

---

# *Oil and gas in Malaysia:*

## *Exploring growth in a dynamic marketplace*

April 2015



*This document is published  
with permission from The  
International Investor*



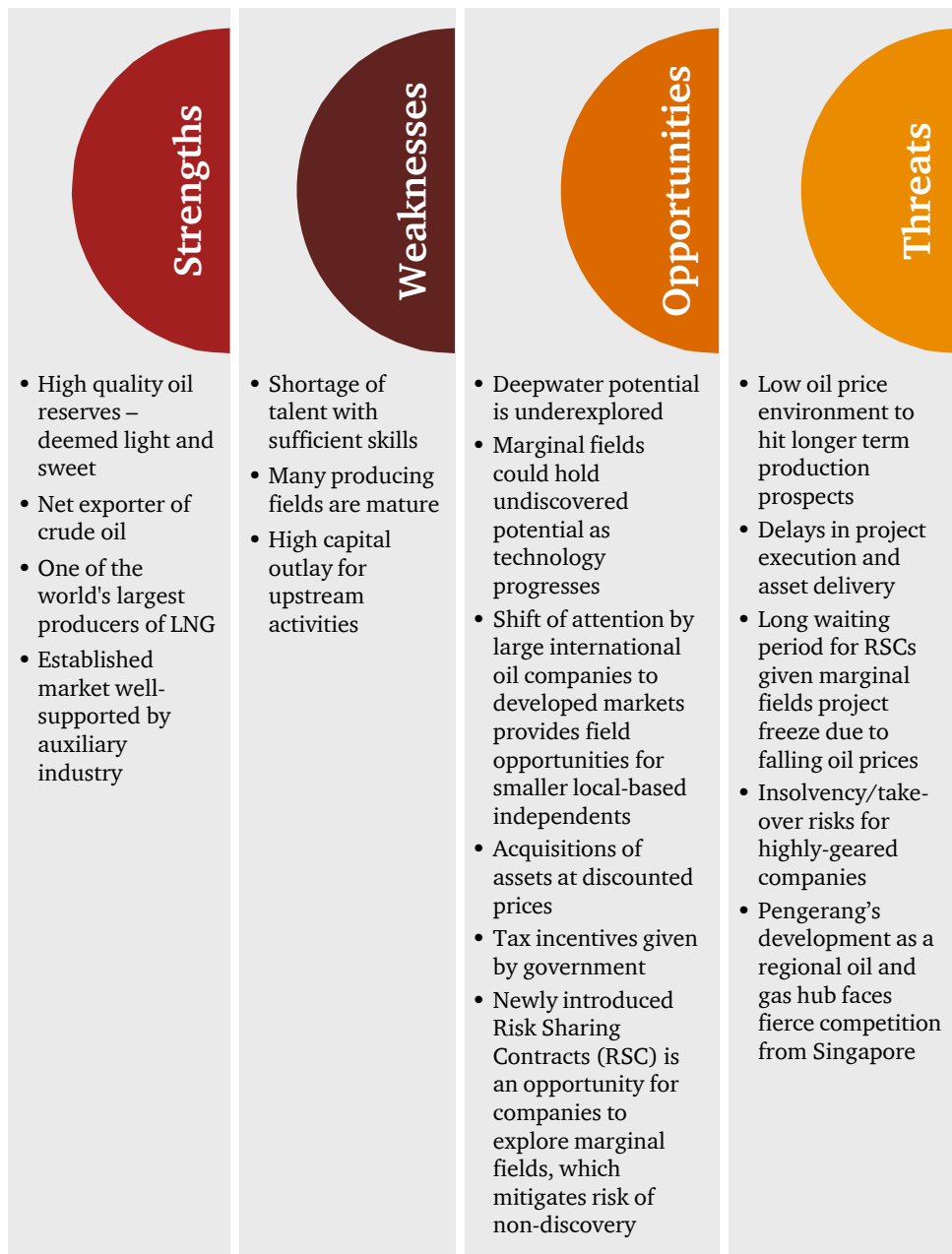
[www.pwc.com/my](http://www.pwc.com/my)

# The Malaysian oil and gas industry

## A SWOT analysis

As one of the nation's main commodities, oil and gas has a very strong impact on the Malaysian economy. The growth of the industry has been shaped by global megatrends like resource scarcity and the impact of emerging markets. Falling productivity along with cost pressures and competitive forces are challenging oil and gas companies to find new and innovative ways to effectively meet investor expectations and to meet the world's growing demand for energy.

This document discusses some of the emerging themes characterising the sector, including the challenges and opportunities in store for oil and gas companies in relation to the current state of play in Malaysia.



## History of the Sector

Over a century ago in 1910, Malaysia marked its foundation in oil and gas when the first oil well was drilled in Miri, Sarawak. The well started off with a mere production of 83 barrels per day (bbls/d) and reached a maximum of 15,000 bbls/d 20 years later. At the time, Shell was the only company that drilled the well.

Shortly after Malaysia's independence, the oil and gas industry was governed by the Petroleum Mining Act 1966 (Act 95). Under the new decree, a concession system was instigated for upstream activities where multinational corporations (MNCs) such as Shell and Exxon were given exclusive rights to explore and produce resources in return for payment of royalty and taxes to the government.

As Malaysia continued to develop as a growing economic nation under the governance of the New Economic Plan, the Malaysian Government identified the value of having national control over oil and gas development. As a result, the Petroleum Development Act (1974) was enacted and Malaysia's national oil company Petroliam Nasional Berhad (PETRONAS) was formed. The new act gives PETRONAS exclusive ownership rights to the oil and gas resources in Malaysia, and makes it the main regulatory body for upstream activities.

Flash forward to the present day, Malaysia has become a key hub for major oil and gas companies. It has over 400 oil and gas fields, the second largest reserves in ASEAN and is the world's third-largest exporter of liquefied natural gas (LNG). PETRONAS has also grown in tandem with the maturing of the industry in Malaysia and is now a global player achieving many industry milestones. This well-established ecosystem is now one of the driving forces behind the development of Malaysia's economy, contributing 20% towards GDP.



# How the Market Operates

## Upstream

Under the Petroleum Development Act 1974, all upstream activities such as exploration, development and production of resources are regulated by PETRONAS. Companies wishing to enter the market would have to partake in either a Production Sharing Contract (PSC) or Risk Sharing Contract (RSC) with PETRONAS. This means MNCs that were concessionaires under the old regulation became contractors of PETRONAS.

As a regulator of this market segment, PETRONAS has awarded PSCs to a number of international oil and gas companies which has resulted in the emergence of strong market players that has sustained industry growth and development. The first PSC was signed with Shell in 1976 and since then, more than 70 PSCs with various companies have been signed. This includes PETRONAS' Exploration & Production (E&P) subsidiary PETRONAS Carigali which contributes between 40%-43% of Malaysia's total production. Other dominant players are Shell and ExxonMobil contributing approximately 20%-22% and 15%-20% respectively, making up more than 80% of Malaysia's total production as at 2014.

Depleting resources mean there is a risk of non-discovery, which in the case of PSCs, does not allow contractors to recover costs they have incurred during exploration. In order to continue enticing investments from strong contractors in the market, PETRONAS adopted the Risk Sharing Contract (RSC) approach as an alternative to the PSC regime in developing marginal fields (reserves of less than 30 million barrels of recoverable oil) in 2011. Unlike PSCs, contractors are entitled to a rate of return that is agreed upon upfront and risks are shared even though a discovery is not made during exploration. PETRONAS has awarded six RSCs since 2011, and as of mid- 2014, half have commenced production of oil and natural gas yielding more than 30,000 bbl/d.

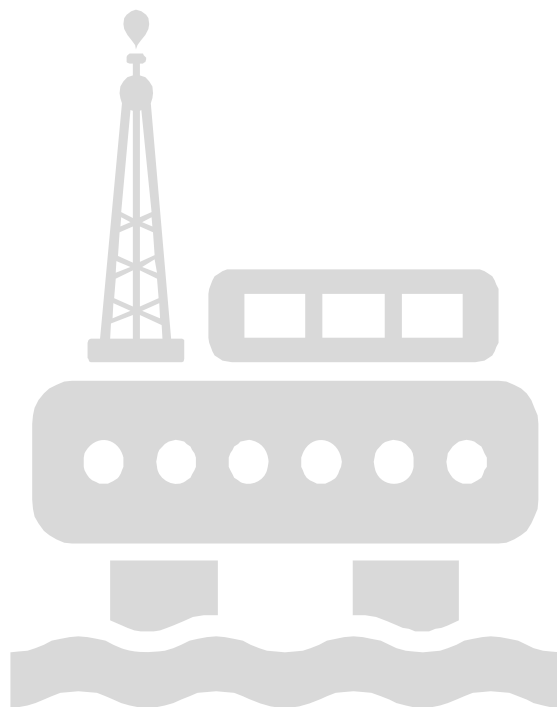


### *Mid-and Downstream*

While PETRONAS is responsible for the regulation of all up-stream activities, the Ministry of International Trade and Industry (MITI) and the Ministry of Domestic Trade, Co-Operatives and Consumerism (MDTCC) are vested with powers to regulate all mid-and downstream activities. The regulators for this segment are responsible for the issuance of permits and licenses for refining, processing, and distributing petroleum and petrochemical products.

Malaysia has consistently maintained a position of being a net exporter of crude oil despite the rising rate of consumption. Malaysia exports approximately half of its crude oil production because the high quality crude oil produced in the country (deemed light and sweet) is attractive to Asian markets and is sold at a premium price compared to other crude oil blends. To maximise the capacity of Malaysia's in-house refineries and fulfil domestic needs, lower-cost heavy, sour crude oil is imported from the Middle East and several other regions.

In 2013, Malaysia imported 183,000 bbl/d of lower-cost crude oil for processing at its oil refineries – which is approximately half of overall export volume. However, unlike crude oil, Malaysia is a net importer of petrochemicals where the growth of imports has grown faster than exports within the last few years. The majority of trade occurs within Asia – with Singapore being a preferred trade partner.

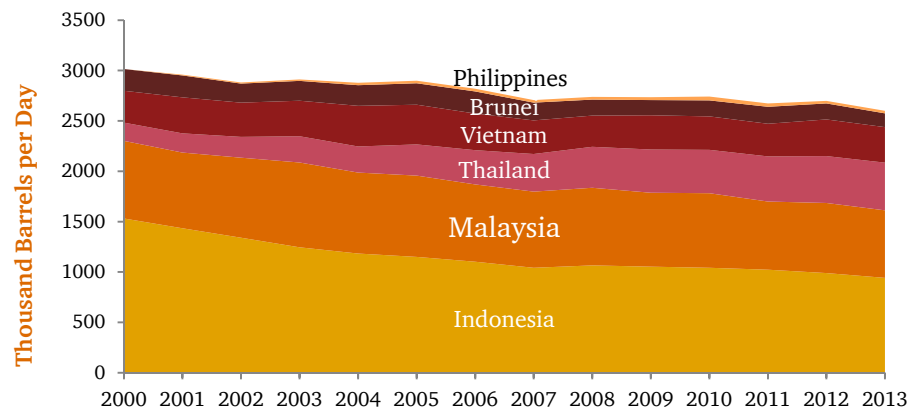


# State of the Market

## Production and Reserves

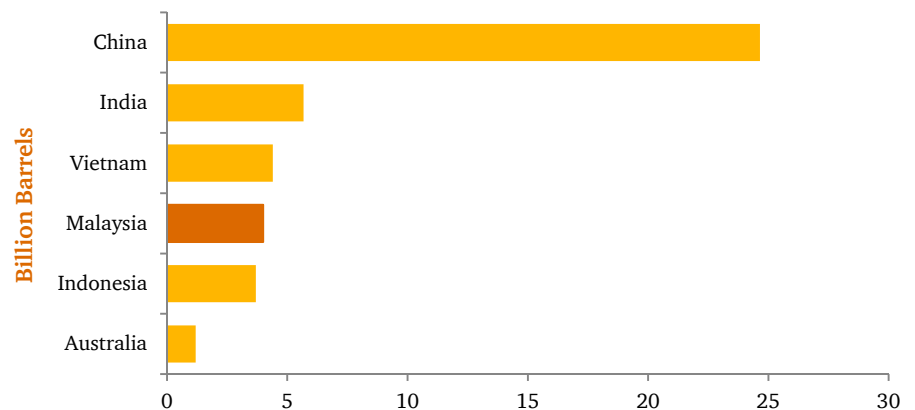
Malaysia's oil production and reserves have seen marginal growth over the past years despite being the second largest producer of oil in South East Asia, and having the fourth largest reserves in Asia. In contrast, Malaysia's gas production continues to trend upward.

Chart 1: Production of Oil in South East Asia



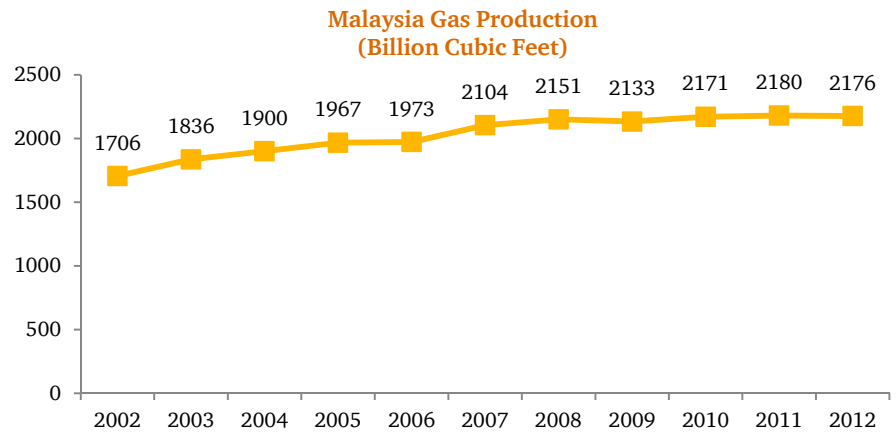
Source: Malaysian Investment Development Authority (MIDA): Meet Malaysia: Investment Opportunities in Asia's Oil and Gas Hub (2013)

Chart 2: Oil Reserves in 2015



Source: Energy Information Administration (EIA) Country Analysis: Malaysia (2015)

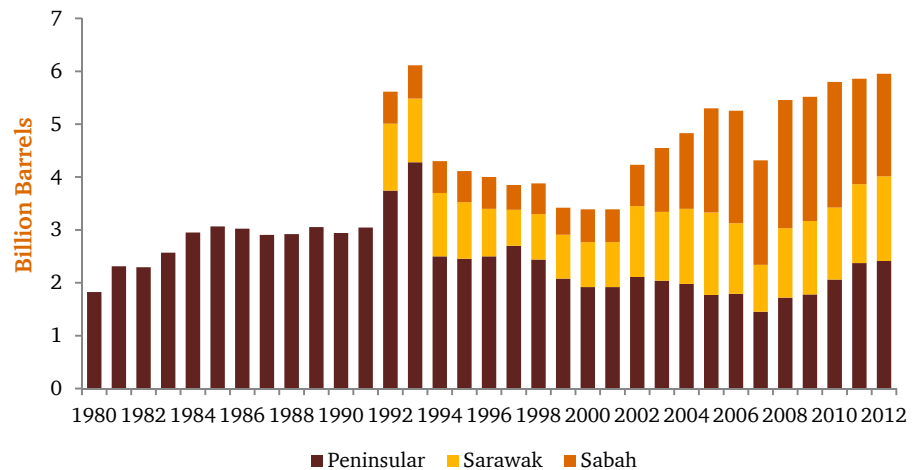
**Chart 3: Gas Production in Malaysia over 10 years**



Source: Energy Information Administration (EIA) Statistics (2015)

East Malaysia has been supporting the marginal growth of reserves from Peninsular Malaysia since 1992 as seen in Chart 4. The explorations off the coasts of Sabah and Sarawak continue to result in more commercial resources.

**Chart 4: East Malaysia Sustains Oil Reserves**



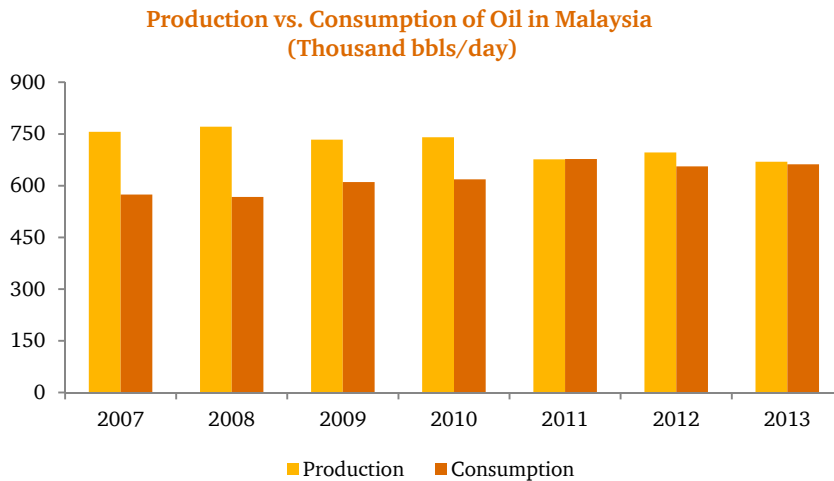
Source: BMI: Q2 2015 Malaysia Oil & Gas Report (2015)

## State of the Market

The decline of oil discovery from many mature fields after almost three decades of production has driven the industry towards new methods of exploration. This, alongside the fact that consumption of oil is catching up with production as seen in Chart 5 has instigated more diverse exploration efforts to preserve lucrative export volumes. High profile discoveries such as Shell's deepwater field discovery of Marjoram-1 and Petrofac's discovery in Cendor's marginal field within the last three years will continue to stimulate exploration through these methods:

- i. Deepwater fields
- ii. Marginal and Stranded fields previously thought to be commercially unfeasible
- iii. Enhanced oil recovery (EOR) and improved oil recovery (IOR) developments

**Chart 5: Production vs Consumption of Oil in Malaysia**



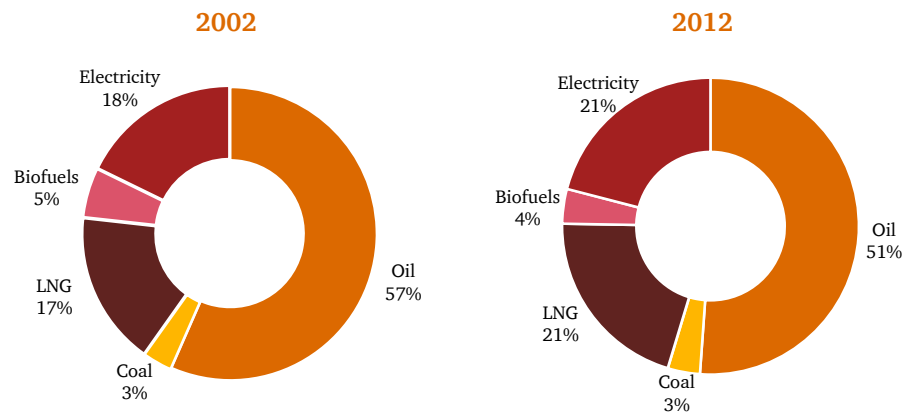
Source: Energy Information Administration (EIA) Statistics (2015)



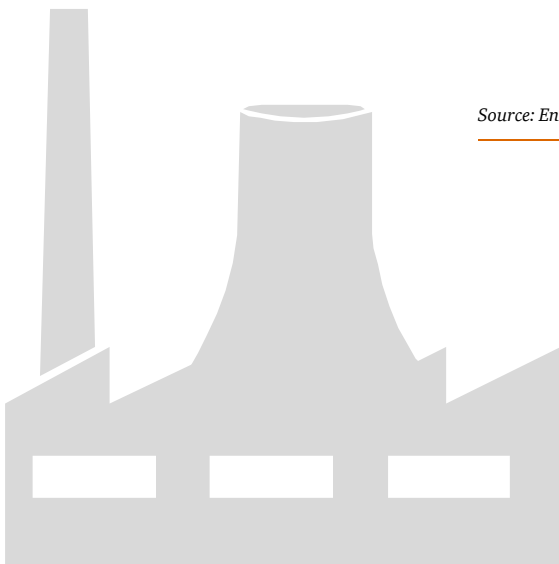
### Consumption

Malaysia's oil and gas policy has historically focused on providing affordable commodity to the population through subsidising fuel. This has been a factor for high levels of fuel consumption in the country. However in an attempt to control consumption and free up capital for PETRONAS in exploration and production, the government has introduced subsidy reforms, with fuel subsidies eventually phased out in 2015.

Chart 6: Final Energy Consumption in Malaysia

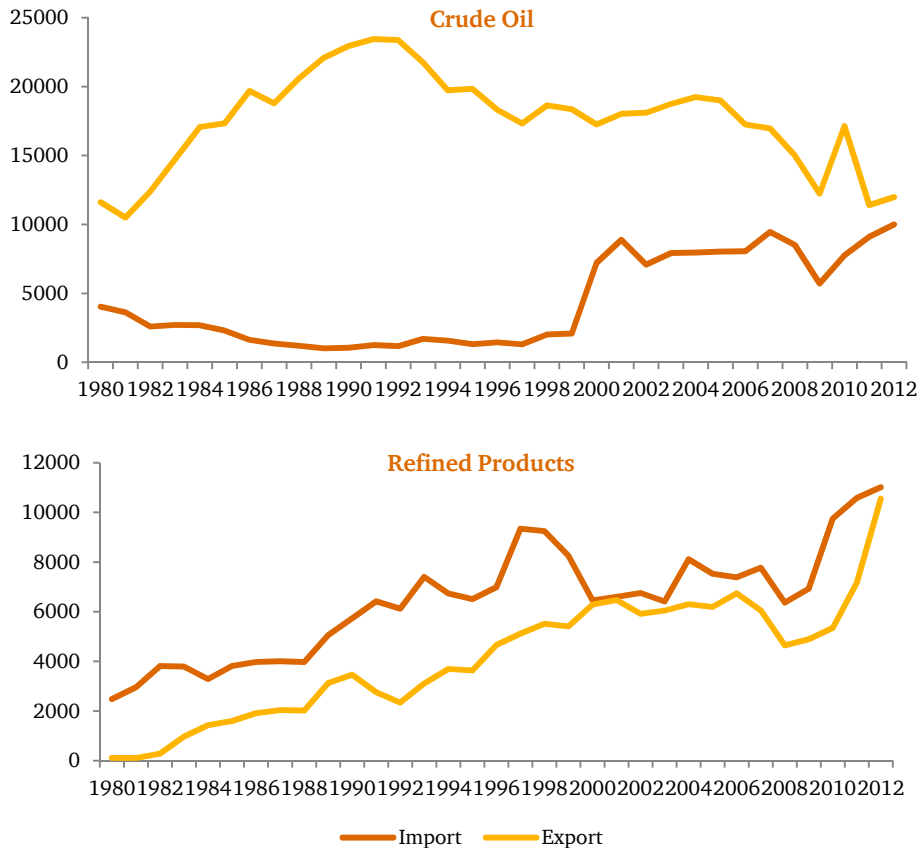


Source: Energy Information Administration (EIA) Statistics (2015)



## State of the Market

Chart 7: Imports and Exports of Oil in Malaysia



Source: Energy Commission of Malaysia Statistics (2015)

Malaysia has also strategically exported its premium crude oil, and imported lower grade oil to refine in the country's downstream facilities. To fulfil demands in consumption, refined products have consistently been imported as seen in the graphs below. Moving forward, there is an agenda to increase the capacity of refining facilities to make Malaysia a net oil product exporter. The Pengerang Integrated Petroleum Complex (PIPC) in Johor and Sipitang Oil & Gas Industrial Park (SOGIP) in Sabah will almost double the refining capacity nationwide from 588,000bbl/d to 1,158,000bbl/d. These two facilities will produce both refined oil and specialty based petrochemicals destined for export markets.

# Main Players

## Market Share and Main Operations

There are over 3,500 oil and gas businesses in Malaysia, including international oil companies, independents, services and manufacturing companies. This has created a strong network of players in both the services and manufacturing segments that support the needs of the O&G value chain both domestically and regionally.

International Oil and Gas Companies	Domestic Companies
  	  
 	  
 	  
   	  
 	 
  	   
  	  
   	 

This is a non-exhaustive list.

Source: Malaysian Investment Development Authority (MIDA): Meet Malaysia: Investment opportunities in Asia's oil and gas hub (2013)

## Main Players

**Table: Key Players – Malaysian Energy Sector**

Company	2011 Sales (MYRbn)	% Share of Total Sales	No. of Employees	Year Established	Total Assets (MYRbn)	Ownership (%)
Petronas	222.8*	60	36,027	1974	447.6*	100% state
ExxonMobil Malaysia	n/a	1.8	2,000	1961	n/a	100% ExxonMobil
Shell Malaysia	n/a	1.9	7,000	1911	n/a	100% RD Shell
Caltex Oil Malaysia	n/a	0.3	250	1937	n/a	100% Chevron
ConocoPhillips	n/a	0.1	200e	n/a	n/a	100% ConocoPhillips
Murphy Oil	6.8	49	400	1999	n/a	100% Murphy Oil
Hess	n/a	n/a	80e	1998	n/a	100% Hess
Talisman Energy	n/a	n/a	n/a	n/a	n/a	100% Talisman

*This is a non-exhaustive list.*

*\* Figures reflect performance from April 1 to December 31, due to changed in financial year end; e = estimate; n/a = not available.*

*Source: BMI, Company data*

# Market Specific Information

The oil and gas industry is undergoing massive change as a result of the steep drop in oil prices. The industry is expected to face many challenges, but also opportunities particularly in exploration.



## 1. Trends in Exploration

### Deepwater Exploration

In order to ramp up production, investment focus has been placed on Malaysia's underexplored deepwater acreage. It has been reported that there is potential for at least 7bn barrel of oil equivalent (boe) to be discovered, but at present, only approximately 50% of that unexplored territory has been found by major oil and gas players, with only 26% of oil being extracted. However, deepwater exploration is expected to slow down significantly due to the falling oil prices. Being the most capital intensive of exploration methods, deepwater exploration will be the area that will experience the most significant slowdown.

### Marginal fields

Malaysia has over 100 marginal fields that could hold 580 million bbl. As at 2014, PETRONAS has signed between 25 – 27 contracts to develop the fields through RSCs. Despite the risk mitigating nature of RSCs, marginal field exploration currently does not appear to be an attractive option for companies. This is because in order to reach a minimum breakeven point in production, oil prices would need to be between \$USD55-60/bbl, but persistently low prices ranging from \$USD55-75/bbl have been forecasted for the year.

## Market Specific Information

The most significant discovery from a marginal field is Petrofac's oil find at the Cendor field. Once thought to only hold 12mn bbl of recoverable oil, Petrofac announced in May 2013 that it hit oil and gas-bearing reservoirs that led it to raise recoverable estimates to about 200mn bbl, transforming a field deemed marginal into one of the biggest oilfields in Malaysia.

### Enhanced oil recovery

It is estimated that the average oil recovery factor of producing fields in Malaysia is 33-37% of oil-initially-in-place (OIIP). The Malaysian government and PETRONAS have made this method a priority because at least half of the country's producing fields have the potential for EOR. PETRONAS is expected to spend RM1.1b in research and development for EOR over the next few years. As a result, a wide-scale application of EOR could increase OIIP by more than 5-10%.

In September 2013, PETRONAS identified 14 oilfields where EOR technology could be implemented in the coming years. It is expected that production from these identified oil fields could reach between 750mn to 1bn bbl. The Tapis EOR project that has been announced will see oil production increase fivefold within the next three years.

Other projects are located offshore Sabah and Sarawak, such as Baram and St Joseph, and in Peninsular Malaysia, such as Tapis and Dulang. There are around 10 EOR projects currently in the pipeline, to be developed over the next 10 years. However, these projects are technically challenging and expensive, requiring \$USD14bn to execute. Innovation is required to lower overall costs, improve the performance of existing technology and develop new technology.

## 2. Reduction in oil price

### Trimmed capital expenditure (CAPEX)

In 2014, International Oil Companies (IOCs) trimmed CAPEX and their interest in Asia. Pressure from shareholders and a steep 60% decline in oil prices will see IOCs further rationalise their portfolios to focus on higher margin projects which Asia will not be able to support.

Consequently in Malaysia, PETRONAS is taking the lead in CAPEX cuts with a reduction of 15% for the year. A reduction in CAPEX may imminently cause delays in capital intensive exploration projects which could hit longer term production output.

### Stunted Production Growth

As a reaction to CAPEX cuts and PETRONAS' dominance in the industry, growth and development will be adversely impacted. It is anticipated that the reduction in CAPEX will first affect exploration and this will likely become apparent towards the end of the decade, as the potential in production growth could slow down. The cut in spending will likely hit Malaysia's longer term output, which is forecasted to stagnate through to 2024 at between 570,000-580,000b/d.

### Market Consolidation

Historically, turbulent times in the market due to a reduction in oil price will cause the market to enter a consolidation phase. During the oil price collapse in 1998, a wave of mergers and acquisitions happened to gain economies of scale, which saw the creation of super major player ExxonMobil, among many others. Small Malaysian start-up companies that have high cost structures could be susceptible to takeovers or mergers. This is because over the last five years, small companies have been making sales on oil that costs US\$100bbl; but with an average price of US\$50bbl, companies might not be able to financially adapt and survive in the current environment.

### 3. Cost Efficiency

Lower oil prices in the foreseeable future will require companies to dramatically reduce their costs by approximately 30% in order to survive and stay relevant in a competitive market. In order to enable cost reduction, companies will need to shift their focus to performance improvement and innovation.

#### Performance Improvement

Having seamless project execution which includes on-time delivery and cost recognition is vital in the current state of the market. Market players need to be in a position to mitigate risk for their customers by delivering operational excellence, safety and by engaging with them on project development. A key to this is the quality of talent in the organisation. However, the Malaysian oil and gas industry is facing issues with attracting and retaining talent. A national talent survey has shown that 60% of personnel shortage is related to experienced engineers in the industry. Also, 75% of market players feel that remuneration costs have increased in the industry, and this has brought about a demand for talent that causes attrition rates in their companies.

#### Innovation

Opportunities to introduce innovative products and services that can also offer cost-effective solutions, is another enabler of cost reduction. For example, in the upstream segment, innovative exploration solutions like specialisation in High CO<sub>2</sub>, High Pressure/High Temperature, EOR, facilities rejuvenation, deepwater development and floating production systems (FLNG) to revive production act as an opportunity to achieve economies of scale. As the cheapest oil to produce comes from existing wells, it is expected that demand will increase in the area of well services, such as well stimulations and workover services.



# Investment Climate

## 1. LNG

There is a long list of prolific discoveries and major projects set to commence between 2013 and 2018 that would see the production of gas continue to trend upwards. New gas fields have been identified to off-set the declining production in older fields. These projects are mostly in

Bintulu, Sarawak, where PETRONAS holds three major LNG production facilities at their LNG complex with a total capacity of 35 billion cubic meters (bcm). The complex is running between 85-90% of total capacity which hastens the need for expansion.

PETRONAS has embarked on the country's first commercial Floating LNG (FLNG) facility which is expected to be operational in 2015. The potential of Malaysia's offshore gas fields makes this new technology a central part of investments. Accordingly, a second FLNG facility has also reached a final investment decision (FID) and is expected to come online by 2018. These new projects are expected to increase production capacity by 15-16%.



## 2. Petrochemicals

Malaysia's strategy to become a net exporter in petrochemicals makes this segment an attractive one. For example, Petron is planning a \$USD1.5bn investment into its refining and retail business in Malaysia. Besides this, a potential 400,000b/d refinery that could be expanded to 800,000b/d in Yan, Kedah is also in the pipeline. Merapoh Resources has secured a \$USD10bn investment for this refinery. The plant is planned to be linked to the Trans-Peninsular Pipeline Project designed to process imported crude oil to East Asia.

As part of Malaysia's Economic Transformation Programme, two new oil and gas industrial parks (which together make up for 600,000 b/d of refinery capacity) have been proposed:

### i. Pengerang Integrated Petroleum Complex (PIPC)

PIPC is an initiative promoted by the state government of Johor to make the southern part of Malaysia the prime oil and gas hub in the region. The 20,000-acre industrial project will be an integrated facilities complex that will house oil refining and petrochemical facilities, oil storage facilities, import terminals, and an LNG liquefaction terminal.



Located strategically along one of the world's busiest shipping lanes and within close proximity to an international trading hub, the PIPC is positioned to rival Singapore's leading capabilities in the downstream sector. Two main blocks within the PIPC have started development –Dialog Group's Pengerang Independent Deepwater Petroleum Terminal (PIDPT) and PETRONAS' Pengerang Integrated Complex (PIC).

*a) Pengerang Independent Deepwater Petroleum Terminal (PIDPT)*

PIDPT has already completed Phase 1 of a storage terminal (that can store approximately 8 mil bbd), with a capacity expansion of 2 mil bbd planned in Phase 2. The project is strategically located at the entrance of one of the world's busiest shipping lanes with water depths of 24 meters which facilitate the berthing of very large crude carriers (VLCCs). This will make PIDPT a major oil storage facility for oil traders.

*b) Pengerang Integrated Complex (PIC)*

PETRONAS has also started developing the PIC with FID's already made for - Refinery and Petrochemical Integrated Development (RAPID refinery) due to be in commission by 2019, and the Pengerang Co-Generation Plant (PCP) that will power the entire PIC by generating 1,220 megawatts of electricity and provide supply of steam within the complex.

Apart from these two projects, the PIC will house other ancillary facilities like an LNG re-gasification terminal, air separation unit, raw water supply as well as crude and product tanks.

**ii. Sipitang Oil and Gas Industrial Park (SOGIP)**

SOGIP is a 4,000-acre industrial park that will serve as a new focal point for oil and gas investment within the Sabah, Brunei and Labuan economic centres, targeted for a 2015 completion. The availability of oil and natural gas found off the shores of Sabah allow for development of industries that utilise oil and natural gas, especially the petrochemical production, bulk storage, refinery and fabrication.

**iii. Incentives**

Malaysia requires a wide range of technical services to support the growth of the oil and gas industry. Accordingly, the Malaysian government has gazetted a set of incentives under the Petroleum Income Tax Act (2010) which includes tax allowances of up to 100% of CAPEX, reduced tax rate from 38% to 25% for marginal oil field development and waivers of export duties. Besides incentives from the government, the Malaysia Petroleum Resources Corporation (MPRC) and Labuan Financial Services Authority have jointly created a Global Incentives For Trading (GIFT) Programme for oil and gas initiatives in Labuan, Sabah. Some of the features of the programme include a 0% tax rate for LNG trading companies for the first three years of operation, a flat corporate tax rate of 3% and a 50% exemption on personal income tax for foreign professionals.

---

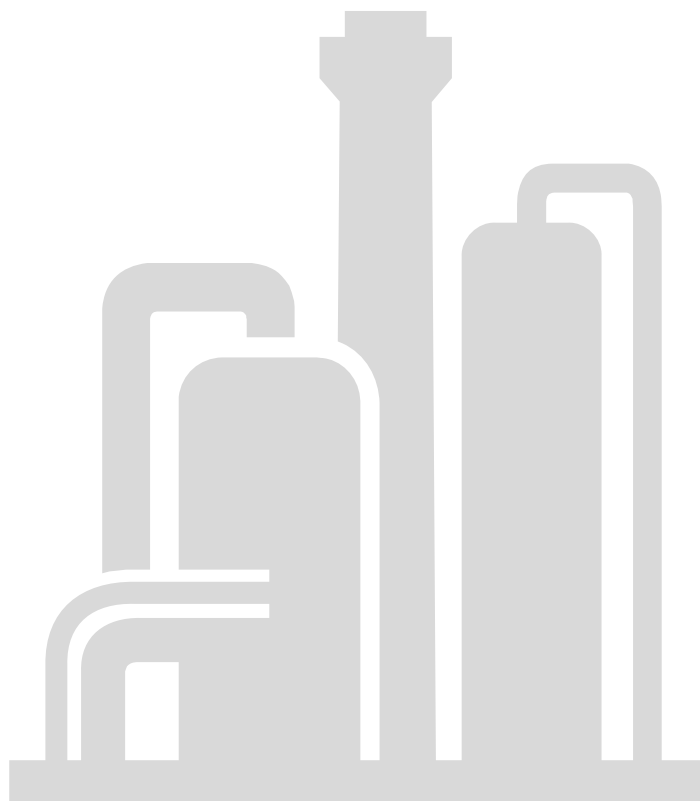
## *Future Outlook*

Slower production growth is expected due to falling oil prices. A worldwide cut in costs will also slow down exploration. Overall, Malaysia's longer term oil production outlook is not promising, because much of its growth potential has high breakeven costs like deepwater, EOR and marginal fields. Forecasted oil prices of \$USD55-65/bbl over the next 5 years will not adequately support these projects.

Malaysia's refining segment will also be adversely impacted by the falling oil prices. While new refining projects in Johor and Sabah promise to raise capacity, this longer term increase will be partly offset by market consolidation in the short-term. Market consolidation could entail a reduction of overall crude distillation capacity in view of strong market competition in South East Asia, especially from Singapore.

Subsidy reforms will also cause oil consumption to slow down over the next decade, with growth to average at approximately 2% per annum. A slower rate of growth is expected for domestic oil consumption due to a more subdued economic outlook for Malaysia, particularly in view of the weakening oil sector.

The year could see an increase in crude oil and other liquids production, with the start-up of gas projects like FLNG contributing significant volumes of condensate to the region's total liquids output.



## Contacts



### **Nurul A'in Abdul Latif**

Oil & Gas Leader  
PricewaterhouseCoopers (AF1146)

Tel: +603 2173 0935  
nurul.ain.abdul.latif@my.pwc.com



### **Soo Kwai Fong**

Senior Executive Director  
PricewaterhouseCoopers (AF1146)

Tel: +603 2173 0774  
kwai.fong.soo@my.pwc.com



### **Lavindran Sandragasu**

Senior Executive Director  
PricewaterhouseCoopers Taxation Services  
Sdn Bhd (464731-M)

Tel: +603 2173 1494  
lavindran.sandragasu@my.pwc.com



### **Matthew McKee**

Executive Director  
PwC Consulting Services (M)  
Sdn Bhd (1051603D)

Tel: +603 2173 0611  
matthew.mckee@my.pwc.com



### **Tengku Muhammad Taufik**

Executive Director  
PricewaterhouseCoopers Capital  
Sdn Bhd (676054-V)

Tel: +603 2173 0324  
taufik.aziz@my.pwc.com

## Sources

- PwC Publication: Opportunities in Adversity - A new dawn for oil and gas (2015)
- PwC Publication: Study on Talent Demand and Supply in the Oil & Gas Sector (2012)
- BMI: Q2 2015 Malaysia Oil & Gas Report (2015)
- CIMB Analyst Report: Oil Lang Syne (2014)
- Energy Information Administration Country Analysis: Malaysia (2015)
- Maybank Investment Bank Sector Research: Oil and Gas (2015)
- Malaysia Productivity Corporation: Reducing Unnecessary Regulatory Burdens on Business: Downstream Oil & Gas (2014)
- ISI Emerging Markets (<http://www.securities.com/>)
- Energy Information Administration (EIA) Statistics (2015)
- Energy Commission of Malaysia Statistics (2015)
- International Energy Agency (<http://www.iea.org/Sankey/>)
- Bank Negara Malaysia (<http://www.bnm.gov.my/>)
- Malaysian Investment Development Authority: Meet Malaysia: Investment Opportunities in Asia's Oil and Gas Hub (2013)
- Economic Transformation Programme – Performance Management Delivery Unit (PEMANDU)  
([http://etp.pemandu.gov.my/Oil,\\_Gas\\_and\\_Energy-@-Oil,\\_Gas\\_and\\_Energy.aspx](http://etp.pemandu.gov.my/Oil,_Gas_and_Energy-@-Oil,_Gas_and_Energy.aspx))
- Malaysian Petroleum Resources Corporation (MPRC)  
(<http://www.mprc.gov.my/our-businesses/pengerang-integrated-petroleum-complex-pipc>)

---

# Notes

---

# Notes





[www.pwc.com/my](http://www.pwc.com/my)



[twitter.com/PwC\\_Malaysia](https://twitter.com/PwC_Malaysia)



[youtube.com/pwcmalaysia](https://youtube.com/pwcmalaysia)



PwC Malaysia on AppStore



[linked.com/company/pwc-malaysia](https://linked.com/company/pwc-malaysia)



[instagram.com/pwc\\_malaysia](https://instagram.com/pwc_malaysia)



[facebook.com/pwcmsia](https://facebook.com/pwcmsia)

© 2015 PricewaterhouseCoopers. All rights reserved. "PricewaterhouseCoopers" and/or "PwC" refers to the individual members of the PricewaterhouseCoopers organisation in Malaysia, each of which is a separate and independent legal entity. Please see [www.pwc.com/structure](http://www.pwc.com/structure) for further details.

Publisher: PricewaterhouseCoopers Malaysia (AF1146) Level 15, 1 Sentral, Jalan Travers, Kuala Lumpur Sentral, P O Box 10192, 50706 Kuala Lumpur, Malaysia. Tel: +60 (3) 2173 1188  
Fax: +60 (3) 2173 1288 E-mail: [pwcmsia.info@my.pwc.com](mailto:pwcmsia.info@my.pwc.com) | Design and printing: PricewaterhouseCoopers. CS07735