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E-mail: sec@iem.org.my Homepage: <http://www.iem.org.my>**Growing Demand for Natural Gas****By: Engr. Abd. Razak bin Abu Hurairah, MLEM, PEng**
(Chairman, Oil, Gas & Mining Technical Division)

Malaysia's natural gas production from the offshore oil and gas fields will last for another 34 years based on the known reserves and current demand. This period is about twice what we have for known oil reserves. Despite the efforts to explore for new discoveries to maintain the current oil and gas production levels, we have to be prudent in how we use our depleting resources.

Demand for natural gas continues to grow faster than oil in the energy mix of most countries due to the higher price of crude oil. Another reason for the high demand for natural gas is that it is more efficient and environmentally cleaner compared to the other fossil fuels. The trend is that steadily gas is developing as the fuel of choice.

One key factor for gas utilisation is how it is to be delivered to the end-users. The number of natural gas users will increase as the infrastructure develops. PETRONAS have been aggressive in the upstream gas exploration and production activities, are also developing the downstream infrastructure for utilising the gas.

Natural gas produced from facilities offshore Sabah and Sarawak are mainly piped to the onshore liquefied natural gas (LNG) plants in Bintulu where it is liquefied at sub-freezing temperature. The Bintulu LNG facility, which is majority owned by PETRONAS, achieved first LNG export in January 1983 and is also the world's largest at a single location. LNG from Bintulu is mostly exported to countries in the Far East using LNG ships owned and operated by MISC Bhd., who are the single largest owner and operator of LNG ships in the world.

Natural gas produced from the East Coast of Peninsular Malaysia are mainly for domestic use. The gas is processed at the Gas Processing Plants (GPP) in Paka, and transmitted via pipeline in the Peninsula Gas Utilisation (PGU) system. The PGU system has more than 1,700km of pipeline across the Malaysian Peninsula supplying gas to the power plants, petrochemicals and cogeneration/district cooling plants. Power plants are the largest users of natural gas consuming more than 60% of the gas from the PGU system.

Gas Malaysia have been playing a role in expanding gas utilisation to the other users such as the industrial, commercial, residential and transportation sectors. The natural gas pipeline network is connected to all the major industrial areas in Peninsular Malaysia, and this provides both economic and environmental benefits. Cogeneration brings about benefits to gas turbines and waste heat recovery systems using natural gas as the fuel source. Cogeneration system provides for better thermal efficiency as compared to the conventional systems. Thus, better and more economical use of natural gas will help to conserve this resource.

Without continuous further discoveries of new oil and gas fields, gas will certainly run out in the future. To conserve this resource, we have to utilise gas more efficiently, and also increase the energy mix of other fuels such as coal. As engineers, we have a role to play to balance between maintaining the nation's economic growth, conserving the environment and sustaining our natural resources. ■