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Natural growth: Natural gas is set for a boom as oil maintains volatile trajectory

IBISWorld Industry Report 21111

Oil Drilling & Gas Extraction in the US

March 2011

Justin Molavi

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About this Industry

Industry Definition

Firms in this industry operate and develop oil and gas field properties. Activities include: the exploration and production of crude petroleum; the mining and extraction of oil from oil shale and oil sands; the exploration and production of natural gas; sulfur recovery from natural gas; and recovery of hydrocarbon liquids. Firms may operate oil and gas wells on their own account or for others on a contract or fee basis.

Main Activities

The primary activities of this industry are

Crude petroleum and natural gas extraction

Natural gas liquid extraction

Exploration for crude petroleum and natural gas

Drilling, completing and equipping wells

Operating separators, emulsion breakers, desilting equipment and field gathering lines for crude petroleum

The major products and services in this industry are

Crude oil

Natural gas

Similar Industries

21311 Mining Support in the US
Establishments in this industry perform oil field services for operators on a contract or fee basis.

32411 Petroleum Refining in the US
This industry refines crude petroleum into refined petroleum and liquid hydrocarbons.

32511 Petrochemical Manufacturing in the US
Companies in this industry manufacture acyclic and cyclic aromatic hydrocarbons from refined petroleum or liquid hydrocarbons.

32512 Oxygen, Nitrogen & Hydrogen Gas Manufacturing in the US
Operators in this industry recover helium from natural gas.

Additional Resources

For additional information on this industry

www.eia.doe.gov
Energy Information Administration

www.census.gov
US Census Bureau

www.dataweb.usitc.gov
US International Trade Commission

www.sec.gov
US Securities and Exchange Commission

Industry at a Glance

Oil Drilling & Gas Extraction in 2011

Key Statistics Snapshot

Revenue
$329.9bn

Annual Growth 06-11
3.1%

Annual Growth 11-16
5.5%

Profit
$158.4bn

Exports
$5.4bn

Businesses
6,650

Market Share

Chevron Corporation 10.3%

ConocoPhillips 7.7%

BP PLC 7.0%

Royal Dutch/Shell Group 5.6%

Exxon Mobil Corporation 2.7%

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Key External Drivers

World price of crude oil

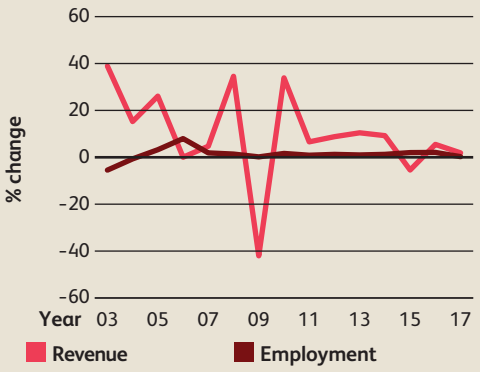
World price of natural gas

Domestic proved oil reserves

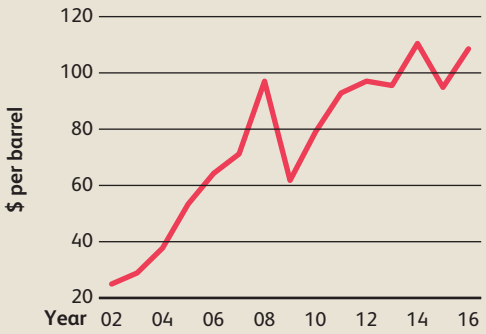
Domestic proved natural gas reserves

p. 4

Revenue vs. employment growth



World price of crude oil



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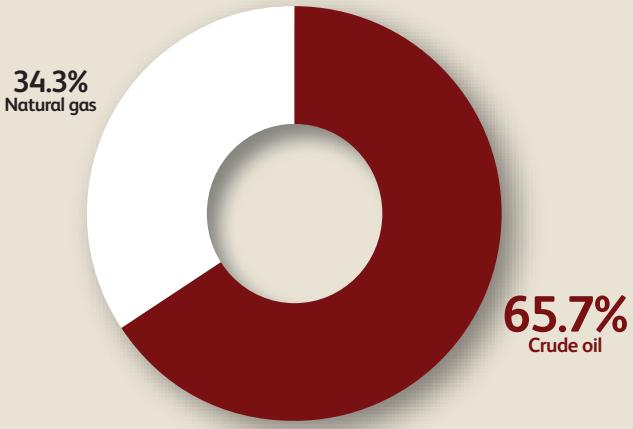
Products and services segmentation (2011)



SOURCE: WWW.IBISWORLD.COM

Industry Structure

Life Cycle Stage	Decline	Regulation Level	Heavy
Revenue Volatility	Very High	Technology Change	Medium
Capital Intensity	High	Barriers to Entry	High
Industry Assistance	None	Industry Globalization	High
Concentration Level	Low	Competition Level	High

FOR ADDITIONAL STATISTICS AND TIME SERIES SEE THE APPENDIX ON PAGE 32

Industry Performance

Executive Summary | Key External Drivers | Current Performance
Industry Outlook | Life Cycle Stage

Executive Summary

The Oil Drilling and Gas Extraction industry has drilled away during the past five years. Firming global economy growth has been behind much of the recent gains as emerging economies ramp up demand and developing countries start gaining strength. Gains in global demand have flowed to strong increases in crude oil prices. Furthermore, political tensions in the Middle East have led to a sharp growth in crude oil prices on the back of continued speculation that oil supply in large exporting countries may be threatened.

Revenue will experience strong growth as oil and gas prices rise and output levels increase

The short-term rise in crude prices will feed into industry revenue growth as higher prices are realized for the industry's output. As a result, revenue is estimated to grow 6.6% from 2010 to 2011. In the five years to 2011, industry revenue is expected to grow 3.1% annually to total $329.9 billion.

Natural gas is a particular growth segment for the industry. Recent discoveries of immense natural gas reserves in the Appalachian Basin have industry firms acquiring properties left and right to cash in on the gas rush. A growth in demand from electricity producers has underpinned much of the action because these producers have been switching to natural gas from other electricity generation methods at accelerating rates. Additionally, natural gas prices have largely been spared from the rise in crude oil prices over the past year because of the stark increase in additional domestic supply. As such, industry firms are acquiring natural gas wells in the expectation that natural gas prices will rise to meet demand from electricity generators and other downstream customers.

Industry performance will gain ground during the next five years in response to rising oil and gas prices and higher levels of output. Increasing oil and gas prices are projected to occur on the back of sustained global economic growth as emerging economies grow rapidly and developing countries expand. In the United States, demand will be pushed by increased demand for transport services, industrial production and retail gasoline demand. As prices rise, substantial merger and acquisition activity is anticipated over the next five years as oil and gas producers use healthy profit margins to expand operations. In light of these trends, industry revenue is forecast to expand at an average annual rate of about 5.5% to total $432.0 billion.

Key External Drivers

World price of crude oil

The internationally traded US dollar price for oil is determined by the forces of supply and demand, and it has a history of high volatility. Any increases in the price of crude oil positively affect industry growth, boosting profitability and revenue. This driver is expected to increase during 2011, representing a potential opportunity for the industry.

World price of natural gas

The price of natural gas is influenced by international and local trends in supply and demand. It is often volatile, and it has a significant effect on industry revenue. When the price of natural gas goes up, oil drilling and gas extraction firms will benefit. This driver is expected to increase during 2011.

Industry Performance

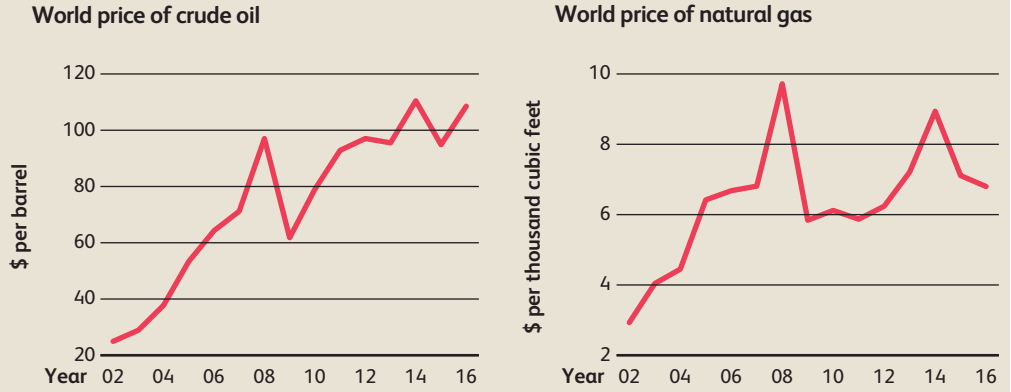
Key External Drivers continued

Domestic proved oil reserves

The level of proved oil reserves, especially in regard to whether those reserves are rising or falling, provides an indicator of future production. Therefore, positive trends in the level of oil reserves will reflect positive demand for oil drilling and gas extraction. This driver is expected to decrease slowly during 2011. This is a potential threat for the industry.

Domestic proved natural gas reserves

The level of gas reserves and whether those reserves are rising and falling indicates future production. When the level is high, industry operators will necessarily benefit. This driver is expected to increase slowly during 2011.



SOURCE: WWW.IBISWORLD.COM

Current Performance

The Oil Drilling and Gas Extraction industry has been plundering the depths of the Earth during the past five years, and industry revenue is expected to grow at an average rate of 3.1% annually to $329.9 billion in 2011. Increases in crude oil prices are behind the revenue growth as tensions in the Middle East and firming global growth place upward price pressure on crude oil. Although there were significant dips in revenue as a result of the recession and the subsequent drop in demand, crude oil prices nonetheless have risen substantially since 2006. Even deep-water exploration accidents have not stopped the industry from growing, thanks to a strong dependence on crude oil and natural gas as transport fuels and inputs into other energy-generating methods. Moreover, natural gas supply has particularly grown quickly as new discoveries in the Appalachian Basin support a gas rush in the northeastern United States.

Oil price movements, together with changes in the volume of production, play a key role in determining the industry's performance. Oil price movements are typically based on worldwide supply and demand for oil, which are driven by economic activity. As economic activity increases, demand for oil and natural gas rises as well, thus aiding the growing industrial and consumer demand for these commodities. Additionally, geopolitical factors such as tensions in areas with significant oil and natural gas resources

Industry Performance

Current Performance continued

can affect prices. Since oil drilling and gas exploration are such capital-intensive investments, downturns in price movements can significantly contribute to drops in exploration and production spending; exploration activities need to take place before oil drilling and natural gas extraction can proceed. Even so, exploration may or may not result in product, as it may not be economically feasible to extract oil or natural gas from a well.

Even deep-water exploration accidents have not stopped the industry from growing

Middle East tensions

Tensions sparked by perceived successful government transitions in Tunisia and Egypt have caused a ripple effect throughout the Middle East. Oil prices rose substantially as these tensions spread to other countries including Libya, Bahrain and Yemen. Speculation has largely been behind the sharp crude oil price increase as traders believe that unrest in countries near major oil producers may lead to actual supply disruptions. For instance, if Saudi Arabia experiences significant unrest and their oil supply is threatened, prices may rise quickly as the country is a major producer and exporter of crude oil.

Tensions in the Middle East are likely to persist as long as countries in that region are dealing with popular unrest. During this period, firms in this industry will sell oil for prices that are substantially higher than they were during 2010 and benefit from the increase by realizing more revenue. Higher oil prices will feed into increased revenue for industry firms during 2011 at an expected rate of 6.6% from 2010 to 2011.

An oily mess

The largest offshore oil spill in US history occurred on April 20, 2010, when BP's Deepwater Horizon oil platform in the deepwater Gulf of Mexico exploded. Deepwater Horizon was located about 40 miles southeast of the Louisiana coast, and the blown-out oil well sits beneath about 5,000 feet of water. Pressure-control systems failed on an exploratory undersea oil well, causing an oil leak (known as a blow-out) and a catastrophic explosion that killed several oil workers and injured many more. While the spill was partly contained in early June after several failed attempts, oil stopped leaking into the Gulf after a final attempt in August.

Despite the accident, the offshore drilling moratorium was lifted in late 2010. Nonetheless, offshore drilling difficulties will persist for the short-term as the government closely scrutinizes permit applications. Increased scrutiny is unlikely to persist for a long period of time because of the strong need for crude oil and tax revenue for the government as it deals with deficit issues. As such, the spill's negative impact on revenue is likely to be minimal as industry players return to the Gulf and start drilling again.

Industry Performance

Growing natural gas supply

Recent discoveries of large natural gas reserves in the Appalachian Basin have the industry buzzing. Many major players have concentrated efforts in the natural gas space to shift focus from declining crude oil production. Although crude oil is not going to run out anytime soon, firms are investing so that in the future they will reap the benefits from owning natural gas reserves. Firms have bought up assets in the region with the expectation that natural gas prices will rise from historic lows and will increasingly be used as an input for electricity generation. Heavy acquisition activity has resulted and, in turn, the number of firms in the industry is expected to increase a slight 0.1% to reach 6,650 in the five years to 2011.

Even though crude oil prices have increased rapidly over the past five years, natural gas prices have largely not followed crude oil price movements as the discovery of large reserves has served to keep US prices at historic lows. Furthermore, natural gas production is less responsive to price movements than oil production; the capacity of a natural gas deposit at the time of extraction is difficult to measure with certainty. Shutting off extraction and production of natural gas could affect the deposit's productive capability in the future. This trend has increased the interest in the acquisition of real estate with potential natural gas reserves in the expectation that prices will grow over time.

The discovery of large natural gas reserves has served to keep US prices at historic lows

Roller-coaster revenue and profit

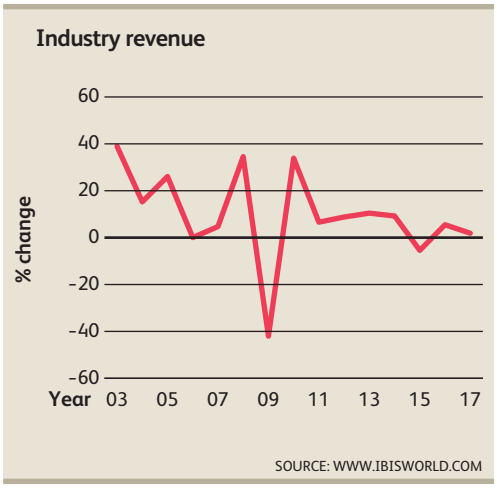
Moderate overall growth in industry revenue over the past five years disguises great revenue volatility. For instance, revenue expanded a sharp 32.8% in 2010 following a fall of more than 42.0% in 2009. Volatility is driven by crude oil price movements, which, in turn, depend on global demand, supply and geopolitical factors. These drivers experience significant volatility year after year. High revenue volatility is expected to continue through 2011 as long as tensions in the Middle East persist.

As a result of high revenue volatility, profit has also experienced volatility. While crude oil prices dropped during the recession, profit also followed quickly while industry firms were scrambling to stop production on unprofitable wells. Many firms have rebuilt the losses they experienced during the recession by divesting assets to keep profit at a sustainable level. Higher prices during 2010 and expected increases during 2011 will help industry players cope. Profit has increased over the past five years as the combination of asset divestiture and higher prices padded profit margins.

Industry Performance

Industry Outlook

The Oil Drilling and Gas Extraction industry will continue to grow over the next five years. Along with the rising output of oil and natural gas, increasing oil prices will continue to drive the industry's performance. Firming global growth will increase crude oil prices as emerging economies continue to grow quickly and use oil and natural gas while they develop their national output. New capacity is expected to come on stream in several oil-producing countries, including Saudi Arabia, helping to meet global demand during the period. Additionally, natural gas will still be a hot-bed for investment as significant reserves are pumped out of the Appalachian Basin and distributed to electricity generators across the United States. In light of these favorable conditions, industry revenue is forecast to increase 5.5% annually to reach $432.0 billion through 2016.



Global growth

Global oil demand will increase as world economic growth continues to accelerate over the five years to 2016. Emerging economies will grow the quickest as these countries build out essential infrastructure and their citizens increase consumption. China and, to a lesser extent, India will continue to lead demand over the next five years. In turn, their robust growth will push oil prices upward. As global demand increases, more firms will locate near such emerging economies. The number of locations in the United States is projected to grow slowly, at an average annual rate of 0.4% in the five years to 2016 to total 7,950, as more firms locate abroad.

Despite strong global growth, prices are unlikely to rise continuously over the next five years. A slight easing of prices is projected during early 2015 as new productive capacity comes on stream from large oil-producing countries aiming to increase output. Their impetus will place some downward pressure on oil prices. Some of the additional Organization of Petroleum Exporting Countries' (OPEC) crude oil will become available during this period and will be of the lighter and sweeter grades that most refineries seek. Needless to say, there is always the potential for political events or natural disasters to give rise to sharp and substantial movements in oil prices. In a climate of relatively finely balanced supply and demand, buyers will respond to disruptions in supply by bidding prices up. This slight easing of prices will fail to offset the general increase forecast in oil prices over the next five years.

The roller-coaster conditions faced by the industry from 2008 to 2011 will likely moderate during the next five years. Revenue is expected to expand continuously over 2012 to 2014 on the back of continued moderate price rises and growth in oil and natural gas output. Revenue is then forecast to retreat (falling by 5.4%) in 2015 as growing supply erodes prices. Profit is anticipated to expand even more strongly as large gains in revenue flow through and the industry maintains a tight rein on costs as exploration and production activities are more calculated post-recession.

Industry Performance

Rising output

Local crude oil output is projected to expand moderately during the next five years as rising offshore crude oil production in the Gulf of Mexico offsets falling output from mature oil fields in Alaska and the lower 48 states. Some of the increased production will reflect the lifting of a moratorium on new offshore drilling on the US outer-continental shelf. The moratorium, put in place after an oil spill in the 1980s, was lifted in late 2010. Despite an anticipated tightening of regulations after the moratorium on offshore drilling, increased levels of demand will drive oil output and quickly result in revenue growth. Industry revenue is anticipated to shoot up 8.8% from 2011 to 2012. Nevertheless, the potential for disruption due to hurricane activity will persist during the same period.

Natural gas production is forecast to expand as well. New producing fields, especially in the Marcellus Shale region of the Appalachian Basin, will come on stream through 2016. Growing demand for natural gas will reflect an increased use of this fuel to generate electricity. Most new electricity generation capacity planned for the United States over the next five years is forecast to be natural gas fired. New technologies will allow natural gas-fired electricity generation to be as cheap as or cheaper than coal-fired generation, formerly the lowest-cost fuel for generation. Natural gas also has an environmental advantage over coal and crude oil in that greenhouse gas emissions are lower for most pollutants. In addition, gas-fired generation has much lower capital costs than nuclear and coal-based generation, giving it a financial advantage in the uncertain environment surrounding electricity deregulation. Higher levels of natural gas output (up by about 13.0% during the next five years) will meet most of the growth in demand, but imports will continue to play an important role. Canada is forecast to continue expanding its exports of natural gas to the United States over the five years to 2016.

A small competitor

While biofuels (primarily ethanol, but also biodiesel) will grow in importance over the next five years, output levels are low, and these fuels will fail to displace local oil production. Ethanol is viewed primarily as offering environmental benefits and also playing a small role in reducing dependence on imported crude oil. Most of the ethanol used in the United States (over 90%) is blended with gasoline to produce fuel containing 10% ethanol in order to lift the oxygen content of the fuel. In 2007, congress passed the Energy Independence and Security Act, which contains standards relating to producing a certain amount of renewable fuel (the renewable fuel standard or RFS). Yearly target volumes are determined by the Energy Protection Agency. The RFS was 9.0 billion gallons of renewable fuel in 2008 and 11.1 billion gallons in 2009; it is expected to increase to 36.0 billion gallons by 2022. The previous standard was 5.4 billion gallons for 2008, rising to 7.5 billion gallons by 2012.

Through 2016, most new electricity generation capacity is forecast to be natural gas fired

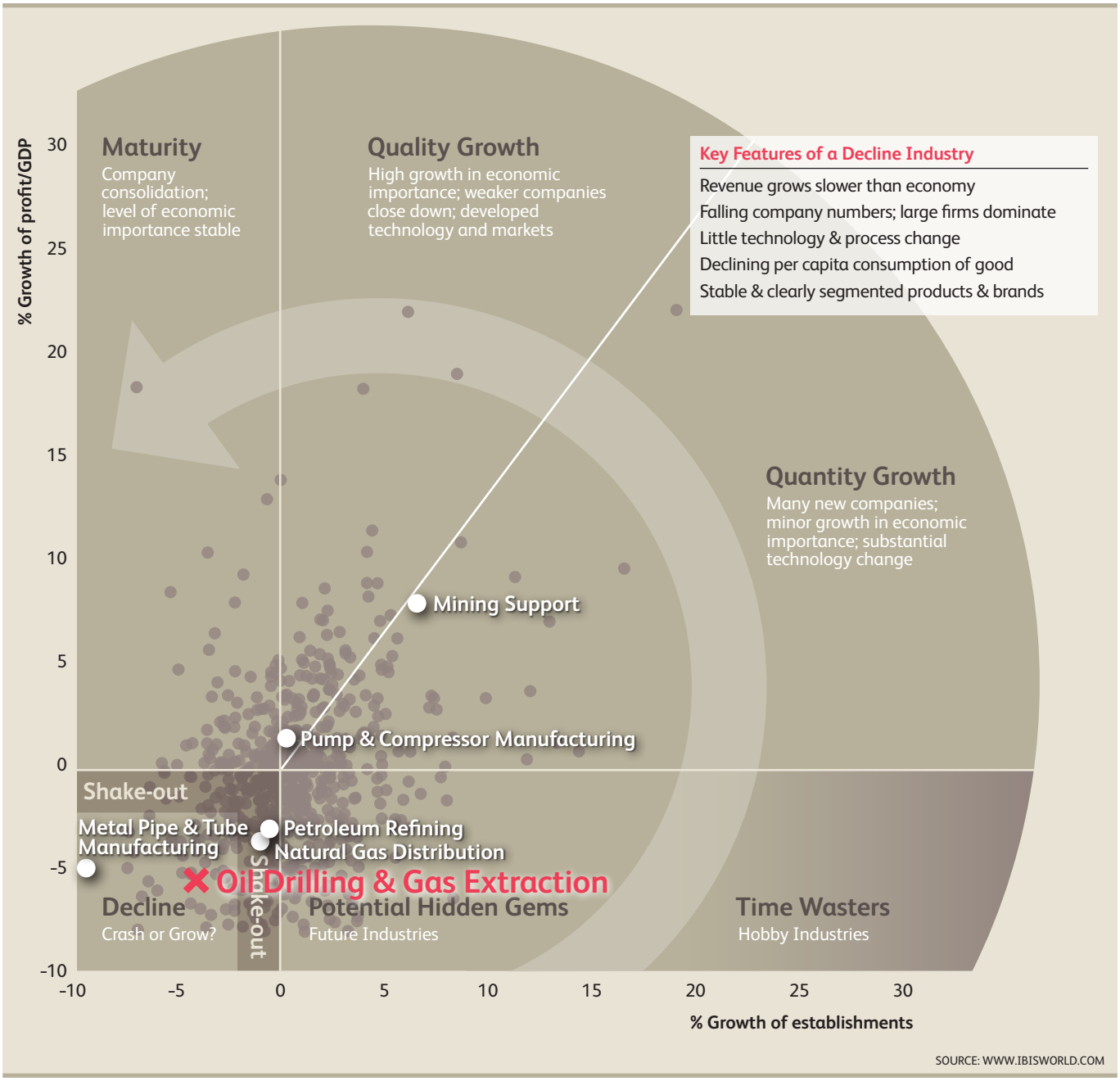
Industry Performance

Life Cycle Stage

The industry has well-established products and participants

Most of the major oil fields in the United States were discovered decades ago and are in decline

Existing industry players are responding to market developments by merging operations



SOURCE: WWW.IBISWORLD.COM

Industry Performance

Industry Life Cycle

This industry is **Declining**

The Oil Drilling and Gas Extraction industry is a declining industry. The industry's revenue is expected to grow 4.5% while the US GDP is expected to grow at a rate of 2.0% over the ten years to 2016. Even though the annualized growth rate is high compared to expected GDP growth, the industry's IVA numbers mask an industry where production has been declining. Oil and gas assets that were discovered years ago have been reaching maturity in the US. Despite a healthy annualized IVA growth rate, the industry's output has been relatively flat except for natural gas. It employs well-established technologies and its product (oil and gas) is not new. Over the past few years, industry revenue has been expanding much more strongly than the overall economy, due to surging crude oil prices.

In addition, output is likely to expand only slowly. Most of the major producing oil fields in the US were discovered decades ago and are in decline. The drilling moratorium has been lifted for deepwater oil exploration and expected increases will take some time to come online and add to industry's output at a steady rate. However, if the output is significant, the industry's life cycle may change. At the same time, the output of natural gas is continuing to expand. The overall outcome will be a small increase in output but is expected to provide growth opportunities in other downstream industries such as Coal and Gas Powered Generation (21111a).

Other likely candidates for energy generation have emerged. Technologies such a biofuels, solar, wind, and other types of renewable energies seek to displace oil and gas energy generation. Most of these technologies are in the growth phase and are expected to compete with oil and gas in the future. However, these technologies are a long way from becoming competitive in the next five years.

Products & Markets

Supply Chain | Products & Services | Demand Determinants
Major Markets | International Trade | Business Locations

Supply Chain

KEY BUYING INDUSTRIES

22121 **Natural Gas Distribution in the US**
This industry distributes natural gas to end-users.

32411 **Petroleum Refining in the US**
Petroleum refineries absorb more than half of the industry's output.

KEY SELLING INDUSTRIES

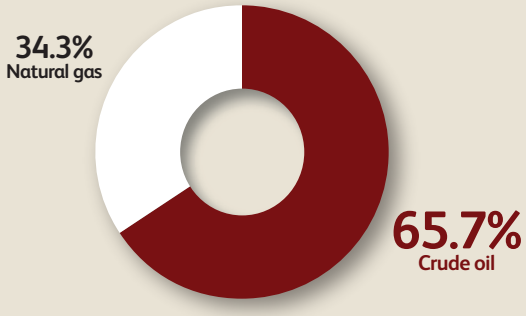
21311 **Mining Support in the US**
This industry includes oil and gas well drilling and other support industries.

33121 **Metal Pipe & Tube Manufacturing in the US**
This industry supplies pipe and tube to oil and gas producers.

33391 **Pump & Compressor Manufacturing in the US**
This industry supplies pumping equipment to oil and gas producers.

Products & Services

Products and services segmentation (2011)



Total $329.9bn

SOURCE: WWW.IBISWORLD.COM

The Oil Drilling and Gas Extraction industry's main products are crude oil (including natural gas plant liquids) and natural gas.

Crude oil

Crude oil is expected to account for nearly two-thirds of industry revenue in 2011. Crude oil is a naturally occurring mixture of hydrocarbons that is found in geological formations. Crude oil can be refined into many consumer products including gasoline, diesel, and plastics. Over the past five years, crude oil has increased significantly as a share of the total product segment; soaring oil prices during the same period have boosted the importance of this segment, more than offsetting lower output. Oil accounted for about 49% of industry revenue in 2006. Oil's product share is expected to ease in the next few years, reflecting stronger growth in natural gas output than in oil, as well as somewhat softer oil prices.

Natural gas

Natural gas is a naturally occurring gas that primarily consists of methane.

Products & Markets

Products & Services continued

Natural gas is typically found along with crude oil and other fossil fuels. Natural gas prices have increased less markedly than crude oil, and despite higher natural gas output, its product share has fallen over the past five years. Production of natural gas involves a great deal of uncertainty with regards to production volume over time. As a result, firms are less likely to shut down production of gas wells in response to demand fluctuation. Natural gas accounted for about 51% of the product segment in 2006.

It is not unusual for product shares in this industry tend to vary quite markedly over short periods of time (a few years) depending on varying price movements and output trends. In addition, production from new fields tends to come on-stream in fairly large increments, adding to the potential for substantial shifts in product shares.

Demand Determinants

The demand for oil and gas is a derived demand; that is, it depends on the demand for other goods and services. Demand for crude oil and natural gas is heavily dependent on downstream product demand. These products can include energy generation, transport, industrial goods and consumer products. Foremost among these products is transport (especially by road and air), which accounts for the great bulk of petroleum product demand. Accordingly, the most significant products made from crude oil are petroleum and automotive distillate (or diesel). Other products include jet fuel, liquefied petroleum gas (LPG), fuel oil, petroleum coke and asphalt.

The demand for petroleum products (and, by extension, for crude oil) is linked to the overall level of activity in the economy. Regression analysis spanning the past twenty years indicates that the level of real gross domestic product (GDP) can explain about 95% of the demand for crude oil in the United States.

However, domestic crude oil production accounts for a declining share of crude oil consumption in the United States, reflecting both rising oil use and falling local output. As a result, the local industry is not the major beneficiary of rising demand. Rather, this has been met by imports.

The domestic demand for natural gas is less closely linked to economic performance; it also reflects the availability of gas to end users. Within particular areas, gas usage tends to rise rapidly when supply infrastructure becomes available, before settling to a more moderate rate of expansion. An important use for gas is as a heating fuel and, as a result, demand peaks during the colder months of the year. Extreme conditions can lead to large rises in demand and push up gas prices.

Major Markets

The Oil Drilling and Gas Extraction industry supplies product to a number of markets. Nearly all crude oil produced in the United States is converted into petroleum products by firms in the Petroleum Refining industry (over 99%) and the same firms are important participants in both these industries, as well as in petroleum wholesaling and retailing.

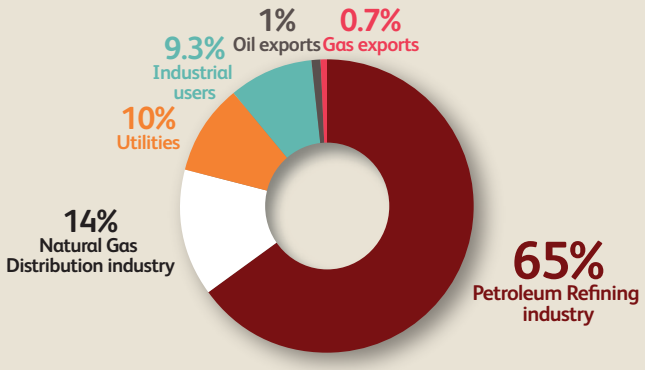
Oil refining

The overwhelming importance of Petroleum Refining industry as market for crude oil means that its market share closely follows the oil product share.

Products & Markets

Major Markets continued

Major market segmentation (2011)



Total $329.9bn

SOURCE: WWW.IBISWORLD.COM

Higher oil prices over the past few years, even after the sharp drop in 2009, have boosted the oil product share and hence also the Petroleum Refining industry market share to about 65% in 2011. Refiners, however, are likely to experience slimming profit margins as crude oil prices rise and they try to pass along costs in an effective manner.

Natural gas distribution

The structure of local natural gas consumption is fairly complex. Electricity generators and industrial users of natural gas buy most of their requirements from producers, with the firms in the Natural Gas Distribution industry providing transport (via pipelines). In contrast, most of the natural gas used by households and firms in the commercial sector is sold as well as transported by firms in the Natural Gas Distribution industry. This gas is purchased from producers by these firms and on-sold.

The Natural Gas Distribution industry is expected to have a market share of about 14.0% in 2011. This segment has fallen over the past five years. The decline in importance is due to lower gas use by households and, to a lesser extent the commercial sector, in response to slow disposable income growth and high commercial vacancies. The Oil Drilling and Gas Extraction industry also produces natural gas, the great bulk of which is consumed by end-users in the United States. Gas exports provide about 0.7% of industry revenue.

Utilities

Electricity generators in the United States (firms in the Coal and Gas Power Generation industry) are expected to provide about 10% of industry revenue in 2011. The volume of gas used has largely increased over the past five years, reflecting the positive effect of increased domestic supply and low natural gas prices.

Industrial users

Industrial users of gas will provide about 9.5% of industry revenue in 2011. The industrial sector's use of natural gas has increased in response to a growth business activity during the economic recovery.

Products & Markets

International Trade

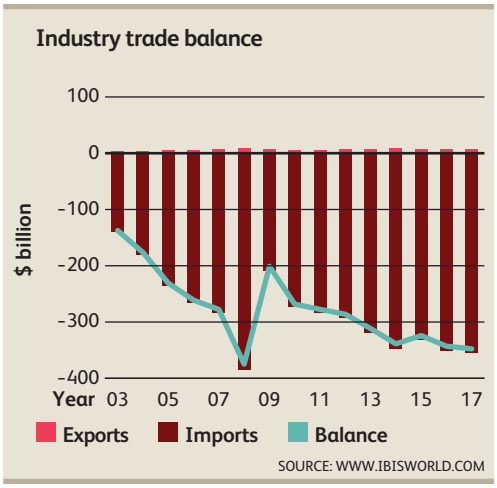
Level & Trend

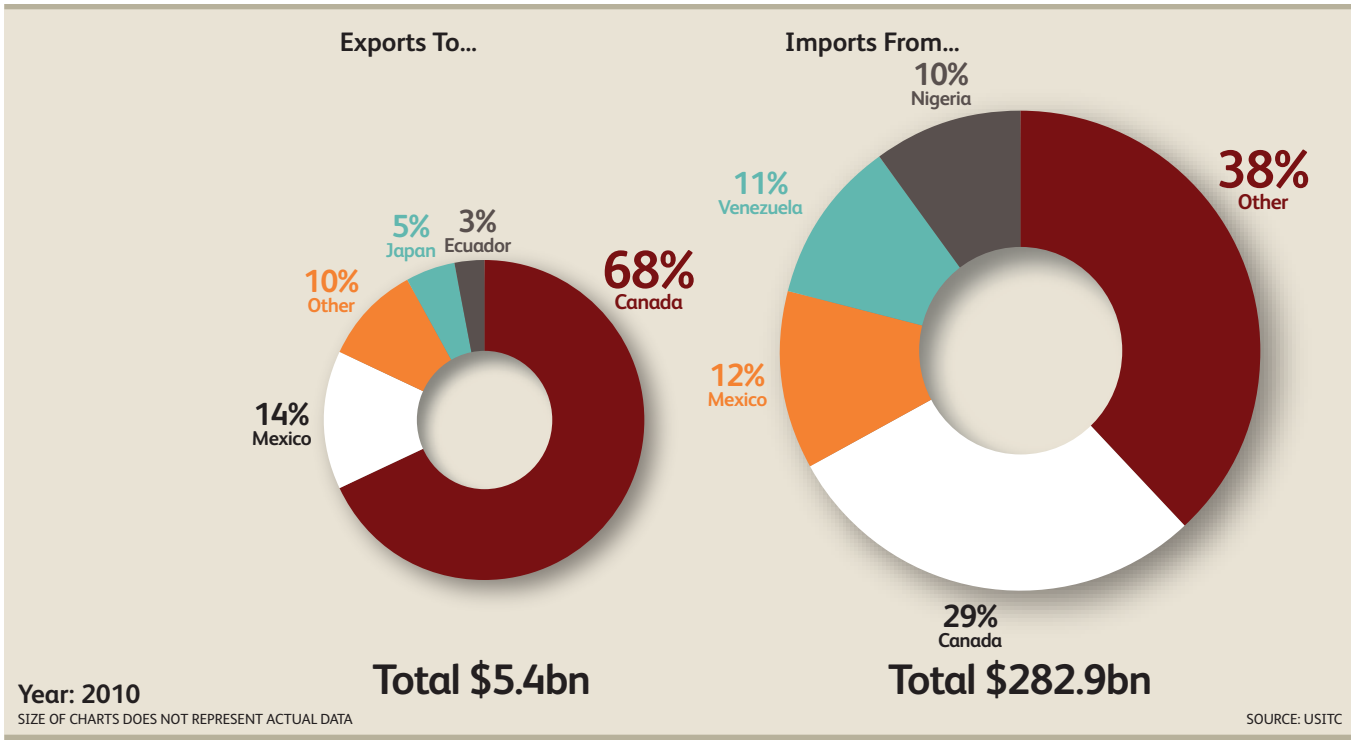
Exports in the industry are **Low** and **Decreasing**

Imports in the industry are **High** and **Decreasing**

The United States is expected to import about $282.9 billion in industry product during 2011. The Persian Gulf is the single major source of oil imports, followed by Canada, Mexico, Venezuela and Nigeria. Imports are expected to gain importance as the US economy gains strength. US exports of crude oil are expected to be $5.4 billion. Typically, all US crude oil exports go to Canada.

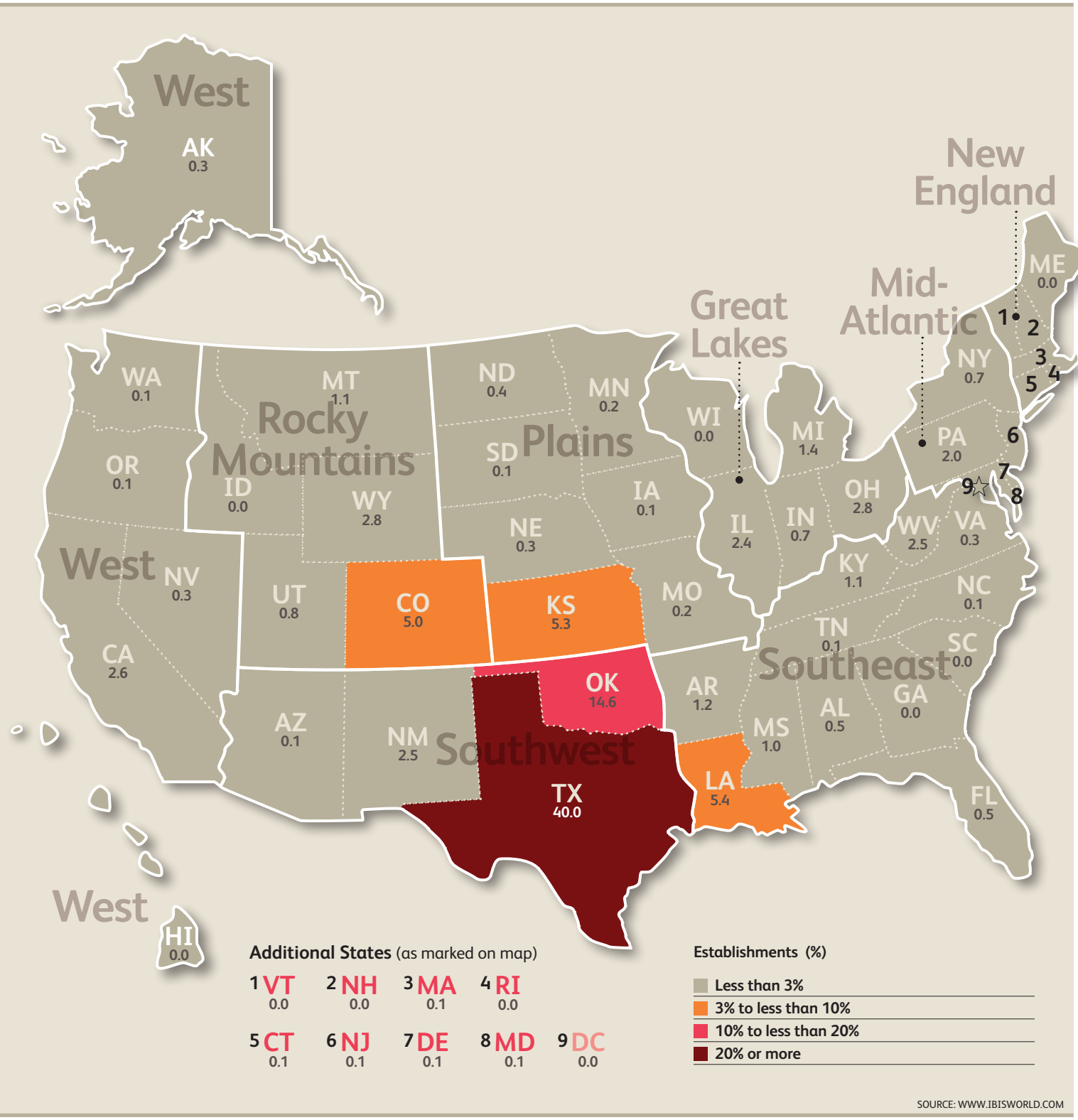
Typically around 80% of natural gas imports come by pipeline from Canada. Nearly all the remaining imports consist of liquefied natural gas, the major source of which is Trinidad (about 10% of total natural gas imports). Other supplies include Egypt, Nigeria and Algeria. About 38% of exported gas is delivered to Mexico by pipeline, while another 56% goes to Canada by pipeline. The remaining natural gas is exported to Japan in the form of liquefied natural gas (LNG).





Products & Markets

Business Locations 2011



SOURCE: WWW.IBISWORLD.COM

Products & Markets

Business Locations

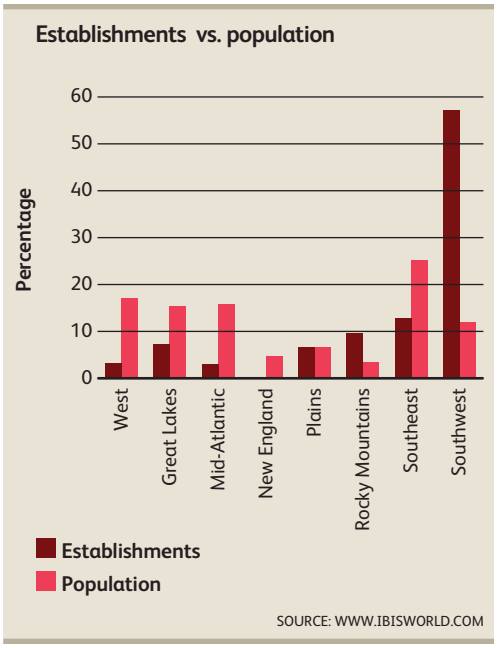
The geographic spread of the local Oil Drilling and Gas Extraction industry essentially reflects the distribution of oil and gas resources. The importance of various producing regions varies over time, as reserves come into production and some fields are depleted.

The Southwest accounts for the largest share of industry output and revenue. It is expected to generate about 44.0% of industry revenue in 2011, down from about 47.0% in 2006, due mainly to lower gas output. The main producing state within this region is Texas, which alone accounts for one-third of the total value of output. The next largest oil and gas producing region is the Southeast. Its share of industry revenue expanded from over 21.0% in 2006 to about 23.0% in 2011, mainly due to rising natural gas output. The major producing state in this region is Louisiana, which accounts for about 15.0% of the value of US oil and gas output.

Both these regions obtain a considerable part of their output from oil and gas fields in the Gulf of Mexico, which is subject to hurricane activity. Hurricanes can severely disrupt output, as was the case when Hurricanes Katrina and Rita passed through the region in the second half of 2005. It was feared that Hurricanes Gustav and Ike would also damage regional oil and gas productive capacity when they struck the Gulf in August and September 2008. Although oil platforms and refineries were shut down, no significant damage occurred.

The importance of other regions to industry revenue has remained fairly constant over the past few years. The West (market share about 15.0%) has two major producers, Alaska and California, while in the Rocky Mountains (market share about 12.0%) Wyoming and Colorado are the major producers. Production in the Plains (market share about 3.0%) is concentrated in the oil fields of North Dakota, while output in the Mid-Atlantic (market share less than 1.0%) is concentrated in Pennsylvania's oil fields. Output in the Great Lakes (market share less than 2.0%) is fairly evenly spread, while New England produces no oil or gas.

Over the longer term, the importance of the West is expected to decline, given falling output from Alaska and California. The Southwest and Southeast will remain the pre-eminent oil and gas producing regions, reflecting a focus on offshore oil and gas fields in the Gulf of Mexico.



Competitive Landscape

Market Share Concentration | Key Success Factors | Cost Structure Benchmarks
Basis of Competition | Barriers to Entry | Industry Globalization

Market Share Concentration

Level
Concentration in this industry is **Low**

Concentration in the Oil Drilling and Gas Extraction industry is low, with the four largest firms estimated to account for just under 30% of industry revenue. Nonetheless, the industry is the province of large firms, most of which have worldwide operations. Low concentration reflects both the industry's large size and its dispersion across the nation, making it difficult for even major oil companies to control more than a small share of output. Over the past five years, market concentration has increased as a result of consolidation taking place in the sector. High crude oil prices laid the basis for firms to expand operations to meet demand.

Merger activity in the late 1990s and early 2000s increased concentration levels. Substantial mergers include those between BP, Amoco and then Arco (1998 and 2000), Chevron and Texaco (2001) and Conoco and Phillips (2002).

Key Success Factors

IBISWorld identifies 250 Key Success Factors for a business. The most important for this industry are:

Economies of scale
Larger oil and gas deposits are generally more economic to develop.

Downstream ownership links
Many large oil and gas producers are vertically integrated operations. As a result, they have a ready-made market for their output.

Ability to find new resource deposits
Oil and gas production depends on access to resources.

The ability to meet environmental regulations
Firms must meet environmental regulations in order to bring new production on stream.

Cost Structure Benchmarks

Oil and gas production is a high risk, high return activity. Very few exploration efforts result in a commercially viable oil field, and those that do must cover the capital expended overall. The nature of industry means that its major costs are expensed exploration and depreciation, rather than cash operating costs.

The industry's net profit is estimated at about 48.0% of revenue in 2011. Profit has increased over the past five years as crude oil prices rose substantially and industry firms divested assets during the recession. The prime factor behind shifts in profit and in the industry's cost structure is the price of oil. Higher oil prices push up revenue and, as a result, a range of costs decline as a proportion of that revenue. Typically, even if employment is lifted and more material inputs are used as firms boost production in a higher price climate, the resulting increase in costs falls well short of the increase in revenue. However, the opposite occurs in a climate of declining prices; costs normally cannot be reduced as rapidly as the fall in revenue and the share of industry revenue expended on a range of costs (such as labor and materials) increases.

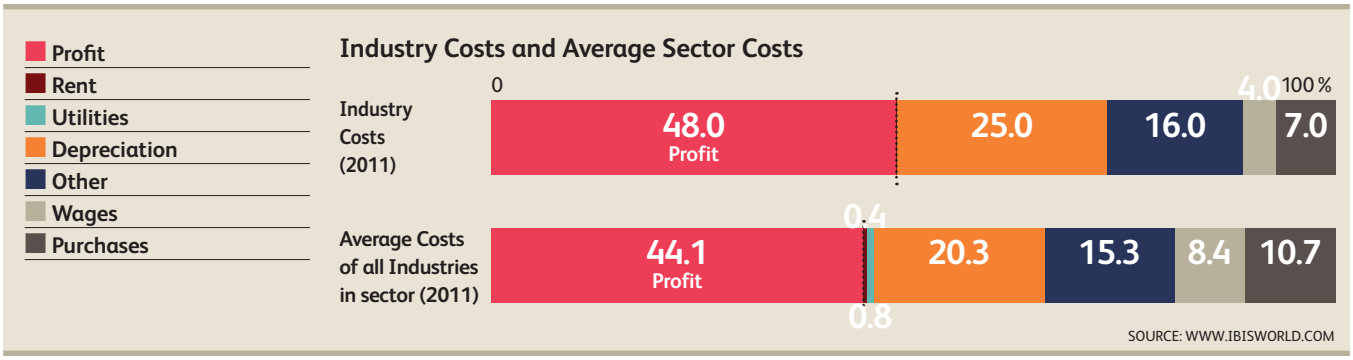
Expensed exploration spending typically absorbs about 7.0% of industry revenue. Exploration is the life-blood of firms in the industry, since it provides reserves for future development. Depreciation typically absorbs 20-35% of industry revenue, reflecting the high levels of capital spending required to produce oil and gas. Depreciation charges rose markedly after 2003, as higher oil and gas prices encouraged increased levels of exploration and

Competitive Landscape

Cost Structure Benchmarks continued

development, both of which entailed higher capital spending.

Substantial cash expenses incurred by the Oil Drilling and Gas Extraction industry include payments to contractors and materials, including consumable items of equipment, chemicals, drilling muds and the like. Salaries are expected to account for about 4.0% of revenue, fuels for about 3.0% and other cash costs (such as administration and marketing) for about 1%. Increases in oil prices during the past five years, even allowing for the sharp fall in 2009, resulted in these costs falling dramatically as a share of revenue.



Basis of Competition

Level & Trend
Competition in this industry is **High** and the trend is **Steady**

Producers in the oil and gas industry essentially compete on the basis of price, although other factors, such as the grade of the crude oil, the level of impurities that it contains and the heating value of gas, also play a role.

Price competition

The price of oil essentially reflects global supply and demand conditions. In particular, prices tend to rise sharply in response to supply disruptions, but fall equally sharply if the price rise produces a moderation in demand growth and/or leads other producers to lift their output.

The price of gas, which competes with oil in some markets, is also influenced by global supply and demand factors, although to a lesser extent. Local supply and demand plays a much larger role in determining gas prices, but the mechanism is similar to that for oil. Supply disruptions or large surges in demand (for example, in response to a prolonged period of unusually cold weather) lift gas prices. Typically, gas purchasers reduce their demand for gas if the price rise is sufficiently large and producers attempt to lift gas output. As a result, gas prices once again moderate.

Grades

Different types (or grades) of oil attract different prices depending on the level of demand. Grades range from light to heavy, with light crudes being the most attractive. Light crudes are easier to refine into gasoline. Worldwide, there are more than adequate supplies of heavy crude oils, which are used to make products such as tar and bitumen. As a result, the price for heavy crude is generally less than for lighter grades of oil, which can be used to make a greater variety of refined downstream products.

Impurities

The level of impurities in oil also plays a role in the pricing process. Most purchasers pay a premium for oil with a low level of impurities such as sulfur. These oils typically are called “sweet” for

Competitive Landscape

Basis of Competition continued

their low sulfur contents. A lower level of impurities offers the petroleum refiners purchasing the oil lower operating costs and also makes complying with environmental restrictions easier.

Security

Security of supply and transport costs also forms part of the basis of competition. Most petroleum refiners attempt to diversify their sources of supply in order to reduce risk. At the same time, they will tend to favor suppliers where shipping costs (which are paid by the buyer) are relatively low.

Barriers to Entry

Level & Trend
Barriers to Entry in this industry are **High** and **Steady**

There are substantial barriers to entry to the Oil Drilling and Gas Extraction industry. These include the high risk nature of oil and gas exploration and development and the large amounts of capital to bring fields into production.

In addition, many of the major oil and gas producers are vertically integrated firms, with interests in downstream operations such as petroleum refining and marketing. New entrants lacking such linkages may find it difficult to penetrate the market.

Barriers to Entry checklist	Level
Competition	High
Concentration	Low
Life Cycle Stage	Decline
Capital Intensity	High
Technology Change	Medium
Regulation & Policy	Heavy
Industry Assistance	None

SOURCE: WWW.IBISWORLD.COM

Industry Globalization

Level & Trend
Globalization in this industry is **High** and the trend is **Steady**

The level of globalization of the US Oil Drilling and Gas Extraction industry is high. All the major oil producers have operations overseas and key foreign firms such as BP PLC (UK) and Royal Dutch Shell (The Netherlands/UK) operate in the US market.

Oil companies focus on the most prospective areas for exploration and development and pursue promising oil and gas finds wherever political conditions permit. The highly risky nature of exploration, the huge costs in involved in both exploration and production and the need to undertake often sensitive negotiations regarding development with governments tend to limit participation in the industry to large firms with a global perspective.

The high share of the domestic market supplied by imports (almost half) also contributes to high globalization.

Competitive Landscape

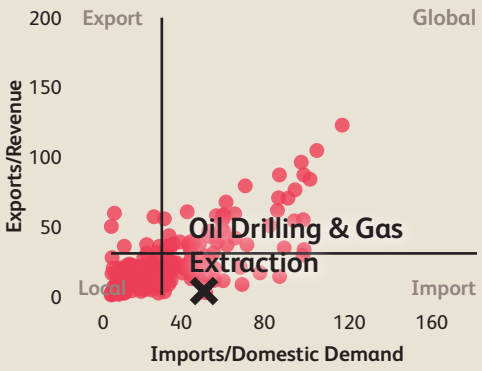
Industry Globalization continued

International trade is a major determinant of an industry's level of globalization.

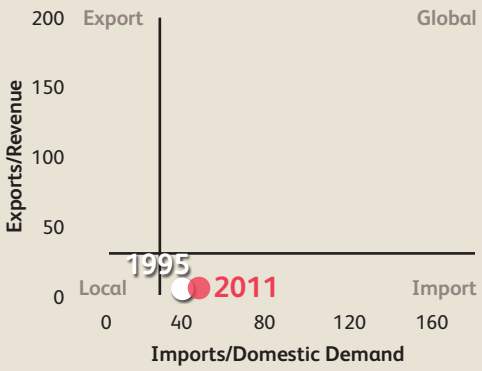
Exports offer growth opportunities for firms. However there are legal, economic and political risks associated with dealing in foreign countries.

Import competition can bring a greater risk for companies as foreign producers satisfy domestic demand that local firms would otherwise supply.

Trade Globalization



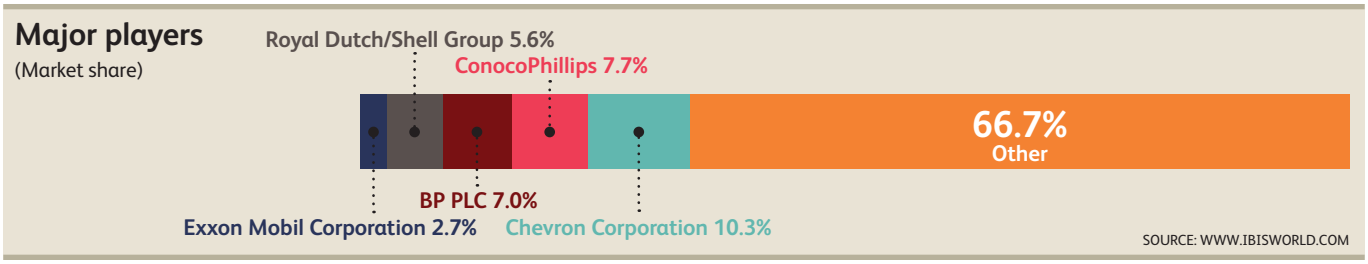
Going Global: Oil Drilling & Gas Extraction 1995-2011



SOURCE: WWW.IBISWORLD.COM

Major Companies

Chevron Corporation | ConocoPhillips | BP PLC
Royal Dutch/Shell Group | Exxon Mobil Corporation | Other Companies



Player Performance

Chevron Corporation
Market share: 10.3 %

ChevronTexaco was formed when Texaco Inc. and Chevron Corporation merged in October 2001. The company's headquarters are in San Francisco. The company has operations in North America, South America, Europe, Africa, the Middle East, Asia and Australia. In May 2005, the company announced that it had changed its name to Chevron Corporation. In the US, Chevron markets under the Texaco brand as well.

Chevron's upstream activities in the United States are concentrated in the Gulf of Mexico, California, Louisiana, Texas, New Mexico and the Rocky Mountains. In the Gulf area, the company has interests in onshore Louisiana, as well as shelf and deepwater areas. Its major deepwater fields are Genesis, Petronius and Typhoon. In California, production is concentrated in the San Joaquin Valley. Together, the Gulf and Californian interests account for 70% of the company's US oil production and about half its natural gas production. Chevron has proved reserve balance of 8,303 millions of barrels of oil equivalent as well as 3,012 (BOE) from affiliated companies.

The deepwater Gulf of Mexico, where Chevron has substantial acreage, represents one of the key hydrocarbon development areas close to the continental United States. While the surrounding coast and shallow waters have been a center for oil production for decades, the deepwater prospects in the Gulf have become accessible only due to relatively recent advances in technology. These advances have included key improvements in deepwater and horizontal drilling techniques and floating and subsea production systems needed for ultra-deepwater developments.

In 2010, Chevron acquired Atlas Energy, a midstream natural gas processor, for $3.2 billion.

Chevron Corporation (US upstream segment) – financial performance

Year	Revenue ($ million)	(% change)	Net Income ($ million)	(% change)
2006	28,130	13.9	4,270	-0.2
2007	30,361	7.9	4,530	6.1
2008	38,645	27.3	7,120	57.2
2009	19,442	-49.7	2,220	-68.8
2010	28,772	48.0	4,360	96.4
2011*	34,041	18.3	7,958	82.5

*Estimate

SOURCE: ANNUAL REPORT AND IBISWORLD

Major Companies

Player Performance continued

Ahead of its peers

Chevron is expected to grow at an annual rate of 3.9% annually in the five years to 2011. As with many other major players, Chevron felt the effects of the recession in 2009. As the US economy entered into the deepest recession in recent history, industrial production and consumer demand for energy fell off sharply. As a result, energy prices plummeted in response to demand shortfalls. The majority of Chevron's upstream investments are outside the US, as such, when prices fell in the US, upstream activities focused on emerging markets as domestic production dropped sharply. This strategy has helped the company regain a strong market position and is expected to provide growth prospects in the future. Further crude oil price increases during 2011 are expected to benefit the company as emerging economy demand absorbs the price rises easily. Higher profits are anticipated to follow quickly while crude oil prices stay high.

Player Performance

ConocoPhillips
Market share: 7.7%

ConocoPhillips is based in Houston and was formed in September 2002, when Conoco and the Phillips Petroleum Company merged. ConocoPhillips has extensive operations overseas as well as in the United States and is a vertically integrated oil company, with extensive interests in petroleum refining, pipeline transportation and fuel marketing, as well as in oil and gas extraction. The company has six operating segments: Exploration and Production (E&P), Midstream, Refining and Marketing, Lukoil, Chemicals, and Emerging Businesses. The most relevant segment for this industry is the E&P segment. The E&P segment includes oil and natural gas production, transportation and marketing. The liquefaction of natural gas is also included in the financial results as well.

ConocoPhillips had global oil and gas reserves amounting to 10.3 billion barrels of oil equivalent. Its oil and gas production worldwide in 2010 amounted to 1.75 million barrels of oil equivalent per day, with output from the United States accounting for about 40% of the total. ConocoPhillips's oil and gas exploration and production assets are concentrated in Alaska, Gulf of Mexico, New Mexico and Colorado. In 2010, ConocoPhillips divested its interest in Sycrude oil, an oil sands mining operation.

ConocoPhilips (US E&P segment) – financial performance

Year	Revenue ($ million)	(% change)	Net Income ($ million)	(% change)
2006	35,335	0.5	4,348	1.4
2007	30,878	-12.6	4,248	-2.3
2008	43,344	40.4	4,988	17.4
2009	19,638	-54.7	1,503	-69.9
2010	19,484	-0.8	2,397	59.5
2011*	25,330	30.0	6,161	157

*Estimate

SOURCE: ANNUAL REPORT AND IBISWORLD

Major Companies

Player Performance continued

Recessionary woes

In the five years to 2011, ConocoPhillips's revenue is expected to decline at an annual rate of 6.4%. The recession hit ConocoPhillips quite hard as energy prices plummeted in 2009. Energy prices mirrored drops in economic activity; as the economy slowed down so did industrial production and energy intensive businesses that provide commodities as well as consumer spending at the pump. With no control of pricing, ConocoPhillips took large hits in revenue and profitability during 2009. As the economy picks up, ConocoPhillips is expected to invest in exploration of new oil and natural gas assets to meet emerging demand, especially in BRIC (Brazil, Russia, India and China) countries. The company also divested assets amounting to 7.1 billion in 2010 to pad margins and concentrate on the core exploration activities. ConocoPhillips also plans to sell $10 billion in non-core assets over the next two years. These activities are expected to improve profitability over the next five years.

Player Performance

BP PLC
Market share: 7.0%

BP is a large multinational oil company headquartered in London, UK. It merged with the US oil company Amoco at the end of 1998. For a time after the merger, the company was known as BP Amoco. However, it reverted to the simpler BP following its acquisition in 2000 of another US company, Atlantic Richfield Company (ARCO), in order to bring all its business under a common banner.

The bulk of BP's directly controlled proved reserves of oil are in the United States. BP's US gas reserves are also substantial, at 15.2 billion cubic feet out of a total 40.4 billion cubic feet that it controls directly. Its share of gas reserves held by equity-accounted businesses is a further 4.7 billion cubic feet worldwide (none of which is in the US). The company's US production comes from the Gulf of Mexico (58%), Alaska (27%) and onshore operations in the lower 48 states (15%). The importance of the Gulf of Mexico has grown in importance, while the share of output accounted for by the other two regions has declined. The shift reflects the rundown of oil reserves in Alaska and the lower 48 states.

BP faced a growing wave of community and government anger in the US following its inability to stem a

BP PLC (US upstream segment) – financial performance

Year	Revenue ($ million)	(% change)	Net Income ($ million)	(% change)
2006	14,077.9	11.4	7,929.9	16.2
2007	17,594.6	25.0	7,421.4	-6.4
2008	23,062.5	31.1	10,147.6	36.7
2009	15,423.0	-33.1	6,675.5	-34.2
2010	19,084.7	23.7	-10,638.3	N/C
2011*	22,998.6	20.5	-3,944.8	-62.9

*Estimate

SOURCE: ANNUAL REPORT AND IBISWORLD

Major Companies

Player Performance continued

massive oil leak at one of its operations in the Gulf of Mexico. The spill, which started on April 20, 2010 is the largest offshore oil spill in US history. It occurred when pressure control systems failed on an exploratory undersea oil well, causing an oil leak (a blow-out) and a catastrophic explosion at BP's Deepwater Horizon oil platform. The explosion killed 11 platform workers and injured 17 others; 98 people survived without serious injury. Deepwater Horizon was located about 40 miles southeast of the Louisiana coast and the blown out oil well sits in about 5,000 feet of water. The company estimates the total cost of the spill to be $32.2 billion. BP sold assets in 2010 to raise money to pay for the cost of the spill.

Looks may deceive

Over the five years to 2011, BP's revenue is expected to have an annualized growth rate of 10.3%. This trend is expected to slow down significantly in the next five years as the company is expected to operate fewer assets than before. The large jump in growth over the past five years was due to the sale of assets to fund the Gulf of Mexico oil spill and strong growth in the upstream segment before the recession. Additionally, 2009 wasn't as bad of a year for BP as it was for other competitors. As with Chevron, BP ramped up output from a platform in the Gulf of Mexico that met the ramp up in demand as the US economy recovered from the recession.

The Gulf of Mexico oil spill significantly impacted BP's profitability. In addition to the public outcry and subsequent tarnishing of the brand, the sheer cost of containing the oil spill has hampered the company's ability to operate. As a result, the BP has been selling assets to competitors to be able to finance some of the outstanding cost related to the oil spill.

Player Performance

Royal Dutch/Shell Group
Market share: 5.6%

Shell Oil Company, its subsidiaries and the companies in which Shell Oil holds a substantial interest have extensive operations in the United States. Shell Oil is the leading oil and gas producer in the deepwater Gulf of Mexico and is an affiliate of the Royal Dutch/Shell Group of Companies. It operates through the Shell Exploration & Production Company (SEPCo), which explores, develops, and produces oil and gas in the United States. Its main operations are in the Gulf of Mexico, Texas, Wyoming and California. SEPCo also has a majority holding

Royal Dutch/Shell Group (US upstream segment) – financial performance

Year	Revenue ($ million)	(% change)	Net Income ($ million)	(% change)
2006	11,535.1	19.3	3,102.3	12.8
2007	11,691.5	1.4	3,144.3	1.4
2008	15,346.1	31.3	4,606.2	46.5
2009	9,582.1	-37.6	1,451.7	-68.5
2010	14,984.9	56.4	2,609.7	79.8
2011*	18,533.7	23.7	3,227.8	23.7

*Estimate

SOURCE: ANNUAL REPORT AND IBISWORLD

Major Companies

Player Performance continued

(51.8%) in Aera Energy LLC, an exploration and production joint venture with Exxon Mobil, which has producing operations in California. Aera operates about 15,000 wells, producing 170,000 barrels of oil equivalent per day of heavy oil and gas (about 30% of California's hydrocarbon output).

In 2008, SEPCo commenced development of the Perdido regional host project (Shell interest 35%) in the southwest Gulf of Mexico, installing a floating spar hull (essentially a floating production platform). The hull is moored in about 8,000 feet of water, making it one of the world's deepest spar production facilities. First production is expected around the turn of the decade. In June 2010, Shell agreed to acquire East Resources, Inc. for $4.7 billion. East Resources operates shale gas holdings in the United States.

Production abroad

Shell's US upstream revenue is expected to grow 9.9% annually in the five years to 2011. The large jump in revenue growth is due to the significant natural gas assets acquired as a result of the purchase of East Resources. Additionally, Shell wasn't as exposed to price declines as other major oil companies. Most of the oil and natural gas producing assets are outside of the US, positioned for emerging market growth. As the recession made its way through developed economies, emerging economies still posted some strong economic growth. As a result, major oil companies explored and produced oil and natural gas in regions close to emerging growth. For example, Shell began production of heavy oil in Brazil during 2009.

Player Performance

Exxon Mobil Corporation
Market share: 2.7%

Exxon Mobil was incorporated in New Jersey in 1882. Exxon Mobil is one of the largest oil and gas producers and reserve holders in the United States. The company's US portfolio is geographically diverse; it has significant positions in all major producing regions including Alaska, onshore Gulf Coast, shelf and deepwater areas of the Gulf of Mexico, onshore and offshore California, and the mid-continent. Exxon Mobil's US properties contributed 16% of the company's oil production and about 14% of its gas production.

Exxon operates three distinct segments: Upstream, Downstream, and Chemicals. The segment most relevant for this industry is the Upstream segment. Exxon Mobil's global upstream and chemical companies and its coal and minerals company are headquartered in Houston. In the US, the company has proven reserves of 3,564 million barrels of oil. Exxon Mobil acquired XTO Energy for $24.6 billion in June 2010.

US crude oil activity declines

Exxon Mobil is expected to grow at an annualized rate of 1.3% in the five years to 2011. Over the past five years, the company has been more active in oil and gas wells abroad especially in the Middle East and Africa. Exxon has invested heavily in specialized technology to drill oil and gas from deposits that are normally hard to drill. For example, Exxon has invested in arctic technology to explore for oil and gas in cold regions. Recent merger activity and new projects have indicated that the company is interested in natural gas assets in the US. As the economy gets stronger, natural gas prices are expected to follow suit as consumers and industrial customers demand more energy. Furthermore, natural gas is proving to be a suitable alternative to coal generation for

Major Companies

Player Performance continued

electricity producers. Typically, establishing a natural gas generation plant offers cost-savings with regards to initial investments in energy generation.

Exxon Mobil's acquisition of XTO Energy is expected to add significant natural gas capacity to ExxonMobil's portfolio. XTO Energy had reserves of 14.8 trillion cubic feet of natural gas at the time of the acquisition. The acquisition is a strategic move for Exxon which is seeking to produce more natural gas in the US. Most of the company's upstream assets are abroad; the merger represents a move toward the US market. Natural gas is widely expected to be a strong part of the energy infrastructure and recent merger activity has been taking place.

Exxon Mobil Corporation (US upstream segment) – financial performance

Year	Revenue ($ million)	(% change)	Net Income ($ million)	(% change)
2006	8,423.0	7.7	5,168.0	-16.6
2007	8,508.8	1.0	4,870.0	-5.8
2008	11,368.3	33.6	6,243.0	28.2
2009	5,493.4	-51.7	2,893.0	-53.7
2010	7,886.3	43.6	4,824.1	66.8
2011*	8,983.8	13.9	4,995.5	3.6

*Estimate

SOURCE: ANNUAL REPORT AND IBISWORLD

Other Companies

Devon Energy Corporation

Estimated market share: 3.0 %

Devon Energy Corporation, headquartered in Oklahoma City, OK, is a natural gas and exploration firm. The company's operations are focused in the United States and Canada. Devon produces about 2.5 billion cubic feet of natural gas per day. Devon's US operations generated revenue of $9.1 billion in 2010.

Apache Corporation

Estimated market share: 1.1 %

Apache Corporation, headquartered in Houston, TX, is an independent gas and oil exploration company. Apache's US production of oil and gas is expected to make up 35.0% of all the gas and oil explored worldwide on a barrel equivalent basis. The company bought some of BP's assets following the oil spill. Apache's US operations brought in $3.5 billion in 2010.

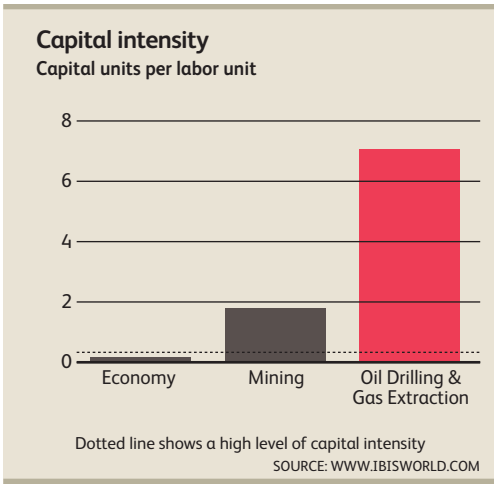
Operating Conditions

Capital Intensity | Technology & Systems | Revenue Volatility
Regulation & Policy | Industry Assistance

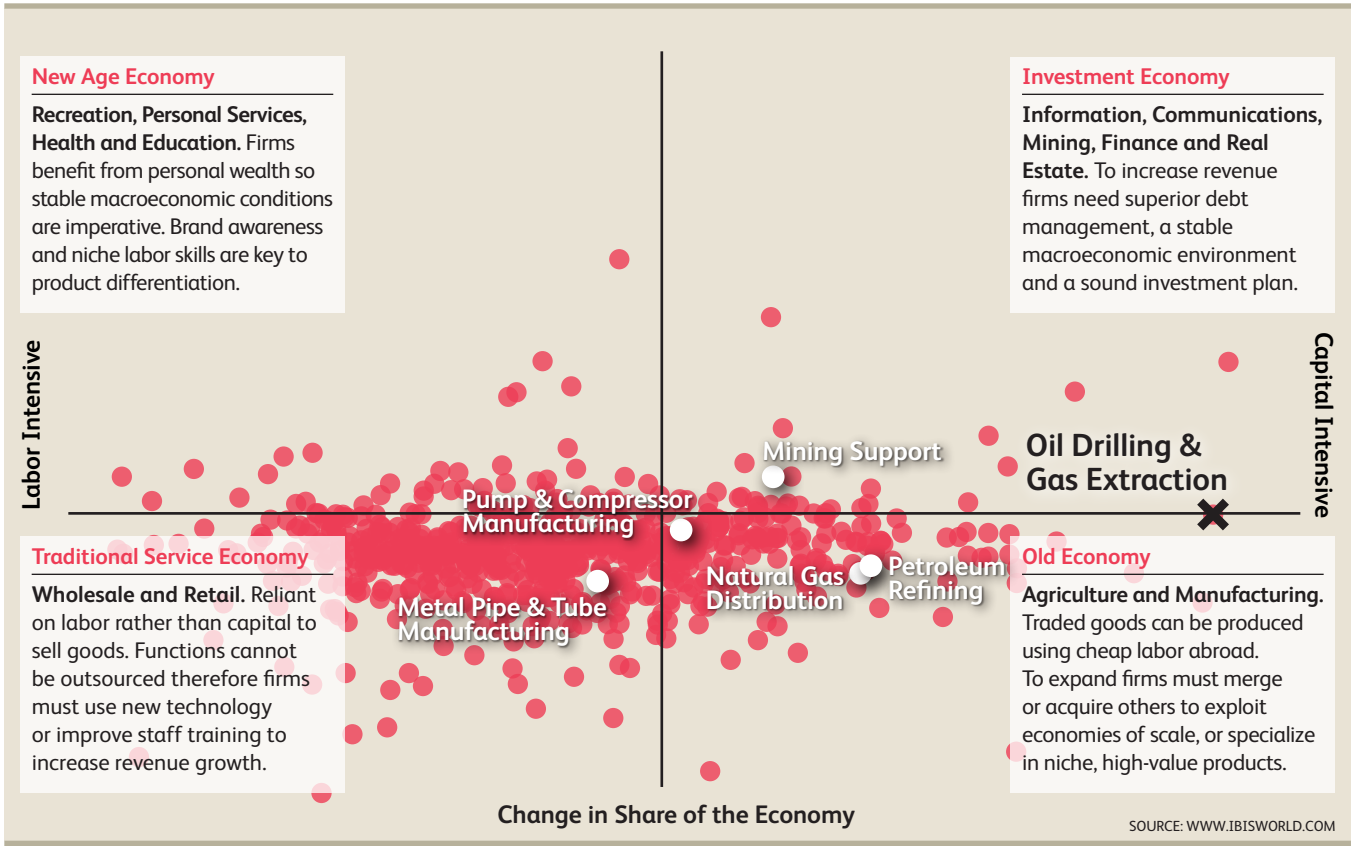
Capital Intensity

Level
The level of capital intensity required is **High**

The industry is extremely capital intensive, as evidenced by the large share of revenue that provides a profit and funds depreciation. The industry's ratio of deprecation to wages ranks it as among the most capital intensive of industries. The industry relies on large-scale capital equipment (including offshore platforms for drilling and production) for its output rather than upon labor. In addition, the substantial capital cost of production facilities also reflects the need for a high degree of reliability. Facilities operate around the clock and must be resistant to corrosion. They must also be able to withstand extreme weather, offshore and onshore.



Tools of the Trade: Growth Strategies for Success



Operating Conditions

Technology & Systems

Level
The level of Technology Change is **Medium**

The technology used to recover oil and natural gas from wells hasn't changed over the past decade. However, new drilling techniques are being used to recover oil and gas from deeper deposits than what was possible before.

Oil and gas are generally recovered by drilling wells into underground or undersea hydrocarbon fields. Initially, the internal pressure of the field causes the oil or gas to rise to the surface of its own accord. However, as this pressure drops, various techniques are used to boost hydrocarbon recovery. These include injecting steam, water or chemicals into the well. In combined oil and gas fields, the gas is sometimes re-injected in order to improve oil recovery. Nearly all the producing wells in the United States make use of such methods to improve oil 'lift' from the well.

Offshore oil is considerably more expensive to extract than onshore oil. A variety of production wells are used offshore, depending on the size of the field, the depth of the water and the climatic conditions. On average, offshore drilling costs are about seven times higher than onshore costs.

Fixed platforms, where the legs of structure are embedded in the sea floor, are expensive to erect and their use is generally confined to relatively large oil and gas fields. However, the cost of these facilities is extremely sensitive to water depth; it rises exponentially for water depths in excess of 300 meters. Tension leg platform installation costs are less sensitive to water depth, but are not as well suited to large scale operation. Semi-submersible floating production facilities were developed in the 1970s to provide an economic solution for production from small offshore wells in the North Sea. Later that decade, this technology was extended to include converted oil tankers as shuttle and storage facilities. Floating storage production systems are the least costly facility for water depths up to about 600 meters.

Drilling techniques also play an important role in oil and gas recovery. Onshore wells can now be drilled successfully to depths of 8,000 meters (compared with 5,000 meters 50 years ago). Offshore wells can be drilled in water depths of 1,000 meters or more. Horizontal drilling has also resulted in some of the world's abandoned oil fields brought back into production. Horizontally drilled wells increase the surface area of the bore hole exposed to the oil reservoir, and thereby allow increased production rates and higher oil recovery. However, drilling costs for wells using horizontal drilling are about 24.0% higher than for conventionally drilled wells.

Revenue Volatility

Level
The level of Volatility is **Very High**

Typically, the performance of the Oil Drilling and Gas Extraction industry is very volatile. Industry revenue is sensitive to shifts in both crude oil prices and natural gas prices, which vary markedly in response to shifts as the global supply/demand balance. Oil and gas prices tend to increase sharply during periods of excess demand and fall markedly if excess supply emerges.

The volume of US oil production does not respond strongly to price movements, particularly price increases. Resource depletion limits the extent to which output can respond to rising prices. Similarly, the demand for local crude oil does not respond strongly to shifts in prices; instead imports tend to bear the brunt of weak or falling demand, but gain disproportionately as demand rises.

Operating Conditions

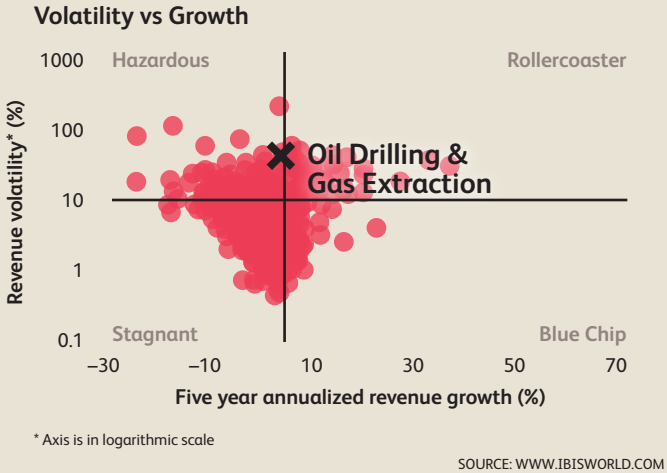
Revenue Volatility continued

The relatively fixed nature of local crude oil production means that oil price movements feed directly into revenue. In contrast, US natural gas consumption and production is trending up, but is also sensitive to both economic conditions and natural gas prices. Firming economic growth has a positive effect on the demand for and production of natural gas, while economic weakness tends to reduce demand for gas, especially for industrial use.

The impact of shifts in natural gas prices on revenue depends on the magnitude of the change. Small price rises have a minimal negative impact on demand and lift industry revenue, but large price increases are usually partly offset by lower demand.

A higher level of revenue volatility implies greater industry risk. Volatility can negatively affect long-term strategic decisions, such as the time frame for capital investment.

When a firm makes poor investment decisions it may face underutilized capacity if demand suddenly falls, or capacity constraints if it rises quickly.



SOURCE: WWW.IBISWORLD.COM

Regulation & Policy

Level & Trend
The level of Regulation is **Heavy** and the trend is **Steady**

The Oil Drilling and Gas Extraction industry is highly regulated, with the federal and state governments being involved in all stages of production. State governments determine which areas are open to oil exploration and extraction, issue exploration and production leases, and enforce environmental legislation.

The Federal Energy Regulatory Commission (FERC) plays only a limited role in the oil market. Its authority is confined to regulating the rates and practices of oil companies engaged in interstate transportation (under the Interstate Commerce Act and the Energy Policy Act). It aims to establish fair and reasonable rates to encourage maximum use of oil pipelines, which provide a relatively inexpensive means of bringing oil to market.

FERC does not oversee the construction of oil pipelines or regulate the supply and price of oil or oil products. Rather, it helps to assure shippers equal access to pipeline transportation, equal service conditions on a pipeline, and reasonable rates for moving petroleum and petroleum products by pipeline.

The federal government also maintains the Strategic Petroleum Reserve (SPR). This was established in 1977, in response to upheaval in the Middle East. The purpose of the reserve is to provide a stock of oil that can be drawn down in the event of a major upheaval in the market. Only the President has the authority to

Operating Conditions

Regulation & Policy continued

order the strategic reserves be used. If reserves are distributed, they are sold to bidders in the US market.

The SPR is usually seen as a replacement for imports and the amount stored is often described in terms of the number of days of imports it could replace (about 60 days). In November 2001 (after the terrorist attacks on the US), President Bush announced his intention to fill the SPR to 700 million barrels, at least partly by using the Royalty-in-Kind program, under which firms contribute oil to the value of their royalty obligations. Delivery of the final cargoes of Royalty-in-Kind crude oil that took the SPR to 700 million barrels was completed by August 26, 2005.

The Energy Policy Act 2005, which was signed into law in August 2005, contains a range of measures aimed at increasing US energy self-sufficiency. The act offers a range of benefits or potential benefits to oil and gas producers. Among other items, the act authorizes an expansion of the Strategic Petroleum Reserve (SPR) to one billion barrels (from 700 million barrels); provides incentives to continue production from marginal offshore oil wells; provides incentives for gas production from deep wells in the shallow waters of the Gulf of Mexico, depending on gas prices; authorizes the granting of royalty relief for leases in deepwater areas, depending on oil prices; provides for the suspension of offshore Alaska royalties in order to promote increased production; and provides a five-year, $20 million annual authorization to the Secretary of the Interior to develop a program to remediate, reclaim, and close orphaned, abandoned, or idled wells on federal land.

Industry Assistance

Level & Trend
The level of Industry Assistance is **None** and the trend is **Steady**

The Oil Drilling and Gas Extraction industry is not protected by tariffs and does not receive any non-tariff protection. However, it benefits from some industry specific policies.

Expensing of intangible drilling costs allows firms engaged in the production of domestic oil and gas to treat certain intangible costs of drilling and development, such as fuel, labor, supplies and repairs as expense items. This is an exception to general tax rules, which require capitalization of such costs. Integrated oil companies can only expense 70% of these costs, while independent producers can fully expense these costs.

The percentage depletion allowance permits independent producers to subtract 15% of sales from a property as a deduction for the depletion or depreciation of the capital investment in the mineral reserve. It is only available to small independent producers. There is also a 15% income tax credit for the costs of recovering oil through one of several enhanced oil recovery methods.

Key Statistics

Industry Data

	Revenue ($m)	Industry Value Added ($m)	Establish-ments	Enterprises	Employment	Exports ($m)	Imports ($m)	Wages ($m)	Domestic Demand ($m)	Oil Output (Mil barrels)
2002	140,145.7	119,619.6	7,689	6,317	88,280	2,155.6	107,578.3	7,797.7	245,568.4	2,097.1
2003	194,713.3	165,991.4	7,493	6,273	83,447	2,790.0	140,200.1	7,340.3	332,123.4	2,073.5
2004	224,391.9	191,204.3	7,372	6,288	82,879	3,788.0	180,258.7	7,602.3	400,862.6	1,983.3
2005	282,923.1	240,940.7	7,390	6,317	85,562	5,310.2	236,181.2	8,680.5	513,794.1	1,890.1
2006	282,995.1	241,169.5	7,803	6,606	92,383	4,808.5	265,948.3	10,381.9	544,134.9	1,862.3
2007	296,356.0	253,149.1	7,542	6,600	94,116	6,351.6	283,936.8	10,654.7	573,941.2	1,848.5
2008	398,737.7	343,406.9	7,800	6,700	95,413	9,479.0	384,415.3	10,995.6	773,674.0	1,811.8
2009	231,174.3	194,380.2	7,600	6,600	95,580	7,066.6	208,035.5	11,241.8	432,143.2	1,938.1
2010	309,508.7	264,210.7	7,650	6,600	97,150	5,294.7	273,581.5	11,652.2	577,795.5	1,990.5
2011	**329,900.9**	**282,771.3**	**7,800**	**6,650**	**98,010**	**5,423.8**	**282,865.3**	**11,665.3**	**607,342.4**	**2,102.0**
2012	358,901.9	308,658.2	7,880	6,680	99,231	6,237.8	292,409.3	11,879.7	645,073.4	2,294.9
2013	396,391.0	342,449.6	7,900	6,700	100,225	7,230.7	318,801.3	12,069.1	707,961.6	2,569.6
2014	432,988.5	375,263.7	7,920	6,720	101,485	7,926.1	346,702.7	12,292.4	771,765.1	2,808.9
2015	409,481.8	354,540.7	7,950	6,750	103,521	7,092.9	331,210.1	12,661.9	733,599.0	2,6170.
2016	432,016.6	374,790.3	7,950	6,750	105,670	7,394.9	350,385.9	13,051.5	775,007.6	2,754.5
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Annual Change

	Revenue (%)	Industry Value Added (%)	Establish-ments (%)	Enterprises (%)	Employment (%)	Exports (%)	Imports (%)	Wages (%)	Domestic Demand (%)	Oil Output (%)
2003	38.9	38.8	-2.5	-0.7	-5.5	29.4	30.3	-5.9	35.2	-1.1
2004	15.2	15.2	-1.6	0.2	-0.7	35.8	28.6	3.6	20.7	-4.4
2005	26.1	26.0	0.2	0.5	3.2	40.2	31.0	14.2	28.2	-4.7
2006	0.0	0.1	5.6	4.6	8.0	-9.4	12.6	19.6	5.9	-1.5
2007	4.7	5.0	-3.3	-0.1	1.9	32.1	6.8	2.6	5.5	-0.7
2008	34.5	35.7	3.4	1.5	1.4	49.2	35.4	3.2	34.8	-2.0
2009	-42.0	-43.4	-2.6	-1.5	0.2	-25.4	-45.9	2.2	-44.1	7.0
2010	33.9	35.9	0.7	0.0	1.6	-25.1	31.5	3.7	33.7	2.7
2011	**6.6**	**7.0**	**2.0**	**0.8**	**0.9**	**2.4**	**3.4**	**0.1**	**5.1**	**5.6**
2012	8.8	9.2	1.0	0.5	1.2	15.0	3.4	1.8	6.2	9.2
2013	10.4	10.9	0.3	0.3	1.0	15.9	9.0	1.6	9.7	12.0
2014	9.2	9.6	0.3	0.3	1.3	9.6	8.8	1.9	9.0	9.3
2015	-5.4	-5.5	0.4	0.4	2.0	-10.5	-4.5	3.0	-4.9	-6.8
2016	5.5	5.7	0.0	0.0	2.1	4.3	5.8	3.1	5.6	5.3
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Key Ratios

	IVA/Revenue (%)	Imports/ Demand (%)	Exports/Revenue (%)	Revenue per Employee ($'000)	Wages/Revenue (%)	Employees per Est.	Average Wage ($)	Share of the Economy (%)
2002	85.35	43.81	1.54	1,587.51	5.56	11.48	88,329.18	1.04
2003	85.25	42.21	1.43	2,333.38	3.77	11.14	87,963.62	1.40
2004	85.21	44.97	1.69	2,707.46	3.39	11.24	91,727.70	1.56
2005	85.16	45.97	1.88	3,306.64	3.07	11.58	101,452.75	1.91
2006	85.22	48.88	1.70	3,063.28	3.67	11.84	112,378.90	1.86
2007	85.42	49.47	2.14	3,148.84	3.60	12.48	113,208.17	1.91
2008	86.12	49.69	2.38	4,179.07	2.76	12.23	115,242.16	2.60
2009	84.08	48.14	3.06	2,418.65	4.86	12.58	117,616.66	1.51
2010	85.36	47.35	1.71	3,185.88	3.76	12.70	119,940.30	1.99
2011	**85.71**	**46.57**	**1.64**	**3,365.99**	**3.54**	**12.57**	**119,021.53**	**2.08**
2012	86.00	45.33	1.74	3,616.83	3.31	12.59	119,717.63	2.21
2013	86.39	45.03	1.82	3,955.01	3.04	12.69	120,420.05	2.38
2014	86.67	44.92	1.83	4,266.53	2.84	12.81	121,125.29	2.52
2015	86.58	45.15	1.73	3,955.54	3.09	13.02	122,312.38	2.32
2016	86.75	45.21	1.71	4,088.36	3.02	13.29	123,511.88	2.37
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Figures are inflation-adjusted 2011 dollars. Rank refers to 2011 data.

SOURCE: WWW.IBISWORLD.COM

Jargon & Glossary

Industry Jargon

ETHANOL A form of alcohol used as a fuel and primarily made from grains such as corn and soybeans.

LIQUEFIED NATURAL GAS (LNG) An energy source formed by cooling natural gas to a very low temperature, at which it becomes liquid.

NATURAL GAS Gases that consist primarily of methane but also include small amounts of heavier hydrocarbons such as propane and butane.

OFFSHORE PLATFORMS Structures located in the ocean that are designed to extract oil or gas from underneath the seabed.

OIL FIELD An underground or undersea deposit of oil contained within a stable geological formation.

ORGANIZATION OF PETROLEUM EXPORTING COUNTRIES Known as OPEC, this global organization consisting of 12 countries is designed to create stability and control in the petroleum markets.

IBISWorld Glossary

BARRIERS TO ENTRY Barriers to entry can be High, Medium or Low. High means new companies struggle to enter an industry, while Low means it is easy for a firm to enter an industry.

CAPITAL/LABOR INTENSITY An indicator of how much capital is used in production as opposed to labor. Level is stated as High, Medium or Low. High is a ratio of less than $3 of wage costs for every $1 of depreciation; Medium is $3 – $8 of wage costs to $1 of depreciation; Low is greater than $8 of wage costs for every $1 of depreciation.

DOMESTIC DEMAND The use of goods and services within the US; the sum of imports and domestic production minus exports.

EARNINGS BEFORE INTEREST AND TAX (EBIT) IBISWorld uses EBIT as an indicator of a company's profitability. It is calculated as revenue minus expenses, excluding tax and interest.

EMPLOYMENT The number of working proprietors, partners, permanent, part-time, temporary and casual employees, and managerial and executive employees.

ENTERPRISE A division that is separately managed and keeps management accounts. The most relevant measure of the number of firms in an industry.

ESTABLISHMENT The smallest type of accounting unit within an Enterprise; usually consists of one or more locations in a state or territory of the country in which it operates.

EXPORTS The total sales and transfers of goods produced by an industry that are exported.

IMPORTS The value of goods and services imported with the amount payable to non-residents.

INDUSTRY CONCENTRATION IBISWorld bases concentration on the top four firms. Concentration is identified as High, Medium or Low. High means the top four players account for over 70% of revenue; Medium is 40–70% of revenue; Low is less than 40%.

INDUSTRY REVENUE The total sales revenue of the industry, including sales (exclusive of excise and sales tax) of goods and services; plus transfers to other firms of the same business; plus subsidies on production; plus all other operating income from outside the firm (such as commission income, repair and service income, and rent, leasing and hiring income); plus capital work done by rental or lease. Receipts from interest royalties, dividends and the sale of fixed tangible assets are excluded.

INDUSTRY VALUE ADDED The market value of goods and services produced by an industry minus the cost of goods and services used in the production process, which leaves the gross product of the industry (also called its Value Added).

INTERNATIONAL TRADE The level is determined by: Exports/Revenue: Low is 0–5%; Medium is 5–20%; High is over 20%. Imports/Domestic Demand: Low is 0–5%; Medium is 5–35%; and High is over 35%.

LIFE CYCLE All industries go through periods of Growth, Maturity and Decline. An average life cycle lasts 70 years. Maturity is the longest stage at 40 years with Growth and Decline at 15 years each.

NON-EMPLOYING ESTABLISHMENT Businesses with no paid employment and payroll are known as non-employing establishments. These are mostly set-up by self employed individuals.

VOLATILITY The level of volatility is determined by the percentage change in revenue over the past five years. Volatility levels: Very High is greater than ±20%; High Volatility is between ±10% and ±20%; Moderate Volatility is between ±3% and ±10%; and Low Volatility is less than ±3%.

WAGES The gross total wages and salaries of all employees of the establishment.