Malaysia & Brunei
Malaysia is the world's third-largest LNG exporter, after Qatar and Australia and the second largest oil and natural gas producer in Southeast Asia.

Oil and gas products contribute towards 25-30% of exports and more than 25% of government revenue.

Petroleum Nasional Berhad (Petronas), holds exclusive ownership rights to all oil and gas exploration and production projects in Malaysia, and is responsible for all licensing procedures.

Most oil and natural gas production comes from production-sharing agreements operated by foreign companies in conjunction with Petronas. 60% of oil & gas recovery in Malaysia comes from Sabah and Sarawak. More than half of Malaysian oil production currently comes from the Tapis Oil Field in the offshore Malay basin.

Malaysian oil reserves are very high quality, light and sweet.
**OIL & GAS LANDSCAPE**

**Quick Facts**

**Oil & Gas Industry:**
- 104 PSCs and 5 RSCs
- 85 producing oil fields
- 60 producing gas fields
- 603kboed liquid production
- 6,120 mmscfd natural gas production
- 8,467 km pipeline
- 22.6 bil boe discovered resources
- 24 production enhancement projects underway in Malaysia
- 349 platforms
- 39 rigs
- 7 FPSO, 8FSO, 1FPS, 1 FSU, 2 MOPU, 1 FLNG

Courtesy of Petronas, MPRC
OIL & GAS ECOSYSTEM

Major Local Suppliers

**Sapura Energy** is an integrated global O&G services with full spectrum of capabilities across the O&G value chain.

**Serba Dinamik** provides O&M, engineering solutions and power generation industries.

**Wah Seong** is an integrated energy infrastructure, specialized pipe coating services and EPCC specialities.

**Pantech** trades and manufactures steel pipes, valves and fittings largely for the oil & gas onshore/offshore industry.

**Dialog** is an integrated specialist technical services provider and petrochemical industry with long-term recurring income from tank terminal business.

**Bumi Armada** specialises in FPSO, offshore support vessels and transport and installation services. The 5th largest FPSO player in the world.

Source: Petronas annual report 2017
PETRONAS OPPORTUNITIES IN UPSTREAM

- Modest outlook can be expected for Floaters, as fewer marginal fields and deep water project developments are to be awarded in current market conditions.
- New technology and lower cost make this a more attractive development option.
- The majority of new Development projects may opt for lightweight structures or minimum facilities platform design (<1k MT), mainly due to cost effectiveness.
- Effective D&A strategies have certainly become a priority for many oil and gas companies in the region. A well-planned journey through late-life operations of mature fields presents opportunities to capture further value from assets.

PETRONAS INITIATIVES: CORAL 2.0 – Cost Reduction Alliance is driving Upstream Malaysia cost competitiveness, efficiency, enhancement and innovation.
26 operators collaboratively driving cost optimization through Coral 2.0
Cost saving achievement recorded in 2017, RM13.6bn

1. Low cost drilling
2. Late field life optimization
3. Cost benchmarking
4. Joint sourcing of materials
5. Joint Sourcing of Services
6. Technical Standards
7. Warehouse centralisation
8. Technology Replication Thrust
9. Re-negotiations current contracts
10. Surplus materials management
11. Logistic control tower
PETRONAS OPPORTUNITIES IN DOWNSTREAM

- PETRONAS RAPID & Pengerang projects are both located in Johor. Three major on-going projects there; Refinery & Petrochemical integrated, Tank Terminals and LNG Regasification plants.
- The mega project is expected to turn Pengerang into a boom town for global petroleum investors, rivalling neighbouring Singapore as Asia’s most vibrant petrochemical hub, and creating over 40,000 jobs for locals from construction to downstream.

PETRONAS RAPID consists of:
- Refinery (300k barrel-per-day refining capacity)
- Naphtha cracker
- 20 to 24 petrochemical plants

The complex is supported by associated facilities:
- LNG regasification plant
- Power generation plant
- Air separation unit
- Dedicated storage terminal
- Raw water supply projects

Austrade works with EPC companies and contractors for potential supplies and services required in the operations, repair and maintenance of the plants.
A PETRONAS license is required to participate in tenders for upstream, downstream and maritime sectors in Malaysia.

Scopes of work are defined in PETRONAS’ Standardized Work & Equipment Categories (SWEC) which covers the product and service requirements of both the upstream and downstream sectors of the industry in Malaysia.

### Application Categories

<table>
<thead>
<tr>
<th>Category</th>
<th>Products/Services/Applicability</th>
</tr>
</thead>
<tbody>
<tr>
<td>License</td>
<td>Provides products and services to the upstream, downstream and maritime activities</td>
</tr>
<tr>
<td>Registration</td>
<td>Provide products and services for downstream and maritime activities only</td>
</tr>
</tbody>
</table>

### How can a Foreign Company apply for License/Registration?

**Option 1**

Diagram 1: Foreign company appoints local company as an exclusive agent

**Diagram 2: Foreign company forms a JV with local company by forming a new JV company**
**BRUNEI : OIL AND GAS**

**Petroleum Brunei (PB) – Brunei’s National Petroleum company**

- Government owned. PB regulates the non-BSP oil exploration blocks.
- PB manages some of Brunei’s commercial interests including:
  - **Upstream** – A subsidiary focused on exploration both inside and outside of Brunei includes Canada, Myanmar and Sarawak.
  - **Midstream** – 25 per cent stake in methanol plant, 50 per cent stake in methanol tanker.
  - **Downstream** – Focused on marketing and trading.

**Brunei Shell Petroleum (BSP)**

- BSP, a joint venture between Brunei Government and Shell, currently employs 4,000.
- Shell Deepwater Borneo is entirely owned by Shell and is a non-operating partner, TOTAL
- BSP’s oil exploration blocks are regulated by the **Ministry of Energy** (Energy and Manpower) and Industry.
- BSP produce 300,000 BPD. Production is roughly half oil and half gas, with gas production increasing. Export mainly to **Japan, Korea and increasingly India**.
- BSP’s current refinery operations will be transferred (estimated in 2020) to Hengyi – (the **Chinese investor** that is the major contractor for developing Pulau Muara Besar). Hengyi will be responsible for providing all of Brunei’s domestic petroleum requirements (including for Royal Brunei Airlines).
OPPORTUNITIES
MALAYSIA & BRUNEI
OPPORTUNITIES IN MALAYSIA

IMMEDIATE

• Data analytical and predictive maintenance
• Facilities rejuvenation for life extension
• Civil inspection, maintenance and repair
• Remote Monitoring
• Sand Management
• Flow assurance

MEDIUM

• Topside removal technologies
• Marginal field structures, especially self installed and relocatable structures
• Automated / Directional drilling
• Life Prediction and Asset Management
• Robotic solutions

LONG-TERM

• Future Field
• Renewable energy ie wind turbine and floating solar for offshore
• Partnerships for under-explored deep-water potential
• Mini-FLNG for deep-water and small remote assets
• CO2 waste monetization
Brunei acknowledge that they need to look at downstream side, especially LNG. PB trades a limited amount of crude from BSP on behalf of the Government. Currently there are ongoing projects for a Urea and Ammonia plant.

But Brunei does not have the technology to move further into the downstream market. PB is looking for strategic partners (to provide both expertise and FDI).

PB is looking for investment opportunities (including in Australia) in the upstream industry and potentially the entire value stream.

Opportunities exist for Australians in:
- Decommissioning & Restoration
- Drilling and Related Specialist Services
- Wellhead Supply and Installation Services
- Wireline services
- Instrumentation, Analysers & Electrical
- Engineering maintenance
- Local development – workforce capacity building
- Exploration
- Geophysical surveying and mapping services
- Operating oil and gas field properties
- Site preparation
Austrade Activities: Connecting Australian Capability with Opportunities

Workforce Skills & Training Forum

Quarterly Australia-Malaysia Working Group (OzMOG) Meeting

OTC Australian Technical Forum

RAPID Project EPCC Contractors Rndtble
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Vietnam
• Market Overview
• Vietnam Oil & Gas Value Chain
• Industry Overview on:
  ➢ Exploration and Production
  ➢ Refinery and Petrochemical
  ➢ Gas industry
  ➢ Oil and Gas Technical Services
• Opportunities
MARKET OVERVIEW

- National O&G company - Petrovietnam plays critical role
- Crude oil and gas reserves on decline
- Increasing refinery capacity
- Increasing demand for LNG import
- Accelerating equitisation of downstream sector (BSR, PV Oil, PV Gas, PV Power)
- Sao Vang – Dai Nguyet Block 05-1B and 1C agreement signed
- Territorial issues affecting exploration activities
Key facts:

• Reserves: 4.4 bbl of oil, 669.4 bcm of natural gas
• Crude Oil Production: 13.2Mil ton (est 2018)
• Gas production: 9.6 bcm (est 2018)
• Refinery and Petrochemical industry: 2 major refineries, 2 fertilizer plants
• Power industry: 8 power plants, 4,000MW, 13% of country generation
• Oil and Gas services: Viet sopetro, PTSC, PV Trans, PVD, PVI…
• Key players: PetroVietnam and International O&Gs
PETROVIETNAM STRUCTURE

PVN

- Oil Exploration & Production
  - PVEP
    - Vietsopetro
    - Rusvietpetro
    - Gazpromviet

- Gas Industry
  - PVGas

- Power Generation
  - PVPower

- Refining & Petrochemical
  - BSR
    - PVCFC
    - PVFCCo
    - PVTex
    - NSRP
    - LSP

- Professional & Technical Services
  - PVOil
    - PVDrilling
    - PVC
    - PTSC
    - PVTrans
    - Others...
More than 60 valid petroleum contracts

Source: Petrovietnam
Reefinery:

• Dung Quat Refinery: capacity of 6.5 million tons of crude/year, a proposal to expand to 7.2 million tons of crude/year under approval process.

• Nghi Son Refinery: USD9 Bil, 9.6 Mil tons of crude oil capacity is the largest refinery project in Vietnam to start commercial production in Nov 2018

• Long Son Refinery: USD5.4Bil project SCG target to operate in 2023

Fertilizer & Petrochemical

• Phu My Fertilizer Plant: 800,000 tons/year

• Ca Mau Fertilizer Plant: 800,000 tons/year

• Dung Quat Polypropylene: 150,000 tons/year.
Current Gas pipeline systems bcm/year:

- Cuu Long Basin: 2 bcm
- Nam Con Son: 7 bcm
- Ca Mau – PM3: 2 bcm
- Phu My – Nhon Trach: 2 bcm
- Phu My – My Xuan – Go Dau: 1 bcm
- Ham Rong – Thai Binh: 0.5 bcm
- Nam Con Son 2 (phase 1): 2.5 bcm

Future key projects:

- Blue Whale gas field & pipeline
- B-Block gas field & pipeline
- Nam Con Son 2 pipeline

Source: Petrovietnam
OIL AND GAS TECHNICAL SERVICES OVERVIEW

G&G studies, FPSO, FSO supply

Crude oil & petroleum products trading

Logistics & technical support

Materials & equipment's trading

Operation & maintenance

Transportation, storage, distribution of petroleum products

Designs, constructions, installation

Materials & equipment's trading
<table>
<thead>
<tr>
<th>OPPORTUNITIES</th>
<th>EXPLORATION AND PRODUCTION</th>
<th>GAS AND INFRASTRUCTURE</th>
<th>REFINERY AND PETROCHEMICAL</th>
<th>TECHNICAL SERVICES</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXPLORATION AND PRODUCTION</td>
<td>Investment in exploration activities</td>
<td>Financing</td>
<td>Investment equity</td>
<td>Distribution of petroleum products</td>
</tr>
<tr>
<td>GAS AND INFRASTRUCTURE</td>
<td>Partnership with PVN or international O&amp;G companies</td>
<td>Equipment and technology</td>
<td>Financing</td>
<td>Equipment and technology to improve drilling &amp; well services</td>
</tr>
<tr>
<td>REFINERY AND PETROCHEMICAL</td>
<td>Consultation services</td>
<td>Equipment and technology</td>
<td>FPSO, FSO supply Logistics &amp; technical support Designs, constructions, installation</td>
<td></td>
</tr>
<tr>
<td>TECHNICAL SERVICES</td>
<td>Investment equity</td>
<td></td>
<td></td>
<td>Transportation, storage</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Finance - Insurance Service</td>
</tr>
</tbody>
</table>
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Philippines
PHILIPPINES

• Located on the Pacific Ring of Fire endowed with abundant natural resources

• Land area
  › 300,000 square km; over 7,000 islands
  › Population: 105 million; 8th most populated country in Asia and 12th in the world

• Economy (2017)
  › GDP: US$313.6 billion (6.7% GDP growth)
  › GDP per cap: US$2,989

• Services and manufacturing

• Remittances from overseas Filipinos and business process outsourcing
• Resources
  › 16 sedimentary basins
  › Untapped hydrocarbon deposits USD26.3 trillion
  › The West Philippine Sea:
    – 11 barrels of oil
    – 190 trillion feet of natural gas
  › Reed Bank 21% more gas reserves than Malampaya gas field is still untapped
  › Malampaya gas filed with 2.7 trillion cubic feet to be exhausted by 2024.
• Project proponent: Philippine National Oil Company (PNOC)
  › 3000 metric tons per annum or 3000 megawatts
  › Phased-development
  › FSRU subject to land-based terminal
  › Asian Development Bank as the transaction advisor
  › Target construction: 2019
  › Target completion: 2022
OPPORTUNITIES

INTEGRATED LNG HUB TERMINAL

- Australian subcontractors
  › O&M
  › Design and LNG tanks
  › Jetty consultancy and construction
  › Process engineering
  › Pipeline construction
  › Shipping services
  › LNG supply

14 PETROLEUM BLOCKS

- Geophysical and seismic services and tools
  › Instruments
  › Data IT application
  › Drilling equipment
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Myanmar
MYANMAR

- Strategic location in Asia
- Land area
  › 652,290 square km
- Population
  › 52 million
- Ethnic diversity
- Economy (2018 estimates)
  › GDP: US$70.7 billion
  › GDP per cap: US$1,338.5
  › Inflation: 5.5%

Data: DFAT Country fact sheet, World Bank, ADB
Map: Myanmar Information Management Unit
• Ministry of Electricity and Energy (MoEE)
  › Department of Electric Power
  › Department of Hydropower Implementation
  › Hydropower Generation Enterprise
  › Department of Hydropower Planning
  › Yangon City Electricity Supply Board
  › Electricity Supply Enterprise
  › Myanmar Electric Power Enterprise
  › Myanmar Oil and Gas Enterprise (MOGE)
MOGE

- Primary oil and gas operator, service provider and O&G regulator
- Oversees 24 offshore blocks
- Myanmar Petrochemical Enterprise (MPE)
- Myanmar Petroleum Products Enterprise (MPPE)
O&G UPDATES AND OPPORTUNITIES

• Planning another oil & gas bidding round
• Offshore supply bases
• Commence seismic surveys and exploratory drilling
• Infrastructure
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Thailand
THAILAND

• Oil & Gas activities appears stagnant, it is not all so. Three key areas of opportunity exist:
  a) Decommissioning unviable infrastructure
  b) Expansion of refining capacity & diesel upgrade to Euro5 standard (reduction of sulphur and separation infrastructure for different grades)
  c) Continued development of gas infrastructure - LNG receiving terminal and regasification facilities.

• Major projects:
  o Natural gas transmission pipeline no.5
  o Onshore natural gas pipeline from natural gas compressor station Ratchaburi-Wangnoi no.6 (RA#6) to Ratchaburi province by PTT
  o New LNG Receiving Terminal no. 2 at Rayong by PTT
  o Floating Storage Regasification Unit (FRSU) projects in Upper part of the Gulf of Thailand studied by EGAT, to replace gas from Myanmar
OTHER KEY PROJECTS - THAILAND

• PTT’s 5 years investment (2017-2021)
  › Increase number of gas station 800 stations to 2,500 stations
  › Employ digital and innovation technology into the process

• IRPC
  › Construction of Aromatic 1.3MT/year, total value USD 1,100M – 5 years. Now under FEED which will be completed in the next 1-2 months.
  › Employ digital and innovation technology into the process
  › Training and Human development

• SPRC
  › Increase capacity from 165,000 to 175,000 Barrel/day by 2019, value at 80 million baht.

• Chevron will expand Caltex gas station by 50 stations every year for the next 4 years, currently at 375 stations.
• Supplying in the value chain of upgrading facility & pipelines to attain Euro5 standard, LNG receiving terminal construction, and cost saving technology for both upstream and downstream.

• Austrade is able to connect you with oil and gas companies, EPC companies, major active players in the industry.

• Australia could **partner with existing consortium** to increase strong credentials and financial strength as most of the LNG and recent gas pipeline projects have high investment.

• **Decommissioning**
  › In the short term this could mean working as a consultant to develop technical decommissioning plans for upstream operators;
  › For medium term, as an onshore dismantling/ decommissioning company, which Thailand does not currently have.
  › A unique characteristic and issue within the production in the Gulf of Thailand is Mercury contamination
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