



Cambashi's Industry Focus Curriculum: **Oil & Gas**

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To begin the course, click here



Program Level: **Basic**

Prerequisite Learning: **None**

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Introduction

Welcome

Oil is a significant part of a larger global energy market.

As well as providing the raw materials that create fuels, oil and natural gas can be refined into a huge number of end products - like solvents and other chemicals - which play a vital role in many other manufacturing sectors.

However, the sector is facing serious problems due to global oversupply and the subsequent collapse of oil prices.

\$30 - \$50 per barrel oil means that operations have become commercially unsustainable for some companies. As a result, many exploration and drilling projects are being temporarily shelved as companies hold out for a recovery.

What's in this Course?

This course will explain the complex mix of government and private ownership of oil companies and the different structures of the numerous companies involved in the industry.

It will also provide you with a frame of reference to hold a knowledgeable conversation with decision makers in Oil & Gas companies.



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Industry Structure

National Oil Companies

National oil companies (NOCs) are those in which the parent government is the largest investor.

Prominent companies include:

- **Saudi Aramco** (Saudi Arabia)
- **National Iranian Oil Co.** (Iran)
- **PetroChina** (China)

These companies are the most influential oil & gas firms and their influence on the global sector is now stronger than ever.

NOC Characteristics

Unlike IOCs, most NOCs:

- support their governments - financially and strategically - and their home countries by paying revenues, taxes and royalties back into their national system
- have political and social responsibilities, including job creation and even the financing of national construction projects (schools and hospitals etc).

Some NOCs are part-government and part-investor-controlled, and have a little more strategic and operational autonomy, resulting from the need to satisfy both shareholder groups. **Petrobras** (Brazil) and **Statoil** (Norway) are two examples.



PetroChina



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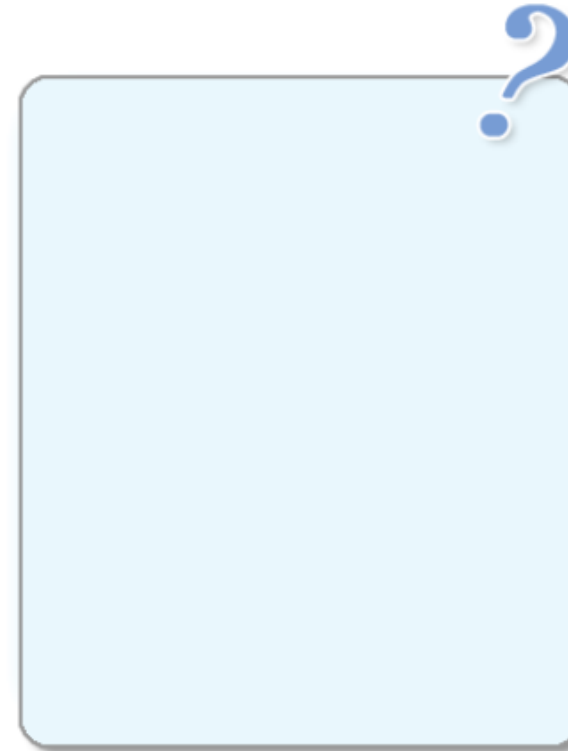
Industry Structure

Knowledge Check

What have you learned about the business processes in the Oil & Gas industry? Answer the question below by clicking on the appropriate button.

"Which of these processes is common to both upstream **AND** downstream operations?"

- Exploration and production
- Distribution of crude oil and petroleum products
- Management of Health, Safety and Environmental Performance
- Marketing, wholesale retail of oil and petroleum products



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Downstream Activities

Refining Stages

The refining process breaks down the crude oil into a range of constituent hydrocarbons including (at a simple level) methane, butane and propane.

These hydrocarbons contain a lot of energy, which explains why crude oil is able to form so many different fuels.

In order to create this range of new products, the refinery must perform three basic steps: Separation, Conversion and Treatment.

Incoming oil and finished products must all be stored on-site.

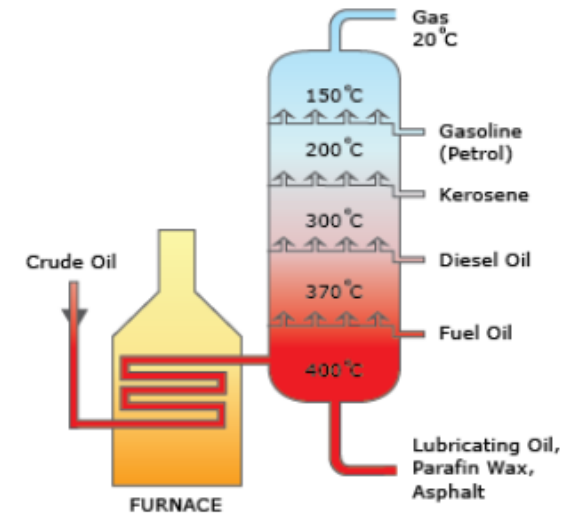
Separation »

Conversion »

Treatment »

Storage »

[Click here](#) to watch a YouTube video for an introduction to refinery operations. **VA** (2 min 41 secs)



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Measuring Performance

Exploration and Production

Oil and Gas companies also measure the exploration process, as well as the performance of a plant.

Exploration

- **Finding & Development (F&D) costs** – the expense of searching for new oil and gas reserves. These are then compared to the estimated revenues from the well. Costs include building facilities, obtaining access to the wells, and extraction costs. These are again compared to the budgetary plan.
- **Reserve quality** - a measure of upstream potential. This takes into account the proximity of reserves to potential markets, and political and financial risk associated with any exploitation.
- **Number of proved reserves** - companies report on how many thousands of barrels a day these proved reserves generate

Production

- **Lifting costs** - the cost of bringing oil and gas to the surface. Lifting costs measure how well a company manages its operating costs against its budgets and forecasts.
- **Time to first oil** - the time it takes from discovery to the first oil being. The faster the company can get returns on the investment, the better.
- **Oil versus gas** - This breakdown helps to highlight the company's vulnerability to oil and gas prices. Industry "best in class" companies have an oil versus gas production balance of around 65% oil to 35% gas.
- **Production volumes** - fluctuate from year-to-year depending on prices and economic situations. Production is measured in mboe/day, meaning thousands of barrels of oil equivalent per day.

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Industry Challenges

OPEC and the Price of Oil

OPEC (Organization of the Petroleum Exporting Countries) is an international organization of 12 developing countries that are heavily reliant on oil revenues as their main source of income.

It aims to bring stability to the oil market by adjusting their oil output to ensure a balance between supply and demand.

Membership is open to any country that is a substantial net exporter of oil (producing more than they consume).

Member Countries: Saudi Arabia, United Arab Emirates, Iraq, Nigeria, Iran, Kuwait, Venezuela, Angola, Libya, Algeria, Qatar, Ecuador

OPEC in Numbers

- These 12 members collectively supply around 40% of the world's oil output
- Collectively, OPEC owns 80% of the world's total proven crude oil reserves
- It's efforts to contain the oil prices have largely failed. Oil has fluctuated from around \$20 per barrel in 1990, to a high of over \$145 in 2008. Currently oil prices are around their lowest since 2009, with OPEC reluctant to cut production to reduce global supply

The 12 OPEC nations feel they should not have to 'subsidize' higher cost US shale oil by reducing their own oil output!



OPEC Countries

2016 News

Regional Updates

Click on the map to view a brief overview of Oil & Gas characteristics in countries/regions across the world.



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Russia

Russia holds the world's largest natural gas reserves and the ninth largest crude oil reserves.

Oil

Russia's economy is heavily dependent on oil and gas exports.

In July 2016, the International Monetary Fund (IMF) stated that Russia, even though its economy is set for modest growth in 2017, was still at a high risk due to low oil prices and reduced revenues.

During the year, crude oil production averaged about 10.5 million barrels per day, with only around 3.1 million being consumed domestically.

The state-owned pipeline monopoly, Transneft, controls pipeline oil exports from the region.

Substantial exploration opportunities still exist in Russia. Some oilfields are still only 60 to 70 per cent covered with seismic imaging. However, most of the new oil production is fields which have been known about for many years.

A new relationship with China

In May 2014, Russia and China signed a gas supply deal estimated to be worth \$400 billion over 30 years.

The contract, between Russia's Gazprom and China Petroleum Corporation, specifies deliver of 38 billion cubic metres

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Final Assessment

Question 3 of 8

Which line of business is the most significant contributor to the operating income of integrated Oil companies?

- Refining and Marketing
- Production
- Petrochemicals

Submit answer and proceed to the next question

