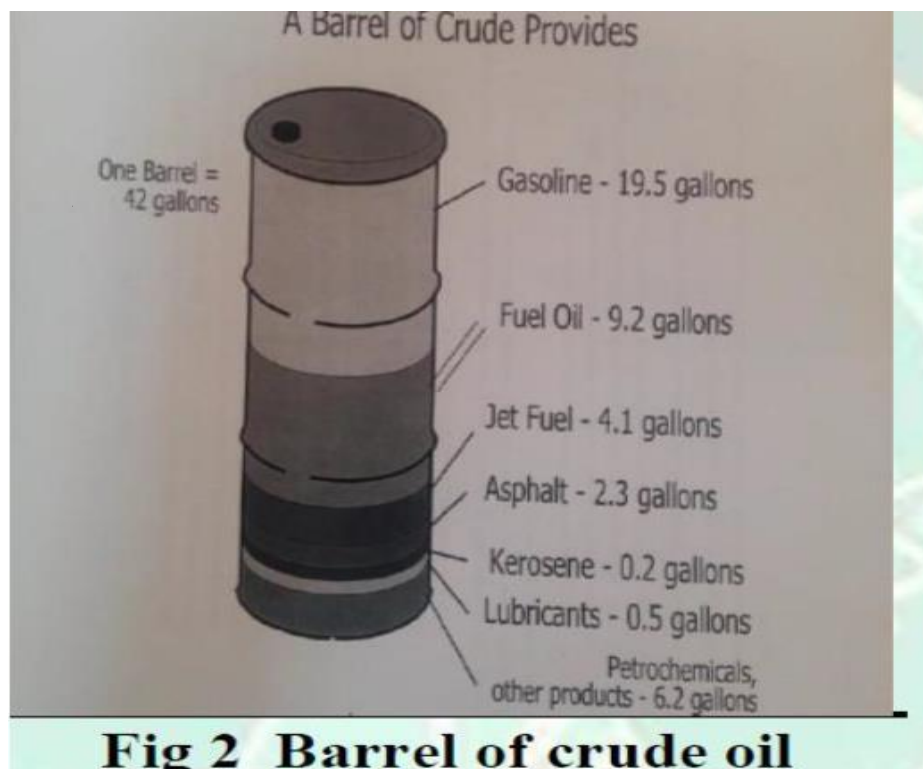
- **Sources of commercial energy (unusual) future:**

1- Depleted sources (heavy oil, oil sands asphalt, and tear gas from the unusual sources).

3- Renewable sources (solar; direct solar energy (thermal conversion and photoelectric transformation) and indirect solar energy (wind, waves, tides, and organic energy).

### 2- A map of a barrel of oil

It can be identify as the components of a barrel of oil refining process before and after the process of refining it to be valid for direct consumption in all known areas and as shown in the attached figure (2) for a barrel of crude oil.



### 3- Metrics and conversion factors in the oil industry and energy

It is a set of scales and transactions for transferring crude oil and energy in order to deviate from the measurements between overlapping sources of fuel and energy, and it can be seen below:

A-The units of measure are supported in the calculation of units

$$10^3 = 1000$$

$$10^9 = 1000000000$$

$$10^6 = 1000000$$

$$10^{12} = 1000000000000$$

B- Switcher units in crude oil:

- metric ton = 7.333 barrels
- 100 barrels of oil/day = 50(10<sup>13</sup>)/ton/year
- 

$$1 \text{ barrels of oil} = 42 \text{ gal}$$

C-Supported standards in terms of oil and energy :

- bd=barrels per day
- cfd=cubic feet per day
- mbd=million barrels per day

D- Switcher units between energy source:

- 1 ton(LG)=16 barrels of oil
- 1 ton(coal)=0.67 million tons oil
- 1 ton(coal)=25 million Btu
- 1 Barrels= 5 million Btu
- 1 tons oil= 39 million Btu