A Perfect Time to Benefit from Malaysia’s Petrochemical Infrastructure

Through the harnessing of its oil and gas reserves and the forging of smart partnerships with some of the world’s largest petroleum companies, Malaysia has established the ideal infrastructure to support a vibrant petrochemical industry.

The presence of petroleum giants such as Shell and ExxonMobil for over 100 years demonstrates their long-term confident in Malaysia’s oil and gas industry. Through efforts spearheaded by the government and the country’s national oil company, Petroleum Nasional Berhad (PETRONAS), Malaysia has also attracted investors and business partner among petrochemical multinationals such as Dow Chemicals, ConocoPhilips, Kaneka, Polystyrene, Toray, Dairen, Mitsui, BP, BASF, Idemitsu, Titan and Eastman Chemicals.

Today, investor benefit from the facilities that are already in place. Integrated petrochemical complexes offer centralised utilities, efficient storage services, and a comprehensive transportation network that help reduce capital and operation costs.

In addition, Malaysia provides a wide range of tax incentives to meet the varying needs of investor. Customised incentive package that cover tax and non-tax incentive are also available to key project.

The United States is the largest sources of investments in Malaysia’s petrochemical sector, followed by Japan, the United Kingdom, Germany and Taiwan.
Malaysia ...

- has the world’s 23rd largest crude oil reserves inclusive condensates (5.52 billion barrels)
- has the world’s 14th largest natural gas reserves (14.66 billion barrels)
- is the world’s largest production facility at a single location of liquefied natural gas

Location of Oil Refineries in Malaysia

<table>
<thead>
<tr>
<th>Oil Refineries</th>
<th>Location</th>
</tr>
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<tbody>
<tr>
<td>Petronas Penapisan (Terengganu) Sdn Bhd</td>
<td>Kertih, Terengganu</td>
</tr>
<tr>
<td>Petronas Penapisan (Melaka) Sdn Bhd</td>
<td>Tangga Batu, Melaka</td>
</tr>
<tr>
<td>Malaysia Refining Company Sdn Bhd</td>
<td>Tangga Batu, Melaka</td>
</tr>
<tr>
<td>Shell Refining Company (FOM) Bhd</td>
<td>Port Dickson, Negeri Sembilan</td>
</tr>
<tr>
<td>Esso (Malaysia) Bhd</td>
<td>Port Dickson, Negeri Sembilan</td>
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Above: Storage tanks in Kertih, Terengganu

Below: The Duyong Gas Complex off Terengganu

Top, facing page: A gas processing plant in Terengganu
To complement the existing gas reserve and to ensure further security of gas supply, Malaysia has forged partnerships with other ASEAN member for the supply of gas such as Vietnam, Indonesia and the Malaysia-Thailand Joint Development Area (JDA). In addition, gas supply will be further enhanced with the implementation of the ASEAN gas grid, a venture to make gas available to all the 10 ASEAN countries.

The availability of feedstock at competitive price has made Malaysia a viable petrochemical hub in the ASEAN region, attracting more than US$9 billion of the investments from leading petrochemical and chemical manufacturers.

The six gas processing plants located in Kertih, Terengganu - with a combined capacity of 2,000 million cubic feet (mmscf) of sales gas per day – ensure the industry an adequate supply of petrochemical feedstocks such as methane (sales gas), ethane, propane, butane and condensates. Meanwhile, Malaysia’s Peninsular Gas Utilisation (PGU) trans-peninsular gas transmission pipeline channels sales gas to industries around the country.

### Production of Petrochemical Feedstocks

<table>
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<tr>
<th>Petrochemical Products</th>
<th>Capacity (mtpa)</th>
<th>Company/Refinery</th>
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</table>
| Naphtha                | 2.4 million    | • Petronas Penapisan (Terengganu) Sdn Bhd  
|                        |               | • Petronas Penapisan (Melaka) Sdn Bhd     
|                        |               | • Malaysia Refinery Company Sdn Bhd       
|                        |               | • Shell Refinery Company (FOM) Bhd        
|                        |               | • Esso (Malaysia) Bhd                     |
| Methane (sales gas)    | 20.4 million   | • Petronas Gas Berhad                       
| Ethane                 |               | • Malaysia LNG Tiga Sdn Bhd                 |
| Propane                |               |                                               |
| Butane                 |               |                                               |
| Condensate             |               |                                               |
| Liquefied Petroleum Gas (LPG) | |                                               |
| Ethylene               | 1.63 million   | • Titan Petchem (M) Sdn Bhd                  
|                        |               | • Ethylene Malaysia Sdn Bhd                 
|                        |               | • Optimal Olefins (M) Sdn Bhd               |
| Propylene              | 854 thousand   | • Titan Petchem (M) Sdn Bhd                  
|                        |               | • MTBE (M) Sdn Bhd                          
|                        |               | • Optimal Olefins (M) Sdn Bhd               |
| Benzene, Toulene and Xylene (BTX) | 775 thousand | • Titan Petchem (M) Sdn Bhd                  
|                        |               | • Aromatics Malaysia Sdn Bhd                |
Kertih, Terengganu

Formerly a quiet fishing village, Kertih has now transformed into a petrochemical hub. It houses the Petronas Petrochemical Integrated Complex (PPIC) that links the entire range of the oil and gas value chain — beginning from upstream exploration and production to the final stage of petrochemical manufacturing.

Facilities & Infrastructure
- Gas processing plants
- Peninsular Gas Utilisation (PGU) project
- Centralised utility facilities
  - Supply of utilities such as power, industrial gases, water and steam
- Institut Teknologi Petroliam
  - Training centre
- Kertih Port
  - Centralised tankage facilities
  - Mainly bulk liquid port
- Kuantan Port
  - Centralised tankage facilities
  - Container and bulk liquid port
  - Railway linking Kertih, Gebeng and Kuantan Port

Petrochemical Plants in Kertih Producing:
- Paraxylene
- Benzene
- Ammonia
- Acetic Acid
- Ethylene
- Polyethylene
- Propylene
- Ethanolamines
- Ethoxylates
- Glycol Ethers
- Butanol
- Butyl Acetate
- Ethylene Oxide
- Ethylene Glycol
- Low Density Polyethylene
- Vinyl Chloride Monomer
- Polyvinyl Chloride
Gebeng, Pahang
Gebeng is another petrochemical hub for multinational players like BASF, Amoco, Kaneka, Eastman and Polyplastics. The petrochemical zone provides an integrated environment that meets the specific needs of the petrochemical industry.

Facilities & Infrastructure
- Peninsular Gas Utilisation (PGU) project
- Centralised utility facilities
  - Supply of utilities such as power, industrial gases, water and steam
- Kuantan Port
  - Centralised tankage facilities
  - Pipeline and piperack system connecting Gebeng to Kuantan Port
  - Container and bulk liquid port
  - Railway linking Kertih, Gebeng and Kuantan Port
- Environment Technology Park
  - Incorporating a training centre, a waste collection and processing centre as well as raw material management and storage facilities, maintenance and servicing facilities.
- East Coast Highway

Petrochemical Plants in Gebeng Producing:
- Acrylic Acid and Esters,
- Syngas
- Butyl Acrylate
- Oxo-alcohols
- Phthalic Anhydride and Plasticizers
- Butanediol
- Tetrahydrofuran
- Gamma-butyrolactone
- Polyester Copolymers
- Purified Terephthalic Acid
- Dispersion Polyvinyl Chloride
- Methyl Methacrylates Copolymers
- MTBE
- Propylene
- Polylactals
- Polypropylene
- Polyethylene Terephthalate (PBT)
Pasir Gudang-Tanjung Langsat, Johor

Pasir Gudang, located next to the Johor Port, is now an established industrial area. To cope with the needs of the growing petrochemical industry, the adjacent Tanjung Langsat site has been developed to enhance manufacturing capacity.

Facilities & Infrastructure
- Peninsular Gas Utilisation (PGU) project
- Tank farms are being developed for bulk storage of petrochemical liquid
- Johor Port
  - With a 1,000-metre berth and a hazardous cargo jetty
  - Three hazardous liquid bulk terminals to handle LPG, chemicals and petrochemicals
- Tanjong Pelepas Port, a world-class container port
- Tanjung Langsat Port
  - Located adjacent to the 4,000 acres of industrial land in Tanjung Langsat
  - Equipped with a twin-berth jetty consisting of outer (30,000 DWT) and inner (7,000 DWT) berths

Petrochemical Plants in Pasir Gudang-Tanjung Langsat
Producing:
- Ethylene
- Propylene
- BTX
- Polyethylene
- Polypropylene
- High Impact Polystyrene
- Ethylbenzene
- Styrene Monomer
- Expandable Polystyrene
- Ethylene Vinyl Acetate

Malaysia has a skilled and trainable workforce.
Bintulu, Sarawak

Home to several gas-based petrochemical plants, Bintulu is also the largest producer of liquefied natural gas (LNG) in Malaysia. There are three LNG plants with a combined capacity of 23.3 million tonnes a year. Presently, the complex is the world’s largest LNG production facility at a single location.

Facilities & Infrastructure
- Bintulu Port
- Bintulu Airport

Petrochemical Plants in Bintulu Producing:
- Ammonia
- Urea
- LNG
- Synthetic Gas Oil
- Synthetic Kerosene
- Synthetic Naphtha
- Synthetic Solvents
- Synthetic Detergent Feedstock
- Synthetic Paraffin Wax / Waxy Raffinate

Above: The Malaysian Liquefied Natural Gas plant in Bintulu, Sarawak
Below: A panoramic view of the Bintulu petrochemical operations
A corporate tax rate of 25% applies to both local and foreign-owned companies in Malaysia. A wide range of tax incentives is also available to these companies. These incentives are constantly reviewed by the government to ensure that companies in Malaysia maintain their competitive edge.

1. Incentives for Manufacturing Companies
   - Pioneer Status: Income tax exemption of 70% or 100% on the statutory income for five years; or
   - Investment Tax Allowance: Investment tax allowance of 60% or 100% on the qualifying capital expenditure for five years. The allowance can be utilised to offset against 70% or 100% of the statutory income.
   - Reinvestment Allowance: Reinvestment allowance of 60% for 15 years on the qualifying capital expenditure. The allowance can be offset against 70% or 100% of the statutory income.
   - Accelerated Capital Allowance: An accelerated capital allowance consisting of an initial allowance of 40% and an annual allowance of 20% is available for three years after the reinvestment allowance period.

2. Incentives for High Technology Companies
   - Pioneer Status with a tax exemption of 100% on the statutory income for five years; or
   - Investment Tax Allowance of 60% on the qualifying capital expenditure for five years which can be offset against 100% of the statutory income.

3. Incentives for Strategic Projects
   - Pioneer Status with a tax exemption of 100% on the statutory income for ten years; or
   - Investment Tax Allowance of 100% on the qualifying capital expenditure for five years which can be offset against 100% of the statutory income.

4. Pre-packaged Incentives
   Customised packages that cover tax and non-tax incentives.

5. Incentives to Strengthen Industrial Linkages

6. Incentives for R&D

7. General Incentives
   - Industrial Building Allowance
   - Infrastructure Allowance
   - Tariff Related Incentives
The Way Ahead

Challenges & Opportunities

With the full realisation of the ASEAN Free Trade Area (AFTA), in 2009 petrochemical manufacturers in Malaysia will benefit from a single market with a total population of 575 million, a combined GDP of US$1,282 billion and a total trade of US$1,404 billion.

There is a positive growth in ASEAN regional trade. Total exports to ASEAN increased by 10 per cent to US$48.91 billion in 2008. This is expected to receive a boost when manufacturers begin to take advantage of the wider regional business network.

Petrochemical manufacturers based in Malaysia will not only benefit from AFTA but also from the access to a much larger Asia Pacific market. For example, Malaysia’s total exports to China have increased from US$1.29 billion in 1995 to US$18.06 billion in 2008. Even more impressive is Malaysia’s export of petrochemical to China which has multiplied 26 times from US$43 million to US$1.15 billion within the same period.

With China and India being net importers of petrochemical products, especially fine chemicals and specialised products, petrochemical manufacturers can take advantage of Malaysia strategic location to open up new business opportunities.

Malaysia already has the infrastructure and systems in place for petrochemical manufacturers to compete favourably with regional players. The challenge now is to identify more value-added products, expand market segments, and develop effective marketing strategies. The Malaysian government, on its part, will implement measures to further enhance the business environment, infrastructure development, human resources support and the position of feedstock supply – the factors for a stable and conducive investment environment that ensures the further development of Malaysia’s petrochemical industry.

Malaysia’s Multimedia Super Corridor has resulted in a workforce competent in the K-economy.
Why Investors Choose **Malaysia**

- Strategic location
- Gateway to ASEAN and AFTA
- Economic stability
- Government’s commitment
- Rich reserves of natural gas
- Competitive source of raw materials
- World-class facilities
- Integrated infrastructure
- Skilled technical manpower
- Quality of life

Malaysia uses the latest digital and fibre optics technology to provide high quality telecommunication services at competitive prices.

Kuala Lumpur’s light rail transit provides a convenient mode of commuting.

Life is an adventure in Malaysia—a land of perpetual summer.
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