

Lecture Note of Innovative Ship and Offshore Plant Design

Innovative Ship and Offshore Plant Design

Part II. Offshore Plant Design

Ch. 1 Introduction to Offshore Plant Design

Spring 2017

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Ch. 1 Introduction to Offshore Plant Design

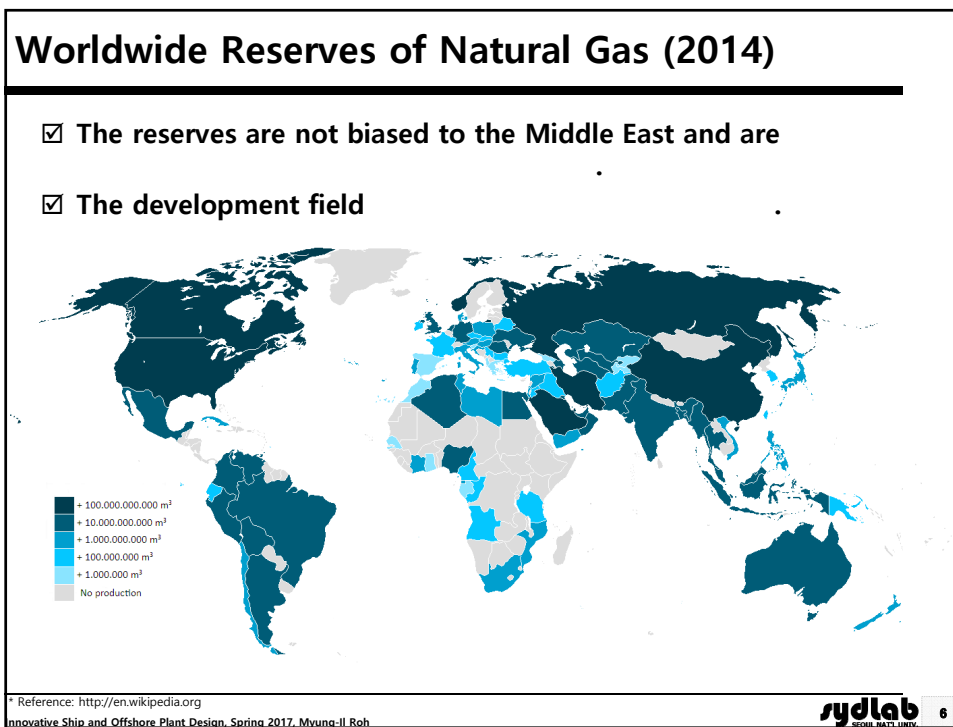
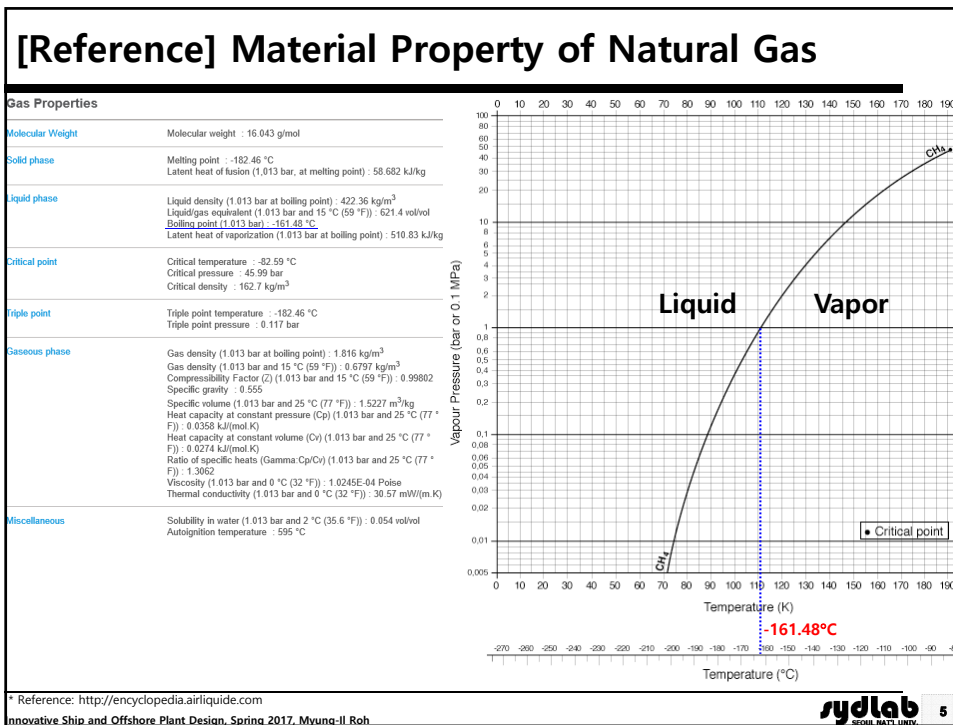
Natural Gas (NG)

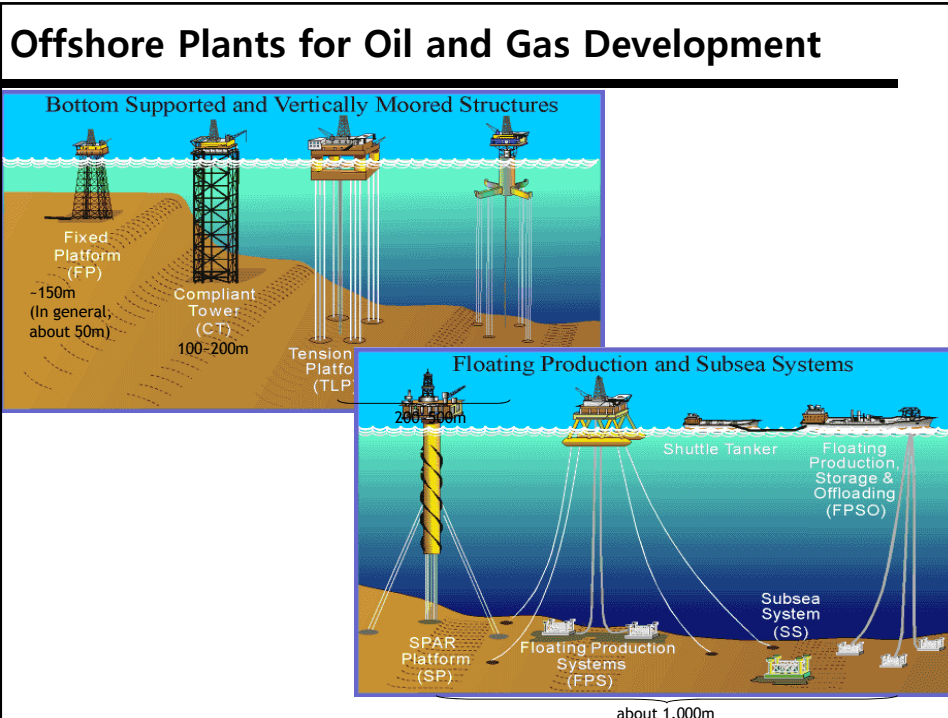
Natural Gas

- Hydrocarbon gas mixture consisting primarily of methane for preventing environmental pollution → Used for all fields of home, commerce, transportation, industry, etc.
- Providing about $\frac{1}{4}$ of energy consumption of the world → It will be continuously increased.

Special Features

- Liquefied at -162°C under atmospheric pressure →
- When liquefied, the volume becomes $\frac{1}{600}$. →

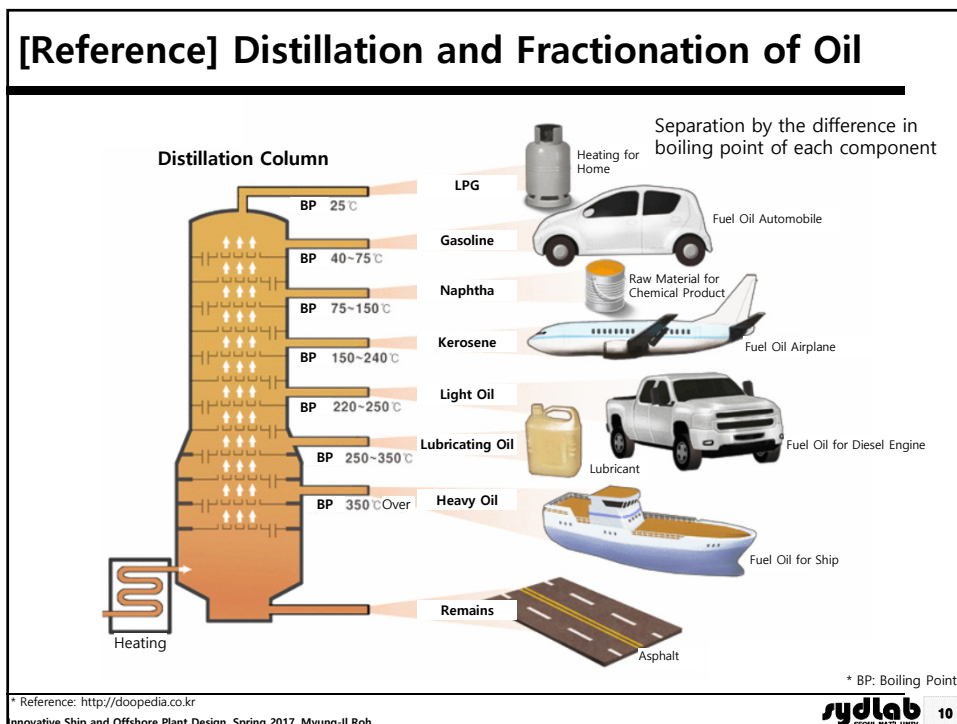
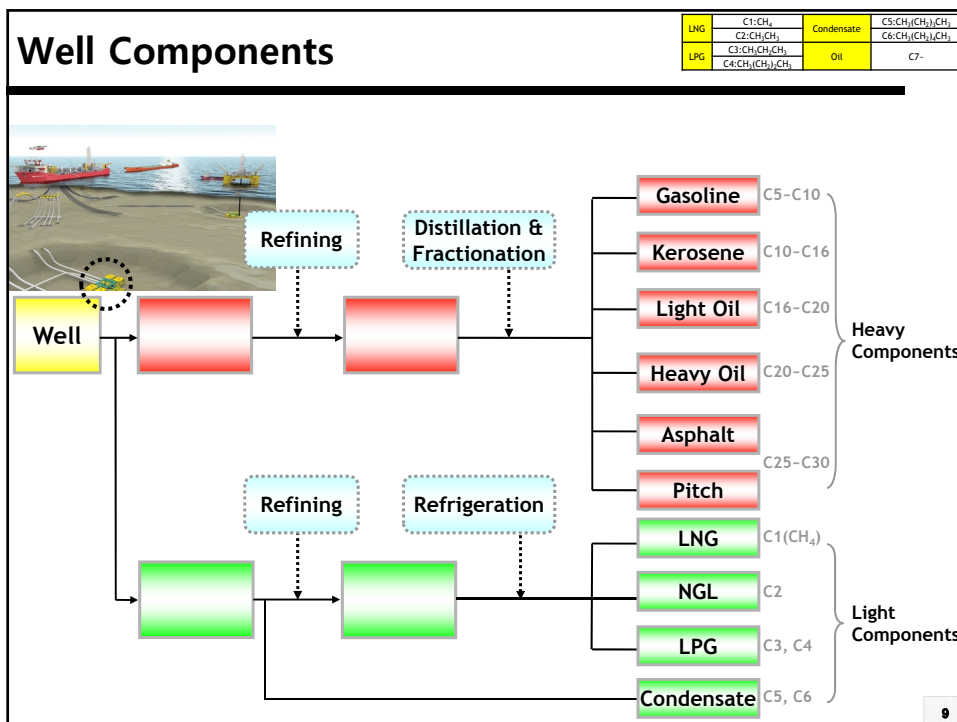


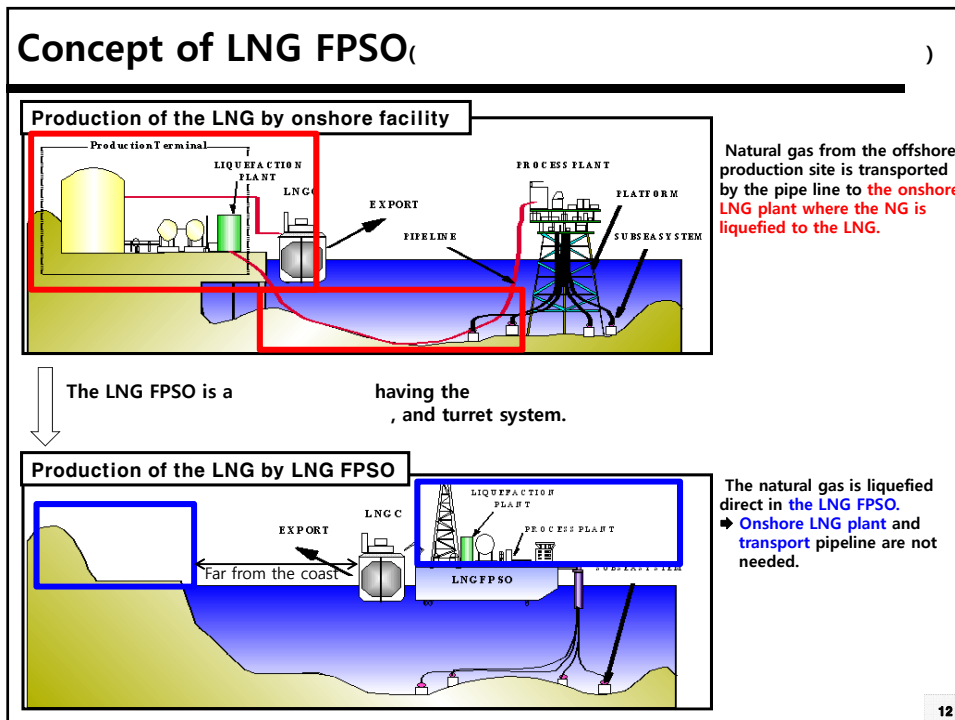
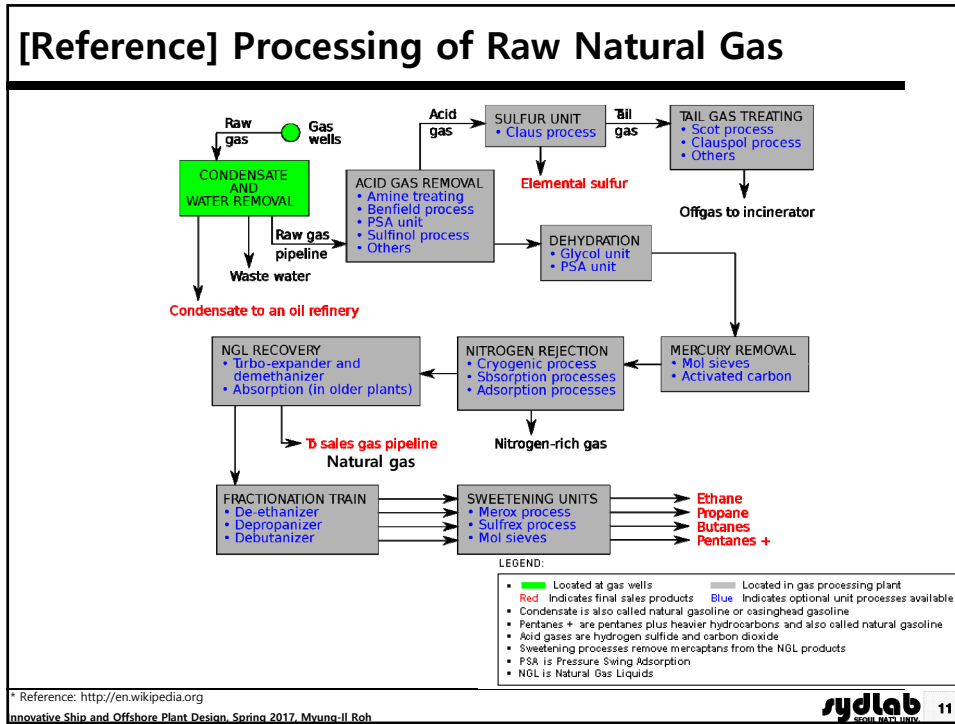


Offshore Plant for the Development of Deep Sea

- Production plant for separating the well stream into oil, gas, and water and then transferring them to onshore
- for the production and for the storage of oil and gas
- and for topsides equipment and instruments
- Oil FPSO / LNG FPSO

Well





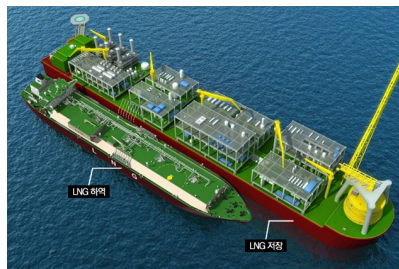
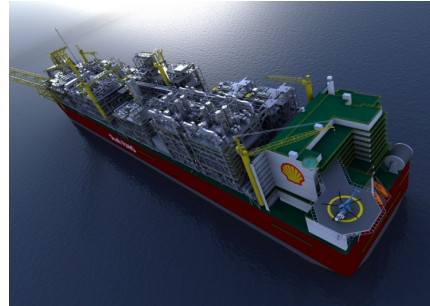
[Article] Shell decides to move forward with groundbreaking LNG FPSO.

The World's First LNG FPSO

Shell, the world's largest oil company, is now ready to start construction of what will be the world's first LNG FPSO, in a ship yard, Samsung heavy industry, in South Korea.

LNG FPSO cools down the temperature of the natural gas (NG) from 27°C to -162°C to shrink in volume by 600 times.

The **liquefaction process system** for LNG is most important system of the LNG FPSO.



* MTPA: Million Ton Per Annual
 * Reference: [Article] Yonhapnews, Shell decides to move forward with groundbreaking floating LNG, 2011.5.20
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