

Transportation



What is the transportation of Petroleum?

- ▶ Transportation is the movement of petroleum products (natural gas, liquefied natural gas, crude oil, condensates and refined products) by using pipelines, sea tankers or road tankers.
- ▶ Transportation usually occurs after production, but before refining (although refined products can also be transported to their final user).

The type of transportation used depends on the product:

1. Crude oil - can be shipped (sea tankers), piped (pipelines) or trucked (road tankers)
2. Natural Gas - normally is transported via pipelines
3. Liquefied Natural Gas (LNG) - transported via sea (ship) or road (truck) tankers



Offshore Transportation vs Tankers

Offshore Pipelines	Tankers
Large capital investment	Lower capital investment
Low operating costs	Higher operating costs
Low maintenance costs	Higher maintenance costs
Suitable for short / medium distances	Suitable for medium / long distances
Low spills history	Higher spills history
Money up front	Pay when used
Available anywhere	Requires water
Less strike risk	Higher strike risk

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How big is an oil tanker?

Tankers range in size from coastal tankers, which are 205m long, 29m wide, carry up to 50,000 tons and have their hull immersed 16m underwater, to ultra large crude carriers which are 415m long, 63m wide, carry more than 300,000 tons and are immersed 35m underwater.

The largest tankers ever built weigh over 550,000 tons - that's more than 10 Sydney Harbour bridges or 2800 747 aeroplanes!*

* Sydney Harbour Bridge consist 52,800 tons of steel and an empty 747 weighs 195 tons.

Pipelines

Pipelines are an important part of all phases of production from the gathering systems joining wells to process facilities and in the transportation system to deliver oil and gas to refineries. Pipelines vary from simple steel tubes to newer-technology flexible lines. Size can vary in diameter from 50 millimetres to two metres.

Laying of pipelines can be expensive, particularly offshore where sophisticated techniques are used to ensure the line is properly placed.

The typical approach offshore is to weld lengths of pipe together on a lay barge and progressively lower or slide the pipeline to the sea bed.

Onshore pipelines are also welded and laid in sections in trenches and then buried so they are underground.

Major Gas Pipelines in WA

- › Two 130 km North Rankin to Dampier (subsea, 42" and 40")
- › 1500 km Dampier to Bunbury
- › 415 km Dongara to Perth
- › Two 100 km Varanus Island to Mardie Station (subsea, 16" and 12")
- › 88 km Griffin line (subsea)
- › 1400 km Goldfields Gas Transmission line



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