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**The outlook of Malaysian E&P Industry in the next century
in the next century**

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The Malaysian E&P industry started with the first commercial oil discovery in 1910 in Miri. Although oil and gas are now found in five of the seven Tertiary basins, commercial production takes place in only three basins, namely, Malay, Sarawak and NW Sabah basins. The country's total hydrocarbon reserves are estimated to be 4.3 billion barrels oil and 84 TCF gas. With current production rates of ca. 650,000 barrels/day oil and ca. 3 billion scf/day gas, the oil reserves will last another 18 years whereas the gas reserves will last another 40 years, unless additional significant reserves are found.

Although exploration drilling shows an increasing trend post-1985 PSC compared to the post-1976 PSC and earlier periods, new potentially commercial hydrocarbon reserves are discovered only with proven hydrocarbon provinces. The results indicated that within the proven hydrocarbon provinces (1) the established plays with the easy hydrocarbons have been found and remaining prospects associated with such plays are in general small, and (2) there is some considerable scope for additional gas reserves in these plays.

The long-term future of the E&P industry in Malaysia lies principally in the exploration for new oil and gas reserves in near-field areas and alternative deeper plays in proven hydrocarbon provinces, and in high risk, harsh deepwater frontier areas.

Four key factors, namely, fiscal regime, cost-efficiency, technology and human resources, determine the necessary environment required to foster a strong and healthy E&P industry in Malaysia.

The contractual and fiscal regimes in many countries still reflect the economic climate of the late 1970s and early 1980s. Since the economic environment for the world-wide E&P industry is now much harsher, better and more flexible contractual and fiscal terms are required to sustain a healthy E&P industry in Malaysia.

The industry today is faced with decreasing returns on investment. The main challenge will be to increase the margin between oil price and cost. Oil price is controlled by market perceptions and forces over which the industry in Malaysia has little or no control. However, the industry has control over its capital and operating costs. It must, therefore, reduce its cost base in order to maintain or even enhance margins.

Some of the key technologies that have great impact on the industry include 3D seismic which are being used increasingly in exploration, appraisal and development, and integrated basin modeling technology. These, together with advanced petrophysical techniques, and better reservoir modeling and simulation, allow the explorers and the petroleum engineers to recover

more reserves, increase production rates and reduce development costs. Deepwater exploration and development, although at the frontiers of technology, are technically viable but will require commensurate fiscal terms to ensure commercial viability of any discoveries. Technological innovations are required to drive down further the technical unit cost of deepwater exploration and development, making accessible potentially large hydrocarbon volumes in deepwater areas.

The industry requires high quality people with more experiences to meet the challenges ahead. There is a need to develop and nurture a workforce that is creative, effective, efficient and flexible. Part of the contribution of an international E&P industry to the economy of Malaysia is the development of a cadre of trained professional national staff, offering opportunities for selected staff to broaden their experience by working in different countries.

The future of the E&P industry in Malaysia in the 21st Century will likely continue to grow. The industry's success, however, will depend on how the PSC contractors, service contractors, PETRONAS and the Government work together as partners in the continuing search for and prudent development of the hydrocarbon resources. The challenge to the partnership is how to operate in cost-efficient, safe and environmentally friendly manner, using the most up-to-date technology, while ensuring adequate financial returns to shareholders and the nation.
