

INDUSTRY OVERVIEW**The First Oil Well**

Malaysia's first oil well was discovered by Shell on Canada Hill in Miri, Sarawak in 1910. Shell's Miri No. 1 was spudded on 10 August in the same year, and began producing 83 barrels per day (bbls/d) in December 1910. Today the oil well, fondly known as the Grand Old Lady, is a state monument.

Although the Miri field ultimately produced approximately 80 million barrels of oil, pre-World War II production was limited. It reached 15,000 bbls/d in 1929 and then declined, as the oil fields were seriously damaged by scorched earth policies and bombings during the war.

There were no other drilling activities elsewhere in Borneo or Peninsular Malaya until the 1950s.

Petroleum activities in Borneo expanded markedly in 1960s with the discovery and development of offshore fields, and Shell initially was the major player, followed by Esso and they both dominated the upstream production, downstream refining and sales.

In the late 1960s, foreign petroleum companies also turned to offshore Peninsula Malaysia and then Esso and Conoco received concession for oil and gas off the east coast of the Peninsula.

By the time PETRONAS came into being, four of the nineteen oil fields in Malaysia that had been discovered were in production producing 90,000 to 99,000 bbls/d.

The National Oil Company

Due to several powerful economic and political forces, coupled with growing economic nationalism in Malaysia culminating in the New Economic Policy (NEP), PETRONAS was incorporated in 1974 under the 1965 Companies Act.

PETRONAS reflected itself as a commercial enterprise with the goal of making a profit, taxed like any other major oil company and given unopposed control over the nation's petroleum resources.

PETRONAS received its power from the 1974 Petroleum Development Act, a piece of legislation that granted PETRONAS ownership and exclusive rights and powers over Malaysia's hydrocarbon resources and comes under direct purview of the Prime Minister.

Today, PETRONAS is one of the driving forces behind the Malaysian economy, and its importance as a source of government revenue has grown enormously ever since.

Malaysia Oil & Gas Reservoir

Malaysia's continental shelf is made up of six major sedimentary basins, geologically favourable conditions for the creation of hydrocarbons, which is petroleum and natural gas.

The six basins are grouped into three main regions:

- Peninsular Malaysia: Malay Basin in the offshore east covers more than 12,000 metres; and Penyu Basin in the south covers an area of 5,000 square kilometers.
- Sarawak: Sarawak Basin with seven geological provinces.
- Sabah: Sabah Basin, Northeast Sabah Basin and Southeast Sabah Basin, a prolific deepwater discoveries.

Malaysia Oil & Gas Exploration

Malaysia has approximately 615,100 square kilometers of acreages available for O&G explorations.

Of these, 218,678 square kilometers or 36% of the total acreages are currently covered by Production Sharing Contract (PSC).

Exploration drilling by the PSCs has resulted in the discovery of 163 oil fields and 216 gas fields.

Many significant discoveries were made in shelfal shallow waters as well as in deepwater environments.

The first deepwater oil discoveries was by Murphy Oil in 2002, the 440 million barrels Kikeh area, lies in around 1,340 metres in offshore Sabah.

In addition to the deepwater blocks in offshore Sabah, there is also no shortage of promising marginal fields for development as PETRONAS is also stepping up efforts to pursue necessary cost-efficient solutions for small field development.

Although the total number of wells drilled per annum decreased during 1990s, the proportion of wells drilled by PETRONAS Carigali (PCSB) increased, attributed to the desire of PETRONAS to prove up reserve.

In terms of licensing, over 50 new licenses have been signed since 1996, as a number of new companies have entered the Malaysian upstream arena, which has increased the level of diversity of operatorship.

Malaysia Oil & Gas Activities

	ACTIVITIES	DESCRIPTION
UP-STREAM	FIELD EXPLORATION, DEVELOPMENT & PRODUCTION	<ul style="list-style-type: none"> All petroleum resources of Malaysia are regulated by Petroleum Management Unit, PETRONAS through the Petroleum Development Act 1995. PETRONAS enters into Production Sharing Contract (PSC) with other petroleum companies to explore and develop resources; there are about 70 PSC contractors in Malaysia including PETRONAS Carigali Sdn BHD (PCSB), Esso Production Malaysia, Shell Sabah Selatan, Lundin Malaysia, Sarawak Shell Berhad, Sante Fe Energy, Nippon Oil, Amareda Hess, Murphy Sarawak, Mobil, JAPEX, NORSE Hydro, Mitsubishi Corp, Petrofac, Newfields, Talisman, ConocoPhillips, are among the major players. <p><u>Method of investment:</u></p> <ul style="list-style-type: none"> These players normally require a massive investment for the development and production activities; and raising the capital can be a big challenge. As debt finance usually depends on guaranteed revenue, it is only considered as a funding option once reserves are proven and production has commenced. Therefore, equity finance is usually the most viable option of funding due to the inherent risks associated with drilling and exploration activities.

	ACTIVITIES	DESCRIPTION
MIDSTREAM	TRANSPORTATION (PIPELINES & TANKERS)	<ul style="list-style-type: none"> Activities range from the transportation and logistic of O&G; such as transporting oil and gas from the location of production to the location where it is needed and / or will be processed. PETRONAS is just another player similar to other oil companies operating in Malaysia, however most of the pipeline, transportation and other logistic assets are mainly controlled by PETRONAS. <p><u>Method of investment:</u></p> <ul style="list-style-type: none"> Mainly financed through debt and commercial/syndicated loans e.g. pipeline projects are typically too big to be developed or financed by one project sponsor or lender. Sometimes pipeline projects are considered to have national strategic importance, and therefore will often be promoted partly or wholly by a state-owned company e.g. PETRONAS, which will influence decision for the source of funding. However, this sector is also drawing private equity investors because mid-stream operations can generate steady, long-term cash flow from the contract agreement, which facilitates debt financing.
DOWNSTREAM	TERMINAL/ REGASIFICATION	<ul style="list-style-type: none"> Activities range from refining and processing to marketing and trading of end products such as gasoline, jet fuel and diesel. There are two major integrated petrochemical zones established in Kerteh Terengganu and Gebeng Pahang; and have attracted foreign investments mainly from the USA (Dow Chemical), Germany (BASF) and Japan (Idemitsu), complementing investments from PETRONAS. Besides PETRONAS, there are also other refineries operated by Shell and ExxonMobil. <p><u>Method of investment:</u></p> <ul style="list-style-type: none"> This sector has been dominated by oil majors both as project sponsors and as operator, therefore their experience, large balance sheets and access to markets allow them to underpin construction and off-take large financing undertakings. However, there are also new and significantly smaller entrants which lack of track record and financial strength and face tremendous challenge in mobilizing financing.

Production Sharing Contract (PSC)

In the early 1970s, several countries were moving from the traditional concessions approach to PSCs, including Abu Dhabi, Egypt and perhaps most importantly, neighbouring Indonesia.

In the formative years of PETRONAS, there was close association between heads of PETRONAS and the Indonesian oil company, Pertamina and it offered technical assistance and other counsel to Kuala Lumpur.

Given these conditions and advice, PSC appeared considerably more favourable to the Malaysian leadership than the concession system. The first PSC was signed with Shell in 1976.

PETRONAS as a regulator award PSC to a number of international O&G companies, including to its wholly owned E&P subsidiary, PETRONAS Carigali Sdn Bhd (PCSB).

Under current PSC terms, PCSB has the right to carry interest in any exploration block, though the interest is negotiable but usually varies between 15% and 25%. Once a commercial discovery has been made PCSB becomes a working partner in any development.

PSC obligates the PSC contractors to provide all the financing and bear all the risk of exploration, development and production activities in exchange for a share of the total production.

Currently there are 4 types of PSC exploration,

- 1) Revenue-Over-Cost PSC for water depth below 200 metre,
- 2) Deepwater PSC for water depth between 200 metre to 1000 metre,
- 3) Ultra Deepwater PSC for water depth beyond 1000 metre, and
- 4) High Pressure High Temperature PSC.

To date, there are more than 70 PSCs with various companies participating in the exploration, development and production of O&G in Malaysia.

However, PCSB, Shell and ExxonMobil dominate the Malaysian E&P with 43%, 22% and 16% respectively, thus making up more than 80% of Malaysia total production.

PETRONAS New Exploration Strategy

PETRONAS change in strategy will benefit local players across the value chains

PETRONAS is realigning its strategy to trim overseas exploration and ramp up domestic reserves via more exploration, development and production work to cater for the growing local demand.

The domestic oil exploration would see PETRONAS drill deeper for oil and gas in the shallow waters of Malaysia, increase the amount of oil it pumps out from existing wells in the country, focus more at niche technology as well as reviewing new partners.

Most of PETRONAS' international exploration activities abroad have not matched expectations and PETRONAS has decided to focus more on Malaysia in order to have a more balanced investment portfolio between foreign and domestic portion.

In addition to that, PETRONAS will emphasize greatly on domestic deepwater and unconventional plays to arrest domestic production declining.

By diverting investment from international activities towards domestic exploration and production, PETRONAS could help to prove up additional oil and gas reserve, which has been decreasing steadily.

Cabotage Policy & Local Content's impact on OSV'S

On 1 January 1980, the Malaysian Government introduced the country's cabotage policy, which reserves domestic shipping to Malaysian registered vessels; this also applies to O&G OSB vessels since all of Malaysia's O&G fields are located offshore of Malaysian territorial waters or in the exclusive economic zone.

The rule was formed to award domestic oil services contracts to domestic players where local crews and local-flagged vessels would be given priority in the contracts over the foreign vessels.

On the local content, PETRONAS requires the PSC contractors to comply with the national objective of maximizing Malaysian participation in the use of local equipment, facilities, goods, materials, supplies and services in petroleum operations.

Priority must be given to Malaysian registered companies in their procurement of supplies and services in any tender exercise; a contract will be awarded to a foreign registered only if there are no Malaysian registered available to perform the required services.

Therefore, companies that wish to participate in any business or service to supply equipment, facilities and services to the upstream O&G activities must obtain a license from PETRONAS and fulfill all the requirements specified.

The above regulations are meant to encourage domestic participation as well as to protect the interests of domestic players.

UP-STREAM ACTIVITIES DURING LIFE CYCLE

	Exploration	Field Development	Production	Abandonment
Production Facilities & Structure e.g. rigs/platforms/jackets etc.	√	√	√	n/a
Subsea system	√	√	√	√
Offshore Support Vessels	√	√	√	√
Fabricators	Involve in fabricating the structure as per field requirement			

Oil & Gas Project Value Chains : EPCICO

After a project award, the project manager (i.e. field operator, facilities owner, fabricators) develops a project costing and project execution plan that includes plans for risk management, resource management, schedule management, procurement and subcontracting, scope management and quality management

Engineering	Procurement	Construction	Installation	Commissioning	Operations
Develop engineering design based on the specifications and requirements of the clients.	After the requisition details are produced, procurement and sub-contracting/sourcing activities take place; follows by the delivery of material procured.	Construction and fabrication activities commence such as welding, painting, nondestructive testing, hydro-testing, cleaning and flushing, heat treatment, reinstatement test and installation.	Load out and installation of the facility structures and equipments at its intended location, together with integration to other systems and facilities (if any).	Activities such as hook-up of the facilities either onshore or offshore; to verify the functionality of the equipment and to ensure it operates in accordance with project requirements.	Once all systems are commissioned and accepted by the owner/operator, the equipment is ready to operate for production.

Responsibility					
Field Operator/Facilities Owner, Fabricator			Field Operator/Facilities Owner		
Timeframe					
24-48 months depending on the type of facilities, project requirements and complexity		6-12 months		15-25 years	
Offshore Support Vessel Requirements					
n/a	n/a	n/a	Yes	Yes	Yes

	Domestics	International	Activities	FI
Field Operators	PETRONAS and PSC Contractors	Block/Field Operators	<ul style="list-style-type: none"> Field exploration, development and production activities Lease/own facilities 	√
Facilities Owner	MISC, M3nergy, Bumi Armada, Tanjung Offshore	SBM Offshore, Modec, Bluewater, Aker Floating Solution, BW Offshore	<ul style="list-style-type: none"> Acquire tanker for conversion if the client require Floating Production Storage and Offloading (FPSO/FSO) ship shape solution Payment to fabricators to construct the facilities 	√
Fabricators	MMHE, Ramunia, Boustead, Sime, Kencana, Oilfab	Keppel, CNOOC, SembCorp, J.Ray McDermott, Hyundai, SHI,	<ul style="list-style-type: none"> Receive award for facilities fabrication, conversion or refurbishment Procure materials and sub-contracting works 	√
Support Service Providers	SapuraCrest, Petra Perdana, Alam Maritim, Tanjung Offshore, Jasa Merin, Sealink	CH Offshore, Swiber, Ezion, Ezra, Great Offshore, Jaya, Mermaid Maritime, Otto Marine	<ul style="list-style-type: none"> Charter out support services to field operators and increase asset/fleet base to satisfy new charter contracts via asset acquisition or new building 	√

Production Facilities

Malaysia has the third largest proven oil reserve in the region and there are 6 out of 7 major deepwater projects that will require floating production facilities to be installed over the next 3-5 years.

In addition, there are 16 additional deepwater O&G fields that have been discovered in deepwater offshore Malaysia that have the potential for floating production facilities.

There have been a further 2 discoveries in Brunei operated by Shell, that could also potentially contribute to demand.

Heavy Engineering/Fabrication Yard

The focus on developing deepwater fields in Malaysian waters, would increase demand for Malaysian maintenance and fabrication works.

PETRONAS expects to construct 60-65 new platforms over the period of 2010-15, driven mainly by new deepwater fields coming on stream.

The licensed domestic players are well positioned to capitalize on PETRONAS' future projects to develop deepwater fields in Malaysia, but not all of them have the experience and /or the capability to carry out more complex and sophisticated projects; to date only MMHE has the deepwater experience through FPSO Kikeh Project, Kikeh SPAR, and the ongoing Gumusut-Kakap Semi-Sub Project.

OSV Services

PETRONAS forecasted to require 60-65 support vessels starting in 2011-2012 and its expectation of building 60-65 new O&G platforms in Malaysia in the next 5 years would create an upside in demand for support services.

Industry analysts foresee a favourable demand dynamics for the ASEAN region and the charter rates expected to improve as PETRONAS plans to accelerate its E&P programmes in deepwater after being deferred during the recent financial crisis.

For support vessels services, PETRONAS and PSC contractors favour new and sophisticated vessels in order to minimize downtime; thus domestic players are expected to benefit from the scenario.

In addition, local support vessel players expect a bullish market outlook and stronger rates in the region on the back of strong enquiries from India, Thailand and Australia.

UP-STREAM PROJECTS

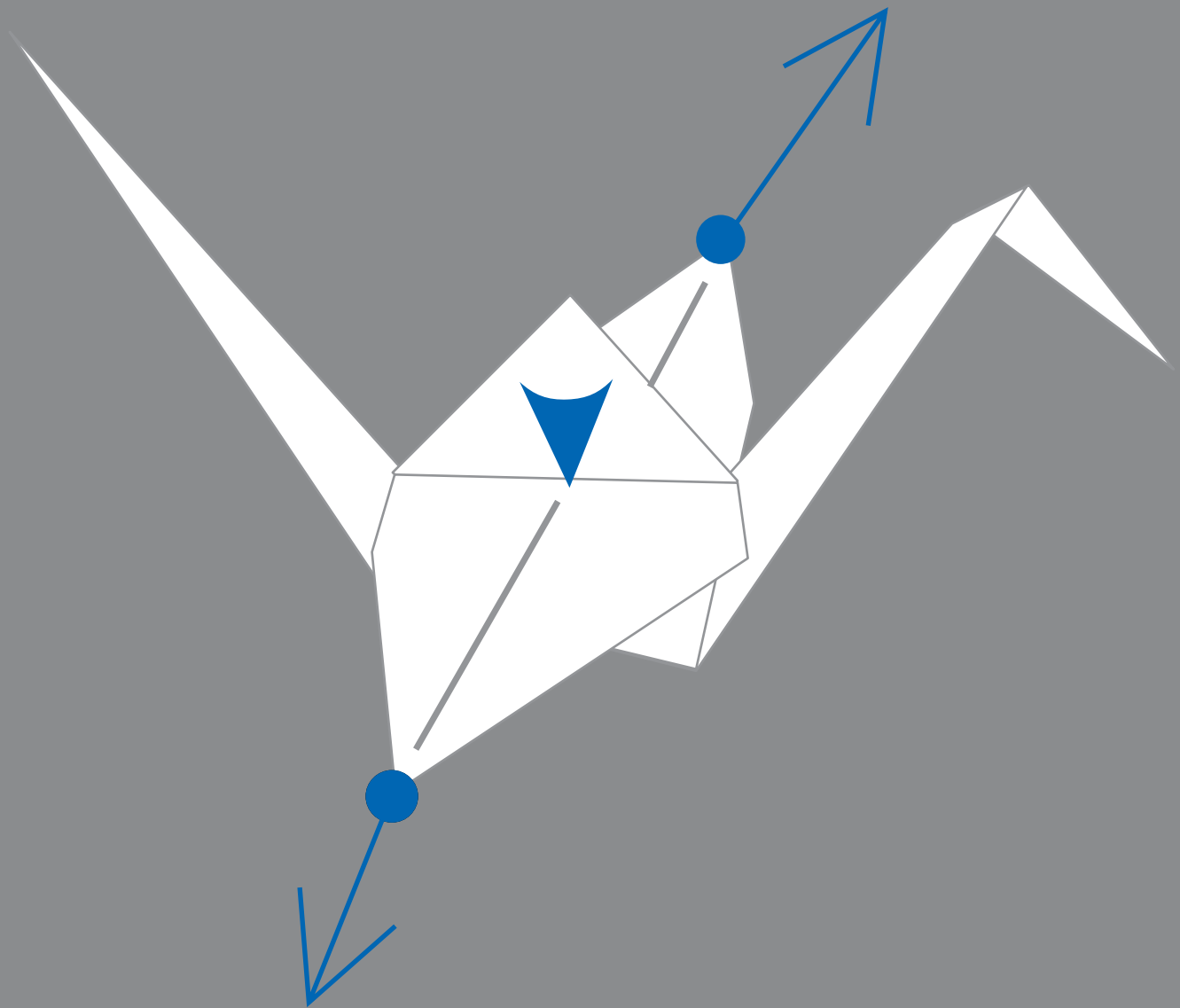
Project / Oil and Gas company	Scope of Work	Location
Petronas Carigali's North Malay gas project- fast track basis	Central processing platform, 8 well head platform, 200km pipeline	North Malay Basin
ExxonMobil enhanced oil recovery	Central processing platform, gas compression system, process equipment, MPOU, tender rigs and offshore vessels.	Rejuvenation of Seligi, Guntong, Tapis, Semangkok, Irong Barat, Tabu and palas oilfields of Peninsular, Sabah and Sarawak
Shell Malaysia	Central processing platform and platform upgrades	Baram Delta, off Sarawak and North Sabah
Shell deepwater Malikai project	Fabrication of tension leg platform and installation of pipelines	Malikai field, Sabah
Murphy oil	Floating liquefied natural gas carrier	Rotan, off Sabah
Petronas Carigali	3 Central processing platforms	Dulang , Semarang, Bokor
Petronas umbrella tender for shallow water jobs	Topside maintenance and marine spread	Peninsula, Sabah & Sarawak
ExxonMobil enhanced oil recovery	Fabrication of platform, topsides, processing units for shallow water fields	Rejuvenation of Teluk gas development off Terengganu
Marine Charters	AHTS charters for shallow waters	Offshore Malaysia

CONCLUSION

Malaysia's oil, gas & energy sector is expected to register an annual growth of 5% from 2010 to 2020; this should present huge potentials and create favourable environment to the industry player. With the cabotage policy in place, local OSV players are set to enjoy stable demand and new flow of contracts award.

Moving forward, the domestic credit outlook expected to be stable in light of committed investment by PETRONAS and oil majors in the domestic exploration activity. This definitely would also create significant upside for the investors as well as demand for oilfield support services.

Conducive fund-raising conditions and a brighter economic outlook will encourage industry players to seek additional funding to fuel their growths; the current condition has a favourable view on support services for oil and gas sector, the upside remains on the companies operating predominantly in Malaysia and set to enjoy stable demand as PETRONAS and PSC contractors has reaffirmed their upstream commitments up to 2012.



POSITION

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