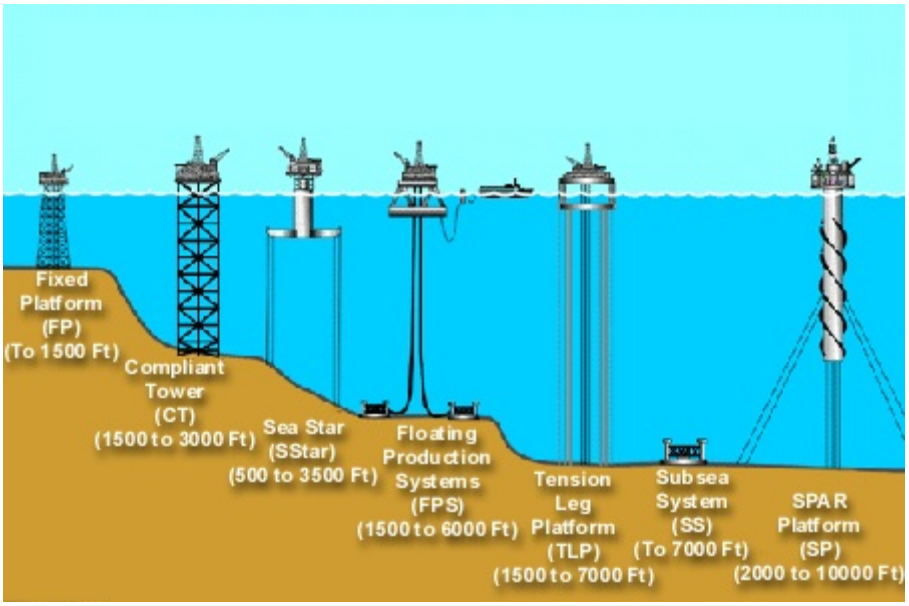
Offshore Platforms

(Reference: Maritime Connector)

Offshore platforms, also referred to as oil platforms, are huge structures equipped with resources to drill wells and extract oil and gas deep inside the ocean. They boast storage facilities for crude and gas till they are transported to refineries, and sometimes may also have facilities to provide accommodation to the workforce. Depending on the requirements, an **oil platform** may be **floating** or **fixed** to the ocean floor.



Different types of platforms

Remote subsea wells can also be connected to a platform by pipelines. Offshore platforms are strongly built and are designed to last decades in the harsh environment. These platforms are usually build onshore and then transported to the drilling site.

Offshore platforms were first used in 1891 to drill submerged oil wells in the Grand Lake St. Mary's in Ohio.

Oil wells in the Grand Lake St. Marys

Main types of offshore platforms include

Fixed Platform

Fixed platforms are built on large steel or concrete legs that are fitted directly onto the seabed. They boast space for drilling rigs and production facilities, as well offer accommodation facilities for crew. This type of platform is extremely stable and is designed to last for a very long term. Normally, they can be installed in water depths up to 520 m (1,700 ft), as depths greater than this become impractical due to higher costs.

Fixed platform

Compliant Towers

These towers function on the basic idea of fixed platforms. But they use narrower towers of concrete and steel. They are flexible in design to sway and move laterally with the forces of wind and waves. These towers can operate in water depths ranging from 457 to 914 m (1,500 to 3,000 ft).

Compliant tower

Floating Production Systems

FPSO (floating production, storage, and offloading system) are the major floating production system. They can be used either as floating semi-submersible platforms or drillships as per the requirements. They are mainly used for processing and storage of oil and gas, and can operate in water depths up to 1,829 m (6,000 ft).

FPSO

Semi-submersible Platform

As the name suggests, these are semi-submerged platforms that can be moved from one place to another whenever required. They work on the principal of dynamic positioning with giant anchors holding their places. These types of platforms can operate in water depths ranging from 60 to 3,000 m (200 to 10,000 feet).

Semi-submersible Platform

Sea Star Platform

These platforms are a larger version of semi-submersible design. But instead of anchors, they are connected to the ocean bed by flexible steel legs. These platforms usually operate in water depths ranging from 152 to 1,067 meters (500 to 3,500 feet).

Sea Star Platform

Tension Leg Platforms

They are floating platforms, usually the giant version of the Sea Star platforms, except the tension legs extend from the ocean floor to the platform itself. This type of platforms can operate in water depths up to 2,134 m (7,000 ft).

Tension Leg Platforms

Spar Platforms

In this type of platform design, the platform is placed atop a huge hollow cylindrical hull with other end of cylinder descending to a water depth of about 213 m (700 ft). Despite the fact that the cylinder stops far above the ocean bed, the platform stays in place due to the cylinder's weight. These types of platforms can operate in water depths up to 3,048 m (10,000 ft).

SPAR platform

Drillships

Drillships are marine ships fitted with drilling equipment and the dynamic positioning system, which maintains their positions over oil well. They are primarily used for exploratory drilling and can operate in water depths up to 3,700 m (12,000 ft).

Drillship